

**WRAP PM<sub>10</sub> SIP REVIEW  
PROJECT  
TECHNICAL MEMORANDUM  
#1: INITIAL SELECTION OF  
CANDIDATE NONATTAINMENT  
AREAS**

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## A. INTRODUCTION

This technical memorandum presents the results of the work conducted under Task 1 of the Western Regional Air Partnership (WRAP) PM<sub>10</sub> State Implementation Plan (SIP) Review Project. The objectives of this task were to:

- Review previous work by the In and Near Forum (the Forum) and others on emissions and control programs relative to areas near Class I areas;
- Develop a list of PM<sub>10</sub> nonattainment areas (NAAs) in the WRAP States;
- Conduct interviews with U.S. Environmental Protection Agency (EPA) and State agency staff to identify candidate NAAs for further review in this project; and
- Present a list of candidate areas for further review.

Pechan reviewed the background documentation mentioned under Task 1 of the Scope of Work. A list of current and former PM<sub>10</sub> NAAs were compiled from EPA's Green Book and EPA regional websites (i.e., maintenance areas). This final list of 69 areas is shown in Table 1 below. Spatial information was gathered from EPA regions and some WRAP States to create the map of these PM<sub>10</sub> NAAs shown as Figure 1.

Note that the spatial information shown in Figure 1 came from a variety of sources and that, in many cases, the data available were not for the actual boundaries of the NAA. Therefore, county boundaries for each NAA are shown. The reader needs to be aware that the county boundaries shown are often not the actual boundaries of the NAA. For example, the San Joaquin Valley NAA in California does include county boundaries; however, for the Yuma, Arizona area, the NAA boundary does not include the entire county. Each NAA is also shown as a different gradient of color based on its attainment status (maintenance area, moderate, and serious).

In order to provide additional clarity on the locations of Class I areas, Figure 2 shows the locations of the NAA town/city, where applicable (i.e., not applicable where the NAA is defined by county boundaries). Figure 2 also shows the location of the NAAs in relation to the location of WRAP Class I areas (including Tribal Class I areas).

## B. INTERVIEWS OF EPA REGIONAL AND STATE AGENCY STAFF

Table 2 provides a listing of the EPA and State Agency staff interviewed under Task 1 of this project. Pechan was successful in reaching all but a few of the contacts. For EPA Region 6, there was only one NAA in the WRAP region – Dona Ana, New Mexico. Following a review of the information available on the State of New Mexico website, this area did not seem to be a good candidate for this project (therefore, no interviews were conducted with State or Region 6 staff). A Natural Events Action Plan (NEAP) for windblown dust was originally prepared for the area; however, in recent years, exceedances of the 24-hr standard have occurred during low wind days. The contributors to these exceedances are still being evaluated.

Table 1. PM<sub>10</sub> NAAs in the WRAP Region

EPA Region	State	County	NAA	PM <sub>10</sub> Designation
10	ALASKA	Anchorage Municipality	Eagle River	Moderate
10	ALASKA	Juneau City and Borough	Juneau	Moderate
9	ARIZONA	Mohave	Mohave Co. (Bullhead City)	Maintenance Area
9	ARIZONA	Gila	Payson	Maintenance Area
9	ARIZONA	Cochise	Douglas	Moderate
9	ARIZONA	Cochise	Paul Spur	Moderate
9	ARIZONA	Gila	Hayden/Miami	Moderate
9	ARIZONA	Maricopa	Phoenix	Serious
9	ARIZONA	Pima	Ajo	Moderate
9	ARIZONA	Pima	Rillito	Moderate
9	ARIZONA	Pinal	Hayden/Miami	Moderate
9	ARIZONA	Pinal	Phoenix	Serious
9	ARIZONA	Santa Cruz	Nogales	Moderate
9	ARIZONA	Yuma	Yuma	Moderate
9	CALIFORNIA	Inyo	Coso Junction	Moderate
9	CALIFORNIA	Inyo	Owens Valley	Serious
9	CALIFORNIA	Kern, Kings, Tulare, Fresno, San Joaquin, Stanislaus, Merced, Madera	San Joaquin Valley	Serious
9	CALIFORNIA	Los Angeles, Orange, Riverside, San Bernardino	Los Angeles South Coast Air Basin	Serious
9	CALIFORNIA	Mono	Mono Basin	Moderate
9	CALIFORNIA	Riverside	Coachella Valley	Serious
9	CALIFORNIA	Sacramento	Sacramento	Moderate
9	CALIFORNIA	San Bernardino	San Bernardino	Moderate
9	CALIFORNIA	San Bernardino	Trona	Moderate
9	CALIFORNIA	Kern	Indian Wells	Maintenance Area
9	CALIFORNIA	Mono	Mammoth Lake	Maintenance Area
8	COLORADO	Pitkin	Aspen	Maintenance Area
8	COLORADO	Prowers	Lamar	Moderate
8	COLORADO	Arapahoe, Adams, Boulder, Broomfield, Denver, Douglas, Jefferson	Denver Metro	Maintenance Area
8	COLORADO	Archuleta	Pagosa Springs	Maintenance Area

Table 1 (continued)

EPA Region	State	County	NAA	PM <sub>10</sub> Designation
8	COLORADO	Routt	Steamboat Springs	Maintenance Area
8	COLORADO	San Miguel	Telluride	Maintenance Area
8	COLORADO	Freemont	Canon City	Maintenance Area
10	IDAHO	Ada	Boise	Maintenance Area
10	IDAHO	Bannock, Power	Fort Hall Reservation	Moderate
10	IDAHO	Bannock, Power	Portneuf Valley	Moderate
10	IDAHO	Bonner	Bonner (Sandpoint)	Moderate
10	IDAHO	Shoshone	Pinehurst	Moderate
10	IDAHO	Shoshone	Shoshone	Moderate
8	MONTANA	Flathead	Columbia Falls	Moderate
8	MONTANA	Flathead	Flathead County; Whitefish and vicinity	Moderate
8	MONTANA	Flathead	Kalispell	Moderate
8	MONTANA	Lake	Polson	Moderate
8	MONTANA	Lake	Ronan	Moderate
8	MONTANA	Lincoln	Libby	Moderate
8	MONTANA	Missoula	Missoula	Moderate
8	MONTANA	Rosebud	Lame Deer	Moderate
8	MONTANA	Sanders	Sanders County (part); Thompson Falls and vicinity	Moderate
8	MONTANA	Silver Bow	Butte	Moderate
9	NEVADA	Clark	Clark	Serious
9	NEVADA	Washoe	Washoe	Serious
6	NEW MEXICO	Dona Ana	Anthony	Moderate
10	OREGON	Klamath	Klamath Falls	Maintenance Area
10	OREGON	Josephine	Grants Pass	Maintenance Area
10	OREGON	Jackson	Medford-Ashland	Moderate
10	OREGON	Lake	Lakeview	Moderate
10	OREGON	Lane	Eugene-Springfield	Moderate
10	OREGON	Lane	Lane	Moderate
10	OREGON	Union	LaGrande	Moderate

Table 1 (continued)

<b>EPA Region</b>	<b>State</b>	<b>County</b>	<b>NAA</b>	<b>PM<sub>10</sub> Designation</b>
8	UTAH	Salt Lake	Salt Lake	Moderate
8	UTAH	Utah	Utah	Moderate
8	UTAH	Weber	Ogden	Moderate
10	WASHINGTON	Thurston	Olympia, Tumwater, Lacey	Maintenance Area
10	WASHINGTON	Pierce	Pierce Co. (Tacoma)	Maintenance Area
10	WASHINGTON	King	Kent	Maintenance Area
10	WASHINGTON	King	King County	Maintenance Area
10	WASHINGTON	Spokane	Spokane	Moderate
10	WASHINGTON	Walla Walla	Wallula	Serious
10	WASHINGTON	Yakima	Yakima	Moderate
8	WYOMING	Sheridan	Sheridan	Moderate

Figure 1. WRAP PM<sub>10</sub> NAAs

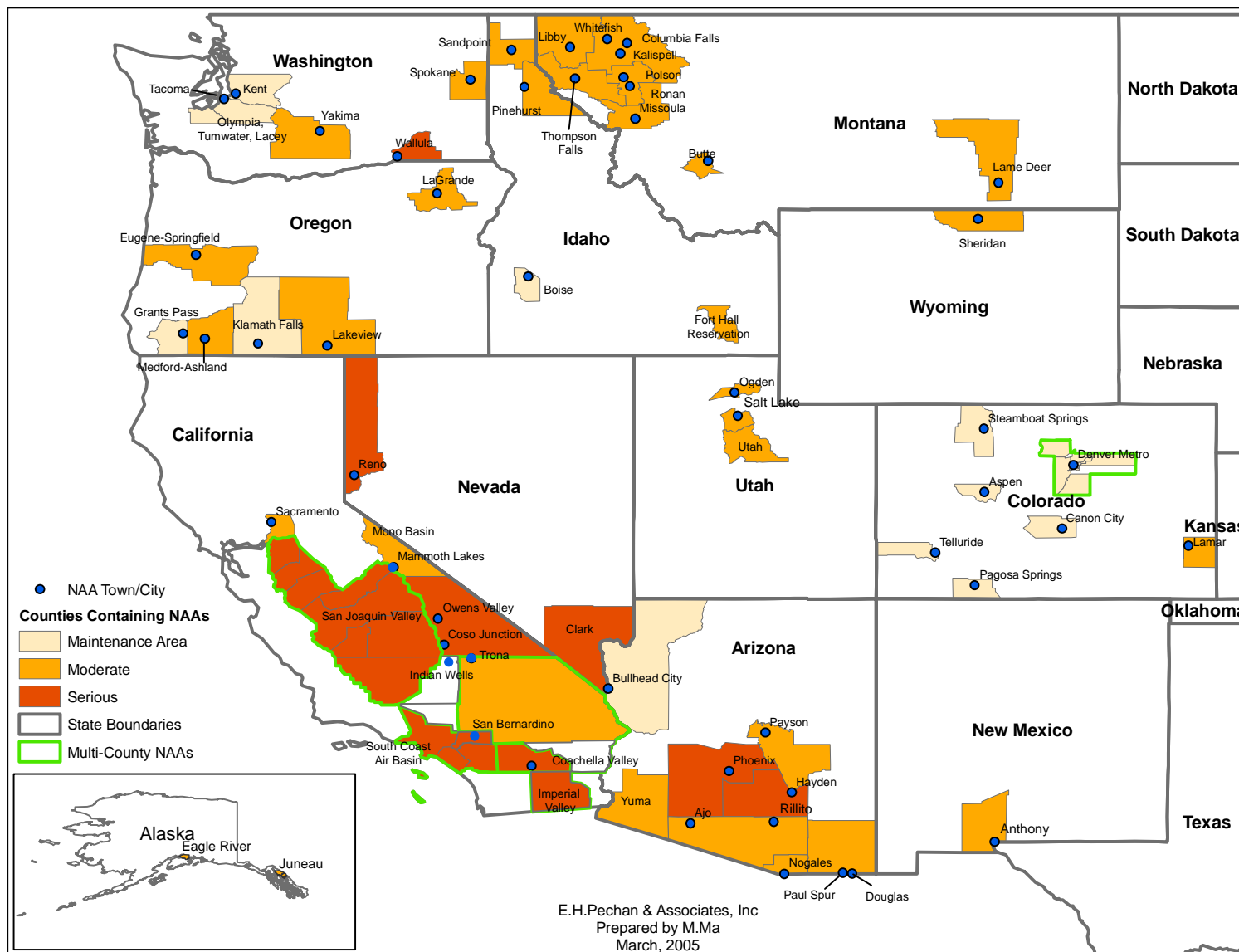
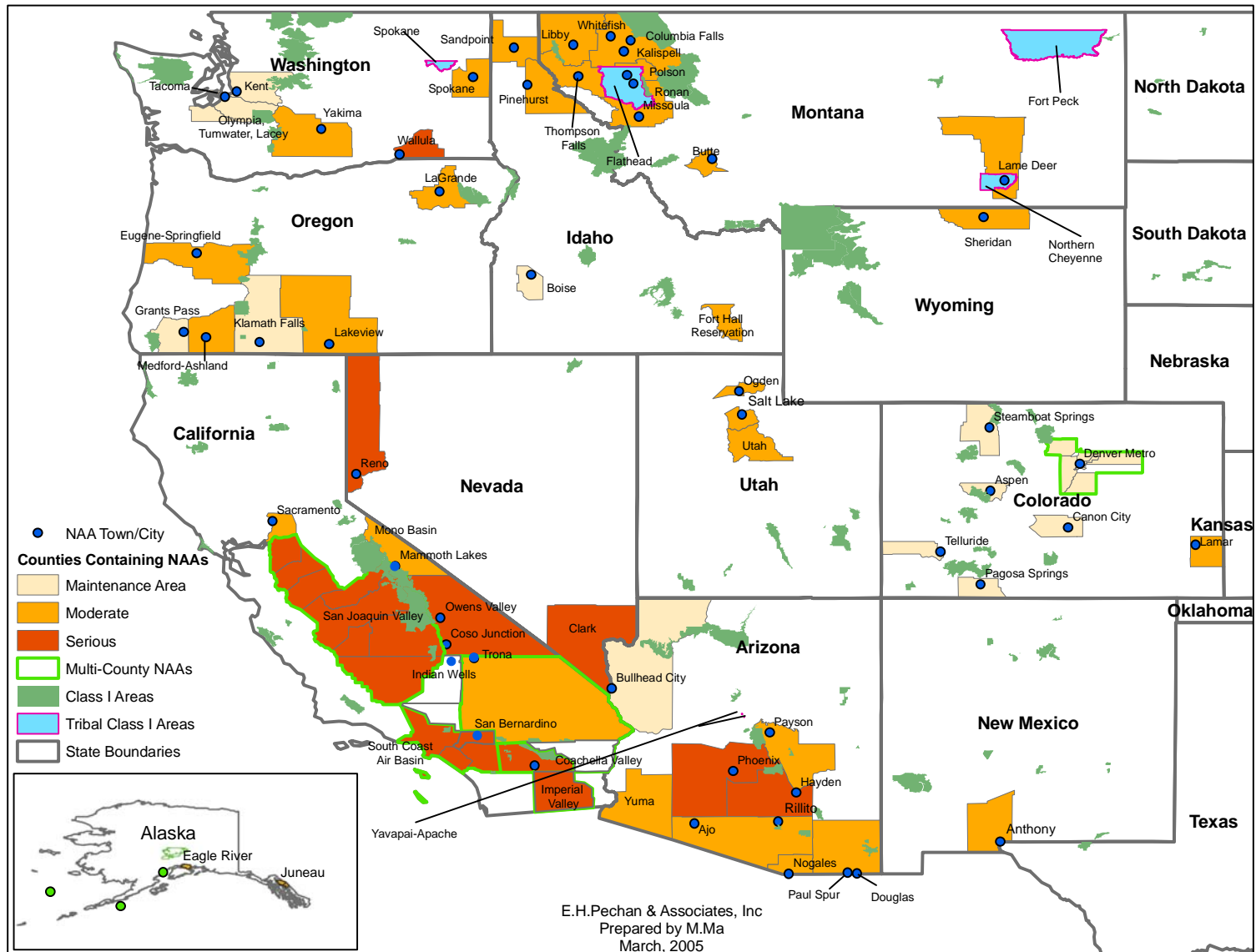


Figure 2. WRAP PM<sub>10</sub> NAAs and Class I Areas



**Table 2. EPA Regional and State Agency Contacts Interviewed**

EPA Region/State	Name	NAA's Covered
9	Weinke Tax	All AZ Sites
9	Karen Erwin	Clark County, NV
9	Eleanor Kaplan	Washoe County, NV
10	Steve Body	All Region 10
10	Donna Deneen	Various Region 10
8	Laurie Ostrand	All Region 8
ID	Mike Edwards	Boise
WY	Tina Anderson	Sheridan
OR	Brian Finneran	Grant's Pass
OR	Larry Calkins	Klamath Falls, LaGrande, Lakeview
OR (Lane Regional Air Pollution Authority)	Ralph Johnston	Lane County
CO	Ray Mohr	Denver Metro, Aspen, Steamboat Springs, Telluride
WA	Doug Schneider	All WA Areas
MT	Trista Glazier	All MT Areas
UT	Cheryl Heying	All UT Areas
AK	Alice Edwards	Juneau, Eagle River
AZ	Corky Martinkovic	Phoenix, Mojave County, Payson
AZ	Bruce Friedl	Paul Spur
CA	Karen Magliano	All Areas

In most cases, EPA regional staff were helpful in identifying candidate NAAs. Contacts with individuals at the State agencies then helped to refine the candidates identified by the EPA regional contacts. Each contact was provided with a description of the objectives of the project, and then were asked to provide comments on which NAAs within their State/region would be good candidates based on the following:

- Demonstrated success of the control programs in reducing ambient PM<sub>10</sub> levels – based on this criteria, all maintenance areas made the first cut as potential candidates for further review;
- Linkage between implementation of control programs and measurement of ambient reductions – to achieve confidence that the ambient reductions were attributable to the control measures and not meteorology or some other factor;
- Adequate documentation of source attribution and control measures – including emission inventories, air quality or receptor modeling, and estimated efficiencies of control measures, and
- Adequate historical PM<sub>10</sub> monitoring data – e.g., 10 years or more of measurement at one or more representative sites.

Areas that did not meet the criteria above were not considered as candidates for further analysis. Most of the respondents based their recommendations on favorable opinions for the first two

criteria listed above. Other reasons that certain sites were not considered as good candidates include: the age of the SIP (information difficult to obtain, limited documentation); and source contributors and control measures common to other candidates (e.g., many areas dominated by residential wood combustion and paved road dust). The initial list of 69 NAAs was reduced to 23 following the application of the above criteria.

### C. CANDIDATE NAAS FOR FURTHER STUDY

In establishing this list of 23 NAAs (shown in Table 3), Pechan assimilated the recommendations from the surveyed contacts and the location and type of NAA area to assure that a representative sampling of NAAs would be achieved. As shown in the SOW, the four NAA types are:

- *Natural Events-Driven NAAs*: these are NAAs whose nonattainment is tied to sources associated with natural events (e.g., windblown dust);
- *Limited Anthropogenic Source-Driven NAAs*: areas where only a limited number (often one) source sector drives nonattainment. These include areas impacted by residential wood combustion, agricultural tilling/cultivation, and/or unpaved roads. Nonattainment tends to occur in only certain seasons;
- *Complex Source-Driven NAAs*: areas such as the San Joaquin Valley have more complex source mixes and have nonattainment problems occurring in multiple seasons; and
- *Urbanized NAAs*: urban NAAs, such as the South Coast Air Basin, have a complex mix of source contributors with heavy contributions from combustion sources (e.g., onroad and nonroad engines). Because of this, plans from this type of NAA may have limited applicability to areas near Class I areas; however, specific control strategies will have applicability.

Additional criteria applied in selecting the areas shown in Table 3 included the age and potential quality of the SIP documents (e.g., details on source attribution, control measures) and whether or not there was overlap in the controls applied with other areas in the State or region. For example, there were many WRAP NAAs impacted by residential wood combustion and paved road dust (from street salting/sanding). Therefore, the number of these areas was reduced. A preference was also given to areas that were likely to have information on implementation and enforcement issues for the control measures implemented in those areas. On the other hand, Pechan also attempted to assure that there was representation of NAAs throughout much of the WRAP region.

As shown in Table 3, most of the NAAs selected are of the *Limited Anthropogenic Source-Driven* type. This was by far the most common type of NAA in the WRAP region. Pechan attempted to achieve a sampling of areas that addressed the typical contributors (e.g., residential wood combustion, paved/unpaved road dust, wind-blown dust).

Several urbanized areas are listed as *Complex Source-Driven NAAs* since these areas targeted a variety of sources; however, they did not meet the criteria of *Urbanized NAAs*, since the

targeting of control measures was directed at typical contributors. Of the three *Urbanized NAAs* listed, the South Coast Air Basin is the only area that has targeted both primary and secondary PM sources. Although this area has not yet attained the PM<sub>10</sub> standards, air quality has greatly improved over the years, and this area will be a rich source of information on control measures.

As shown in Table 3, Pechan is still awaiting more detailed information on some NAAs. For many NAAs, SIP documentation that was more than 10 years old was often not available electronically. For some areas that were identified as likely final candidates, Pechan requested hard copies of the available documentation for review under Task 2. Based on the interviews, all areas appear to have adequate PM<sub>10</sub> monitoring data. Source attribution data were most often available through an emissions inventory. At least some, information on the efficiencies of control measures was available from most areas. Information on implementation and enforcement issues associated with these measures was often lacking in the available documentation (these issues will be more fully explored in the second round of interviews to be conducted under Task 4).

After reviewing a draft of this technical memorandum, the Forum also requested that Pechan review two additional WRAP areas that were never classified as nonattainment but had achieved ambient reductions through local measures. These areas are Albuquerque, NM and Crested Butte, CO. These areas will be added to the list of areas for further review under Task 2. Under Task 2 of this project, we will prepare a descriptive summary of each area, review available monitoring data from each area, and provide a final list of candidate areas for more detailed analysis.

Table 3. Candidate PM<sub>10</sub> Nonattainment Areas

Nonattainment Area	State	PM <sub>10</sub> Designation	NAA Category	Ambient Data	Control Options		
					Source Attribution <sup>a</sup>	Estimated Reductions	Implementation/ Enforcement
Juneau	Alaska	Moderate	Lim. Anthro. Source	Yes	EI	Yes	No
Mohave Co. (Bullhead City)	Arizona	Maintenance Area	Lim. Anthro. Source	Yes	EI	No	No
Phoenix	Arizona	Serious	Urbanized	Yes	EI, RM, AQM	Yes	Some
Yuma	Arizona	Moderate	Natural Events-Driven	Yes	EI, AQM	Yes	No
Los Angeles South Coast Air Basin	California	Serious	Urbanized	Yes	EI, AQM	Yes	No
Coachella Valley	California	Serious	Lim. Anthro. Source	Yes	EI, AQM	Yes	No
Mammoth Lakes	California	Maintenance Area	Lim. Anthro. Source	Yes	EI	Yes	Some
Aspen	Colorado	Maintenance Area	Lim. Anthro. Source	Yes	EI, RM	Yes	Some
Denver Metro	Colorado	Maintenance Area	Urbanized	Yes	EI, RM, AQM	Yes	Some
Telluride	Colorado	Maintenance Area	Lim. Anthro. Source	Yes	EI, RM	Yes	Some
Boise	Idaho	Maintenance Area	Urbanized	Yes	EI, RM, AQM	Yes	No
Bonner (Sandpoint)	Idaho	Moderate	Lim. Anthro. Source	Yes	EI	No	No
Missoula	Montana	Moderate	Complex Source	Yes	EI, AQM	Yes	Some
Clark County	Nevada	Serious	Lim. Anthro. Source	Yes	EI, AQM	Yes	Some
Klamath Falls	Oregon	Maintenance Area	Lim. Anthro. Source	Yes	EI	Yes	Some
Lakeview	Oregon	Moderate	Lim. Anthro. Source	Yes	EI	Yes	Some
LaGrande	Oregon	Moderate	Lim. Anthro. Source	Yes	EI	Yes	Some
Salt Lake County	Utah	Moderate	Complex Source	Yes	EI, RM	Yes	Some
Olympia, Tumwater, Lacey	Washington	Maintenance Area	Lim. Anthro. Source	Yes	EI, RM	Yes <sup>b</sup>	Some <sup>b</sup>
King County	Washington	Maintenance Area	Complex Source	Yes	EI		
Spokane	Washington	Moderate	Complex Source	Yes	EI	No	No
Wallula	Washington	Serious	Lim. Anthro. Source	Yes	EI	Yes	Some
Sheridan	Wyoming	Moderate	Lim. Anthro. Source	Yes	EI	<sup>b</sup>	<sup>b</sup>

<sup>a</sup> EI = emissions inventory; RM = receptor modeling; AQM = air quality modeling.

<sup>b</sup> Still awaiting hard copy documentation to evaluate this issue.