

[dec home](#)[dec calendar](#)[contact dec](#)[topic index](#)[sitemap](#)[search](#)

# Air Pollution Control Division

**VT DEC**[apcd home](#)[regulations](#)[permits](#)[air quality data](#)[publications](#)[contacts](#)[dec home](#) > [apcd home](#) > [monitoring](#) > [air-quality reports](#) > 2005

## Air Monitoring >

- > [What's New in Monitoring](#)
- > [Network Design](#)
- > [Monitoring Site Information](#)
- > [Pollutant Descriptions](#)
- > [Instrumentation](#)
- > [Special Air-Quality Events](#)
- > [Real-time Data](#)
- > [Archived Data](#)
- > [Compliance Plots](#)
- > [Air Quality Reports](#)
- > [National Standards \(NAAQS\)](#)

### Air Division Pages:

- > [What's New? in Air](#)
- > [Publications](#)
- > [Regulations](#)
- > [EVERmont](#)
- > [Related Air Links](#)
- > [Contacts](#)

### APCD Section Pages:

- > [Air Toxics](#)
- > [Compliance](#)
- > [Mobile Sources](#)
- > [Monitoring](#)
- > [Permitting](#)
- > [Planning](#)

## 2005 Annual Report on Air Quality State of Vermont

[Ozone](#) • [PM<sub>2.5</sub>](#) • [PM<sub>10</sub>](#) • [Carbon Monoxide](#) • [Nitrogen Dioxide](#) • [Sulfur Dioxide](#) • [Lead](#)

### Ozone

Vermont operated two ozone (O<sub>3</sub>) monitoring sites in 2004; one at the Proctor Maple Research Facility in Underhill and the other in Bennington. The 8-hour average ozone National Ambient Air Quality Standard (NAAQS) is 0.08 parts per million (ppm) and is assessed relative to the running 3-year average of the annual 4th maximum daily maximum 8-hour average. Based on this criteria, both Underhill and Bennington are 100% of the NAAQS (0.08 ppm) for 2004; this is in compliance with the standard, which must not be exceeded. The highest 8-hour concentration of ozone in 2004, 0.091 ppm, was recorded at the Bennington site. The highest recorded 8-hour concentration of ozone at the Proctor Maple Research site was 0.079 ppm. The highest 1-hour concentration of ozone in 2004, 0.106 ppm, was recorded at the Bennington site while the highest recorded 1-hour concentration of ozone at the Proctor Maple Research Facility was 0.093 ppm.



### PM<sub>2.5</sub>

Vermont maintained six monitoring sites that sampled for particulate matter with aerodynamic diameter < 2.5 microns (PM<sub>2.5</sub>). PM<sub>2.5</sub> sampling in 2004 was conducted at Rutland, Bennington Airport Road, Burlington Zampieri Building, Burlington Main Street, Shoreham Lapham Bay and Shoreham Smith Street. Although PM<sub>2.5</sub> sampling was discontinued in 2003 at the Proctor Maple Research Facility in Underhill, PM<sub>2.5</sub> sampling continues in Underhill through the IMPROVE program. Vermont began PM<sub>2.5</sub> sampling in 1999. The annual average PM<sub>2.5</sub> standard is assessed relative to the three-year average of the respective annual averages. The PM<sub>2.5</sub> annual average NAAQS is 15 micrograms per cubic meter (µg/m<sup>3</sup>). Compliance was

assessed at only the Burlington Zampieri site as it was the only site with the last three consecutive years of annual averages. The three-year average as the Burlington Zampieri site was  $9.5 \mu\text{g}/\text{m}^3$  (63% of NAAQS). The  $\text{PM}_{2.5}$  24-hour average standard is assessed relative to the three-year average of the annual 98th percentile sample concentration. Given Vermont's 1-in-3 day sampling schedule, the annual 98th percentile concentration is the annual third 24-hour maximum concentration. The  $\text{PM}_{2.5}$  24-hour standard is  $65 \mu\text{g}/\text{m}^3$ . Compliance was assessed at the Burlington Zampieri site and the three-year 98<sup>th</sup> percentile average was  $32 \mu\text{g}/\text{m}^3$  (49% of NAAQS).



## **$\text{PM}_{10}$**

In 2004, Vermont maintained six monitoring site that sampled for particulate matter with aerodynamic diameter < 10 microns ( $\text{PM}_{10}$ ) for the entire year at Burlington Main Street.  $\text{PM}_{10}$  sampling in 2004 was conducted at Rutland, Underhill, Brattleboro, Burlington Main Street, Shoreham Lapham Bay Road and Shoreham Smith Street. The highest 24-hour concentration in 2004 of  $45 \mu\text{g}/\text{m}^3$  was recorded in Rutland. The highest annual  $\text{PM}_{10}$  average concentration observed was in Brattleboro at  $19 \mu\text{g}/\text{m}^3$ . These concentrations are well below the former  $\text{PM}_{10}$  annual maximum 24-hour average NAAQS of  $150 \mu\text{g}/\text{m}^3$  and the  $\text{PM}_{10}$  annual average NAAQS of  $50 \mu\text{g}/\text{m}^3$ . Yearly variability in the data is common, in part determined by meteorology, transport of particulate matter from distant sources, and changes in the emission strength of local sources.



## **Carbon Monoxide**

During 2004, Vermont operated two Carbon Monoxide (CO) sites in Rutland and Burlington Main Street. No exceedance of the NAAQS for CO was recorded. The highest 1st and 2nd maximum 8-hour concentrations of CO recorded at Rutland were 2.1 ppm and 1.8 ppm. The highest 1st and 2nd maximum 8-hour concentrations of CO recorded at Burlington were 2.2 ppm and 1.9 ppm. The five-year trend line shows in Rutland shows a slight downward trend with the second highs at levels between 20% and 28% of the 8-hour NAAQS of 9 ppm. The Burlington CO site was not in operation in 2002; however was put back in operation for 2003 where it continues to

operate. CO measured in Burlington from 1995 through 1999 resulted in second 8-hour maximums ranging between 24% and 37% of the standard. The second 8-hour maximum in Burlington of 1.9 ppm in 2004 was 21% of the standard. In 2004, the maximum one-hour concentration of CO recorded at Burlington and Rutland was 3.2 ppm and 3.6 ppm, respectively.



### **Nitrogen Dioxide**

Vermont operated two nitrogen dioxide (NO<sub>2</sub>) monitoring sites in Rutland and Burlington Main Street in 2004. No exceedance of the NAAQS for NO<sub>2</sub> was recorded. In 2004, the annual average for NO<sub>2</sub> at Burlington and Rutland was 0.014 ppm and 0.012 ppm, respectively. Historical data for the most recent five years (2000-2004) indicate that the annual average concentrations of NO<sub>2</sub> have remained relatively stable. During this time period, the annual averages for the Rutland site ranged from 0.011 ppm to 0.013 ppm NO<sub>2</sub>. The Burlington NO<sub>2</sub> site was not in operation in 2002; however was put back in operation for 2003 where it continues to operate. During the period of 1996 to 2000, the annual average NO<sub>2</sub> concentrations ranged from 0.017 ppm to 0.018 ppm in Burlington. The five-year annual NO<sub>2</sub> average trend in Burlington and Rutland ranged between 21% to 34% of the NAAQS. In 2004, the maximum one-hour concentration of NO<sub>2</sub> recorded at Burlington and Rutland was 0.067 ppm and 0.059 ppm, respectively.



### **Sulfur Dioxide**

In 2004, Vermont maintained two sulfur dioxide (SO<sub>2</sub>) monitoring sites in Burlington and Rutland. No exceedance or violation of the NAAQS for sulfur dioxide was recorded. The Burlington NO<sub>2</sub> site was not in operation in 2003; however was put back in operation for 2004. The highest 24-hour average concentrations of SO<sub>2</sub> in Burlington and Rutland in 2004 were 0.013 and 0.044 ppm, respectively. The highest 1-hour average SO<sub>2</sub> concentrations at Burlington and Rutland were 0.016 and 0.076 ppm, respectively. The annual average of 0.005 ppm in Rutland for 2004 is 17% of the NAAQS. For compliance purposes, the annual second maximum 24-hour average of 0.030 ppm is 21% of the NAAQS for Rutland. The annual second maximum 3-hour average of 0.063 ppm is 13% of the NAAQS for Rutland. Five years (2000-

2004) of historical SO<sub>2</sub> data indicate little variability in SO<sub>2</sub> concentrations in Rutland.



## Lead

Vermont is not required to measure the concentration of lead in ambient air. No measurement data are available. [Note: The Vermont Air Pollution Control Division discontinued monitoring lead concentrations in Vermont in 1989.]



VT DEC ■ Air Pollution Control Division ■ 103 South Main Street, Building 3 South ■ Waterbury, VT 05671-0402 ■ Tele: 802-241-3840 or toll-free in VT: 888-520-4879 ■ Fax: 802-241-2590

[DEC home](#) ■ [dec calendar](#) ■ [contact dec](#) ■ [topic index](#) ■ [site map](#) ■ [search](#)  
[about dec](#) ■ [assistance](#) ■ [divisions & programs](#) ■ [dec permits](#) ■ [dec regulations](#) ■ [dec publications](#)  
[dec grants & loans](#) ■ [dec maps & GIS](#) ■ [hotline numbers](#) ■ [related links](#) ■ [privacy policy](#) ■ [ANR home](#)



[State of Vermont Agencies & Depts.](#) ■ [Access Government 24/7](#) ■ [About Vermont.Gov](#) ■ [Privacy Policy](#) ■ [Ask a State Li](#)

A Vermont Government Website Copyright 2003 State of Vermont - All rights reserved

