Idaho Area Designation Recommendations for the 2006 $PM_{2.5}$ NAAQS

State of Idaho
Department of Environmental Quality

Idaho Area Designation Recommendations for the 2006 $PM_{2.5}$ NAAQS

Contents

List of Tables

List of Figures

Executive Summary

In a July 20, 2007 letter, the Environmental Protection Agency (EPA) formally requested that Governor Otter submit a list of all areas of Idaho, including a recommendation for designation of each area, regarding attainment of the National Ambient Air Quality Standards (NAAQS) for fine particulate matter ($PM_{2.5}$).

Designation recommendations must adhere to EPA policy. For areas designated as nonattainment, EPA recommends determining the nonattainment area (NAA) boundary on a case-by-case basis using the nine-factor analysis suggested in EPA guidance. The nine-factor analysis includes the following:

1. Emissions in areas potentially included vs. excluded from the NAA
2. Air quality in areas potentially included vs. excluded from the NAA
3. Population density and the degree of urbanization, including commercial development, in areas potentially included vs. excluded from the NAA
4. Traffic and commuting patterns
5. Expected growth (including extent, pattern, and rate of growth)
6. Meteorology (weather/transport patterns)
7. Geography/topography (mountain ranges or other air basin boundaries)
8. Jurisdictional boundaries (e.g., counties, air districts, reservations, etc.)
9. Level of control of emission sources.

Based on monitoring data and the nine-factor analysis, DEQ recommends the following designations:

- Attainment – the airsheds of Benewah County, the Treasure Valley (Ada and Canyon Counties), and Pocatello (Bannock County).
- Nonattainment – the airsheds of Pinehurst (portion of Shoshone County) and the Idaho portion of the Cache Valley (a portion of Franklin County, Idaho).
- Unclassifiable – all remaining airsheds not identified above.

DEQ used the nine-factor analysis to determine the appropriate boundary for each of the areas designated as nonattainment. Figures 15 (page 24) and 21 (page 36) present the recommended NAA boundary for the Pinehurst area and the Idaho portion of the Cache Valley, respectively. The legal descriptions of recommended designated areas are included in Table 13 in Appendix A.

1. Purpose and Background

The Environmental Protection Agency (EPA) revised the national ambient air quality standards (NAAQS) on October 17, 2006, to provide increased protection of public health and welfare from fine particle pollution. The 24-hour standard for $PM_{2.5}$ (particles with an aerodynamic diameter of 2.5 micrometers or less) was revised from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$. The annual standard remained unchanged at 15 $\mu g/m^3$. The effective date for the new standard was December 18, 2006.

The state of Idaho is required to submit to EPA a list of all areas in the state and to recommend designations for each area as "attainment," "nonattainment," or "unclassifiable" with respect to the revised standard within one year of promulgation, in accordance with section 107(d)(1)(A) of the Clean Air Act. The recommendations are due to EPA by December 18, 2007.

The Clean Air Act allows that areas may be designated as follows:

(i) nonattainment, for any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant;

(ii) attainment, for any area (other than an area identified by clause (i)) that meets the national primary or secondary ambient air quality standard for the pollutant; and

(iii) unclassifiable, for any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

This document provides Idaho's recommendations for $PM_{2.5}$ designations of all areas within the state and fulfills Idaho's requirements under section 107(d)(1)(A) of the Clean Air Act.

2. Applicable Guidance

The following EPA guidance was used for developing the $PM_{2.5}$ area designation recommendations:

- *Area Designations for the Revised 24-hour Fine Particle National Ambient Air Quality Standard*; Memo from Robert Meyers, Acting Assistant Administrator to Regional Administrators, dated June 8, 2007.

- *Designations for the Fine Particle National Ambient Air Quality Standards*; Memo from Jeffrey R. Holmstead, Assistant Administrator to Regional Administrators, dated April 1, 2003.

3. Ambient Air Quality Data

EPA recommends that states identify violating areas using the most recent three years of air quality monitoring data (2004 – 2006). In general, violations are identified using data from

federal reference method (FRM) and federal equivalent method (FEM) monitors that are sited and operated in accordance with 40 Code of Federal Regulations (CFR) Part 58, as revised on October 17, 2006. Idaho's $PM_{2.5}$ ambient monitoring network is shown in Figure 1. Currently operating monitors are indicated with a star; all others were operated previously but are no longer.

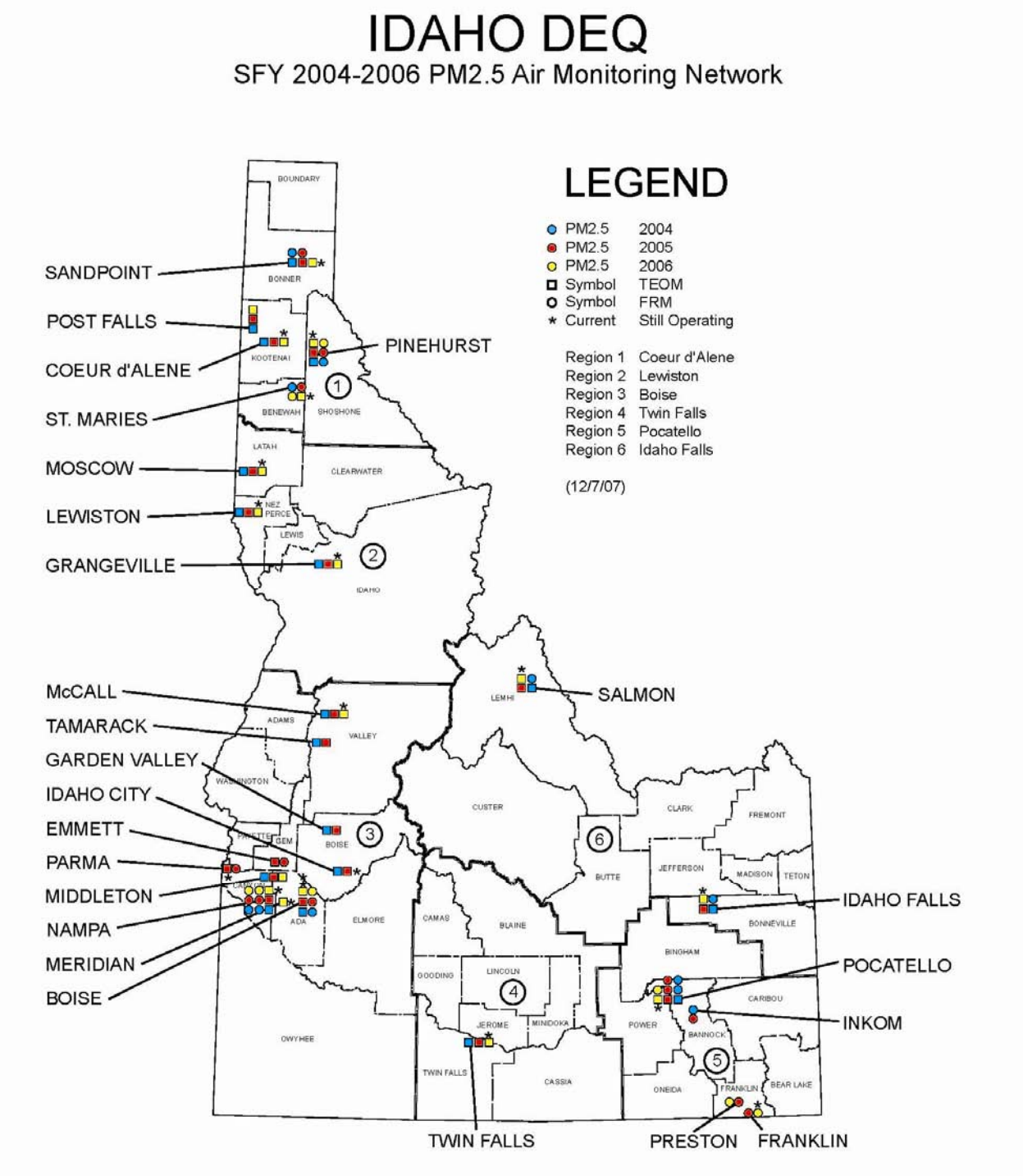

Figure 1. Idaho $PM_{2.5}$ Ambient Air Monitoring Network.

Tables 1 and 2 present the annual and 24-hour $PM_{2.5}$ design values, respectively, for those monitors that met the CFR requirements for determining $PM_{2.5}$ violations. The precise design value for each standard is described in the appropriate table.

Table 1. Annual $PM_{2.5}$ Design Values[a]

City	County	MSA[b]	Weighted Annual Arithmetic Mean			3-Year Average of Annual Means[c]
			2004	2005	2006	2004 – 2006
Pocatello	Bannock	Pocatello, ID	8.69	8.18	6.36	7.7
St. Maries	Benewah	N/A	9.30	9.51	9.69	9.5
Logan, Utah[d]	*Cache*	*Logan, UT - ID*	*15.17*	*12.95*	*8.54*	*12.2*
Boise	Ada	Boise City – Nampa Idaho	8.98	8.59	7.99	8.5
Nampa	Canyon	Boise City – Nampa Idaho	9.10	9.22	7.61	8.6
Pinehurst	Shoshone	N/A	12.04	12.71	11.52	12.1

a. Annual $PM_{2.5}$ design value is the 3-year average of the annual means.

b. MSA – metropolitan statistical area

c. A value of 15.1 or greater indicates a violation.

d. The Logan, Utah monitor is included because the city of Franklin in Franklin County, Idaho is part of the Logan, UT-ID Metropolitan Statistical Area. The Franklin County monitor does not meet the CFR requirements for determining $PM_{2.5}$ violations.

Table 2. 24-hour $PM_{2.5}$ Design Values[a]

City	County	MSA[b]	$PM_{2.5}$ 24-hour 98th Percentile			3-Year Average of 98th Percentiles[c]
			2004	2005	2006	2004 – 2006
Pocatello	Bannock	Pocatello, ID	32.5	29.8	20.6	28
St. Maries	Benewah	N/A	24.8	34.3	32.9	31
Logan, Utah[d]	*Cache*	*Logan, UT - ID*	*101.5*	*56.7*	*29.4*	***63***
Boise	Ada	Boise City – Nampa Idaho	35.5	26.4	28.5	30
Nampa	Canyon	Boise City – Nampa Idaho	43.8	36.3	22.4	34
Pinehurst	Shoshone	N/A	35.7	45.7	33.5	**38**

a. 24-hour PM2.5 design value is the 3-year average of the 98th percentile for each year.

b. MSA – metropolitan statistical area.

c. A value of 36 or greater indicates a violation, and is indicated in bold face.

d. The Logan, Utah monitor is included because the city of Franklin in Franklin County, Idaho is part of the Logan, UT-ID MSA. The Franklin County monitor does not meet the CFR requirements for determining PM2.5 violations.

Based on the available monitoring data in Idaho that meets the 40 CFR Part 58 requirements for 2004 – 2006, only Pinehurst in Shoshone County has a design value exceeding the 24-hour $PM_{2.5}$ NAAQS. Therefore, DEQ recommends that portions of Shoshone County be designated as nonattainment.

DEQ does not have three consecutive years of monitoring data on which to base an attainment decision for Franklin County. However, available monitoring data from Franklin County does show a significant relationship with data from the Logan monitor (Figure 2). Values from Franklin County data average about 90% of Logan values. This is consistent with the findings of a $PM_{2.5}$ saturation study conducted by Utah's DEQ. Based on the 2004-2006 data collected by the Logan monitor, the Cache County design value for the 24-hour NAAQS is 63 $\mu g/m^3$ and it is appropriate to conclude that a portion of Franklin County should be included as part of the area that violates the 24-hour NAAQS. Therefore, DEQ recommends a portion of Franklin County be designated as nonattainment.

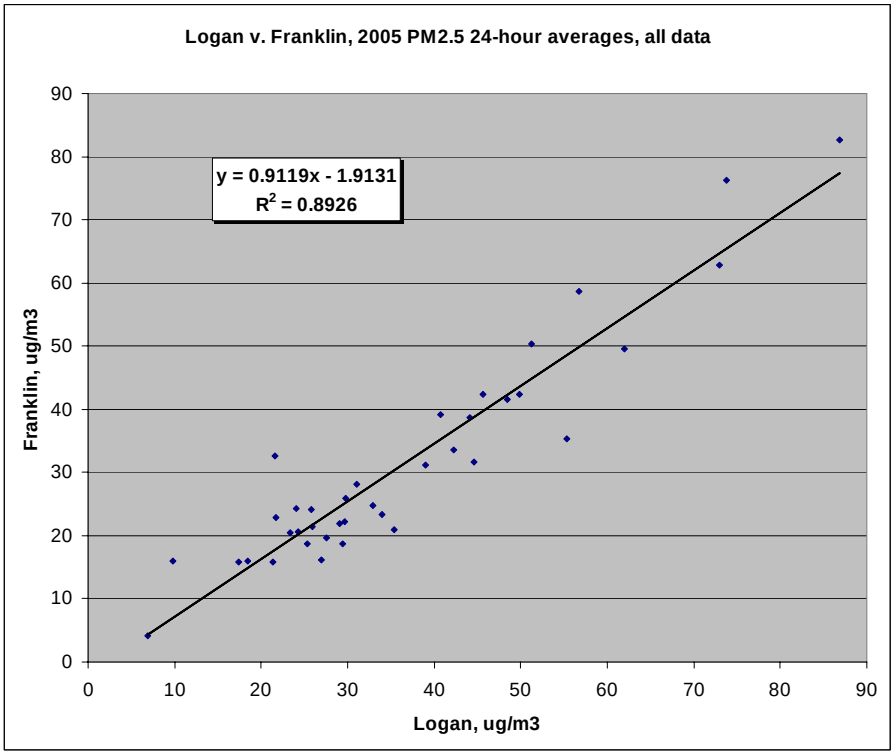

Figure 2. Relationship of Franklin, Idaho and Logan, Utah FRM data.

4. Nonattainment Boundaries for the Areas Violating the 24-hour $PM_{2.5}$ Standard – Nine-Factor Analysis

According to EPA's June 2007 Guidance Memorandum by Robert J. Meyers:

"EPA believes that, in making their boundary recommendations for nonattainment areas, States and Tribes should evaluate each area on a case-by-case basis. The CAA requires that a nonattainment area must include not only the area that is violating the standard, but also nearby

areas that contribute to the violation. Thus, for each monitor or group of monitors that indicate violations of a standard, EPA will establish nonattainment boundaries that cover a sufficiently large area to include both the area that violates the standard and the areas that contribute to the violations. EPA recommends that States and Tribes base their boundary recommendations for violating areas on an evaluation of the nine factors used in the prior $PM_{2.5}$ designations process, as well as on any other relevant factors or circumstances specific to a particular area."

Both of Idaho's proposed nonattainment counties are rural; therefore, it would not be appropriate to identify the entire counties as nonattainment. Instead, Idaho evaluated Pinehurst in Shoshone County and Franklin County using the nine-factor analysis recommended in EPA guidance to determine the appropriate NAA boundary for each area. Both NAA boundaries must cover a sufficiently large area to include both the area that violates the standard and the areas that contribute to the violations.

4.1 Pinehurst – Shoshone County Nonattainment Area Boundaries

As can be seen in Figure 3, the town of Pinehurst is located in a small, enclosed, bowl-shaped valley in Shoshone County, Idaho. Based on air quality data for 2004-2006, the $PM_{2.5}$ FRM located at the Pinehurst Elementary School recorded violations of the 24-hour $PM_{2.5}$ standard, with a design value of 38 $\mu g/m^3$ (Table 2).

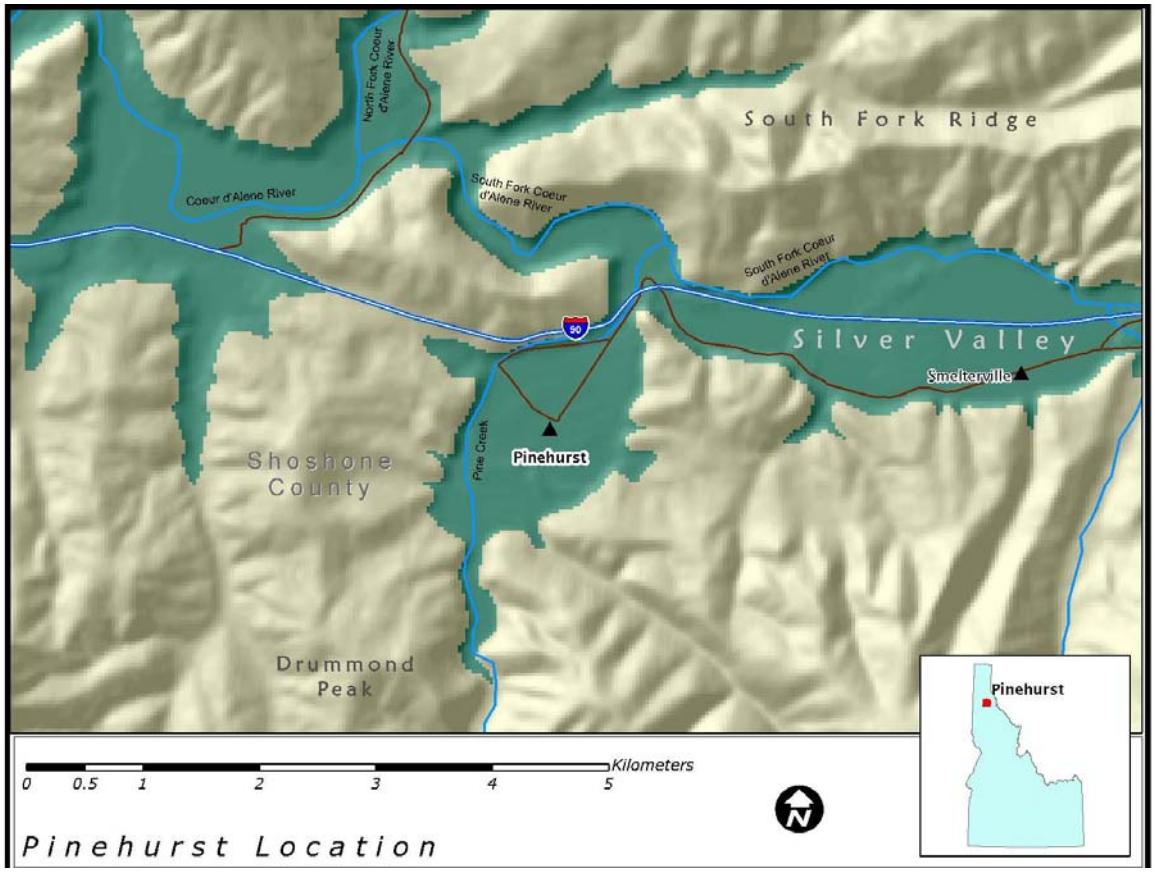

Figure 3. Location map showing Pinehurst and the main valley of the Coeur d'Alene River, known as the Silver Valley.

FACTOR 1: Emissions in areas potentially included vs. excluded from the NAA

There are no major particulate-emitting industrial sources located in Shoshone County; wildfire and prescribed burning are large contributors to regional emissions totals during spring, summer, and fall.

Shoshone County has emissions totals similar to those of adjacent counties in Idaho and Montana (Table 3). Shoshone and these bordering counties largely lack commercial and industrial development. The exceptions are Kootenai County's Coeur d'Alene area and the town of Sandpoint in Bonner County. Both of these areas have much higher population densities and are home to several industrial point sources, so the emissions totals are higher. Both Coeur d'Alene and Sandpoint are at least 45 kilometers to the west of the Pinehurst area.

The Idaho 2005 emissions inventory indicates sources of pollutants in Shoshone County are residential wood heating, tailpipe emissions, paved road fugitive dust, and asphalt paving. With sparse roadway miles and low vehicles miles travelled, wood heating of homes is the predominant emissions source in Pinehurst. However, Pinehurst is surrounded by state owned and privately owned timber lands. Slash burning occurs on these lands and is a large emissions source in this area. Smoke generated from local slash burning activities has been directly linked to recent excursions of the $PM_{2.5}$ 24-hour standard. Open burning of yard debris is also considered a significant contributor to $PM_{2.5}$ concentrations buildup in the Pinehurst airshed.

Table 3. Annual emissions after prescribed and wild fire emissions are deducted[a]

County	SO_x (TPY)	NO_x (TPY)	NH_3 (TPY)	VOC (TPY)	$PM_{2.5}$ (TPY)
Shoshone	68	998	52	2963	289
Benewah	81	863	217	2029	208
Bonner	331	4440	272	6019	944
Clearwater	74	837	227	2043	128
Kootenai	458	6339	1290	10628	2000
Latah	191	2278	813	3770	579
Mineral (MT)	87	933	133	609	195
Sanders (MT)	75	525	229	617	298

a. http://www.epa.gov/ttn/naaqs/pm/pm25_2006_techinfo.html (2005 NEI)

SO_x – oxides of sulphur; NO_x – oxides of nitrogen; NH_3 – ammonia; VOC – volatile organic compound; $PM_{2.5}$ – particulate matter with an aerodynamic diameter of 2.5 micrometers or less; TPY – tons per year

FACTOR 2: Air quality in areas potentially included vs. excluded from the NAA

As seen in Table 2, the monitor located in Pinehurst has a 24-hour design value of 38 $\mu g/m^3$, which violates the 24-hour $PM_{2.5}$ standard. Currently, no other $PM_{2.5}$ air quality data, using either FRM or continuous monitors, have been collected at any other location within Shoshone County. DEQ operates real-time continuous $PM_{2.5}$ particulate monitors in several counties adjacent to Shoshone County. The data gathered from these continuous monitors indicate that these adjacent counties do not violate the $PM_{2.5}$ standard. Table 4 presents the data from continuous monitors from counties adjacent to Shoshone County, along with data from the monitor located in Pinehurst.

Table 4. 24-hour $PM_{2.5}$ monitoring data from continuous monitors in counties adjacent to Shoshone County

County (City)[a]	$PM_{2.5}$ 24-hour 98th Percentile ($\mu g/m^3$)			3-Year Average of 98th Percentiles
	2004	2005	2006	2004 – 2006
Shoshone (Pinehurst)[b]	40.2	39.6	33.8	38
Latah (Moscow)	14.6	11.3	26.9	18
Kootenai (Coeur d'Alene)	26.7	24.1	27.5	26
Bonner (Sandpoint)	21.7	19.7	24.2	22

a. An FRM monitor is located in Benewah County (St. Maries). The data for this monitor is shown in Table 2.

b. A real-time continuous $PM_{2.5}$ monitor is co-located with the FRM monitor in Pinehurst.

FACTOR 3: Population density and the degree of urbanization, including commercial development, in areas potentially included vs. excluded from the NAA

As seen in Table 5, surrounding counties, with the exception of Kootenai, have low population densities. The town of Pinehurst has a higher population density than its immediately surrounding area (Figure 4). Shoshone County has just over 13,000 residents. There are several small towns along the Interstate 90 (I-90) corridor that bisects Idaho's panhandle along the Silver Valley. According to census data from the EPA technology transfer network (TTN), these towns range in size from the largest, Kellogg with 2,296 residents, to the second-largest, Pinehurst with 1,614, to Enaville, Gem, Kinston, and Silverton, which are small enough that they do not register in the census data.

Table 5. County populations and population densities

County	2006 Population	County Size (km^2)	2006 Population Density (population per km^2)
Shoshone*	13,180	6822.1	2
Benewah	9,347	2009.9	5
Bonner	41,275	4500.4	9
Clearwater	8,324	6375.4	1
Kootenai	131,507	3225.1	41
Latah	35,029	2788.7	13
Mineral (MT)	4,057	3159.5	1
Sanders (MT)	11,138	7154.3	2

* Town of Pinehurst, Idaho population: 1,614; Pinehurst, Idaho population density: approximately 700 population per km^2. (See population density map in Figure 3.)

Sources: http://www.census.gov/popest/counties/CO-EST2006-03.html for 2006 populations; http://www.census.gov/population/censusdata/90den_stco.txt for size.

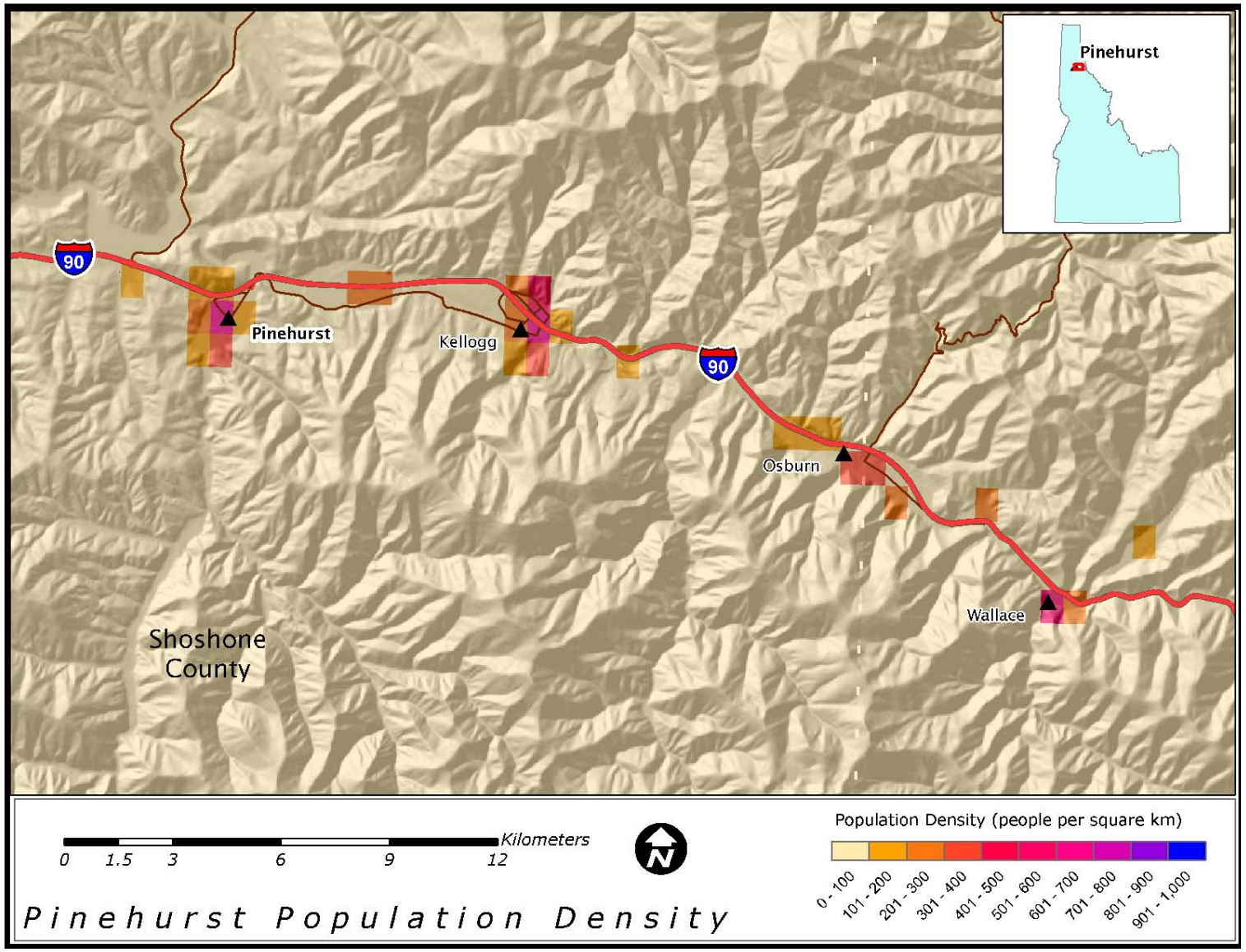

Figure 4. Population densities for the area surrounding Pinehurst (http://sedac.ciesin.columbia.edu:9080/entri/index.jsp; accessed July 1, 2007).

FACTOR 4: Traffic and commuting patterns

Several counties surrounding Shoshone County have substantially higher annual vehicle miles traveled (VMT) than Shoshone County. The following commuter information indicates that this travel is not crossing county or state borders in substantial amounts, either into or out of Pinehurst or Shoshone County.

Commuting information from the EPA TTN 2006 $PM_{2.5}$ technical data:

- Shoshone County, the county of interest, has a total of 5,275 commuters.
    - Commuters who remain in Shoshone County: 4,304
- Benewah County, an adjacent county, has a total of 3,427 commuters.
    - Commuters from Benewah County to Shoshone County: 78
    - Commuters that remain in Benewah County: 2,875
- Bonner County, an adjacent county, has a total of 15,570 commuters.
    - Commuters from Bonner County to Shoshone County: 16
    - Commuters that remain in Bonner County: 12,968
- Clearwater County, an adjacent county, has a total of 3,207 commuters.
    - Commuters from Clearwater County to Shoshone County: 3
    - Commuters that remain in Clearwater County: 2,721
- Kootenai County, an adjacent county, has a total of 49,351 commuters.
    - Commuters from Kootenai County to Shoshone County: 377
    - Commuters that remain in Kootenai County: 38,744
- Latah County, an adjacent county, has a total of 16,837 commuters.
    - Commuters from Latah County to Shoshone County: 34
    - Commuters that remain in Latah County: 13,249
- Mineral County (Montana), an adjacent county, has a total of 1,629 commuters.
    - Commuters from Mineral County to Shoshone County: 6
    - Commuters that remain in Mineral County: 1,220
- Sanders County (Montana), an adjacent county, has a total of 3,902 commuters.
    - Commuters from Sanders County to Shoshone County: 0
    - Commuters that remain in Sanders County: 3,337

Table 6 presents the VMT for Shoshone County and the bordering counties located in both Idaho and Montana. The roadways in and around Pinehurst are shown in Figure 5, along with I-90 just north of Pinehurst. The average annual VMT for the section of I-90 between Pinehurst and Smelterville is 8.18 million. The projected annual growth for the traffic on this section of I-90 is 4.5%.

Table 6. Annual VMT (vehicle miles traveled) for Shoshone County and adjacent counties

County	VMT (Millions)
Shoshone	226.8688
Benewah	153.2637
Bonner	629.6788
Clearwater	146.7322
Kootenai	852.3298
Latah	572.4237
Mineral (MT)	202.5482
Sanders (MT)	96.386

Source: EPA TTN 2005_vmt_county_level-1.xls

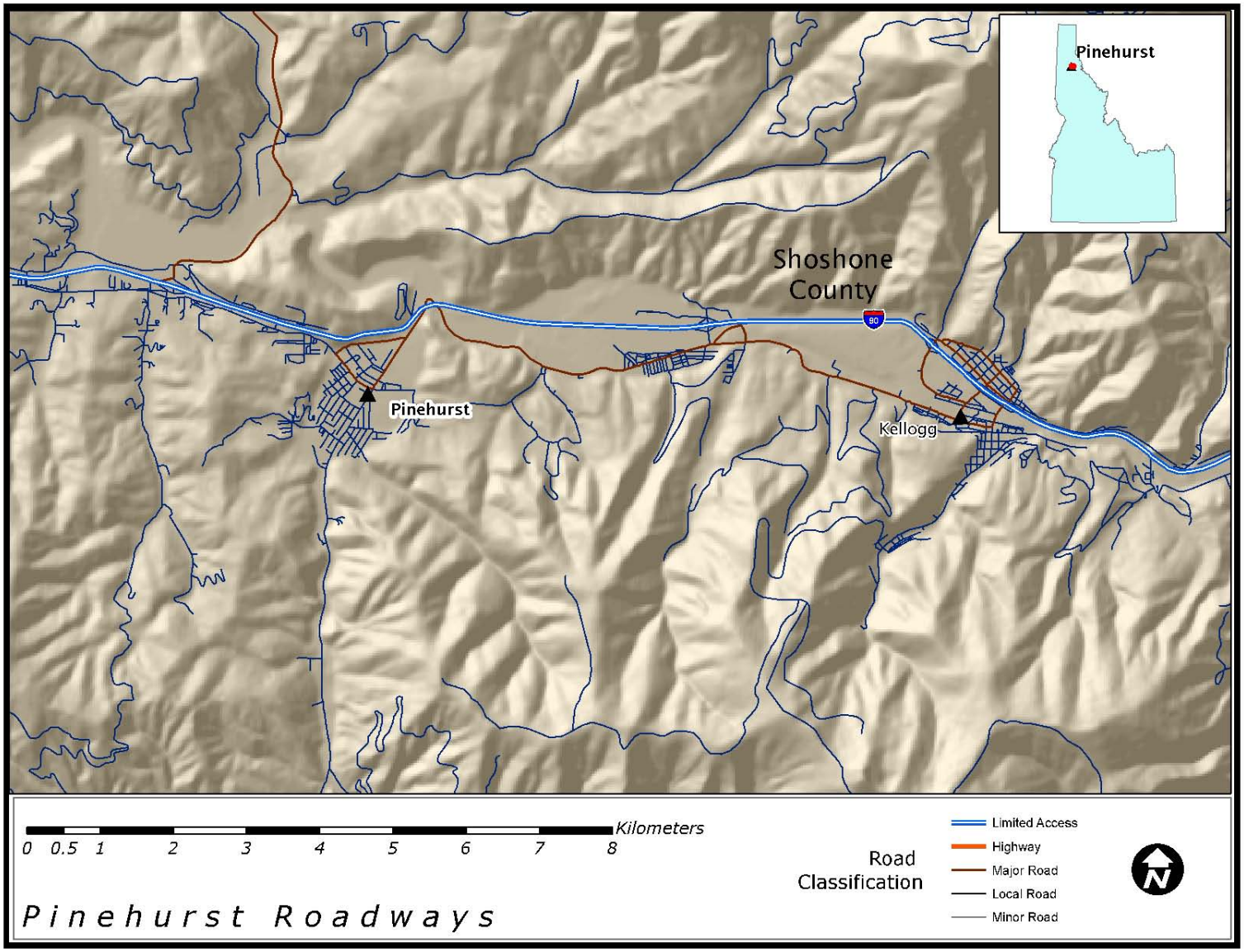

Figure 5. Roadways and interstate highway in and around Pinehurst.

FACTOR 5: Expected growth (including extent, pattern, and rate of growth)

According to 2000 and 2006 census data (Table 7), the population of Shoshone County has decreased by 4.1%. However, data from the Idaho Department of Commerce indicates a slight increase (1.3%) in Pinehurst population from 2005 to 2006. (http://cl.idaho.gov/data/census/CityPops2000-2005.xls)

Population growth is taking place in nearby Kootenai and Bonner counties. With its lakeside mountain setting, the Sandpoint area in Bonner County has become attractive to retirees, and it also provides employment; there are a few point sources located in the area. Coeur d'Alene is showing rapid growth in Kootenai County due to the same reasons. Furthermore, Coeur d'Alene is near Spokane, Washington, and it becomes even more attractive for relocating workers. These two population centers, Sandpoint and Coeur d'Alene, are more than 45 kilometers away from Pinehurst.

Population and population growth figures for Shoshone County and the adjacent counties are presented in Table 7.

Table 7. Population numbers, density, and growth figures for Shoshone County and adjacent counties

County	2000 Population	2006 Population	Growth 2000 - 2006	% Change
Shoshone*	13,747	13,180	-567	-4.1
Benewah	9,196	9,347	151	1.6
Bonner	37,031	41,275	4,244	11.5
Clearwater	8,895	8,324	-571	-6.4
Kootenai	109,550	131,507	21,957	20
Latah	34,861	35,029	168	0.5
Mineral (MT)	3,883	4,057	174	4.5
Sanders (MT)	10,253	11,138	885	8.6

* Town of Pinehurst, Idaho population: 1,614 (2006); Town of Pinehurst, Idaho population density (2006) approx. 700 pop. per sq. km (Figure3

* Town of Pinehurst, Idaho population: 1,614 (2006); town of Pinehurst, Idaho population density (2006): approximately 700 population per km^2. (See population density map in Figure 3.); town of Pinehurst, Idaho population change: -2.8% (2000 to 2006).

Sources: http://factfinder.census.gov/servlet for 2006 populations; http://www.census.gov/population/censusdata/90den_stco.txt for size; http://www.city-data.com/city/Pinehurst-Idaho.html for city data.

FACTOR 6: Meteorology (weather/transport patterns) AND

FACTOR 7: Geography/topography (mountain ranges or other air basin boundaries)

Factors 6 and 7 are discussed together because they are thoroughly interrelated.

Pinehurst is located in a valley near the western end of the Silver Valley, a historic mining area along the south fork of the Coeur d'Alene River. The Silver Valley is about 22 miles long and varies from only one-tenth of a mile to slightly more than three-fourths of a mile wide. Elevation in the western end of the valley is 2,200 feet rising to 3,300 feet at the eastern end. The city of Pinehurst sits in the Pine Creek Valley, which connects with the Silver Valley through a narrow gap. Figure 3 shows the relationship of Pinehurst and the Silver Valley.

Although the climate in northern Idaho is often influenced by moist and relatively mild Pacific storms, occasional masses of arctic air can bring bitter cold weather during the winter months. When cold, stable air is advected into the region by arctic outbreaks or cold Pacific storms following the passage of a cold front, cold air becomes pooled in the narrow mountain valleys of the region. Such cold air masses can further stabilize when high pressure aloft overtakes the region. Under such a situation, a prolonged strong inversion layer (or layers) near the ground limits vertical mixing, trapping local pollutants close to the valley floor. Weak Pacific storms are prevalent; however, they often do not produce sufficient mixing to improve air quality in this valley. Figure 6 shows the upper air temperature profiles from the Spokane Airport during one such inversion episode.

The pollutant concentrations may build from day to day when the inversion does not break up in the afternoon, as shown on the right hand side of Figure 6. During episodes such as this, emissions increase because more home heating is required due to the cold temperatures (Factor 1). The low sun angle at this latitude, short length of the days during winter months, light and variable winds, and strong likelihood of snow cover to reflect solar radiation all limit atmospheric heating and aggravate the situation. As a result, the inversion builds and may not break for many days. Under this kind of stagnation condition, pollutant concentrations may build quickly, especially in the areas like Pinehurst where airflow is greatly restricted by terrain. When local emissions are high, even short-lived overnight inversions can affect air quality sufficiently to produce high pollutant concentrations. The main Coeur d'Alene River valley (to the west) is more open and better aligned with synoptic westerly windflow and, as a result, appears to be better ventilated.

The windrose graph in Figure 7 shows the frequency of wind speed and wind direction in the Pinehurst area for a $PM_{2.5}$ stagnation episode from December 18 through December 22, 2006. The wind was light from the south for most of the time during this episode. The maximum 24-hour $PM_{2.5}$ concentration of 34.2 $\mu g/m^3$ during this episode occurred on December 22, 2006. A similar wind pattern was observed for another $PM_{2.5}$ stagnation episode (January 2-5, 2006, shown in Figure 8). The maximum 24-hour $PM_{2.5}$ concentration of 21.1 $\mu g/m^3$ occurred on January 5, 2006. These wind patterns strongly suggest that under stagnation conditions, the exchange of air mass between Pinehurst and the other communities to the east in the Silver Valley is very limited. The wind data also show that wind speed is generally low in Pinehurst year-round (Figures 9 and 10). Pollution roses (Figures 11 and 12) also show that the highest

$PM_{2.5}$ concentrations occur when winds are south-southeast. A northeastern flow can actually infiltrate this valley and improve air quality.

The airflow and dispersion patterns of the Pinehurst area were further analyzed by dispersion modeling. Modeling using the CALPUFF air quality dispersion model with 500-meter terrain resolution was conducted to simulate the episodes during January 3 – 4 and December 18 – 22, 2006. A low level hypothetical "source" (similar to a woodstove chimney) was located first in Pinehurst, then in other communities in the Silver Valley, to observe the predicted relative flow patterns during inversion conditions. Figure 13 shows the modeling results. The results show insignificant air exchange between Pinehurst and other towns in the main Silver Valley. For a hypothetical source located in Smelterville, the predicted 24-hour relative concentration impact at the Pinehurst monitor is less than 0.1% of the impact in Smelterville itself and even lower when the source was located in the other towns in the Silver Valley more distant from Pinehurst. When the hypothetical source was located in Pinehurst, the predicted 24-hour relative concentration impact in Smelterville is less than 0.1% of the impact in Pinehurst itself.

All the information presented for these two factors demonstrates that Pinehurst is largely cut off from the Silver Valley airshed. The minimal pollutant transfer behavior in the model runs is explained by the narrow gap in the terrain connecting Pinehurst with the Silver Valley. When stagnation occurs and cold air pools in Pinehurst, the cold air drains to the north, merging with the main Silver Valley drainage winds, thereby blocking the main valley flows from entering Pinehurst.

The greatest contributing emissions source to $PM_{2.5}$ concentrations above the 24-hour standard that occurs consistently is residential wood heating between the hours of 8 p.m. and 6 a.m. However, DEQ has recently gathered data, using a continuous monitor, which shows $PM_{2.5}$ concentrations greater than the 24-hour standard that have been directly linked to slash burning events. Such impacts have been reported to occur from slash burns on the ridges surrounding Pinehurst and neighboring valley floors when smoke rises toward the ridge facing away from Pinehurst, then apparently downwashes on the lee side of the ridge in Pinehurst, resulting in short-term peak concentrations. These short-term peak concentrations (1 to 2 hours) can cause an excursion of the 24-hour standard because the background concentration, due to residential wood heating, is typically already elevated when the slash burning impacts Pinehurst.

Although slash burning is infrequent and the location and time of year is rarely constant, the real-time monitoring data indicate that slash burning can contribute to a violation of the $PM_{2.5}$ 24-hour standard. These impacts suggest that the Pine Creek drainage, the nearest ridges immediately surrounding Pinehurst, and the nearest valley areas just beyond those ridges should be included in the NAA boundaries to address slash burning.

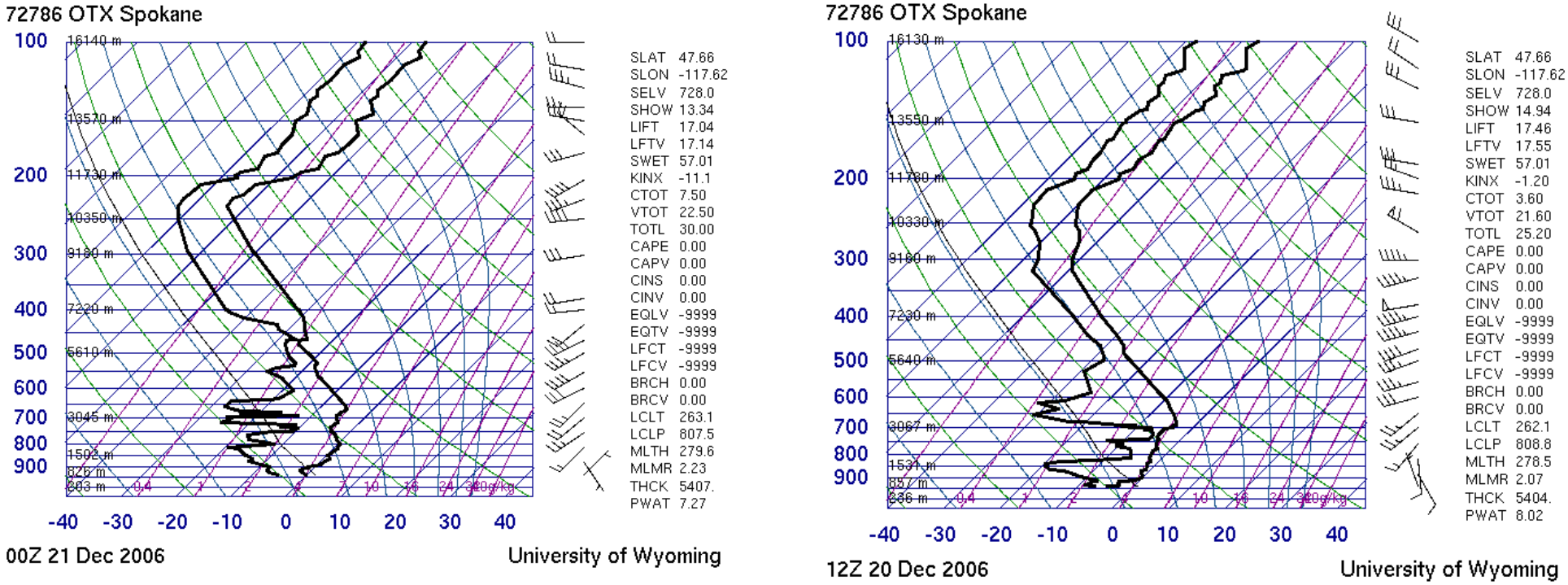

Figure 6. Temperature profiles measured at the Spokane, Washington airport on December 20, 2006, at 5:00 a.m. (left) and 5:00 p.m. (right).
A deep inversion layer persisted in the area, which did not break up during the daytime. When this occurs, pollutants remain trapped from day to day and the inversion builds.

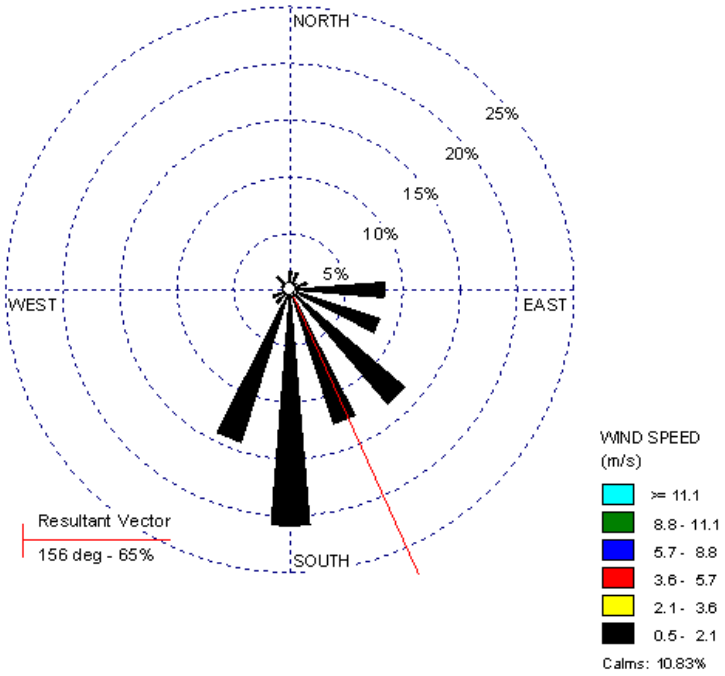

Figure 7. Windrose for Pinehurst, Idaho, December 18 – 22, 2006, the period of a $PM_{2.5}$ stagnation episode.
Very few north and northeasterly winds occurred throughout the period. This indicates that there was very little air mass exchange between Pinehurst and the nearby towns in the Silver Valley.

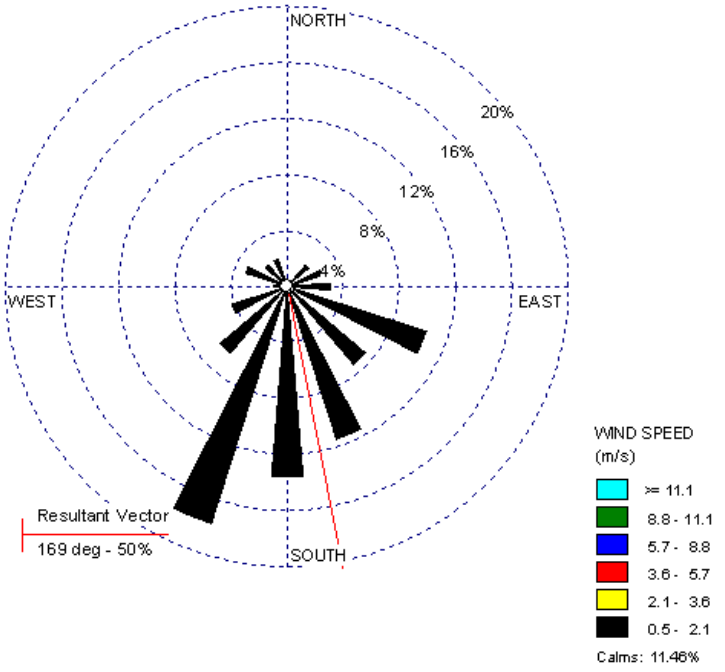

Figure 8. Wind patterns during another winter $PM_{2.5}$ stagnation episode in Pinehurst, Idaho, January 2 – 5, 2006.

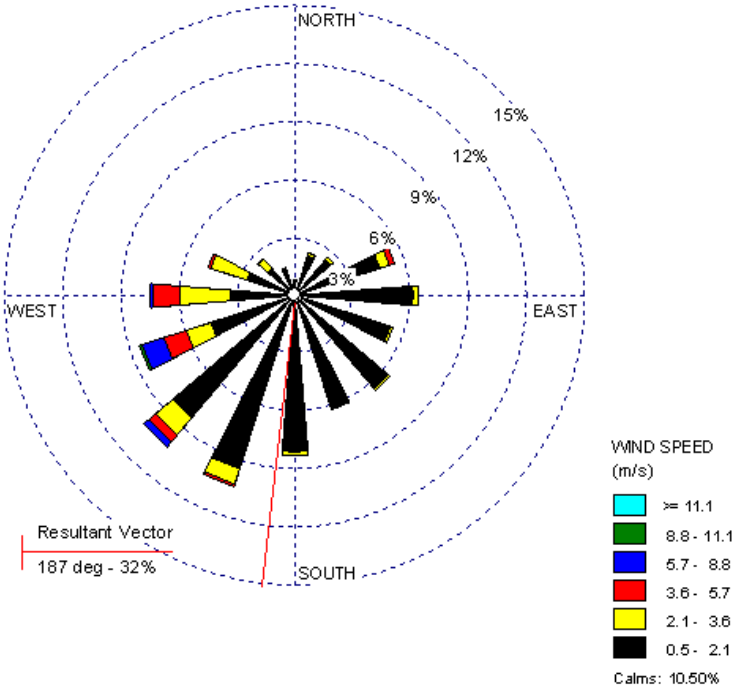

Figure 9. Annual windrose for 2006, Pinehurst, Idaho.
This shows that the wind speed in Pinehurst is generally low throughout the entire year. Winds rarely reach Pinehurst from the Silver Valley to the north and northeast.

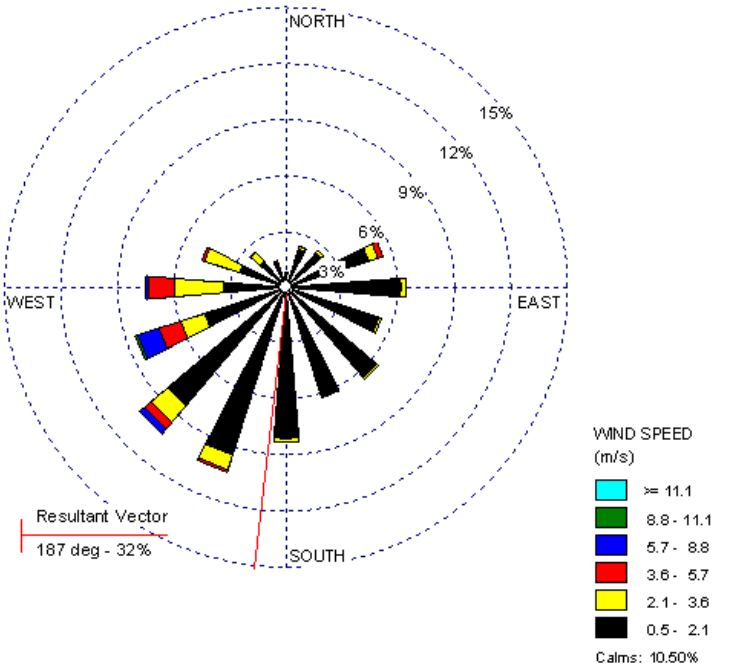

Figure 10. Windrose for Pinehurst, Idaho in the wintertime. Data from January, February, November, and December 2006.

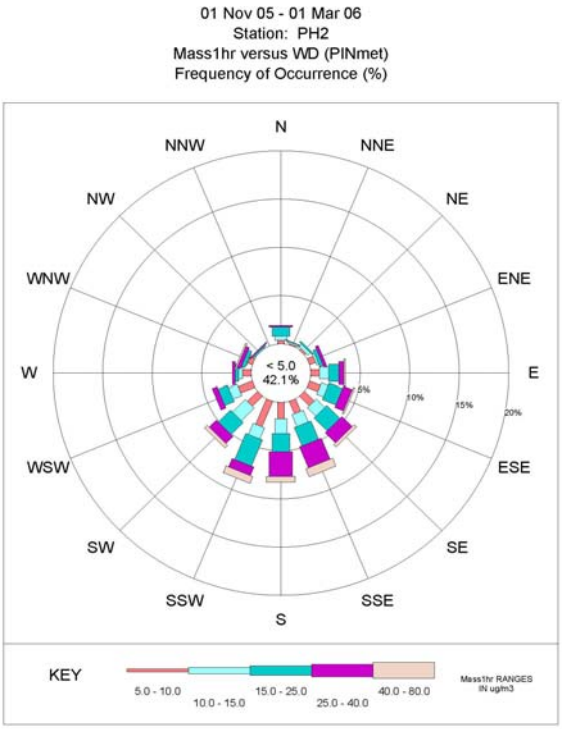

Figure 11. Pollution rose for Pinehurst, Idaho for wintertime: November 2005 – March 2006.

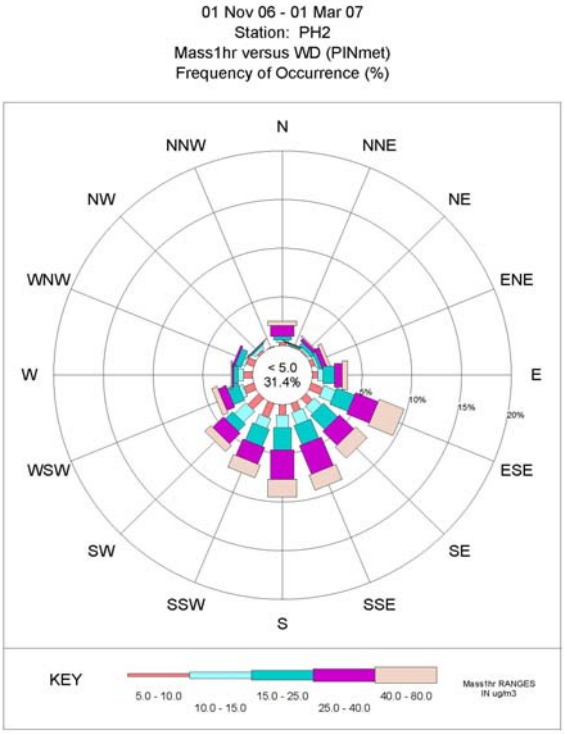

Figure 12. Pollution rose for Pinehurst, Idaho for wintertime: November 2006 – March 2007.

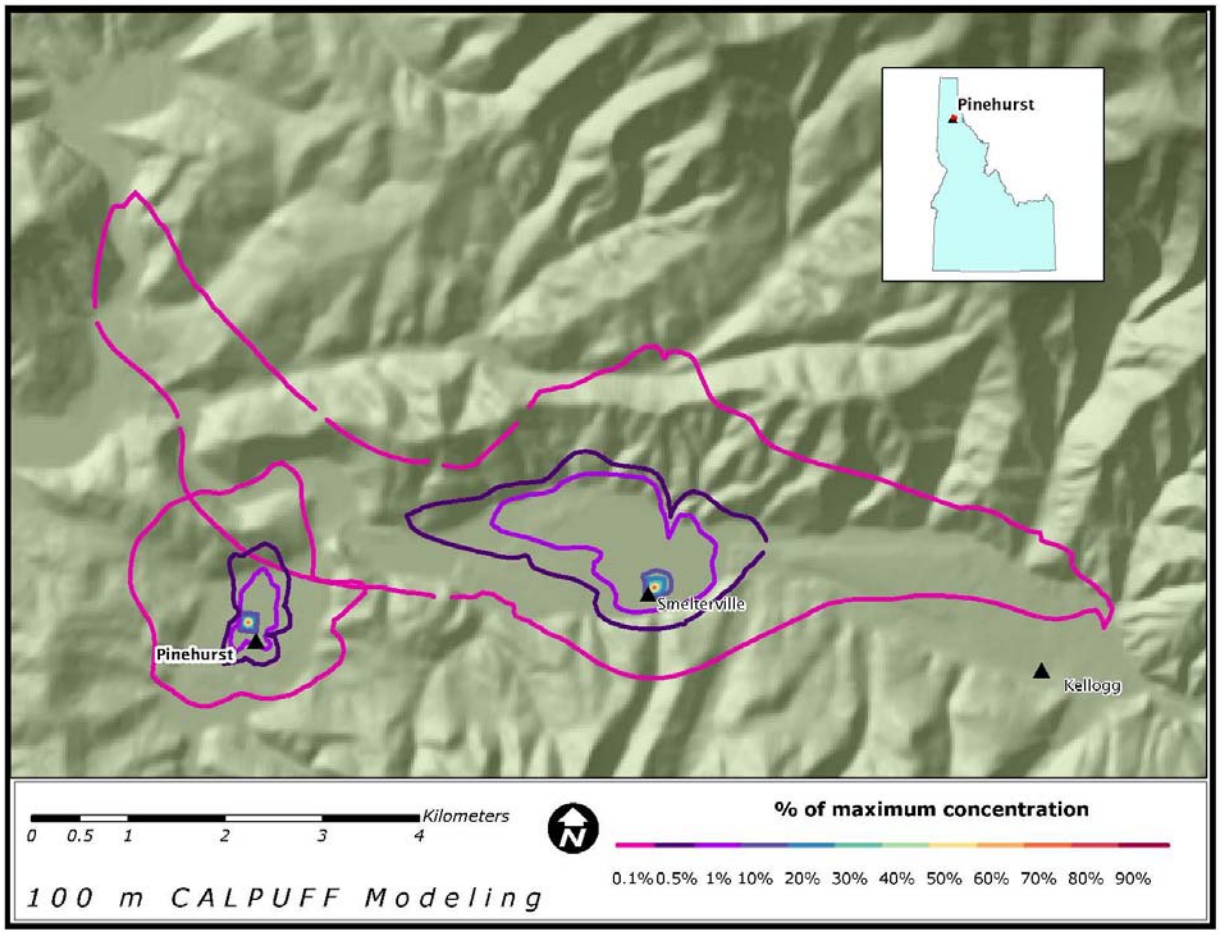

Figure 13. Modeling results of hypothetical sources, showing that sources located in the Silver Valley do not contribute to a violation of the $PM_{2.5}$ standard in Pinehurst.

FACTOR 8: Jurisdictional boundaries (e.g., counties, air districts, reservations, etc.)

The town of Pinehurst is currently designated nonattainment for PM_{10}. Figure 14 illustrates that the PM_{10} NAA does not include locations within the Silver Valley or surrounding counties. Shoshone County lies entirely within DEQ's Coeur d'Alene Region and EPA Region 10. The town of Pinehurst is also located in the Idaho/Montana Airshed Group, which implements the smoke management program for prescribed fire on both public and private lands.

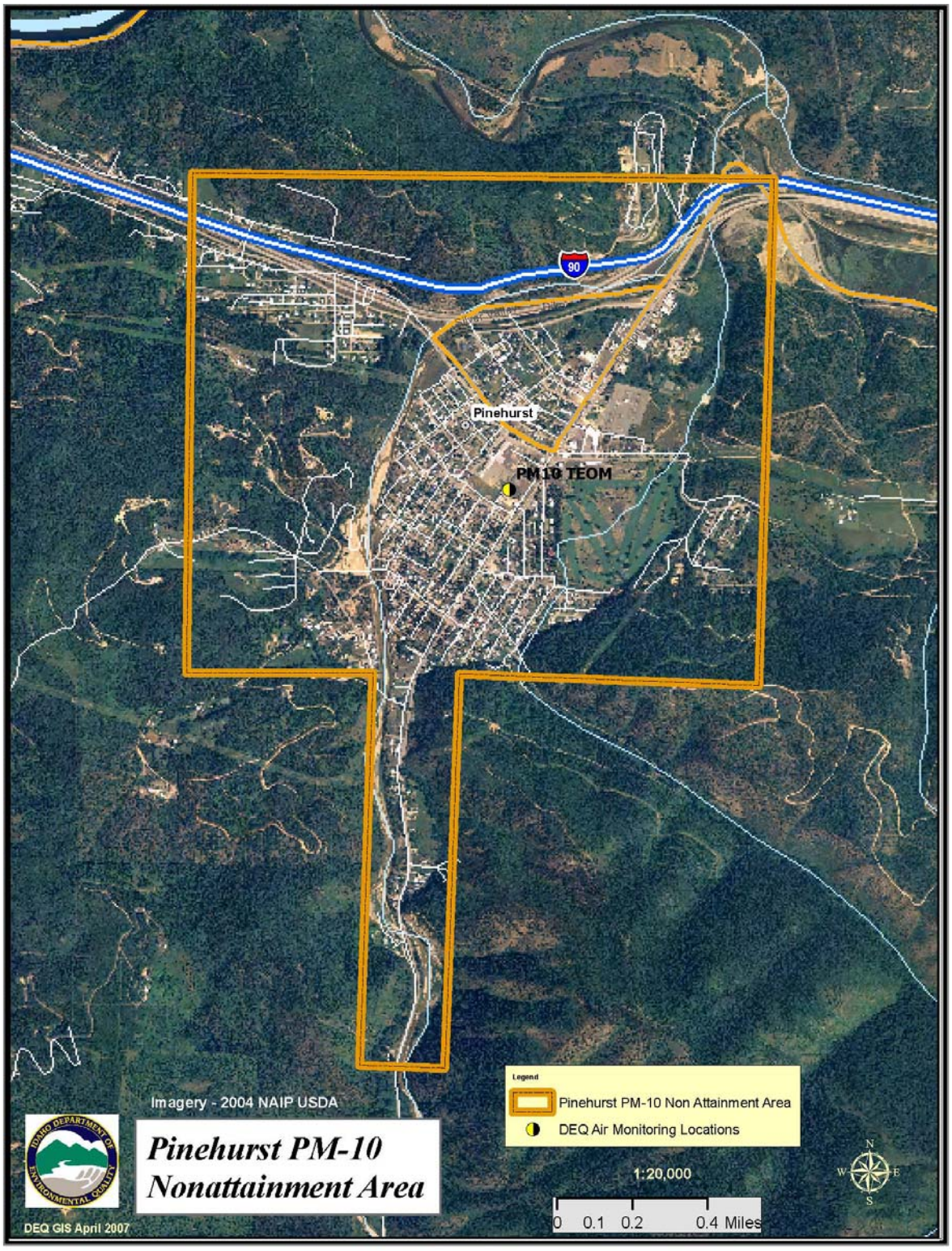

Figure 14. Pinehurst PM_{10} nonattainment area.

FACTOR 9: Level of control of emission sources

As stated above, the town of Pinehurst is currently a PM_{10} NAA, and specific voluntary controls have been implemented that partially pertain to $PM_{2.5}$ emissions. The major emissions sources of both PM_{10} and $PM_{2.5}$ in Pinehurst are residential wood heating and open burning. DEQ implements a daily air quality advisory program for woodstove and open burning from November 1 through March 31 of each year. Open burning and slash burning in the fall is currently controlled by DEQ burn bans issued based upon ventilation predictive models. The Montana/Idaho Airshed Group also participates in burning restrictions during October and November.

Proposed geographic boundaries for the Pinehurst NAA

Shoshone County is considered rural, and the main emissions sources that occur in the town of Pinehurst are residential wood heating and vehicles. However, open burning and slash burning is a large emissions source that can contribute to a violation of the 24-hour $PM_{2.5}$ standard. The location and time of occurrence of slash burning and open burning vary from year to year. Slash burning can occur on all state and privately owned land that surrounds the town of Pinehurst.

Analysis of the Pinehurst area shows that topographical features and wintertime meteorology limit transport of pollutants between the Silver Valley and Pinehurst. Pollutants emitted within Pinehurst remain trapped, and emissions from the Silver Valley do not contribute to $PM_{2.5}$ pollutant concentrations.

Due to topographical features, seasonal wintertime meteorology, and types of emission sources, DEQ determined that the appropriate boundary for the $PM_{2.5}$ nonattainment area extends beyond the current PM_{10} NAA boundary. This expanded area includes those areas where, if slash burning occurs, it could contribute to a violation of the 24-hour $PM_{2.5}$ standard.

DEQ's proposed geographic boundary for the Pinehurst $PM_{2.5}$ NAA is shown in Figure 15.

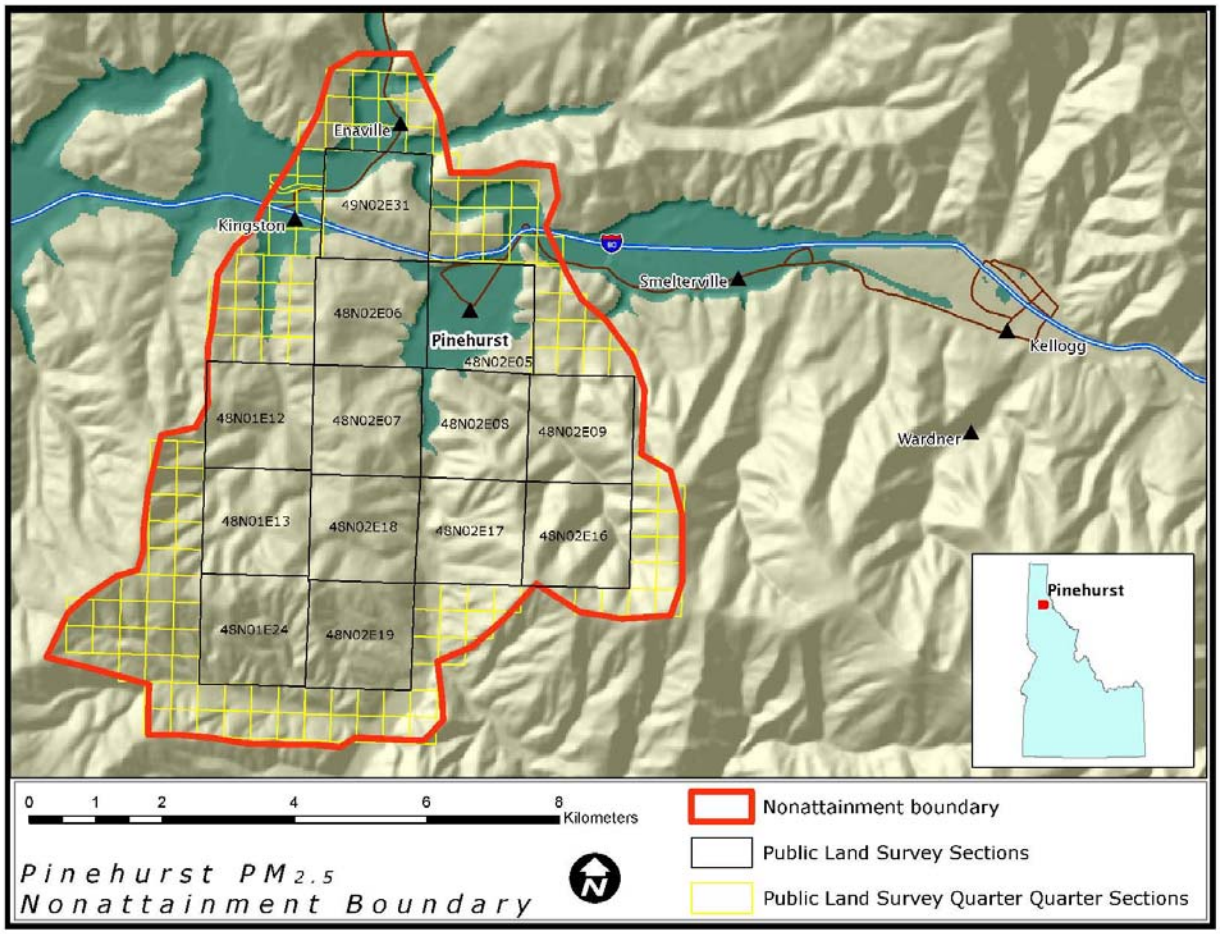

Figure 15. Proposed geographic boundary for the Pinehurst $PM_{2.5}$ nonattainment area.

4.2 Franklin County – Cache Valley Nonattainment Area Boundaries

The Cache Valley straddles the Utah-Idaho border, extending into both Cache County, Utah and Franklin County, Idaho (Figure 16). The Cache Valley is a bowl-shaped valley measuring approximately 60 kilometers north to south and 20 kilometers east to west. The Wellsville Mountains lie to the west, and on the east lie the Bear River Mountains; both are northern branches of the Wasatch Range. The Idaho portion of the valley is relatively flat, traversed by the Bear River, and dotted with small farm towns in the west and the larger towns of Preston and Franklin in the east along the benches of the Bear River Mountains.

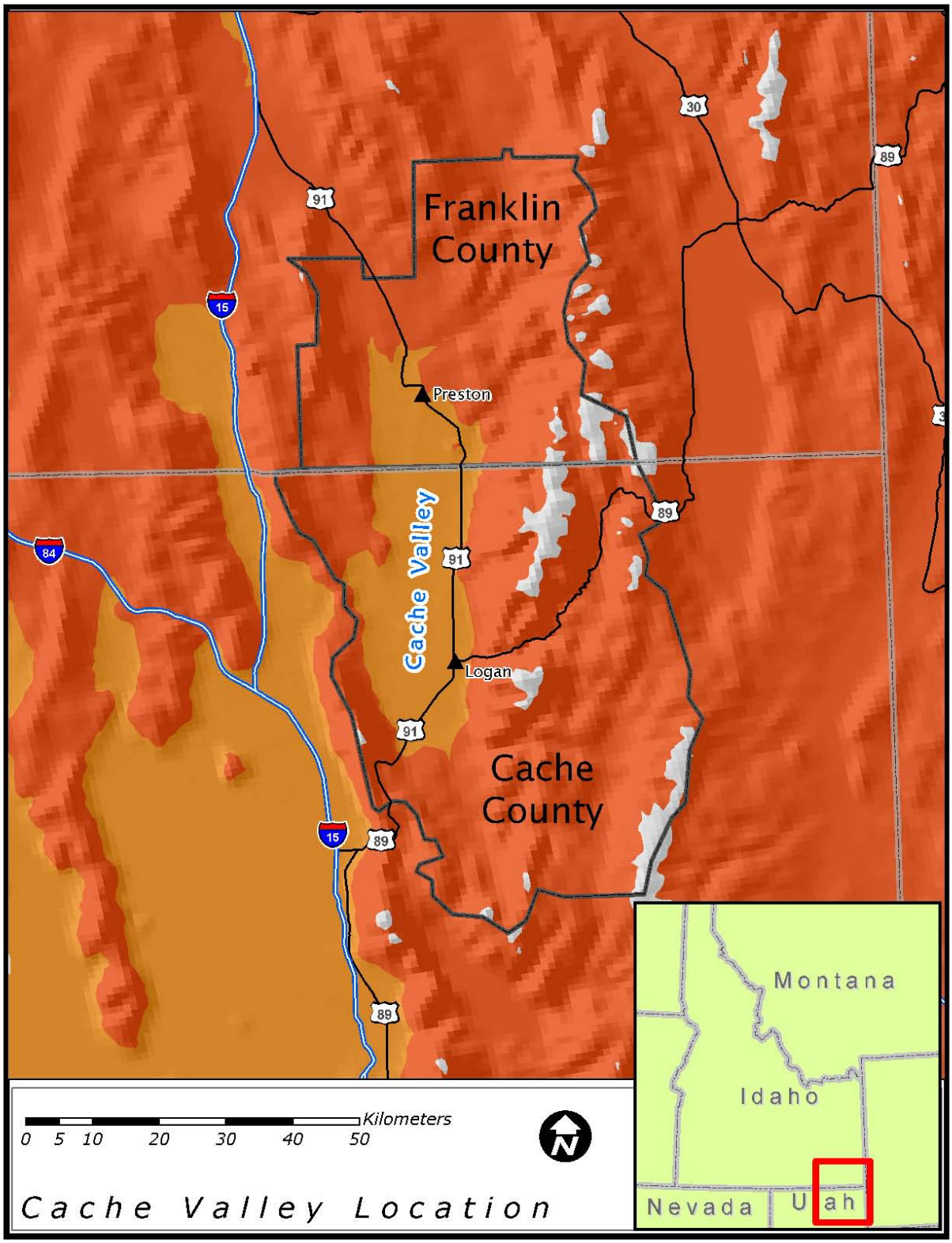

Figure 16. Location map showing the Cache Valley and the boundaries of Franklin County, Idaho and Cache County, Utah.

FACTOR 1: Emissions in areas potentially included vs. excluded from the NAA

DEQ gathered emissions information for Franklin County and the bordering counties in Idaho. Utah will provide the information necessary for their adjacent counties and that portion of the proposed $PM_{2.5}$ NAA when they submit their recommendations.

The main sources of emissions during winter in Franklin County are vehicles (tailpipe emissions and fugitive road dust), residential wood heating, and agriculture (feedlot and dairy ammonia). With the exception of the ruminant animal emissions, emissions created in Franklin County during winter are population-based. All major industrial point sources located in Idaho are more than 60 to 90 kilometers from the Cache Valley.

Table 8 presents direct $PM_{2.5}$ emissions, as well as the pollutants that can act as $PM_{2.5}$ precursors. Because elevated $PM_{2.5}$ concentrations in the Cache Valley are a wintertime phenomenon that threaten only the 24-hour $PM_{2.5}$ standard (Factors 6 and 7), prescribed and wild fire emissions occurring in the other seasons were not included in Table 8.

Table 8. Annual emissions after prescribed and wild fire emissions are deducted.

COUNTY	SOx (TPY)	NOx (TPY)	NH3 (TPY)	VOC (TPY)	$PM_{2.5}$ (TPY)
Franklin	57	851	1221	2290	447
Bannock	177	4020	683	7178	1343
Bear Lake	34	2103	361	2380	359
Caribou	12623	2452	1221	2454	1536
Oneida	40	509	325	1409	243

Source: http://www.epa.gov/ttn/naaqs/pm/pm25_2006_techinfo.html (2005 NEI)

SO_x – oxides of sulphur; NO_x – oxides of nitrogen; NH_3 – ammonia; VOC – volatile organic compound; $PM_{2.5}$ – particulate matter with an aerodynamic diameter of 2.5 micrometers or less; TPY – tons per year

Factor 2: Air quality in areas potentially included vs. excluded from the NAA

Air quality data have indicated that Cache Valley violates the 24-hour $PM_{2.5}$ standard. In fact, the 24-hour design value for Logan, Utah is by far the highest of any station within Utah's monitoring network.

DEQ collected $PM_{2.5}$ data in the Idaho portion of the Cache Valley. There is not yet a three-year data set to determine compliance with the $PM_{2.5}$ standard, but indications are that once the data is available, it will also indicate a violation of the 24-hour standard in the Idaho portion (Figure 2).

DEQ established monitors in both Franklin and Preston, Idaho in 2004. These monitors confirmed results of the Utah State University $PM_{2.5}$ saturation study conducted by Dr. Randy Martin (2006), which indicated a fairly homogenous air mass throughout the Cache Valley

during inversions. The monitor in Preston has been removed due to its high correlation with the Franklin monitor, but DEQ continues to operate the Franklin monitor.

Factor 3: Population density and the degree of urbanization, including commercial development, in areas potentially included vs. excluded from the NAA

Franklin County and the Cache Valley are part of the Logan core based statistical area (CBSA) according to EPA's 2005 national emissions inventory (NEI) data on their TTN Web site. The Idaho portion of the Cache Valley lies entirely within Franklin County. The majority of the population of this rural county is located in small towns. The two largest Idaho towns in the Cache Valley are Preston, with a 2006 population of 5,089, and Franklin, with 672 residents.

The remainder of Franklin County and the surrounding counties have low populations and, therefore, low population densities. The one exception is Bannock County, home to the city of Pocatello (2006 population of 53,932). Pocatello is approximately 95 kilometers to the north-northwest and also represents the commercial center for southeastern Idaho. There is little industrial or commercial development in Franklin County (Factor 1).

Table 9 presents the population, county size, and population density for Franklin County and bordering counties within Idaho. Utah will provide the county information for their portion of the Cache Valley. A graphical representation of the population density in the Cache Valley is shown in Figure 17.

Table 9. 2006 population densities for Franklin County and adjacent counties.

County	2006 Population	County Size (km^2)	2006 Population Density (residents per km^2)
Franklin	12,494	1723.6	7
Bannock	78,443	2883.2	27
Bear Lake	6,167	2516	2
Caribou	6,996	4574.2	2
Oneida	4,176	3109.1	1

Sources: http://www.census.gov/popest/counties/CO-EST2006-03.html for 2006 populations; http://www.census.gov/population/censusdata/90den_stco.txt for size.

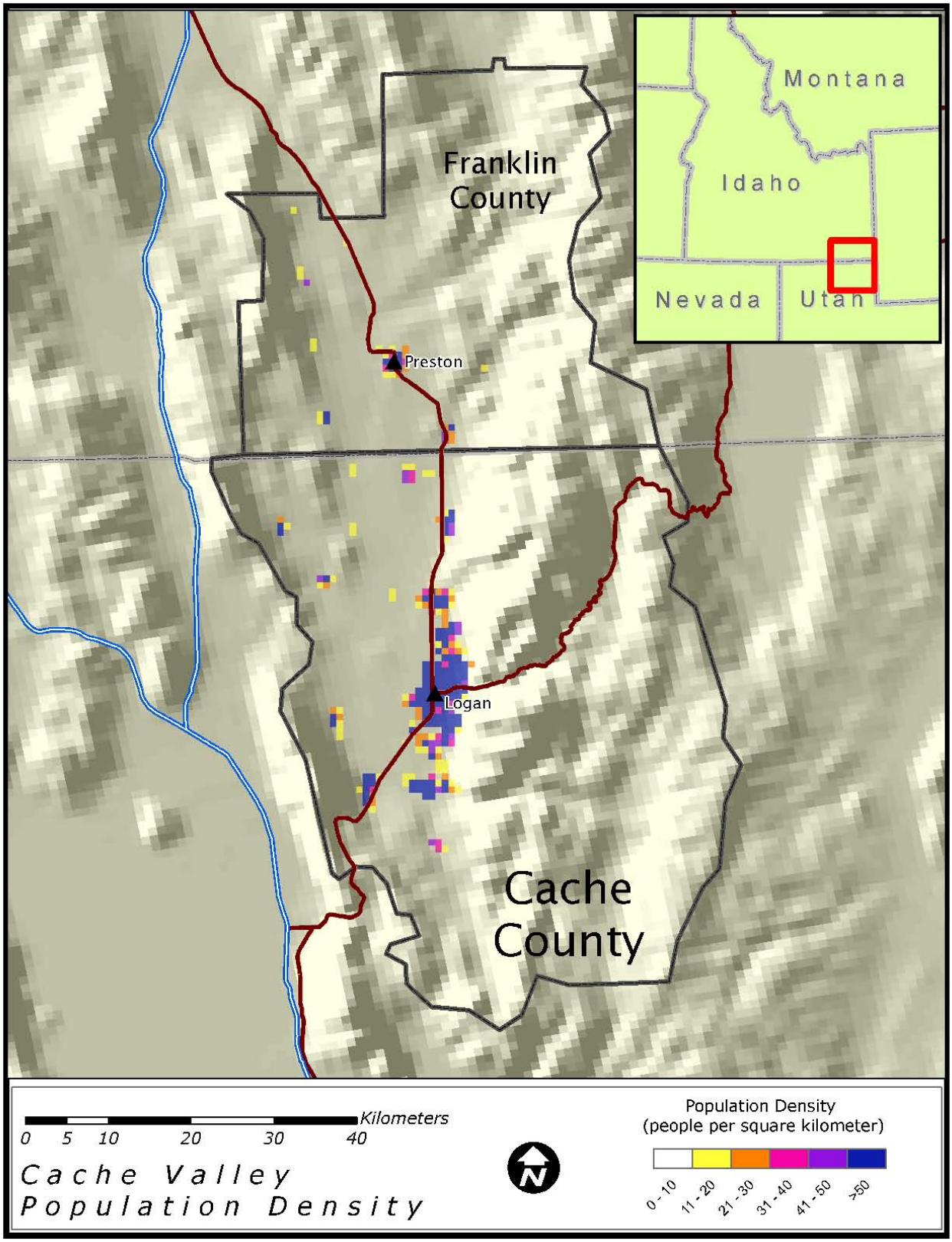

Figure 17. Population density for the Cache Valley (http://sedac.ciesin.columbia.edu:9080/entri/index.jsp ; accessed July 1, 2007).

Factor 4: Traffic and commuting patterns

Commuting information from the EPA TTN 2006 $PM_{2.5}$ technical data:

- Franklin County, the county of interest, has a total of 4,838 commuters.
    - Commuters who remain in Franklin County: 2,852
    - Commuters from Franklin County to Cache County, Utah: 1,697
    - Commuters from Franklin County to Bannock County: 19
    - Commuters from Franklin County to Caribou County: 92
    - Commuters from Franklin County to Oneida County: 6
    - Commuters from Franklin County to Box Elder County, Utah: 82
    - Commuters from Franklin County to Rich County, Utah: 1
- Bannock County, an adjacent county, has a total of 35,122 commuters.
    - Commuters who remain Bannock County: 30,566
    - Commuters from Bannock County to Franklin County: 70
    - Commuters from Bannock County to Cache County, Utah: 42
- Bear Lake County, an adjacent county, has a total of 2,443commuters.
    - Commuters who remain in Bear Lake County: 1,823
    - Commuters from Bear Lake County to Franklin County: 2
    - Commuters Bear Lake County to Cache County, Utah: 26
- Caribou County, an adjacent county, has a total of 2,944 commuters.
    - Commuters who remain in Caribou County: 2,622
    - Commuters from Caribou County to Franklin County: 34
    - Commuters from Caribou County to Cache County Utah: 38
- Oneida County, an adjacent county, has a total of 1739 commuters.
    - Commuters who remain in Oneida County: 1,127
    - Commuters from Oneida County to Franklin County: 8
    - Commuters from Oneida County to Cache County, Utah: 34
- Box Elder County, Utah, an adjacent county, has a total of 18,030 commuters.
    - Commuters who remain in Box Elder County: 13,570
    - Commuters from Box Elder County, Utah to Franklin County: 0
    - Commuters Box Elder County, Utah to Cache County, Utah: 631

- Cache County, Utah, the county of interest, has a total of 43,731 commuters.
    - Commuters who remain in Cache County: 39,235
    - Commuters from Cache County, Utah to Franklin County: 179
- Rich County, Utah, an adjacent county, has a total of 717 commuters.
    - Commuters who remain in Rich County: 512
    - Commuters from Rich County, Utah to Franklin County: 2
    - Commuters Rich County, Utah to Cache County, Utah: 41

The commuter information above indicates that very few commuters enter Franklin County from counties other than Cache County, Utah. Several counties surrounding Franklin County have substantially higher annual VMT (Table 10). Franklin County accounts for approximately 17% of the total VMT in the Cache Valley (Franklin County and Cache County, Utah). The major roadways located in the Cache Valley are shown in Figure 18.

Table 10. Annual VMT (vehicle miles traveled) for Franklin County and adjacent counties in both Idaho and Utah.

County	VMT (Millions)
Franklin	189.8723
Bannock	474.2377
Bear Lake	104.2817
Caribou	118.9588
Oneida	68.1813
Box Elder (Utah)	782.6866
Cache (Utah)	935.9099
Rich (Utah)	34.0305

Source: EPA TTN 2005_vmt_county_level-1.xls

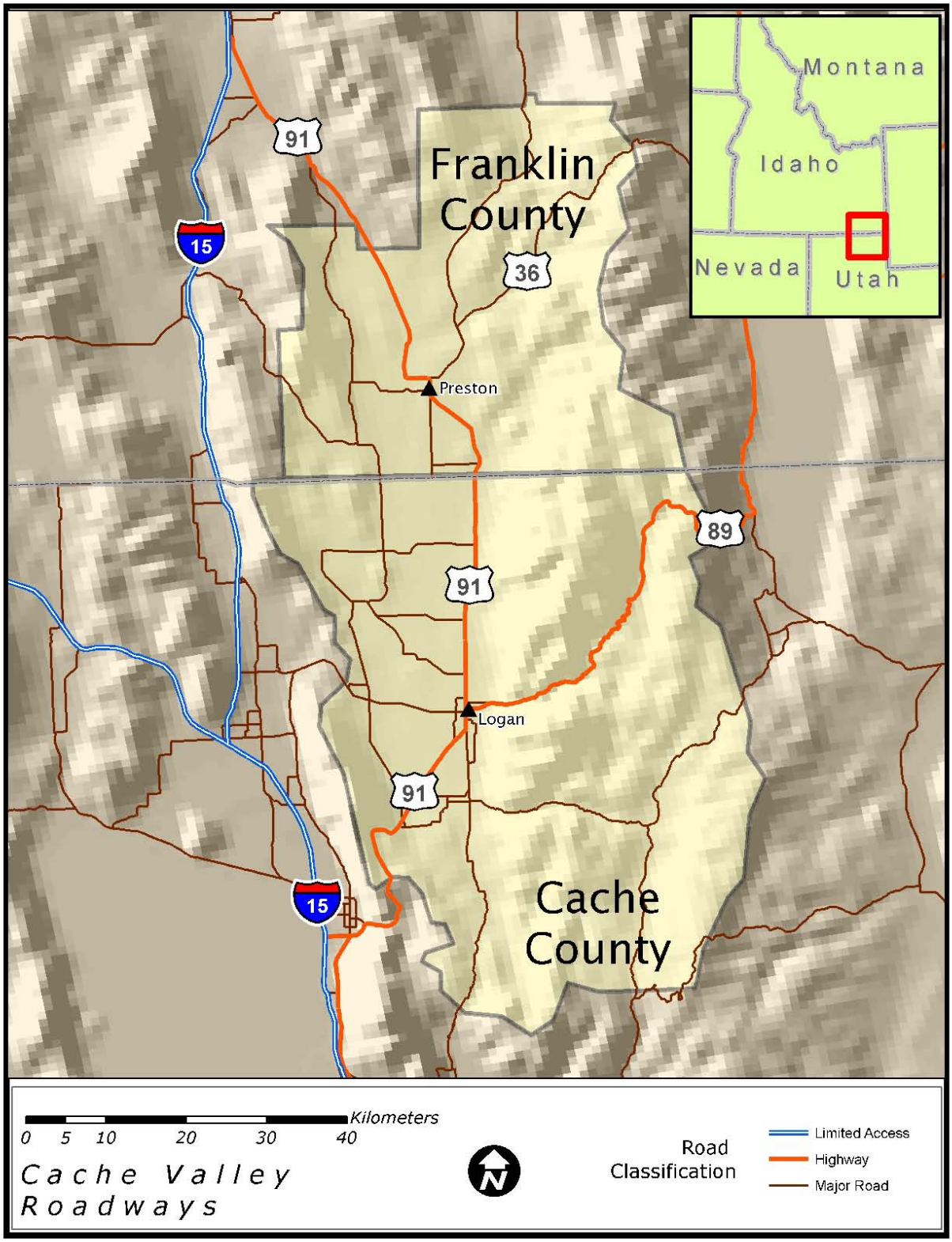

Figure 18. Roadways in the Cache Valley.

FACTOR 5: Expected growth (including extent, pattern, and rate of growth)

The Idaho portion of the Cache Valley is not a highly populated area (Factor 3). From 2000 to 2006, the Idaho side of the Cache Valley experienced a 10.3% increase in population, to a total of 12,494 persons, while the Utah side of the Cache Valley, which is more urbanized, experienced an 8% increase in population, to a total of 98,661 (Table 11).

Table 11. Population growth in the Cache Valley from 2000 to 2006

State	City	April 2000	July 2006	Population change	Percent Change
Idaho	Franklin County	11,329	12,494	1165	10.3%
Utah	Cache County	91,391	98,661	7271	8.0%
Cache Valley NAA (nonattainment area)		102,720	111,155	8435	8.2%

The annual population estimates for Franklin County, including the annual percent change, from 2000 through 2006, are presented in Table 12.

Table 12. Population growth in Franklin County, Idaho from 2000 through 2006

Year	Population Estimates	Population Difference	Percent Change (%)
2000	11,329	—	—
2001	11,500	171	1.5
2002	11,802	302	2.6
2003	11,846	44	0.37
2004	12,160	314	2.7
2005	12,410	250	2.1
2006	12,494	84	0.68

FACTOR 6: Meteorology (weather/transport patterns) AND

FACTOR 7: Geography/topography (mountain ranges or other air basin boundaries)

Factors 6 and 7 are discussed together because they are thoroughly interrelated.

The mountains surrounding the Cache Valley rise to 8,356 feet above sea level (asl) to the west and 9,900 feet (asl) to the east. The isolated valley floor ranges from 4,500 to 5,200 feet (asl). The mountains trap pollutants in the valley when dispersion conditions are poor.

The Cache Valley experiences air stagnation events in the wintertime. During these periods, the stable layer above the ground is much deeper than a typical nocturnal inversion. Cold air is trapped in the basins, and the air mass stabilizes as high pressure aloft overtakes the region. Under such circumstances, a prolonged strong inversion layer (or layers) limits the vertical mixing, trapping local pollutants in a thin layer against the valley floor. During episodes such as this, emissions increase because more home heating occurs due to the cold temperatures (Factor 1). The low sun angle, short length of the days during winter months, and strong likelihood of snow cover to reflect the solar radiation are all factors that limit daytime surface heating and aggravate the situation. As a result, some inversions may not break for many days.

A study of deep stable layers (DSLs) in western air basins (Wolyn and McKee, 1989) revealed that DSLs can cause the stagnation of cold air in basins. In other words, only light winds occur at the surface, even if moderately strong winds aloft are present, and restriction of the growth of daytime convective boundary layers occurs. DEQ analyzed DSLs in the Treasure Valley and found high correlation between DSLs and particulate levels in the area. Salt Lake City was found to have a high frequency of DSL occurrence, averaging about 12 days per year in the period from 1959-1983 (Wolyn and McKee, 1989). The Cache Valley is most likely under the same stagnation conditions as the Salt Lake City area during most of these periods. Figure 19, which is from a Utah State University inversion study (Martin, 2006), provides an excellent example of correlation between the $PM_{2.5}$ concentration levels and the evolution of the stable layer over the Cache Valley. In Figure 19, blue represents cold air and red indicates warmer air. The solid yellow line represents the ambient $PM_{2.5}$ concentration as measured at the Logan monitoring site. The dotted green line represents the 1997 $PM_{2.5}$ NAAQS. From January 9 through January 17, 2004, the cold air pool strengthened and deepened each day, eventually reaching a depth of about 5,500 feet (asl) on January 15 when the $PM_{2.5}$ concentrations peaked. The $PM_{2.5}$ concentration levels rose steadily as trapped pollutants accumulated from each day to the next.

Under this type of stagnation condition, the pollutants may quickly build, especially in areas like the Cache Valley where airflow is greatly restricted by terrain. Figure 20, also taken from the Utah State University inversion study (Martin, 2006), provides an example of inverted temperature profiles in the Cache Valley during the January 2004 extended stagnation episode. During the period from January 1 to January 17, 2004, as shown in the figure, a strong inversion about 1,500 feet thick persistently occupied the area. The record high $PM_{2.5}$ concentration of 132.7µg/m^3 was observed at Logan on January 15, 2004. The strong, deep, stable layer persisted through the entire period, even in the afternoon hours (12 noon and 3 pm) when the base of the inversion rose to an average 5,500 feet (asl). The average 24-hour $PM_{2.5}$ concentration observed at the Franklin monitor during this same period was 39.0 µg/m^3, with the highest 24-hour concentration of 82.6 µg/m^3 occurring on January 17, 2005. Thus, it appears that the afternoon mixing height during stagnation episodes (at approximately 5,500 feet asl) is the controlling factor in accumulating pollutants from day to day.

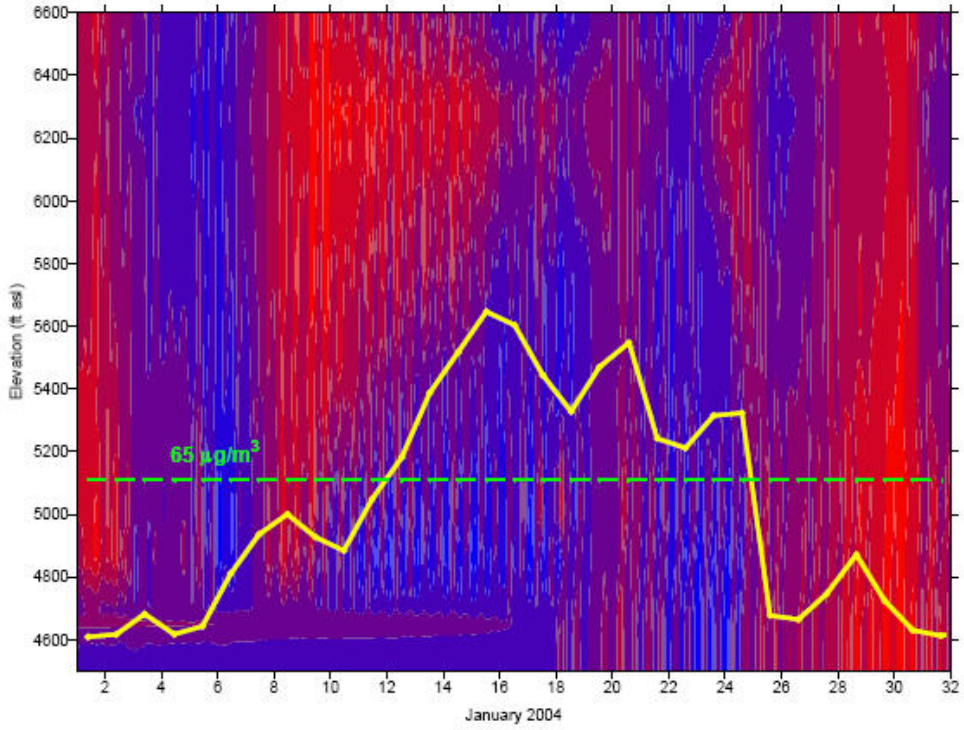

Figure 19. January 2004 temperature contour map with $PM_{2.5}$ concentration (yellow) and 1997 $PM_{2.5}$ National Ambient Air Quality Standard (green) (Martin, 2006)

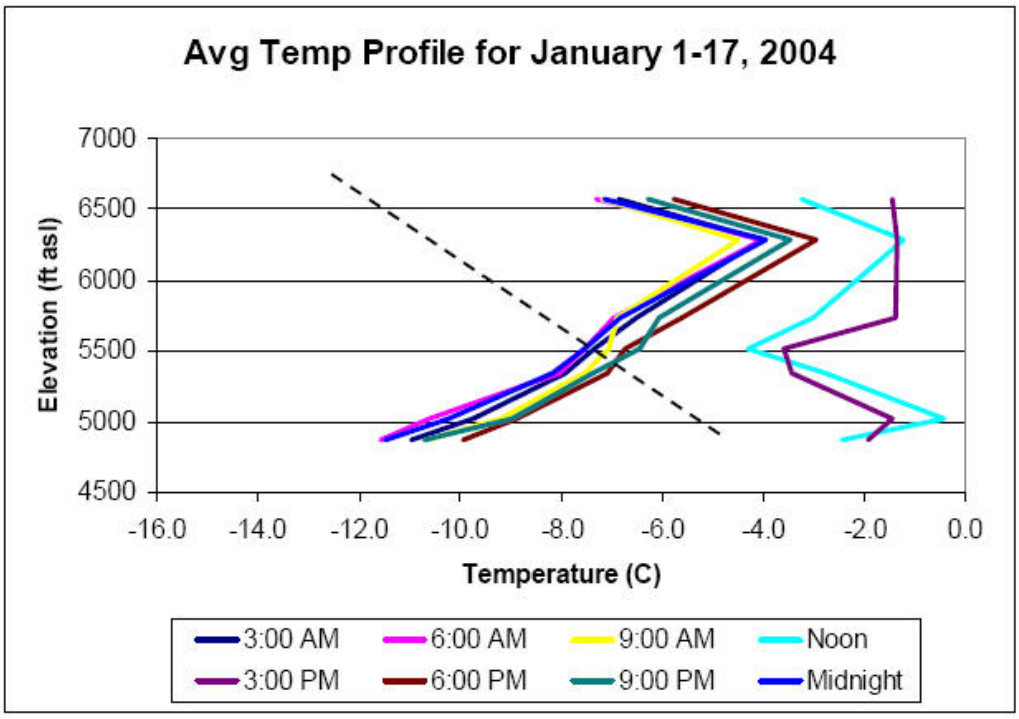

Figure 20. Average temperature profiles in Cache Valley during January 1 - 17, 2004 (Martin, 2006)

Factor 8: Jurisdictional boundaries (e.g., counties, air districts, reservations, etc.)

Given the nature of $PM_{2.5}$ as a regional rather than a localized pollutant, DEQ recommends the Cache Valley $PM_{2.5}$ NAA extend from Cache County, Utah into Franklin County, Idaho. This NAA will span two states and two different EPA regions – Utah, EPA region 8 and Idaho, EPA Region 10.

For transportation planning purposes, both Franklin County, Idaho and Cache County, Utah are part of the Logan MSA. The Logan MSA is complicated, since a metropolitan planning organization (MPO) exists on the more urban Utah side and not on the Idaho side. Idaho is committed to work with all stakeholders to determine the best approach to comply with transportation conformity.

Maintaining separate nonattainment areas allows each state to develop strategies to reduce $PM_{2.5}$ pollution that are most appropriate to each area and to implement processes that recognize the regulatory, political, and financial realities specific to the two counties and two states. Idaho DEQ and Utah DEQ are committed to working cooperatively to ensure their air quality improvement plans are integrated and mutually supportive.

Factor 9: Level of control of emission sources

As discussed in Factor 1, there are no major industrial sources in Franklin County; therefore, emissions in the Idaho portion of the Cache Valley are from vehicles (tailpipe and fugitive road dust), residential wood heating, and agriculture (feedlot and dairy ammonia). DEQ is beginning to evaluate emission reduction controls for woodstoves and vehicles.

Proposed geographic boundaries for the Franklin County – Cache Valley Nonattainment Area

Analysis of the Cache Valley, specifically the Idaho portion, shows that topographical features and wintertime meteorology limit the transport of pollutants into or out of the Cache Valley. Pollutants emitted within the Cache Valley (Utah and Idaho) remain trapped, and emissions from surrounding Idaho counties do not impact the $PM_{2.5}$ monitor located in Franklin, Idaho.

The Cache Valley experiences inversions that build from day to day when strong high-pressure systems are present in the region. The average afternoon mixing height during stagnation events is about 5,500 feet (asl). Therefore, any areas in Franklin County that are higher than 5,500 feet (asl) in elevation will not contribute to $PM_{2.5}$ concentrations during wintertime inversions.

However, not all areas below 5,500 feet (asl) are appropriate to be included in the nonattainment area. Only those areas with significant emissions and population should be included. The population in Franklin County is clustered in the towns, with the majority located in Preston and Franklin. The townships identified in Figure 21 are those that account for the higher population density and, therefore, emissions. These townships delineate those portions of Franklin County that are appropriate to include in the Franklin County – Cache Valley $PM_{2.5}$ nonattainment area.

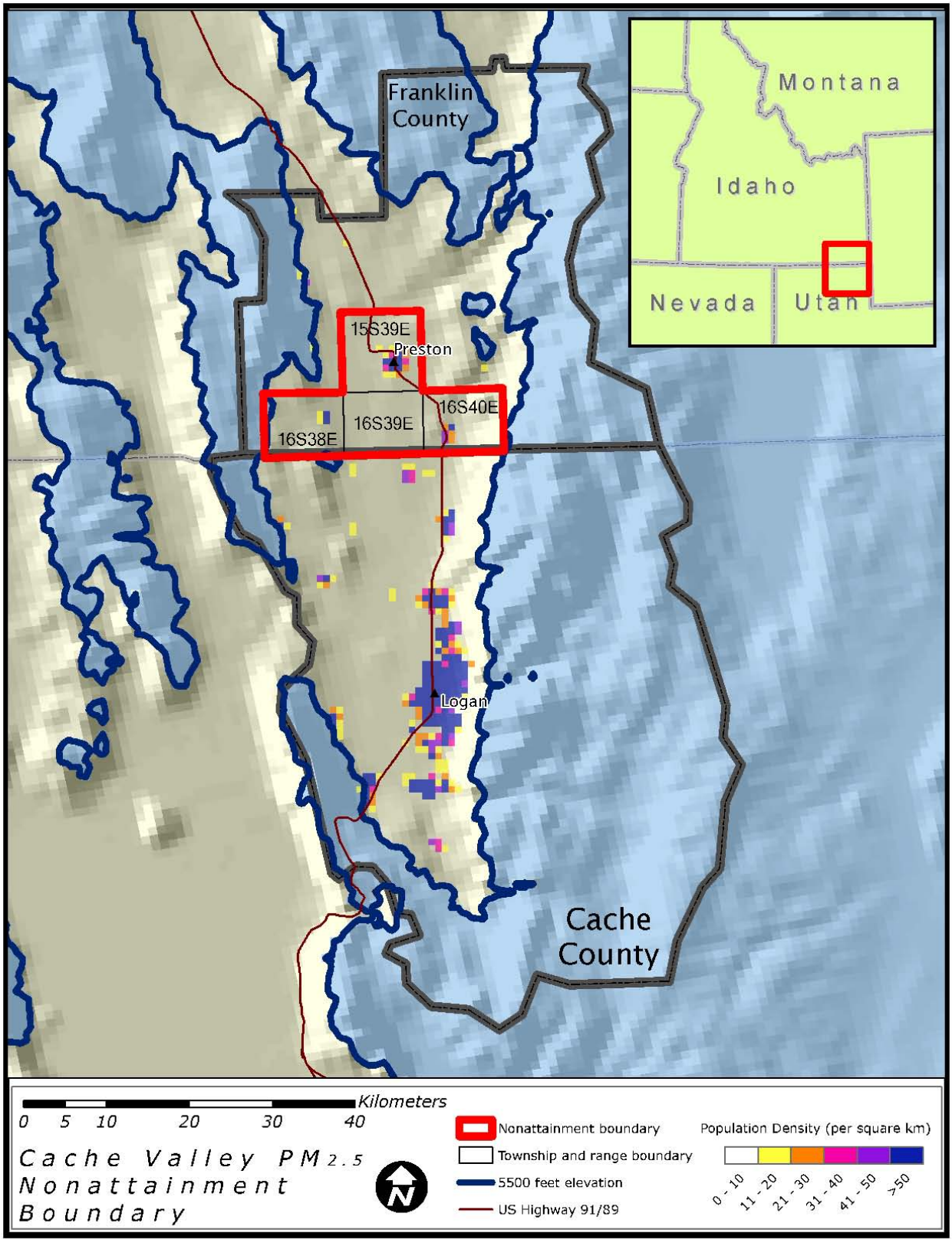

Figure 21. Proposed geographic boundaries for the Idaho portion (Franklin County) of the proposed Cache Valley $PM_{2.5}$ nonattainment area.

5. Summary

The State of Idaho recommends only two areas in Idaho for nonattainment designation. Figures 15 (page 24) and 21 (page 36) provide graphical representations of the townships Idaho is recommending to be included in the Pinehurst and Franklin County – Cache Valley NAAs, respectively.

Table 13 (Appendix A) provides the legal description of all areas of the State and the designations Idaho is recommending for the $PM_{2.5}$ standard.

6. References

Wolyn, P. G., and T. B. McKee, 1989: Deep Stable Layers in the Intermountain Western United States. *Monthly Weather Review*, 117, 461–472.

Martin, Randy, 2006. Cache Valley Air Quality Studies; a Summary of Research Conducted (through 2006). Department of Civil & Environmental Engineering, Utah State University.

Appendix A – All Designated and Non-Designated Area Descriptions

Table 13. Descriptions of all areas of the state and the designations

County	Attainment	Unclassifiable	Nonattainment	Nonattainment Area Name
Shoshone		All portions of Shoshone County not otherwise designated nonattainment	All portions of Shoshone County located in the following township/range/sections: **T R S QQ** 49N 02E 31 48N 02E 6 48N 02E 5 48N 01E 12 48N 02E 7 48N 02E 8 48N 02E 9 48N 01E 13 48N 02E 18 48N 02E 17 48N 02E 16 48N 01E 24 48M 02E 19	Pinehurst

County	Attainment	Unclassifiable	Nonattainment					Nonattainment Area Name
			48N	01E	1	NENW	NESW	
						NWNE	NWSE	
						NENE	NESE	
						SWNW	SWSW	
						SENW	SESW	
						SWNE	SWSE	
						SENE	SESE	
						NWSW		
			48N	01E	11	SESE	SWSE	
			48N	01E	14	NENE	NWSE	
						NWNE	NESE	
						SWNE	SWSE	
						SENE	SESE	

County	Attainment	Unclassifiable	Nonattainment					Nonattainment Area Name
			48N	01E	22	SENE	NESE	
			48N	01E	23	NENW	NWSW	
						NWNE	NESW	
						NENE	NWSE	
						SWNW	NESE	
						SENW	SESW	
						SWNE	SWSE	
						SENE	SESE	
			48N	01E	25	NWNW	SWNW	
						NENW	SENW	
						NWNE	SWNE	
						NENE	SENE	
			48N	01E	26	SWNE	NWNE	
						SENE	NENE	

County	Attainment	Unclassifiable	Nonattainment					Nonattainment Area Name
			48N	02E	4	NWNW	NWSW	
						SENW	SWSW	
						NESW	SESW	
						NWSE	SWSE	
						SWNW	SESE	
			48N	02E	10	SWSW		
			48N	02E	15	NWNW	NWSW	
						NENW	NESW	
						SWNW	SWSW	
						SENW	SESW	
			48N	02E	20	NWNW	SENW	
						NENW	SWNE	
						NWNE	NWSW	

County	Attainment	Unclassifiable	Nonattainment					Nonattainment Area Name
						NENE	NESW	
						SWNW	SWSW	
			48N	02E	21	NWNE	NENE	
			48N	02E	22	NWNW	NENW	
			48N	02E	29	NWNW	SWNW	
			48N	02E	30	NWNW	SWNW	
						NENW	SENW	
						NWNE	SWNE	
						NENE	SENE	
			49N	01E	25	SESE		
			49N	01E	36	NENE	NESE	

County	Attainment	Unclassifiable	Nonattainment					Nonattainment Area Name
						SWNE	SESW	
						SENE	SWSE	
						NWSE	SESE	
			49N	02E	30	SWNW	NWSW	
						SENW	NESE	
						NESW	SWSW	
						NWSE	SESW	
						SWNE	SWSE	
						SENE	SESE	
			49N	02E	32	NWNW	NWSE	
						SWNW	NESE	
						SENW	SWSW	
						SWNE	SESW	
						SENE	SWSE	
						NWSW	SESE	

County	Attainment	Unclassifiable	Nonattainment	Nonattainment Area Name
			NESW 49N 02E 33 SWSW	
Franklin		All portions of Franklin County not otherwise designated nonattainment	All portions of Franklin County located in the following townships: 15 south 39 east 16 south 38 east 16 south 39 east 16 south 40 east	Franklin – Cache Valley
Ada Canyon Bannock Benewah	All portions of the respective county except for Tribal Lands			
Bear Lake Jefferson Bingham Jerome Blaine Kootenai		All portions of the respective County except for Tribal Lands		

County		Attainment	Unclassifiable	Nonattainment	Nonattainment Area Name
Boise	Latah				
Bonner	Lemhi				
Bonneville	Lewis				
Boundary	Lincoln				
Butte	Madison				
Camas	Minidoka				
Caribou	Nez Perce				
Cassia	Oneida				
Clark	Owyhee				
Clearwater	Payette				
Custer	Power				
Elmore	Teton				
Fremont	Twin Falls				
Gem	Valley				
Gooding	Washington				
Idaho					

Appendix B – Supporting Documentation Locations

Supporting Documentation (from the EPA Holmstead memo of 2003)

The supporting information needed for nonattainment areas can be found in this document as follows:

- $PM_{2.5}$ design value(s) for the area: **See Tables 1 and 2**
- The 3-yr period represented by the design value: **See Section 3**
- Site locations and ID numbers: **See Table 14**

Table 14. Monitor locations and ID numbers for $PM_{2.5}$ nonattainment areas

Site ID	Location	Address	County
16-079-0017	Pinehurst Elementary School	S. 201 Third St.	Shoshone
16-041-0001	Franklin Water Treatment Facility	East 4800 South	Franklin

The supporting information needed for attainment/unclassifiable AND nonattainment areas are as follows:

- Names of counties and tribal lands included: **See Table 13**
- If partial counties or portions of tribal lands are included, the boundary definition/description
  - Legal definition: **See Table 13**
  - hard copy map: **See Figures 15 and 21**
  - digitized lat/long description: **will be transmitted upon request**
  - Explanation of how the boundary is consistent with Sect. 107(d)(1) of the CAA: **Paragraph A of Section 107(d)(1) of the Clean Air Act describes the three designations an area may carry. Idaho's recommendations are consistent with the definitions provided therein.**

    The areas recommended for designation of "nonattainment" are areas represented by monitored ambient air data that does not meet the primary (or secondary) 24-hour standard for $PM_{2.5}$. The surrounding areas were evaluated, using the EPA-recommended nine-factor analysis, to determine whether they were impacting the nonattainment areas.

The areas recommended for designation of "attainment" are represented by monitored ambient air data that does meet all the primary and secondary standards for $PM_{2.5}$.

The areas recommended for designation of "unclassifiable" are areas for which there is insufficient data to draw any conclusions.

Names of Contacts

Martin Bauer

Administrator, Idaho Air Quality Division

(208) 373-0552

Robert Wilkosz

Manager, Mobile and Area Source Program

(208) 373-0302

Bruce Louks

Manager, Monitoring, Modeling, and Emission Inventory Program

(208) 373-0294