1985
ANNUAL
REPORT

LANE REGIONAL AIR POLLUTION AUTHORITY

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LANE REGIONAL

AIR POLLUTION AUTHORITY

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Donald R. Arkell, Director

This 1985 annual report of the Lane Regional Air Pollution Authority contains much of the years' statistics and recitals of accomplishments which are typical of such reports. We have attempted this year, however, to also portray a more general projection; an overview of air quality in Lane County and of LRAPA's programs to address current and future air pollution problems.

It is important, we think, to maintain our perspective about how we fit in the "scheme of things," particularly during periods when the roles of government agencies are undergoing close public scrutiny and the purse strings are drawing tighter.

We hope this report is informative as well as enjoyable for the reader. We are proud of LRAPA's past and look forward to a bright future.

Donald R. Arkell
Director

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FIGURES & TABLES

The Agency:

The Lane Regional Air Pollution Authority (LRAPA) is charged with developing and implementing air quality control programs throughout Lane County. The 18-year-old agency is responsible for regulating and monitoring air pollution in the county, including industries and sources of dust, odors, open burning, and hazardous air contaminants. LRAPA monitors transportation-related pollutants and provides air quality expertise and support for transportation planning and community development efforts of other organizations.

LRAPA's funding is derived from a broad revenue base. The agency is supported through federal and state air pollution control grants and by contributions from the cities of Eugene, Springfield, Cottage Grove, and Lane County. Other revenues are obtained through various fees, such as industrial permit fees and special open burning fees.

Originally one of three, LRAPA remains as the only local air pollution control agency in Oregon.

BOARD OF DIRECTORS

A Board of Directors, composed of elected officials from the four participating local governments, adopts the agency's regulations and determines agency policy. The Board appoints a Director, who administers the air pollution program in Lane County. Eugene City Councilor Richard Hansen chaired the LRAPA Board in 1985.

The Board continued its policy of fiscal restraint and adopted a "no growth" budget

for FY '85-86, following a considerable amount of local government discussion regarding their contributions to the agency. A combined effort by LRAPA's board, advisory and budget committees, and agency staff resulted in a successful effort to obtain the necessary funds for the next fiscal year. In an effort to more directly involve local governments in LRAPA's funding process, the agency created an intergovernmental funding committee to review LRAPA's revenue sources and develop a strategy for stabilizing the agency's funding base. The special committee concluded that the agency should broaden its revenue base as much as possible to help guard against significant fluctuations in local government contributions to the agency.

In other matters, the Board dealt with a number of rule modifications in 1985, including important updates and simplifications to meet federal requirements for permitting new sources and controlling existing sources. Through this process, LRAPA can be delegated the responsibility to carry out federal requirements, thereby retaining a higher degree of local control.

The Board also initiated the practice of regularly keeping members up to date on the technical aspects of air pollution control through a series of topical presentations by agency staffmembers at the monthly board meetings. Topics of some of the presentations included the agency's industrial source testing program through a display of emissions testing equipment used at plant sites by LRAPA's technical staff, the complexities of controlling

emissions from pulp and paper manufacturing operations through a tour of the Weyerhaeuser plant in Springfield, and a discussion on local efforts to control asbestos emissions through the combined efforts of private contractors, the State of Oregon's Accident Prevention Division, the Lane County Solid Waste Division and LRAPA.

ADVISORY COMMITTEE

Assisting and counseling the agency in an advisory capacity is the Advisory Committee, composed of citizen volunteers who represent several important interest areas of the community including fire suppression, industrial, agricultural, medical, and planning interests. Committee members are appointed by the Board for three-year terms. The Committee receives project-oriented requests from the Board, and together with staff, provides recommendations to the Board on a host of issues.

Besides assisting in the agency's budget process, the major work undertaken by the Advisory Committee in 1985 was the review of LRAPA's existing control plan for total suspended particulates. With the anticipated EPA adoption of a fine particle standard, LRAPA's program emphasis has been shifting from total particulates to fine particulates. Thus, some of the planned projects in the current control plan will not be completed, necessitating a revision of the plan.

In its review of the existing plan, the committee worked on additional control strategies for total particulates which might be necessary. Sources being specifically examined include residential woodburning, dust, and agricultural

emissions. Once the committee completes its review (sometime in 1986), recommendations on additional control strategies will be made to the LRAPA Board, and the existing control plan will then be modified.

The Data:

The success of any program depends on, among other things, a sound data base.

The Lane Regional Air Pollution Authority gathers and analyzes air quality data at a number of monitoring sites in Lane County (see Figure 1 and Table 1). This data is used to provide the public with up-to-date air quality information, provide a means to judge the effectiveness of the local air pollution control program, and guide future efforts in improving the quality of the air we breathe.

MONITORING NETWORK

The monitoring network provides air quality data for certain gaseous and particulate pollutants. Meteorological data (wind speed and direction) is also obtained at several of the monitoring sites. Specific pollutants measured include total suspended particulates, fine particulates, carbon monoxide, ozone, and sulfur dioxide. A description of the pollutants, local sources, health effects, and methods of sampling is contained in Table 2.

LRAPA maintains a 13-site monitoring network in Lane County. Sites are selected based on source locations and population densities, background concentrations and wind patterns.

The particulate sites are located in sections of the community in which emissions from one source or another are expected to

FIGURE I

1985 MONITORING NETWORK

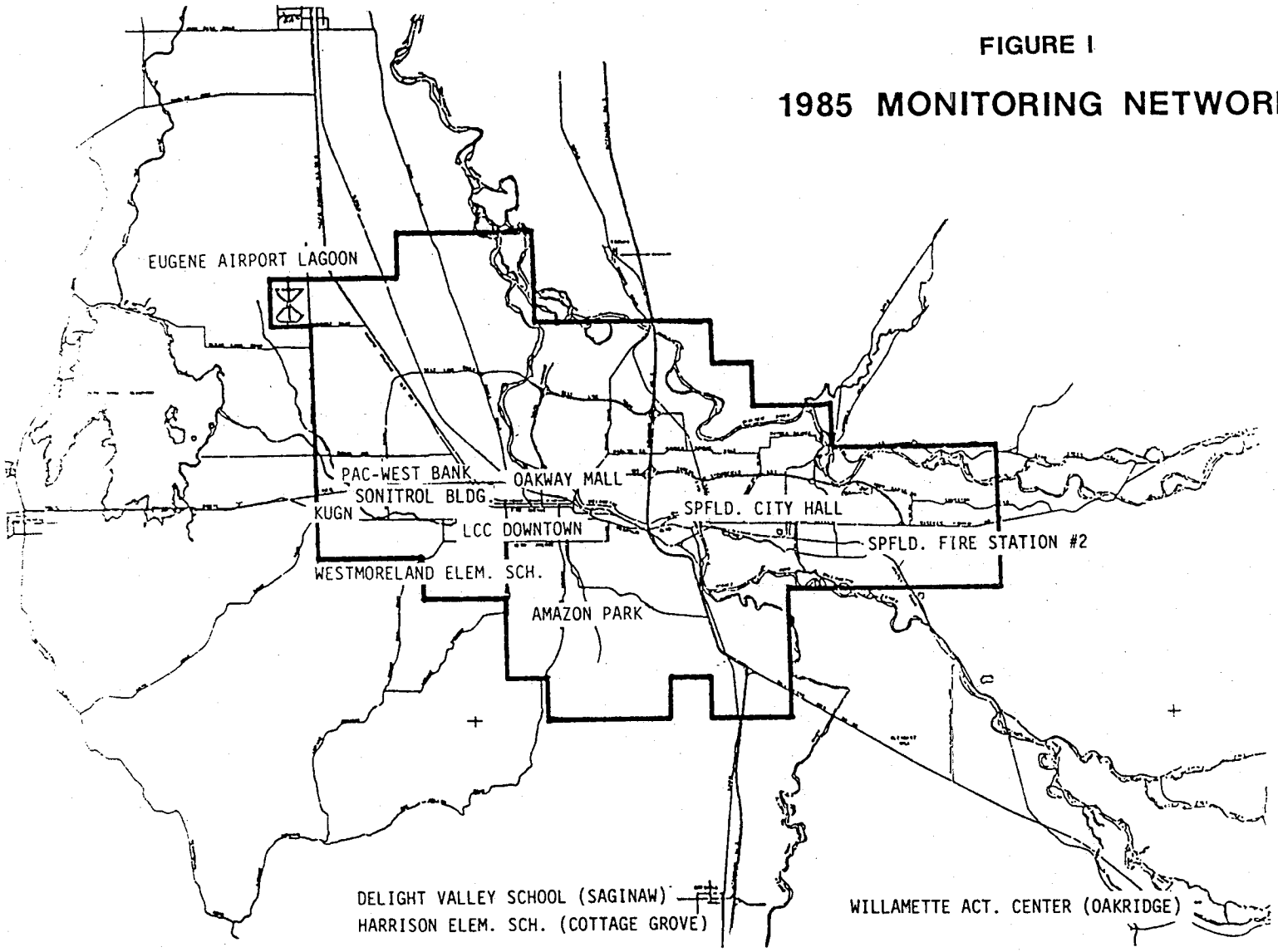


TABLE I

1985 MONITORING NETWORK

Site No	Site Name	Parameters						
		TSP	PM_{10}	Vis	CO	O_3	SO_2	Met
2000035	Eugene Airport STP Lagoon	X						
2000036	Delight Valley School (Saginaw)					S		S
2009002	Harrison Elementary School (Cottage Grove)	X						
2018039	Westmoreland Elementary School (Eugene)	X						
2018054	Oakway Mall							X
2018056	Lane Community College (downtown Eugene)	X[a]	X	X	X			
2018058	Pacific-Western Bank (Eugene)	X	X[b]					
2018059	KUGN radio station (Eugene)			X				X
2018060	Amazon Park (Eugene)	X	X	X	W	S		
2018061	Sonitrol Building	X						
2030002	Willamette Activity Center (Oakridge)	X						
2033059	Springfield Fire Station #2	X						
2033060	Springfield City Hall	X	X	X			X	X

Parameters:

TSP	Total Suspended Particulate Matter
PM_{10}	Respirable Suspended Particulate Matter (TSP and PM_{10} measurements are an integrated 24-hour concentration that normally occur on an every-sixth day sampling schedule)
Vis	Visibility (Nephelometer light scattering)
CO	Carbon Monoxide
O_3	Ozone
SO_2	Sulfur Dioxide
Met	Meteorology (wind speed/direction/temperature)

Notes:

X[a]	Every other day sampling schedule
X[b]	Daily sampling schedule
S	Summer (March - October) season sampling schedule
W	Winter (October - March) season sampling schedule

TABLE 2

AIR POLLUTANTS MEASURED IN LANE COUNTY

POLLUTANT	DEFINITION	SOURCES	HEALTH EFFECTS	METHOD OF SAMPLING
TOTAL SUSPENDED PARTICULATES (TSP)	Concentration of all particles in the atmosphere, such as smoke, dust, mist, fumes.	* Industry * Residential Woodburning * Fugitive Dust * Field-Slash-Open Burning * Windblown Dust * Volcanic Eruptions * Ocean Spray	* Aggravates chronic lung disease * Aggravates heart & lung disease symptoms	High volume sampler which operates like a vacuum cleaner; measures a 24-hour concentration once every 6 days (LCC equipped to sample every-other day). Particles are collected on filter paper.
FINE PARTICULATES (PM_{10})	Respirable particulates less than 10 microns in size.	* Residential Woodburning * Industrial Boilers * Other Combustion Sources	* Same as TSP, except more severe due to inhalation into deep respiratory passages.	High Volume sampler equipped with size separator to measure fine particles. Measures 24-hour concentration once every 6 days (Pac West equipped to sample daily). Particles collected on filter paper.
CARBON MONOXIDE (CO)	A colorless, odorless gas produced by incomplete combustion.	* Automobile * Residential Woodburning	* Robs blood of oxygen. * Heart difficulties in those with chronic lung diseases. * Dizziness * Headache * Nausea	Continuous sampling involving absorption of infrared radiation by CO in the air sample. The amount of infrared absorption is proportional to the amount of CO in the sample.
OZONE (O_3)	A toxic gas with a pungent odor, associated with photochemical smog.	* Automobile * Combustion Processes * Gasoline Evaporation * Solvents * Paints * Asphalt Plants	* Eye irritation * Strong irritation of upper respiratory passages	Continuous sampling involving absorption of ultraviolet light by ozone gas in the air sample. The amount of ultraviolet absorption is proportional to the amount of ozone in the sample.
SULFUR DIOXIDE (SO_2)	A heavy, pungent, colorless gas formed primarily by combustion of sulfur-containing fuels or the smelting of sulfate ores.	* Oil & Coal Combustion * Pulp & Paper Mills	* Lung Irritation * Aggravates asthma, heart & lung disease in elderly.	Continuous sampling in a chamber in which SO_2 is floresced. The amount of florescence is measured to determine SO_2 concentration.

cause air pollution. These sites are located near the industrial areas of west/northwest Eugene and east Springfield (Pac-West Bank, Sonitrol Building, Springfield Fire Station #2), in residential neighborhoods where wood-burning is viewed as a predominant source (Westmoreland Elementary School, Amazon Park), and in the core areas of the community where "people activity" is heavy (LCC Downtown, Springfield City Hall). Two sites are located in Oakridge and Cottage Grove, measuring general air quality in those smaller communities. The other particulate site is located near the Mahlon Sweet Airport, and serves as the agency's "background site." Background sites are established to measure the widely dispersed air pollution levels from sources located at some distance from population centers.

Carbon monoxide monitoring sites are located in areas where automobile traffic is heavy (LCC Downtown) and where residential woodburning is widespread (Amazon Park).

Because ozone is considered a "downwind" pollutant due to the length of time necessary for the photochemical reactions to occur, the two sites measuring this pollutant are located at Amazon Park and at Saginaw, just north of Cottage Grove.

Sulfur dioxide monitoring was conducted at the Springfield City Hall, near the local SO_2 sources.

MONITORING NETWORK CHANGES

Periodic review of the monitoring program is necessary as data needs and program priorities

change. There were four major changes to the LRAPA monitoring network in 1985:

* Ozone monitoring at the Edgewood Elementary School in south Eugene was discontinued. This location did not meet the EPA siting criteria for an ozone monitoring station. In anticipation of this termination, a new ozone monitoring station was established at the Amazon Park in south Eugene in 1984. Statistical comparisons of the ozone concentrations measured simultaneously at the two sites showed similar levels.

* Fine particulate monitoring with "reference method samplers" was begun at the Pacific-Western Bank site in northwest Eugene and at the Lane Community College site in downtown Eugene. The "reference method" samplers were provided by EPA as part of a national effort to obtain data on ambient levels of fine particulate prior to adoption of a revised national particulate standard. In previous years LRAPA has monitored for fine particulates with non-reference method sampling equipment. Such sampling continues at Amazon Park, Springfield City Hall, and the downtown LCC sites.

* Sulfur dioxide monitoring at the Springfield City Hall site was discontinued because no significant concentrations of this pollutant were ever recorded in the two years when monitoring occurred. However, additional sampling at sites located immediately adjacent to local SO_2 sites is planned.

* A new total suspended particulate site was established in the industrial area of west Eugene. This site, located at the Sonitrol

Building, was installed to determine whether the concentration of total particulates measured at the Pac-West Bank site was "typical" of the west Eugene industrial area. Verification is important because permits for new industries may be limited in that area because of standard violations measured at the Pac-West site.

There was no change made to the carbon monoxide monitoring network in 1984.

DATA SUMMARY

TOTAL SUSPENDED PARTICULATES: A summary of the total suspended particulate concentrations is listed in Table 3. The concentrations measured at all ten monitoring stations were sufficiently low so that the annual geometric means of the daily concentrations were below the primary (75 micrograms per cubic meter) and the secondary (60 micrograms per cubic meter) standards. As in previous years, the highest average concentration in the Eugene-Springfield metropolitan area was measured at the Pacific-Western Bank site in northwest Eugene.

While the means of the 24-hour concentrations were below the federal standards, for the first time in several years exceedances of the primary 24-hour standard (260 micrograms per cubic meter) were measured at several sites in the monitoring network: Westmoreland Elementary School (once), Pacific-Western Bank (twice), and the Willamette Activity Center in Oakridge (once).

There was also a significant rise in the number of exceedances of the secondary 24-hour standard (150 micrograms per cubic meter), with

TABLE 3

Comparison of TSP Values
1982 - 1985

Site No	Site Name	1982 a	1982 b	1982 c	1982 d	1983 a	1983 b	1983 c	1983 d	1984 a	1984 b	1984 c	1984 d	1985 a	1985 b	1985 c	1985 d
2000035	Eugene Airport STP Lagoon	27	115	85	0	25	120	88	0	25	87	78	0	30	144	111	0
2009002	Harrison Elementary School	39	163	145	1	41	128	117	0	37	143	100	0	46	210	203	3
2018039	Westmoreland Elementary Sch	40	226	201	3	36	156	141	1	37	166	137	1	47	302	237	4
2018056	Lane Community College	39	206	137	1	34	101	87	0	36	152	134	1	46	236	202	3
2018058	Pacific-Western Bank	55	262	252	2	53	188	155	2	55	200	161	2	69	278	261	8
2018060	Amazon Park	---				---				32	100	94	0	43	237	207	4
2018061	Sonitrol Building	---				---				---				--	163	156	2
2030002	Willamette Rec Center	---				--	104	79	0	43	245	166	2	55	276	247	7
2033059	Springfield Fire Station #2	46	211	138	1	44	107	106	0	45	172	124	1	54	223	194	2
2033060	Springfield City Hall	---				--	114	104	0	38	133	121	0	--	140	102	0

Notes:

a	Annual Geometric Mean
b	Highest 24-hour Concentration
c	2nd Highest 24-hour Concentration
d	Number of Exceedances of Secondary Standard
--	Insufficient Number of Samples obtained to calculate a valid geometric mean
---	No data was collected at this site during that year

Standards:

Annual Primary:	75 micrograms/cubic meter
Secondary:	60 micrograms/cubic meter
24-Hour Primary:	260 micrograms/cubic meter
Secondary:	150 micrograms/cubic meter

33 separate exceedances recorded at all of the monitoring sites in 1985, compared with 7 exceedances in 1984, 3 in 1983, and 8 in 1982.

Worth noting is one particular period in December 1985 when secondary standard exceedances, as well as primary standard exceedances, were recorded at nearly all of the particulate monitoring sites in the county.

Air stagnation conditions combined with particulate emissions from industries, woodstoves, motor vehicles, and other sources, to cause a serious air pollution problem in most parts of the county. Total suspended particulate levels rose above the federal standards at eight of the nine monitoring sites in operation at that time (Springfield City Hall was shut down) during the period extending from December 11-28. Figure 2 shows the TSP readings in relationship to the secondary and primary standards at six of the sites during this period.

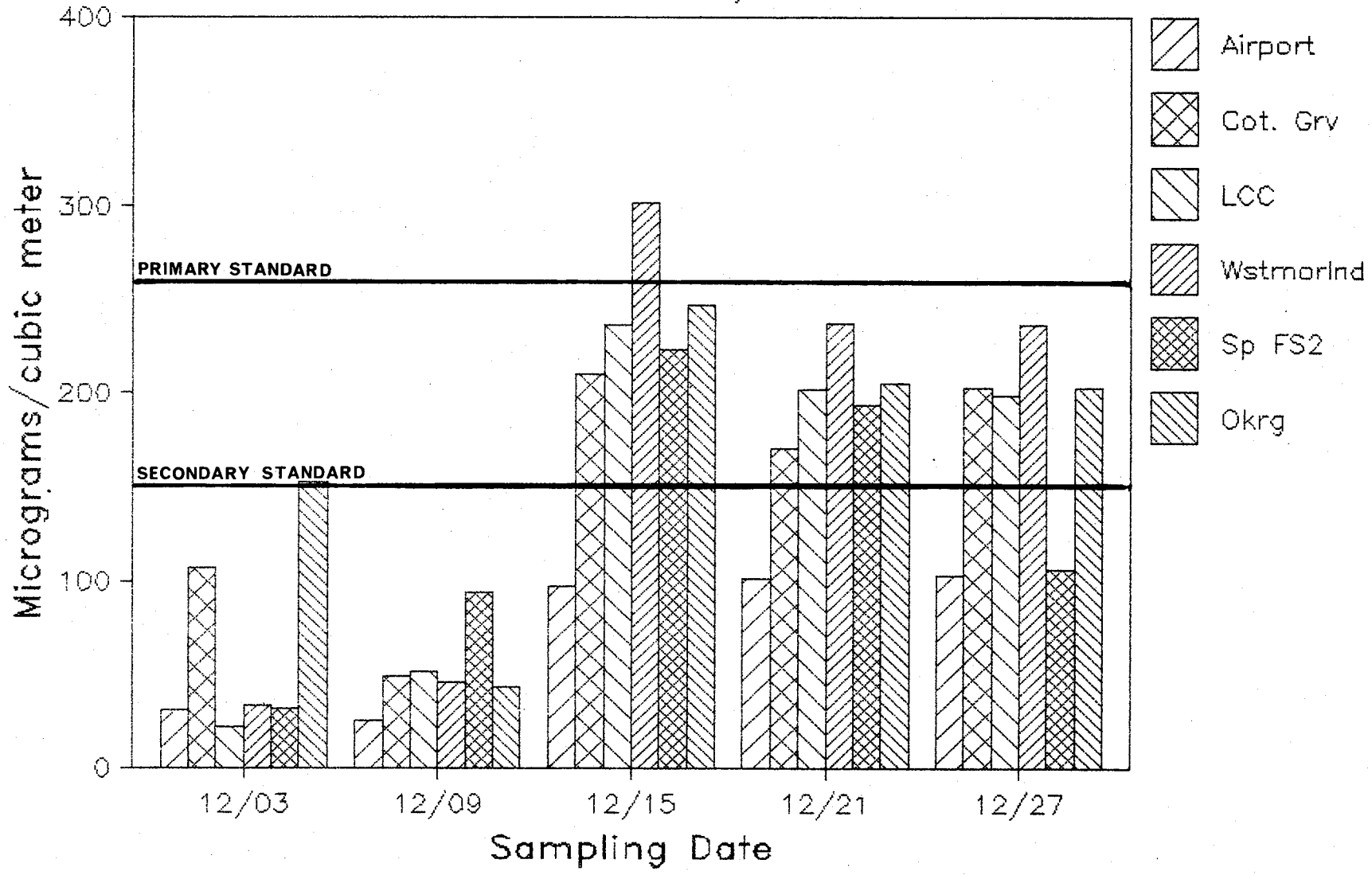
Specifically, the eight sites registered 23 separate exceedances of the secondary standard, with three actually being exceedances of the primary standard. These exceedances were all recorded on the official every-sixth-day sampling schedule. In addition, five exceedances were recorded on "non-official" sampling days.

The highest local 24-hour TSP reading in recent memory was recorded during this period; 302 micrograms per cubic meter at Westmoreland Elementary School on December 15. All other sites, with the exception of the Airport site,

FIGURE 2

TSP

December, 1985



registered levels significantly above the secondary standard on that date. Similar widespread standard exceedances were again registered on the 21st and the 27th. And, in between those dates, exceedances were recorded almost daily at the downtown LCC site.

It was estimated that residential wood-burning was the most significant single source of air pollution during that period.

PM-10 (RESPIRABLE SIZE SUSPENDED PARTICULATES): A summary of the PM-10 concentrations for 1985 is listed in Table 4. The federal Environmental Protection Agency has yet to formally adopt PM-10 standards, as mentioned earlier, though 24-hour and Annual Arithmentic Average standard ranges have been proposed. Based on the PM-10 measurements taken in 1985, the Eugene-Springfield area would appear to be in attainment of an Annual Arithmetic Average, but would likely not be in compliance with a 24-hour standard. In fact, the highest 24-hour concentration recorded during the year (267 micrograms per cubic meter at the Pacific-Western Bank) would appear to be higher than the high end of the proposed 24-hour standard range.

Three of the four sites measuring fine particulates combined to record 20 intrusions into the proposed standard range between December 11 and 28, including the Pacific-Western Bank reading just cited.

CARBON MONOXIDE: A summary of the carbon monoxide concentrations is listed in Table 5. One exceedance of the 8-hour standard (10 milligrams per cubic meter) was recorded at both the

TABLE 4

Comparison of PM_{10} Values
1982 - 1985

Site No	Site Name	1982 a	1982 b	1982 c	1983 a	1983 b	1983 c	1984 a	1984 b	1984 c	1985 a	1985 b	1985 c
2018056	Lane Community College		----		22	71	66	20	70	64	32	197	156
2018058	Pacific-Western Bank		----			----			----		--	267	234
2018060	Amazon Park		----			----		21	56	46	34	189	152
2033060	Springfield City Hall		----		--	88	66	28	108	80	--	80	62

Notes:

a	Annual Arithmetic Mean
b	Highest 24-hour Concentration
c	2nd Highest 24-hour Concentration
--	Insufficient data to calculate a mean
----	No data was collected at this site during that year

Proposed Standards:

(The proposed PM_{10} Annual Arithmetic Average is in the range of 50 to 65 micrograms per cubic meter.)
(The proposed PM_{10} 24-hour standard is in the range of 150 to 250 micrograms per cubic meter.)

TABLE 5

Comparison of Carbon Monoxide Values
1982 - 1985

Site No	Site Name	1982 a	1982 b	1982 c	1983 a	1983 b	1983 c	1984 a	1984 b	1984 c	1985 a	1985 b	1985 c
2018056	Lane Community College	10.1	9.6	1	11.1	10.8	2	10.1	9.1	1	12.7	9.5	1
2018060	Amazon Park		----			----		5.8	4.7	0	10.3	8.5	1

Notes:

a	Highest 8-hour Concentration
b	2nd Highest 8-hour Concentration
c	Number of Exceedances of Standard
----	No data was collected at this site during that year

Standard:

8-Hour: 10 milligrams/cubic meter

downtown LCC and Amazon Park sites.

During the air stagnation episode in December, carbon monoxide levels approached the standard, but no exceedances were actually recorded.

OZONE: A summary of the ozone concentrations in 1985 is listed in Table 6. As has been the case for the past three years, there was no exceedance of the 1-hour standard (235 micrograms per cubic meter) measured at either of the ozone monitoring sites.

SULFUR DIOXIDE: A summary of the 1985 sulfur dioxide concentrations is listed in Table 7. There was no exceedance of the 24-hour standard and, as stated earlier, the monitoring site was discontinued in 1985 pending site evaluation.

TABLE 6

Comparison of Ozone Values
1982 - 1985

Site No	Site Name	1982			1983			1984			1985		
		a	b	c	a	b	c	a	b	c	a	b	c
2000036	Delight Valley School	182	171	0	171	167	0	188	165	0	202	202	0
2018053	Edgewood Elementary School	168	163	0	183	171	0	184	180	0		---	
2018060	Amazon Park		---			---		184	184	0	182	175	0

Notes:

a	Highest 1-hour Concentration
b	2nd Highest 1-hour Concentration
c	Number of Exceedances of Standard
---	No data was collected at this site during that year

Standard:

1-Hour: 235 micrograms/cubic meter

TABLE 7

Comparison of Sulfur Dioxide Values
1982 - 1985

Site No	Site Name	1982 a	1982 b	1982 c	1983 a	1983 b	1983 c	1984 a	1984 b	1984 c	1985 a	1985 b	1985 c
2033060	Springfield City Hall	---			8	5	0	16	14	0	21	20	0

Notes:

a	Highest 24-hour Concentration
b	2nd Highest 24-hour Concentration
c	Number of Exceedances of Standard
---	No data was collected at this site during that year

Standard:

24-Hour: 365 micrograms/cubic meter

The Problems:

The air quality data gathered by the Lane Regional Air Pollution Authority monitoring network (discussed in the preceding section), as well as estimates of air pollution emissions by local sources, serve as the essential data base used to identify air quality problems in Lane County.

Air quality concerns vary throughout Lane County. A large part of the county's land area is rural, with low population densities and with widely dispersed industrial sources. Coastal areas inland to the crest of the Coast Range, including Florence, Dunes City, Mapleton, and Swisshome have very good air quality due to almost constant atmospheric mixing. Other areas of clean air are located at the eastern end of Lane County, in the Cascades, including Blue River, McKenzie Bridge, and the Cascade wilderness areas in Lane County. The air quality challenge to LRAPA in these areas is keeping them clean, free from air pollution.

Most of the recognized air pollution problems are located in the Willamette Valley portion of Lane County; particularly in those areas in or around the population centers of the county.

AIR POLLUTION EMISSIONS IN LANE COUNTY CITIES

Each year LRAPA compiles total suspended particulate (TSP) and carbon monoxide (CO) emissions data from local sources as a means to track progress in reducing emissions. Overall air pollution emissions in the

Eugene-Springfield metropolitan area rose in 1985, following a period of general decline since the late 1970's. And, evidence of air quality problems for smaller cities in Lane County began to emerge. Emissions from individual sources for Eugene-Springfield, Cottage Grove, and Oakridge are shown in Tables 8 and 9.

The amount of emissions from each type of source affects the air pollution concentrations measured by the monitoring network. The proximity of the monitoring site to nearby sources also affects the concentrations at the site. And, variables such as wind speed and direction, as well as atmospheric ventilation, in turn, affect the relationship between emissions and the ambient levels detected at the monitoring sites.

ARE WE MEETING STANDARDS IN THE CITIES?

The monitoring data determines whether or not Lane County communities are meeting federal air quality standards. Emissions data helps LRAPA estimate which sources contribute to air quality standard exceedances, and how successful control efforts by the sources have been reducing air pollution in problem areas.

The short answer to the above questions is that air quality standards for total suspended particulates were exceeded intermittently in the Eugene-Springfield Air Quality Maintenance Area in 1985. The carbon monoxide standard was exceeded once, which is allowed. Smaller communities in Lane County may also be developing compliance problems; there is growing concern about future attainment for particulates in Oakridge and, to

TABLE 8

TOTAL SUSPENDED PARTICULATE
EMISSIONS
EUGENE-SPRINGFIELD AQMA
(tons per year)

	1978	1982	1983	1984	1985
Residential Woodheating	1,724	2,886	2,557	3,422	3,814
Fugitive Dust	3,896	2,813	2,699	2,937	3,121
Industrial Processes	8,747	5,348	5,244	4,889	4,724
Other	364	321	336	361	386
TOTAL	14,731	11,348	10,838	11,609	12,045

CARBON MONOXIDE
EMISSIONS
EUGENE-SPRINGFIELD AQMA
(tons per year)

	1977	1982	1983	1984	1985
Industrial Processes	2,293	2,301	2,242	2,243	2,177
Residential Woodheating	10,106	17,660	15,772	21,092	23,506
Transportation	56,475	37,462	39,540	41,788	41,658
Other	461	471	491	565	566
TOTAL	69,335	57,894	58,045	65,688	67,907

TABLE 9

TOTAL SUSPENDED PARTICULATE
EMISSIONS
COTTAGE GROVE
(tons per year)

1985

Industrial Processes	439
Residential Woodheating	127
Fugitive Dust	109
Other	13
TOTAL	688

TOTAL SUSPENDED PARTICULATE
EMISSIONS
OAKRIDGE
(tons per year)

1985

Industrial Processes	77
Residential Woodheating	65
Fugitive Dust	56
Other	7
TOTAL	205

a lesser extent, Cottage Grove.

EUGENE-SPRINGFIELD

The Eugene-Springfield metropolitan area is classified as an Air Quality Maintenance Area (AQMA), or nonattainment area, for total suspended particulates and carbon monoxide.

Control strategies for both pollutants were adopted and implemented in the late 1970's and early 1980's. Those strategies helped produce a reduction in emissions between 1978 and 1982 for particulates, and 1977 and 1982 for carbon monoxide, as shown on Table 8. However, there is evidence to suggest that the maximum benefits of those strategies are largely realized. In fact, based on recent surveys, emissions from the use of wood as a home heating fuel have offset some of the gains for both pollutants.

Just as problems often vary within the County, different areas of the urban center also have differing levels of air quality concerns.

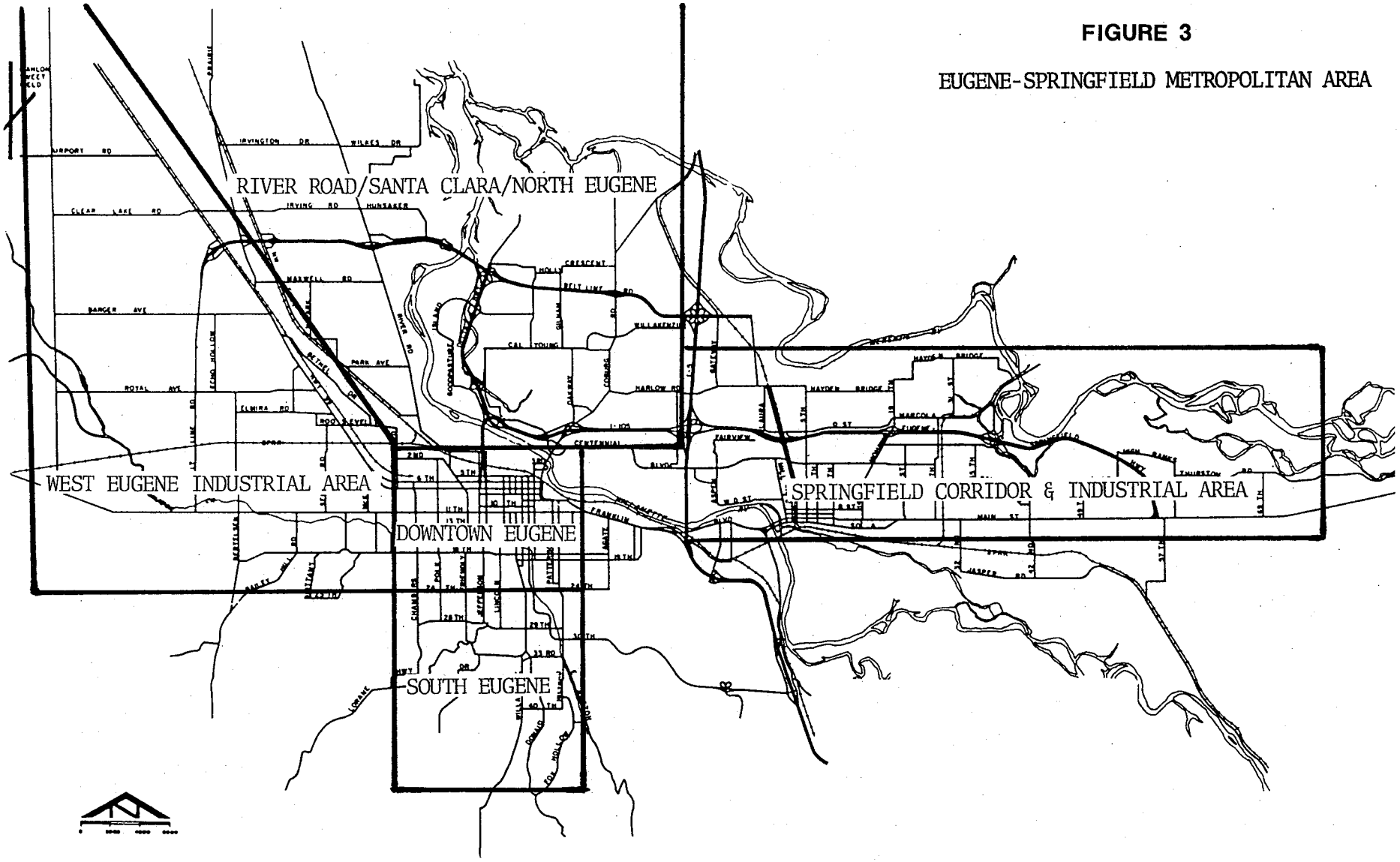
For purposes of discussion, the urban area is divided into five sections: the West Eugene Industrial Area, River Road/Santa Clara/North Eugene, Downtown Eugene, South Eugene, and the Springfield Corridor/Industrial Area. Each section is depicted on the metropolitan area map contained in Figure 2.

WEST EUGENE INDUSTRIAL AREA

The West Eugene Industrial Area continues to be the most serious suspended particulate nonattainment section of the metropolitan area, where the major air pollution emissions are from smokestacks, fugitive dust, and residential chimneys.

FIGURE 3

EUGENE-SPRINGFIELD METROPOLITAN AREA



This area, along with certain sections of Springfield, contains numerous wood products-oriented industries.

Total suspended particulate emissions from industries have been steadily declining since 1978, partly due to additional air pollution controls and also due to the effects of the recession. LRAPA continues to work extensively with these industries in their air pollution control efforts.

The concentrated residential areas located in this section include the Churchill area in the southeast corner, and the Bethel/Danebo area in west Eugene. Not only are these areas impacted by industrial emissions, but they also experience pollution from residential woodheating in the wintertime, and occasional field and slash burning smoke intrusions in the summertime.

Some commercial/retail development, as well as West 11th Street and some of the busy drive-time intersections on West 18th Street, produce carbon monoxide emissions in this section.

LRAPA maintains three particulate monitoring sites in this section. One of these sites (Westmoreland Elementary School) recorded the highest 24-hour average during last December's air pollution episode.

RIVER ROAD/SANTA CLARA/NORTH EUGENE

Industry and residential woodheating are again the primary sources of air pollution in the River Road/Santa Clara/North Eugene section of the metropolitan area.

Industries located in the Highway 99N area produce suspended particulate emissions year-round,

while residential woodburning in the heavy residential areas of River Road, Santa Clara, and the Oakway/Coburg Road area cause particulate problems in the wintertime. In fact, a LRAPA survey conducted in 1982 and repeated in 1984 on local woodburning use patterns identified the River Road/Santa Clara area as being the highest woodstove use area in Eugene-Springfield.

This section also receives some field and slash burning smoke in the summertime. Intrusions are intense and usually of short duration because of the flat terrain and better ventilation patterns in this section. Field burning smoke in this section will usually precede smoke drifting into other parts of Eugene and Springfield.

Agricultural dust will also impact this area occasionally, because of the close proximity to agricultural operations.

Finally, automobile traffic at the busy intersections on River Road, Beltline, Coburg Road, etc., in conjunction with retail areas along these roads, results in some carbon monoxide air pollution.

A sampling site located in the southwestern corner of this section, near the intersection of Highway 99N and Roosevelt (also known as Four Corners), routinely records the highest particulate levels of all the metropolitan area sites. A combination of road dust, residential woodheating, and industrial emissions are believed to be responsible.

DOWNTOWN EUGENE

Being the actual "hub" of the City of Eugene, the Downtown Eugene section experiences elevated

carbon monoxide levels due to traffic congestion, particularly at busy intersections. Those intersections presently identified as experiencing carbon monoxide problems include West 7th & Jefferson, 11th & Willamette, 13th & Hilyard, as well as occasional problems on Franklin Blvd., West 6th and 7th Streets.

These and other areas in this section will continue to be vulnerable to high carbon monoxide levels due to increased traffic volumes that will accompany additional commercial development, when such development occurs.

Various areas in this section also experience air pollution from residential woodheating, because of the high-density housing to the west, south and east of the downtown area.

LRAPA's permanent carbon monoxide monitoring site is located at the Lane Community College Building at 11th & Willamette Streets in Downtown Eugene. Total and fine particulates are also measured at this location. Several special carbon monoxide studies have been conducted at various intersections in this section.

SOUTH EUGENE

South Eugene is a heavy residential area that experiences wintertime problems with residential woodburning. And, because this area is surrounded on three sides by hills, air pollution will oftentimes collect in the area. Such is the case with field and slash burning smoke intrusions in the summertime.

Air quality monitoring for particulates, carbon monoxide, and ozone is conducted in this section; at Amazon Park south of the downtown

area. Both total and fine particulates are measured year-round, while monitoring for ozone is conducted in the summertime and carbon monoxide in the wintertime.

Besides being a source of particulates in this area, residential woodburning is also believed to be contributing to the carbon monoxide concentrations. It is primarily for this reason that carbon monoxide is measured at Amazon Park.

SPRINGFIELD CORRIDOR/INDUSTRIAL AREA

The Springfield Corridor/Industrial Area is primarily impacted by industry and motor vehicles, although some residential woodburning also takes place. Road dust is also a seasonal contributor.

The suspended particulate levels recorded at Springfield Fire Station #2, on East Main Street, are not usually the highest levels in the community. While nearby major industries probably impact this site, there is not an extremely high density of housing in the immediate area. Therefore, woodburning may not be a major contributor at the site itself.

And, although this section contains two major arterial routes (I-105 and East Main Street), traffic flow is fairly smooth and carbon monoxide has been measured at low levels.

Residential woodburning will have more of an influence on the Springfield City Hall monitoring site, due to its close proximity to the heavy residential section of the city north of downtown Springfield.

SUMMARY

The many sources of suspended particulate in the Eugene-Springfield area combine to cause a nonattainment problem (in terms of the federal particulate standard) in the community, though some sections are "dirtier" than others. Those sections include the west Eugene industrial area and, to a lesser extent, east Springfield. If the EPA adopts a fine particle standard, additional sections, such as the River Road/ Santa Clara area, south Eugene, and portions of the other sections will likely be in nonattainment of this standard because of the prevalance of residential woodburning.

Whereas suspended particulates tend to be more of an area-wide source of pollution that in some cases can envelope an entire community, carbon monoxide is a localized pollutant found immediately near the source in high concentrations. Such is the case with carbon monoxide in Eugene-Springfield, where the highest levels are found around busy, congested intersections such as those previously cited in Downtown Eugene. To date, a carbon monoxide problem has not been found in Springfield.

Therefore, local carbon monoxide control strategies have focused on aleviating congestion around the busy intersection. If carbon monoxide becomes more of an area-wide problem, an automobile inspection/maintenance program might be an effective control strategy.

Outside of the metropolitan area, we have detected air pollution problems in two other communities.

OAKRIDGE

LRAPA also measures total suspended particulate concentrations in Oakridge; at the Willamette Activity Center Building on the southwest edge of town adjacent to Highway 58.

Seven exceedances of the 24-hour particulate standard were recorded at this site in 1985, second in number only to the Pac-West Bank monitoring site in northwest Eugene. The major source impacting this site is believed to be residential woodheating, because of the nearby housing and the fact that this particular area of the city sits in a bowl-shaped valley.

LRAPA estimates that just over 200 tons of particulates are emitted into the Oakridge airshed each year (see Table 9). Industrial emissions were the highest in 1985, with residential woodburning and road dust emissions just behind. This order may since have changed, due to the closure of the Pope & Talbot facility. The remaining emissions are attributed to other sources such as backyard burning and transportation.

As is the case with most cities in Lane County, LRAPA believes that future growth in the Oakridge area, particularly in the amount of residential woodburning, will probably cause a worsening air pollution situation and future total particulate and fine particulate standard exceedances in years to come.

COTTAGE GROVE

Suspended particulates and ozone are measured either in or around the Cottage Grove area. The particulate monitoring site is located just east of downtown, at Harrison Elementary School. The

ozone site is located at Saginaw, a few miles north of Cottage Grove.

Air quality standard exceedances at Harrison Elementary School are attributed to poor atmospheric ventilation conditions and residential woodburning emissions. Ozone standard exceedances have not been registered at Saginaw for the past few years.

LRAPA estimates that nearly 700 tons of particulates are emitted into the Cottage Grove airhsed each year (see Table 9). Industrial processes contribute the most, followed by residential woodheating. Future growth in and around the Cottage Grove area, with the accompanying rise in woodburning emissions, are likely to cause continued exceedances of the 24-hour total particulate standard and future exceedances of a fine particulate standard.

The Programs:

Besides describing the local air quality agency in Lane County, the Annual Report, up to this point, has discussed the 1985 air quality data and the air pollution problems that exist in the county.

With this knowledge, the logical concluding discussion should involve the programs designed to address and solve the air quality problems. Solutions to air pollution problems often involve a "mix" of strategies, ranging from public information through technical consultation with government and industry. In cases where sources are not subject to specific regulation, public education and information is often employed as a control strategy. A longer-term strategy involves adequate planning to assure that potential, future air quality problems can be anticipated and mitigated, to the greatest extent possible. Thus, the solutions to Lane County's air pollution problems are, for the most part, embedded in the Authority's programs; specifically, in air quality planning, engineering and field activities, and public information and education.

AIR QUALITY PLANNING

The significance of the air quality planning portion of the Authority's overall program is in identifying current and future air quality problems in Lane County, and determining control strategies that will preserve acceptable air quality as growth occurs.

One portion of this program involves review of various local planning and construction projects as they arise, in terms of their likely impacts on air quality. The degree to which air quality is considered in these projects will, to a large extent, determine the success of the Authority's continuing efforts to provide solutions to local air quality problems.

The Authority commented on six major planning and construction projects in 1985, including the Metropolitan Area General Plan, the transportation component of that plan (known as "Transplan"), environmental assessments on three proposed construction projects, and the Oregon Smoke Management Plan.

The Metropolitan Area General Plan serves as a blueprint for growth in the Eugene-Springfield urban area, and is periodically reviewed and updated. The 1985 review process provided an opportunity for LRAPA to comment on the air quality aspects of the plan. LRAPA advocated the need for a more comprehensive examination of probable air quality aspects involved with future growth, and obtained such a commitment in the Metro Plan.

LRAPA worked with the Lane Council of Governments to develop an air quality appendix for the Transplan, which defines the local air quality problem in some detail and projects future air quality levels, given the scenarios outlined in the transportation plan. Specifically, LRAPA stated that reduced air pollution emissions should occur if the transit and alternative mode goals stated in the Transplan are met, and if the capital improvement projects stated in the plan are undertaken.

LRAPA conducts a review and evaluation for indirect source permit applications involving any

proposed construction project which will either directly or indirectly cause an increase in motor vehicle activity. Such projects usually involve highway construction, construction of retail, commercial and industrial facilities, and construction of parking facilities. An indirect source permit is issued if it is found that the project will not cause or further worsen an air quality standard violation.

The three major construction projects reviewed by LRAPA involved the proposed Lane Transit District bus maintenance facility in Glenwood, the draft Environmental Impact Statement for the 6th & 7th Street Widening Project in Eugene, and an environmental assessment of proposed reconstruction work on Interstate-5 between the McKenzie and Willamette Rivers.

Of these three projects, the 6th/7th Street widening project merits some discussion. The air quality analysis report associated with the project needed updating, and an indirect source permit was issued under the condition that certain traffic flow improvements be made in the vicinity of the 7th & Jefferson Street "hot spot" location discussed in the previous section of this report. The improvements had to do with facilitating traffic flow onto the Washington-Jefferson Street Bridge, thereby reducing traffic congestion and elevated carbon monoxide levels at the intersections at the exit from and entrance to the bridge.

Finally, the Department of Environmental Quality undertook a comprehensive review of the Oregon Smoke Management Plan in 1985, with emphasis placed on forest slash burning. LRAPA's recommendations for changes in the plan included slash burning being curtailed when air pollution alerts are forecast,

expansion of designated areas protected from smoke intrusions to include other communities in Lane County such as Oakridge and Cottage Grove, and a better consultation procedure between the State Department of Forestry and local or state air pollution agencies.

ENGINEERING & FIELD ENFORCEMENT

Generally, the engineering effort of the Authority involves technical review and evaluation of air pollution permits and control equipment for new and existing industrial sources, to make sure that LRAPA requirements are met.

Accompanying the engineering effort are various field activities undertaken by the Authority's staff. These activities include routine surveillance of industrial sources, investigation of industrial upset conditions involving air pollution control equipment, citizen complaint investigation, enforcement actions, and investigation of special open burning requests.

UPSET CONDITIONS

The field engineer performs routine surveillance of numerous sources in assigned geographic areas of Lane County. These inspections help prevent minor air pollution problems from becoming major ones, and they provide a "presence" in the field that helps deter excessive emissions and violations of emissions regulations. Field follow-up is also required to investigate reported upsets of air pollution control equipment. An effort is made to eliminate recurrence of upset conditions and to maximize the operation of the

control equipment, which assures a more continuous, consistent industrial emission control program. A total of 86 upset conditions were reported by local industry in 1985, compared with 77 reported upsets in 1984 and 85 upsets in 1983.

OPEN BURNING REQUESTS

The field staff considered 15 special open burning requests during the year, four of which were in conjunction with existing agricultural open burning permits. These special requests usually involve the burning of materials prohibited from being burned without special authorization. Each request requires a field inspection to assess the situation.

ENFORCEMENT ACTIONS

Occasionally, excessive amounts of industrial air pollution emissions not attributed to an upset condition, and illegal open burning activities will result in enforcement actions taken by the Authority. A total of 22 administrative warnings, corrective action orders, and civil penalties were issued in 1985 for excessive air pollution discharges, violations of permit conditions, and open burning violations. That total was up from 18 enforcement actions taken in 1984 for similar activities.

CITIZEN COMPLAINTS

The Authority places a high priority on response to air pollution complaints registered by Lane County citizens. Industial source-oriented complaints will often serve as the basis for correcting problems not previously noted by the field engineer or the company. Complaints regarding such activities as open

burning or residential woodburning oftentimes present the opportunity for additional public education on measures aimed at reducing pollution from these sources. And, in a larger context, complaints will often reflect trends in public attitudes and perceptions about the various local air pollution sources, which, in turn, assist the Authority in modifying its control program to more accurately reflect the needs of the local area.

Of the 381 total complaints registered with LRAPA in 1985, 64% involved smoke from residential woodburning, backyard burning, field burning, and slash burning; 21% involved local industry; 8% were attributed to unknown sources; and 7% had to do with dust, pollen, or generally poor air quality.

SOURCE TESTING

The Authority conducted source tests on a number of hog-fuel boilers for both compliance and fine particulate emissions in 1985. While the complaince results were "mixed," the results demonstrated a lower percentage of fine particles being emitted than indicated by EPA emission factors. Meanwhile, the Authority has been working with those companies whose boilers were determined to be out of compliance.

ASBESTOS/TOXIC AIR POLLUTANTS

The engineering and field activities section also administers LRAPA's asbestos program. In addition to regulating companies which use asbestos in their manufacturing process, the Authority requires that any person, company, or business intending to demolish or renovate any building, structure, or equipment containing friable asbestos must notify

LRAPA at least ten days in advance.

This rule covers situations ranging from complete demolition of buildings to repair of boiler systems with asbestos-covered pipe, to the remodeling of an older building containing asbestos. Proper containment and handling of asbestos materials minimizes the asbestos fibers in the air, thus reducing the risk to workers and to the general public. For demolition, the proper procedure includes careful handling during the demolition or dismantling activity, and double-bagging of material for final disposal in a landfill.

LRAPA's notification rule is designed to make sure that the contractor performing the demolition or renovation work is fully aware of the handling and transportation requirements. There were 29 such removal project notices received by LRAPA in 1985.

The engineering staff also initiated a survey of sources of potential toxic compounds in Lane County. When complete, the data will become part of a statewide inventory and will be used to develop appropriate permit conditions and regulations to reduce unacceptable emissions. Preliminary results suggest that the need for large-scale regulation will be limited in Lane County and in the state as a whole. Completion of the survey and report is scheduled for the spring of 1986.

PERMIT FEES

Another industry-related project initiated in 1985 had to do with the Authority's permit fees. At the instruction of the LRAPA Board of Directors, the engineering staff began examining the feasibility

of establishing a permit fee schedule that is separate from the State's schedule. It was determined that the Environmental Quality Commission (EQC) must first grant authorization for the Authority to take such action. The EQC is to consider LRAPA's request for authorization in the spring of 1986. In the meantime, the engineering staff began a re-evaluation of the effort involved in administering the permit fee program. A new fee schedule is now being developed accordingly, pending EQC authorization.

PUBLIC INFORMATION & EDUCATION

LRAPA's public information and education effort includes a number of activities, all aimed at promoting greater citizen awareness about air pollution problems in our communities, and what can be done to alleviate those problems. These activities include media relations, public presentations, the creation of brochures and reports.

In 1985, the Authority was involved with 125 separate media interviews concerning various air quality issues in Lane County. In addition, 17 news releases were issued to local media outlets. Presentations were made to 10 civic and special interest groups, as well as 33 public education classes ranging from elementary to university levels.

Illustrative of this effort, LRAPA was involved with 37 newspaper, radio, and television interviews during December's two-week air pollution episode discussed previously in this report. The local air pollution situation was a front-page news item in the Register-Guard on three separate occasions during the period. Numerous citizen

inquiries about the local air pollution levels were dealt with by LRAPA staff.

One specific public education project undertaken by the Authority in 1985 was a heightened woodstove education program. Funded by a special federal grant, LRAPA coordinated the production of a videotaped 30-second public service announcement about the importance of proper selection and operation of woodstoves, which was broadcast on the four local television stations during the spring, fall and winter months. The Authority also co-sponsored, with the assistance of local woodstove retailers, woodstove operation workshops intended to demonstrate proper stove operation and maintenance techniques to improve efficiency and reduce air pollution and fire hazards associated with residential woodburning. Similar presentations were made to civic gatherings in Oakridge and Veneta. Woodstove operation and pollution information was also distributed to the public through neighborhood association newsletters, and firewood permit agencies. All of these information mechanisms were utilized by LRAPA in its continuing effort to inform and educate Lane County citizens about the air pollution problems associated with residential woodburning.

AIR POLLUTION INDEX

Another component of LRAPA's public information and education effort is the reporting of daily air pollution levels using the Air Pollution Index (API). The API, reported to the public through the local media, is designed to provide a general indication of air quality for the previous 24-hours. In addition, a forecast for

the next 24-hour period is also provided.

An index number is calculated separately for particulate matter, carbon monoxide, and ozone. The pollutant with the highest index becomes the API for that day and is reported to the public. The API summaries for 1985 are shown in Table 10. Of the 365 days of the year, 71% were "good" air quality days, 28% were "moderate," and less than 1% were classified as "unhealthful," compared to 1984 percentages of 68%, 31%, and less than 1%, respectively.

The API forecasts in 1985, though unsophisticated in nature, were fairly accurate, with the correct pollutant being forecast about 95% of the time. The forecast level was, on the average, within 5 points of the actual level recorded the next day.

THE LONG-RANGE VIEW

All of the elements of LRAPA's air pollution control program include a long-range component. Ideally, all decisions made by the Authority include a basic recognition that those decisions may have a local impact for years to come. At the same time, there is a realization that future growth in Lane County communities may result in additional air pollution problems. Therefore, LRAPA will continue to stress air quality planning, fair and effective regulation, and public education, with an eye toward future air quality conditions in Lane County.

TABLE 10

AIR POLLUTION INDEX

1985

	NUMBER OF DAYS			
	GOOD	MOD	UNHLTH	TOTAL
Carbon Monoxide	71	38	1	110
Ozone	163	37	0	200
Total Suspended Particulate	26	29	0	55
TOTAL	260	104	1	365

	PERCENTAGES			
	GOOD	MOD	UNHLTH	TOTAL
Carbon Monoxide	19.5%	10.4	0.3	30.1
Ozone	44.7	10.1	0.0	54.8
Total Suspended Particulate	7.1	7.9	0.0	15.1
TOTAL	71.2	28.5	0.3	100.0%