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Waikato Regional Council – Air Quality Strategy

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Executive summary

Waikato Regional Council (the council) has developed this organisational strategy to determine the way forward for addressing air quality in the Waikato region, with particular emphasis on PM₁₀¹.

The vision for air quality is:

Air quality in the Waikato region that supports healthy people and a healthy economy.

PM₁₀ has a wide range of negative effects on human health and these are well established across a range of research disciplines. PM₁₀ is emitted from a wide range of diffuse sources, including domestic fires (the primary contributor within the Waikato region), vehicle emissions, outdoor burning and industrial activities.

Poor air quality has a negative impact on public health (including restricted activity days and premature death in some individuals). As a consequence, there are associated social and economic impacts, and the costs of these are borne by individuals as well as at local, regional and national levels.

The goal for this strategy is that all gazetted airsheds within the Waikato region comply with the National Environmental Standards for Air Quality (NESAQ). The NESAQ has set exceedance levels and timeframes for non-complying airsheds to become compliant. The council also has policy objectives regarding the management of air quality in both the current and proposed Waikato Regional Policy Statements.

Ambient air quality in the Waikato is generally good. However, ***there are four airsheds (Tokoroa, Taupo, Te Kuiti and Putaruru) in the region with PM₁₀ exceedances that are of concern.*** Tokoroa is the key airshed to address within the region to improve air quality. In order to ensure that Tokoroa is compliant within the NESAQ timeframes, a significant investment of effort and resources is required. This is not only because of the high number of PM₁₀ exceedances, but also because the majority of the population lives in Deprivation Index 9 and 10 areas.

This strategy recommends undertaking work in the following key areas in order to achieve compliance with the NESAQ:

- Develop a partnership approach with district councils and other key stakeholders.
- Retain the council's Clean Heat Incentives Programme and link the provision of funding for clean heat replacements to the adoption of local bylaws.
- Undertake a comprehensive education and behaviour change programme to ensure regulatory success and successful uptake of financial incentives.
- Continue to proactively explore new funding opportunities for clean heat and insulation (including more strategic engagement with Maori organisations and district health boards).
- Consider the introduction of a loan scheme that is made available to all homeowners in non-complying airsheds.

¹ PM₁₀ is particulate matter below 10 microns in size. 10 microns equates to approximately one-fifth of the diameter of human hair.

1 Rationale for the strategy

The rationale for developing this strategy is to protect and improve public health by ensuring that all gazetted airsheds are compliant with the NESAQ and the council's regional policy objectives. Improving air quality across the Waikato region will also ensure that new or developing industry is not limited and is enabled to contribute to local and regional economic prosperity.

Reviewing the council's air quality work programmes (including monitoring, education and communications, community and stakeholder engagement and regulation) highlights the critical success factors. This strategy builds on these achievements, with these learnings forming the foundation of the guiding principles and strategic actions for future air quality work. As well as recording the success factors of previous work, gaps and opportunities for improvement are also discussed. This stocktake provides the basis for prioritising the relative importance and phasing of actions to be undertaken in the future.

This strategy communicates an agreed way forward by proposing seven outcome areas in which the council can work more effectively to decrease PM₁₀ levels across the region. The strategy aims to create consensus within the council, guide the development of policy choices, and ensure consistency of messaging to external stakeholders.

A key benefit of the strategy is that it will enable the council to proactively identify and respond to new opportunities to address air quality issues as the regulatory, funding and political landscape continues to evolve. In some cases, where appropriate, this will entail the council taking on a regional leadership role. Such a role may include taking on advocacy, co-ordination, research, and relationship brokering responsibilities.

Another anticipated benefit of the strategy is more effective collaboration with the council's key stakeholders (particularly district councils) to achieve practical outcomes and behaviour change and better advocacy to central government regarding the needs of the Waikato region.

2 Strategic drivers for managing air quality

2.1 Introduction

The development of this strategy was guided by four main strategic drivers and considerations:

- the statutory responsibilities placed on regional councils to manage air quality in their region (Sections 2.2.1-2.2.4)
- the demographic composition of the populations of each of the four non-compliant airsheds (Section 2.3)
- the current state and trend in air quality in the region (Section 3.1.2)
- community and stakeholder expectations of public health and the environment (Section 3.1.3).

2.2 Legislative requirements

2.2.1 Resource Management Act 1991 (RMA)

Regional councils have responsibilities under the RMA and give effect to the Act through regional policies and plans. The RMA is the primary legislation that guides regional and district councils in the management of air quality work. Specifically:

- Section 5 of the RMA states that local authorities have a responsibility to sustainably manage natural and physical resources while “safeguarding the life-supporting capacity of air, water, soil and ecosystems”.
- Section 30 outlines the functions that regional councils must undertake to give effect to the RMA. This includes the “control of discharges of contaminants into or onto ... air” (Section 30(f)).
- Section 15 states that discharges of contaminants to air are prohibited unless expressly allowed through a regional plan rule.

2.2.2 Waikato Regional Policy Statement

Operative

The Waikato Regional Policy Statement (WRPS) contains objectives regarding the management of air quality within the Waikato region. The current WRPS outlines the following objective (3.6.3) for air quality in the region:

- a. High air quality protected
- b. Degraded air quality enhanced
- c. Other air quality maintained.

The operative WRPS is currently under review.

Proposed

The proposed WRPS contains the following objectives for the management of air quality within the Waikato region:

- a. Improve degraded air quality
- b. Manage discharges to air
- c. Limit adverse effects on amenity.

2.2.3 National Environmental Standards for Air Quality

Current air quality management is regulated under the National Environmental Standards for Air Quality (NESAQ), some of which include:

- five standards for ambient (outdoor) air quality
- a design standard for new woodburners installed in urban areas.

In 2009, the Minister for the Environment announced a review of the NESAQ.

The revised NESAQ, announced by the Minister in January 2011, have introduced the following changes to the standards, effective 1 June 2011:

- remove all existing restrictions on industry consents for PM₁₀ discharges.
- introduce split target compliance dates depending on the state of air quality in each airshed. Airsheds with more than 10 exceedances must meet three exceedances by 1 September 2016, and one exceedance by 1 September 2020². Airsheds with fewer than 10 exceedances must meet one exceedance by 1 September 2016.
- make provision for the exclusion of exceptional events (e.g. dust storms, volcanic eruptions) from counting as exceedances of the PM₁₀ standard.
- require offsets from new industries with significant PM₁₀ discharges in polluted airsheds from September 2012. This means that new industries will only be permitted to discharge PM₁₀ if the industry reduces emissions from elsewhere in the airshed so that overall emissions in the airshed stay the same (or improve).
- prohibit new solid-fuel open fires in homes in polluted airsheds from September 2012 (gas open fires will still be permitted).

The table below outlines the current average number of exceedances in the Waikato region's four non-complying airsheds and the number of exceedances required to meet the NESAQ split timeframes for compliance.

Airshed	Average annual PM ₁₀ exceedances ³	NESAQ target – 2016	NESAQ target 2020
Tokoroa	20.5	3 exceedances	1 exceedance
Taupo	7.1	1 exceedance	
Te Kuiti	4.1	1 exceedance	
Putaruru	2.1	1 exceedance	

Whilst the compliance timeframe has been amended through the review, it is important to note that the value of the PM₁₀ standard itself will not change (i.e. it remains 50 µg/m³ as a 24-hour average with one permitted exceedance over any 12-month period).

The amended regulations were gazetted in April 2011 and came into force on 1 June 2011. Regional councils are required to monitor air quality in all gazetted airsheds, including those

² The date of compliance for all non-complying airsheds under the old NESAQ was set at 2013.

³ Averages are based on monitoring for Tokoroa and Taupo between 2001 and 2010, Te Kuiti between 2003 and 2010 and Putaruru between 2007 and 2010.

that are non-complying. It is expected that a plan detailing how the NESAQ will be met will need to be produced.

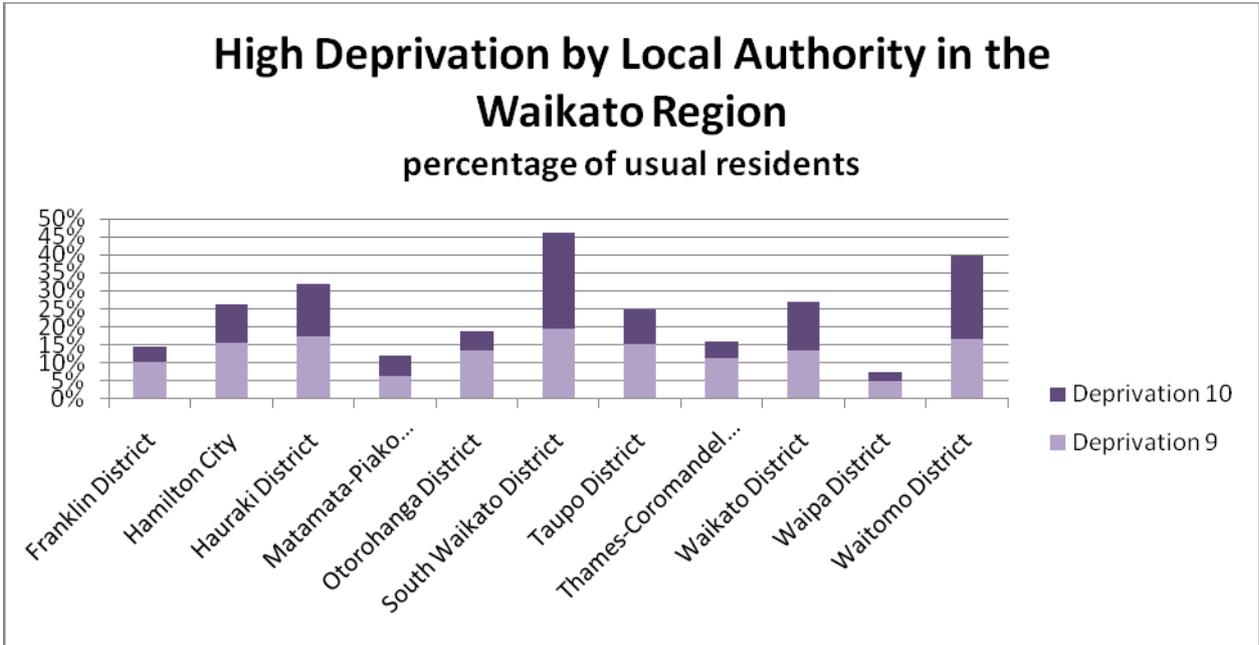
2.2.4 Local Government Act 2002 (LGA)

While the RMA and NESAQ give clear direction to regional councils regarding the sustainable management of the air resource, the LGA also provides guidance to local authorities on how to respond to air quality issues. The purpose of local authorities under the LGA is to promote social, environmental, cultural and economic wellbeing. Given this broad objective, councils can determine local responses to the issue in order to promote and improve community wellbeing. A number of district councils within the region have implemented work programmes to address degraded air quality.

2.3 Demographic composition

The demographic composition of the populations within each of the four non-complying airsheds is a highly relevant consideration when making policy choices to help achieve compliance with the NESAQ. The ability of each household to meet the costs of compliance with the NESAQ (in terms of replacing old woodburners or open fires) is a key factor and is different in all four airsheds⁴. Figure 1 illustrates the percentage of people living in Deprivation 9 and 10 areas within each local authority⁵.

Figure 1 High deprivation by local authority in the Waikato region



2.3.1 Tokoroa⁶

- Tokoroa has the second largest population (13,986) of the four non-compliant airsheds in the region.
- 50.5% identify their ethnicity as European, and 33.5% as Maori. Tokoroa also has a large Pacific Island population (17%).

⁴ Note that airshed boundaries do not align with Census Area Unit/town boundaries.

⁵ The Deprivation Index (developed by Department of Public Health, University of Otago) measures the level of deprivation and includes nine variables (such as income, home and car ownership, access to a phone, qualifications and overcrowding) from Census data. This score provides deprivation information at a meshblock level. The deprivation scale ranges from 1 (low deprivation) to 10 (high deprivation).

⁶ All demographic information is sourced from the 2006 Census.

- The home ownership rate is 66.10%, and the average rate of turnover for home ownership is 8.4% annually.
- The median income is \$41,258. There are 7,923 people who are in Deprivation Index 9 and 10 areas (57% of the population).

2.3.2 Taupo

- Taupo has the largest population (23,493) of the four non-compliant airsheds in the region.
- 66.85% identify their ethnicity as European, and 20.5% as Maori. Taupo has a Pacific Island population of 2.8%.
- The home ownership rate is 64.8%, and the average rate of turnover for home ownership is 11.5% annually.
- The median income is \$49,859. There are 4,356 people who are in Deprivation Index 9 and 10 areas (19% of the population).

The gazetted airshed is a sub-sample of the Taupo township.

2.3.3 Putaruru

- Putaruru has the smallest population (3,783) of the four non-compliant airsheds in the region.
- 66.9% identify their ethnicity as European, and 31.9% as Maori. Putaruru has a Pacific Island population of 2.3%.
- The home ownership rate is 69.5%, and the average rate of turnover for home ownership is 7.3% annually.
- The median income is \$35,489. There are 2,100 people who are in Deprivation Index 9 and 10 areas (56% of the population).

2.3.4 Te Kuiti

- Te Kuiti has the third largest population (5,400) of the four non-compliant airsheds in the region.
- 52% identify their ethnicity as European, 40.9% as Maori. Te Kuiti has a Pacific Island population of 2.7%.
- The home ownership rate is 58.3%, and the average rate of turnover for home ownership is 5.6% annually.
- The median income is \$39,273. There are 2,856 people who are in Deprivation Index 9 and 10 areas (53% of the population).

2.3.5 Summary

The significant proportion of the population in Te Kuiti, Tokoroa and Putaruru living in Deprivation 9 and 10 areas means that the ability of homeowners to afford to replace old solid fuel burners is severely compromised. In the case of Tokoroa, a high number of conversions are required in a town where over half the population lives in Deprivation Index 9 and 10 areas.

3 Ambient air quality: the issue

3.1 Introduction

Within the Waikato region, the main air quality issue in some urban areas is PM₁₀ (particles less than 10 microns in diameter). These particles are not visible to the human eye and are small enough to be able to be absorbed into people's airways, and as a result can cross into the bloodstream. This contributes to cardiac and respiratory illness.

As part of the NESAQ requirements, a scoping report⁷ was produced to determine areas that would be defined as air management areas (called 'airsheds'). The criteria for assessment included meteorology, geography and housing stock. As a result, a total of 20 airsheds for the Waikato region were gazetted⁸.

Nine airsheds were identified through desktop analysis as being likely to exceed the permitted number of annual exceedances for PM₁₀ levels. These are Hamilton, Matamata, Ngaruawahia, Putaruru, Taupo, Tokoroa, Te Kuiti, Turangi and Waihi. Monitoring has been undertaken in a number of these airsheds to test this analysis.

3.1.1 Emission inventories

In order to quantify the sources of PM₁₀ in each monitored airshed, emissions inventories have been undertaken by the council on an as-required basis when budget is available. The purpose of an emission inventory is to determine the relative contribution of different sources of emissions to air (including domestic heating, motor vehicles, industrial and commercial activities and outdoor burning) in an airshed. A special focus is given to PM₁₀ in these inventories as it is the only contaminant within the Waikato region that regularly exceeds the NESAQ standards.

3.1.2 Current state of air quality

Elevated levels of PM₁₀ in some urban areas is the key air quality issue in the Waikato region (see Table 1). ***So far four airsheds, Tokoroa, Taupo, Te Kuiti and Putaruru, do not meet the NESAQ or regional guidelines.*** A fifth airshed, Hamilton, is unusual in that it oscillates in and out of compliance with the NESAQ. Against expectations based on earlier NIWA modeling, air quality (PM₁₀ levels) in Matamata, Waihi, Ngaruawahia and Turangi have not shown to exceed national standards. To date, records supplied by Genesis Energy have shown that the town of Huntly also complies with the NESAQ.

⁷ Fisher, G., King, D. et. al. 2005: Defining New Zealand's Airsheds: Local Air Management Areas (LAMAs). WRC DOC # 1001246

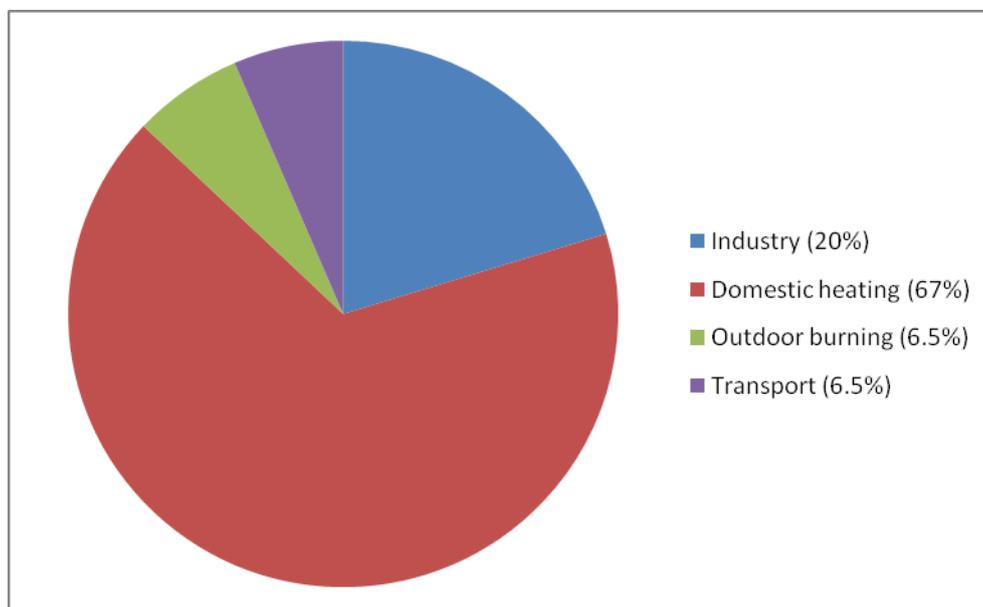
⁸ Ibid.

Table 1 Average annual number of PM₁₀ exceedances in nine Waikato airsheds⁹

Year ¹⁰	Urban areas within the Waikato region								
	Tokoroa	Taupo	Hamilton	Te Kuiti	Matamata	Putaruru	Ngarua-wahia	Waihi	Turangi
2001	24	7	3						
2002	15	6	0						
2003	18	12	3	5					
2004	41	6	1	5					
2005	33	3	0	2					
2006	20	15	2	7	0				
2007	10	3	0	4	0	3			
2008	11	11	0	3	0	4	0	0	
2009	17	7	3	4	1	3	1	0	0
2010	16	1	0	3	0	1	0	0	0
2011 to date ¹¹	16	1	5	0	0	1	0	0	0
Average number of PM ₁₀ exceedances (2001-2010)	20.5	7.1	1.2	4.1	0.2	2.1	0.3	0	0

The main source of PM₁₀ within the Waikato region comes from home heating appliances (woodburners, multi-fuel burners and open fires). Figures 2-5 show that, in each airshed, there are varying contributions of PM₁₀. For example, the industry contribution is less than 1%, while in Te Kuiti it is approximately 20%. The remainder of PM₁₀ is as a result of vehicle emissions and outdoor burning. This differs from regions such as Auckland, where approximately half of PM₁₀ is caused by transport emissions.

Figure 2 Sources of PM₁₀ within the Te Kuiti airshed¹²



⁹ Briefing notes – air quality in Waikato towns. WRC Doc # 1949807.

¹⁰ Based on a calendar year

¹¹ Until 16 August 2011

¹² Air Emission Inventory – Tokoroa and Te Kuiti 2007. Prepared by Emily Wilton and Melanie Baynes. WRC Doc # 1268105.

Figure 3 Sources of PM₁₀ within the Tokoroa airshed¹³

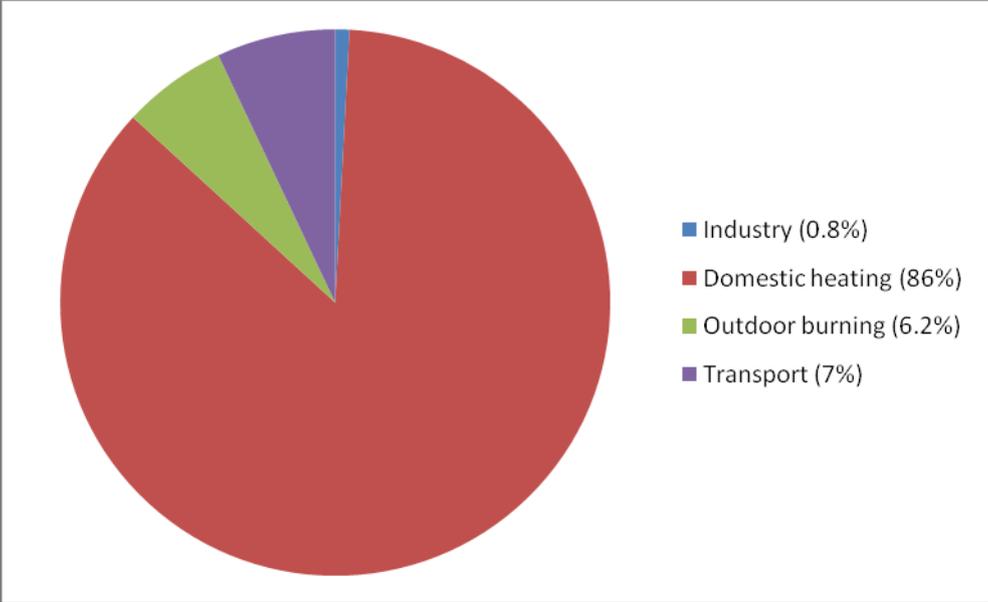
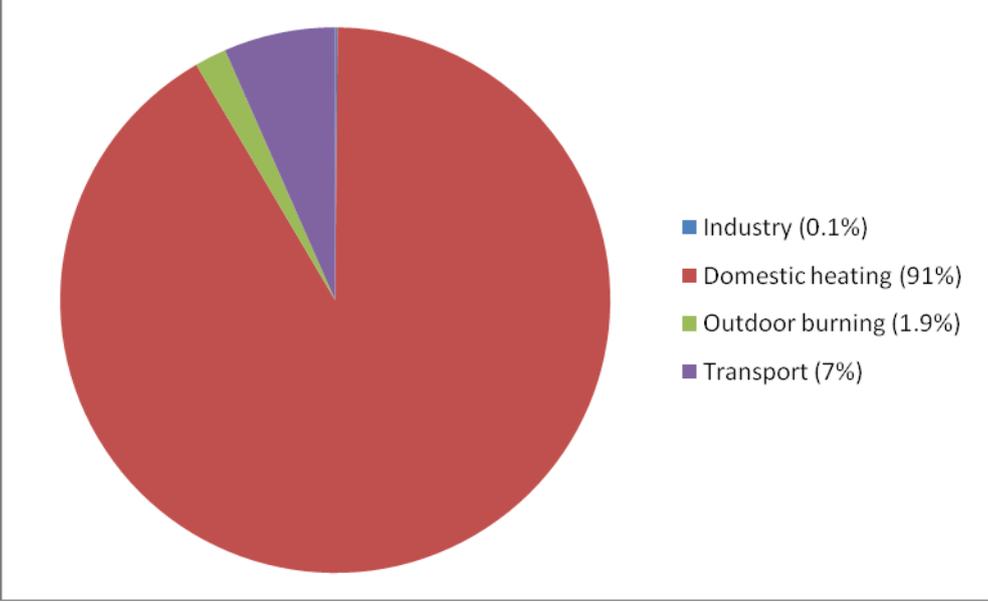


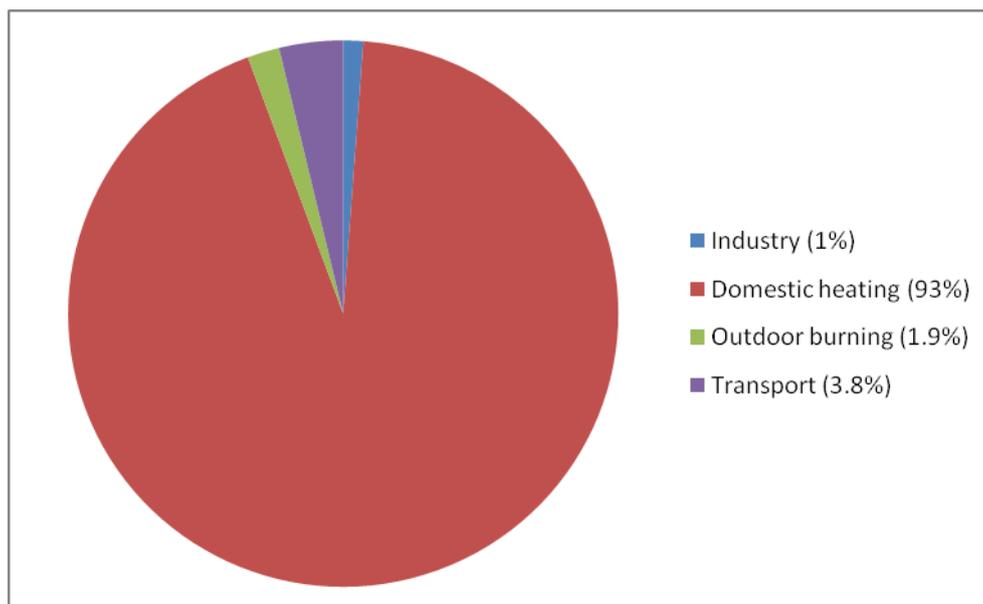
Figure 4 Sources of PM₁₀ within the Taupo airshed¹⁴



¹³ Source: Air Emission Inventory – Tokoroa and Te Kuiti 2007. Prepared by Emily Wilton and Melanie Baynes. WRC Doc # 1268105.

¹⁴ Source: Air Emission Inventory – Taupo, Thames and Huntly 2009. Prepared by Environet. WRC Doc # 1559796.

Figure 5 Sources of PM₁₀ within the Putaruru airshed¹⁵



The degree of air pollution in each town also varies from winter to winter, as it is affected by variability in temperature, rainfall, thermal inversions, availability of dry fuel sources, mid-range climate oscillations and human behaviour.

Tokoroa currently has the highest number of PM₁₀ exceedances in the Waikato region. This town often experiences very cold winters, and private wood collection for home heating is common practice. This is consistent with findings from overseas reporting that high pollution concentrations generally occur in towns with colder climates and easy access to wood as a heating resource¹⁶.

The location of main transport routes also has a significant impact on PM₁₀ levels within a discrete locality. This is an important consideration for future infrastructure planning and is most relevant in the Hamilton airshed.

3.1.3 Public health effects of PM₁₀

Communities have concerns about air quality, particularly PM₁₀, because of its detrimental effect on human health. There is an accumulating body of research and epidemiological evidence documenting the connection between exposure to PM₁₀ and adverse health effects (including premature death).

While premature death as a result of exposure to PM₁₀ is of key concern, there are also other adverse health effects for people from poor air quality. It is important to note that the effects of PM₁₀ exposure are not experienced uniformly across the population. Population groups more sensitive to air pollution include the elderly, children, infants and those with pre-existing respiratory conditions and/or cardiovascular disease.

These negative health impacts not only affect individuals' quality of life, but have a wider influence on communities in terms of loss of economic productivity and people's ability to

¹⁵ Source: Air Emission Inventory - Matamata, Putaruru and Waihi. Prepared by Environet. WRC Doc# 1172647. In 2006, when the emissions inventory was undertaken, industrial sources were estimated to contribute 39% of the PM₁₀ load in winter. The two main industrial sources were identified as the Carter Holt Harvey sawmill and Rapid Mineral's lime processing plant, with minor contributions also being made by school boilers. In 2008 Carter Holt Harvey announced closure of its Putaruru and Mount Maunganui sawmills, and in early 2008 Rapid Minerals stopped operating. Note that Figure 5 has been adjusted to reflect the loss of these industries as a source of PM₁₀ in Putaruru.

¹⁶ Fisher, G., Kjellstrom, T., et. al., June 2007: Health and Air Pollution in New Zealand (HAPINZ) – final report. Available for download from www.hapinz.org.nz.

fully participate in society. The result of exposure to increased levels of PM₁₀ is a corresponding increase in school and work absences, emergency department and medical centre visits and restricted-activity days¹⁷. Restricted activity can be where an individual is directly affected or indirectly, such as where a parent takes sick leave to care for a child whose asthma or bronchitis has been caused or exacerbated by air pollution.

Restricted activity days and premature death have a considerable impact across the Waikato region. It is estimated that around 970 premature deaths occur in New Zealand each year as a result of PM₁₀ exposure¹⁸. Using research findings from overseas¹⁹, ***average life expectancies in Putaruru, Te Kuiti, Taupo and Tokoroa would be expected to increase by between 5-7 months per person as a result of improving air quality to the point that it meets the NESAQ.*** Allowing for the fact that poor air quality has a more severe impact on some people than others, ***it is estimated that one in twenty people in each of these towns would live between six years (Putaruru) and 11 years (Tokoroa) longer, if the NESAQ is met.***

Based on the HAPINZ research, ***it is estimated that a total of 15,550 restricted activity days would be recovered each year in Putaruru, Te Kuiti, Taupo and Tokoroa as a result of meeting the NESAQ. This is equivalent to 68 full-time employees.***

3.1.4 Air quality, housing and energy use

Poor air quality and associated adverse effects on human health are not issues that can be addressed in isolation. While the key driver of this strategy is to achieve compliance with the NESAQ and WRPS policy objectives, the wider issue of substandard housing (particularly poorly insulated or un-insulated homes) also needs to be considered. Homes with inadequate insulation require more energy to heat to a temperature that provides a healthy environment to live in²⁰.

The connection between air quality, household energy efficiency and improved health outcomes are supported through the Waikato Regional Energy Strategy (WRE)²¹. The WRE Strategy contains a recommendation that focuses on increasing household energy efficiency and healthy homes, and particular support is given to securing funding for the Waikato region to assist with retrofit projects (both clean heat and insulation).

¹⁷ Restricted-activity days are where people are not able to undertake the activities that they usually would.

¹⁸ Fisher, G., Kjellstrom, T., et. al., June 2007: Health and Air Pollution in New Zealand (HAPINZ) – final report. Available for download from www.hapinz.org.nz.

¹⁹ C. Arden Pope III, Majid Ezzati and Douglas W. Dockery, 2009: Fine-Particulate Air Pollution and Life Expectancy in the United States. *The New England Journal of Medicine*, Volume 360, pages 376-386 and Potera C, 2009 Cleaner Air, Longer Life. *Environmental Health Perspectives*, Volume 117, pages A147-A147.

²⁰ A recent needs assessment of clean heat and insulation in the Waikato region indicated that cold houses can make occupants more susceptible to illness (WRC Doc #1530078).

²¹ Waikato Regional Energy Strategy is available for download at <http://www.ew.govt.nz/Policy-and-plans/Regional-energy-strategy>.

4 Work to date: air quality work programmes

4.1 Introduction

To date, the council's air quality work programme has included the following key activities:

- air quality monitoring and reporting
- education and communications
- community/stakeholder engagement
- regulatory responses
- financial incentives.

This section provides a brief outline of each activity and what it set out to achieve. The effectiveness of each activity is discussed and the critical success factors and the opportunities for improvement.

4.1.1 Air quality monitoring and reporting

Work description

The operative Waikato Regional Policy Statement (WRPS) contains objectives for air quality, and identifies monitoring as an essential prerequisite. The NESAQ also includes mandatory requirements for regional councils to monitor all gazetted airsheds with particular emphasis on those that were assessed to be unlikely to comply with the standards. It also requires regional councils to notify the public if the standard is breached.

The council began monitoring PM₁₀ in Hamilton in 1998, and extended this monitoring network to Taupo and Tokoroa in 2001, and Te Kuiti in 2003. The council currently monitors nine airsheds²². Annual PM₁₀ monitoring data is also available for a tenth airshed (Huntly) as part of requirements of resource consents held by Genesis Energy for the Huntly Power Station.

Until recently, the council's monitoring approach was to increase the number of towns monitored at the rate of one per year until air quality monitoring was achieved in all 20 airsheds. Under this programme, Matamata and Putaruru were added to the monitoring network in 2006, followed by Ngaruawahia and Waihi in 2008. As a result of the announcement of the review of the NESAQ and additional financial constraints, the council opted to cap the total number of air quality monitoring stations at nine of the 20 gazetted airsheds in the 2006-16 LTCCP. The final (ninth) town to be added to the council's monitoring network was Turangi, where monitoring began in 2009.

Objective of the work programme

The objective of the air quality monitoring and reporting work programme is to identify the main sources of air pollution within the Waikato region and identify trends and patterns over time. Doing so ensures that the council meets the monitoring requirements of the NESAQ and the policy implementation methods in the operative WRPS.

²² Hamilton, Matamata, Ngaruawahia Putaruru, Taupo, Tokoroa, Te Kuiti, Turangi and Waihi.

Effectiveness of the work programme

Undertaking monitoring has provided the council with an assessment of the air quality issues in a number of towns in the Waikato region. Monitoring has confirmed that PM₁₀ is the primary air quality issue in some urban areas and that during winter months home heating is the main source of pollution. Monitoring carried out in Tokoroa, Taupo and Hamilton (from 2001 to the present) has assisted in understanding the annual variability of exceedances.

However, there are 11 gazetted airsheds remaining that are not monitored due to a lack of monitoring equipment. The council resolved not to fund any further monitoring equipment in the remaining gazetted airsheds, and until all airsheds in the region are monitored, the full air quality picture for the region will remain incomplete.

Critical success factors and opportunities for improvement

Continued monitoring will make it possible to determine clear trends in air quality. Good quality monitoring is essential for informing policy decision-making and in guiding future actions. Under the NESAQ, all gazetted airsheds are required to be monitored. The council is not currently meeting this mandatory requirement of the NESAQ. Only 9 out of the 20 airsheds are monitored and greater funding has been requested through Council's 2012-22 LTP to meet this requirement in order to provide a more complete picture of regional air quality.

4.1.2 Education and communications

Work description

Education and communication has been the primary non-regulatory method that the council has used to increase communities' knowledge of air quality issues. The first air quality communications plan was produced in 2007/08²³.

The primary task of the council's education and communications workstream has been to increase understanding of air quality issues within the region's non-complying airsheds. Education involved a significant number of community meetings, hui and fono to raise community awareness of the air quality issue. Communications involved the provision of information on exceedances, the airshed boundaries and the number of conversions needed in the airsheds to achieve compliance with the NESAQ. District councils who had non-complying airsheds within their jurisdiction were given first priority. To date, there has not been any education on air quality issues outside of the non-complying airsheds due to budget constraints.

Subsequently, the council has moved from a minimal compliance approach (such as publishing PM₁₀ exceedance notices in newspapers as required by the NESAQ) to taking a more proactive role by issuing media releases containing relevant behaviour change messages when exceedances are notified and working collaboratively with local stakeholder groups to generate media stories.

A range of education material has also been developed to assist with communicating important air quality messages. This includes the production of a 'Clear the Air' booklet for school children, a suite of posters for display in key community locations and an online information pack that contains web-based resources.

²³ This education plan has since been renamed as the Air Quality Behaviour Change Plan (WRC Doc#1204572)

Objective of the work programme

The education and communications work programme set out to achieve an increase in awareness of air quality issues amongst communities in non-complying airsheds by working collaboratively with key stakeholders. Education works on the premise that providing useful information in a targeted way can bring about behaviour change and result in positive environmental outcomes (i.e. improved air quality).

Effectiveness of the work programme

Within Tokoroa, through a collaborative approach of working to understanding the key air quality issues, greater community, stakeholder agency and district council engagement has resulted. These parties have then disseminated information through their community networks and actively advocate for insulation and clean heat funding.

Critical success factors and opportunities for improvement

It is essential to continue to ensure that any education work is targeted to appropriate groups and focuses on achieving behaviour change. For example, educating on the importance of burning dry wood in reducing PM₁₀ needs to be combined with actions to ensure that people have access to dry wood and are able to store it properly. Such actions will maximise the likelihood of changes in home heating practices resulting in an improvement to air quality.

Ensuring that local stakeholders have a good working knowledge of air quality issues means that these people can continue to advocate through their community networks to effect change. A key outcome of this increased awareness is the proposal by South Waikato District Council to develop local regulation to address the air quality in their district. In comparison, the limited buy-in from Taupo District Council to date has the potential to hinder the ability to make progress in improving air quality in the Taupo airshed.

Education and behaviour change programmes are an essential component of the policy mix. These programmes guard against regulatory failure by ensuring that communities' are aware of the need for the regulations and have a high degree of buy-in and willingness to change.

4.1.3 Community and stakeholder engagement

Work description

The council's approach to improving air quality has always been based on community engagement. The council is currently a member of three interagency groups involved in addressing air quality and healthy housing in the Waikato region. These stakeholder groups differ in membership composition and ability to fund and support actions for addressing air quality.

The council's role in these stakeholder groups is to:

- provide technical air quality monitoring information
- advocate to the district councils to address air quality issues
- disseminate information on policy changes in air quality from central government (such as the review of the NESAQ)
- provide updates on the progress of work undertaken as a result of the council's incentives funding
- assist with education that local stakeholders want to undertake.

Tokoroa Warm Homes Clean Air Steering Group

The Tokoroa Warm Homes Clean Air Steering Group was formed in 2004 with stakeholders including South Waikato District Council, Waikato Regional Council, South Waikato Pacific Island Health Committee, Raukawa Maori Trust Board, Energy Options and Waikato District Health Board.

The initial focus of the group was on raising awareness of the health issues of cold, damp, uninsulated homes, and the environmental impacts and associated health effects of poor air quality. The council's role during the establishment phase of the group was in developing a strategy for how to address air quality in Tokoroa. The council provided technical and research information, and assisted with stakeholder liaison and project formation.

The council's previous education and advocacy resulted in South Waikato District Council providing funding for insulation over a number of years. This has enabled a number of homes to then qualify for fully subsidised clean heat retrofits through the council's Clean Heat Initiatives Fund. More recently, South Waikato District Council has approved the reassignment of funding from insulation to installing clean heat appliances in order to assist with improving air quality in Tokoroa²⁴.

The steering group has worked together on capacity building, securing funding, prioritising recipients for insulation and clean heat, raising awareness and engaging the community with hui and fono, and assessing the health impacts of insulation and clean heat retrofits. South Waikato District Council and local Iwi/Maori and Pacific Island representative groups have been integral to the success of this group and the funding it has secured. The number of stakeholders involved in the steering group has reduced as the project has progressed.

Taupo District Healthy Housing Advisory Group

The Taupo District Healthy Housing Advisory Group was formed in 2008. Key stakeholders include Energy Options Charitable Trust, Taupo District Council, Lakes District Health Board, Lakes Primary Health Organisation, Toi te Ora Public Health, Taupo Budget Advisory Service and Waikato Regional Council. The effectiveness of this group has suffered from representative turnover. The number of houses eligible for the council's clean heat retrofits has been reduced due to EECA's criteria of adequate insulation as a prerequisite to accessing clean heat subsidies.

A key focus for the group has been on raising awareness of funding shortfalls and lobbying relevant funders and central government. Energy Options is the primary funding coordinator and education provider, and subcontracts to the service provider arm of Energy Options for insulation and clean heat installation in the area. The prioritisation process is managed by Energy Options.

Waitomo District Clean Air Healthy Homes Group

The Waitomo District Clean Air Healthy Homes Group was formed in December 2009, led by the council. The purpose of forming this group was to build community understanding of air quality issues with a view to managing the allocation of the council's Clean Heat Incentives funding within the Te Kuiti airshed. Stakeholders include Waikato Regional Council, Waitomo District Council, Work and Income New Zealand, Waikato District Health Board, Age Concern, Maniapoto Maori Trust Board and Te Puni Kokiri. While there is currently no funding for insulation programmes in the Waitomo District, the council provides some funding for replacing old woodburners and open fires through the Clean Heat Incentives Programme.

²⁴ Warm Homes Clean Air – Budget Recommendations. Report No: 2010-5358 to South Waikato District Council Community and Assets Committee (18 November 2010).

The main role of this group is to prioritise the relative health needs of families in homes that are eligible for clean heat and advise the council's service provider. Additional work includes air quality messaging around recycling instead of outdoor burning of waste (which contributes to 6% of the PM₁₀ pollution in the Te Kuiti airshed) and information dissemination. As a result of the council's role in this group, the stakeholder representatives involved are also advocating within their agencies to raise the profile of clean heat and insulation.

The Healthy Homes, Energy Efficiency, Clean Air (HEC) forum

In 2008, a multi-stakeholder forum was held to progress discussion about the Waikato region's insulation and heating needs. The HEC forum²⁵ identified that a needs assessment (detailing the insulation and clean heat that had taken place with subsidised funding across the Waikato region) would be useful to guide where further work should be directed.

The needs assessment had a number of research parameters:

- The research area focused on work done within the boundaries of the council and the WDHB.
- It focused only on fully subsidised insulation and clean heat installations.
- The timeframe for the stocktake was from 2002 to July 2009.²⁶

The needs assessment has been completed and the findings will be presented in the 2011/12 financial year.

Central government advocacy

The council has maintained a high level of involvement at a central government level in order to influence policy and funding decisions. The council is an active member of the National Air Quality Working Group, which meets twice a year to share information on air quality monitoring and policy and to work collaboratively on relevant projects. The council has also taken an active role in making submissions on the NESAQ review.

Objective of the work programme

The intention of the community and stakeholder engagement work programme is to facilitate greater community involvement in air quality initiatives that result in an increase the uptake of clean heat both within the non-complying airsheds and across the Waikato region. A further intention of this work programme is to identify and capitalise on opportunities for leveraging funding.

Effectiveness of the work programme

The council has maintained an active role in these groups and has developed good working relationships with community stakeholders. The council has a key role in providing relevant support and information, and as a result a greater number of agencies now understand the air quality issues in their communities. This has enabled these agencies to more effectively advocate for, and participate in, decisions relating to the allocation of funding and other resources.

²⁵ HEC stands for healthy homes, energy efficiency and clean heat. The HEC Forum (formed in 2008) comprises a range of stakeholders across health agencies, local and central government players, non-government organizations and community groups and service providers who install clean heat and insulation.

²⁶ Boyce, W., Phillips, Y., et. al. 2011: Warm Homes Clean Air Needs Assessment: **What has been done? Where are the gaps? What are the opportunities for the future?** A summary of the insulation and heating programmes in the Waikato area prior to July 2009. WRC Doc #1530078.

Critical success factors and opportunities for improvement

Collaborating with key agencies to address local issues is an effective way of achieving change as it ensures that the council is more attuned to the impacts that policy decisions can have on local communities. The non-complying airsheds across the region vary in demographic composition, and engaging with the specific communities allows the council to individualise the appropriate response. The council's involvement with local stakeholders occurs at various levels including staff and elected members. It is important that the council constantly assess whether this involvement is sufficient to influence change.

However, there is scope to work more directly with district councils to support the development and introduction of local bylaws to address air quality (including regulation of solid fuel burners or outdoor burning). A partnership approach with the district councils, whereby the council provides policy support and information to assist with developing a bylaw, would provide a regulatory framework to assist with the uptake of education and financial incentives.

To date, the council has had little engagement with iwi and other Maori organisations. However, iwi are involved in insulation retrofit and clean heat conversion work programmes throughout the region, and there are therefore opportunities for the council to collaborate with iwi/Maori for future air quality work. Creating stronger working relationships in this area will enable greater alignment of resources in air quality and housing projects. For example, working more closely with iwi/Maori groups in Tokoroa will help to ensure that any air quality work programmes will be appropriate for the town's significant Maori population.

At a central government level, there is an opportunity to advocate more proactively for the Waikato region's needs regarding air quality. In particular, there are opportunities to influence funding decisions made by MfE and EECA regarding insulation and air quality in order to assist with meeting the NESAQ. There is also scope to work with the Waikato District Health Board to ensure that their infrastructure (namely hospital boilers) is not contributing to PM₁₀ emissions.

4.1.4 Regulatory responses

Work description

The council's regulatory programme includes ongoing implementation and enforcement of the RMA and regional policy, the processing of resource consents, compliance monitoring and enforcement of activities that involve discharges to air.

The Waikato Regional Plan²⁷ provides for the consideration of regulatory controls on domestic sources of contaminants. This includes the potential to regulate woodburners in order to improve air quality in degraded airsheds. As a result of the introduction of the NESAQ in 2004, the council committed to scoping a regional plan change in the 2006-16 LTCCP in order to meet the 2013 NESAQ deadline. A plan change to regulate solid fuel burning, outdoor burning and incineration was almost completed.²⁸ However, the council subsequently decided to put this on hold as central government indicated in 2008 that they would be reviewing the NESAQ.

²⁷ Section 6.1.5.2 of the operative Waikato Regional Plan.

²⁸ EW Doc# 896226 – Proposed Plan change and Section 32 Analysis.

Objective of the work programme

The council's regulatory programme aims to protect the significant characteristics of high air quality, enhance the significant characteristics of degraded air quality and maintain the significant characteristics of air that is not of high or degraded quality. The current focus is on the regulation of industrial and trade discharges of PM₁₀, with only a minor focus on backyard burning. There is no regulation of domestic solid fuel burners.

Effectiveness of the work programme

The current regulatory programme (which is predominantly focused on industry) has been successful by setting tighter limits on industrial emissions through the resource consent process and monitoring and enforcing consent compliance. However, the WRP allows for high permitted activity thresholds for combustion of fuel sources such as natural gas, wood, coal and diesel for industry²⁹. This results in considerable industrial discharges of PM₁₀ into non-complying airsheds without the requirement to be authorised by resource consent. These permitted activity thresholds mean that the council has little control over those emissions (including the ability to reduce those emissions).

There are also some limited controls on outdoor burning. The control is essentially limited to prohibiting some types of materials that can be burnt (such as tyres) and has had only a minor effect on reducing PM₁₀ emissions.

Given that there is no regulation of domestic woodburners and domestic outdoor burning, the regulation work programme has had limited success in reducing PM₁₀ levels. Given the low rate of natural attrition (voluntary replacement of woodburners and open fireplaces), achieving compliance with the NESAQ is unlikely without some form of regulation of woodburners.

Critical success factors and opportunities for improvement

Critical success factors for ensuring compliance with the NESAQ include the consideration of regulatory measures.

Regulatory changes to the regional plan to reduce the current permitted activity thresholds for industrial combustion of fuels in non-complying airsheds will provide an opportunity for improving air quality, especially in Te Kuiti where PM₁₀ emissions from industry are approximately 20%.

Regulatory changes to address PM₁₀ from solid-fuel burners and domestic outdoor burning can also be achieved through district council bylaws. South Waikato District Council has indicated that they will develop a bylaw in the 2011/12 financial year to regulate solid fuel burners in order to improve air quality. There is a significant difference in the costs and duration associated with regional plan changes and district council bylaws. District council bylaws are a more cost and time-effective process and provide scope for greater local participation. This also provides an excellent opportunity for the council to offer policy support and advice to assist with this process.

Furthermore, there is scope for the council to incentivise district councils to develop local regulation by providing clean heat funding. A partnership approach with district councils, whereby financial incentives are provided once a local bylaw to regulate solid-fuel burners is adopted, would provide a regulatory framework that would greatly increase the likelihood of achieving compliance with the NESAQ. Given that Tokoroa has the highest number of PM₁₀

²⁹ WRP rule 6.1.12.1

exceedances in the Waikato region, capitalising on South Waikato District Council's willingness to develop a bylaw by providing financial assistance will help in achieving the number of clean heat conversions required to improve air quality.

4.1.5 Financial Incentives

Work description

In 2007/08, the council introduced a Clean Heat Incentives Programme. The programme provides funding for low-income homeowners in non-complying airsheds to replace their old woodburners or open fires with a clean heat appliance. The council has assigned \$200,000 per year for the 2009-19 LTP³⁰. This amount was increased to \$212,000 in the 2011/12 Annual Plan.

Objectives of the work programme

The cost of replacing open fires or woodburners is a significant barrier for some sectors of the community. The objective of providing incentives funding is to overcome this barrier and ensure that open fires or woodburners in low-income households can be replaced in order to improve air quality.

Effectiveness of the work programme

Since the inception of the council's incentives funding, the budget has been fully allocated each year. To date, the number of replacements has not resulted in a detectable improvement in air quality. The number of appliances replaced only represents a small proportion of the problem. Improvements of approximately 25% or more in air quality are likely to be needed in order for an improvement in air quality to be more readily detectable in the following 3-5 years of monitoring.

Critical success factors and opportunities for improvement

To date, the council's incentives programme has enabled approximately 300 clean heat replacements to be completed in Tokoroa, Taupo and Te Kuiti. These households would not have been able to replace their old woodburners without this funding. Anecdotal evidence from stakeholder agencies suggests that the overall health status of the families in houses that have been retrofitted with insulation and clean heat has improved considerably.

There are opportunities to increase the pool of funding for the council's financial incentives by exploring the potential for other organisations to contribute funding. For example, the council has not sought funding contributions from iwi/Maori organisations. Funding from iwi/Maori organisations could be allocated specifically to replacing old woodburners or open fires in houses with Maori occupants in non-complying airsheds. There are also further opportunities for the council to advocate for the Waikato District Health Board to provide funding for retrofitting insulation in order to improve housing stock. This would also ensure a continuing supply of homes which could then have clean heat installed.

To date, the council's financial incentives have been limited to the provision of fully subsidised clean heat appliances only. Initial analysis by the council's staff indicates that consideration of a loan scheme may be a complementary avenue of financial support for households in the non-complying airsheds. Such a scheme could be delivered in partnership

³⁰ WRC's clean heat funding is matched dollar-for-dollar by the Ministry for the Environment. Ministry for the Environment's funding to address air quality (Clean Heat programme) is administered by the Energy Efficiency Conservation Authority.

with district councils in order to balance the local and regional share of improving air quality. As mentioned previously, a partnership approach with district councils also increases the likelihood of success for both the regulatory and financial incentives programmes.

5 Current state of the region's non-complying airsheds

5.1 Introduction

Based on the stocktake of the council's work in air quality outlined in Section 4, it is essential that each airshed within the Waikato region be dealt with separately. This is due to the socioeconomic factors of each community and the varying topography and climate of each town. While there are a number of policy choices that are common to all airsheds, policy choices may also need to be tailored to suit each airshed.

This section outlines the current state of each of the four non-complying airsheds:

- What is needed in each airshed to meet the NESAQ (number of replacements needed) and the whether the airsheds are on track to achieve compliance
- What has happened in each airshed to date - number of replacements (the council's financial incentives spend) completed, monitoring and education undertaken, any regulatory measures implemented and any stakeholder groups that have been established.

5.1.1 General commentary

In all airsheds, natural attrition – people voluntarily choosing to replace their woodburners – will continue to occur and this has the potential to assist in working towards compliance with the NESAQ. However, the current rate of natural attrition (approximately 2% per year) is unlikely to ensure compliance alone. Based on the monitoring records to date, there is no clear trend of either better or worse air quality in any of the ten towns that are being monitored.

5.1.1.1 Tokoroa

Based on modeling to meet the NESAQ, Tokoroa is assessed to require a total of 1430 clean heat replacements to meet both the 2016 and 2020 timeframes³¹. From 2007 until end of February 2011, a total of 195 clean heat replacements have been made as a result of the council's funding³². A remaining 1235 old woodburners and open fires will need to be replaced to achieve one exceedance per year.

Monitoring has been undertaken in Tokoroa since 2001.

Significant efforts have been made in stakeholder engagement and education in Tokoroa. From 2007, the council has provided education material, media releases and has implemented behaviour change programmes to help communities within Tokoroa understand air quality. The Tokoroa Warm Homes Clean Air Steering Group has been in operation in Tokoroa since 2007, of which the council is an active member.

Under the new NESAQ, Tokoroa will be required to reduce the number of exceedances to no more than three per year by 2016, and one exceedance by 2020. The above figures of replacements required are in order to meet both the interim deadline (2016) and the final compliance date (2020).

³¹ Emily Wilton, March 2011: Solid Fuel Replacements in Tokoroa, Taupo, Te Kuiti and Putaruru – meeting the NES for air quality.

³² Note that WRC's funding for clean heat replacements in Tokoroa, Taupo and Te Kuiti has been match funded by Ministry for the Environment.

5.1.1.2 Te Kuiti

Based on modeling to meet the NESAQ, Te Kuiti is assessed to require a total of 410 clean heat replacements. From 2007 until end of February 2011, a total of 17 clean heat replacements have been made as a result of the council's funding. A remaining 393 old woodburners and open fires will need to be replaced to achieve one exceedance per year.

Monitoring has been undertaken in Te Kuiti since 2003.

The Waitomo District Healthy Homes Clean Air Steering Group was established in December 2010, of which the council is an active member.

Under the new NESAQ, Te Kuiti will be required to reduce the number of exceedances to one per year by 2016.

5.1.1.3 Taupo

Based on modeling to meet the NESAQ, Taupo is assessed to require a total of 1800 clean heat replacements. From 2007 until the end of February 2011, a total of 91 clean heat replacements have been made as a result of the council's funding. A remaining 1709 old woodburners and open fires will need to be replaced to achieve one exceedance per year.

Monitoring has been undertaken in Taupo since 2001.

The Taupo District Healthy Homes group was established in 2008 of which the council is an active member.

Under the new NESAQ, Taupo will be required to reduce the number of exceedances to one per year by 2016.

5.1.1.4 Putaruru

Based on modeling to meet the NESAQ, Putaruru is assessed to require a total of 300 clean heat replacements. No clean heat replacements have been made in Putaruru. A remaining 300 old woodburners and open fires will need to be replaced to achieve one exceedance per year.

Monitoring has been undertaken in Putaruru since 2007.

There is no stakeholder group in existence in Putaruru, however there is opportunity to broaden the scope of the Tokoroa Warm Homes Clean Air Steering Group to include this town.

Putaruru has not previously been prioritised by MfE to receive any central government funding due to its low number of exceedances. The council's limited resourcing has required that the current policy interventions be directed to the worst non-compliant airsheds to optimise the gains that could be made. As a result of this, Putaruru has not received any clean heat incentive funding, or any specific education on PM₁₀, beyond that which is available through general media. The recent changes to the NESAQ will necessitate a review of both central government and the council's response.

Under the new NESAQ, Putaruru will be required to reduce the number of exceedances to one per year by 2016.

5.1.1.5 Hamilton

Hamilton is unusual in that it oscillates in and out of compliance with the NESAQ. The council will need to keep a watching brief on air quality monitoring and respond if it becomes non-complying. The council needs to engage with Hamilton City Council to look for opportunities to improve air quality and ensure that Hamilton is a compliant airshed by 2016.

5.1.2 Summary

Table 2 provides a summary of the total number of clean heat replacements required for the Waikato region to comply with the NESAQ.

Table 2 Number of clean heat replacements required by airshed³³

Town	Clean heat replacements required	Replacement done to date through the council's incentives fund	Remaining	Percentage of households in airshed requiring replacements
Tokoroa	1430	195	1235	29%
Taupo	1800	91	1709	22%
Te Kuiti	410	17	393	23%
Putaruru	300	0	300	21%
TOTAL	3940	303	3637	

Continuing with the council's current policy mix will not result in the achievement of the NESAQ or the WRPS objectives. Section 6 outlines a proposed vision for air quality in the region and includes seven outcome areas where the council could work to improve air quality.

³³ Emily Wilton, March 2011: Solid Fuel Replacements in Tokoroa, Taupo, Te Kuiti and Putaruru – meeting the NES for air quality.

6 Proposed vision for air quality for the Waikato Region

Air quality in the Waikato Region that supports healthy people and a healthy economy

This will be achieved by improving ambient air quality (particularly PM₁₀ in affected Waikato towns and Hamilton city) in combination with energy efficiency goals and actions.

6.1 Introduction

The six guiding principles (outlined in Section 6.2) articulate the council's philosophical approach to undertaking air quality work programmes. These principles outline **how** the council will work with stakeholders in making progress towards the vision above. These principles enable the council to prioritise which opportunities to pursue whilst providing flexibility to respond to new opportunities as they arise.

The seven outcome areas (outlined in Section 6.3), articulate what the strategy aims to specifically deliver. These outcome areas cover a range of aspects that are considered to be important for meeting the NESAQ and Waikato Regional Policy Statement objectives. Working across these outcome areas will ensure that action is coordinated with the relevant stakeholders are able to bring about positive change.

Section 6.3 discusses each of the seven outcome areas and **provides some examples of the type of work could be undertaken in each of these areas**. The relevant guiding principles are identified that inform each outcome area.

6.2 Guiding principles

The council will achieve the vision - 'air quality in the Waikato region that supports healthy people and a healthy economy' - within a framework of six guiding principles. These principles are as follows:

- 1. Keeping the big issues in front of decision-makers:** We ensure that decision-makers are aware of and understand the key issues regarding air quality in the Waikato region. This includes communicating, when appropriate, changes in central government policy (including the NESAQ), air quality monitoring results and changes in funding.
- 2. Influencing others so responsibilities are shared:** We recognise the importance of advocacy and effective collaboration in creating shared understanding. We will work to communicate the key issues for air quality in the Waikato region to our stakeholders, and highlight and develop opportunities for working together. We endorse and support a 'whole of government' approach.
- 3. Deal with the worst problem first:** We target our resources to the airsheds with the worst air quality to make a real difference. Within those areas, we focus on addressing the worst emitters.
- 4. Policy mix informed by research:** We develop sound policy that is informed by research that is appropriate for addressing air quality, including a range of social, environmental, cultural and economic information.
- 5. Getting the most from external funding that is available:** We continue to explore new opportunities for leveraging funding for clean heat across the Waikato region, particularly in non-complying airsheds. We ensure that our current external funding streams are secured and actively maintain our relationships with central government funders. We encourage other agencies to contribute funding for insulation across the Waikato region.
- 6. Exploring how to lower barriers:** We recognise that improving air quality is a complex issue, and we support innovative ideas. We strive to understand the barriers to behaviour change and recognise the value of local solutions to local problems.

6.3 Key outcome areas

The council will achieve the vision '*air quality in the Waikato region that supports healthy people and a healthy economy*' through the achievement of seven proposed outcome areas, which are listed below.

6.3.1 Outcome Area One: Enabling consistent governance

Consistency in governance is critical for projects that have longer timeframes than any single triennium.

Actions necessary to assist consistent governance could include:

- Providing decision-makers with all the relevant information to enable them to make appropriate decisions for local communities.
- Maintaining good working relationships with district councils in order to facilitate local authorities' involvement in work on air quality.
- Ensuring other key stakeholders (particularly the Waikato District Health Board and iwi/Maori organisations) are fully informed on air quality issues so that they can engage effectively and determine an appropriate level of involvement.
- Coordinated work programmes between the council and district councils to improve air quality.

The guiding principles for Outcome One are:

- Keeping the big issues in front of decision-makers;
- Influencing others so responsibilities are shared; and
- Policy mix informed by research.

6.3.2 Outcome Area Two: Air quality and energy goals are integrated

Central government policy identifies the significant co-benefits of insulation and clean heat. This is evidenced in the establishment of considerable central government funding for the Warm Up New Zealand programme in 2009. Homes that are well insulated are easier to heat and are more energy efficient.

The Waikato Regional Energy Strategy also acknowledges the importance of insulation in improving health outcomes and enhancing energy efficiency. In particular, communicating the benefits of insulation is important in increasing the support for insulation retrofit projects. The Waikato Regional Energy Strategy supports work to secure greater sources of funding for household energy efficiency projects, with a focus on attracting more government funding into the Waikato region.

Actions necessary to assist the integration of air quality and energy goals could include:

- Maintaining relationships with central government (in particular MfE and EECA) to maximise funding that is directed to the Waikato region
- Advocating to key stakeholders for the provision of clean heat and insulation as a combined package.
- Providing a regional leadership role by facilitating a Healthy Homes, Energy Efficiency and Clean Air (HEC) Forum meeting to bring together key stakeholders to decide where to direct resources to improve housing stock across the Waikato region.
- Exploring opportunities for synergies between this strategy and the Waikato Regional Energy Strategy (in particular around leveraging funding).

- Pursuing opportunities to dovetail the council's air quality work programmes with insulation work undertaken by other agencies.

The guiding principle for Outcome Two is:

- Influencing others so responsibilities are shared
- Getting the most from external funding that's available.

6.3.3 Outcome Area Three: The health effects of transport-related emissions are minimised

Air pollution as a result of transport emissions is primarily an issue in Hamilton City and may become an increasing issue for the rest of the region as urban development intensifies. It is expected that as New Zealand's vehicle fleet is replaced, tighter emission standards will result in less air pollution from vehicles.

Actions necessary to minimise the health effects of transport-related emissions could include:

- Monitoring of PM₁₀ and volatile organic compounds (benzene) at key sites along selected arterial routes.
- Advocating (through submissions on relevant plans and strategies) for an increased uptake of sustainable, low-emission forms of transport such as walking and cycling.

The guiding principles for Outcome Three are:

- Influencing others so responsibilities are shared
- Policy mix informed by research
- Getting the most from external funding that's available.

6.3.4 Outcome Area Four: Encouraging behaviour change to create new cultural norms

Improving air quality requires communities to adopt a change of practice and values. This involves creating the cultural norm that polluting one's own neighbourhood is undesirable.

Actions necessary to encourage behaviour change and create new cultural norms could include:

- Targeting education to relevant groups in non-complying airsheds to ensure that people are aware of how domestic burning practices (such as burning dry wood and using woodburners efficiently) affects their family's health and those around them.
- Developing and delivering education programmes that support regulatory change.
- Working with industry to promote the uptake of efficient and 'clean' systems to minimise the effects of their emissions on the surrounding community.
- Regulating outdoor burning and the use of solid fuel burners (including the council working with district councils to develop bylaws).
- Developing tailored behaviour change programmes for each non-complying airshed (in collaboration with key local stakeholders).

The guiding principles for Outcome Four are:

- Deal with worst problems first
- Policy mix informed by research
- Exploring how to lower barriers.

6.3.5 Outcome Area Five: Standards are high and barriers are low

The council recognises that the cost of converting to clean heat is a significant barrier for large sectors of the regional community. Since 2007, the council has provided funding for clean heat replacements in non-complying airsheds to assist those for whom cost is the main barrier.

Actions necessary to ensure that standards are high and barriers are low could include:

- Prioritising any funding of clean heat retrofits for those on low incomes in non-complying airsheds to assist with improving air quality.
- Developing tailored plans for each airshed based on the specific community (including via partnership programmes with district councils).
- Supporting district councils to develop local bylaws to regulate solid fuel burners.
- Directing funding to non-complying airsheds where district councils adopt local bylaws to regulate solid fuel burners.
- Considering the introduction of a loan scheme for clean heat appliances where appropriate.

The guiding principles for Outcome Five are:

- Getting the most from external funding that's available
- Exploring how to lower barriers
- Policy mix informed by research.

6.3.6 Outcome Area Six: Healthy housing

The many benefits of healthy housing impact on a range of social, cultural, economic and environmental dimensions. Dry, warm homes are a fundamental determinant in people's health. A recent needs assessment indicates that current levels of insulation in the Waikato region are inadequate and that a significant number of homes have poor heating sources³⁴. In order to ensure better health outcomes for people in the Waikato region, the quality of housing stock needs to be significantly improved.

Actions necessary to create healthy housing could include:

- Advocating to government health agencies for a change in the health priorities to recognise the importance of adequate housing as a key determinant of health.
- Advocating to the Waikato District Health Board to consider allocating dedicated funding to healthy housing in high need households in order to fulfil their legislative objectives³⁵.
- Working with iwi/Maori organisations to investigate opportunities to increase the quality of housing stock for Maori.

The guiding principle for Outcome Six are:

- Keeping the big issues in front of decision-makers
- Influencing others so responsibilities are shared
- Get the most out of external funding that's available.

³⁴ Boyce, W., Phillips, Y., et. al. 2011: Warm Homes Clean Air Needs Assessment: **What has been done? Where are the gaps? What are the opportunities for the future?** A summary of the insulation and heating programmes in the Waikato area prior to July 2009. WRC Doc #1530078.

³⁵ Under the New Zealand Public Health and Disability Act 2000, district health boards have an objective to improve, promote and protect the health of people and communities. Particular mention is also made of reducing health disparities by improving health outcomes for Maori.

6.3.7 Outcome Area Seven: Tailored local responses

Improving air quality across the Waikato region and achieving compliance with the NESAQ requires solutions that are tailored to suit each community. Given the diversity of the communities within each of the region's non-complying airsheds, responses developed in collaboration with local stakeholders are preferable. Local solutions that recognise the limitations and barriers that communities face will ensure that unintended consequences of any policy decisions will be minimised.

Actions necessary to facilitate tailored local responses could include:

- Working with local stakeholder groups (including iwi/Maori organisations), through disseminating monitoring information, requesting input into policy decisions where relevant and providing targeted education.
- Designing solutions for each non-complying airshed in collaboration with local stakeholders.
- Directing funding to non-complying airsheds where district councils adopt local bylaws to regulate solid fuel burners.
- Considering the introduction of a loan scheme for clean heat appliances where appropriate.

The guiding principle for Outcome Seven are:

- Keeping the big issues in front of decision-makers
- Influencing others so responsibilities are shared
- Policy mix informed by research.

7 Conclusion

A stocktake and analysis of previous work that the council has undertaken to improve air quality within the Waikato region has highlighted the following key areas of future priority in order to for the council to assist in achieving the vision of '***air quality in the Waikato region that supports healthy people and a healthy economy***':

- That creating a partnership approach with district councils to assist with the development of regulation of solid fuel burners (in the form of local bylaws) is vital to improving air quality within the four non-complying airsheds within the Waikato region.
- That incentivising district councils to develop regulation (by linking the provision of funding for clean heat replacements to the adoption of local bylaws) will help to improve air quality by reducing the share of PM₁₀ emissions generated by solid fuel burners.
- That the council has an important role to play in ensuring the continuation of targeted incentives funding for households in non-complying airsheds for whom the cost of replacing old solid fuel burners with clean heat appliances is a significant barrier.
- That a comprehensive education and behaviour change programme is central to achieving regulatory success. Behaviour change and education programmes must be targeted at key sectors of each community and focused on achieving behaviour change regarding solid fuel burner practices (particularly around operating solid fuel burners as efficiently as possible).
- That the council needs to continue to proactively explore new funding opportunities for clean heat and insulation (including more strategic engagement with Maori organisations). The council may also choose to consider the introduction of a loan scheme that is made available to all homeowners in non-complying airsheds.

A detailed implementation plan based on the areas outlined above will be developed and presented as part of the council's 2012-22 LTP planning process.