



# Town of Truckee

## 2007 Annual Report Particulate Matter Air Quality

Prepared by:

Duane Hall, Town Planner  
Truckee Community Development Department  
10183 Truckee Airport Rd  
Truckee, CA 96161  
(530) 582-7820

May 3, 2007

## *Preface*

Within two years of the adoption of this plan and every year thereafter, the Planning Division will submit to the Town Council a report that analyzes air quality monitoring data for particulate matter including emission levels and concentrations and compliance with National and State ambient air quality standards. The Town Council will review the report to determine the success of the plan's control strategies in achieving the attainment goal of the plan, and if necessary take the appropriate steps to ensure consistency with the plan's goal and objectives.

For a plan to be effective, its strategies must be implemented and achieve their purposes as planned. It is critical to gauge the effectiveness of the control strategies to ensure the goal and objectives of the plan are being met. The Town must continue to monitor particulate matter air quality and associate any changes to particulate matter emission levels and concentrations to the control strategies and to factors that are beyond the Town's control. If emissions and concentrations increase, remain as they are, or do not decrease to the levels anticipated, this may signal that the control strategies are not succeeding and a change in the Town's efforts may be needed. This objective provides the mechanism for the Town Council to review the effectiveness of the control strategies on an annual basis and determine if they are succeeding. It is presumed that if the control strategies are not succeeding that the Town Council will take appropriate action based on the findings of the report.

***Objective 9, Truckee Particulate Matter Air Quality Management Plan***

# 2007 Annual Report for Particulate Matter Air Quality

## INTRODUCTION

This report is the seventh annual report on particulate matter air quality in the Truckee air basin. It analyzes the quality of our air for particulate matter pollution in 2006, identifies compliance with National and State air quality standards, and summarizes the status of our monitoring network and the implementation of control strategies.

## PARTICULATE MATTER MONITORS AND AIR QUALITY

There were no changes to our particulate matter monitoring network. The California Air Resources Board and the Northern Sierra Air Quality Management District continue to operate and maintain the following particulate matter monitors in Truckee:

- A Hi-Vol PM<sub>2.5</sub> monitor located at the Downtown fire station. This monitor samples PM<sub>2.5</sub> air quality for a 24-hour period once every three days. (Data from this monitor is used to determine compliance with NAAQS and SAAQS.)
- A MetaOne Beta Attenuation Monitor (BAM) located at the Downtown fire station. This monitor samples PM<sub>10</sub> air quality for a 24-hour period on a continuous basis.
- A Hi-Vol PM<sub>10</sub> monitor located at the Downtown fire station. This monitor samples PM<sub>10</sub> air quality for a 24-hour period once every six days. (Data from this monitor is used to determine compliance with NAAQS.)

These monitors recorded the following readings for particulate matter air quality in the Truckee region in 2006:

**Table 1**  
**Particulate Matter Air Quality in 2006**

	<b>Sampling Days</b>	<b>Annual Concentration</b>	<b>Highest 24-Hour Concentration</b>
<b>PM<sub>2.5</sub> Hi-Vol</b>	121	6.28 ug/m <sup>3</sup>	28 ug/m <sup>3</sup>
<b>PM<sub>10</sub> BAM</b>	365	29.15 ug/m <sup>3</sup>	167 ug/m <sup>3</sup>
<b>PM<sub>10</sub> Hi-Vol</b>	60	28.16 ug/m <sup>3</sup>	82 ug/m <sup>3</sup>

The annual concentration levels for both PM<sub>2.5</sub> and PM<sub>10</sub> were lower in 2006 than in previous years while 24-hour concentrations for PM<sub>2.5</sub> were also lower. However, the highest 24-hour PM<sub>10</sub> concentration in 2006 exceeded all 24-hour concentrations in 2005. Further, this was the first time since 1999 that the Truckee region exceeded the NAAQS 24-hour standard of 150 ug/m<sup>3</sup>.

It is difficult to gauge air quality on a year-to-year basis since weather plays an important part in pollutant concentrations. However, we can gauge improvement in our air quality over the past 15 years. Using the year of Town incorporation as the base year for measuring the

improvement of air quality in Truckee, it can be clearly seen that our particulate matter air quality has improved substantially. Fine particulate matter annual concentrations have lessened by over 50%, which have lowered PM<sub>10</sub> annual concentrations by approximately 18%. Annual concentrations of inhalable coarse particulate matter between 2.5 and 10 microns in size have remained approximately the same over the past 15 years.

More importantly, the peak 24-hour concentrations for both PM<sub>2.5</sub> and PM<sub>10</sub> have dropped substantially. The highest daily concentrations for PM<sub>2.5</sub> have dropped by nearly 70%, from around 50 ug/m<sup>3</sup> to 15 ug/m<sup>3</sup>. The number of days in which PM<sub>10</sub> concentrations have exceeded 150 ug/m<sup>3</sup> have been reduced: there were six exceedances in 1992, 1993, and 1994 but only one exceedance in 2004, 2005, and 2006.

**Table 2**  
**Particulate Matter Air Quality**  
**Comparison between Early 1990's and Today**

<b>Fine Particulate Matter (PM<sub>2.5</sub>)</b>		
	<b>Annual Concentration</b>	<b>98% 24-Hour Concentration</b>
<b>NAAQS</b>	15.00 ug/m <sup>3</sup>	35.0 ug/m <sup>3</sup>
<b>1992-1993</b>	14.06 ug/m <sup>3</sup>	49.9 ug/m <sup>3</sup>
<b>2004-2006</b>	6.58 ug/m <sup>3</sup>	14.3 ug/m <sup>3</sup>

  

<b>Coarse Inhalable Particulate Matter (PM<sub>10</sub>)</b>		
	<b>Annual Concentration</b>	<b>24-Hour Concentrations &gt; 150 ug/m<sup>3</sup></b>
<b>NAAQS</b>	N/A	No more than once per year
<b>1992-1993</b>	37.50 ug/m <sup>3</sup>	Twice per year
<b>2004-2006</b>	30.91 ug/m <sup>3</sup>	Less than once per year

## NATIONAL AND STATE AIR QUALITY STANDARDS

Both the United States Environmental Protection Agency and the California Air Resources Board have adopted ambient air quality standards for PM<sub>10</sub> and PM<sub>2.5</sub>. The State standards are more stringent than the National standards. However, failure to meet the National standards results in harsher consequences. (Non-compliance with State standards does not result in any legal or regulatory ramifications.)

In September 2006 the United States Environmental Protection Agency adopted new National Ambient Air Quality Standards for particulate matter. In summary, the EPA:

- Substantially strengthened the 24-hour fine particulate matter standard, lowering it from the previous level of 65 ug/m<sup>3</sup> to 35 ug/m<sup>3</sup>.
- Retained the annual fine particulate matter standard at 15 ug/m<sup>3</sup>.
- Retained the current 24-hour PM<sub>10</sub> standard at 150 ug/m<sup>3</sup>.
- Revoked the annual PM<sub>10</sub> standard.

- Did not establish a new 24-hour concentration standard for particulate matter between 2.5 and 10 microns in size.

The monitoring data for 2004 to 2006 was reviewed to determine our compliance with both National and State standards:

National Standard: PM<sub>10</sub> Annual Concentration, 50 ug/m<sup>3</sup>  
Compliance: Revoked by Environmental Protection Agency in 2006

National Standard: PM<sub>10</sub> 24-Hour Concentration, 150 ug/m<sup>3</sup>  
(Not to be exceeded more than once per year over 3 years)  
Compliance: Truckee is in compliance  
(This standard has been exceeded only once, in 2006, over the past three years; this is the first time since 1999. However, this reading was from the BAM monitor and not the Hi-Vol monitor.)

National Standard: PM<sub>2.5</sub> Annual Concentration, 15 ug/m<sup>3</sup>  
(Average for 3 years)  
Compliance: Truckee is in compliance  
(Average for 2004 to 2006 – 6.58 ug/m<sup>3</sup>)

National Standard: PM<sub>2.5</sub> 24-Hour Concentration, 35 ug/m<sup>3</sup>  
(98<sup>th</sup> percentile, average for 3 years)  
Compliance: Truckee is in compliance  
(Average 98<sup>th</sup> percentile for 2004 to 2006 – 14.3 ug/m<sup>3</sup>)

State Standard: PM<sub>10</sub> Annual Concentration, 20 ug/m<sup>3</sup>  
Compliance: Truckee is not in compliance  
(29.15 ug/m<sup>3</sup> in 2006)

State Standard: PM<sub>10</sub> 24-Hour Concentration, 50 ug/m<sup>3</sup>  
Compliance: Truckee is not in compliance  
(The State standard was exceeded 34 times in 2006)

State Standard: PM<sub>2.5</sub> Annual Concentration, 12 ug/m<sup>3</sup>  
Compliance: Truckee is in compliance  
(6.28 ug/m<sup>3</sup> in 2006)

Truckee comfortably complies with National standards for both PM<sub>10</sub> and PM<sub>2.5</sub>. We have made substantial progress in reducing our particulate matter concentrations so that we no longer exceed the 24-Hour PM<sub>10</sub> standard on a regular basis, and do not threaten to exceed the PM<sub>2.5</sub> standards. We still exceed State standards for PM<sub>10</sub>, however, progress continues to be made in reducing our particulate matter concentrations and in gaining in compliance with the State standards. We comfortably comply with the State standard for PM<sub>2.5</sub>.

## CONTROL STRATEGIES

The Town's air quality efforts in 2006 focused on our rebate program and assisting property owners in understanding the July 15, 2007 mandatory deadline for the removal of non-certified woodstoves and fireplace inserts. The Town continues to offer rebates of \$300 to \$500 to homeowners to encourage the removal of these non-Town approved appliances prior to the July 15, 2007 deadline and to offset some of the homeowner's costs. Rebates in the amount of \$60,900 were issued in 2006 for the removal of 159 non-certified woodstoves and fireplace inserts. Since the program's inception in 1999, the Town has expended \$335,000 associated with the removal of 1,009 non-Town approved woodstoves and inserts.

## CONCLUSIONS

As discussed in previous annual reports, our particulate matter air quality has improved dramatically since the "dark days" of 1992 and 1993. Although we have more traffic, more homes and residents, our PM<sub>2.5</sub> and PM<sub>10</sub> concentrations are less today than at the time of Town incorporation. This is a result of a substantial reduction in fine particulate matter emissions from woodburning appliances. Today, fine particulate matter comprises a lesser proportion of our PM<sub>10</sub> concentrations (40% in 1993, 18% in 2005). Coarse particulate matter annual emissions, primarily from re-entrained road dust, have remained approximately the same since 1993; improvements in CalTrans and Town operations and equipment have been able to offset the increase in emissions generated from more construction and more traffic. Nonetheless, a red flag was raised in February 2006 in regards to coarse particulate matter – the Truckee region exceeded the Federal 24-Hour standard for PM<sub>10</sub> for the first time since 1999. The high PM<sub>10</sub> concentrations were most likely caused by significant emissions from re-entrained road dust, including CalTrans sweeping of Interstate 80, in conjunction with a strong and low inversion layer sitting atop the Truckee air basin.

The Town's efforts to remove old woodstoves and fireplace inserts, along with the extension of natural gas to Truckee, have been very successful and should continue to be pursued to further reduce fine particulate matter emissions. That is, the Town should complete its programs to have all non-certified woodstoves and fireplace inserts removed in the Truckee air basin including the July 15, 2007 removal deadline for non-certified woodstoves and inserts in the Town of Truckee.

However, the Town Council in the near future will need to shift its efforts to coarse particulate matter. Once the non-certified woodstoves and fireplace inserts are removed, reductions in fine particulate matter will be slowed considerably and will no longer be able to offset increases in coarse particulate matter. Further, reductions in fine particulate matter no longer have a significant effect on reducing PM<sub>10</sub> concentrations during peak winter periods. We will have to reduce coarse particulate matter emissions from re-entrained road dust in the winter months to ensure that 24-hour PM<sub>10</sub> concentrations do not exceed the National Ambient Air Quality Standards.