Air quality

The air quality group of activities contributes to the following community outcomes:

- Air, beaches, ocean and land are all in a healthy condition
- Business and farming activities do not harm the environment

Environment Canterbury is responsible for managing the region's air quality, including controlling the discharge of contaminants into air. In carrying out this function, Environment Canterbury has a duty to make information about air quality available (Resource Management Act 1991) and ensure National Environmental Standards are met. Environment Canterbury is the lead agency for this work.

KEY ISSUES FOR 2010/11

Wintertime air quality

Emissions from home heating are the major cause of wintertime air pollution in Canterbury (e.g. in Christchurch, where health guidelines were exceeded on average 21 times a year over the last five years. Home heating contributes approximately 80% of particulate matter (PM_{10})[1], whereas motor vehicle and industrial emissions contribute approximately 10% each).

Other contaminants from motor vehicle emissions, industry, outdoor burning & spray drift from agrichemicals

Volatile organic compounds, dioxins and other hazardous air pollutants need to be monitored and investigated to assess whether the concentrations are within health guidelines.

Complying with the National Environmental Standards for air quality by 2013

Standards have been set for particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and ozone (O_3). Seven airsheds[2] in Canterbury have been identified (Christchurch, Timaru, Kaiapoi, Rangiora, Ashburton, Geraldine and Waimate) and these communities require assistance to meet the PM_{10} standard. In Christchurch, Timaru, Kaiapoi, Rangiora and Ashburton, this is partly provided by the Clean Heat Project, which offers incentives for households to install cleaner forms of heating and insulation. The Clean Heat Project alone will not be sufficient to meet the standard. Funding priority has been given to monitoring of PM_{10} in gazetted airsheds.

Implementing the Air Plan[3]

The Air Plan became operative in part on 27 October 2009 and as a result a number of statutory requirements are to be implemented. These include the operative rules relating to banning the use of open fires and non-complying solid fuel burners in Christchurch Clean Air Zone 1 in the winter months 1 April to 30 September, for Kaiapoi from May 2010, and Ashburton from May 2011. Rules relating to outdoor burning and agrichemical spraying are expected to become operative by the end of 2010. The implication of the Air Plan becoming operative in part is that more education and more enforcement is required. This is particularly true for the implementation of the open fire/non-complying solid fuel burner ban that will take effect on 1 April 2010 in Christchurch.

Which key issues have changed since the 2009-19 LTCCP?

The Air Plan became operative in part on 27 October 2009, and as a result a number of statutory requirements are to be implemented.

We will undertake community consultation in the 2010/11 financial year to help determine the delivery of Clean Heat Projects throughout Canterbury from 1 July 2011 onwards.

[1] Particulate matter that is less than 10 microns in diameter.

[2] Airsheds are specified areas set for National Environmental Standards for air quality.

[3] The Air Plan is Chapter 3 - Air Quality of the Canterbury Natural Resources Regional Plan.

Effect on the four well-beings

Clean air initiatives result in benefits to environmental and social well-being through improved health of individuals. However, paying targeted rates to fund Clean Heat Projects, converting to cleaner forms of home heating and meeting the cost to comply with consent conditions for air discharges can all adversely affect the economic well-being of some individuals and businesses.

Involving the community

- Timaru, Kaiapoi, Rangiora and Ashburton have tailored Clean Heat Projects developed in collaboration with local communities.
- 2,060 submissions were received on the development of the Air Plan. Twenty-three appeals were taken to the Environment Court in 2008 and all have been resolved.
- Seventy-three submitters and two Joint Working Groups contributed to the development of variations to the Air Plan for Kaiapoi, Rangiora and Ashburton.

UNCERTAINTIES	ASSUMPTIONS
For 2010/11, the following is uncertain:	For 2010/11, it is assumed that:
a) In Christchurch, Timaru, Ashburton, Kaiapoi/Rangiora: the rate at which homeowners with open fires and non-complying solid fuel burners will convert to cleaner forms of home heating; and whether the number of conversions funded with assistance from Environment Canterbury's Clean Heat Project, plus voluntary conversions, will be enough to meet the National Environmental Standard for PM_{10} by 2013.	a) In Christchurch, Timaru, Ashburton, and Kaiapoi/Rangiora, the numbers of conversions funded with assistance from Environment Canterbury's Clean Heat Project are 2400, 446, 337 and 427 respectively. Any shortfall in conversions required to meet the National Environmental Standards in any of the seven gazetted airsheds will be provided from additional rating revenue, regulatory measures, voluntary changes and additional revenue from alternative sources such as central government agencies.
b) In Geraldine and Waimate: the rate at which homeowners with open fires and non-complying solid fuel burners will convert to cleaner forms of home heating.	b) In Geraldine and Waimate, the current measures in the Air Plan will result in compliance with the National Environmental Standard.
c) Whether the straight-line paths for PM_{10} identified in the levels of service can be achieved due to factors beyond Environment Canterbury's control, including weather conditions, home heating behaviour and consent holder and permitted activity compliance. This could be offset by improvements in emissions reduction technology.	c) Variations due to factors beyond Environment Canterbury's control will not be significantly different to previous years.
d) Whether the Ministry of Transport's methods for managing benzene will be effective in achieving the 2010 targets.	d) Ongoing monitoring and investigation is required to assess whether further management methods are needed to achieve benzene 2010 targets.
e) The level of uptake and distribution amongst the Clean Heat subsidy and loan programmes.	e) The level of uptake and distribution amongst the Clean Heat subsidy and loan programmes reflects the 2009 uptake. Provision has been made for funding based on current levels of commitment.
f) The Ministerial Review of the National Environmental Standard for Air Quality began in late 2009 and the outcome and impact of any amendments will not be known until the end of 2010 at the earliest.	f) No change in the National Environmental Standard for Air Quality for 2010/11.

Which uncertainties have changed since the 2009-19 LTCCP?

The implications of the Energy Efficiency and Conservation Authority's (EECA) funding on the Clean Heat Project are now known in respect of uncertainty e) in the 2009-19 LTCCP, and this is addressed in assumption e).

There has been a lower uptake of the proportion of loans to subsidies than has previously been assumed. This is now uncertainty e).

Which assumptions have changed since the 2009-19 LTCCP?

There has been a decrease in the number of conversions expected to be delivered in the Clean Heat Projects in Timaru, Ashburton and Kaiapoi/Rangiora due to changing levels of uptake of the proportion of loans to subsidies.

There has been a decrease in the number of conversions expected to be delivered in all of the Clean Heat Projects due to the marketplace being able to meet some of the demand of the Clean Heat Project, as well as the increasing average net costs per conversion in the past year.

OUR ACTIVITIES

Priority in 2010/11

The priority for this group of activities is achieving the National Environmental Standard for Air Quality by 2013. The Clean Heat Project is a key aspect of this, along with implementing the Air Plan.

WE WILL UNDERTAKE THE FOLLOWING ACTIVITIES:

Investigations

Investigating air quality issues.

Planning & consents

Developing policy for managing air quality, assessing policy implementation and effectiveness and processing resource consents.

Monitoring

Measuring concentrations of contaminants in airsheds and assessing air quality against National Environmental Standards for Air Quality and targets in the Air Plan.

Operations

Providing incentives through the Clean Heat Project to assist people to move to cleaner forms of home heating and improve insulation.

Communicating, educating & advocating

Informing the community about air quality issues and impacts, and raising awareness about air quality.

Regulating

Ensuring compliance with resource consent conditions, partially operative Air Plan requirements and the Resource Management Act 1991.

Our work programmes in 2010/11

Investigations

- Improve understanding of the sources of air pollution, including PM_{10} and hazardous air pollutants.
- Model the dispersion of contaminants in airsheds.
- Forecast emissions for gazetted airsheds.
- Determine the number of homes converting to cleaner forms of home heating in Christchurch, Timaru, Ashburton, Kaiapoi and Rangiora.
- Compile emission inventories of major pollutants from human-induced sources.

Planning & consents

- Progress variations and/or plan changes to the Air Plan through statutory processes.
- Ensure city and district plans give effect to regional policies for managing air quality. Work collaboratively with territorial authorities during District Plan amendments to ensure alignment with regional policy.
- Assess implementation and effectiveness of the Air Plan and the Canterbury Regional Policy Statement.
- Progress working parties with key stakeholders to develop air quality and Clean Heat initiatives.
- Process resource consent applications, including appeals to the Environment Court where required.
- Review resource consents where appropriate.

Monitoring

- Continuously monitor PM_{10} concentrations in the Christchurch, Timaru, Kaiapoi, Rangiora, Ashburton, Geraldine and Waimate gazetted airsheds.
- Periodically monitor benzene, benzene(a)pyrene, CO, NO_2 and SO_2 in the Christchurch, Timaru, Ashburton, Kaiapoi, Rangiora, Geraldine and Waimate gazetted airsheds.
- Periodically monitor O_3 for Christchurch.
- Publish wintertime air pollution concentrations on the Environment Canterbury website.
- Report breaches of National Environmental Standards for Air Quality in public notices of local newspapers.
- Publish results of monitoring programmes.
- Compile data for the Regional Environment Report.

Operations

- Provide Clean Heat Project incentives in Christchurch, Timaru, Ashburton, Kaiapoi and Rangiora to assist people to move to cleaner forms of home heating and improve insulation.
- Undertake the Clean Air Outreach programme.

Communicating, educating & advocating

- Educate the community about air quality issues.
- Provide information about managing air pollution and partially operative Air Plan requirements.
- Provide air education programmes in primary and secondary schools.

Regulating

- Advise on, and monitor compliance with, requirements of the Resource Management Act including resource consent conditions.
- Investigate breaches of the Resource Management Act, including resource consent conditions, facilitate appropriate steps to remedy or mitigate adverse effects and take enforcement action where required.
- Report significant breaches of resource consents to council three times a year.
- Provide a Pollution Hotline response service.
- Authorise solid fuel-burning home heating appliances.

What's changed in our work programmes since the 2009-19 LTCCP?

The number of projected Clean Heat conversions has been reduced resulting in a reduction in both income and expenditure. Use of reserves has increased as a result of higher than expected reserve levels forecast at the end of the 2009/10 year.

OUR LEVELS OF SERVICE

How Environment Canterbury's levels of service relate to the community outcomes

Levels of Service	Community Outcomes: Air, beaches, ocean and land are all in a healthy condition	Community Outcomes: Business and farming activities do not harm the environment
1 Working with territorial authorities	●	●
2 Meeting national environmental standards for CO, NO_2, SO_2 and O_3 concentrations	●	●
3 Converting to cleaner forms of home heating to reduce the most significant source of PM_{10} emissions	●	
4 Meeting national environmental standards for PM_{10} concentrations	●	●
5 Authorising and monitoring the use of natural and physical resources	●	●

Environment Canterbury's contribution will be reported on each year in our Annual Report.

1 Working with territorial authorities

Measure

The percentage of reviewed district and city council plans that give effect to or are not inconsistent with regional policies for managing air quality.

Target

100% of reviewed plans (see table).

Note: Second generation plans will be developed by district and city councils by way of a plan review under section 79 of the Resource Management Act 1991. Environment Canterbury will review all second generation plans to ensure they give effect to the Canterbury Regional Policy Statement (CRPS) or are not inconsistent with the partially operative Natural Resources Regional Plan (NRRP), or the associated variations and plan changes.

DISTRICT & CITY COUNCIL PLANS

District plan	First plan operative	Review of plan commences
Ashburton District Plan	2001	2008
Waimate District Plan	2001	2011

2 Meeting national environmental standards for CO, NO_2, SO_2 & O_3 concentrations

Measure	Target
CO: 8-hour average	Exceed 10 milligrams per cubic metre no more than once a year
NO_2: 1-hour average	Exceed 200 micrograms per cubic metre no more than 9 times per year
SO_2: 1-hour average	Exceed 350 micrograms per cubic metre no more than 9 times per year
SO_2: 1-hour average	Never exceed 570 micrograms per cubic metre
O_3: 1-hour average	Never exceed 150 micrograms per cubic metre. (Note data is collected every three years, next due in 2009/10)

Source: Environment Canterbury.

3 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 gazetted Christchurch, Timaru, Ashburton, Kaiapoi and Rangiora airsheds converting to cleaner forms of home heating through the Clean Heat Project.

Target

See table below. The targets below have been revised since the 2009-19 LTCCP. See page 10.

CONVERSIONS UNDERTAKEN BY ENVIRONMENT CANTERBURY'S CLEAN HEAT PROJECT

	Actual 2006/07	Actual 2007/08	Actual 2008/09	Budgeted 2009/10	Budgeted 2010/11
Christchurch	3,639	2,838	1,969	3,000	2,400
Timaru			226	762	446
Ashburton			34	572	337
Kaiapoi and Rangiora			94	774	427

Note: The actual number of conversions made in all towns is established by real-time database reporting of completions. Clean Heat Projects began in Christchurch on 24 February 2003 and in Timaru, Ashburton and Kaiapoi/Rangiora on 1 July 2008.
Source: Environment Canterbury.

❹ Meeting national environmental standards for PM_{10} concentrations

Measure

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

Target

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

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

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

Source: Environment Canterbury.

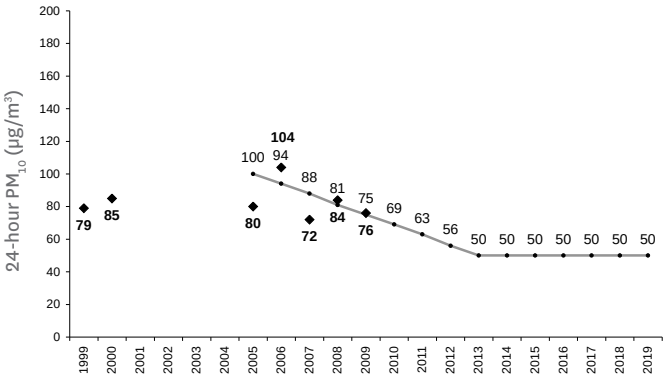
PM_{10} CONCENTRATIONS

KEY

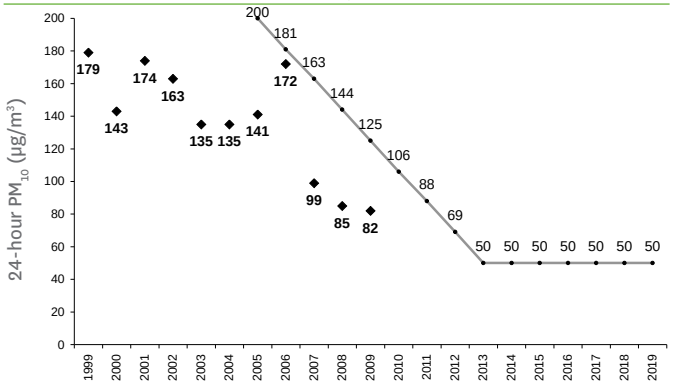
- Actual second highest PM_{10} concentration
- Straight-line path (target)

PM_{10} concentrations are measured in micrograms per cubic metre, in the 24-hour period from midnight to midnight.

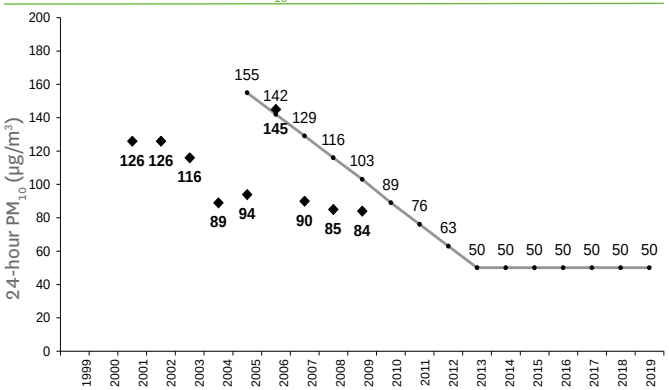
ASHBURTON - ACTUAL & TARGET PM_{10}



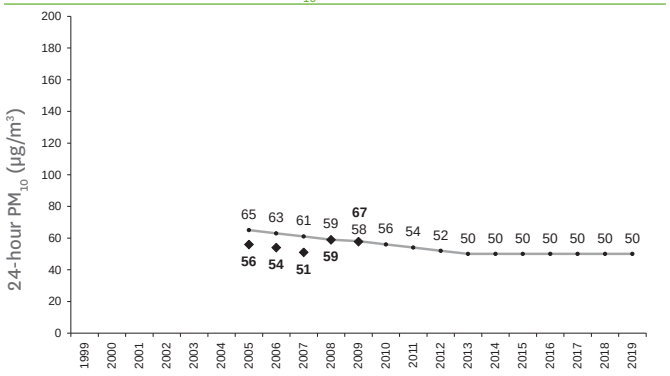
CHRISTCHURCH - ACTUAL & TARGET PM_{10}



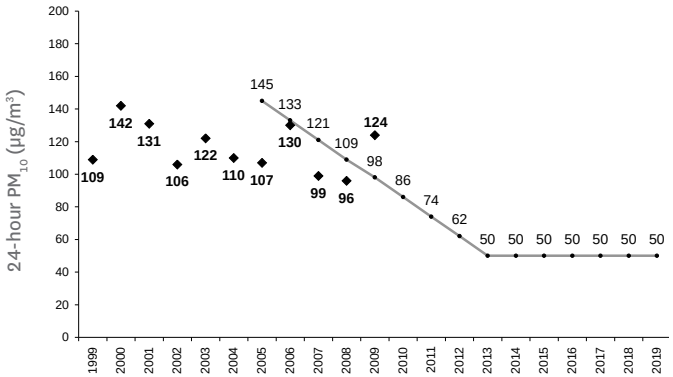
KAIAPOI - ACTUAL & TARGET PM_{10}



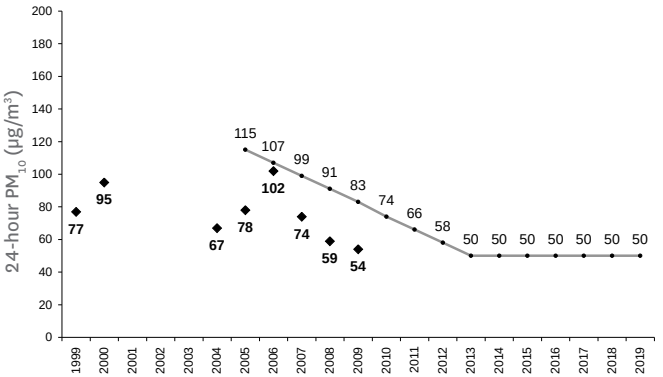
GERALDINE - ACTUAL & TARGET PM_{10}



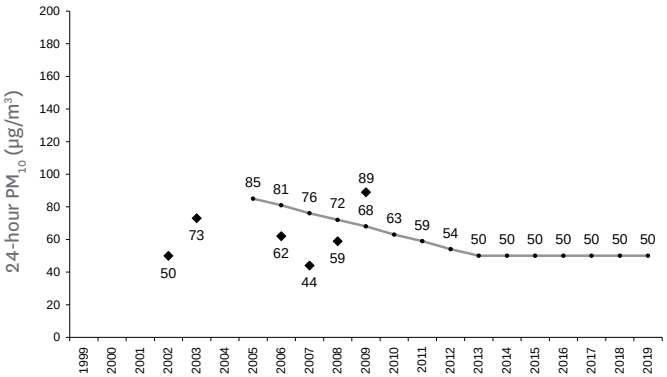
TIMARU - ACTUAL & TARGET PM_{10}



RANGIORA - ACTUAL & TARGET PM_{10}



WAIMATE- ACTUAL & TARGET PM_{10}



❺ Authorising & monitoring the use of natural & physical resources

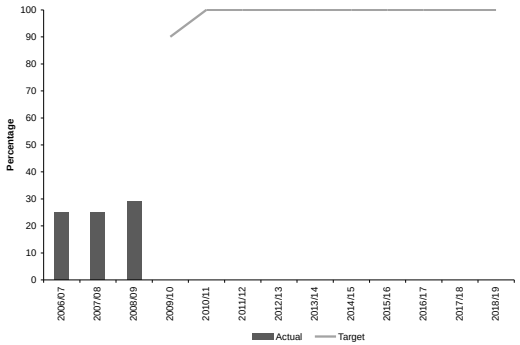
Measure 1

The percentage of resource consent applications for discharges to air processed in compliance with the statutory timeframe set down in the Resource Management Act 1991.

Target

100%.

PROCESSING OF APPLICATIONS



Source: Environment Canterbury Resource Management Act database.

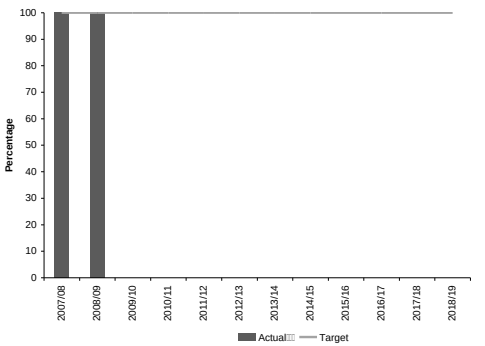
Measure 2

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

Target

100%[1] of independent audit.

CONSENTS CONSISTENT WITH RMA



Source: Independent audit of random sample of issued consents.

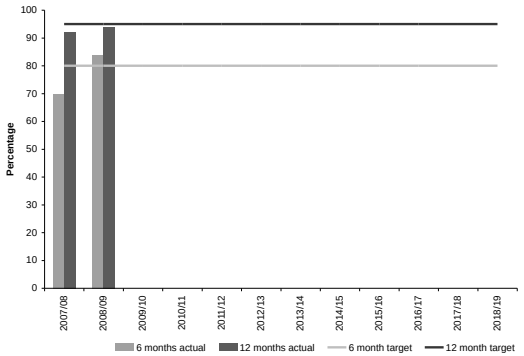
Measure 3

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

Target

80% are resolved in six months[1], 95% are resolved in 12 months[1].

CONSENT CONDITIONS - NON-COMPLIANCE RESOLVED



Source: Environment Canterbury.

What's changed in this measure since the 2009-19 LTCCP?

Targets adjusted to reflect statutory requirements.

[1] For measures 2, 3 and 4 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.

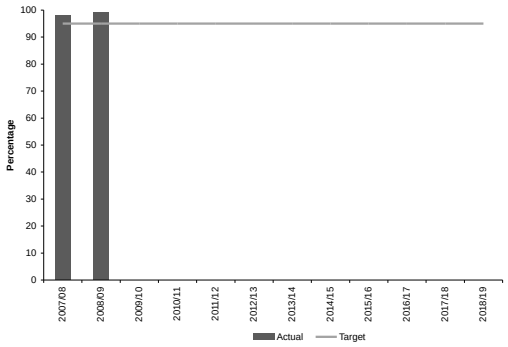
Measure 4

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

Target

95%[1]

INCIDENTS RESOLVED



Source: Environment Canterbury.

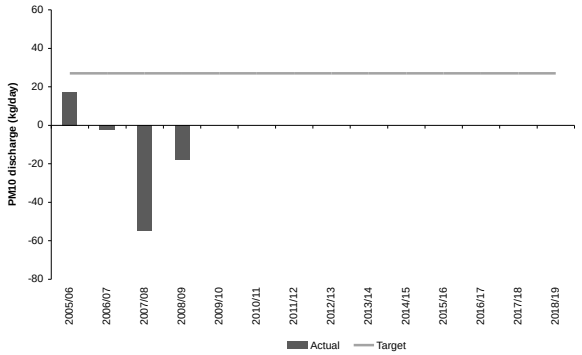
Measure 5

The annual increase in consented PM_{10} discharge in Christchurch.[4]

Target

No more than 27 kg/day of PM_{10} in total.[5]

ANNUAL CHANGE IN CONSENTED PM_{10} DISCHARGE IN CHRISTCHURCH



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

What's changed in this measure since the 2009-19 LTCCP?

Measure 5 and its associated target reflects the annual increase in consented PM_{10} discharge in Christchurch, which previous reporting had incorrectly added up.

[4] PM_{10} discharge means "either in or may effect" the Christchurch gazetted airshed.

[5] Limiting the increase of PM_{10} discharge from industry to 27kg/day was the increase assumed for industry in the Air Plan for achieving the ambient air quality target for Christchurch.

FINANCIAL SUMMARY

$000	Annual Report 2008/09	Annual Plan 2009/10	LTCCP 2010/11	Annual Plan 2010/11
Total Expenditure	9,365	14,292	15,807	13,788
Funded by:				
General rates	2,469	2,807	3,006	2,837
Targeted rates	5,822	4,576	4,853	4,142
User pays/Other	641	609	648	695
Grants	2,267	4,531	4,470	3,744
Interest	392	1,347	1,852	674
Total Income	11,591	13,870	14,829	12,092
Reserves Increase/(Decrease)	2,226	(422)	(978)	(1,696)

Asset management & capital expenditure

See Appendix 3 for information on assets involved in this group of activities.

How this work is funded

For more information on source of funds and rationale for selection, see:

- Funding and Financial Policies 2009, Long Term Council Community Plan 2009-19 Part B.
- Rating information on pages 99-110.

What's changed in this financial summary since the 2009-19 LTCCP?

The number of projected Clean Heat conversions has been reduced resulting in a reduction in both income and expenditure. The use of reserves has increased as a result of higher than expected reserve levels forecast at the end of the 2009/10 year.