Air quality

Environment Canterbury's role is as the lead agency for controlling the discharge of contaminants into air and ensuring the National Environmental Standards for air quality are met

What we achieved this year

Within the air quality portfolio we contribute towards achievement of two main community outcomes:

Our contribution	Community outcome
■ Emissions of nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and carbon monoxide (CO) met the National Environmental Standards for Air Quality targets. Ozone (O_3) was not measured as this is monitored every three years to assess trends. It will be monitored again in 2009/10. ■ Over the 2008 winter, we measured small particulate concentrations in the air in our urban centres. These small particulates are known as PM_{10} (particulate matter smaller than 10 microns), and are associated with respiratory health problems. Our measurements show whether we are on target to meet the National Environmental Standards for air quality, due to come into effect in 2013. Targets for PM_{10} air quality were met in Christchurch, Timaru, Kaiapoi, Rangiora, Geraldine and Waimate, although Ashburton exceeded its target three times. ■ Under the Clean Heat Project, we assisted 1,969 Christchurch homeowners, 94 Kaiapoi and Rangiora homeowners, 34 Ashburton homeowners, and 226 Timaru homeowners to convert to cleaner forms of home heating and improve their insulation, contributing to cleaner air by reducing PM_{10} emissions. Clean Heat Projects were started in Waimakariri, Ashburton and Timaru from 1 July 2008.	**Air, beaches and ocean and land are all in a healthy condition**
■ We issued 325 resource consents with conditions to protect air quality and monitored 4,631 conditions for compliance. Action was taken to resolve the 73 consents that were graded as having significant non-compliance.	**Business and farming activities do not harm the environment**

In this portfolio we report on four levels of service to illustrate our achievements this year.

Effect on the four well-beings

Clean air initiatives result in benefits to environmental and social well-being through improved health. We recognise that paying targeted rates to fund Clean Heat projects, converting to cleaner forms of home heating and meeting the cost of compliance with consent conditions for air discharges can all adversely affect the economic well-being of some individuals and businesses. These costs are offset in the medium and longer term by demonstrated wider benefits to environmental and social well-being.

Other key achievements this year

- We responded to 2509 calls about poor air quality on the 24-hour Pollution Hotline (compared with 2,451 last year). All cases were investigated and followed-up as required.
- Customer Services responded to a 40% increase in calls from the public related to Clean Heat (16,500, compared with 11,700 over the same period last year).
- Emissions inventories were completed for Kaiapoi, Rangiora, Ashburton, Geraldine and Waimate. An emissions inventory for Christchurch was begun and will be completed in 2009/10.
- The benzene study for 2008/09 was completed which indicated that Riccarton Road exceeded the annual guideline of 3.6 $\mu g/m^3$, but all four Timaru sites and the half dozen residential sites in Christchurch did not.
- Joint working groups with Ashburton and Timaru district councils addressed air quality issues and continued to co-ordinate efforts to meet the National Environmental Standards.
- We released Environment Court decisions in December 2008 on the air chapter of the Proposed Canterbury Natural Resources Regional Plan (NRRP). These are expected to be made operative in 2009/10.
- We notified Variation 13 to the air chapter of the NRRP regarding Ashburton in August 2008. Hearings have been held and decisions will be released in July 2009.
- Decisions were notified in December 2008 on Variations 11 and 12 to the air chapter of the NRRP regarding Rangiora and Kaiapoi. One appeal was received for Variation 11 (Rangiora) and no appeals were received for Variation 12 (Kaiapoi). The appeal is to be completed through the Environment Court in 2009/10, and Variation 12 (Kaiapoi) will be made operative in 2009/10.
- We lodged submissions on two notified city/district plan changes to ensure consistency with regional policies, and four resource consent applications notified by city/district councils to address air quality issues.
- We published daily winter smog levels in major airsheds and provided information on the www.ecan.govt.nz website.
- We worked with Canterbury schools on the NCEA-approved air education programme.
- Targeted communications for new rules relating to air quality taking effect in Christchurch began in May 2009.

Levels of service

This section reports on performance for 2008/09 against Annual Plan targets.

1. Meeting National Environmental Standards for CO, NO_2, SO_2 and O_3 concentrations to protect human health

Measure	Target 2008/09	
CO: 10 milligrams per cubic metre, in an 8-hour period	Exceeded no more than once a year	*Achieved.*
NO_2: 200 micrograms per cubic metre, in a 1-hour period	Exceeded no more than 9 times a year	*Achieved.*
SO_2: 350 micrograms per cubic metre, in a 1-hour period	Exceeded no more than 9 times a year	*Achieved.*
SO_2: 570 micrograms per cubic metre, in a 1-hour period	Never exceeded	*Achieved.*
O_3: 150 micrograms per cubic metre, in a 1-hour period	Never exceeded	Data are collected every three years, next due in 2009/10.

Source: Environment Canterbury. Years are calendar years (January to December).

2. Converting to cleaner forms of home heating to reduce the most significant source of PM_{10} emissions

Measure

The total number of homes in the Christchurch, Timaru, Ashburton, Kaiapoi and Rangiora airsheds converting to cleaner forms of home heating through the Clean Heat Project (excluding voluntary conversions and conversions funded by additional rating revenue or alternative sources).

Target 2008/09

3,639 conversions for Christchurch, 280 for Timaru, 168 for Ashburton, and 240 for Kaiapoi and Rangiora.

2,323 conversions were completed in total (see table). While the Clean Heat Project and communication materials have had an effect, it is believed that the target was not achieved due to the voluntary nature of the programme and the more difficult economic climate. The fact that the Proposed NRRP is not yet operative is also having an effect on conversion numbers. *Not achieved.*

Conversions undertaken by Environment Canterbury's Clean Heat Project

	Actual 2002/03	Actual 2003/04	Actual 2004/05	Actual 2005/06	Actual 2006/07	Actual 2007/08	2008/09	Estimated 2009/10	Estimated 2010/11	Estimated 2011/12	Estimated 2012/13	Total
Christchurch	703	1,741	1,474	3,055	3,639	2,838	Estimated: 3,639 Actual: 1,969	3,447	2,162	2,018	1,976	26,464
Timaru	-	-	-	-	-	-	Estimated: 280 Actual: 226	280	280	280	280	1400
Ashburton	-	-	-	-	-	-	Estimated: 168 Actual: 34	168	168	168	168	840
Kaiapoi and Rangiora	-	-	-	-	-	-	Estimated: 240 Actual: 94	240	240	240	240	1,200

Note: The actual number of conversions made in Christchurch is established by real-time database reporting of completions. Clean Heat Projects began in Timaru, Ashburton and Kaiapoi/Rangiora on 1 July 2008.

Source: Environment Canterbury.

3. Meeting National Environmental Standards for PM_{10} concentrations to protect human health

Measure

The second-highest concentration of PM_{10} in the airsheds of Christchurch, Timaru, Kaiapoi, Rangiora, Ashburton, Geraldine and Waimate, for a 24-hour period from midnight to midnight.

Target 2008/09

No more than one 24-hour average concentration to be above Environment Canterbury's straight-line path for PM_{10} concentrations.

Achieved for Christchurch, Timaru, Kaiapoi, Rangiora, Geraldine and Waimate. Ashburton exceeded the target three times.

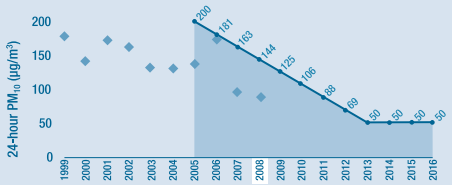
PM_{10} concentrations

KEY ◆ Actual second highest PM_{10} concentration — Straight-line path

Target zone, where actual second highest PM_{10} concentrations should lie

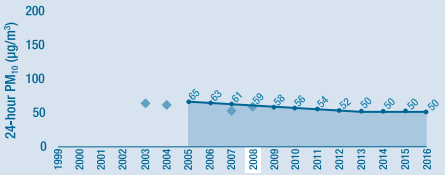
PM_{10} concentrations are measured in micrograms per cubic metre, in the 24-hour period from midnight to midnight. Actual and target second-highest concentrations are also given in brackets after each town name (actual/target). Years are calendar years (January to December).

Christchurch (85/144) - *Achieved*

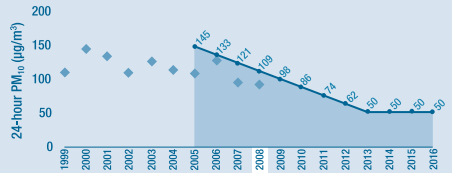


Rangiora (59/91)- *Achieved*

Geraldine (59/59)- *Achieved*

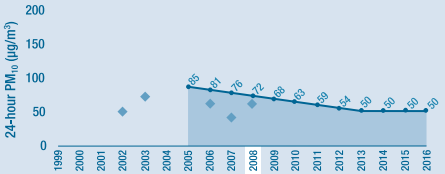


Timaru (96/109) - *Achieved*

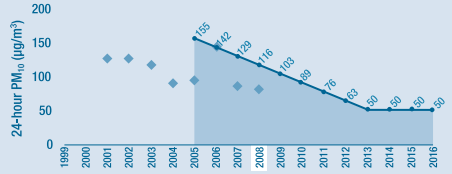


Ashburton (84/81)- *Not achieved*

Waimate (59/72) - *Achieved*



Kaiapoi (85/116) - *Achieved*



Notes: For Ashburton, as a result of quality assurance, the 2006 concentrations measured have been revised.

The straight-line paths are based on historical data and understanding of relationships derived for Christchurch. In other airsheds it may be necessary to further adjust these as site-specific information becomes available.

The National Environmental Standard allows one exceedence of the straight-line path a year.

The difference between the second-highest concentrations and the straight-line path represents the capacity of the airshed to accommodate further discharges to air.

Source: Environment Canterbury.

4. Authorising resource users to use natural and physical resources so that the environmental effects remain acceptable to the community

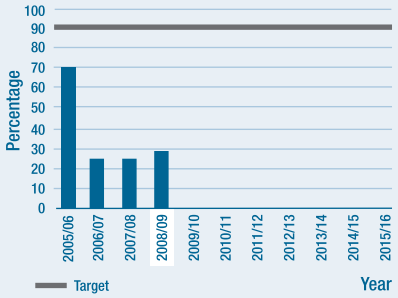
Measure 1

The percentage of resource consent applications processed in compliance with the statutory timeframes set down in the Resource Management Act 1991.

Target 2008/09
90%.

325 applications were processed. High demand for consents from water, dairy and property development-related activities, coupled with increased numbers of notifications and hearings required in water resource constrained areas, and for some large individual applications, has resulted in many consent applications across all portfolios not being able to be completed within statutory timeframes. Difficulties in recruiting staff have compounded this problem. Recent process improvements, coupled with reductions in demand for consents and improvements in recruitment, are starting to show significant improvements in timeframe performance. *Not achieved (29%).*

Processing of applications



Source: Resource Management Act Database.

Measure 2

The percentage of resource consents consistent with Resource Management Act 1991 requirements, including proposed and operative regional plan requirements.

Target 2008/09
100%[1].

Achieved (100%)

Consents consistent with RMA

Source: External audit of sample of issued consents.

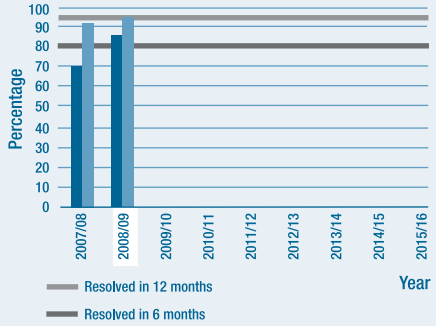
Measure 3

The percentage of significant or major non-compliance[2] with resource consent conditions resolved[3] (no further action is required).

Target 2008/09
80% are resolved in six months[1].
95% are resolved in 12 months[1].

84% of non-compliances were resolved within six months and 94% within 12 months. *Not achieved.*

Consent conditions – non-compliance resolved



Source: External audit of sample of issued consents.

[1] For measures 2, 3 and 4 no historic data are available. Data collection started in 2007/08.

[2] Means non-compliance assessed as Grade 3 - Significant non-compliance or repeated minor non-compliance - moderate adverse environmental effects, or Grade 4 - Major and/or persistent non-compliance - serious or persistent adverse environmental effects.

[3] Means re-assessed as Grade 1 - Fully complying, or Grade 2 - Minor non-compliance - nil or minor short-term adverse environmental effects.

Measure 4

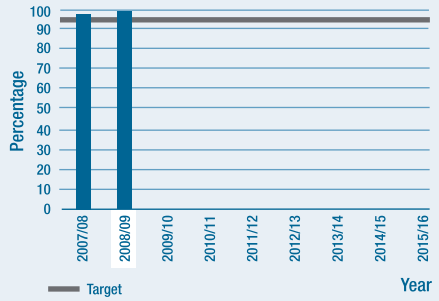
The percentage of environmental incidents resolved (no further action is required).

Target 2008/09

95%[1].

Achieved (99.2%). 2,514 incidents were resolved.

Incidents resolved



Source: External audit of sample of issued consents.

Measure 5

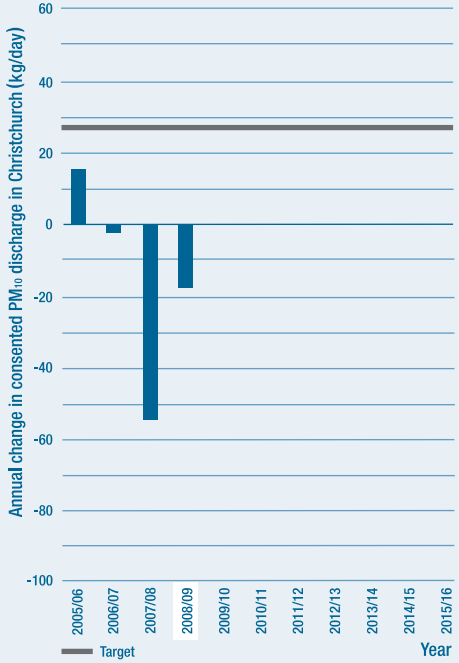
The annual increase in consented PM_{10} discharge in Christchurch.

Target 2008/09

No more than 27 kg per day.

Achieved. During 2008/09 there was a decrease of 18 kg per day in consented PM_{10} discharge in Christchurch.

Annual change in consented PM_{10} discharge in Christchurch



Source: Summary spreadsheet taking information from Resource Management Act Database.

Financial summary

$000	Actual 2008/09	Budget 2008/09	Actual 2007/08
Total Expenditure	9,365	12,836	10,548
Funded by:			
General rates	2,469	2,469	2,434
Targeted rates	5,822	5,715	5,129
Grants	2,267	733	854
User pays and other	1,033	1,724	975
Total Funding	11,591	10,641	9,392
Reserves Increase/(Decrease)	2,226	(2,195)	(1,156)

Energy Efficiency and Conservation Authority grants have significantly increased funding available to progress the Clean Heat programmes running in Christchurch, Waimakariri, Ashburton and Timaru. Uptake has been lower than hoped, particularly in Christchurch, but increased participation is expected as the deadline for meeting National Environmental Standards approaches.

Capital expenditure

Capital expenditure associated with this group of activities was funded from general funds and included as depreciation expense.