

Environmental Science and Policy Committee

Meeting will be held at Council Chamber, Level 2, Philip Laing House, 144 Rattray Street, Dunedin



This meeting will be livestreamed to the [ORC Official YouTube Channel](#)

Members:

Cr Lloyd McCall (Co-Chair)
Mr Edward Ellison (Co-Chair)
Ms Karen Coutts
Cr Alexa Forbes
Cr Gary Kelliher
Cr Michael Laws
Cr Kevin Malcolm
Cr Tim Mepham
Cr Andrew Noone
Cr Gretchen Robertson
Cr Bryan Scott
Cr Alan Somerville
Cr Elliot Weir
Cr Kate Wilson

Senior Officer: Richard Saunders, Chief Executive

Meeting Support: Kylie Darragh, Governance Support Officer

13 December 2023 11:30 AM

Agenda Topic

Page

1. WELCOME

2. APOLOGIES

3. PUBLIC FORUM

At the time of printing no requests to speak had been received.

4. CONFIRMATION OF AGENDA

Note: Any additions must be approved by resolution with an explanation as to why they cannot be delayed until a future meeting.

5. DECLARATION OF INTERESTS

Members are reminded of the need to stand aside from decision-making when a conflict arises between their role as an elected representative and any private or other external interest they might have. [Councillor interests are published on the ORC website.](#)

6. PRESENTATIONS

At the time of printing no requests to present had been received.

7. CONFIRMATION OF MINUTES

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That the minutes of the Environmental Science and Policy Meeting of 11 October 2023 be received and confirmed as a true and accurate record.

7.1 [2023.10.11 Minutes of Environmental Science and Policy Committee Draft](#)

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8. OPEN ACTIONS FROM THE RESOLUTIONS OF THE COMMITTEE

There are currently no open actions for this committee.

9. MATTERS FOR CONSIDERATION

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9.1 [Otago Air Plan Issues and Options](#)

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9.1.1 [Air Plan Issues and Options Attachment](#)

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10. CLOSURE



Environmental Science and Policy Committee MINUTES

Minutes of an ordinary meeting of the Environmental Policy and Science Committee held in the Wānaka Lakes Centre, 89 Ardmore Street, Wānaka on Wednesday 11 October 2023, commencing at 1:00 PM.

PRESENT

Cr Lloyd McCall *(Chairperson)*
Mr Edward Ellison (online)
Cr Alexa Forbes
Cr Gary Kelliher
Cr Kevin Malcolm (online)
Cr Tim Mepham
Cr Andrew Noone
Cr Gretchen Robertson
Cr Bryan Scott
Cr Alan Somerville
Cr Elliot Weir (online)
Cr Kate Wilson

1. WELCOME

Chairperson Cr Lloyd McCall welcomed Councillors, Iwi Representative Mr Edward Ellison, members of the public and staff to the meeting at 1:00PM and said a karakia. Staff present included Richard Saunders, (Chief Executive), Nick Donnelly, online (GM Corporate Services), Anita Dawe (GM Policy and Science), Gavin Palmer (GM Operations), Amanda Vercoe (GM Governance, Culture and Customer), Tom Dyer (Manager, Science) Kate Pettit, online (Senior Advisor, Strategic Engagement) Kylie Darragh (Governance Support)

2. APOLOGIES

Resolution: Cr McCall Moved, Cr Noone Seconded:

That the apologies for Cr Weir, for lateness, are accepted. Apologies for Karen Coutts and Cr Michael Laws are accepted.

MOTION CARRIED

3. PUBLIC FORUM

Cr Wilson Moved, Cr Forbes Seconded:

That the time of Public Forum be extended to allow for speakers to have up to 15 minutes each

MOTION CARRIED

Mandy Bell and Cat Dillon spoke on Wai Wānaka and place-based research Te Taiao. There was an opportunity for questions and Chair Cr McCall thanked Mandy and Cat for attending.

Tom Kay and Chelsea McGaw - Forest and Bird (online) spoke on river behavior and nature-based decision making over hard engineering strategies. There was an opportunity for questions and Chair Cr McCall thanked Tom and Chelsea for attending and providing resources to the committee on their work.

Wānaka Catchment Group, Ayla Meikle, Chris Arbuckle, and Randall Aspinall spoke to the Committee on the freshwater farm improvement project they are working through. There was an opportunity for questions and Chair Cr McCall thanked the group for attending.

Michaela Blacklock and Matt Hollyer spoke on a proposed Wanaka/Queenstown conservation alliance. There was an opportunity for questions and Chair Cr McCall thanked Michaela and Matt for attending.

Paul Kavanagh presented on the Southern Lakes Sanctuary. There was an opportunity for questions and Chair Cr McCall thanked Paul for attending.

Nancy Latham spoke to the committee on Friends of Bullock Creek. There was an opportunity for questions and Chair Cr McCall thanked Nancy for attending.

On the conclusion of the Public Forum Chair Cr McCall moved for a short adjournment at 2:37PM until 2:55PM.

4. CONFIRMATION OF AGENDA

It was Moved by Cr Wilson, Seconded by Cr Noone:

That the agenda be confirmed as published.

MOTION CARRIED

5. DECLARATIONS OF INTERESTS

Councillors were reminded by Chair Cr McCall to consider their conflicts of interest if any arise during the meeting.

6. PRESENTATION

New and Emerging Technology - Eve Bruhns (Environmental Monitoring Manager) & Nick Boyens (Environmental Monitoring Network Lead) presented for 30 Minutes.

Eve discussed the State of Environment monitoring which includes data collection across water quantity, water quality, air quality, biomonitoring, and biodiversity. Data collected during SOE (State of the Environment) monitoring is accessible through the Environmental Data Portal. Nick spoke on the efficiencies and safety considerations relative to new monitoring technologies. The focus is on keeping staff safer by using technology which minimises the requirement to work in the water during higher flow events while also improving the efficacy and accuracy of the data collection.

Some sites are in very isolated areas with extreme weather conditions, which require specialised equipment for monitoring – an overview of this equipment was provided.

There was an opportunity for Councillors to ask questions and Chair Cr McCall thanked both for attending.

7. CONFIRMATION OF MINUTES

Resolution ESP23-115: Cr Wilson Moved, Cr Somerville Seconded

That the minutes of the Environmental Science & Policy Committee meeting held on 29 June 2023 be received and confirmed as a true and accurate record.

MOTION CARRIED

It was noted that the Air Plan Issues and Options paper is now to be returned to Council early next year (ESP23-112).

8. MATTERS FOR CONSIDERATION

8.1. Regional Threat Assessment of Bat Species in Otago

This paper provided an overview of the development of regional threat classifications, and examples from other regions where regional conservation statuses have added values to national assessments and included details of the first regional conservation status for bat species in the Otago region.

Tom Dyer was available to answer questions on the report in Scott Javie's absence. This report will be followed up by two more, in the new year, they will be more substantial as they include a broader range of species. There was an opportunity for Councillors to ask questions.

Resolution ESP23-116: Cr Forbes Moved, Cr Somerville Seconded

That the Environmental Science and Policy Committee:

1. **Notes** this report.
2. **Notes** that regional threat assessment for other (taxonomic) groups will continue as part of the biodiversity work programme.

MOTION CARRIED

12. CLOSURE

Councillor McCall said a karakia and the meeting was closed at 4:27pm

9.1. Otago Air Plan Issues and Options

Prepared for: Environment, Science and Policy Committee
Report No. POL2315
Activity: Environmental - Air Management Planning
Author: Vita Manning and James Adams, Senior Policy Analysts
Endorsed by: Anita Dawe, General Manager Policy, and Science
Date: 13 December 2023

PURPOSE

- [1] To approve issues and options to progress to phase 2 of ORC's Air Plan review, which is the first stage of engagement.

EXECUTIVE SUMMARY

- [2] The Regional Plan: Air (Air Plan) describes issues for air quality management in Otago, and prescribes objectives, policies, rules and other methods to manage those issues. ORC's current Air Plan was made operative in 2003. A review process is underway to bring the plan into line with the current national regulatory frameworks and management practices, including the National Environmental Standards for Air Quality (NESAQ).
- [3] Staff have drawn on research, scientific analysis, and Councillor feedback to develop a revised set of issues for air quality in Otago, and options for addressing those issues.
- [4] The Environmental Science and Policy Committee has discussed the ensuing Issues and Options Report (attached) at a workshop earlier today, with a view to confirming a set of issues and options for the next phase of the Air Plan review: engagement.
- [5] It now remains for the Committee to recommend an agreed set of issues and options.

RECOMMENDATION

That the Committee:

- 1) **Confirm** the list of issues for engagement, including any additional issues developed through the Air Plan Review Issues and Options Workshop.
- 2) **Confirm** the list of options for engagement, including any additional options developed through the Air Plan Review Issues and Options Workshop.
- 3) **Endorse** the lists of issues and options referred to in recommendations 1 and 2 as the basis for the first round of engagement for the Air Plan review.

BACKGROUND

- [6] The existing Otago Regional Plan: Air (Air Plan) was made operative in 2003, with plan changes in 2006 and 2009. It outlines the main air quality issues in Otago, defines

objectives for air quality management, and sets out policies for addressing the identified issues. It includes both regulatory and non-regulatory measures.

- [7] In accordance with ORC's responsibilities under the Resource Management Act 1991 (RMA), the Air Plan includes rules about the discharge of contaminants into air in Otago, specifying when discharge consents are required, the information required to support consent applications, and criteria to guide the Council's decision making.
- [8] The Air Plan is required to give effect to the National Environmental Standards for Air Quality (NESAQ), which require regional councils to monitor urban areas where air quality exceeds the standards and take action to reduce emissions where a breach of the standards has occurred. The Air Plan, along with the Air Strategy and implementation plan, is crucial to meeting the Council's obligations under the NESAQ.
- [9] The Air Plan must also give effect to any relevant regional policy statement (RPS). The hearings panel's recommendations on ORC's proposed Otago RPS (pORPS) are expected in early 2024. The pORPS incorporates the NESAQ and current legislative framework.
- [10] Work on the Air Plan review commenced in May 2023. The Long-Term Plan 2021-31 commits Council to notifying a reviewed Air Plan by 30 June 2025. Staff are working to this timetable.
- [11] The work programme so far has drawn on air quality monitoring and public health research, national legislation, and policies, and the pORPS, and has also drawn on the policy frameworks for other regional councils. Staff have also reviewed effectiveness of rules in the existing Air Plan, with a view to how these might be updated or improved.
- [12] Any technical reports developed to support the engagement process will be provided to Councillors ahead of time.
- [13] An initial workshop for committee members on the Air Plan review was held in September 2023. Committee members were invited to put forward their ideas to address key issues and identify the level of intervention required.
- [14] In order to progress to the next phase of the review, staff require endorsement of the issues to be addressed through the Air Plan, and the range of approaches to be considered. It should be noted that further issues and options may be identified through the engagement process.
- [15] Phase 2 of the review will also include a review of existing airshed boundaries.

DISCUSSION

- [16] An Issues and Options Report, canvassing the issues to be addressed and potential approaches to address those issues, was presented at this morning's workshop. That report is included with this paper as Attachment 1. A summary of the issues is provided below.

[17] The issues presented in the Issues and Options Report fall into two categories: issues for which a range of novel approaches could be pursued, and issues for which the recommended approaches remain similar to the current Air Plan.

[18] Issues where novel approaches could be pursued are:

- a. **Domestic heating:** Solid fuel burners are the main source of air pollution in urban areas. Exposure to harmful emissions produced by solid fuel burners cause harm to human health and has been found to contribute to premature deaths¹.
- b. **Outdoor burning:** From small-scale practices like bonfires to large-scale rural activities like tussock burn-offs, outdoor burning can cause adverse effects beyond the property boundary, including smoke, odour, ash deposit, and discharges that may be noxious or dangerous. Outdoor burning generates a third of complaints to the pollution hotline².
- c. **Vehicle emissions:** ORC is limited in what it can do to regulate vehicle emissions through the Air Plan. However, ORC does have scope to implement non-regulatory approaches, and exert influence through the Otago-Southland Regional Land Transport Plan, Otago Regional Public Transport Plan, the Climate Strategy, and the Air Quality Strategy.

[19] Issues where the recommended approaches are similar to the current Air Plan are:

- a. **Discharges from industrial and trade premises:** In urban areas, industry is the source of 16% of nitrous oxides and 3% of particulate matter emissions. Emissions may include a range of hazardous substances.
- b. **Odour:** A variety of different activities can give rise to odour emissions. Odour can cause a nuisance and affect amenity. Odour generates 33% of complaints to the pollution hotline.
- c. **Agrichemicals:** Agrichemicals and the risks they can present are subject to national legislation and codes of practice. Adverse effects of spraying can occur when the spray drifts onto non-target areas and onto neighbouring properties. Any rules for agrichemical use in the Air Plan should support rules being considered for the draft LWRP.
- d. **Dust:** Dust can arise from various sources and, depending on its provenance, can create a range of adverse effects. Responsibilities for managing dust are shared between regional and territorial authorities.

[20] Council may have identified further issues or options (or both) at this morning's workshop. Staff will table any such issues at this Council meeting for inclusion in the engagement process.

¹ Health and air pollution in New Zealand 2016 (HAPINZ 3.0)

² Average of complaints over 2016-2022. In 2022 there were 193 complaints about outdoor burning.

OPTIONS

- [21] Staff have developed a range of options to address the issues and the factors contributing to those issues. These are set out in detail in the attached report.
- [22] The aim of the options is to minimise the health impacts and nuisance from discharges to air and improve environmental quality.
- [23] Except for the status quo, the options presented are not mutually exclusive. Unless Council wishes to retain the status quo, it can choose to combine any number of the approaches presented for engagement.

CONSIDERATIONS

Strategic Framework and Policy Considerations

- [24] The Air Plan is a vital part of the ORC's overall strategic and regulatory framework. ORC's strategic directions commit Council to taking leadership on issues of significance and importance to Otago communities. Air pollution is a contributor to poor human health outcomes.
- [25] The Air Plan review provides opportunities to improve Otago's policy framework for managing air quality and align with national legislation and regulation, and the air quality provisions in the pORPS.

Financial Considerations

- [26] Reviewing the Air Plan is a funded activity under ORC's 2021/31 Long Term Plan. Currently the budget is tracking ahead of planned budget however the overall Regional Planning budget is operating within budgetary expectations.

Significance and Engagement Considerations

- [27] The Air Plan will be subject to full public consultation under Schedule 1 of the RMA and therefore satisfies the significance criteria when assessed against He Mahi Rau Rika: ORC Significance, Engagement and Māori Participation Policy.

Legislative and Risk Considerations

- [28] The Air Plan will be developed having consideration to ORC's role and responsibilities under the Resource Management Act 1991 and the National Environmental Standards for Air Quality.

Climate Change Considerations

- [29] The sources of air pollution in Otago are also the sources of carbon emissions which contribute to climate change. The Air Plan review provides the opportunity to improve air quality alongside the co-benefits of reducing carbon emissions which will assist with achieving the national target for emissions reduction.
- [30] The Air Plan review will take account of the emerging Climate Change Strategy.

Communications Considerations

- [31] A communications plan will be developed as a part of the engagement process.

NEXT STEPS

- [32] If the Committee is comfortable with the issues and options as recommended, the Air Plan review will progress to phase 2: engagement.
- [33] Phase 2 will focus on facilitating in-depth discussions and feedback on the approved issues and options, and associated impacts. It is also an opportunity to share information about air quality, and central government requirements.
- [34] Accompanying materials will be developed to facilitate the engagement process, including an engagement-focussed version of the approved issues and options and full background technical paper.
- [35] The role of Engagement Lead may be outsourced to an external engagement expert, who will facilitate engagement activities and take responsibility for delivering a robust and streamlined process.
- [36] The Engagement Lead will lead development of an engagement strategy, addressing:
- a. who we engage with,
 - b. modes of engagement,
 - c. locations for engagement,
 - d. accompanying communications plan
- [37] The engagement process will build on information already gathered and will be used to refine and adjust the approved issues and options as required. The output for this phase is a final list of issues and an agreed approach to inform drafting Air Plan provisions. It is likely that some early drafting will be undertaken as ideas are refined.
- [38] This phase of the review will also include engagement on, and review of, airshed boundaries.
- [39] Council will be updated on progress in the new year before the engagement programme begins.

ATTACHMENTS

1. Air Plan Issues and Options paper4Dec [9.1.1 - 33 pages]

Air Plan: Issues and Options

Introduction

1.1 Purpose and structure of this Paper

- 1.1.1 This paper forms part of the Air Plan review and identifies issues and options related to air quality in Otago. It is intended to support discussion at the 13 December 2023 Environmental Science and Policy Committee workshop and subsequent meeting.
- 1.1.2 Staff require confirmation of the issues to be addressed through the Air Plan, and the range of approaches to be considered.
- 1.1.3 The paper is structured by topic area, setting out issues, contributing factors and options to address air pollution from domestic heating, outdoor burning, vehicle emissions and other sources.

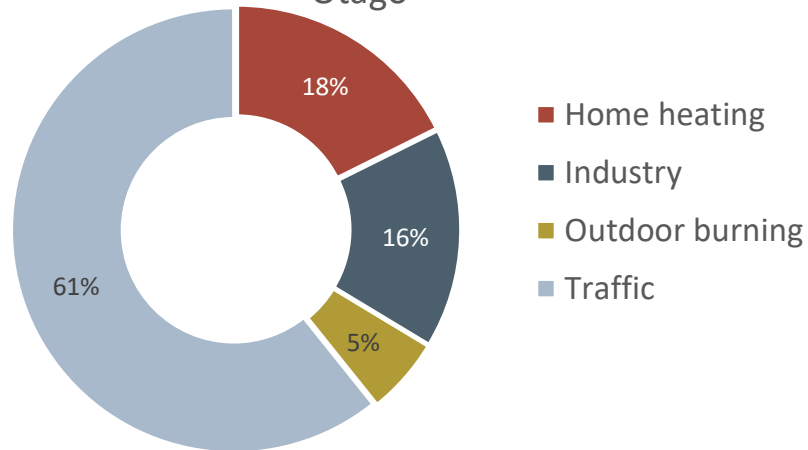
1.2 Background

- 1.2.1 Air pollution is the largest environmental threat to human health and a contributor to non-communicable disease. Exposure to air pollution can cause and aggravate existing health issues, on both short and long-term scales. Health impacts range from reduced activity days through to premature death¹.
- 1.2.2 The National Environmental Standards for Air Quality (NESAQ) require regional councils to monitor urban areas where air quality exceeds the standards and take action to reduce emissions where a breach of the standards has occurred. The Air Plan, along with the Air Strategy and implementation plan, is crucial to meeting the Council's obligations under the NESAQ. Beyond urban areas, air quality sits under the remit of sustainable management under the RMA.
- 1.2.3 The existing Otago Regional Plan: Air (Air Plan) was prepared under the Resource Management Act 1991 (RMA) and was made operative in 2003, followed by updates in 2006 and 2009. The RMA requires that the Air Plan be reviewed no later than 10 years from the date upon which it becomes operative. The Air Plan review started in May 2023.
- 1.2.4 The Air Plan review provides an opportunity to consider how the existing rules can be amended and/or new rules developed to tackle air pollution. Rules need to be measurable and enforceable, and definitions need to be clear.
- 1.2.5 The sources of emissions for air pollution are the same sources which contribute to climate change. The Air Plan review provides the opportunity to improve air quality alongside the co-benefits of reducing carbon emissions which will assist with achieving the national target for emissions reduction.

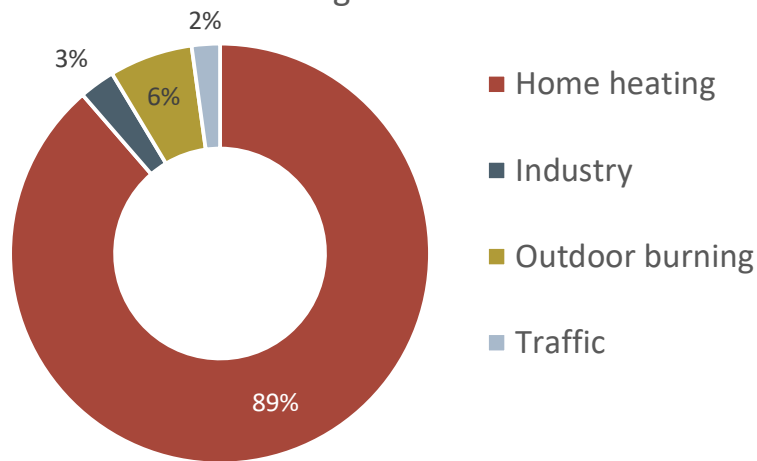
¹ Health and air pollution in New Zealand 2016 (HAPINZ 3.0)

1.2.6 The main pollutants of concern in Otago are particulate matter (PM₁₀ and PM_{2.5}) and nitrogen oxides (NO_x). The main sources of these air pollutants are set out in the diagrams below², along with the types of complaints received by the council about air quality³.

Sources of NO_x (oxides of nitrogen) emissions in Otago



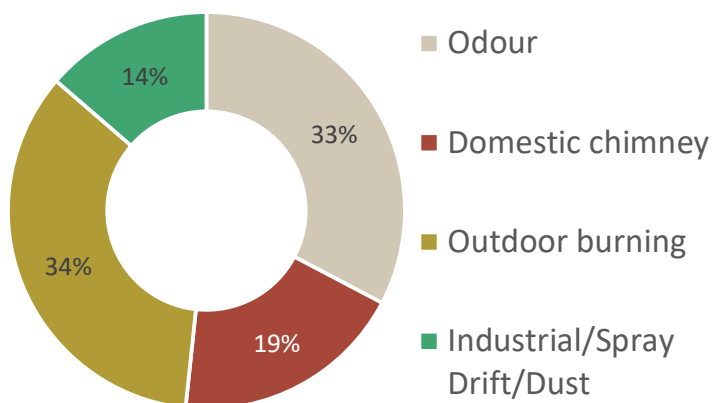
Sources of particulate matter (PM₁₀) emissions in Otago



² Information taken from Wilton, E. (2016). Alexandra, Arrowtown, Mosgiel and Milton Air Emission Inventory – 2016. Environet Limited and Wilton, E. (2019). Wanaka, Cromwell and Clyde Air Emission Inventory – 2019. Environet Limited.

³ Information taken from ORC's complaints database 2016-2022.

Types of air quality complaints in Otago

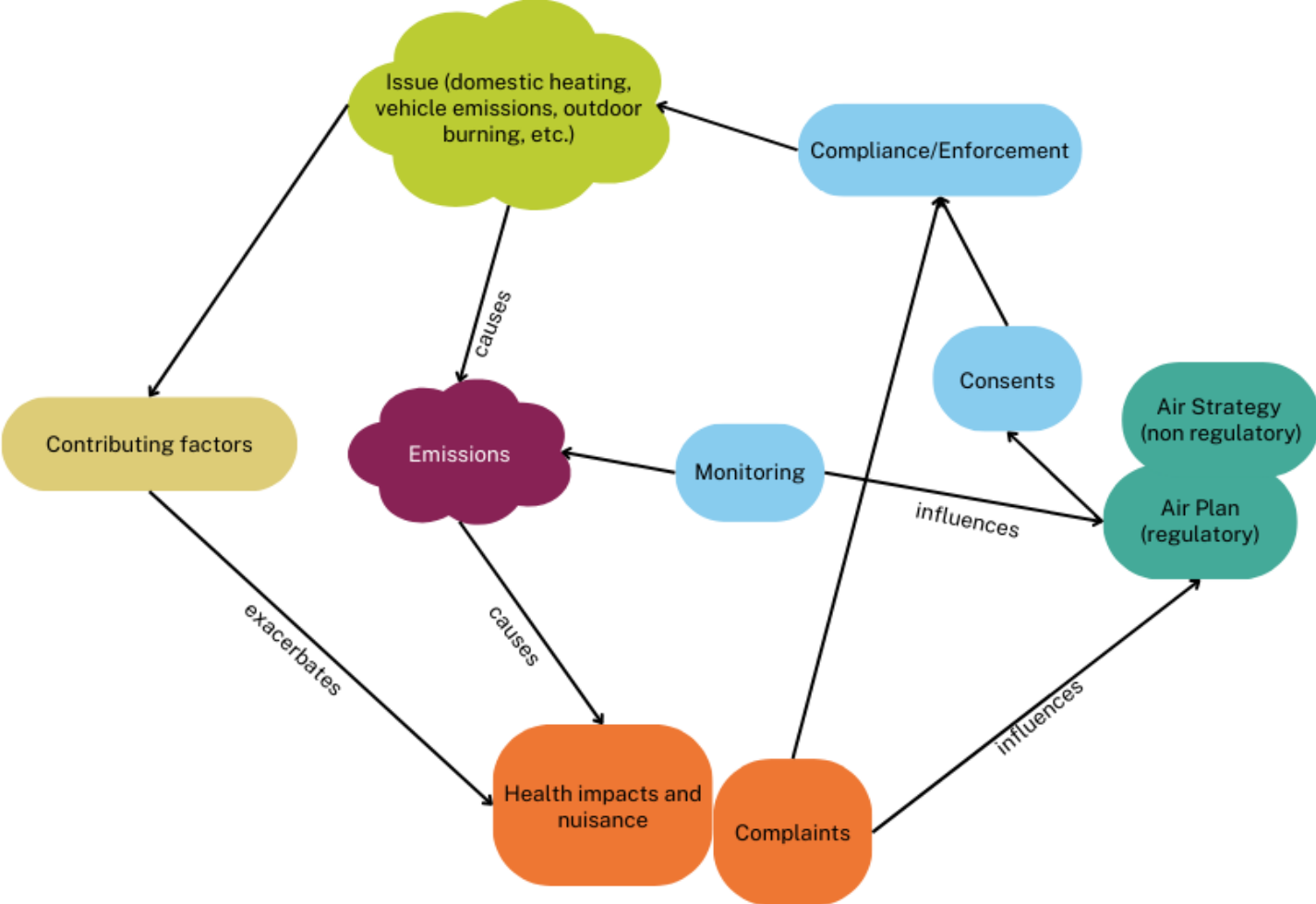


1.3 Issues and Options development

- 1.3.1 This Issues and Options paper is the culmination of work by staff across the council since May 2023. Work includes analysis of air quality monitoring and public health research, national legislation and policies, the proposed RPS, and the effectiveness of rules in the existing Air Plan. Staff have also been investigating what other regional councils are doing in their recent Air Plans, particularly our regional neighbours, and seeing where we might be able to align our own Air Plan.
- 1.3.2 A workshop for the Environmental Science and Policy (ESP) committee members on the Air Plan review was held in September 2023. Committee members were invited to put forward their ideas to address some key issues and identify the level of intervention required. A summary of these responses is set out for each topic area below.
- 1.3.3 A consultant, specialising in air science, has been engaged to provide independent expert advice and look in detail at options to reduce pollution from domestic burners in our towns. A full Technical Paper will be available to support the next stages of the Air Plan review for stakeholders, and will be made available to the Committee ahead of that engagement.

1.4 Assessing options

- 1.4.1 Options have been developed to address the issues and contributing factors. Except for the status quo, the options are not mutually exclusive and **all, some** or **none** can be chosen. The aim of the options is to minimise the health impacts and nuisance from discharges to air. Other options may be put forward through engagement. A high-level assessment of the costs and benefits for each option is also included and these will be developed further throughout the Plan-making process, culminating in forming part of the section 32 analysis required to support plan reviews.
- 1.4.2 At a strategic level, councillors may wish to consider whether the Air Plan should tailor air quality management options to each specific town, or group of towns, or if some of the proposed interventions should apply across all urban areas, or across all Otago.
- 1.4.3 The diagram below shows how the Air Plan review is taking account of the sources of air pollution, contributing factors, health impacts and monitoring data; and how the Air Plan can influence the consenting and compliance/enforcement functions of council.



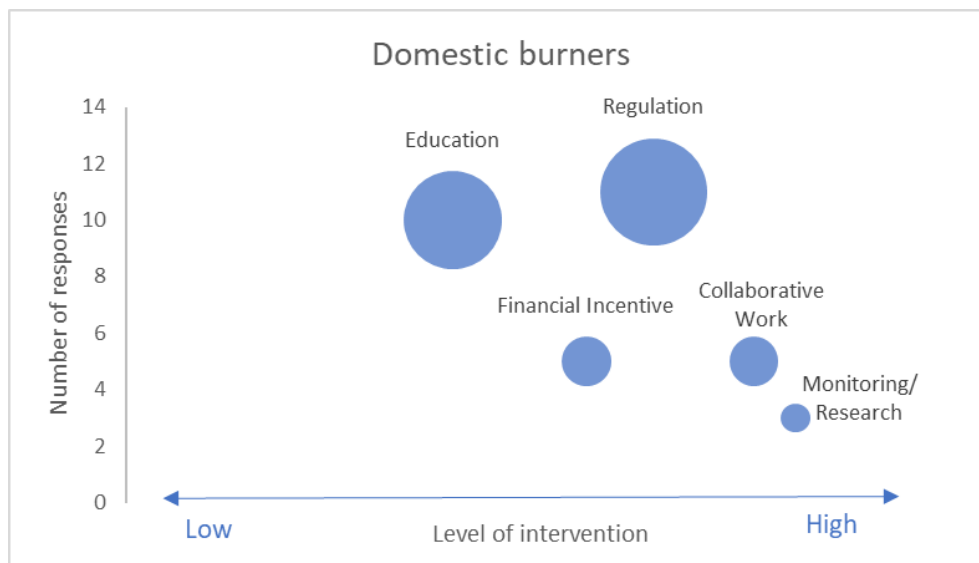
Issue 1: Domestic heating

2.1 Introduction

- 2.1.1 Solid fuel burning for domestic home heating is used extensively throughout Otago. Solid fuel heating appliances in Otago include wood burners (most commonly used), pellet burners, open fires, and multi fuel burners (wood and coal). Solid fuel burners are the main source of air pollution in Otago’s urban areas. Solid fuel burners contribute an average of 89% of particulate matter (PM₁₀) and 18% of nitrogen oxides (NO_x) emissions to the air people breathe. Exposure to harmful emissions produced by solid fuel burners cause harm to human health and has been found to contribute to premature deaths. Burning also releases carbon dioxide which contributes to climate change.
- 2.1.2 Solid fuel burners contribute an average of 89% of particulate matter (PM₁₀) and 18% of nitrogen oxides (NO_x) emissions to the air people breathe. A report⁴ has been commissioned for the Air Plan review to evaluate management options to reduce particulate matter from domestic heating to meet requirements of the NESAQ and its initial findings have informed the options in this paper. “Domestic chimneys” generate a fifth of complaints to the pollution hotline (194 complaints in 2022).

2.2 Committee Workshop

- 2.2.1 A workshop on the Air Plan review was held in September 2023. ESP Committee members were invited to consider a number of key topic areas, including domestic heating, and put forward their ideas to address the issue and level of intervention. A summary of the types of responses is set out in the diagram below. These responses have helped develop the options to minimise the health impacts and nuisance from domestic burning.



⁴ “Air Quality Management In Otago: An evaluation of management options to achieve air quality targets for PM10 and PM2.5 in Arrowtown, Clyde, Clyde, Cromwell, Milton and Mosgiel.” This report will be available mid-December 2023.

2.3 Contributing Factors

- 2.3.1 There are a number of contributing factors which exacerbate the health impacts and nuisance of discharges from domestic heating which are set out below.

Factor 1.1: Technology of Burner

- 2.3.2 Domestic heating appliances must meet an emissions limit (described as grams of particulate per kilogram of fuel burnt or g/kg) and an efficiency requirement (described as a percentage). The NESAQ requires all new wood burners on properties less than 2 hectares to have emissions of less than 1.5 g/kg and a thermal efficiency of not less than 65%. Burners that meet this standard are known as Low Emissions Burners (LEB). Otago's current Air Plan is more stringent and requires an emissions standard for new burners of 0.7 g/kg in 'Zone 1' towns⁵. Burners that meet this standard are known as Ultra Low Emissions Burners (ULEB). The Ministry for the Environment (MfE) has produced a list of authorised wood burners to help purchasers and building consent officers find compliant models. However, many older burners continue to be used in urban areas, including coal burning appliances; these may not meet the required emissions standards and can be more polluting. A growing number of homes use electricity for heating, for example heat pumps, which does not contribute to air pollution.

Factor 1.2: Operation of Burners

- 2.3.3 Regardless of whether households have a ULEB or LEB, the burner needs to be operated properly to ensure a smoke-free burning technique and a reduction in emissions. These include building the fire correctly, using dry wood, not burning any prohibited materials, correct use of air control and cleaning the flue system.

Factor 1.3: Costs

- 2.3.4 The cost of buying, installing and operating a ULEB is similar to a LEB and non-compliant burners. Heat pumps can be more expensive to run than wood burners because of the cost of electricity from the grid; however, installation of renewable energy sources such as solar panels has the potential to off-set this in the longer term.
- 2.3.5 The attractiveness of wood burners as a heating option is likely a combination of the relatively low operating cost (some households can source firewood for free or low cost) and the ability to heat larger spaces or less insulated properties. Operational costs for electric heating options are likely to be higher, both in terms of electricity prices and the relative efficiency of a heat pump to heat larger spaces. Reliability of electricity supply is also a factor when households are considering a move away from burners for heating. The ability of households to improve home insulation will also have an impact on running costs.

Factor 1.4: Weather conditions

- 2.3.6 The impact of discharges from domestic heating tends to be worse in winter because burners are used more in colder weather but the inversion layer means the smoke cannot disperse. Wind speed and direction is also a factor in the impact of smoke on adjacent properties. Very cold winter temperatures mean that some form of heating is required in all of Otago's homes and places of work.

Factor 1.5: Applying the Air Plan Rules

⁵ Alexandra, Arrowtown, Clyde, Cromwell

- 2.3.7 Currently there are different rules for domestic heating burners depending on the size and location of the property. This can create uncertainty for householders around which rules apply to their circumstances. Small-scale commercial burners are not currently included in the rules, although the effects on air pollution are the same. This type of approach brings up a question of equity; should some households be restricted to ultra low emission burners while other households and commercial properties be allowed to operate high emission burners?

Factor 1.6: Enforcement

- 2.3.8 In order for the council to enforce the provisions of the Air Plan, rules need to be clear and measurable, and staff must be able to investigate and collect evidence of any breach. ORC staff do not enter people's homes and so evidence of a breach must be collected from outside the property. Clear and measurable rules could include a no visible smoke rule such as the one in Environment Canterbury's Air Plan. There are still monitoring challenges around this as often people don't light their fires until the evenings which would require an adjustment to our monitoring approach.

Factor 1.7: National Standards

- 2.3.9 The NESAQ rules about burners only apply to wood burners. MfE explains that there is no list of authorised multi-fuel burners (including coal burners) or open fires as these are not recommended forms of heating because of the increased particulate matter emissions they produce. The proposed amendments to the NESAQ included reducing the emission standard to no more than 1.0g/kg (down from 1.5g/kg) and applying this to all types of new domestic solid-fuel burners, including coal burners, multi-fuel burners, pellet burners, open fires, cookers, and water boilers.
- 2.3.10 Insulation affects the amount of fuel needed to heat a home. Thermal insulation standards are set out in the Building Code. Territorial Authorities are the building consent authority and are responsible for ensuring new buildings are compliant with the Building Code. There is currently no requirement to upgrade existing non-compliant homes unless they are rental properties, when the Healthy Homes standards would apply⁶. All new building work is required to comply with the Building Code.

2.4 Options

Option 1A: Status Quo: Domestic Heating Appliances in 'Zone 1' towns must meet the ULEB criteria

- 2.4.1 The current Air Plan rules, which have been in place since 2009, require new installations of wood burners in 'Zone 1' towns to meet the ULEB standards and new installations in other urban areas to meet LEB standards. The rules also include a phasing out of older burners by 2013. This target has not been achieved, resulting in some households operating burners that are technically prohibited.

Option 1B: New installations of solid fuel burners must meet ULEB standards

- 2.4.2 Require new installations of all types of solid fuel burners to meet the ULEB criteria. This option could be applied to either all properties in 'Zone 1' towns, properties in all urban areas, all properties less than 2ha, or all properties in Otago. This approach should be supported by new 'good practice' rules to ensure that the maximum benefit of ULEBs is realised and that enforcement is possible. Examples of new rules include types of permitted

⁶ [Healthy homes standards - Te Tūāpapa Kura Kāinga - Ministry of Housing and Urban Development \(hud.govt.nz\)](https://www.hud.govt.nz/healthy-homes-standards-te-tuapapa-kura-kainga)

fuel, operation of burners in line with the manufacturer’s manual, and no visible smoke for more than 15 minutes after start-up and 5 minutes after refuelling. These types of regulation have been applied in neighbouring regions.

- 2.4.3 The Air Plan review could also explore emissions requirements for all small-scale burners, including commercial heaters, diesel or gas burning devices, as well as other types of domestic heating.

Option 1C: Phase out Non- Ultra Low Emission Burners

- 2.4.4 Phase out burners not meeting the ULEB criteria over a certain time. While burner replacement and insulation schemes have had some success, many people have not taken advantage of the loans and grants on offer and there are still non-compliant burners in urban areas despite existing phase-out rules. Measures to replace solid fuel burners, and the timeframes involved, should be considered in the context of household income, fuel poverty, health, and the ability to access funding schemes. This regulation has been applied in neighbouring regions but has not been entirely successful without intervention in the form of financial assistance and/or fines for non-compliance. Development and maintenance of a database of existing burners would be required for intervention at the householder level but accurate information would take time to collect.

Option 1D: No new installations of burners in new dwellings or existing dwellings using other heating methods

- 2.4.5 Prohibit the installation of solid fuel burners in new dwellings or existing dwellings using other heating methods. This rule means that new dwellings are unable to install a solid fuel burner regardless of the emission standard that it can meet. Existing dwellings that previously used other heating methods are also unable to install solid fuel burners. When considered in conjunction with a burner phase out a key consideration is whether you allow households that do not replace phased out burners by the required dates the ability to install a replacement burner. This is most effective in areas where population increases are projected and where domestic heating is a key contributor to air pollution. This regulation has been applied in neighbouring regions.

Option 1E: Phase out all solid fuel burners

- 2.4.6 This option is to phase out all solid fuel burners and replace these with non-polluting heating appliances such as heat pumps. This would be achieved in two stages: firstly, prohibiting the installation of new solid fuel burners in any dwellings (as per Option 1D above) and secondly phasing out of existing dwellings based on a 20 year useful life. A total ban on the use of solid fuel burning has the potential for unintended consequences for the Otago Region because of very cold wintertime temperatures, the quality of the existing housing stock and thus the high potential for reduced household warmth. As the benefits of improved air quality are unlikely to be realised if at the expense of warm homes, further analysis of the impact on household warmth and consequently health is recommended if this option is to be pursued. No councils have fully prohibited the use of solid fuel burners in any areas of New Zealand to date.

Option 1F: Non-regulatory Options: Behaviour change campaign

- 2.4.7 Behaviour change or education programmes targeting the operation of solid fuel burners will be crucial to support any regulatory approach to reducing air pollutants from domestic heating. This should include information about the type of fuel used, potentially supported by a ‘Trusted Wood Supplier’ scheme, instructions on how to build a fire correctly, details about consents and conditions, and information about financial support for replacing

burners and installing insulation. A publicised ‘compliance check’, which could include neighbourhood audits of smoky chimneys, checks on TA consents databases to identify households with prohibited burners and fines for non-compliance.

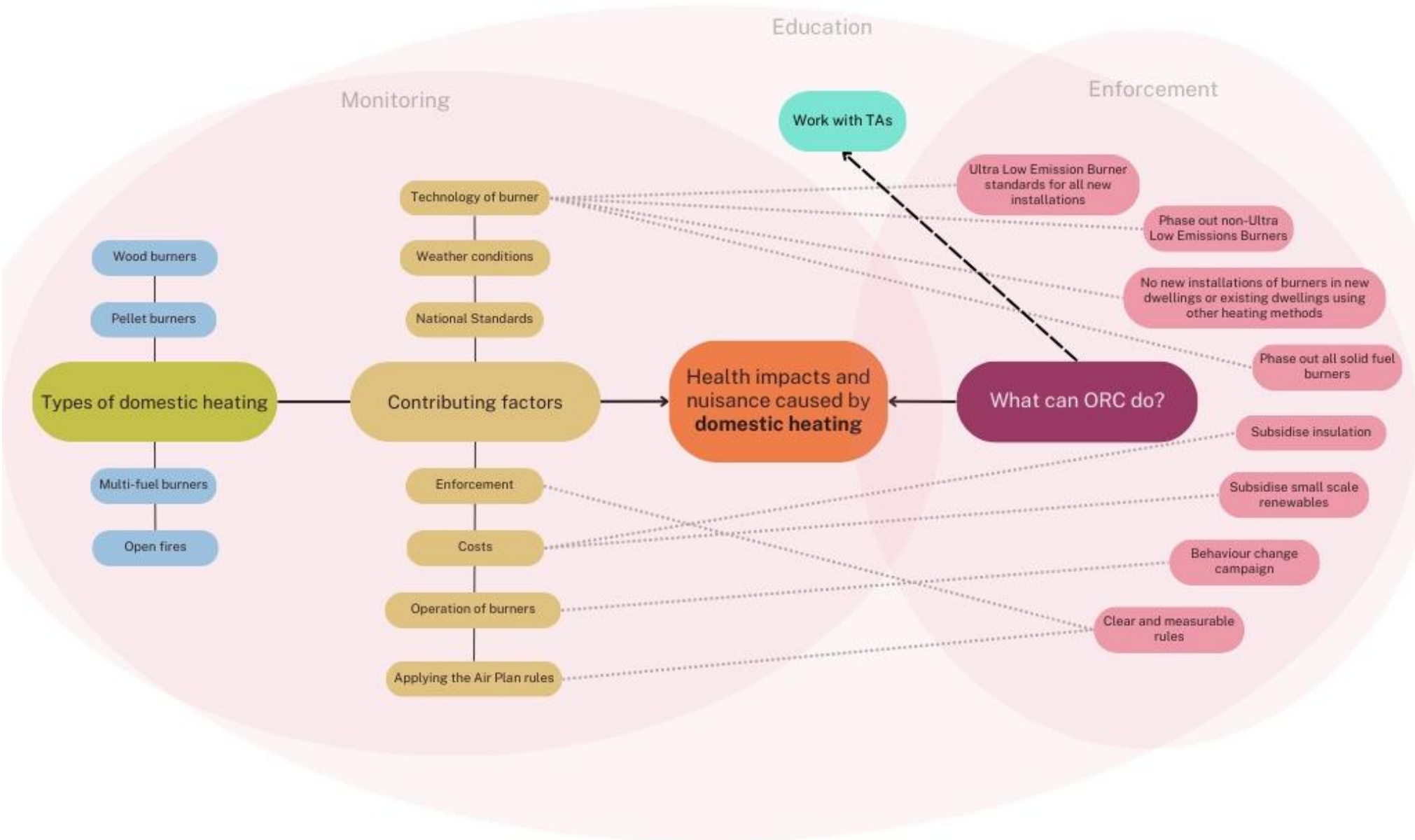
- 2.4.8 Education programmes can also highlight the financial assistance for insulation and heater grants available to low-income homeowners through the central government Warmer Kiwi Homes programme. There may be barriers for people to replace their non-compliant burners and additional support for some residents may be required.
- 2.4.9 In the longer-term, the council could explore alternative energy sources such as community-level renewables.
- 2.4.10 Non-regulatory methods should be included in a new Air Quality Strategy/Action Plan.

2.5 Domestic heating options: Environmental, social and economic benefits / costs

| Option | Benefits | Costs |
|--|---|--|
| <p>Option 1A: Status Quo: Wood burners in ‘Zone 1’ towns must meet the ULEB criteria</p> | <p>More freedom for individuals when compared to the other options.</p> | <p>The status quo has not been sufficient to meet clean air targets in many urban areas in Otago.</p> <p>The status quo results in the inequality of different burner rules for residents depending on location and size of property.</p> <p>The status quo means some households are operating prohibited burners.</p> |
| <p>Option 1B: New installations of solid fuel burners must meet ULEB standards</p> | <p>Requiring new installations of all types of solid fuel burners to meet the ULEB criteria will reduce emissions and align the Air Plan with the proposed NESAQ.</p> <p>Requiring the gradual replacement of the solid fuel burners with ULEB through natural attrition is a low to no cost option for improving pollution from domestic heating. The price point between ULEB and non-ULEB is negligible.</p> <p>More stringent rules will mean reduced health impacts and less nuisance for residents.</p> | <p>Total replacement of the solid fuel burners with those meeting ULEB standards through natural attrition would be a very lengthy process and unlikely to be achieved in a 30 year timeframe, if at all.</p> <p>Extending the rules to include phasing out of small-scale commercial heaters which do not meet ULEB standards could result in costs for businesses who are not planning to replace their burner over the next 15-20 years.</p> <p>More stringent rules will mean more enforcement and</p> |

| Option | Benefits | Costs |
|--|--|---|
| | <p>Extending the rules to include small-scale commercial heaters will reduce emissions.</p> <p>Applying the ULEB standards across a wider range of properties will reduce emissions and improve equity across the region.</p> <p>Extending the rules to include small-scale commercial heaters will reduce emissions and improve equity across the region.</p> <p>‘Best practice’ rules will enable householders and consent holders to have more certainty over their activities and avoid costs associated with enforcement action.</p> <p>‘Best practice’ rules on burner operation to assist compliance officers with enforcement will help reduce emissions.</p> <p>Having cleaner air in winter may benefit tourism centres and businesses in Central Otago.</p> | <p>education resulting in greater costs to the council.</p> |
| <p>Option 1C: Phase out Non-Ultra Low Emission Burners</p> | <p>As for Option 1B , plus</p> <p>A phase out of non-compliant burners will mean reduced emissions sooner than Option 1B.</p> | <p>Phasing out non-ULEB burners could result in costs for households who are not planning to replace their burner over the next 15-20 years.</p> <p>This option will require enforcement and education resulting in greater costs to the council.</p> |
| <p>Option 1D: No new installations of burners in new dwellings or existing dwellings using other heating methods</p> | <p>This is a low to no cost option for the council.</p> <p>This option will mean no growth in burner emissions with increasing population.</p> | <p>The cost of this option for householders depends on the source of electricity for heating (grid or renewables).</p> |

| Option | Benefits | Costs |
|---|---|--|
| Option 1E: Phase out all solid fuel burners | A total ban on the use of solid fuel burning in Otago would improve air quality to meet the most stringent targets. | <p>The increased costs for household associated with a total ban on the use of solid fuel burning risks cold homes.</p> <p>A total ban on the use of solid fuel burning in Otago is likely to increase installation and operational costs of alternative heating options.</p> <p>This option could result in the loss of employment opportunities for those working in the firewood supply industry.</p> |
| Option 1F: Non-regulatory Options: behaviour change / education / compliance campaign | A behaviour change / education / compliance campaign is likely to reduce air pollution as best practice is adopted. | A behaviour change campaign will mean more enforcement and education resulting in greater costs to the council. |



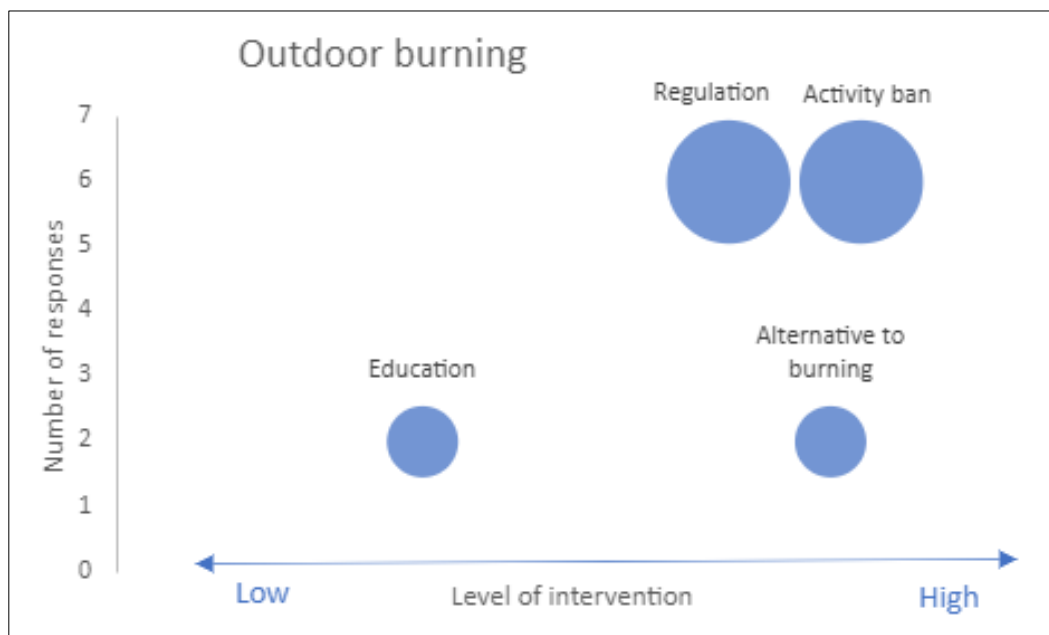
Issue 2: Effects of outdoor burning

3.1 Introduction

- 3.1.1 Outdoor burning means the burning of materials in open air. It includes small-scale practices like bonfires and large-scale rural activities like tussock burn-offs. Outdoor burning can cause adverse effects beyond the property boundary, including smoke, odour, ash deposit, and discharges that may be noxious or dangerous. Outdoor burning also contributes to climate change.
- 3.1.2 In urban areas, outdoor burning contributes an average of 6% of particulate matter (PM₁₀) and 5% of nitrogen oxides (NO_x) emissions to the air people breath. Data for outdoor burning emissions comes from emissions inventories undertaken in 2013, 2016 and 2019. No additional research has been commissioned for the air plan review. This information does not take into account outdoor burning in rural areas that may travel to and impact urban areas. Nationally, 22% of PM₁₀ is emitted by outdoor burning. While outdoor burning is not the largest contributor to air pollution, it generates a third of complaints to the ORC pollution hotline (194 complaints in 2022).

3.2 Committee Workshop

- 3.2.1 A workshop on the Air Plan review was held in September 2023. ESP Committee members were invited to consider a number of key topic areas, including outdoor burning, and put forward their ideas to address the issue and level of intervention. A summary of the types of responses is set out in the diagram below. These responses have helped develop the options to minimise the health impacts and nuisance from outdoor burning.



3.3 Contributing Factors

- 3.3.1 There are a number of contributing factors which exacerbate the health impacts and nuisance of outdoor burning which are set out below.

Factor 2.1: Materials burnt

- 3.3.2 All burning releases particulate matter which is dangerous to human health, but some material creates greater adverse effects than others. Burning of non-organic material is usually prohibited because it produces toxic discharges which can cause serious health problems. Burning organic material also causes harmful pollution and when it has a high moisture content produces more smoke than dry material and can cause odour, nuisance and visibility impacts. Although it is prohibited, household and commercial rubbish is sometimes burnt as an alternative to paying for a waste collection service, resulting in noxious and dangerous emissions.

Factor 2.2: Weather conditions

- 3.3.3 The impact of outdoor burning tends to be worse in winter because the inversion layer means the smoke cannot disperse. Wind speed and direction is also a factor in the impact of outdoor burning on adjacent properties. FENZ allows, restricts or prohibits fires depending on the activity and weather conditions. However, the weather conditions preferred by FENZ for outdoor burning, for example low wind and low temperatures, are the same conditions which exacerbate poor air quality in urban areas.

Factor 2.3: Proximity to residential properties

- 3.3.4 Poor air quality from outdoor burning affects people's health, wellbeing, and amenity. It can also cause visual and odour nuisance. The current Air Plan has more stringent outdoor burning rules for urban areas. Outdoor burning is not permitted on residential properties unless it takes place at least 50m away from the boundary (except for celebratory fires and cooking). For commercial properties the setback is 100m. Smoke, odour and particulate matter should not be offensive or objectionable beyond the property boundary.

Factor 2.4: Applying the Air Plan Rules

- 3.3.5 Currently there are different rules for outdoor burning depending on the type, size, and location of the property. This can create uncertainty for householders / landowners around which rules apply to their circumstances.

Factor 2.5: Enforcement

- 3.3.6 In order for the council to enforce the provisions of the Air Plan, rules, including definitions, need to be clear and measurable, and staff must be able to investigate and collect evidence of any breach. Clear and measurable rules could include a list of what can be burnt (rather than what cannot be burnt), directions on the correct way to build a fire, maximum size and minimum fuel quality specifications (for example moisture content of wood).

Factor 2.6: Disposal of waste material

- 3.3.7 All burning contributes to air pollution but certain materials such as plastics and treated wood are more toxic and are banned from being burned. Burning of waste is prohibited and it is important that all households have access to waste collection services so burning of waste does not take place. Over the next few years, many of the district and city councils in Otago will be providing household rubbish collections to towns as part of their rateable services and so there will be an alternative to the practice of burning rubbish. For

commercial activities, including production land, alternatives to burning waste material could be an additional cost.

Factor 2.7: Permitted activities

- 3.3.8 Discharges into air from outdoor cooking and outdoor burning of organic material for community and cultural events are permitted activities, providing the correct fuel is used and that any discharge of smoke, odour or particulate matter is not offensive or objectionable at or beyond the boundary of the property. It is proposed to continue to permit these activities and definitions for each will be clearly defined.
- 3.3.9 It is also proposed to continue to allow discharges into air from outdoor burning where the burning is for fire-fighting research and training, or is undertaken as a requirement of the Biosecurity Act.

3.4 Options

Option 2A: Status Quo

- 3.4.1 The existing Air Plan includes rules intended to manage the impacts of outdoor burning on residents in urban areas. The rules permit dry paper, cardboard, vegetative matter and untreated wood to be burnt outdoors with certain conditions and in certain circumstances. There is also a list of prohibited materials in the current Air Plan.
- 3.4.2 The current Air Plan has more stringent outdoor burning rules for urban areas than for rural areas. Except for community and cultural events and cooking, outdoor burning is not permitted on residential properties in most urban areas unless it takes place at least 50m away from the boundary. This means outdoor burning is not permitted on properties less than 1 hectare. For commercial properties the setback is 100m. Good management practices for outdoor burning on production land are encouraged but not required by the Air Plan. In all cases smoke, odour and particulate matter should not be offensive or objectionable beyond the property boundary.
- 3.4.3 The rules in the existing Air Plan have not been sufficient to prevent air pollution from outdoor burning affecting people and properties in the urban areas and changes to the suite of rules are recommended.

Option 2B: Ban outdoor burning over the winter months

- 3.4.4 A number of other regional councils have Air Plan rules which prohibit outdoor burning in certain locations during winter months when the inversion layer means that the smoke cannot disperse. ‘Winter months’ would be defined as April-September.
- 3.4.5 There may need to be exemptions to a winter burning ban, for example if there is a biosecurity risk.
- 3.4.6 A further consideration is that the advice from Fire and Emergency New Zealand (FENZ) is to burn when there is no wind. This is the opposite of the preferred conditions to avoid air pollution.

Option 2C: Require smoke management plans for large-scale / long-lasting outdoor burning events

- 3.4.7 Smoke Management Plans (SMPs) are required by other regional councils to manage the impacts of large-scale outdoor burning on residents. The content of SMPs could include dates of the intended burn, type and condition of material to be burned, forecast windspeed and direction, affected parties (such as neighbouring properties), and the methods for minimising impacts on people affected. SMPs would need to be submitted to the council by the landowner/occupier before the burn event takes place, and neighbouring properties would be notified.

Option 2D: Ban outdoor burning on properties less than 2 hectares

3.4.8 There is currently a 50 metre set back rule for outdoor burning on residential properties in most urban areas. This means that properties under 1ha are not allowed to burn outdoors. However, due to smoke drift beyond the property boundary, this 50m rule does not always alleviate the effects of smoke for neighbours. To better manage this issue, other regional councils have adopted a ban on outdoor burning on properties less than 2ha. This size threshold also helps to align rules for domestic burners which also apply to properties less than 2ha.

Option 2E: Require alternatives to burning

3.4.9 There are a number of alternative disposal and management options to outdoor burning and landowners / householders could be required to opt for a suitable alternative and only burn material if there is no other practicable choice. This could be defined using the RMA's 'Best Practicable Option' which means the best method for preventing or minimising the adverse effects on the environment, having regard to the nature of the discharge and receiving environment, financial implications and available technology. There are a number of options for untreated vegetative matter including wood chipping and composting which could be done on-site or collected for off-site management. Even diseased trimmings can be composted safely in some circumstances. Most household recycling collections allow paper and cardboard to be collected for recycling and national legislation means that councils will be required to offer recycling and food waste collection services in urban areas. Many councils already offer or will offer general rubbish and garden waste collection services. Household and commercial rubbish, including treated wood, should never be burned and should always be disposed of through a proper waste collection service. Alternatives to burning should sit alongside the policy direction being considered under the LWRP in relation to farm landfills.

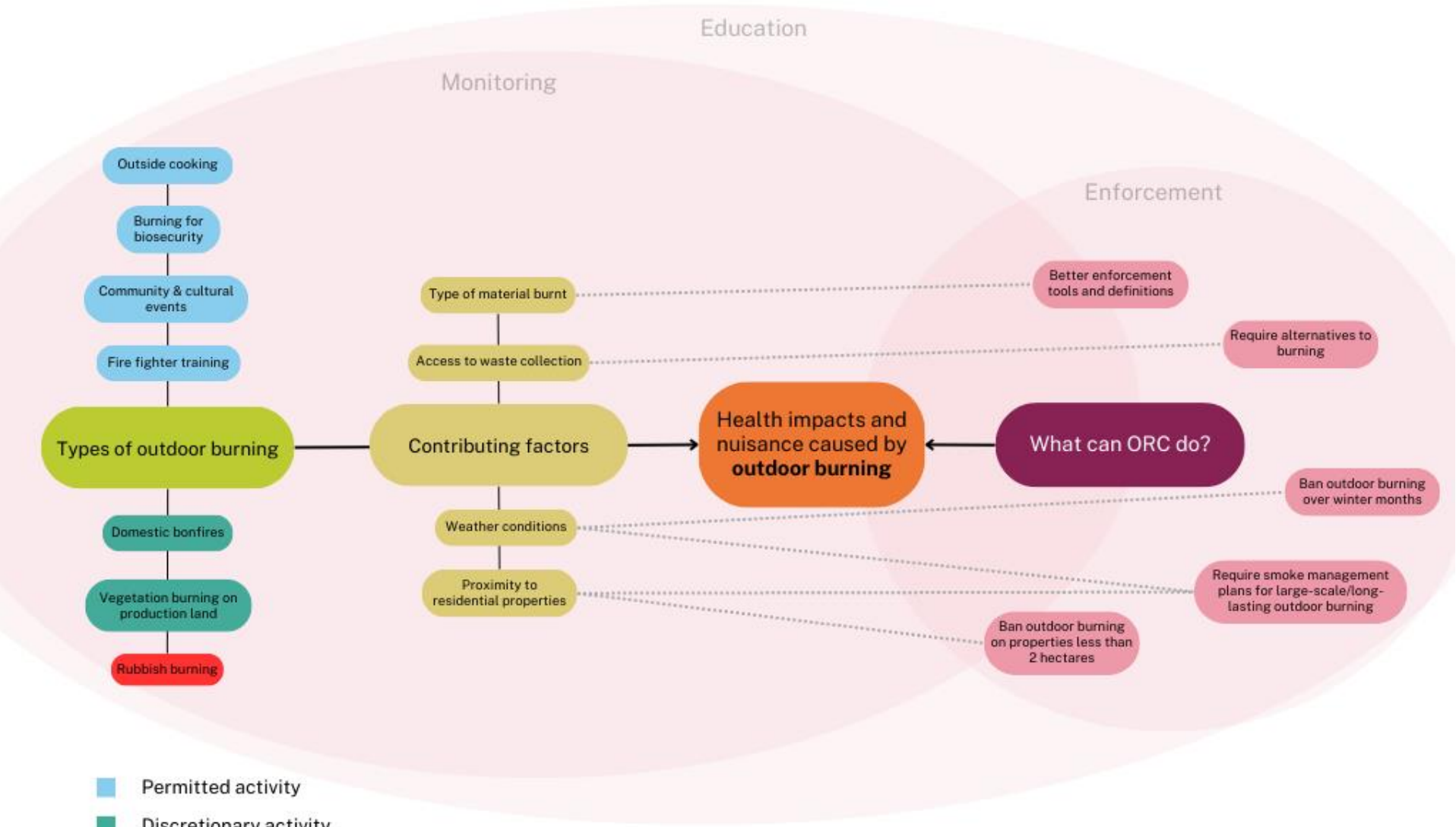
2F: Non-regulatory Options

- 3.4.10 Non-regulatory options are those outside the Air Plan, for example education campaigns, enforcement and activities carried out by the district and city councils. Education campaigns will be needed to support changes to rules and there will be a cost to council for this work.
- 3.4.11 For the council to enforce the provisions of the Air Plan, the rules and definitions need to be clear and measurable, and staff must be able to investigate and collect evidence of any breach. Clear and measurable rules could include a list of what can be burnt (rather than what cannot be burnt), directions on the correct way to build a fire, maximum size of burn pile and minimum fuel quality specifications (for example moisture content of wood).
- 3.4.12 District and city councils have a role to play in reducing discharges to air from outdoor burning, for example through providing waste collection services. Until recently, it was cheaper to burn waste and pay the fine than it was to get waste collected. The fines are set by central government and have recently been increased, but there are still parts of the region that do not have a waste collection service. The Air Plan review provides the opportunity to liaise with the TAs about the improvements to air quality which could be made by providing an appropriate waste collection service to all properties.

3.5 Outdoor burning options: Environmental, social and economic benefits / costs

| Option | Benefits | Costs |
|---|--|--|
| Option 2A: Status Quo | More freedom for individuals when compared to the other options. | The status quo (rules in the existing Air Plan) is not sufficient to prevent air pollution from outdoor burning affecting people and properties. |
| Option 2B: Ban outdoor burning over the winter months | <p>Banning outdoor burning over the winter months will reduce emissions when the inversion layer prevents their dispersion.</p> <p>More stringent rules will reduce health impacts and nuisance for residents.</p> <p>Having cleaner air in winter may benefit tourism centres and businesses in Central Otago.</p> | There may be conflict between householders / landowners who wish to restrict outdoor burning and those who wish to continue outdoor burning with no further restrictions. |
| Option 2C: Require smoke management plans for large-scale / long-lasting outdoor burning events | <p>Requiring smoke management plans will ensure burning takes place during optimal weather conditions to disperse smoke and particulate matter away from neighbouring properties.</p> <p>Requiring smoke management plans will provide greater regulatory oversight of activities and is likely to result in positive environmental effects.</p> <p>Requiring smoke management plans will let residents know when large-scale outdoor burning is happening so they can prepare accordingly.</p> <p>More stringent rules will reduce the risk of poor visibility for drivers from outdoor burning events.</p> | <p>Landowners may incur costs in preparing and submitting a smoke management plan.</p> <p>Smoke management plans will need to be assessed and approved by council staff.</p> |
| Option 2D: Ban outdoor burning on properties less than 2 hectares | Banning outdoor burning on properties less than 2 hectares will reduce emissions and the number of residents affected by outdoor burning from nearby properties. | Householders may incur costs for sourcing alternatives to burning. |

| Option | Benefits | Costs |
|--|---|--|
| Option 2E: Require alternatives to burning | <p>This option will avoid emissions from burning and the associated environmental and health impacts.</p> <p>There may be economic benefits for services such as wood chipping and composting, as well as commercial waste collectors.</p> | <p>Landowners may incur costs for sourcing alternatives to burning.</p> <p>Requiring alternatives to burning could result in increased vehicle emissions from taking the material off site for disposal.</p> |
| 2F: Non-regulatory Options: behaviour change / education / compliance campaign | <p>An education campaign alongside better-defined rules will enable consent holders and householders to have more certainty over their activities and proposed mitigation measures, and avoid costs associated with enforcement action.</p> | <p>More stringent rules will mean more enforcement and education resulting in greater costs to the council.</p> |



- Permitted activity
- Discretionary activity
- Prohibited activity

Issue 3: Vehicle Emissions

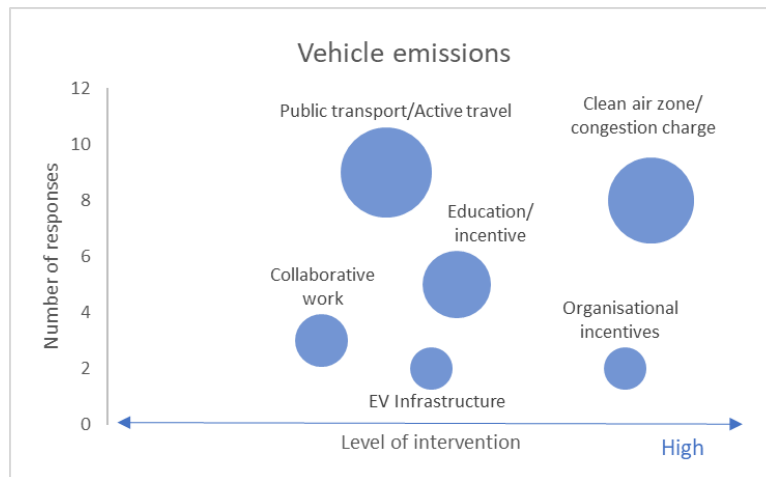
4.1 Introduction

- 4.1.1 Air pollution from motor vehicles is mainly nitrogen oxides (NO_x) and particulate matter from exhausts but pollution also occurs from tyre and brake wear as well as road abrasion. Exposure to these harmful emissions causes harm to human health and has been found to aggravate respiratory diseases such as asthma and lung infections, which impacts on hospital admissions and premature deaths. Vehicle emissions are also one of the main sources of greenhouse gases which contribute to climate change.
- 4.1.2 The recent HAPINZ 3.0 report⁷, which evaluates the effects of air pollution on human health across New Zealand and the resulting social costs, recommends air quality management strategies provide much more focus on addressing motor vehicle emissions. The Air Plan is limited in the policies and rules it can apply to reducing vehicle emissions, but the council has a number of other non-regulatory pathways to do so, including the joint Otago Southland Regional Land Transport Plan (RLTP), the Otago Regional Public Transport Plan (RPTP), the Climate Strategy and the Air Quality Strategy.
- 4.1.3 The RLTP contains strategic objectives which aim to reduce vehicle emissions, and Strategic Objective 3 echoes many of the options set out here; for example, developing public transport systems to meet the needs of local communities, ensuring access to safe walking and cycling networks, integrating land use and transport networks, and provision of electric charging hubs.

4.2 Committee Workshop

- 4.2.1 A workshop on the Air Plan review was held in September 2023. ESP Committee members were invited to consider a number of key topic areas, including vehicle emissions, and put forward their ideas to address the issue and level of intervention. A summary of the types of responses is set out in the diagram below. These responses have helped develop the options to minimise the health impacts from vehicle emissions.

⁷ Kuschel et al (2022). *Health and air pollution in New Zealand 2016 (HAPINZ 3.0): Volume 1 – Finding and implications*. Report prepared for Ministry for the Environment, Ministry of Health, Te Manatū Waka Ministry of Transport and Waka Kotahi NZ Transport Agency, March 2022.



4.3 Contributing Factors

4.3.1 There are a number of contributing factors which exacerbate the use of vehicles leading to health impacts from vehicle emissions which are set out below.

Factor 3.1: Lack of public knowledge

4.3.2 The impacts of vehicle emissions are a growing issue in New Zealand with the increase of road transport. While health impacts from domestic burners are well known, the effects of vehicle emissions are less widely understood by the public and this leads to behaviour which contributes to an increase in vehicle emissions. An example of this is the number of drivers who run their car engines ('idle') when parked. Idling engines not only pollute the air outside the vehicle, but passengers inside the car can be exposed to even higher levels of air pollution. By comparison, in the UK the issue is widely understood; idling is illegal and drivers can be fined.

Factor 3.2: Alternatives to private road transport

4.3.3 Many communities in Otago have little alternative transport choice other than private car. Even in the main centres of Dunedin and Queenstown, there is limited choice, with historically poor but improving access to public transport, limited public transport routes beyond the urban centre, and low-quality walking and cycling facilities. This has resulted in an increasing use of private vehicles and less demand for investment in other modes. What infrastructure there is becomes degraded or remains underdeveloped, causing fewer people to want to use alternative modes. Freight transportation is also constrained and dominated by road vehicles with little investment in alternative water and rail routes.

Factor 3.3: Type of vehicle

4.3.4 Diesel vehicles are 23% of the national fleet but produce 82% of health impacts because they produce more PM and NOx. Diesel vehicles includes heavy goods vehicles and buses. Decarbonising these fleets will be important. Larger cars such as SUVs also emit more than smaller cars. The age of the vehicle is also related to the emissions, with older cars more polluting than newer models. Government recently proposed bringing in stronger vehicle emissions standards for new and used cars, but these still fall short of the vehicle emissions standards in Europe. All-electric vehicles produce zero exhaust emissions but still contribute to PM through from tyre and brake wear as well as road abrasion.

- 4.3.5 Port activities such as shipping and cruise ships can generate air pollution, particularly for PM_{2.5} and SO₂. In 2022 NZ signed up to The International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, which means that domestic ships will be required to use higher grade fuels and reducing sulphur emissions. From 2020, international ships entering New Zealand ports were already complying with Annex VI fuel standards. Support vehicles and truck activity also contribute to port emissions and material handling can result in the generation of dust (see 'other' issues for discussion on dust).

Factor 3.4: Quality of the urban environment

- 4.3.6 Reducing vehicle emissions is linked to reducing private motor vehicle movements, and the quality of the urban environment is fundamental to enabling this.
- 4.3.7 Urban sprawl embeds the necessity for private vehicles to get around. Single use zones mean that there are few or no local amenities within walking or cycling distance to residential areas which means people use their cars.
- 4.3.8 People will choose alternative modes of transport if these are the most attractive options. This means making walking, cycling and public transport use more convenient, pleasant and appealing than private car use. Design of the public realm is fundamental to have a safe and welcoming urban environment, prioritise the needs of pedestrians and cyclists, and to rebalance the transport system away from the dominance of cars. The Healthy Streets Approach is a framework for embedding public health in transport, public realm and planning and is currently being piloted in New Zealand.
- 4.3.9 The availability of parking is an important factor for which mode of transport people use to get to a destination. Ensuring enough safe and secure cycle parking in the right places, such as near work places, shops, educational institutions, transport hubs and recreation facilities, help more people to travel by bike if they want to. While there will always be a need for accessibility parking to be provided, limiting the overall availability of car parking and introducing car park time restrictions and charges helps disincentivise travel by private motor vehicle.

4.4 Options

- 4.4.1 Many of the solutions are outside the remit of the Air Plan but non-regulatory policies could be included to require ORC and the district/city councils to address pollution from vehicle emissions. A number of options have been developed to address the issue and factors set out above. Except for the status quo, the options are not mutually exclusive and **all, some** or **none** can be chosen. The aim of the options is to minimise the health impacts from vehicle emissions. Analysis of the costs and benefits of these options is set out below. Other options may be put forward through consultation.

Option 3A: Status Quo

- 4.4.2 The existing Air Plan policy for motor vehicle emissions focuses on advocating for national interventions and encouraging city and district councils to use land use planning and traffic management mechanisms to avoid the occurrence of localised air quality problems. The existing Air Plan does not mention the health impacts of NO_x and does not propose any actions for the ORC to carry out. It is recommended that this is addressed through the Air Plan review.

Option 3B: New Air Plan rules and policies

4.4.3 The current Air Plan contains a policy to “encourage” city and district councils to use land use planning and traffic management mechanisms to reduce air pollution from motor vehicles. There may be more opportunities for the Air Plan review to strengthen the requirements for TAs, include a wider remit to include increasing active travel, and provide more detail of how to reduce reliance on motor vehicles. There is also an opportunity to strengthen the existing policy direction to reduce vehicle emissions, for example by requiring the avoidance of discharge of contaminants into air from vehicle maintenance and servicing.

Option 3C: Ensure reliability, availability and safety of public transport

4.4.4 This option sits outside the Air Plan but within ORC’s influence. ORC has a number of workstreams to improve the reliability and availability of public transport. This ranges from additional bus routes, improving the frequency of services and keeping fares low. Other programs could include liaising with bus operators to introduce cycle training for bus drivers to ensure they understand how to safely share the road with cyclists and e-scooter riders.

Option 3D: Vehicle decarbonisation

4.4.5 This option sits outside the Air Plan but within ORC’s influence. There are two types of vehicles the council has direct control over: buses and ORC fleet vehicles. ORC is preparing a carbon reduction policy for public transport which includes a commitment to no new diesel vehicles. Electrification of the buses will happen over the course of the next few years as contracts are renewed. The council also has the opportunity to continue to move away from higher -polluting diesel vehicles , towards decarbonising the ORC vehicle fleet.

Option 3E: Education / behaviour change campaign

4.4.6 This option sits outside the Air Plan but within ORC’s influence. There are opportunities for joint education campaigns with the city and district councils as well as initiatives for ORC staff. This could include a ‘No Idling’ campaign and signage, road safety and cycling education, ORC staff travel plans, and improved cycle parking at all office locations.

Option 3F: Work with TAs and other authorities

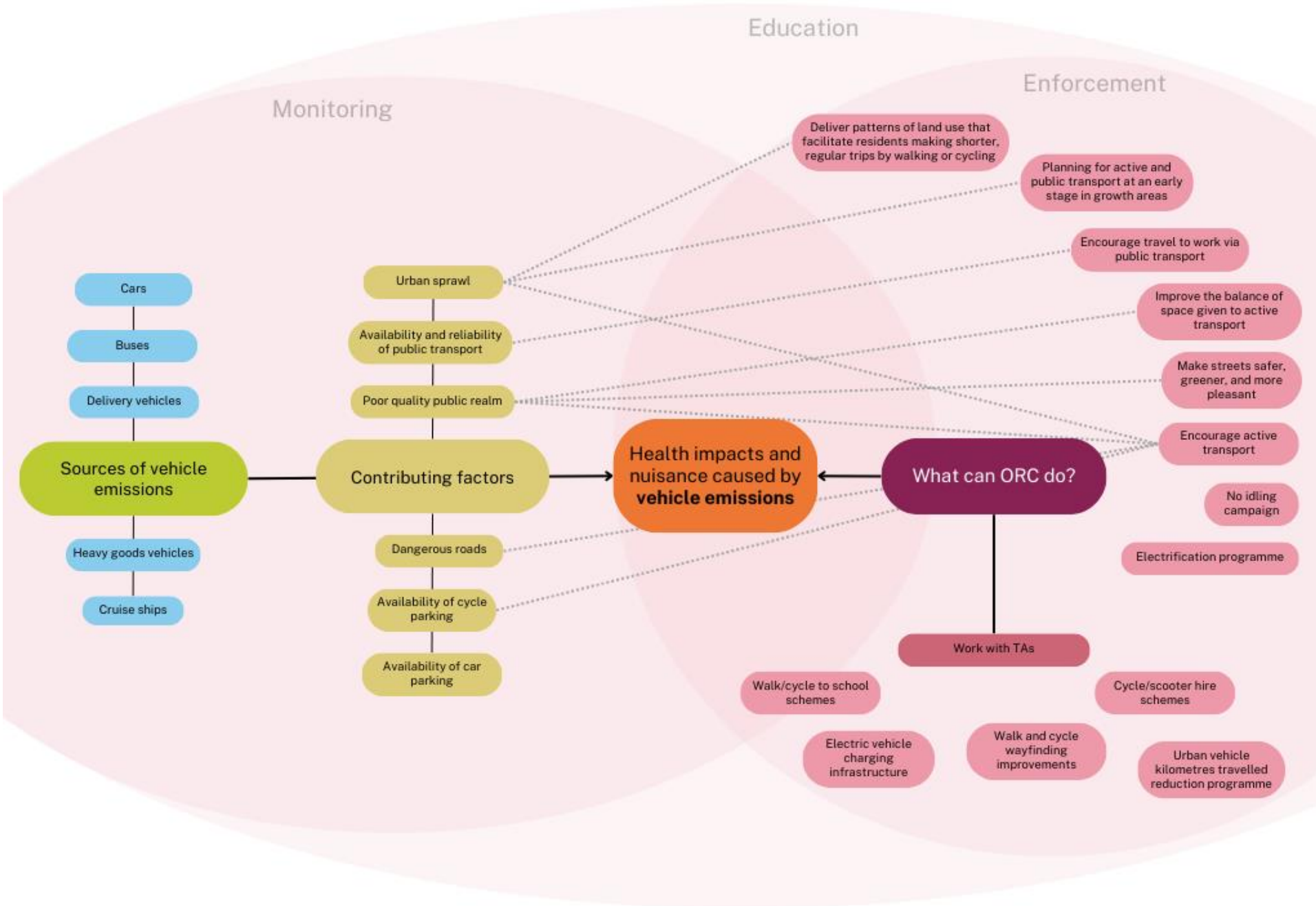
4.4.7 This option sits outside the Air Plan but within ORC’s influence. ORC already engages with central government on the issue of vehicle emissions, for example responding to the recent consultation on vehicle emissions standards. The council should continue to support and advocate for government and international initiatives to reduce vehicle emissions.

4.4.8 The city and district councils in Otago have regulatory and non-regulatory powers to put in place a series of measures to reduce vehicle emissions. ORC is already working collaboratively with QLDC and DCC to produce Vehicle Kilometres Travelled (VKT) reduction plans and Future Development Strategies and there is an opportunity to put in place air quality improvements through this work. Other schemes underway in Otago’s urban areas include public realm improvements, such as the improvements to George Street in Dunedin, and there may be opportunities to work collaboratively on schemes such as protected bike lane network, improved cycle parking, school travel plans, re-routing freight, parking strategies and road pricing.

4.4.9 There is also an opportunity to work with DCC and Port Otago on emissions from Port activities.

4.5 Vehicle emissions options: Environmental, social and economic benefits / costs

| Option | Benefits | Costs |
|--|---|--|
| Option 3A: Status Quo | No benefits identified. | The status quo does not address the impacts of NOx on public health. |
| Option 3B: New Air Plan rules and policies | Intervening to reducing vehicle emissions will improve air quality. | Potential cost to TAs to implement any policies. |
| Option 3C: Ensure reliability, availability and safety of public transport | More people choosing to travel by public transport rather than private vehicle will result in improved air quality. Having an improved public transport system and cleaner air may benefit tourism centres and businesses. | Costs associated with ORC's public transport responsibilities |
| Option 3D: Vehicle decarbonisation | Electrification of the bus fleet and ORC vehicle fleet will result in cleaner air and better public health. | Costs associated with EV infrastructure |
| Option 3E: Education / behaviour change campaign | More people choosing to walk, cycle and travel by public transport rather than travel by private motor vehicle will result in cleaner air and better public health. Lower costs from avoiding hospitalisations and days lost to ill health through better public health. | There will be a cost to council to run education campaigns. |
| Option 3F: Work with TAs and other authorities | More people choosing to walk, cycle rather than travel by private motor vehicle will result in cleaner air and better public health. Providing a safe and welcoming public realm will encourage people to dwell allow better social interaction. | There may be public resistance as the transportation system is rebalanced towards walking and cycling. |



Issue 4: Other Air Quality Issues

5.1 Introduction

- 5.1.1 Other air quality issues include discharges from industrial and trade premises, odour, dust and agrichemical spray drift. The effects from these sources range from serious health impacts to nuisance. They have been grouped together for the Issues and Options paper because often the options address a number of issues (the structure of this section reflects this by repeating options where applicable). In addition, the Air Plan review has not identified a fundamentally different approach to these issues to that taken by the existing Air Plan.

5.2 Committee Workshop

- 5.2.1 A workshop on the Air Plan review was held in September 2023. ESP Committee members were invited to consider a number of key topic areas and put forward their ideas to address the issue and level of intervention. Responses from the 'other' category have helped develop the options to minimise the health impacts and nuisance from air discharges from industrial and trade premises, odour, agrichemical spray drift and dust.

5.3 Discharges from industrial and trade premises

Issues and contributing factors

- 5.3.1 Discharges to air from industry include pollutants such as particulate matter, nitrogen dioxide and sulphur dioxide into the air as well as odour and dust. In urban areas industry is the source of 16% of nitrogen oxides and 3% of particulate matter emissions. Industry, spray drift and dust collectively represent 14% of complaints.
- 5.3.2 Discharges of contaminants into air from any industrial or trade premises in Otago is allowed only if it is expressly authorised by a permitted activity rule in the Air Plan, a resource consent or by regulations. Typically, the existing Air Plan rules require that discharges do not cause an adverse effect beyond the boundary of the property of origin.
- 5.3.3 ORC ran a successful campaign between 2007-2012 to reduce industrial emissions. Existing discharges were required to reduce PM₁₀ emissions to 50 mg/m³ and new discharges were required to meet a limit of 25 mg/m³. This resulted in industries using best practice techniques in reducing emissions such as bag filters or changing fuel type from coal to wood.
- 5.3.4 Adverse effects of emissions can arise when the location of the industrial or trade activity is in close proximity to sensitive receptors such as residential properties. This is matter of land-use planning which is the responsibility of the territorial authorities.

Option 4A: Strengthening existing rules for industrial and trade premises

- 5.3.5 There is an opportunity to strengthen rules around permitted activities, consents renewal, emission control, best practice, and type of fuel to ensure enforcement can take place if rules are breached. For example, some small-scale activities which are permitted by the Air Plan have been found to have an impact on neighbouring properties from dust and odour. The Air Plan review is an opportunity to consider if further rules are needed to control cumulative effects and discharges from a wider range of activities.

- 5.3.6 The current Air Plan includes a policy which encourages the adoption of management practices to avoid, remedy or mitigate any adverse effects of emissions beyond the boundary of the property. This could be strengthened to require that emissions do not cause an adverse effect beyond the property boundary.

Option 4B: New Rule to require Best Practicable Option

- 5.3.7 The Air Plan could be strengthened by an explicit requirement for discharges allowed by a resource consent (both new and renewed) to apply the best practicable option to prevent or minimise adverse effects on air quality. ‘Best practicable option’ (BPO) is a tool which is defined in the RMA and 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 and receiving environment; and
 - b) the financial implications; and
 - c) the current state of technical knowledge and the likelihood that the option will be successful.

Option 4C: Buffer Zones

- 5.3.8 Existing businesses and activities should not have unreasonable restrictions placed on them as a result of development permitted after they were established (i.e. ‘reverse sensitivity’). For example, a pig farm should not have to cease operation because new residential development is built close by and property owners object to the odour. There is an opportunity for the Air Plan to protect the continued operation of **existing activities** which emit discharges which are likely to be offensive or objectionable and require territorial authorities to ensure that existing land uses are taken into account when subdivision takes place, for example by introducing buffer zones, to ensure new cases of reverse sensitivity do not occur.
- 5.3.9 The Air Plan could also include rules about buffer zones or distance rules for **new activities** which are likely to result in a discharge which causes an offensive or objectionable effect beyond the property boundary.

5.4 Odour

Issues and contributing factors

- 5.4.1 Odour can cause a nuisance and affect amenity and generates 33% of complaints to the pollution hotline. Odour can arise from sources such as industrial and trade premises, waste management activities and farming. Odour can also result from all types of burning. Adverse effects of odour can arise when the location of the discharging activity is in close proximity to sensitive receptors such as residential properties. This is matter of land-use planning which is the responsibility of the territorial authorities.
- 5.4.2 Poor odour management practices also occur, and this is the responsibility of the producers. Adverse odour effects are usually managed through conditions on resource consents or through best practice methods and technologies.
- 5.4.3 The current Air Plan rules focus on avoiding or mitigating the discharge of odours which are “offensive” or “objectionable” beyond the property boundary. Odour is subjectively defined and people respond to smells differently. This means it can be difficult to investigate and enforce breaches. The council’s approach to investigating odour complaints is through

observations made by Council officers, taking into account the FIDOL factors, which is the only available tool for investigating complaints of odour. These 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.

Option 4A: Strengthening existing rules for industrial and trade premises

5.4.4 There is an opportunity to strengthen rules around permitted activities, consents renewal, emission control, best practice, and type of fuel to ensure enforcement can take place if rules are breached. For example, some small-scale activities which are permitted by the Air Plan have been found to have an impact on neighbouring properties from dust and odour. The Air Plan review is an opportunity to consider if further rules are needed to control cumulative effects and discharges from a wider range of activities.

5.4.5 The current Air Plan includes a policy which encourages the adoption of management practices to avoid, remedy or mitigate any adverse effects of emissions beyond the boundary of the property. This could be strengthened to require that emissions do not cause an adverse effect beyond the property boundary.

Option 4B: New Rule to require Best Practicable Option

5.4.6 The Air Plan could be strengthened by an explicit requirement for discharges allowed by a resource consent (both new and renewed) to apply the best practicable option to prevent or minimise adverse effects on air quality. 'Best practicable option' (BPO) is a tool which is defined in the RMA and 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 and receiving environment; and
- b) the financial implications; and
- c) the current state of technical knowledge and the likelihood that the option will be successful.

Option 4C: Buffer Zones

5.4.7 Existing businesses and activities should not have unreasonable restrictions placed on them as a result of development permitted after they were established (i.e. 'reverse sensitivity'). For example, a pig farm should not have to cease operation because new residential development is built close by and property owners object to the odour. There is an opportunity for the Air Plan to protect the continued operation of **existing activities** which emit discharges which are likely to be offensive or objectionable and require territorial authorities to ensure that existing land uses are taken into account when subdivision takes place, for example by introducing buffer zones, to ensure new cases of reverse sensitivity do not occur.

5.4.8 The Air Plan could also include rules about buffer zones or distance rules for **new activities** which are likely to result in a discharge which causes an offensive or objectionable effect beyond the property boundary.

Option 4D: New Rules to require Dust and Odour Management Plans

5.4.9 The Air Plan could be strengthened by requiring a dust and/or odour management plan for activities which are likely to result in a discharge of dust and/or odour which causes an offensive or objectionable effect beyond the property boundary. Management plans could

be required for any discharge to air consent be supplied to the council on request. Dust and Odour Management Plans could take account of cumulative impacts, set out mitigation measures to minimise the effects and would be implemented by the person responsible for the discharge into air.

Option 4E: Include more information about FIDOL assessments

5.4.10 The Air Plan could also contain more detail about the FIDOL factors and which assessment tools and evaluation criteria will be used by council officers when investigating activities that may be causing offensive or objectionable discharges. This would allow complainants to understand the process and how best to provide feedback and evidence of the event.

5.5 Dust

Issues and contributing factors

- 5.5.1 Dust arises from industrial processes, unsealed roads, mining, land clearance and subdivision, construction and demolition, farming, and also natural sources. While dust is an emission to air (for which the Regional Council has primary responsibility) it is an effect generated by land use activities which are managed by district and city councils. Controls on dust are implemented and enforced by the district and city councils through conditions on land use consents and ORC issued consents on certain activities such as mining and quarrying. Dust controls may also form part of industry codes of practice or other mechanisms which promote good management practices.
- 5.5.2 Once emitted, dust 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.
- 5.5.3 A concentration of dust emissions-generating activities can result in a cumulative impact that individual consents may not always take into account. Dry conditions and wind direction also have an impact on how residents are affected by dust.
- 5.5.4 Cost is a factor for remedying dust from unsealed roads. There are higher initial costs for permanently sealing roads when compared to a temporary seal or dust suppressant measures. The responsibility for sealing roads is sometimes unclear, with TAs sometimes deferring responsibility to residents. TAs do not have responsibility for private roads or long rights of ways. Unsealed roads can create dust which impairs driver visibility which is a safety issue. The use of dust suppressants is a matter currently managed under the Regional Plan: Waste, and was amended as part of Plan Change 1 to the Regional Plan: Waste in 2022.

Option 4A: Strengthening existing rules for industrial and trade premises

- 5.5.5 There is an opportunity to strengthen rules around permitted activities, consents renewal, emission control, best practice, and type of fuel to ensure enforcement can take place if rules are breached. For example, some small-scale activities which are permitted by the Air Plan have been found to have an impact on neighbouring properties from dust and odour. The Air Plan review is an opportunity to consider if further rules are needed to control cumulative effects and discharges from a wider range of activities.
- 5.5.6 The current Air Plan includes a policy which encourages the adoption of management practices to avoid, remedy or mitigate any adverse effects of emissions beyond the boundary of the property. This could be strengthened to require that emissions do not cause an adverse effect beyond the property boundary.

Option 4B: New Rule to require Best Practicable Option

- 5.5.7 The Air Plan could be strengthened by an explicit requirement for discharges allowed by a resource consent (both new and renewed) to apply the best practicable option to prevent or minimise adverse effects on air quality. ‘Best practicable option’ (BPO) is a tool which is defined in the RMA and 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 and receiving environment; and
 - b) the financial implications; and
 - c) the current state of technical knowledge and the likelihood that the option will be successful.

Option 4C: Buffer Zones

- 5.5.8 Existing businesses and activities should not have unreasonable restrictions placed on them as a result of development permitted after they were established (i.e. ‘reverse sensitivity’). For example, a pig farm should not have to cease operation because new residential development is built close by and property owners object to the odour. There is an opportunity for the Air Plan to protect the continued operation of **existing activities** which emit discharges which are likely to be offensive or objectionable and require territorial authorities to ensure that existing land uses are taken into account when subdivision takes place, for example by introducing buffer zones, to ensure new cases of reverse sensitivity do not occur.

- 5.5.9 The Air Plan could also include rules about buffer zones or distance rules for **new activities** which are likely to result in a discharge which causes an offensive or objectionable effect beyond the property boundary.

Option 4D: New Rules to require Dust and Odour Management Plans

- 5.5.10 The Air Plan could be strengthened by requiring a dust and/or odour management plan for activities which are likely to result in a discharge of dust and/or odour which causes an offensive or objectionable effect beyond the property boundary. Management plans could be required for any discharge to air consent be supplied to the council on request. Dust and Odour Management Plans could take account of cumulative impacts, set out mitigation measures to minimise the effects and would be implemented by the person responsible for the discharge into air.

Option 4E: Include more information about FIDOL assessments

- 5.5.11 The Air Plan could also contain more detail about the FIDOL factors and which assessment tools and evaluation criteria will be used by council officers when investigating activities that may be causing offensive or objectionable discharges. This would allow complainants to understand the process and how best to provide feedback and evidence of the event.

5.6 Agrichemical and fertiliser spray drift

Issues and contributing factors

- 5.6.1 Agrichemicals are used in horticulture, agriculture, arable farming, forestry and fruit production to control pests and diseases. Adverse effects of agrichemical and fertiliser spraying can occur when the spray drifts onto non-target areas and onto neighbouring properties.

- 5.6.2 Agrichemicals and their use are subject to national legislation and codes of practice including the Hazardous Substances and New Organisms Act 1996 and NZS8409: Management of Agrichemicals. NZS8409 is updated often and referring to a specific edition (for example 1999 in the current Air Plan) is unhelpful to sprayers who need up-to-date rules to follow.
- 5.6.3 Under the Health and Safety at Work Act and associated regulations, all users of hazardous substances must be trained in their use. Whilst there is no specific certification requirement, the “Growsafe” certificates have been designed to meet the requirements set out in the regulations.
- 5.6.4 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.
- 5.6.5 Any controls on agrichemicals under the Air Plan will need to be consistent with the direction under the draft LWRP.

Option 4F: Strengthening existing rules for agrichemical spraying

- 5.6.6 Agrichemical spraying is a permitted activity in the current Air Plan, providing that application is undertaken in accordance with best practice standards. This could be strengthened to include a requirement to notify the council and properties which may be affected by spray drift in advance of spraying activities. The notification could include details such as the area of spraying, duration, the agrichemical to be used, and the name and contact details of the applicator. This will help the council to investigate any breaches of the rules and help affected property owners / occupiers prepare.
- 5.6.7 In the existing Air Plan fertiliser application has a separate rule from agrichemical spraying but there is an opportunity to address these issues together as the discharge of agrichemicals and fertilisers into air requires the same controls.
- 5.6.8 The Air Plan could also contain more detail about the FIDOL factors and which assessment tools and evaluation criteria will be used by council officers when investigating activities that may be causing offensive or objectionable odour. This would allow complainants to understand the process and how best to provide feedback and evidence of the event.

5.7 Other Issues: Environmental, social and economic benefits / costs

| Option | Benefits | Costs |
|---|--|---|
| Option 4A: Strengthening existing rules for industrial and trade premises | <p>More stringent rules will mean reduced health impacts and less nuisance for residents.</p> <p>Better defined rules will enable operators and consent holders to have more certainty over their activities and proposed mitigation measures, and avoid costs associated with enforcement action.</p> | There may be conflict between those who prefer tighter controls on emissions and those who wish to continue with no further restrictions. |

| Option | Benefits | Costs |
|--|--|--|
| Option 4B: New Rule to require Best Practicable Option | <p>Improvements to practices will mean reduced health impacts and less nuisance for residents.</p> <p>There may be economic benefits for services associated with emissions control.</p> | <p>Operators may incur costs from improving emissions control methods and technologies.</p> <p>More enforcement and education may result in costs to the council.</p> |
| Option 4C: Buffer Zones | Protects the continued operation of existing activities and avoids new cases of reverse sensitivity. | Cost to TAs to implement the policy. |
| Option 4D: New Rules to require Dust and Odour Management Plans | Requiring dust and odour management plans will provide greater regulatory oversight of activities and is likely to result in positive environmental effects. | <p>Dust and odour management plans will need to be assessed and approved by council staff.</p> <p>Operators may incur costs in preparing and submitting dust and odour management plans.</p> |
| Option 4E: Include more information about FIDOL assessments for odour and dust | <p>Best practice for staff when assessing consent breaches and complaints.</p> <p>Greater certainty for complainants about the assessment tools and evaluation criteria will be used by council officers when investigating activities.</p> | No costs identified. |
| Option 4F: Strengthening existing rules for agrichemical spraying | <p>More stringent rules will mean clarity for sprayers less nuisance for residents.</p> <p>Notification in advance of spraying would help the council to investigate any breaches of the rules and help property owners/occupiers prepare.</p> | Notifications will need to be assessed by council staff. |