



# Town of Truckee

## 2002 Annual Report for Particulate Matter Air Quality

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## *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***

# 2002 Annual Report for Particulate Matter Air Quality

## INTRODUCTION

In July 1999 the Truckee Town Council adopted an air quality management plan for particulate matter pollution. An air quality management plan by itself is not extraordinary, but the Town's deeds in adopting such a plan are unique. The Truckee community, whose desires are expressed in the General Plan, believe that the health of its citizens and visitors and its quality of life are vital to the well-being of the community. Further, the community believes that poor air quality is a danger to the community's well-being, health, and life quality. Although the community complied with Federal air quality standards for particulate matter and there were no legal consequences for exceeding State air quality standards, the community on its own put together a plan of action to address particulate matter pollution. This plan of action is to a level of detail usually not found in other community plans unless the city or county is under the Federal "gun" for non-attainment with the National ambient air quality standards.

There was also a practical aspect to the community's decision to adopt a particulate matter air quality management plan: to reduce particulate matter emissions and avoid exceedances of the Federal particulate matter standards. It is important to the community to prevent Federal and State intervention, which will occur if we exceed the Federal standards. To keep an eye on the quality of air in Truckee and compliance with Federal and State standards, the Town Council in the air quality management plan established an annual monitoring and reporting program. This program places Town staff, in cooperation with the Northern Sierra Air Quality Management District, in the role of watchdog on our air quality.

This report is the second annual report and summarizes the quality of air for particulate matter pollution in 2001. The report attempts to explain the factors for our air quality and any changes that may have occurred in this last year and also discusses the status of the implementation of the plan's control strategies. Further, as part of this report the Community Development Department are requesting Council confirmation on the priority of implementing control strategies.

## AIR QUALITY

Particulate matter air quality has been monitored in Truckee since 1988. The Air Quality Management Plan analyzed this monitoring data for  $PM_{10}$  to determine the severity of the pollution problem and compliance with State and National air quality standards. The Air Quality Management Plan concluded the following:

- $PM_{10}$  concentrations decreased approximately 22% from 1993 to 1998. Expected exceedances of the State and National 24-hour concentration standards also decreased during this time period. However, there was no concrete monitoring data or other information to correlate this reduction to human activities, traffic patterns, and/or weather events, or to identify a trend in decreasing emission levels.

- Truckee air quality complied with the National PM<sub>10</sub> annual and 24-hour concentration standards.
- Truckee air quality complied with the State PM<sub>10</sub> annual concentration standards although exceeded this standard in past years.
- Truckee air quality routinely exceeded the State PM<sub>10</sub> 24-hour concentration standards.
- It could not be determined if Truckee air quality would comply with the new National PM<sub>2.5</sub> annual and 24-hour concentration standards.

Since 1998 the Northern Sierra Air Quality Management District has made several changes to air quality monitoring operations in Truckee. The Hi-Vol PM<sub>10</sub> monitors at the Glenshire and Downtown fire stations were removed in early 2000, and PM<sub>10</sub> monitoring data is now provided solely by the TEOM (24-hour, daily sampling) monitor at the Downtown fire station. With the adoption of the new National PM<sub>2.5</sub> standards, the Northern Sierra Air Quality Management District installed a Hi-Vol PM<sub>2.5</sub> monitor at the Downtown fire station in 1999. This monitor samples PM<sub>2.5</sub> air quality for a 24-hour period once every three days.

The numbers of the monitoring data tell that PM<sub>10</sub> air quality in Truckee was approximately the same in 1999 as for previous years, but substantially improved in 2000 and 2001. The annual concentrations in those years was 17.30 ug/m<sup>3</sup> and 16.82 ug/m<sup>3</sup>, almost half the annual PM<sub>10</sub> concentration of any previous year in which PM<sub>10</sub> has been monitored.

#### Truckee PM<sub>10</sub> Concentrations

	1999	2000	2001	NAAQS
Annual Concentration (Mean)	32.51 ug/m <sup>3</sup>	17.30 ug/m <sup>3</sup>	16.82 ug/m <sup>3</sup>	50.00 ug/m <sup>3</sup>
Highest 24-Hour Concentration	212.08 ug/m <sup>3</sup>	49.52 ug/m <sup>3</sup>	66.19 ug/m <sup>3</sup>	150.00 ug/m <sup>3</sup>

Source: Northern Sierra Air Quality Management District

However, ***the previous suspicions of Community Development Department that the PM<sub>10</sub> TEOM monitor was not accurately recording PM<sub>10</sub> air quality has turned into a reality.*** In comparing the 2001 PM<sub>2.5</sub> data collected from a Hi-Vol monitor with the PM<sub>10</sub> data for 2001 collected by a TEOM monitor, Community Development Department discovered that the TEOM monitor was undercounting the amount of PM<sub>10</sub> in the air. On seven days in 2001 the amount of PM<sub>2.5</sub> in the air exceeded the amount of PM<sub>10</sub> registered by the TEOM monitor. The most telling example is during the Martis Peak fire when the PM<sub>2.5</sub> Hi-Vol monitor registered a reading of 119.6 ug/m<sup>3</sup> while the TEOM monitor only registered a reading of 66.19 ug/m<sup>3</sup> of PM<sub>10</sub>. Since this is not possible (particulate matter 2.5 microns or less in size is a subset of PM<sub>10</sub>), either the Hi-Vol or the TEOM monitor must not be operating properly. TEOM monitors have a track record of generating questionable figures, and by simple observation of air quality during the Martis Peak fire, the air quality figures of the PM<sub>2.5</sub> monitor more accurately reflected the actual air quality during that period than the TEOM monitor. In conclusion, it is staff's opinion that ***the TEOM monitoring data for 2000 and 2001 is not accurate and should not be relied upon in determining air quality in those years.***

What can be determined with certainty is that ***emissions from our second largest source of PM<sub>10</sub> residential wood combustion, were lower in 2000 and 2001 from previous years.*** This

conclusion is supported by comparing 2000 and 2001 monitoring data with data from 1992-93 that shows PM<sub>2.5</sub> concentrations have decreased approximately 35%.

**Truckee PM<sub>2.5</sub> Concentrations**

	1992-93	2000	2001	NAAQS
Annual Concentration (Mean)	14.06 ug/m <sup>3</sup>	8.70 ug/m <sup>3</sup>	9.21 ug/m <sup>3</sup>	15.00 ug/m <sup>3</sup>
Highest 24-Hour Concentration	54.00 ug/m <sup>3</sup>	22.60 ug/m <sup>3</sup>	119.6 ug/m <sup>3</sup>	65.00 ug/m <sup>3</sup>

NOTE: The highest 24-hour concentration in 2001 was due to the Martis Peak Fire in late August. The highest 24-hour concentration for a non-fire event was 22.8 ug/m<sup>3</sup>

Source: Northern Sierra Air Quality Management District

The cause or causes for this substantial decrease is difficult to define because there is limited data and weather is such an integral factor in Truckee's air quality. Nonetheless, it can be concluded that lower PM<sub>2.5</sub> concentrations in 2000 and 2001 are partially a result of reduced residential wood combustion emissions. The Community Development Department believes residential wood combustion emissions from existing development have decreased noticeably with the extension of a natural gas pipeline to Truckee and the availability of natural gas service and that factor is the primary reason for improvement in PM<sub>2.5</sub> concentrations. In conjunction with the woodstove replacement rebate programs offered by the Town of Truckee and the Placer County Air Pollution Control District, the availability of natural gas in the Truckee area has resulted in the removal of several hundred woodstoves and in the reduced use of woodstoves that remain in those homes converted to natural gas service. There are increases in PM<sub>2.5</sub> emissions from newly constructed homes that use woodstoves as a secondary heat source or as an amenity; however, such increases are clearly offset by the emission reductions in existing development. In fact, the Community Development Department believes ***the emission reductions from existing development are substantially greater than the small increases from new development thereby resulting in an overall reduction in PM<sub>2.5</sub> emissions from residential wood combustion.***

Most likely emissions from re-entrained road dust also decreased from previous years. Yet these reductions are tied solely to the favorable weather patterns, an unmanageable factor, and staff has yet to identify any human-influenced actions undertaken by the Town or CalTrans that would account for these reductions. Re-entrained road dust emissions are expected to return to their previous levels and will increase as traffic volumes and the miles of roads sanded (with the new 267 Bypass) expand unless the Town and CalTrans take actions to reduce re-entrained road dust emissions. It is staff's opinion that the Truck air basin is still susceptible to poor air quality days (> 100 ug/m<sup>3</sup> PM<sub>10</sub>) from re-entrained road dust. Although not registered in the TEOM monitoring data, staff believes we have had several days in the past two winters where we have exceeded PM<sub>10</sub> 24-hour concentrations exceeding 100 ug/m<sup>3</sup> with at least two days exceeding the National standard of 150 ug/m<sup>3</sup>.

In summary, it is staff's opinion that PM<sub>2.5</sub> emissions have been reduced, and these reductions have compensated for PM<sub>2.5</sub> emissions generated from new development. However, particulate matter emissions between 2.5 and 10 microns have not been reduced. PM<sub>10</sub> emissions from construction have remain around the same based on the same level of construction activity occurring in the

Truckee air basin, and re-entrained road dust emissions are only lower because of less sanding tied directly to a lesser number of storm events over the past two years.

## NATIONAL AND STATE AIR QUALITY STANDARDS

The United States Environmental Protection Agency (EPA) adopted new standards for particulate matter pollution that became effective in September 1997. The method in determining compliance with PM<sub>10</sub> ambient air quality standards was modified and ambient air quality standards for PM<sub>2.5</sub> were added to address fine particulate matter pollution. These new standards were challenged in Federal court by business groups, the United States Chamber of Commerce, and several states, and this legal challenge has been going through the Federal court appeals process for the past several years.

The United States Supreme Court in February 2001 made a decision on the legal challenge and unanimously upheld the constitutionality of the Clean Air Act as the Environmental Protection Agency had interpreted it in setting the 1997 health-protective ambient air quality standards for particulate matter. The Supreme Court stated that the Clean Air Act requires the EPA to set air quality standards based solely on public health considerations without consideration to costs. (The EPA and States may consider costs in determining how those standards will be implemented.) Consequently, the new particulate matter standards are in effect, and the Environmental Protection Agency and California Air Resources Board will begin implementing the new standards. It will take approximately two to three years to determine initial compliance with the new standards, however Truckee has a head start since PM<sub>2.5</sub> monitoring data has been collected since January 1999.

In the last two years there have been no changes to the Truckee air basin's compliance with the National and State ambient air quality standards for PM<sub>10</sub>. Although the data from the PM<sub>10</sub> TEOM monitor cannot be trusted, staff believes that air quality in Truckee for the past two years complies with the annual (50 ug/m<sup>3</sup>) and 24-hour (150 ug/m<sup>3</sup>) National ambient air quality standards for PM<sub>10</sub>. It cannot be determined whether the Truckee air basin complies with the annual State standard for PM<sub>10</sub> (30 ug/m<sup>3</sup>) since we do not have accurate data. Staff believes there were several exceedances of the 24-hour State standard (50 ug/m<sup>3</sup>) in 2001. It is the opinion of the Community Development Department that PM<sub>10</sub> air quality in Truckee and compliance with National and State standards has not worsened in the last two years and may have improved although to what extent it cannot be determined. Also, it must be noted that favorable weather patterns are partially responsible for this improvement.

NAAQS Annual PM <sub>10</sub>	Yes
NAAQS 24-Hour PM <sub>10</sub>	Yes
NAAQS Annual PM <sub>2.5</sub>	Yes
NAAQS 24-Hour PM <sub>2.5</sub>	Yes
SAAQS Annual PM <sub>10</sub>	??
SAAQS 24-Hour PM <sub>10</sub>	No

When the Air Quality Management Plan was adopted in July 1999 it was not known whether Truckee would comply with the new PM<sub>2.5</sub> standards. With two-and-a-half years of monitoring data under our belt, it appears that **Truckee comfortably complies with the NAAQS PM<sub>2.5</sub> annual and 24-hour standards**. Both the annual and 24-hour concentrations are approximately 25% below the National standards. (Poor air quality periods caused by catastrophic events such as

wildfires are not included in calculations determining compliance with NAAQS.) Caution should be taken though since we have only two-and-a-half years of monitoring data and weather patterns have been favorable to good air quality during those years.

## **CONTROL STRATEGIES**

Upon adoption of the Air Quality Management Plan, the Community Development Department identified four control strategies for implementation within a short timeframe. These control strategies are:

- An interim rebate program for the removal of non-certified woodstoves;
- A long-term financial assistance program for the removal of non-certified woodstoves;
- Ordinances requiring the removal of non-certified woodstoves at time of home sale and also within specified timeframes (5 to 10 years);
- Street sanding guidelines for Town and CalTrans operations.

The following information summarizes the work that has been done on each control strategy and their current status. Other control strategies identified in the Air Quality Management Plan will not be implemented until substantial progress has been made on the above strategies or they are implemented on an individual project basis. These other control strategies are not discussed in this report.

### ***Interim Rebate Program***

The interim rebate program was implemented in October 1999 shortly after the Air Quality Management Plan's adoption. The program offers cash rebates for non-certified woodstoves that are removed and replaced by an EPA certified woodstove or a gas-service stove. The rebate is \$176 for replacement with an EPA certified woodstove and \$276 for replacement with a gas-service stove. Southwest Gas is also participating in the Town's rebate program and offers an additional \$200 rebate if the non-certified woodstove is replaced with a gas-service stove and the property owner is a customer of Southwest Gas.

The program is administered by the Town Planner and requires approximately two hours per week of staff time. In 2001 Town rebates were involved the removal of 97 non-certified woodstoves, which were replaced by 78 gas-service stoves, two pellet stoves, and 17 EPA certified woodstoves. It is estimated that the removal of these non-certified woodstoves has reduced emissions in the Truckee air basin by approximately five tons.

The Town costs for this program for the past 2 1/2 years have been approximately \$66,000 in air quality mitigation funds and approximately 200 hours of Community Development staff time. The program has been funded by interest paid to the air quality mitigation fund, and there is still approximately \$300,000 in the air quality mitigation fund which will allow continued funding for this program and the long-term financial assistance program. The interim financial assistance program will continue until the long-term program is adopted later this year. Southwest Gas has committed for another year to continue participating in the program and offering a \$200 rebate.

### ***Woodstove Removal Ordinances***

The most contentious part of the Air Quality Management Plan was the control strategy requiring the removal of non-certified woodstoves and inserts upon the sale of a home. This control strategy was adopted to accelerate the removal of non-certified woodstoves, thereby reducing emissions from residential wood combustion (the second largest source of PM<sub>10</sub> emissions in the Truckee air basin). The Town Council adopted the ordinance in September 2001, and the ordinance became effective on January 1, 2002. The ordinance has required the removal of all non-certified woodstoves and fireplace inserts in a home if the property has been transferred or sold after January 1st.

The ordinance has been in effect now for three months, and staff believes the program has been successful in its implementation. Although there have been a few bugs which have been ironed out by staff, the program is operating as envisioned, resulting in the removal of non-certified woodstoves and inserts but limiting the impacts on homeowners in complying with the ordinance. The inspection program is working well with the Town-licensed inspectors providing efficient and prompt service. At this time, staff does not recommend any changes to the ordinance. It is estimated that it takes approximately 12 staff hours per week to administer the program.

The next big task for this program will be an enforcement audit to be conducted in July. The Community Development Department staff will conduct a random review and evaluation of property transfers that have occurred since January 1st to verify that the persons involved in property transfers have complied with the ordinance. Staff will also evaluate the effectiveness of the program and its exemptions to ensure that homeowners and buyers are not improperly claiming an exemption to avoid compliance with the ordinance.

No work has yet been done on the ordinance requiring the removal of non-certified woodstoves within a specified time period. This work will not commence until the long-term financial assistance program is completed. The earliest date in which non-certified woodstoves and fireplace inserts would need to be removed is 2006.

### ***Long-Term Financial Assistance Program***

The Air Quality Management Plan recognized that public assistance was as important as regulatory measures in addressing the problem of particulate matter pollution. A key control strategy of the plan is to provide financial assistance for the conversion and removal of non-certified woodstoves. This assistance program will be a comprehensive one and will include several assistance methods to encourage the removal of woodstoves in the community. The Town and Placer County have the funds to operate the program, and so all that needs to be done is to put the program together and allocate the necessary resources to administer the program.

Discussions have already taken place between the Town and the Placer County Air Pollution Control District to develop and operate a joint financial assistance program in Truckee and the Martis Valley. The initial objectives of the financial assistance program will be:

- Application and stove inspection requirements will be the same for the Town and Placer County/Martis Valley home owners;
- The Town and Placer County will share staff resources in implementing the program to best serve the community;
- The amount of the rebates will be re-evaluated to ensure the rebate is sufficient to act as a catalyst in the removal of non-certified woodstoves, and the rebates will be the same for the Town and Placer County/Martis Valley home owners;
- The replacement of a stove will no longer be required to qualify for the rebate. A home owner will be able to qualify by just removing a woodstove and agreeing to restrictions on the future installation of woodstoves;
- A reduced rebate will be offered for the removal of EPA certified woodstoves.
- The needs of low-income households to remove non-certified woodstoves will be identified, and appropriate financial assistance programs to serve low-income households will be developed.

The Town Council identified this program as the next air quality control strategy to be implemented, and staff will begin work on the program in May. The program will be brought to the Council for review and approval prior to its implementation.

Alongside with this financial assistance program, staff recommends that a mitigation fee program be developed that would charge an air quality mitigation fee if a homeowner wishes to install a woodstove or fireplace insert. The fee could also be used to mitigate other PM<sub>10</sub> emissions generated by large development projects such as PC3 and McIver Hill and would provide additional funds for the financial assistance program and other Town air quality improvement programs to reduce emissions from existing sources. This mitigation fee is a control strategy identified in the Air Quality Management Plan, and staff recommends that this control strategy be developed concurrently with the financial assistance program. The mitigation fee and financial assistance program address the same issue – what kind of funding is necessary to reduce emissions from existing sources – and developing these two programs together will reduce Town costs and staff time in implementing the programs.

### ***Street Sanding Guidelines***

The primary purpose of the street sanding guidelines is to provide support in the Town's request to CalTrans to modify their sanding operations and reduce re-entrained road dust emissions. The Town Public Works Department has made substantial strides in equipment and operations in the past few years to improve our sanding and sweeping operations, and the Community Development Department believes it is not urgent at this time to adopt street sanding guidelines in order to address Town operations. The Town Council has designated this control strategy as a "B" priority.

## CONCLUSIONS AND RECOMMENDATIONS

To conclude this report, let's return to the preface and answer the questions raised by Objective 9.

### ***What is the success of the control strategies in achieving the attainment goal of the Air Quality Management Plan?***

Air quality in Truckee is improving! It is too early to determine to what extent our air quality has improved from the dark days of the early 1990's, but progress is being made. Further, we cannot ascertain with any quantitative confidence of the quality of air today and the extent of any improvement in air quality since 1999. PM<sub>10</sub> monitoring data for the years 2000 and 2001 is not reliable and cannot be used to analyze air quality or to compare with air quality data from previous years. PM<sub>2.5</sub> monitoring data has only been collected for the past two-and-a-half years and cannot be compared to preceding years.

The improvement in air quality is not a result of the implementation of control strategies but rather the extension of natural gas to the Truckee area. The success of control strategies so far in reducing particulate matter emissions and improving air quality has been minimal since the first control strategy (except for the interim rebate program) has not been implemented until this year. However, implementing these control strategies remains important because any improvement in air quality that we have enjoyed in the last several years will be eroded or reversed by PM<sub>10</sub> emissions generated by new development unless there are concurrent reductions in PM<sub>10</sub> emissions from existing sources.

Consequently, it is vital for the Town to aggressively pursue the removal of non-certified woodstoves and fireplace inserts from the Truckee air basin and to encourage the use of natural gas and non-polluting heat sources (e.g., geothermal heat pumps). These efforts are necessary to counterbalance particulate matter emissions from new development. If emissions from existing sources are not reduced substantially, the alternative to ensure that our air quality is not degraded is to prohibit the installation of woodstoves and inserts.

### ***What steps need to be taken to ensure consistency with the goal and objectives of the Air Quality Management Plan?***

The steps that need to be taken are set forth in the Air Quality Management Plan the control strategies. One of the control strategies relates to air quality monitoring, and with the recent failure of the TEOM monitor in providing accurate data, it is imperative that a Hi-Vol PM<sub>10</sub> monitor be re-installed in Truckee and the TEOM monitor be fixed or removed from operation. As an immediate priority, the Community Development Director will request that the Northern Sierra Air Quality Management District install a Hi-Vol PM<sub>10</sub> monitor in Truckee and will provide Town support to the NSAQMD as necessary to ensure that a Hi-Vol monitor is installed in Truckee. Further, the Community Development Director will request that the NSAQMD examine and fix the TEOM monitor or remove it if it is not operating correctly.

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The Council has previously discussed implementation of the control strategies, and the Community Development Department has been given its marching orders in implementing these control strategies. The current schedule for implementation of these control strategies is:

1. Joint financial assistance program with Placer County To be completed in late 2002
2. Mitigation fee program To be completed in early 2003
3. Ordinance requiring removal of all non-certified woodstoves and inserts To be completed in late 2003
4. Street sanding guidelines To be completed in 2004

The Town's level of commitment to air quality is increasing as each day passes, and this commitment requires substantial resources of the Planning Division to be diverted from planning projects and development application processing towards implementation and administration of air quality control strategies. It is estimated that air quality issues currently take up approximately 8% of the Planning Division's staffing resources or around one-half of the staff time provided by a full-time planner. These resources will continue to be diverted to air quality as needed to implement and administer the control strategies described above, with the understanding that staff resources and time allocated for planning issues will need to be reduced accordingly.