PM Advance Action Plan

December 2014

The City and County of
Butte-Silver Bow Montana

Montana Department of
Environmental Quality

Prepared for:

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One. PM Advance Overview

In early 2013, the Environmental Protection Agency (EPA) announced the inception of the Particulate Matter (PM) Advance Program. The PM Advance Program continues EPA's collaboration with states and local programs to proactively reduce emissions of $PM_{2.5}$ and its precursors in attainment areas so they can continue to meet the National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$. According to EPA, participation in PM Advance is likely to have multiple benefits for an area. Improvements in air quality that result from participation in the program could:

- Help ensure continued health protection over the long term,
- Provide state, tribal, and local governments with a cushion against potential future violations of the $PM_{2.5}$ NAAQS,
- Better position an area to achieve air quality concentrations that enable it to avoid a nonattainment designation with respect to any future revised NAAQS,
- Allow for greater ability to choose from control measures and programs that make the most sense for the area and that are cost-effective, and
- Result in multi-pollutant benefits; for example, reductions in nitrogen oxides can lead to lower ambient fine particle matter levels as well as lower ambient ozone levels.[1]

The PM Advance Program affords participating areas an opportunity to work closely with EPA to achieve these potential benefits. In Montana, two areas signed up to participate in the program. Lewis and Clark County and the City-County of Butte-Silver Bow both agreed to work with EPA, in coordination with the state of Montana and local stakeholders, to implement measures and programs to reduce emissions of $PM_{2.5}$. This Action Plan describes the process and outcomes of that effort and lays out a course of action to implement the measures and programs identified herein.

Background & Purpose

Particle pollution, also known as particulate matter or PM, consists of solid particles and liquid droplets suspended in air. Particulate matter is made up of components such as soil and dust, acids, chemicals, metals, and allergens like pollen or mold spores. These microscopic particles are a health concern because they are small enough to pass through the nose and throat and enter the lungs, potentially affecting both the heart and the lungs. According to EPA, a variety of health effects can result from exposure to particle pollution. The agency explains, "numerous studies link particle pollution to increased hospital admissions and emergency room visits – and even to early death. Research indicates that obesity or diabetes may increase risk."[2]

[1] Environmental Protection Agency, "PM Advance Basic Information," last updated May 13, 2013, www.epa.gov/ozoneadvance/basicPM.html.
[2] Environmental Protection Agency, Burn Wise Program, "Wood Smoke Awareness Kit."

For purposes of regulation, EPA separates fine particles (those with a diameter of 2.5 micrometers or smaller, known as $PM_{2.5}$) from coarse particles (those with a diameter larger than 2.5 micrometers and smaller than 10 micrometers, known as PM_{10}). This is in part because coarse and fine particles often come from different sources. For example, PM_{10} may be found near dusty roadways and industries whereas $PM_{2.5}$ is generally found in smoke and haze. $PM_{2.5}$ can enter the air directly from sources such as forest fires, or can form when gases emitted from industries and automobiles react in the air. Because these fine particles have a variety of direct sources and sources of precursors, they can be difficult to control.

The focus of the PM Advance Program is on reducing ambient levels of $PM_{2.5}$, the fine particles, in areas that are currently attaining the NAAQS but that may be at risk of exceeding healthy levels of the pollutant in the future. Generally speaking, the mountain valleys of western Montana and associated cities/towns are at risk of frequently accumulating high ambient levels of $PM_{2.5}$ due to a combination of emission sources, geography, and meteorological conditions that trap potentially harmful emissions low in the atmosphere resulting in increased public exposure. Various studies conducted by the Montana Department of Environmental Quality (DEQ) in collaboration with local/City-County health departments point to smoke from prescribed open burning, wildfires, and residential heating devices/practices as the major sources of $PM_{2.5}$ pollution in these areas.

Of primary concern related to these at risk areas are wintertime impacts resulting from residential wood-fuel heating practices during prolonged mountain valley meteorological inversion events. Due to the unique and often localized nature of the emissions, efforts to reduce impacts on public health are being led by local health agencies with guidance from DEQ. In these communities, building trust between residents and local health authorities is essential to the success of $PM_{2.5}$ mitigation efforts and local programs have expressed to DEQ that a nonattainment designation would add undue administrative burden and may even harm or stall ongoing efforts to proactively address these problems.

The PM Advance Program continues this focus on local action, addressing $PM_{2.5}$ emissions at a level that corresponds to the very localized impacts of the pollutant. Participation in the PM Advance Program allows Montana's at risk areas to continue their on-the-ground outreach, in coordination with both DEQ and EPA, to reduce $PM_{2.5}$ emissions through timely and effective action and potentially avoid unhealthy ambient air quality and future nonattainment designation.

Improving local control of $PM_{2.5}$ emissions can have multiple positive outcomes. EPA's NAAQS are health-based standards and improved air quality is most frequently associated with improved health, especially in sensitive groups such as elderly residents and young children. However, the strategies and action items discussed in this plan have many co-benefits in addition to health, including efficiency, safety, and savings of time and money, to name a few. Cleaner burning stoves and clean burning techniques not only reduce $PM_{2.5}$ emissions, but improve the efficiency of home heating – generating more heat for the amount of fuel used. This often means that less wood is needed during the heating season, which equates to savings in money spent to purchase wood and time and effort

spent chopping, splitting, and stacking the wood. High-efficiency stoves are often also safer as they burn more completely, creating less buildup of creosote that can cause chimney fires.

Process/Methodology

The PM Advance Program provides a framework that participating areas can use to develop local strategies and actions to reduce $PM_{2.5}$ and its precursors. Because $PM_{2.5}$ pollution has the potential to come from a diverse assortment of sources, it is often more difficult to control than industrial pollutants that can be controlled through air quality permits. Controlling $PM_{2.5}$ requires a unique approach that may differ from community to community depending on the primary sources of the pollutant. Over the past few years, Butte-Silver Bow and the state of Montana have conducted various studies to pinpoint the primary local sources of particle pollution. These are discussed in further detail in the next chapter.

Just as the local sources of $PM_{2.5}$ often differ from community to community, so to do the methods for controlling the pollutant. Control measures that are successful in one city may not work as well in another location for a variety of reasons. As such, the PM Advance Program encourages coordination with local stakeholders to determine the actions that will work best in the particular community. Frequent, early stakeholder engagement helps to achieve results that are not only effective but also widely supported. Butte-Silver Bow has already begun outreach efforts to gain a better understanding of local perspectives. For example, the local air program has worked directly with the Non-Superfund Air Quality Group since the group was formed in 2012. The group was formed when, at the request of concerned residents, the Butte-Silver Bow Board of Health asked the local program to put together a group to specifically look into environmental issues not related to Superfund. Among other activities, the group is concerned with general air quality issues in the area. The group is comprised of community members, local and state government employees, industry representatives, engineers, and a professor from Montana Tech. As part of the PM Advance planning process, the local program decided to approach the existing group to gather input on the selection and implementation of PM control measures.

In addition, in 2011-2012, Butte-Silver Bow engaged members of the public as part of a survey to learn more about $PM_{2.5}$ emissions from wood combustion. The survey gathered local viewpoints on air pollution and sought information on local wood burning habits that may contribute to PM pollution. The information the county gathered through the survey has and will continue to help inform the development of public education efforts. It will be further discussed in the following chapter of this plan.

Butte-Silver Bow coordinated with the Montana Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA) to develop this plan. DEQ staff facilitated the planning process and provided technical support in analyzing local air quality data. EPA provided insight and feedback throughout the plan development process.

The plan timeline began when Butte-Silver Bow signed up for the PM Advance program in April 2013. The program began selecting control measures and drafting this action plan in the fall of 2013

and will engage local stakeholders throughout the spring and summer of 2014. The intent is that the area will be ready to being implementation of the control measures contained in this plan during the summer and fall, in preparation for the 2014-2015 heating season. Further detail on the implementation schedule for each control measure is provided in the final chapter of this plan, as well as in Appendix A.

Plan Maintenance

This action plan represents an ongoing effort to reduce ambient $PM_{2.5}$ concentrations in the Butte-Silver Bow area. As such, this is a living document that will be updated as necessary. Implementation of the measures included in this plan will take place over a five-year trial period, during which the local air quality program will provide EPA with annual updates on progress.

To ensure that the plan remains current over the course of the initial five-year period and that successes and challenges are taken into account during implementation, the program selected a plan maintenance committee. Members of the committee include staff from the local air quality program as well as from DEQ. The committee is committed to meeting biannually for the first few years of implementation and will reassess meeting schedule thereafter.

The purpose of the plan maintenance committee is to periodically check in on the progress of selected control measures and determine whether changes need to be made based on implementation experience. The committee will be the primary group responsible for measuring the success, failure, and/or completion of specific measures and the plan overall.

Two. $PM_{2.5}$ in Butte-Silver Bow

This chapter provides context for the plan both through discussion of the geographic, atmospheric, and socioeconomic setting as well as through presentation of ambient $PM_{2.5}$ data collected in the area for many years. The area's long history of socioeconomic trouble combined with its unique physical location and atmospheric trends provide a perfect setting for the area's current $PM_{2.5}$ problem. The hard data presented in this chapter support this finding.

Context

The consolidated city-county of Butte-Silver Bow is located in southwest Montana (see map in Figure 2-1). At the heart of the area's urban corridor, the city of Butte was once the largest city west of the Mississippi River between Chicago and San Francisco.

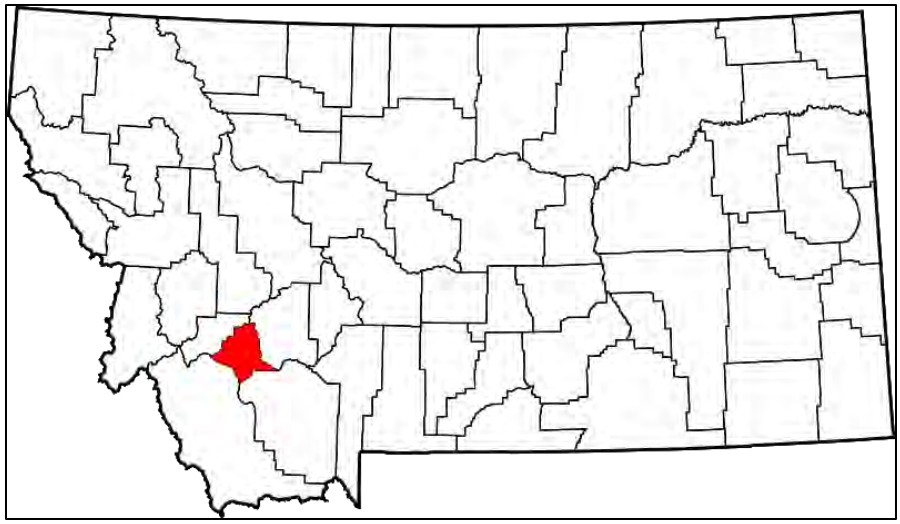


Figure 1. Silver Bow County

In the mid-nineteenth century, gold was discovered in the surrounding area. This began a population boom that continued into the early twentieth century as the discovery of other minerals and metals, including copper, provided a flood of economic activity. The area's population peaked around 1920 at just over 60,000 in Silver Bow County (nearly 42,000 in the city) and declined slowly into the twenty-first century.[3] A decline in the mining industry led to socioeconomic struggles and a decline in population as young residents left the area to find jobs elsewhere. From 1980 to 2000, the 25-34 age group experienced a decline of nearly 30%. The same age group declined further into the early 21st century, although at a slower rate. Likewise, during the 1980-2000 period, the number of children under 15 decreased by nearly 20%, resulting in closures of elementary schools.[4] These trends left an aging population in the area – the median age increased from 36 in 1990 to 41.7 in 2012.[5]

[3] Community Development Services of Montana, "Butte-Silver Bow Growth Policy, 2008 Update," p. 3-2.
[4] "Growth Policy," p. 3-5.
[5] U.S. Census Bureau, 2012 American Community Survey, 3-year estimates, www.census.gov.

Today, reminders of the area's mining history still decorate both the socioeconomic and physical landscape of Butte-Silver Bow. Although median household income has increased over the last few decades, the area has historically experienced lower income levels than the state as a whole. In fact, 2012 estimates put Silver Bow County's median household income of $38,417 at just 85% of the Montana figure ($45,072).[6] Depressed income levels compared to the rest of the state, the history of population decline, and the trend toward an older population all contribute to the social context behind the PM Advance program in Butte-Silver Bow.

With an approximate current population of 33,000, the urban area extends north through Montana's Summit Valley (elevation 5400') to the town of Walkerville. The urban terrain is flat with the exception of the steep, hilly Historic Uptown area at the north end of the city. Surrounding areas are predominantly rural, characterized by agricultural uses, public lands, and rural town centers. Positioned on the west slope of the Continental Divide, the Summit Valley has a semi-arid climate with large swings in daily temperature. The valley is also subject to severe temperature inversions during the fall and winter months that trap air pollutants and can drastically increase ambient particulate concentrations.

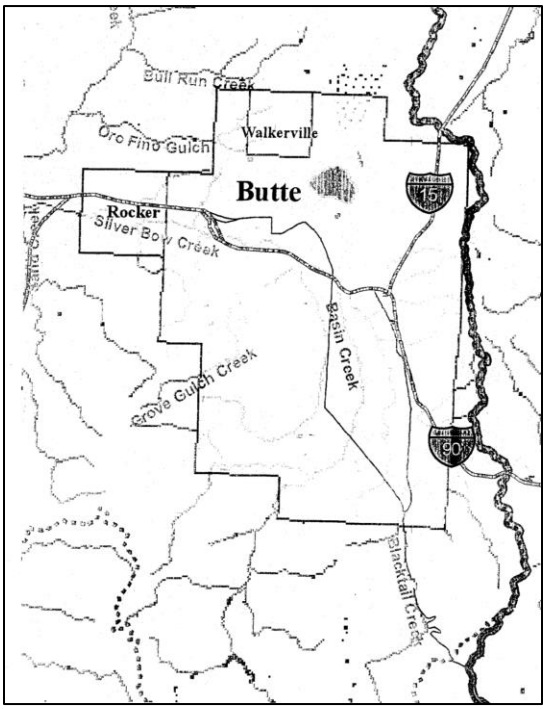


Figure 2. Air Pollution Control District

Local Air Quality Trends

Butte-Silver Bow has experienced air pollution problems for many years. As the National Ambient Air Quality Standards (NAAQS) have been refined, Butte has continued to struggle to keep air pollution levels below the national standard for PM_{10} and now $PM_{2.5}$. To address the ongoing struggle with particulate matter pollution, the Butte-Silver Bow Air Quality Program seeks to monitor, assess, and provide information on countywide ambient air quality conditions and trends.

In 2012, as a result of the program's analysis of air quality trends, Butte-Silver Bow established the Air Pollution Control District (APCD) by ordinance to help better address $PM_{2.5}$ emissions. Figure 2-2 provides a map of the APCD, which is described in more detail in Appendix C. Within the APCD, an air monitoring station is located at a closed elementary school (Greeley School) in a residential area on the north side of Butte. The $PM_{2.5}$ data collected at the site represent neighborhood-scale exposure.

During the last decade, the Air Quality Program has sought to understand the local sources of PM emissions in order to better control them. In addition to analyzing ambient $PM_{2.5}$ levels at the

[6] Ibid.

monitoring station, the program has studied the chemical mass balance (CMB) of the $PM_{2.5}$ to determine the sources contributing to local pollution problems in winter and summer months. The purpose of such studies is to understand where the pollutant is coming from thereby enabling targeted control measures of specific problem sources. The program also surveyed area residents to learn about their behaviors that may influence emissions, such as wintertime heating fuel preferences and wood storage practices. This chapter presents ambient monitoring data as well as the results of several recent special studies that help to characterize the $PM_{2.5}$ problem in the Butte-Silver Bow area.

Ambient Monitoring Data

The data presented in the following charts was collected at the Greeley School monitoring site. It is useful to show trends in ambient $PM_{2.5}$ over the last several years. The area benefits from having over a decade of monitoring at the site, which will be useful when analyzing the success or failure of current and future control measures.

Figure 2-3, on the following page, displays the annual $PM_{2.5}$ design values dating back to 2001. The data is displayed with (blue) and without (orange) exceptional events, which, in western Montana, comprise mostly summer wildfire activity. Exceptional events are removed from the data to better represent ambient concentrations that can be controlled by human activity. Not shown in the chart is the primary annual NAAQS, which was 15 $\mu g/m^3$ until EPA lowered it to just 12 $\mu g/m^3$ in 2012. Clearly, the area has been well below the annual standard since monitoring began at the site. Significantly, the area experienced a drop in ambient $PM_{2.5}$ in 2012 and 2013, after adopting the APCD and associated air quality control rules.

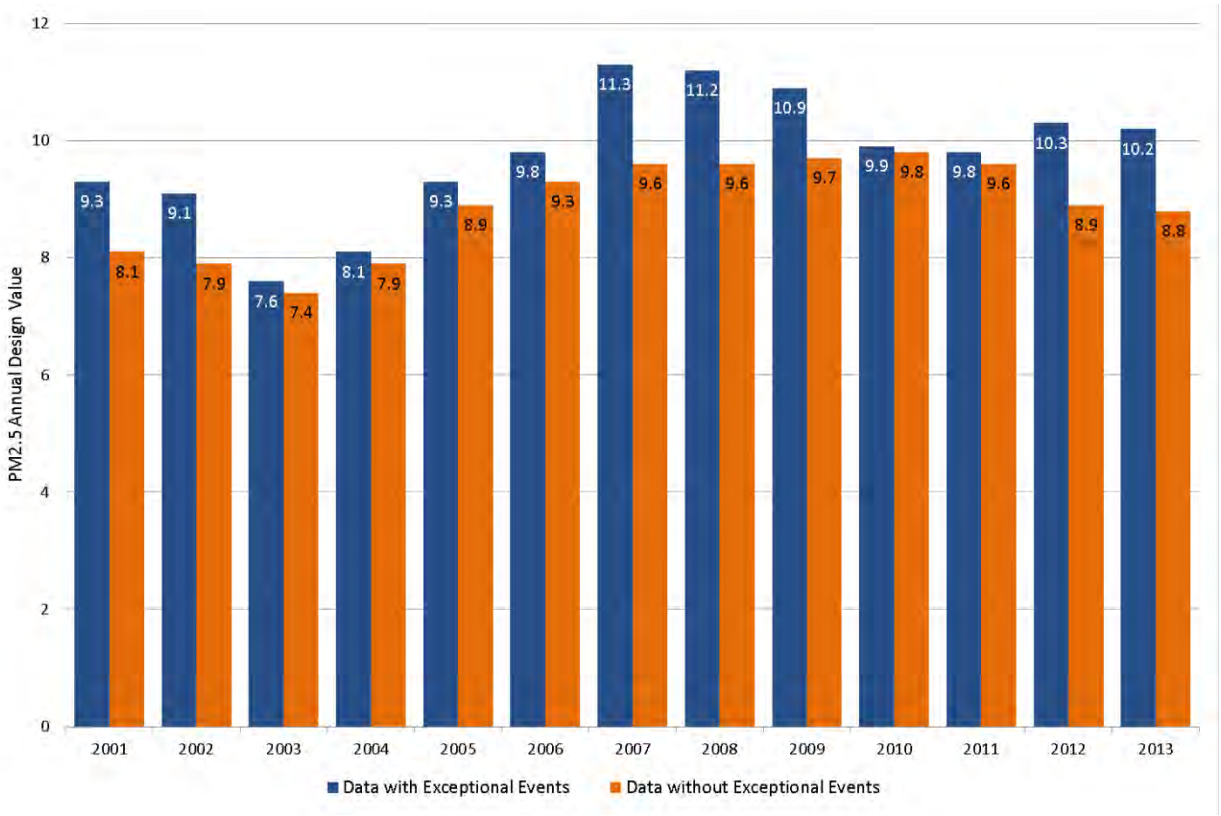


Figure 3. 2001-2013 Butte-Silver Bow $PM_{2.5}$ Annual Design Values

Although Butte-Silver Bow has historically been well below the annual standard for $PM_{2.5}$, the area has struggled to stay below the 24-hour standard in recent years. In 2006, EPA chose to retain the 1997 annual fine particle standard, but strengthen the 24-hour standard from the 1997 level of 65 $\mu g/m^3$ to 35 $\mu g/m^3$. The 2006 change represented a significant change in what was considered an adequate limit to protect public health and welfare. Butte-Silver Bow previously had no problem meeting the standard. However, in the years shortly after designations were made for the 2006 24-hour standard, the Butte-Silver Bow area monitored exceedances of the standard (in both 2010 and 2011). Figure 2-4, on the following page, shows historical 24-hour design values with and without exceptional events. Figure 2-5 plots the most recent five years' design values against the 2006 24-hour standard with the flagged exceptional events removed.

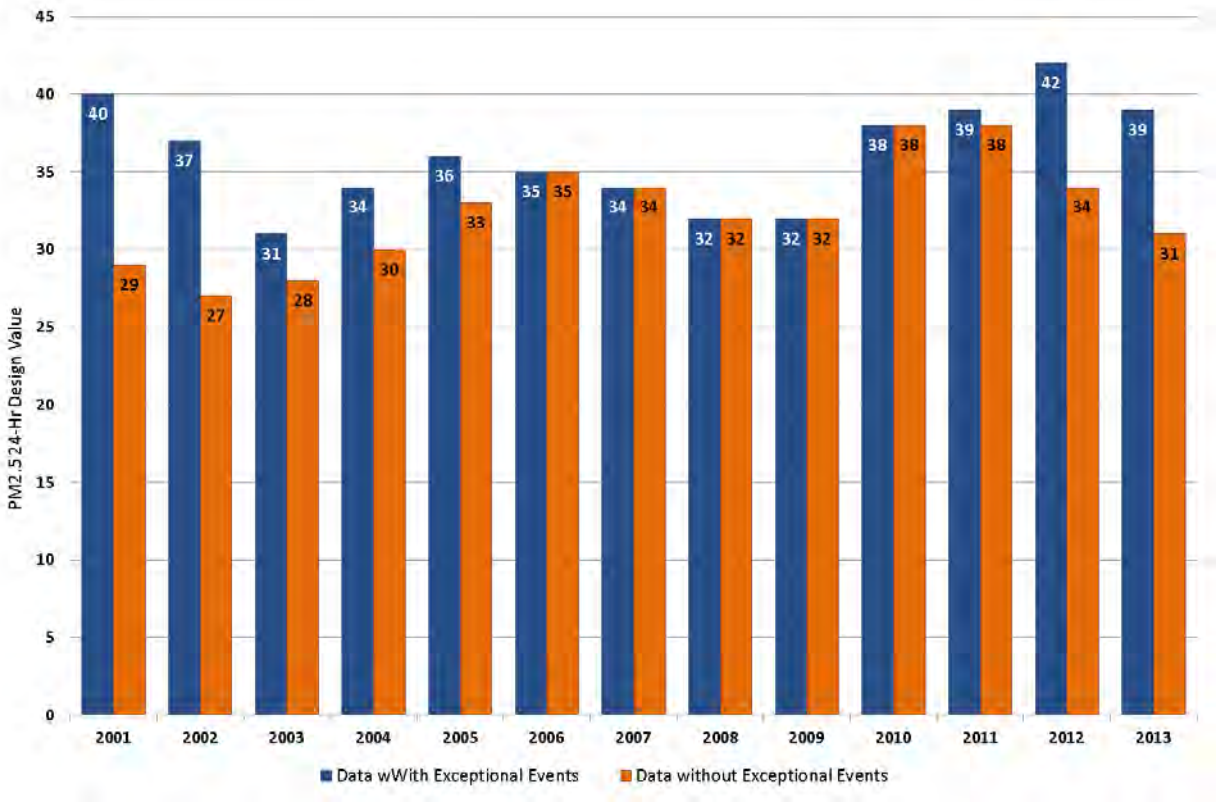


Figure 4. 2001-2013 Butte-Silver Bow $PM_{2.5}$ 24-Hour Design Values

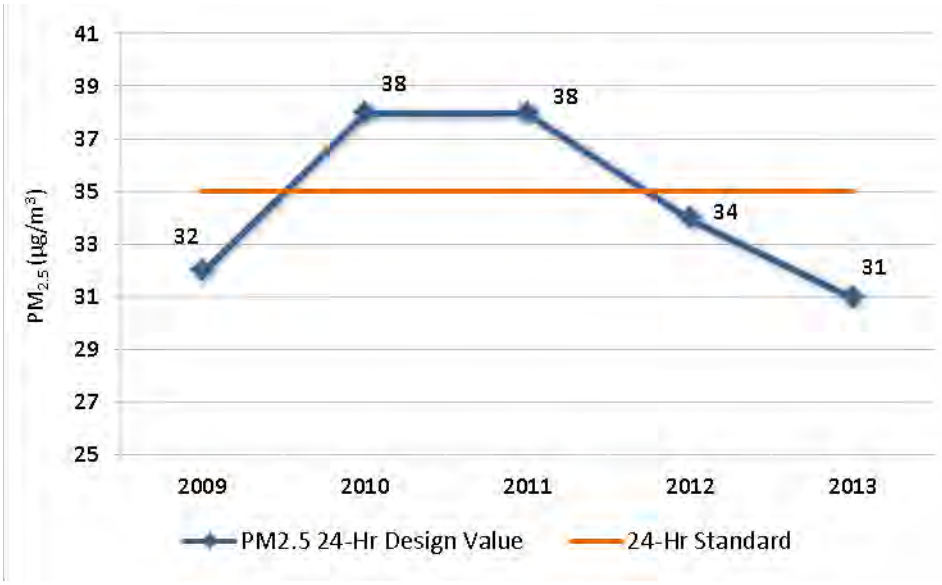


Figure 5. 2009-2013 Butte-Silver Bow $PM_{2.5}$ 24-Hour Design Values

Viewing the design values over the last decade gives us a picture of the trends on a macro level, but does not say much about why the values are higher in some years than in others. Figure 2-6 provides a more detailed look at the daily $PM_{2.5}$ values in 2013 that go into the design value. The chart is more telling about the time of year when high values occur. As is the case with many mountain valleys in

western Montana, the highest $PM_{2.5}$ concentrations occur in the winter months. In 2013, for example, Butte-Silver Bow monitored very high values throughout the month of January and relatively low values during the spring and summer with elevated values beginning again in October and November. This data clearly shows that $PM_{2.5}$ issues are a wintertime problem in the area.

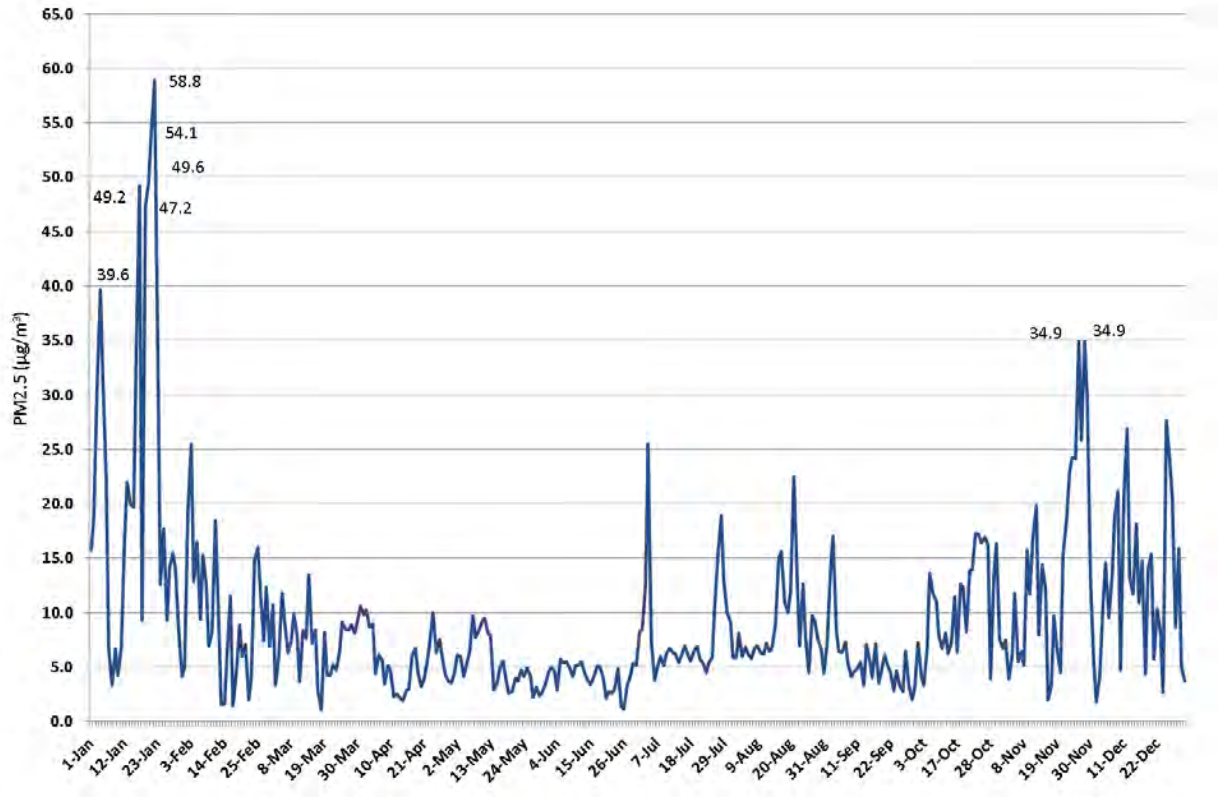


Figure 6. 2013 Butte-Silver Bow $PM_{2.5}$ Daily Averages

Figures 2-3 and 2-4 on the preceding pages show data with and without exceptional events. For an even clearer representation of the impact of summer wildfires on monitored $PM_{2.5}$ values, Figure 2-7 on the following page shows the most recent three years of daily averages with exceptional events highlighted. Comparing the 2013 daily averages below with the exceptional events data, we see that without wildfire impacts, there is an even starker difference between summer and winter $PM_{2.5}$ values.

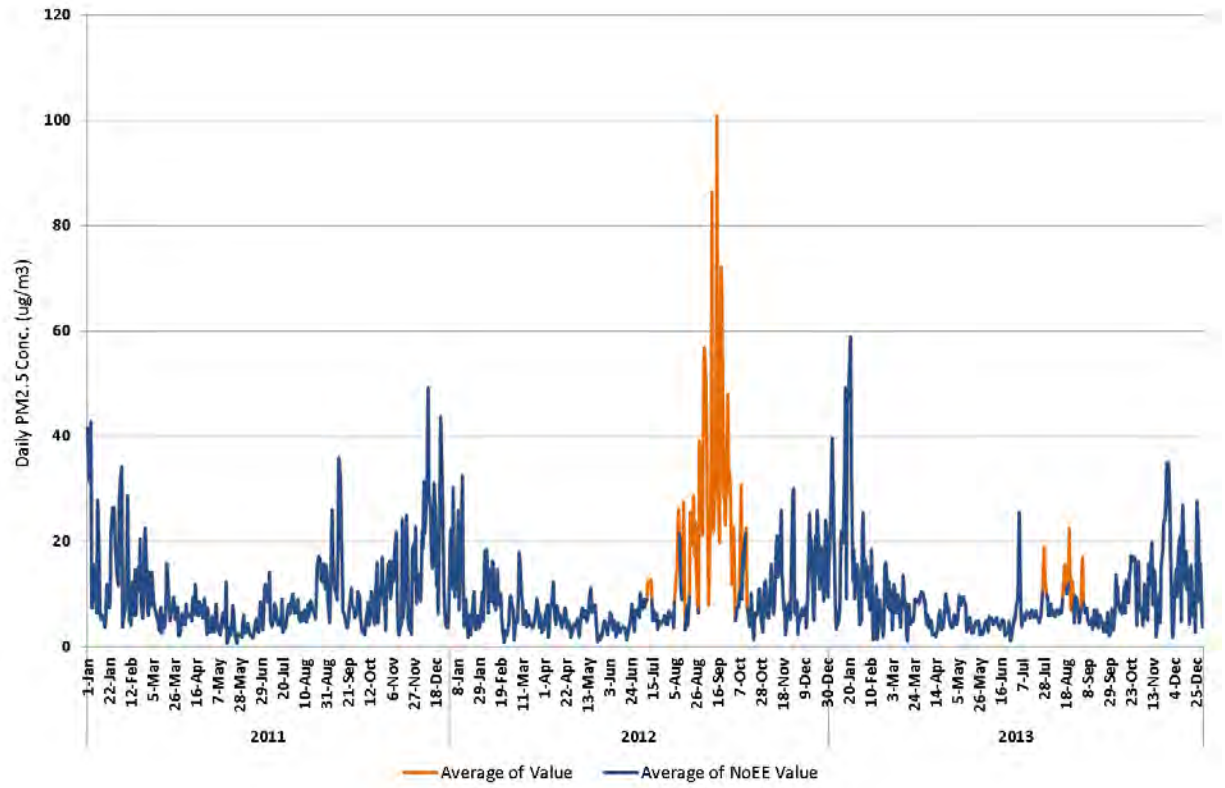


Figure 7. 2011-2013 Butte-Silver Bow Daily $PM_{2.5}$ with and without Exceptional Events

In summary, the monitoring data from the station at Greeley School, presented in this section, shows that the Butte-Silver Bow area, while currently attaining both the annual and 24-hour standards, has struggled with high values in recent years. The data also shows that the highest values occur during winter months, not including summer values caused by wildfires.

Chemical Mass Balance (CMB) Studies

The monitoring data on its own does not provide any insight into what types of sources contribute to the elevated $PM_{2.5}$ values. As discussed in the introduction to this plan, $PM_{2.5}$ can enter the air directly or as a product of chemical reactions between other types of emissions. To tackle the $PM_{2.5}$ problem, Butte-Silver Bow needed to gain a better understanding of where it was coming from. The program accomplished this by conducting several chemical mass balance (CMB) analyses. These studies analyzed the chemical makeup of ambient $PM_{2.5}$ to determine its primary source. The charts on the following pages summarize the findings of the recent CMB studies.

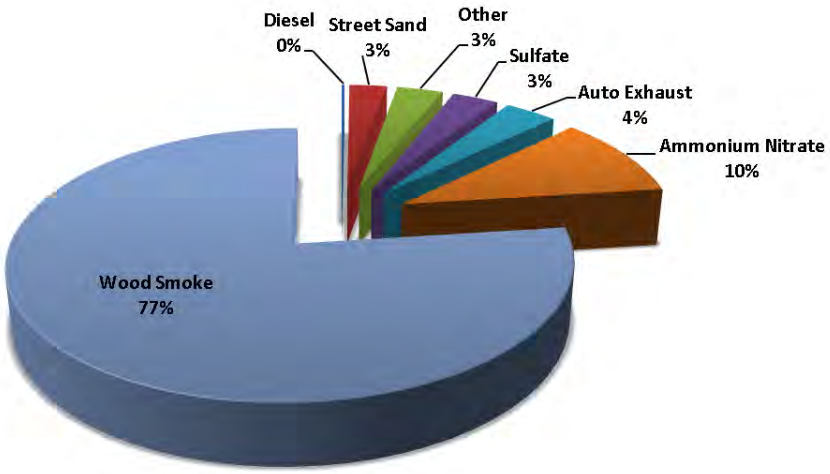


Figure 8. Butte-Silver Bow Winter 2007-2008 $PM_{2.5}$ CMB

Because the majority of elevated $PM_{2.5}$ values occur during winter months, Butte-Silver Bow initially focused on those months for the CMB studies. As presented in Figure 2-8, more than three-quarters of the ambient $PM_{2.5}$ entered the air directly as wood smoke in the winter of 2007-2008. In winter months, wood smoke almost exclusively comes from residential wood heaters like woodstoves, fireplaces, and wood-fired boilers or furnaces. As previously discussed, the abundance of wood in western Montana makes it a relatively cheap source of heat and one that has been used for generations, especially in low-income areas.

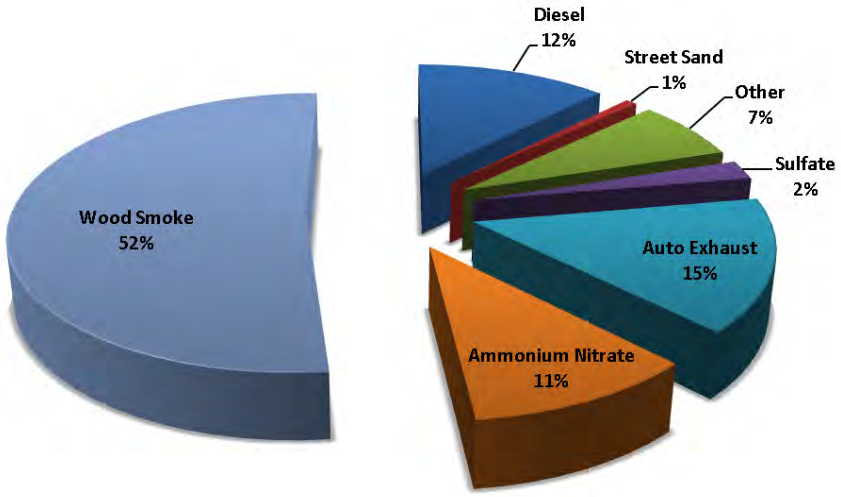


Figure 9. Butte-Silver Bow Winter 2012-2013 $PM_{2.5}$ CMB

In the winter of 2012-2013, Butte-Silver Bow conducted another CMB (Figure 2-9). The results of the updated CMB modeling revealed that wood smoke (likely residential wood combustion) remained the major source of ambient $PM_{2.5}$ throughout the winter months in Butte, contributing an average of 51.8% of the measured $PM_{2.5}$.

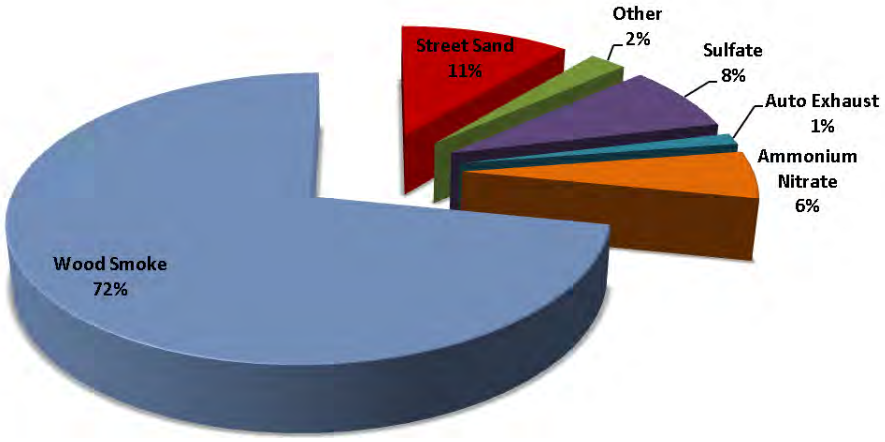


Figure 10. Butte-Silver Bow Summer 2013 $PM_{2.5}$ CMB

The results of CMB modeling (Figure 2-10) done during summer months revealed that wood smoke was also the major source of ambient $PM_{2.5}$ throughout the summer months in Butte, contributing nearly 72% of the measured $PM_{2.5}$. This wood smoke component is likely from residential outdoor biomass burning, as well as local and regional controlled/wild forest fire events.

As seen in the above charts, auto exhaust and diesel exhaust are significantly higher contributors in winter, likely due to prolonged sub-zero temperatures and stagnant air patterns. Higher concentrations of exhaust in the winter months, combined with episodes of poor dispersion, likely contribute to the formation of nitrates in the air – a precursor to $PM_{2.5}$. To date, the area has not disucussed automobile exhaust as a significant contributor to $PM_{2.5}$ concentrations. As expected, street sand contribution is elevated during the drier summer months. The local air program cooperates with the Public Works Division on control measures related to street sanding and sweeping. The results of the CMB suggest that further discussion of best practices for summer street maintenance may be beneficial.

Directional Analyses

Figures 2-11, 2-12, and 2-13 on the following pages show the pollution roses for short (2013), mid (2011-2013) and long (2001-2013) time frames. The pollution rose is an illustration of the frequency distribution of wind direction temporally correlated with the observed PM2.5 concentration at that time. The pollution roses all show very similar results for the 3 time frames. This leads to the conclusion that the wind patterns in the valley are very consistent and clearly show the majority of the pollution is coming from the east to south east of the Greeley monitor.

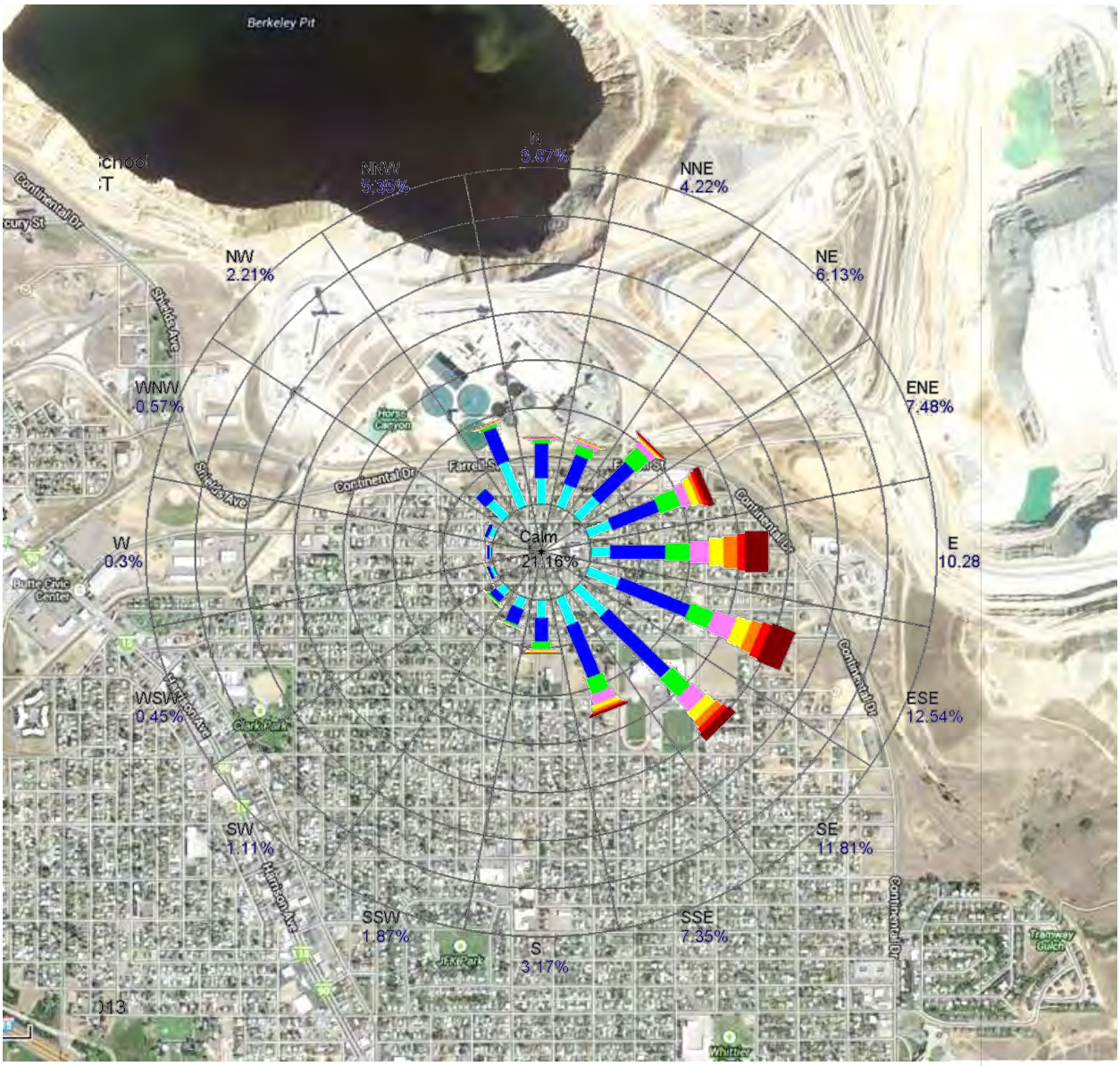


Figure 11. Pollution Rose 2013

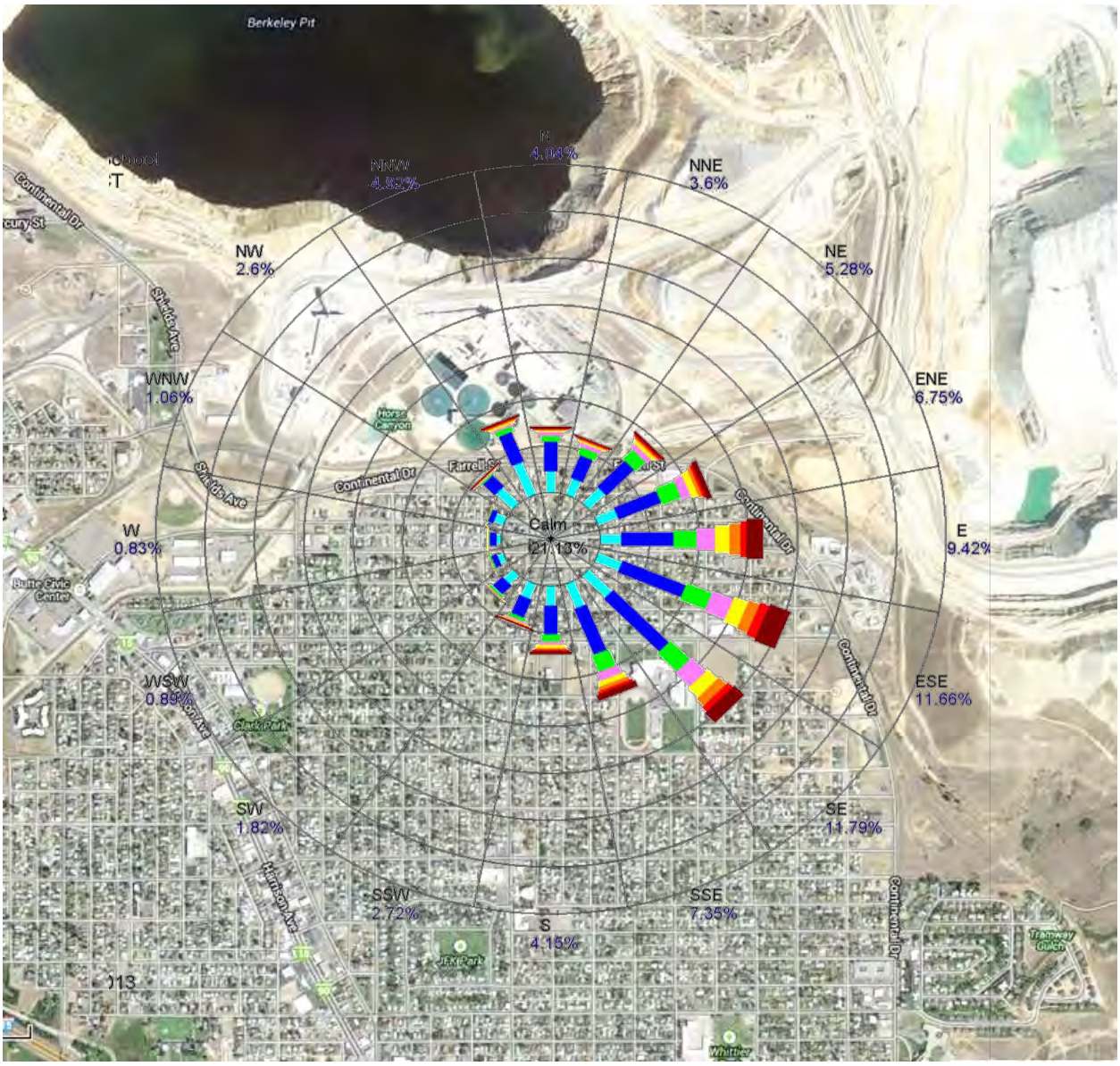


Figure 12. Pollution Rose 2011-2013

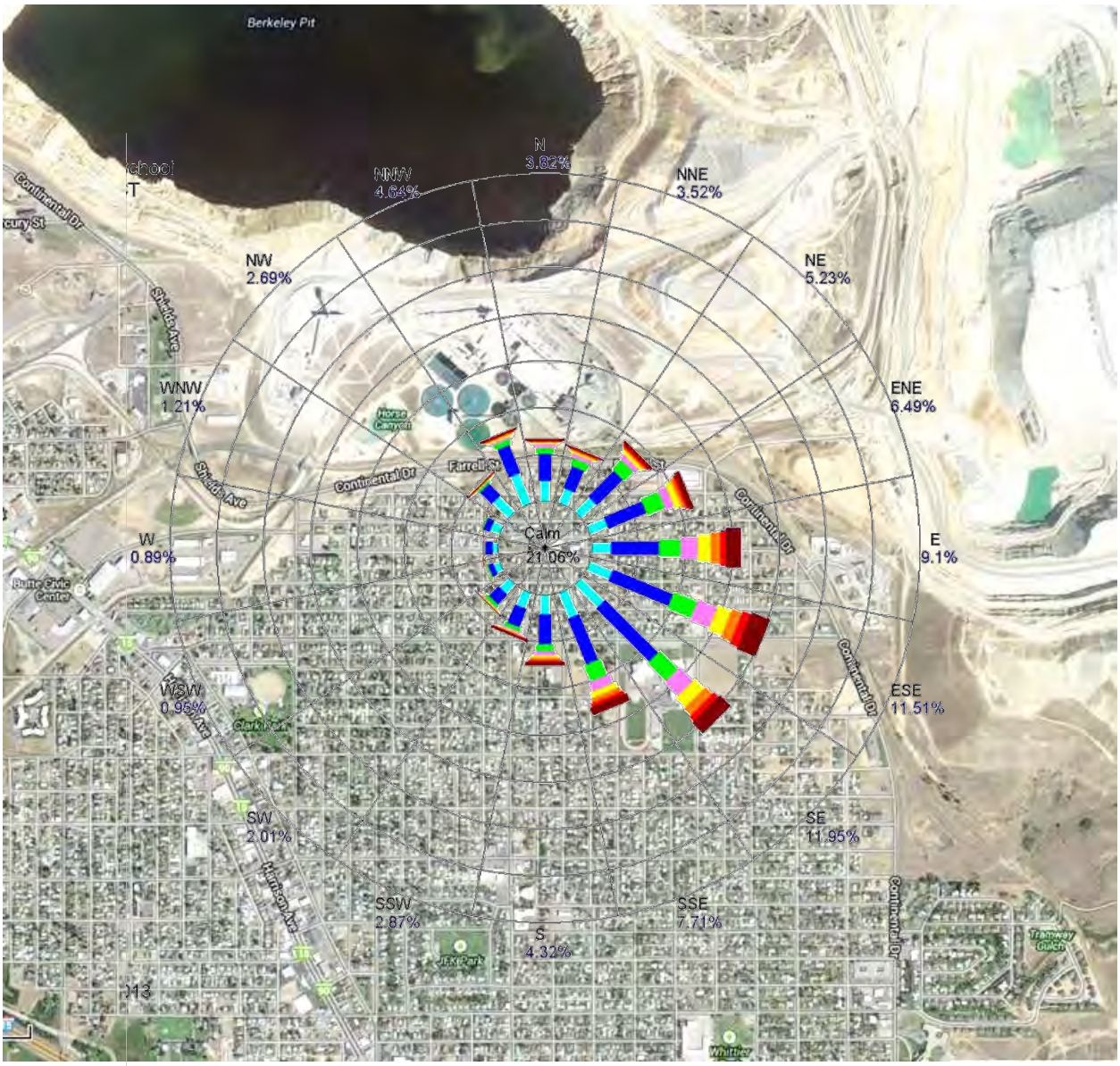


Figure 13. Pollution Rose 2010-2013

Other Special Monitoring Studies

During 2012-2013 and 2013-2014 winters, saturation studies were conducted within Butte. The intent of these studies was to identifiy if the $PM_{2.5}$ observed at the Greeley monitoring site was representative of the entire valley or if it was a more localized neighborhood-level issue. In 2012, seven additional monitors were placed throughout Butte and in 2013 ten additional monitors were placed.

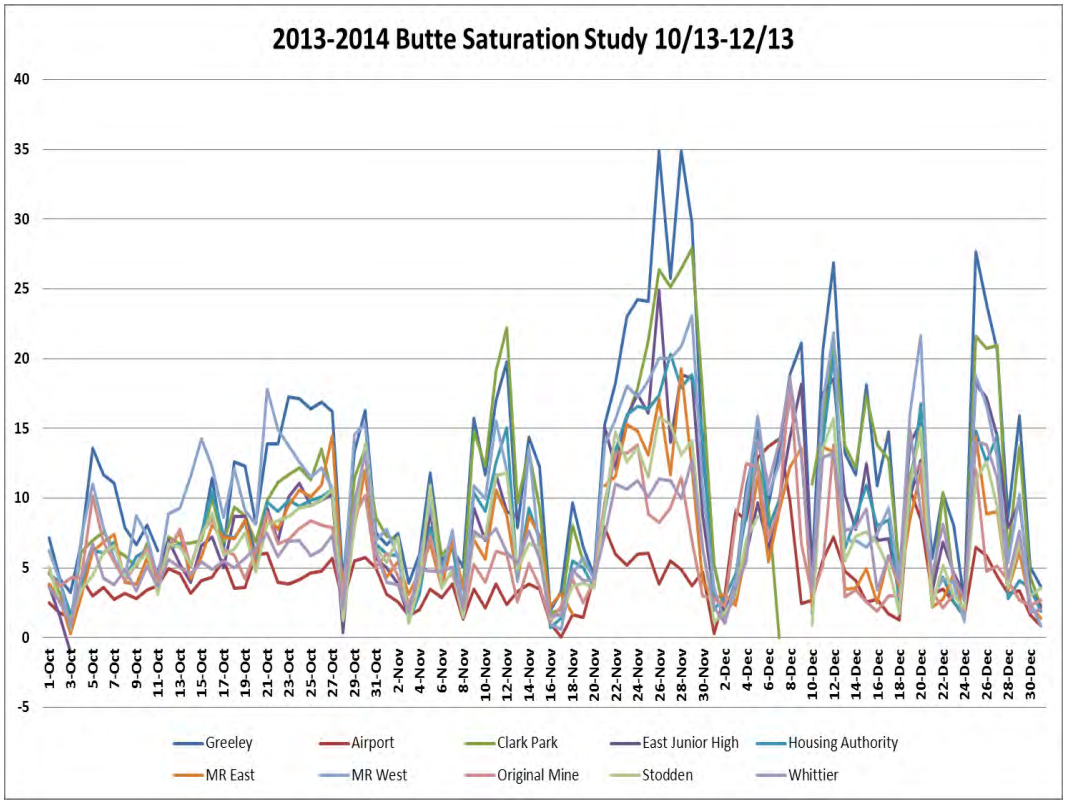


Figure 14. 2013 Butte-Silver Bow Saturation Study (10/13-12/13)

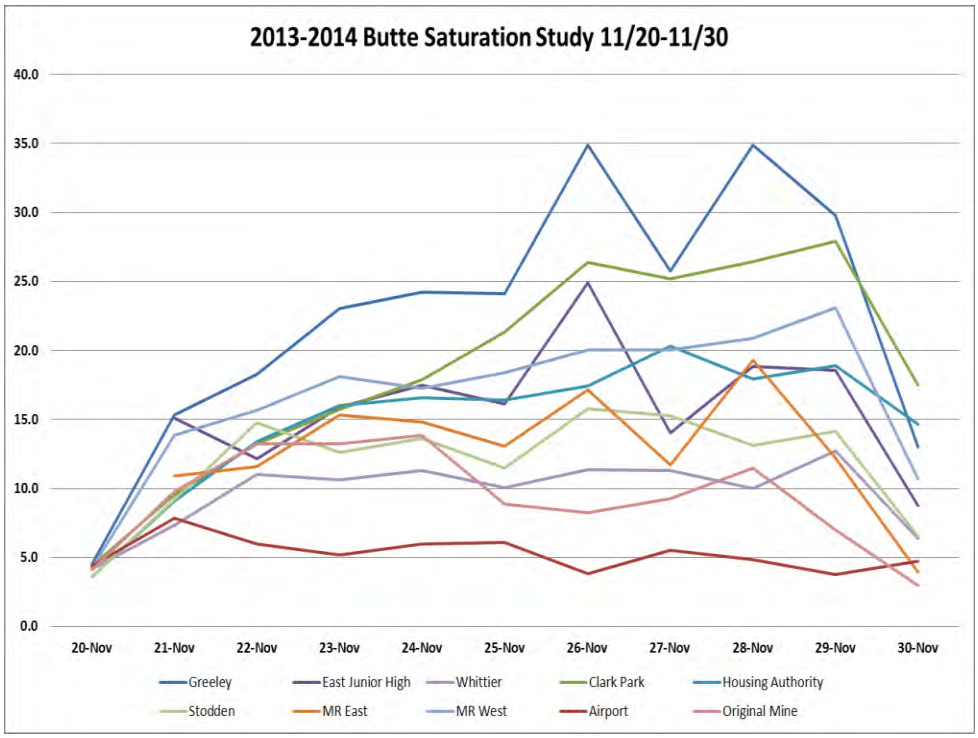


Figure 15. 2013 Butte-Silver Bow Saturation Study (11/20-11/30)

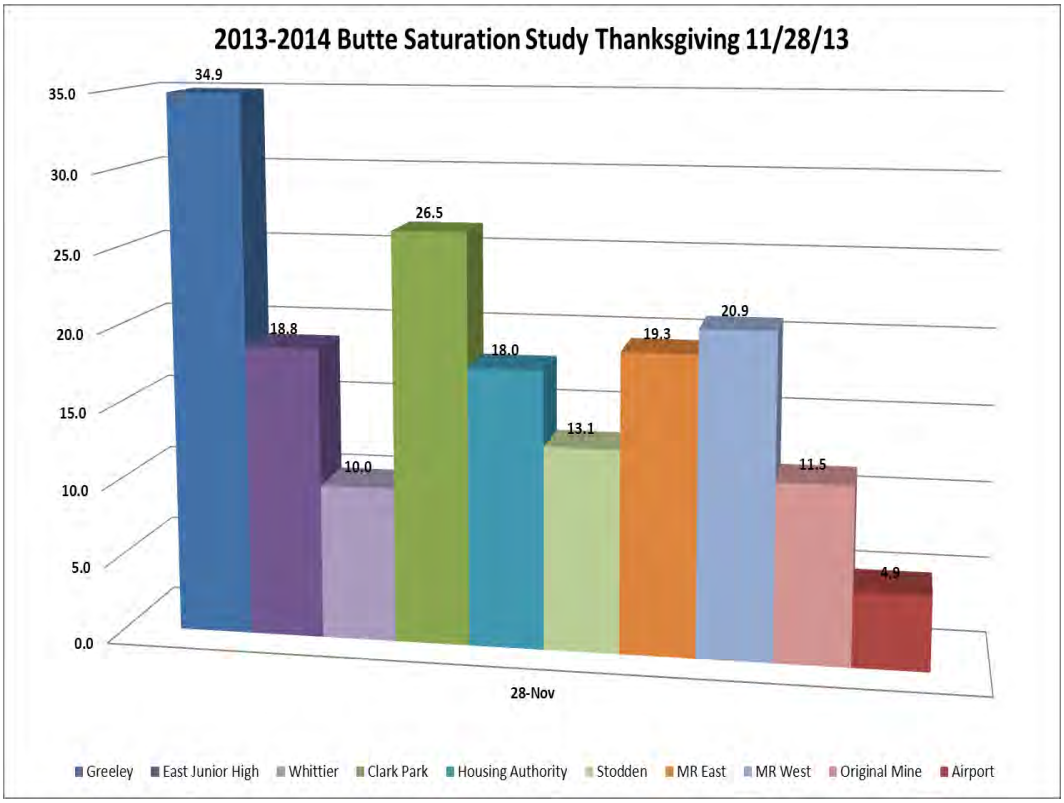


Figure 16. 2013 Saturation Study - Thanksgiving Day

Community Practices and Perspectives

In 2010, the Environmental Services Division of Butte-Silver Bow contracted with a local firm to conduct a community survey. The purpose of the survey was to evaluate the sources of $PM_{2.5}$ emissions in Butte and the surrounding areas. The survey was conducted in 2011-2012 in collaboration with Montana Tech and the Montana DEQ. Of the 14,736 occupied households in Butte, researchers successfully contacted 367 to complete the survey.[7]

Survey results estimate that about 13% of households have at least one wood burning device in Butte, emitting nearly 73 tons of $PM_{2.5}$ during the 2011-2012 burn season. However, local air program staff believe this number is likely closer to 20-25%, or about a quarter of all homes. The number of households burning wood for heat varies annually depending on economic conditions, as well as natural gas and electric prices. According to the survey, EPA-certified wood stoves make up only around 39% of total wood burning devices and contribute around 47% of the total $PM_{2.5}$ emissions.[8] This suggests that a targeted replacement or retrofit of older, uncertified stoves would have a large impact on emissions in Butte.

[7] Dr. Kumar Ganesan, "$PM_{2.5}$ Emissions from Wood Combustion in Butte, Montana," March 2013, p. i.
[8] Ibid, p. 8.

Three. $PM_{2.5}$ Control Measures

In EPA's document, "Strategies for Reducing Residential Wood Smoke," the agency recommends a program for addressing $PM_{2.5}$ issues related to wood smoke that involves several strategies. Areas should start by implementing an education and outreach campaign. Education helps raise awareness of the issue and of any other steps the area is taking to address it. The next strategy involves a replacement or retrofit program for wood burning appliances. Change-out programs take old stoves off the market and replace them with newer, cleaner-burning appliances. EPA then recommends that areas implement a wood smoke curtailment program followed by additional regulations for other types of wood burning appliances, such as hydronic heaters.[9] These strategies generally fall into three "buckets," (1) education and outreach, (2) voluntary measures, and (3) regulatory measures.

The City-County of Butte-Silver Bow has long recognized local issues with particulate matter pollution. As described in the previous chapter, both the state and local air quality programs have studied ambient PM pollution and its various sources. The local program has also engaged the community about residential wood burning practices. It is clear through recent monitoring data that local efforts have been successful to a degree, but more is needed to ensure reductions in ambient $PM_{2.5}$ are permanent and thereby avoid violating the health-based National Ambient Air Quality Standards (NAAQS). To that end, in collaboration with the state of Montana and the EPA, Butte-Silver Bow developed a proactive program of existing and future control measures.

The program comprises both long- and short-term measures, as well as both regulatory and voluntary measures. The program focuses primarily on outreach and education. The two-pronged goal of the program is to improve year-round air quality and engage the community in that effort, which will help ensure ongoing success. Currently, there is a lack of understanding of the relationships between wood smoke, air quality, and public health. This will need to be addressed in order for larger regulatory or voluntary measures to succeed. Measures that are currently being implemented and measures that are in development for future implementation under this plan are described on the following pages.

Education & Outreach Measures

As discussed above, educating the community and building awareness of the issues is the main focus of this plan. Education on the key issues related to $PM_{2.5}$ in the area will ease the way for future voluntary or regulatory efforts, should they be needed, by developing an understanding of the problem, its sources, and how it can be addressed. The local air quality program either is already implementing the following measures (indicated using **bold type**) or is planning to implement them

[9] U.S. Environmental Protection Agency (2013), "Strategies for Reducing Residential Wood Smoke" (Publication no. EPA-456/B-13-001). Retrieved from http://www.epa.gov/burnwise/pdfs/strategies.pdf.

during the first five years of the PM Advance program. Existing measures will be maintained or expanded over the course of the program's commitment to PM Advance, as described below.

EM1. **Distribute Information Related to Cleaner Burning Practices**

Wood burning appliances that are operated properly and used with well-seasoned wood produce less PM pollution, thereby reducing ambient PM in the airshed and within the homes of wood burners. Education about how to burn more cleanly would help residents who cannot purchase a new stove. The air quality program currently uses printed and online materials from the Burn Wise program through EPA. Informational packets could also include additional information about the existing episodic alert regulations.

The program plans to partner with several local stakeholders to increase distribution of materials. First, the program is working with the Forest Service to distribute Burn Wise materials with wood harvesting permits. In addition, the program is working with Silver Bow Hearth and Home, a local retailer, to distribute informational materials and permits to individuals purchasing new wood burning devices. Finally, the program will mail Burn Wise materials with local water bills during the wood burning season. No formal tracking of past outreach efforts exists to inform decisions on the effectiveness of these strategies. However, moving forward, the program will put more effort into measuring success of such outreach measures. This may take the form of recurring community awareness surveys, or other options to be determined by the program.

EM2. **Targeted, Timely Media Blitz**

The air program recognizes a need to raise awareness of the still relatively new air quality regulations. Ongoing education through the local media will continue to raise awareness of PM issues, their connection to residential wood burning, and ways to help. The goal is that heightened awareness will lead to greater compliance with air quality regulations as well as voluntary actions by residents to reduce impact. As discussed above, the program has not conducted any formal tracking of the success of past outreach efforts. Informal feedback over many years has shaped the current direction of outreach. This control measure makes use of a variety of forms of media, with the hope of reaching a diverse audience. Future follow-up may involve increasing or decreasing the extent to which each form of media is used, based on feedback from the intended audience.

During the 2013-2014 burn season the program ran a custom commercial advertising proper burning techniques campaign on a local news station. The station also rotated several clean burning messages on their website. Feedback from the general public was very positive and the station provided the local program with a summary of website visits and general viewership numbers. A similar campaign has already been paid for and will begin at the start of the 2014-2015 season. The program's website has been updated recently and provides a valuable resource for burn alert status updates and related information. The program also has used and will use the local newspaper to direct residents to the state of Montana's Today's Air website, which provides timely information on PM2.5 concentrations. Information about the site will be printed above the local weather map in the daily paper. The program also operates a 24-hour air quality hotline, which is a local recording of the daily air quality conditions.

EM3. **Electronic Air Quality Sign**

The program installed an electronic multimedia sign outside of the Health Department in August of 2012. The primary purpose of the sign is to provide updates on current ambient $PM_{2.5}$ concentrations and associated health messages. The sign is one of the primary ways the program alerts the community to burn bans. The program is working with the state of Montana and the sign retailer to understand options for connecting the sign directly to monitoring data. Such an effort would improve efficiency by decreasing staff time required to update the sign and potentially improve the timeliness of the data presented on the sign.

EM4. **Prioritize Workforce Development**

This measure focuses on ongoing training of Butte-Silver Bow Health Department staff. Trained, knowledgeable staff are best able to provide reliable information to the public to assist with making the right decisions related to wood burning practices. Attending training and working directly with trainers helps staff maintain a network of experts in the field. Ongoing workforce development also keeps staff engaged and up-to-date with the most current topics and standards. Short-term opportunities include Method 9 smoke school, residential wood smoke specialty conference, and street sweeper/sander best practices training.

EM5. Air Quality Booth at Existing Local Events

The goal of this measure is to raise awareness of the $PM_{2.5}$ issue and its connection to wood smoke among homeowners and interested persons. Collaborating with community partners to join existing events could help the program reach a new/expanded audience. The National Center for Appropriate Technology (NCAT), headquartered in Butte, hosts an energy fair every summer that may provide a good initial opportunity. The program plans to maintain dialogue with NCAT and Montana Tech about participating in the 2015 fair as well as any other opportunity that arises to get the air quality message out to the community.

EM6. Reverse 911 Burn Ban Notifications

Butte-Silver Bow recently implemented a voluntary reverse 911 system to alert residents of emergencies. The program plans to use the system to send out information related to the regulatory episodic alert system that is already in place. Knowledge of burn bans is essential to improving compliance with existing regulations. Using a reverse 911 system may help the program reach community members who may not be alerted by other notification methods. The program will likely need to put some effort into targeting known burners to sign-up for the alert system, as it is voluntary. This could be done through workshops and booths at local events as well as by providing a link through the air program website. Future marketing efforts could focus on advertising the reverse 911 notifications as a way to avoid incurring fines from burning during a burn ban. The program may use the Puget Sound Clean Air Agency "Spare the Air"/ "Don't get Burned" campaign as an example. Alerts through the system would initially not be targeted to a particular group or neighborhood and would be sent to the entire list, but this is an area for improvement in the future.

EM7. Today's Air Mobile Phone Application

The state of Montana is in the process of developing a mobile phone version of the popular Today's Air website, which provides $PM_{2.5}$ concentrations at monitors across the state as current as the last hour. The details of this measure are still being worked out at the state level, but an app should be ready for public use by the 2015-2016 heating season. Such an app will allow users who download it to access air quality data from their mobile phones via their mobile network. This will allow users, such as a coach or parent concerned about elevated concentrations during sports practice, to access up-to-date information while on the run. It may also benefit mobile phone users who do not have access to a computer or dependable internet connection. The app will also include notifications that can be set up by the user to signal when air quality reaches a pre-defined level.

Voluntary Measures

Voluntary programs are not based in regulations but instead encourage specific actions or behavior that may be beneficial to reducing $PM_{2.5}$ concentrations.

VM1. Limited Wood Stove Change-Out

Studies show that the majority of emissions come from old, uncertified stoves. To address the existing problem, these stoves need to be replaced with new, cleaner-burning models. This would likely happen over the long-term as old stoves break down and require replacement but faster results are needed. Providing full or partial reimbursement for the replacement of old stoves may help speed the turnover process. Change-out programs have proved successful in other small communities in western Montana facing similar wintertime $PM_{2.5}$ challenges. The local air program is in the process of designing a phased, neighborhood-scale change-out. The first step is a signed partnership with local industry, the state of Montana, and the City-County of Butte-Silver Bow, which is currently in development. The change-out will target the Greeley School area, which studies have shown is the hardest hit with elevated wintertime $PM_{2.5}$ concentrations. Although the change-out is still in the very early stages of development, the program is hopeful that a large portion of stoves in the area will be replaced before the winter heating months of 2015-2016.

Regulatory Measures

The air program in Butte-Silver Bow has been proactive about developing regulatory air pollution control mechanisms. The program revised its air rules in 2012 through an air quality control ordinance. The main obstacle for these programs has been enforcement, both finding the staff time to monitor for compliance and the political will to issue penalties for violation. The education and outreach measures discussed above will help this effort by continuing to raise awareness of the still relatively new regulations and the consequences for violating them. The local air quality program either is already implementing the following measures (indicated using **bold type**) or is planning to implement them under the PM Advance program. Existing measures will be maintained or expanded over the course of the program's commitment to PM Advance.

RM1. **Episodic Control Program**

The 2012 ordinance established episodic controls for the Air Pollution Control District. The ordinance established the following categories of air quality correlating with measured $PM_{2.5}$ concentrations: (1) Good air quality means concentrations averaged over eight hours that are equal to or less than 40 percent of the 24-hour NAAQS, (2) Poor air quality means concentrations averaged over eight hours that are between 40-75 percent of the 24-hour NAAQS, and (3) Alert air quality means concentrations averaged over eight hours that are equal to or greater than 75 percent of the 24-hour NAAQS. The purpose of the episodic control program is to alert residents when conditions are such that continued emissions from residential wood burning will degrade the air quality and threaten public health. In this way, the program aims to maintain levels of air quality that will protect human health and safety and prevent damage to the environment. No visible emissions are permitted in the Air Pollution Control District during an air pollution alert unless a specific permit has been granted for the device, in which case opacity of up to 10 percent is allowed. The program will continue to implement and enforce the new ordinance as part of PM Advance and will analyze successes and/or areas for improvement as part of the maintenance of this plan.

RM2. **Solid Fuel Burning Device Operating and Opacity Rules**

The air quality ordinance, discussed above, sets out requirements for proper operation of solid fuel burning devices including limitations on the materials that may be used as fuel. The rules also require that only EPA Phase I or II stoves may be installed in any home within the Air Pollution Control District that is constructed or remodeled after May 18, 2012. Additionally, emissions from solid fuel burning devices located within the District may not have opacity greater than 25 percent for any period aggregating more than 30 minutes in any four-hour period. As part of the PM Advance program, the local air quality program will continue to enforce these rules and will seek to update the rules, if necessary, as more stringent federal standards are adopted.

RM3. **Outdoor Wood Furnace Rules**

Beginning May 18, 2012, only EPA HH Phase 2 Program qualified hydronic boilers or newer may be installed and operated within the Air Pollution Control District. The rules also describe permitted fuel materials, proper siting of an outdoor wood furnace, and required chimney heights.

RM4. **Road Dust Controls**

Existing regulations require public and private entities to use chemical deicer on all public streets and public or private parking lots. Sanding and chip seal materials are only permitted in emergency situations and when temperatures fall below 10°F. The regulations set durability and content requirements for the sanding and chip seal material.

RM5. **Open Burning Rules**

Existing state and local rules control open burning in the area. In Butte-Silver Bow, an Open Burning Permit must be obtained from the Fire Department prior to burning. Burning is prohibited from December 1st through the last day of February of each year. Burning during other parts of the year is

allowed when the program determines there is proper dispersion and ventilation. The rules also prohibit the burning of certain materials, the use of burn barrels, and overnight smoldering.

RM6. Develop and Implement a "Certified Burner" Program

EPA recognizes that the way in which a stove, even a certified stove, is used has a huge impact on the efficiency of the device. It is generally up to the individual stove owner/operator to read and comply with the owner's manual and understand proper operation. Requiring additional training would ensure each owner/operator has at least reviewed information on proper operation. Improved operation could reduce emissions even from older, less efficient stoves without retrofit or replacement. There are several ways this may be implemented. For example, residents purchasing a new stove may be required to take the training to receive a burn permit or variance. Alternatively, the certification program may be required of anyone found to be in violation of a burn ban as a way to prevent repeat violations. The air quality program will develop a work plan for implementing the certified burning program and will update this plan accordingly. The program intends to develop the training program in coordination with the wood stove changeout, discussed above, and will consider broadening the scope of the training or adding the training to existing regulations should such an effort become necessary in the future.

APPENDIX A. Implementation Schedule

Goal		Strategy	Implementation Milestones
Reduce PM2.5 emissions from existing residential wood heaters	VM1	**Limited Changeout Program** Replace old, dirty stoves with cleaner options	·Select target area (done) ·Inventory wood burning devices in target area (done) ·Finalize main funding source (late 2014) ·Hire full-time, two-year coordinator position (early 2015) ·Develop work plan for changeout (2015) ·Apply for additional funding (2015) ·Change out stoves in target area (by 2015-16 season) ·Assess impact on monitored PM2.5 values (ongoing) ·Evaluate coordinator position & funding (2017)
	EM1	**Distribute Clean Burning Info** Educational materials will instruct stove operators in techniques to burn more efficiently	·Develop informational packets (2014) ·Work with local vendor to distribute with purchases (2014) ·Identify other distribution channels (ongoing) ·Track number of packets distributed (ongoing) ·Update materials, distribution, message as necessary (ongoing)
	EM5	**Air Quality Booth** Distribution of air quality-related educational materials at targeted local events	·Gather materials & identify compatible local events (2015) ·Attend events, set annual goals (2015, ongoing) ·Track number of attendees who visit the booth (ongoing) ·Keep information up to date (ongoing) ·Consider hosting larger public workshop (ongoing)
	EM2	**Media Blitz** Educational messaging about burning new and existing devices more efficiently	*See below*
Limit additional PM2.5 emissions from new residential wood heaters	RM1-5	**Wood Burning Regulations** Local rules limiting the types of devices that may be installed, what fuel may be used, and when burning may occur	·Continue to implement and enforce regulations (ongoing) ·Evaluate alert levels (ongoing) ·Evaluate penalties assessed for violation (ongoing) ·Prioritize enforcement (ongoing)
	EM1	**Distribute Clean Burning Info** Educational materials will instruct stove operators in techniques to burn more efficiently	*See above*
	RM6	**Certified Burner Program** Educational course targeted at residents purchasing a new wood burning device	*See below*
	EM2	**Media Blitz** Educational messaging about burning more efficiently	*See below*

Goal		Strategy	Implementation Milestones
Improve compliance with regulatory burn bans	RM6	**Certified Burner Program** Educational course targeted at residents purchasing a new device, or permitting an existing EPA-certified device	·Create database of permitted burners (early 2015) ·Identify desired training for new permitees (2015) ·Implement training for changeout recipients (2015-16) ·Maintain permit database (ongoing) ·If desired and/or necessary, amend regulations to require training for all permits or for burners violating air quality alerts (long-term)
	EM3	**Electronic Air Quality Sign** Prominent, easily understandable notification of current air quality	·Continue regular updates with AQ status (ongoing) ·Work with sign company to set up remote connection between monitor and sign (2014-15) ·Assess effectiveness of messaging, location (ongoing)
	EM6	**Burn Ban Reverse 911 Notifications** Automatic alertswhen burn ban is anticipated or takes effect	·Work with police dept. to coordinate alerts (2014-15 season) ·Develop plan to get known burners signed-up (2015) ·Assess effectiveness through community surveys (ongoing) ·Maintain database of wood burner contact info (ongoing)
	EM7	**Today's Air Phone App** Mobile access to current air quality data and automatic alerts when a define level is reached	·State of Montana completes app (early 2015) ·Work with state on initial roll-out to public (2015 season) ·Assess function & local reach, communicate with state about potential areas for improvement (2015-16, ongoing)
	EM2	**Media Blitz** Educational messaging about where to find out if a burn ban is in effect	*See below*
Develop community-wide understanding of the impacts of residential wood heaters on air quality and health	EM2	**Media Blitz** Educational messaging about air quality	·Work with local media outlets for mid-November roll-out (annual) ·Develop community survey to focus outreach efforts in future years (2015) ·Consider incentives for return of survey (2015) ·Prioritize media funding based on survey results (ongoing)
	EM4	**Workforce Development** Ongoing education so health department staff stay up-to-date on the issues	·Identify future training opportunities for health dept (annual) ·Locate funding sources (ongoing) ·Set & meet goal for amount of annual training (ongoing) ·Assess effectiveness of trainings and prioritize in future years (ongoing) ·Create training plans for new staff (ongoing)
	EM5	**Air Quality Booth** Distribution of air quality-related educational materials at targeted local events	*See above*

APPENDIX B. Sign-Up Letter

Montana Department of
ENVIRONMENTAL QUALITY
Steve Bullock, Governor
Tracy Stone-Manning, Director
P. O. Box 200901 Helena, MT 59620-0901 (406) 444-2544 Website: www.deq.mt.gov

April 5, 2013

PM Advance
c/o Laura Bunte
U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards, C304-01
Research Triangle Park, NC 27711

Dear Ms. Bunte:

The State of Montana in partnership with the City County of Butte-Silver Bow would like to participate in PM Advance with respect to the City County of Butte-Silver Bow. We wish to join this partnership with EPA to preserve or improve the air quality in City County of Butte-Silver Bow, and we meet the program eligibility criteria, i.e.:

(1) City County of Butte-Silver Bow is not currently a nonattainment area for the 1997 and/or 2012 annual fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS) and/or for the 2006 24-hour $PM_{2.5}$ NAAQS,

(2) City County of Butte-Silver Bow consists of the city of Butte located within Silver Bow county Montana,

(3) The following air monitor(s) reflect the air quality in City County of Butte-Silver Bow: Butte-Greeley School Monitor (30-093-0005), and

(4) Montana has submitted data for inclusion in the National Emissions Inventory.

We understand that our efforts under PM Advance may benefit City County of Butte-Silver Bow by potentially:

- Reducing air pollution in terms of $PM_{2.5}$ as well as other air pollutants,
- Ensuring continued healthy $PM_{2.5}$ levels,
- Maintaining the $PM_{2.5}$ NAAQS,
- Helping avoid violations of the $PM_{2.5}$ NAAQS that could lead to a future nonattainment designation,
- Increasing public awareness about $PM_{2.5}$ as an air pollutant, and
- Targeting limited resources toward actions to address $PM_{2.5}$ problems quickly.

Our goal is to implement measures and programs to reduce $PM_{2.5}$ in City County of Butte-Silver Bow in the near term. We agree to that it is in our best interest to work together and in coordination with stakeholders and the public to proactively pursue this goal.

Please direct any questions to Eric Merchant at emerchant@mt.gov 406-444-1457 or Stephen Coe at scoe@mt.gov , 406-782-2689 ext 209.

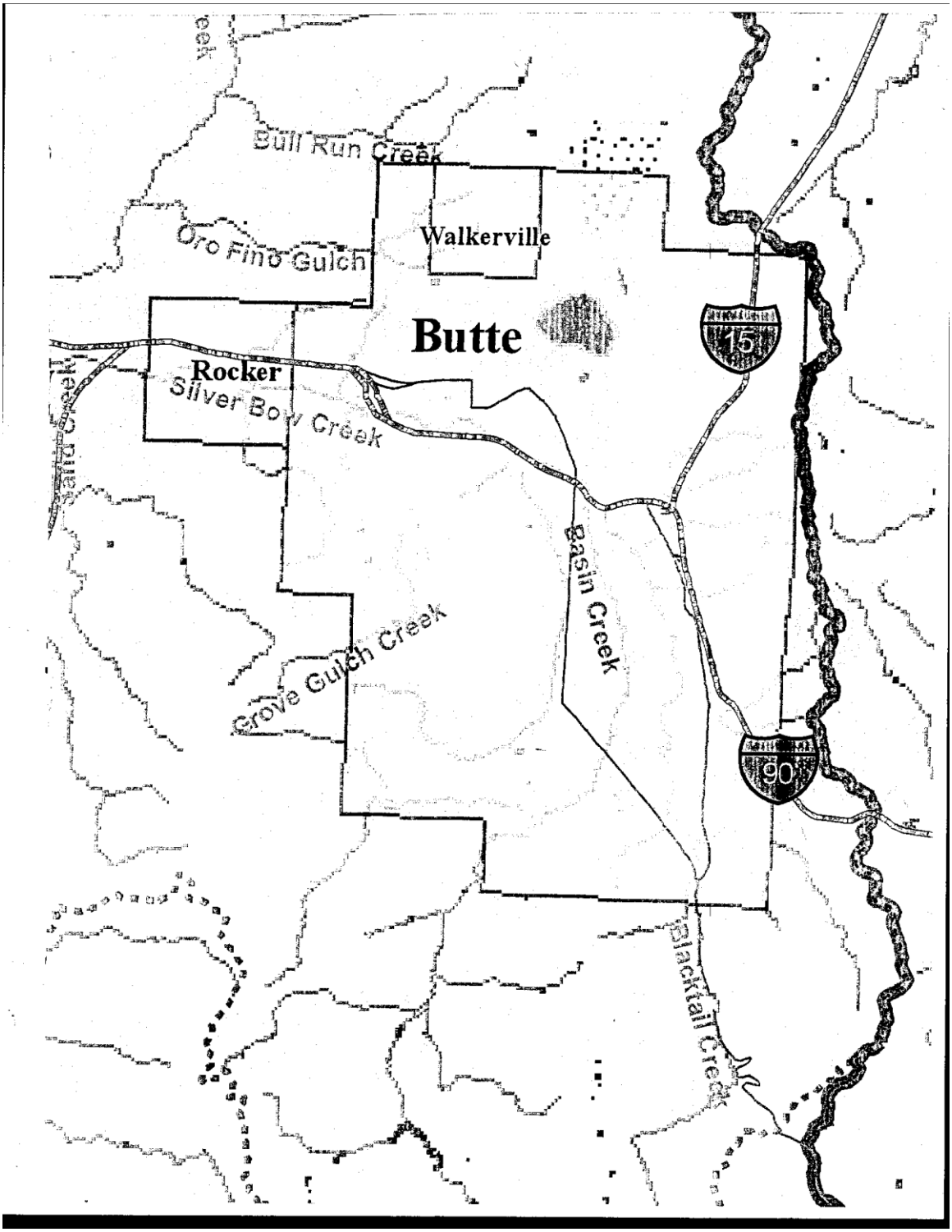
Sincerely,

Dave Klemp
Air Director
Air Resources Management Bureau
Montana Department of Environmental Quality

Dan Powers
Interim Health Department Director
Butte Silver-Bow Health Department

cc: EPA Region 8 Catherine Roberts (303) 312-6025

APPENDIX C. Local Air Quality Regulations



Butte-Silver Bow Air Pollution Control District

COUNCIL BILL NO. 12-1

ORDINANCE NO. 12-1

AN ORDINANCE REPEALING CHAPTER 16 OF TITLE 8 OF THE BUTTE-SILVER BOW MUNICIPAL CODE ENTITLED "AIR POLLUTANTS" AND REPLACING IT WITH A NEW CHAPTER 16 TO BE ENTITLED "AIR QUALITY CONTROL", ESTABLISHING REGULATIONS FOR THE CONTROL AND MANAGEMENT OF AIR QUALITY; ESTABLISHING AN AIR POLLUTION CONTROL DISTRICT; ESTABLISHING A SOLID FUEL BURNING DEVICE AND CONTROL PROGRAM; REGULATING THE USE OF OUTDOOR WOOD FURNACES; ESTABLISHING DUST CONTROL REGULATIONS; REGULATING OPEN BURNING IN SILVER BOW COUNTY; PROVIDING FOR PERMITS; PROVIDING PENALTIES FOR VIOLATION; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE HEREIN.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF COMMISSIONERS OF THE CITY AND COUNTY OF BUTTE-SILVER BOW, STATE OF MONTANA:

SECTION 1: 8.16.010 Intent. The purpose of this chapter is to achieve and maintain levels of air quality that will protect human health and safety and, to the greatest degree practicable, prevent injury to plant and animal life and property,

foster the comfort and convenience of the people, promote economic and social development, and facilitate the enjoyment of the natural attractions within Butte-Silver Bow as provided in Section 75-2-102(2) MCA.

8.16.020 Scope. Unless otherwise indicated, this chapter applies to all persons, agencies, institutions, businesses, or government entities living or located within the Air Pollution Control District except for sources exempt from local government regulation under 75-2-301(5), MCA.

8.16.030 Definitions: As used in this chapter, unless indicated otherwise, the following definitions apply:

(1) "Air Contaminant" means dust, fumes, mist, smoke, or any particulate matter vapor, gas, odorous substances, or any combination thereof

(2) "Air Pollution Control District" means the real property described as follows:

Beginning at the northwest corner of Section 2, Township 3 North, Range 8 West; thence easterly to the northeast corner of Section 5, T3N R7W; thence southerly to the northwest corner of Section 9, T3N, R7W; thence easterly to the northeast corner of Section 10, T3N, R7W; thence southerly to the southeast corner of Section 22, T2N, R7W; thence westerly to the southwest corner of Section 19, T2N, R7W; thence northerly to the northwest corner of Section 19, T2N, R7W; thence westerly to the southwest corner of Section 14, T2N, R8W; thence northerly to the southwest corner of Section 35, T3N, R8W; thence westerly to the southwest corner of Section 34, T3N, R8W; thence northerly to the northwest corner of Section 27, T3N, R8W; thence westerly to the southwest corner of Section 20, T3N, R8W; thence northerly to the northwest corner of Section 17, T3N, R8W; thence easterly to the

northwest corner of Section 14, T3N, R8W; thence northerly to the point of beginning.

A map of the above-described geographical area is available and on file in the City-County's Clerk and Recorder's office.

(3) "Air Quality Categories" means: "Good", "Poor", and "Alert" categories correlating with measured PM-2.5 concentrations.

a. "Good Air Quality" means Ambient particulate matter (PM) concentrations averaged over an eight hour period that are equal to or less than 40 percent of the most current NAAQS/MAAQS (24 hour standard).

b. "Poor Air Quality" means Ambient particulate matter (PM) concentrations averaged over an eight hour period that are between 40-75 percent of the most current NAAQS/MAAQS (24 hour standard).

c. "Alert Air Quality" means Ambient particulate matter (PM) concentrations averaged

over an eight hour period that are equal to or greater than 75 percent of the most current NAAQS/MAAQS (24 hour standard).

(4) "Best Available Control Technology" (BACT) means those techniques and methods of controlling emissions of pollutants from an existing or propose open burning source which limit those emissions to the maximum degree which the department determines, on a case-by-case basis, is achievable for that source, taking into account impacts on energy use, the environment, and the economy, and any other costs, including cost to the source.

(5)"Burn Barrel" means any metal, ceramic, or other non-combustible devices, including, but not limited to, 55 gallon drums used for burning.

(6) "Department" means the Butte-Silver Bow County Health Department.

(7) "DEQ" means the Montana Department of Environmental Quality.

(8) "Emission" means a release into the outdoor atmosphere of an air contaminant.

(9) "EPA" means the US Environmental Protection Agency.

(10) "EPA Federal Reference Method 9" means Title 40 CFR 60. Appendix A to Part 60.

(11) "Government" means the local government of Butte-Silver Bow.

(12) "MAAQS" means the Montana Ambient Air Quality Standards.

(13) "NAAQS" means the National Ambient Air Quality Standards.

(14) "Opacity" means a measurement of visible emissions defined as the degree expressed in percent to which emissions reduce the transmission of light and obscures the view of an object in the background.

(15) "Outdoor Wood Furnace" means A device, appliance or apparatus, or any part thereof,

which is installed, affixed, or situated outdoors and is primarily hand loaded for the purpose of heat or energy used as a component of a heating system providing heat for any interior space or water source, including, but not limited, to An Outdoor Wood-Fired Hydronic Heater.

(a) "EPA HH Phase 2 Program" means EPA HH (Hydronic Heater) Phase 2 Program administered by the U.S. Environmental Protection Agency

(b) "EPA HH Phase 2 Program Qualified Model" means A Hydronic Heater that has been EPA HH Phase 2 Program Qualified. The model must meet the EPA HH Phase 2 particulate emission level of .32 pounds per million BTU's output and is labeled accordingly.

(c) "New Outdoor Wood Furnace" means An Outdoor Wood Furnace that is first installed, established, or constructed

after June 2012, the effective date of this ordinance.

(16) "Pellet Fuel Burning Device" means a solid fuel burning device that burns only automatically fed biomass or pelletized fuels.

(17) "Person" means an individual, partnership, firm, association, municipality, public or private corporation, the state or a subdivision or agency of the state, trust, estate, interstate body, federal government or an agency of the federal government, or any other legal entity.

(18) "PM-10" means particulate matter with an aerodynamic diameter of less than or equal to a nominal 10 micrometers.

(19) "PM-2.5" means particulate matter with an aerodynamic diameter of less than or equal to a nominal 2.5 micrometers.

(20) "Remodel" means an addition or upgrade to an existing structure which utilizes a solid fuel burning device for heating purposes.

(21) "Solid Fuel Burning Device" means any fireplace, fireplace insert, woodstove, pellet stove, pellet furnace, wood burning heater, wood-fired boiler, wood or coal fired furnace, coal stove, or similar device burning any solid fuel used for aesthetic, cooking, or heating purposes which has a rated capacity of less than 1,000,000 BTU's per hour.

8.16.040 Compatibility with other Regulations. In any case where a provision of these regulations is found to be in conflict with a provision of any zoning, building, fire, safety, or code of Butte-Silver Bow, the provision which establishes the higher standard for the promotion and protection of the health and safety of the people shall prevail.

SECTION 2: 8.16.100 Solid Fuel Burning Device Control Program.

(1) Operating and Emission Requirements: No person may burn any material in a solid fuel burning device except uncolored newspaper, untreated wood and lumber, and products manufactured for the sole purpose of use as a solid fuel. Products manufactured or processed for use as solid fuels must conform to any other applicable provisions of this subchapter.

(2) The burning of the following materials in any solid fuel burning device is prohibited at all times:

a. any waste moved from the premises from where it was generated;

b. food wastes;

c. styrofoam and other plastics;

d. wastes generating noxious odor;

e. wood or wood by-products that have been treated, coated, painted, stained, or contaminated by a foreign material such as

papers, cardboard, or painted or stained wood;

f. poultry litter;

g. animal droppings;

h. dead animals or dead animal parts;

i. tires;

j. rubber materials;

k. asphalt shingles;

l. tar paper;

m. automobile or aircraft bodies or interiors and bodies or interiors of recreational vehicles and atv's;

n. insulated wire;

o. oil or petroleum products;

p. treated lumber or timbers;

q. pathogenic wastes;

r. hazardous wastes as defined by 40 CFR, Part 261;

s. trade wastes;

t. any materials resulting from a salvage operation;

u. chemicals;

v. Christmas tree waste;

w. Asbestos or asbestos containing materials;

x. Standing or demolished structures; and

y. Paint

z. Colored news print or magazine print;

(3) The use of coal as a fuel in a solid fuel burning device is prohibited within the Air Pollution Control District.

8.16.110 Liability. Neither the provisions of this Chapter nor the compliance with the provisions of this Chapter shall relieve any person from the responsibility for damage to any person or property otherwise imposed by law, nor shall it impose any liability upon Butte-Silver Bow for damage to any person or property.

SECTION 3: 8.16.200 Outdoor Wood Furnaces (Outdoor Wood Boilers, Outdoor Wood-Fired Hydronic Heaters and/or Other Outdoor Hydronic Heaters.

(1) This program is aimed at reducing levels of particulate matter to, or below, the current NAAQS/MAAQS.

(2) This program is necessary to preserve, protect, improve, achieve, and maintain such levels of air quality as will protect the health and welfare of the citizens of Butte-Silver Bow.

(3) This program requires that outdoor wood furnaces installed after May 18, 2012, meet the current EPA Phase 2 requirements.

8.16.210 Implementation: Only EPA HH Phase 2 Program Qualified Model or newer Outdoor Wood Furnaces may be installed and operated in the Air Pollution Control district after May 18, 2012.

8.16.220 Requirements: Outdoor Wood Furnaces must be constructed, established, installed,

operated, and maintained in conformance with the following conditions:

1. Only the following fuels may be burned in any new or existing Outdoor Wood Furnace: natural, untreated wood, wood pellets, corn products, biomass pellets, or other listed fuels specifically permitted in the manufacturer's instructions such as fuel oil, natural gas, or propane backup.

2. After May 18, 2012, any outdoor wood furnace must be located on the property in compliance with the manufacturer's setback recommendations and/or testing and listing requirements for clearance of combustible materials.

3. Required chimney heights for outdoor wood furnaces installed after May 12, 2012:

a. If located within 300 feet of any residence not served by the furnace, the chimney must be at least 2 feet higher than the peak of the residence served.

the peak of the residence served or not served, whichever is higher.

8.16.300 Solid Fuel Burning Device

1. The following regulations apply to solid fuel burning device.

(a) Within the air pollution control district, no person owning or operating a solid fuel burning device may caused, allow, or discharge emissions from such device which are of any opacity greater than twenty five (25) percent.

(b) The provisions of this subsection do not apply to emissions during the building of a new fire, for a period or periods aggregating no more than thirty (30) minutes in any four hour period.

(c) Within the Air Pollution Control District, no person owning or operating a solid fuel burning device may cause, allow, or discharge any visible emission from such device during an Air Pollution Alert declared by the Government unless a Class I Permit or a Special Needs Permit has been issued for such device.

(d) Within the Air Pollution Control District, the only wood burning devices that may be installed in any home constructed or remodeled after May 18, 2012, are EPA approved, Phase I or Phase II wood burning devices.

(e) Within the Air Pollution Control District, no person owning or operating a solid fuel burning device for which a Class 1 or Special Needs Permit has been issued may cause, allow or discharge any emissions from such device which are of an opacity greater than ten (10) percent during an Air Pollution Alert declared by the Government. The provisions of this paragraph do not apply to emissions during the building of a

(f) For the purpose of this section, the Government may declare an Air Pollution Alert to be in effect whenever the ambient concentration of PM-2.5 within the Air Pollution Control District equals or exceeds 75 percent of the "NAAQS/MAAQS" averaged over any eight (8) hour period and when scientific and meteorological data indicate the average PM-2.5 concentrations will remain at or above the NAAQS/MAAQS if an Air Pollution Alert is not called.

g. Every person operating or in control of a solid fuel burning device within the Air Pollution Control District has a duty to know when an air pollution alert has been declared by the Government.

SECTION 5: 8.16.400 Permits: The following permits are required for solid fuel burning devices:

(1) Class One Permit: The government may issue a Class I Permit for a solid fuel burning device~~s~~

if the emissions do not exceed the federal EPA standard of 4 grams per hour weighted average.

(2) Special Needs Permit: A person who demonstrates an economic need to burn solid fuel for residential space heating purposes by qualifying for energy assistance according to economic guidelines established by the U.S. Office of Management and Budget under the Low Income Energy Assistance Program (L.I.E.A.P.) as administered in the City and County of Butte-Silver Bow by the District 12 Human Resource Development Council, is eligible for a special needs permit issued by the Department. This includes a person who has been determined to be eligible for Families Achieving Independence (FAIM) or Supplemental Security Income (SSI) benefits.

(a) Application for a Special Needs Permit may be made to the Department at any time, and a Special Needs Permit is valid for a period of not more than one (1) year from the date it is

issued. A Special Needs Permit may be renewed if the applicant meets the applicable need and economic guidelines at the time of application for renewal. A Special Needs Permit is not transferable to another residence or person.

SECTION 6: 8.16.500 Dust Control Regulations: No person may place any sanding or chip seal material on any road, alley or commercial yard/lot which has durability as defined by the Montana Modified LA Abrasion Test, of greater than 7, and a fines content of material smaller than 200 mesh, as determined by standard wet sieving methods, that exceeds 3 percent oven dry weight.

8.16.510 Standards for Chemical De-Icer used on Public Streets and Public or Private Parking Lots.

(1) Any governmental entity, person, or private entity, including Butte-Silver Bow, shall use exclusively, on all public streets and public or private parking lots, an approved chemical de-icer plus a corrosion inhibitor for use on snow

packed or icy streets during winter in lieu of sanding and chip seal materials. Use of sanding and chip seal materials will be prohibited except in emergency situations or as set forth in subsection 2.

(2) Conventional sanding and chip seal materials may be used when the ambient temperature falls below 10°F.

SECTION 7: 8.16.600 Open Burning: the following regulations shall apply to any open burning conducted in the City-County of Butte-Silver Bow, Montana.

(1) Prior to open burning, a person must obtain an Open Burning Permit from the Butte Silver Bow Fire Department. Open burning must comply with sections 17.8.601 and 17.8.606 ARM.

(2) Open Burning must comply with "Best available control technology" (BACT)

(3) Open Burning is not allowed from December 1st through the last day of February.

(4) Open Burning may be allowed from March 1st through August 31st, if the Department determines there is proper dispersion in the Air Pollution Control District.

(5) Open Burning is also allowed from September 1st through November 30th when the Department reports good ventilation.

(6) The burning of the following materials is prohibited at all times:

a. any waste moved from the premises from where it was generated;

b. food wastes;

c. styrofoam and other plastics;

d. wastes generating noxious odor;

e. wood or wood by-products that have been treated, coated, painted, stained, or contaminated by a foreign material such as papers, cardboard, or painted or stained wood;

f. poultry litter;

g. animal droppings;

h. dead animals or dead animal parts;

i. tires;

j. rubber materials;

k. asphalt shingles;

l. tar paper;

m. automobile or aircraft bodies or interiors, and bodies or interiors of recreational vehicles and atv's;

n. insulated wire;

o. oil or petroleum products;

p. treated lumber or timbers;

q. pathogenic wastes;

r. hazardous wastes as defined by 40 CFR, Part 261;

s. trade wastes;

t. any materials resulting from a salvage operation;

u. chemicals;

v. Christmas tree waste;

w. Asbestos or asbestos containing materials;

x. Standing or demolished structures; and

y. Paint;

z. Colored news print or magazine print.

(7) Allowing burning stumps, grass clippings, leaves, or other similar materials that may be burned under this chapter, to smolder overnight is prohibited.

(8) The use of burn barrels, or other such devices, is prohibited.

SECTION 8: 8.16.700 Enforcement: The provisions of this ordinance shall be enforced as follows:

(1) The Department, Butte Silver Bow Fire Department, and the appropriate law enforcement officials shall be responsible for enforcement of this ordinance.

(2) Class I Permits and Special Needs Permits for residential solid fuel burning devices may be issued, denied, suspended or revoked.

SECTION 9: 8.16.800 Penalties: The penalties for violations of this chapter are as follows:

(1) First Violation - Written educational warning by the Department

(2) Second Violation - Twenty Five Dollars ($25.00)

(3) Third Violation - Fifty Dollars ($50.00)

(4) A fourth or subsequent violation of this Ordinance constitutes a MISDEMEANOR punishable by a fine not to exceed $500.00 or imprisonment in the county jail for a term not to exceed six (6) months, or by both a fine and imprisonment.

(a) No person or entity may be cited for a violation of this Ordinance more than once in any Calendar Day. However, each Calendar Day of violation may be considered a separate offense.

(b) Only those violations of this Ordinance by a person or entity which have occurred within one (1) year of a present offense may be considered as prior violations.

(c) Jurisdiction shall be in the City Court of the City-County of Butte Silver Bow, Montana.

SECTION 10: Severability: If any provision of this Ordinance or any section thereof, in any circumstances is held invalid, the validity of the remainder of the Ordinance and of the application of any of the other provisions or sections shall not be affected.

SECTION 11: Repealer: All ordinances and resolutions in conflict herewith are repealed.

SECTTION 12: Effective Date: This Ordinance shall be in full force and effect from and after thirty (30) days after its passage and approval.

PASSED this 18th day of April, 2012.

DAVID PALMER
CHAIRMAN OF THE COUNCIL OF COMMISSIONERS

APPROVED this 18th day of April, 2012.

PAUL DAVID BABB
CHIEF EXECUTIVE

ATTEST:

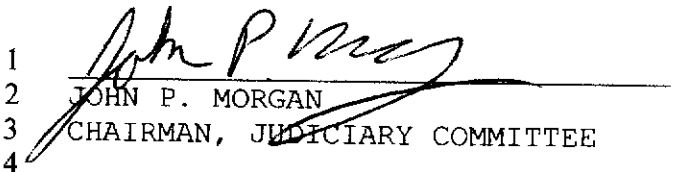
SALLY J. HOLLIS
CLERK AND RECORDER

BY Sally J Hollis
ITS

BUTTE-SILVER BOW 5-2-77 STATE OF MONTANA

APPROVED AS TO FORM:

EILEEN JOYCE
COUNTY ATTORNEY



JOHN P. MORGAN
CHAIRMAN, JUDICIARY COMMITTEE