



STAFF RECOMMENDATION REGARDING PARTICULATE MATTER ACTIVITIES

July, 26, 2006

SUMMARY

EPA has recently proposed new health-based standards for particulate matter. In light of recent health research and EPA's proposed regulatory changes, staff recommends the Board revise its strategic directions document to reflect the need to address fine particulate pollution in the Missoula area. Specifically, staff recommends the first goal of the document be revised as follows:

- Monitor and improve air quality in the face of population growth.
 - ~~Assess the potential impact of a new PM_{2.5} standard on Missoula.~~ Assess sources of and conditions leading to elevated PM_{2.5} levels in Missoula.
 - ~~Accomplish PM₁₀ redesignation.~~ Plan to achieve compliance with the new particulate standards.
 - Promote, monitor, and improve indoor air quality.

BACKGROUND

New Health-Based Standards for Particulate Matter are Forthcoming

The Clean Air Act requires the Environmental Protection Agency (EPA) to adopt National Ambient Air Quality Standards ("standards") that are protective of public health and provide an adequate margin of safety. Standards are currently in place for two categories of particulate matter: PM₁₀ and PM_{2.5}. PM₁₀ includes all particles that are less than 10 micrometers in diameter, and PM_{2.5} refers to particles that are less than 2.5 micrometers in diameter. (The diameter of human hair is approximately 60-80 micrometers.) PM_{2.5} is also called "fine particulate."

Table 1: National Ambient Air Quality Standards

Pollutant		Current Standard	Proposed Standard
----µg/m ³ ----			
PM ₁₀	Daily	150	---
	Annual	50	---
PM _{2.5} ("fine particulate")	Daily	65	35
	Annual	15	15
PM _{10-2.5} ("coarse particulate")	Daily	---	70
	Annual	---	---

µg/m³ = micrograms per cubic meter

Because recent studies indicate that airborne particles have adverse health effects at lower concentrations than the current standards, EPA proposed new standards for particulate matter in January 2006. The proposal would make the daily fine particulate standard more stringent, keep the annual fine particulate standard the same, create a daily standard for PM_{10-2.5} (particulate between 2.5 and 10 micrometers in diameter, also known as “coarse particulate”), and eliminate both the annual and daily standards for PM₁₀. As proposed, the coarse particulate standard would not apply to Missoula because of our relatively small population. The standards, which are summarized in the table on the previous page, are scheduled to be finalized in September 2006 and implemented in November 2006.

In response to the proposal, the department submitted comments to EPA that recommended (1) lowering the annual fine particulate standard to 13 or 14 µg/m³, (2) lowering the daily fine particulate standard to 32 µg/m³, (3) applying the coarse standard to all sources of particulate and in communities of all sizes, and (4) retaining the PM₁₀ standard until the new standards are implemented and EPA has designated areas as attainment or nonattainment under the new standards.

Missoula Needs to Address Fine Particulate Pollution to Protect Public Health

Although Missoula’s air quality has improved dramatically since monitoring efforts began in the 1970s, current data shows fine particulate concentrations in the Missoula area exceeded 35 µg/m³ twelve times since 2001.

Table 2: Missoula’s Five Highest PM_{2.5} Daily Readings per Year, 2001-2005

2001		2002		2003		2004		2005	
Date	µg/m ³	Date	µg/m ³	Date	µg/m ³	Date	µg/m ³	Date	µg/m ³
1/10	48	1/11	32	1/24	42	1/16	62	1/19	63
1/19	46	11/28	29	11/8	33	1/10	55	12/12	54
1/13	44	11/25	25	8/25*	25	1/19	47	12/9	43
1/4	43	11/22	23	8/10*	25	12/17	37	8/8*	31
1/1	35	11/4	21	3/19	23	2/15	31	11/18	30

* indicates data collected on days affected by wildfire smoke, which probably would not be used to determine compliance with standards

Preliminary analyses indicate that if the proposed standard applied to the most recent three years of monitoring (2003-2005), Missoula would have violated the daily fine particulate standard and would be designated as a “nonattainment area” for this pollutant. As a nonattainment area, Missoula would be required to submit a State Implementation Plan for fine particulate outlining our strategy for bringing the area into attainment with the standards.

As shown above, Missoula’s fine particulate levels exceeded 35 µg/m³ almost exclusively in the winter months. Data from previous studies indicate that, on average, approximately half of Missoula’s wintertime fine particulate pollution is produced by the transportation sector, which includes combustion products as well as road dust. Additional analysis of these “high pollution days” is necessary to better understand which atmospheric conditions are conducive to elevated PM_{2.5} levels and which sources are the primary contributors on those days. DEQ has already allocated funding to help Missoula conduct a study that would provide information about each source category’s contribution of fine particulate pollution compared to other sources.

In addition to understanding the sources of fine particulate, Missoula should begin planning to improve air quality to protect public health and comply with the PM_{2.5} standards. This will require substantial effort from the department to research possible control strategies, make recommendations regarding which ones are most appropriate for Missoula, and escort administrative and/or regulatory changes through the appropriate public processes.

PM₁₀ Redesignation is Currently Not Advantageous for Public Health

The Missoula area is designated by EPA as “nonattainment” for PM₁₀ due to previous violations of the daily and annual standards. Since Missoula is now in compliance with the standards, the department has been conducting the required research and preparing the necessary documents for EPA to redesignate the Missoula area from a “nonattainment area” to a “maintenance area” for PM₁₀. As a maintenance area for PM₁₀, less stringent federal air pollution requirements would apply. However, state and local air regulations will remain in place whether or not Missoula is redesignated.

As explained earlier, recent data indicates that Missoula is likely to violate the proposed standards for fine particulate, and there is not sufficient data to determine whether or not Missoula will attain the coarse particulate standard. Therefore, we need to seek ways to reduce particulate pollution in the Missoula area, and, at a minimum, we are obligated to maintain current levels of protection from particulate emissions. Changing pollution control requirements for PM₁₀ has the potential to affect levels of fine and/or coarse particulate since both are subsets of PM₁₀. Becoming a maintenance area for PM₁₀ could allow emissions to increase, resulting in unhealthier air and making it more difficult to achieve compliance with the new standards. Therefore, it is not in the interest of public health for Missoula to seek redesignation for PM₁₀ until designations have been made under the new standards and the associated protections are in place.

PM₁₀ Redesignation Efforts will be Moot

Although several of the necessary steps for PM₁₀ redesignation have been completed, a substantial amount of work remains. For several reasons, continued efforts to achieve PM₁₀ redesignation will be rendered moot. First, if the new standards are implemented as proposed, the PM₁₀ standard will be abandoned. As a result, the Missoula area’s nonattainment status for PM₁₀ will eventually disappear, whether or not we have submitted a maintenance plan and redesignation request.

Second, EPA’s proposed changes would impact the effectiveness of a PM₁₀ maintenance plan. The most important piece of a redesignation request is the maintenance plan, which details how an area will continue to comply with the standards and demonstrates that these strategies will be effective. Because transportation is the largest—and fastest growing—source of PM₁₀ emissions in our area, Missoula’s maintenance plan would rely heavily on a federal requirement known as “transportation conformity,” which establishes a federally enforceable limit on emissions from transportation. Upon implementation of the new standards, the requirement to comply with PM₁₀ transportation conformity emissions budgets will no longer exist, rendering the key component of Missoula’s maintenance plan ineffective, and potentially allowing for increased particulate emissions. As a reminder, state and local regulations would remain in place.

Finally, it is unlikely EPA would act on a redesignation request. EPA has up to 18 months to consider redesignation requests, so even if Missoula submitted the request in the next few months, EPA would not be required to act on it before the new standard is scheduled to be finalized. After adoption of the new standards and revocation of the PM₁₀ standard, there will be no reason for EPA to act on it at all. EPA staff has recommended that we postpone redesignation efforts, at least until more is known about the new standards.

OUTREACH

The department has worked to notify the public and local entities about the forthcoming changes to the standards and the potential effects on Missoula. In addition to posting general information, documents, and links to the department web page and distributing information to the air quality interested parties list, staff has made numerous presentations on the topic. Groups addressed include the Air Pollution Control Board, Air Quality Advisory Council, Board of County Commissioners, Chamber of Commerce—Montana Committee on Industry and Environment, City Council—Committee of the Whole, Transportation Technical Advisory Committee, and Transportation Policy Coordinating Committee.

As expected, these communication efforts generated questions and comments. Most questions were related to “How can we gain a better understanding of what is causing elevated pollution levels?” or “What are possible solutions?” Comments included concern that efforts already spent on PM₁₀ redesignation may be wasted, concern about the consequences of the standards not being implemented on schedule, and recommendations that air quality improvement strategies need to be practical.

CONCLUSION AND STAFF RECOMMENDATION

In summary, EPA’s recent proposal to revise the health-based air quality standards has highlighted the need for Missoula to address fine particulate pollution in Missoula, regardless of our eventual designation under these new standards. Because recent research indicates that fine particulate in ambient air is unhealthy at lower levels than the current standards, it will be important to analyze data from days with elevated pollution levels and evaluate how to reduce pollution under those conditions. Since Missoula is a rapidly growing community, it is particularly important to address these issues as soon as possible. It also has become apparent that efforts toward PM₁₀ redesignation will be rendered moot, and that being redesignated to a maintenance area could allow an increase in particle pollution.

After reviewing EPA’s proposal and conducting a preliminary analysis of Missoula’s fine particulate monitoring data, staff recommends revision of the first goal of the Board’s strategic directions document to reflect the need to emphasize fine particulate pollution in Missoula’s air quality protection efforts as follows:

- Monitor and improve air quality in the face of population growth.
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