

# 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*



## >> Delivering on community outcomes

### Desired outcomes

- Air, beaches and ocean and land are all in a healthy condition.

### Progress this year

Emissions of nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and carbon monoxide (CO) met the National Environmental Standards for Air Quality targets. Ozone (O<sub>3</sub>) was not measured as this is monitored every three years to assess trends. It will be monitored again in 2009/10.

Air quality for winter 2007 was within the straight line path target for particulate matter (PM<sub>10</sub>) to meet the National Environmental Standards for Air Quality by 2013 in Christchurch, Timaru, Ashburton, Kaiapoi, Rangiora, Geraldine and Waimate.

Converting 2838 Christchurch homes to cleaner forms of home heating under the Clean Heat Project has contributed to reducing PM<sub>10</sub> emissions in Christchurch.

- Business and farming activities do not harm the environment.

256 resource consents were issued with conditions to discharge contaminants to air. Conditions monitored for compliance totalled 5240. Action was taken in the 60 cases where significant non-compliance was found.

#### Effect on the four well-beings:



SOCIAL



ECONOMIC



ENVIRONMENTAL



CULTURAL

The cost of funding the Clean Heat Project and complying with consent conditions could negatively impact on the economic well-being of some individuals, however, this is offset by wider benefits to environmental and social well-being.

## >> Highlights

Over the 2007 winter, PM<sub>10</sub> air quality straight line path targets were met in Christchurch, Timaru, Ashburton, Kaiapoi, Rangiora, Geraldine and Waimate. Under the Clean Heat Project, we assisted 2838 Christchurch homeowners to convert to cleaner forms of home heating and improve their insulation.

We continued to closely monitor wintertime air quality in Christchurch, Timaru, Kaiapoi, Rangiora, Ashburton, Geraldine and Waimate and began an emissions inventory for Kaiapoi, Rangiora, Ashburton, Geraldine and Waimate. Emission forecasts were updated for Kaiapoi, Rangiora, Ashburton and Christchurch, home heating surveys were conducted in Timaru and Christchurch, and source apportionment investigations were undertaken in Christchurch.

We published daily winter smog levels in major airsheds and provided information on the [www.ecan.govt.nz](http://www.ecan.govt.nz) website.

Joint working groups with Waimakariri, Ashburton and Timaru district councils addressed air quality issues and continued to co-ordinate efforts to meet the National Environmental Standards.

## >> We also . . .

- Released decisions in September 2007 on the air chapter of the Proposed Canterbury Natural Resources Regional Plan (NRRP). Twenty-three appeals are going through the Environment Court process, expected to be completed in 2009/10.
- Notified variations to the air chapter of the NRRP in October 2007 for Rangiora and Kaiapoi.
- Worked with Canterbury schools on the NCEA-approved air education programme.
- Issued 256 resource consents with conditions to protect air quality and monitored 5240 conditions for compliance. Action was taken to resolve the 60 that were graded as having significant non-compliance.
- Responded to 2451 calls about poor air quality on the 24-hour Pollution Hotline (2023 last year). All cases were investigated and follow-up action implemented as required.
- Lodged submissions on three resource consent applications notified by city/district councils to address air quality issues.
- Introduced stricter rules for woodburners and open fires in Rangiora and Kaiapoi. Woodburners can not be installed without a resource consent in new homes, extensions and alterations or in homes that do not currently have a woodburner, open fire or solid fuel burner.

# >> Levels of service This section reports on performance for 2007/08 against Annual Plan targets

## 1. Meeting National Environmental Standards for CO, NO<sub>2</sub>, SO<sub>2</sub> and O<sub>3</sub> concentrations to protect human health

Measure	Target 2007/08	
CO: 10 milligrams per cubic metre, in an 8-hour period	Exceeded no more than once a year	<i>Achieved</i>
NO <sub>2</sub> : 200 micrograms per cubic metre, in a 1-hour period	Exceeded no more than 9 times a year	<i>Achieved</i>
SO <sub>2</sub> : 350 micrograms per cubic metre, in a 1-hour period	Exceeded no more than 9 times a year	<i>Achieved</i>
SO <sub>2</sub> : 570 micrograms per cubic metre, in a 1-hour period	Never exceeded	<i>Achieved</i>
O <sub>3</sub> : 150 micrograms per cubic metre, in a 1-hour period	Never exceeded	Data is collected every three years, next due in 2009/10

Source: Environment Canterbury.

## 2. Converting to cleaner forms of home heating to reduce the most significant source of PM<sub>10</sub> emissions

### Measure

The total number of homes in the Christchurch airshed 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 2007/08  
3924

2838 conversions were completed. While the Clean Heat Project and communication materials have had effect, it is believed that the target was not achieved due to the voluntary nature of the programme. 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	2007/08	Estimated 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	Estimated: 3,924 Actual: 2,838	3,639	3,447	2,162	2,018	1,976	26,464

Note: The actual number of conversions made in Christchurch is established by an annual survey.

Source: Environment Canterbury.

## 3. Meeting National Environmental Standards for PM<sub>10</sub> concentrations to protect human health

### Measure

The second-highest concentration of PM<sub>10</sub> in the airsheds of Christchurch, Timaru, Kaiapoi, Rangiora, Ashburton, Geraldine and Waimate, for a 24-hour period from midnight to midnight.

### Target 2007/08

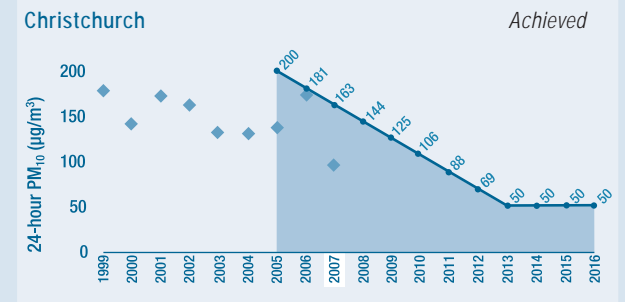
No more than one 24-hour average concentration to be above Environment Canterbury's straight-line path for PM<sub>10</sub> concentrations.

*Achieved*

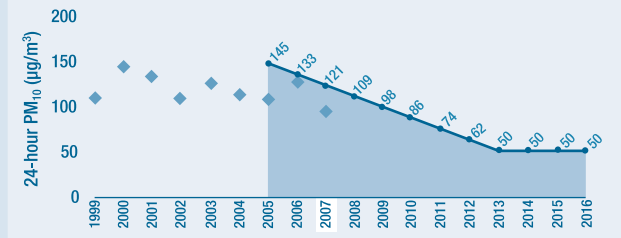
### PM<sub>10</sub> concentrations

KEY ◆ Actual second highest PM<sub>10</sub> concentration — Straight-line path  
■ Target zone, where actual second highest PM<sub>10</sub> concentrations should lie

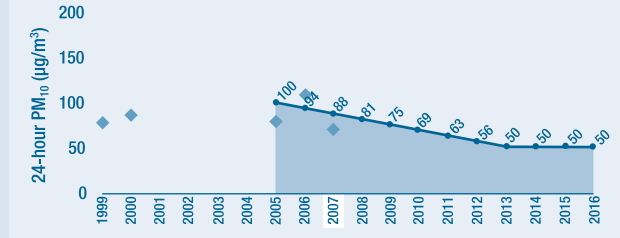
PM<sub>10</sub> concentrations are measured in micrograms per cubic metre, in the 24-hour period from midnight to midnight.  
Years are calendar years (January to December)



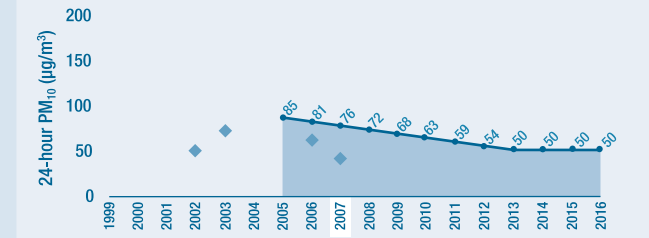
**Timaru** *Achieved*



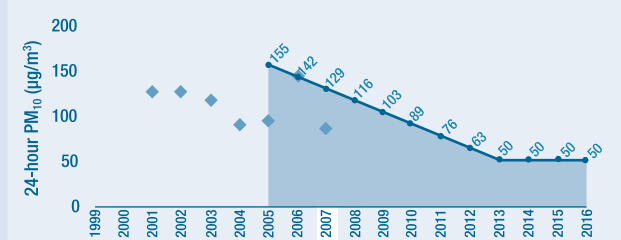
**Ashburton** *Achieved*



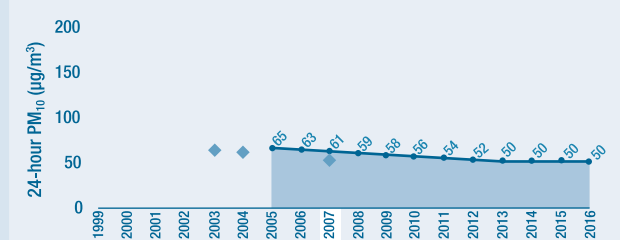
**Waimate** *Achieved*



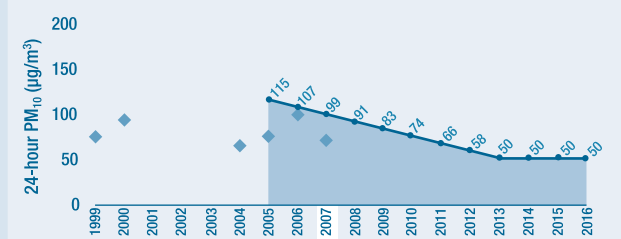
**Kaiapoi** *Achieved*



**Geraldine** *Achieved*



**Rangiora** *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 exceedance 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 2007/08  
90%

256 applications were processed. Continued high demand for consents from water, dairy and subdivision related activities, coupled with increased numbers of notifications and hearings in water resource constrained areas, and some large individual applications, has resulted in many consent applications across all portfolios not being able to be completed within statutory timeframes. *Not achieved (25%).*

#### Processing of applications



Source: Resource Management Act Database.

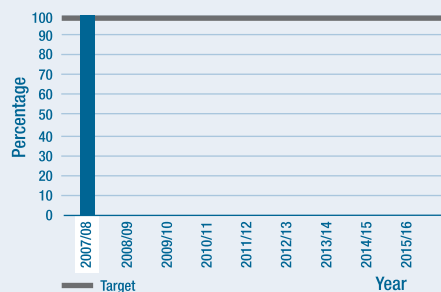
### Measure 2

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

Target 2007/08  
100%<sup>1</sup>

*Achieved (100%)*

#### Consents consistent with RMA



Source: External audit of sample of issued consents.

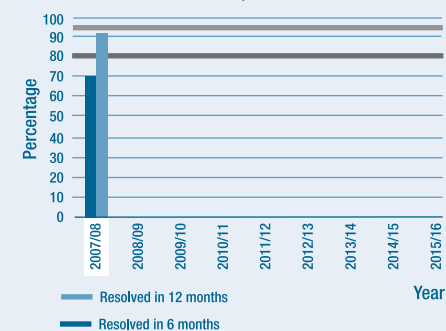
### Measure 3

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

Target 2007/08  
80% are resolved in six months<sup>1</sup>.  
95% are resolved in 12 months<sup>1</sup>.

70% of non-compliances were resolved within six months and 92% within 12 months. *Not achieved.*

#### Consent conditions - non-compliance resolved



Source: External audit of sample of issued consents.

<sup>1</sup> For measures 2, 3 and 4 no historic data is available. Data collection started in 2007/08.

<sup>2</sup> 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.

<sup>3</sup> Means re-assessed as Grade 1 - Fully complying or Grade 2 - Minor non-compliance - nil or minor short-term adverse environmental effects.

## >> Financial summary

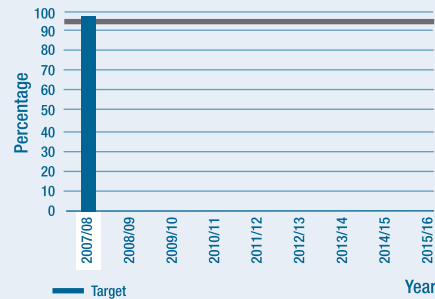
### Measure 4

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

Target 2007/08  
95%<sup>1</sup>

Achieved (98%)

#### Incidents resolved



Source: External audit of sample of issued consents.

### What's changed since the 2006-16 LTCCP?

The 2006-16 LTCCP proposed that additional measures and targets to more comprehensively reflect the contribution made by the level of service towards the community outcomes would be included in the 2007/08 Annual Plan. Measure 3 replaces measure 2 in the 2006-16 LTCCP and new measures 2, 4 and 5 have been added.

### Measure 5

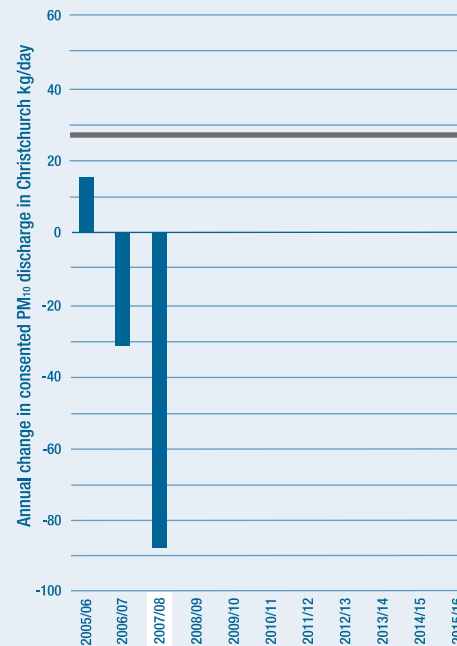
The annual increase in consented PM<sub>10</sub> discharge in Christchurch.

Target 2007/08

No more than 27kg per day.

Achieved. During 2007/08 there was an annual decrease of consented PM<sub>10</sub> discharge in Christchurch of 88kg per day.

#### Annual change in consented PM<sub>10</sub> discharge in Christchurch



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

\$000	Actual 2007/08	Budget 2007/08	Actual 2006/07
<b>Total Expenditure</b>	10,548	10,642	10,612
<i>Funded by:</i>			
<b>General rates</b>	2,434	2,434	2,409
<b>Targeted rates</b>	5,129	5,071	4,980
<b>Grants</b>	854	-	658
<b>User pays and other</b>	975	1,162	846
<b>Total Funding</b>	9,392	8,667	8,893
<b>Reserves Increase/(Decrease)</b>	(1,156)	(1,975)	(1,719)

Clean Air subsidies in Christchurch have been more popular than expected and demand for interest free loans has been lower. Grant funding from the Energy Efficiency Conservation Authority for energy efficiency initiatives was confirmed during the year allowing additional work in this area.

### Capital Expenditure

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