

# AIR QUALITY

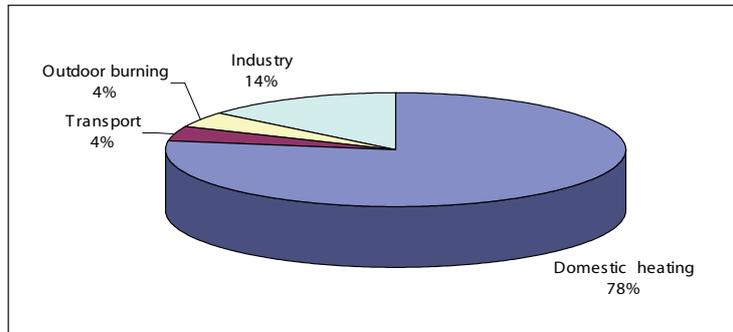
## Annual Monitoring Summary 2012

### What drives air pollution in Nelson?

- Domestic heating contributes 78% of the smoke during the winter period (there are local variations in sources).
- By contrast industry contributes around 14% and vehicles about 4%.
- Small smoke particles (PM<sub>10</sub>) enter the body through the lungs and affect human health. In extreme cases people with heart or lung problems can die.
- Nelson is surrounded by hills and has a settled climate.
- Under clear skies during winter the air near the ground can be colder than the air above and smoke from domestic chimneys, factories and vehicle exhausts gets trapped.

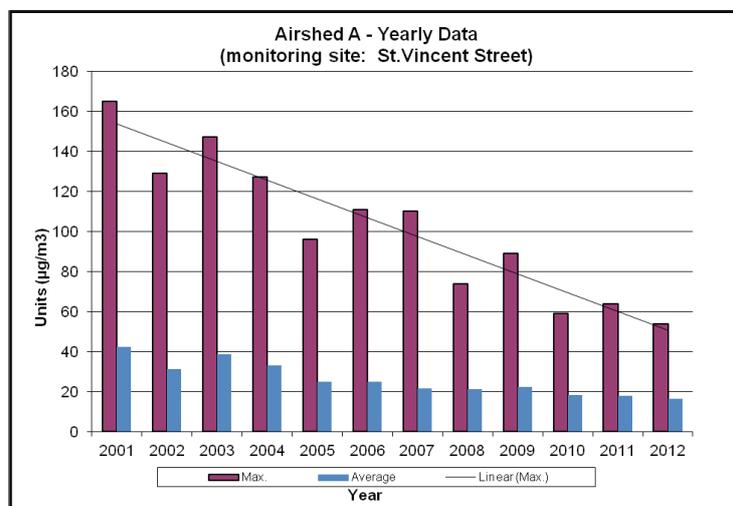


- Winter is also the time when smoke emissions from home heating sources are at their maximum.
- The combined effect is that in Nelson during winter smoke concentrations can be much higher than normal for a city of this size.
- Different types of fires produce different amounts of smoke. Generally the hotter the fire burns the less smoke it produces.
- Open fires and outdoor burning tend to produce the most smoke (per piece of wood) and modern enclosed wood burners and pellet fires the least.
- Air quality in Nelson can also be affected by chemical pollution not related to burning. Standards are in place for these pollutants and their levels are monitored.



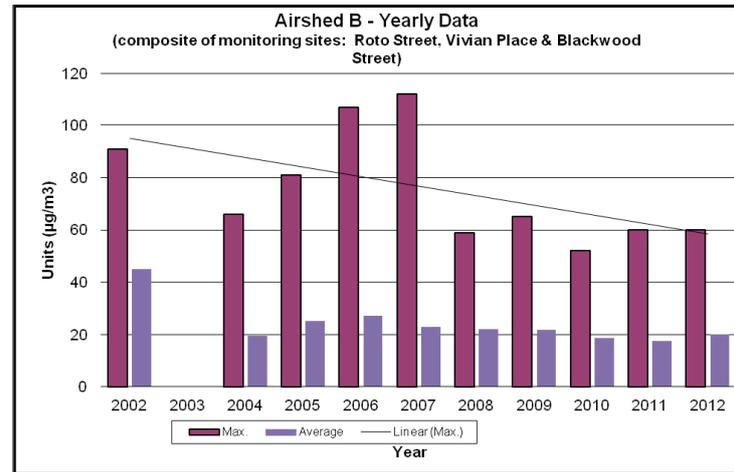
### Key Results

- Nelson City Council started monitoring small smoke particles (PM<sub>10</sub>) in 2001 in the Victory Square area (Airshed A). During that year the maximum concentrations reached 165 micrograms (µg/m<sup>3</sup>) per cubic metre and the National Environmental Standard (NES) of 50 µg/m<sup>3</sup> was exceeded on 81 days.
- During 2012 the maximum smoke concentration in Airshed A reached 54 µg/m<sup>3</sup> and the NES was only exceeded on 2 days.
- During 2012 the average annual smoke concentration was the lowest on record at 17 µg/m<sup>3</sup>, down from an annual average of 42 µg/m<sup>3</sup> in 2001.
- Nelson is on track to comply with the NES requirement to have no more than three breaches in 2016 and no more than one by 2020.
- Weather conditions during the winter of 2012 helped reduce the concentration of air pollutants.
- Many parts of Nelson, including Atawhai, the Wood, and the Brook, already meet the national standards for air quality.





- In 2002 Nelson City Council began monitoring small smoke particles in the Tahunanui area (Airshed B) and set up a permanent monitoring site in 2005. Tahunanui has more industry which makes up a higher percentage of smoke emissions and occurs year round.
- During 2012 air quality in the Tahunanui area exceeded the NES on three days, two of those days during the spring/summer period. Investigations are underway to establish the contribution of natural sources such as windblown dust to these breaches.
- The Tahunanui area (Airshed B) has seen a reduction in both smoke concentrations and number of days the NES is breached.



## WHAT ARE WE DOING ABOUT IT?

### NELSON AIR QUALITY PLAN

- Nelson City Council has an operative Air Quality Plan which places controls on activities affecting air pollution.
- Plan rules prohibit outdoor burning in urban areas, the use of open fires and the installation of enclosed burners in houses that do not already have an enclosed burner.



- In addition to rules an assistance package (Clean Heat Warm Homes) was in place up until June 2012 to help property owners phase out domestic fires that produce the most smoke and replace them with better insulation and cleaner heating options.
- The scheme saw 540 open fires and 1,546 older burners replaced with cleaner heating appliances with Council assistance. Improved insulation was provided in 1,370 homes.
- The Council is now monitoring domestic burner use to ensure only approved burners are being used. In 2012 the Council issued 53 warnings for use of non-authorized burners and these were all complied with. Council will continue to focus on compliance monitoring in 2013.
- The Council won two Green Ribbon Awards from the Government in 2012 for its work on cleaning Nelson's air.

### GOOD WOOD

- Even clean burners contribute to air pollution when poor fuel is used.
- Burning wet wood produces more smoke, burning treated timber can release arsenic, and burning plastic produces dioxins.
- Nelson City Council established the Good Wood scheme to encourage people to buy and burn dry, untreated timber. There are currently nine wood merchants registered with the Good Wood scheme.



### INDUSTRIAL EMISSIONS

- The Council is working with industry through the resource consents process to reduce industry's contribution to air pollution.
- Improvements are being made with many emitters installing cleaner burner technology such as at Nelson College for Girls, Nelson Hospital and AlSCO Laundry.



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