Technical Support Document

Carbon Monoxide Maintenance Plan Revision
For the Colorado Springs Attainment Area

December 2003

Prepared by the Technical Services Program
Air Pollution Control Division
Colorado Department of Public Health and Environment

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Introduction

The Environmental Protection Agency (EPA) approved a carbon monoxide (CO) redesignation request and maintenance plan for the Colorado Springs area on August 25, 1999 (64 FR 46279), which became effective on October 29, 1999. The action, which was adopted by the Colorado Air Quality Control Commission (AQCC) in January 1998, established an attainment year of 1993 and a maintenance year of 2010, provided for the continuation of the State's basic inspection and maintenance (I/M) program and the oxygenated gasoline program in the Colorado Springs area (as the programs existed in January 1998), established a carbon monoxide emission budget of 212 tons per day for mobile sources (to be utilized in transportation conformity determinations), and established a contingency plan in the event a violation of the CO National Ambient Air Quality Standards (NAAQS) was measured.

On December 22, 2000, the EPA approved a revised Colorado Springs area CO maintenance plan, which became effective on February 20, 2001 (65 FR 80779). This action, which was adopted by the AQCC in February 2000, revised the attainment year from 1993 to 1990, provided for the continuation of the basic I/M program, eliminated the oxygenated gasoline program in El Paso County, revised the emission inventories and maintenance demonstration, revised the CO emission budget from 212 to 270 tons per day, and revised the contingency plan.

This revision to the maintenance plan updates the emissions inventories using the latest EPA-approved tools (including the MOBILE6.2 on-road mobile sources emissions model and the EPA Non-Road model), eliminates the basic I/M program in El Paso County, demonstrates maintenance through 2015, and revises the CO emission budget from 270 to 497 tons per day for the year 2015 and beyond

Colorado Spring Carbon Monoxide Attainment Area Boundary

The area shown in Figure 1 below represents the area in which the Pikes Peak Area Council of Governments (PPACG) serves as the "Metropolitan Planning Organization" (MPO) for transportation and the "Lead Planning Agency" for air quality.

Figure 1. Colorado Springs Carbon Monoxide Attainment/Maintenance Area
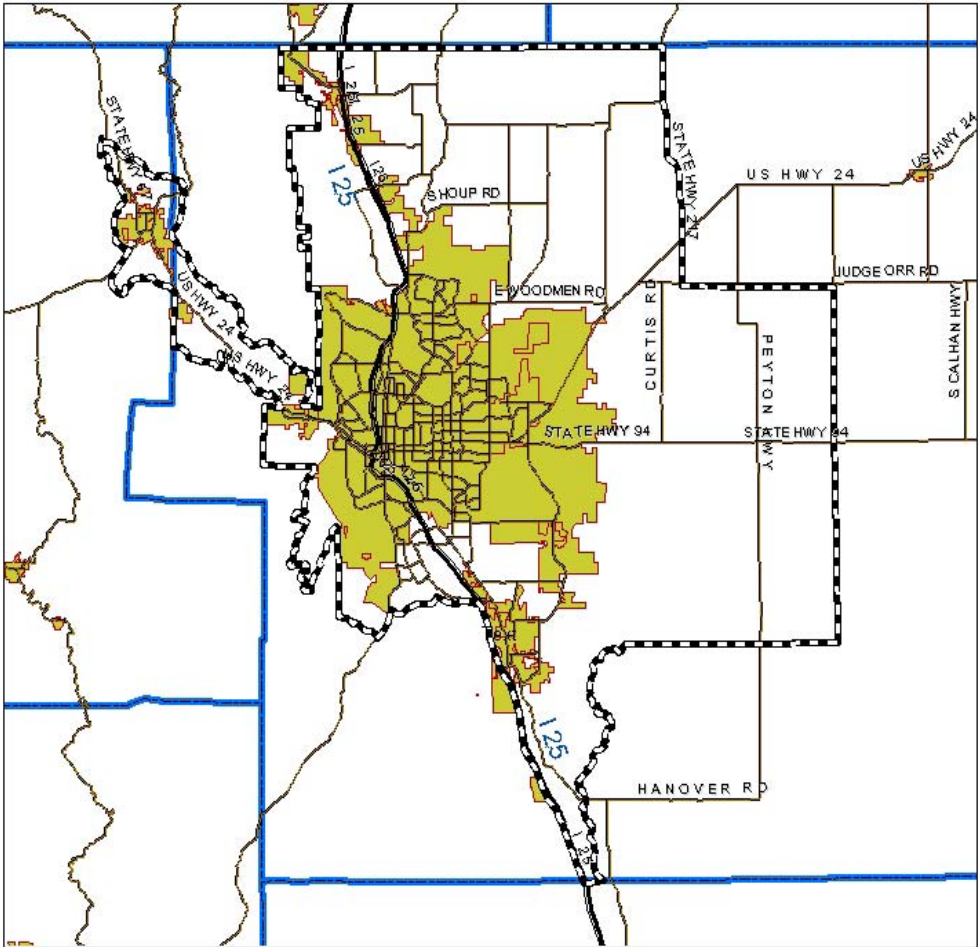
Legend

⬛⬛⬛ Attainment/Maintenance Area

▭ County Boundary

Map Created by the APCD Technical Services Program
Colorado Department of Public Health and Environment

Demographic Data and Vehicle Miles Traveled Data

The Pikes Peak Area Council of Governments has provided the following demographic and vehicle miles traveled data for use in this technical analysis:

	1990	2000	2007	2010	2015
Population	397,432	503,345	569,297	595,771	634,766
Employment	154,897	277,757	311,000	323,841	340,576
Households	151,685	201,116	225,994	236,577	252,015
Vehicle Miles Traveled	7,988,530	10,505,764	13,903,722	14,823,445	16,227,350

Emission Inventories and Maintenance Demonstration

The emission inventories for the 1990 attainment year, the 2005, 2007 and 2010 interim years, and the 2015 maintenance year are presented in Table 1. Each inventory accounts for the emission control programs effective during that period. As shown in Table 1, emissions for all future years are less than emissions for the 1990 attainment year. Therefore, maintenance of the CO NAAQS is demonstrated.

Table 1 - Colorado Springs Carbon Monoxide Maintenance Plan
Emission Inventories (tons/day)

Source Category	1990	2005	2007	2010	2015
Aircraft	1.88	2.22	2.26	2.33	2.46
Heating	1.35	1.17	1.15	1.20	1.29
Commercial Non-road	10.71	19.58	20.76	22.56	25.53
Construction Non-road	2.86	2.83	2.83	2.82	2.85
Industrial Non-road	5.49	5.61	5.75	5.72	5.67
Lawn and Garden	7.78	10.63	11.01	11.62	12.67
Agriculture Non-road	0.02	.02	0.02	0.02	0.02
Wood Burning	45.77	34.96	33.52	33.17	34.01
Structure Fires	0.27	.13	0.11	0.11	0.12
Railroad Non-road	0.03	.04	0.04	0.04	0.04
Railroad Locomotives	0.09	.17	0.18	0.18	0.19
Point Sources	2.83	3.28	3.34	3.84	4.32
Sub-total non-road	**79.06**	**80.73**	**80.95**	**83.61**	**89.15**
On-Road	542.27	417.66	389.68	350.21	320.20
Grand Total (tons/day)	**621.33**	**498.39**	**470.63**	**433.82**	**409.35**

Note: Results are reported with two decimal place precision to provide representation of smaller source categories. This level of precision is not intended to suggest a level of accuracy. A detailed description of all point sources is shown in Table 3.

Mobile Source Emission Inventories

Travel Demand Model based Mobile6.2 Inputs

The Pikes Peak Area Council of Governments (PPACG) travel demand modeling provides the base activity level information for the mobile source emission inventories. The 2000, 2007 and 2015 networks from the 2025 Regional Transportation Plan (RTP, August 2001) were used for the 2005, 2007, and 2015 VMT estimates. The 2010 VMT and network speed estimates resulted from the PPACG 2004-2009 Transportation Improvement Program modeling (July, 2003). The 1990 VMT was estimated using the last travel demand modeling PPACG performed for 1990.

The following Mobile6.2 inputs parameters for 1990, 2005, 2007, 2010 and 2015 were derived from the VMT and vehicle speeds resulting from PPACG travel demand modeling:

- Vehicle speeds (SPEED VMT command)
- Diurnal distribution of VMT (VMT BY HOUR command)
- Distribution of VMT by Facility class (VMT BY FACILITY command)

A FORTRAN program was written to convert the speeds and VMT, as a function of AM (0700-0800), PM (1700-1800) and Off peak periods, facility type and area type, into the proper formats for the Mobile6.2 command files. This FORTRAN program, m6in.f, is included in the Appendix, available upon request. The diurnal distribution of VMT for each area type is normalized to unity, resulting in the files referenced by the VMT BY HOUR command. The Mobile6.2 default VMT BY HOUR distribution was used to distribute the AM, PM and OFF Peak period VMT from the PPACG travel demand modeling into 24 hours. This 24-hour distribution of VMT was than normalized to unity. The SPEED VMT files are processed in a similar manner. The freeway and expressway speeds are VMT weighted for the 'freeway' speeds in the SPEED VMT files. The principal arterial, minor arterial and collector speeds are VMT weighted for the 'arterial' speeds in the SPEED VMT files. The file referenced by the VMT BY FACILITY command results from a summary of VMT by facility type for each area type.

Finally, the FORTRAN processing program writes a text file of five scenarios, one for each area type. The text for each scenario references the appropriate files through the SPEED VMT, VMT BY FACILITY and VMT BY HOUR commands. The scenarios text is then appended to the 'header' and 'run' sections to complete the Mobile6.2 input file.

Local Vehicle Mix and Vehicle Registration Distribution

Colorado data for the fleet mix of vehicle miles traveled or 'VMT mix' (the fractional distribution miles driven by the various vehicle types driven on Colorado roadways) and vehicle registration distribution (vehicle age distribution) was updated in 2001. The previous survey of this information in 1988 indicated that the mobile fleet in Colorado tends to be older than the national average and that the VMT mix is comprised of more heavy duty vehicles than the national average VMT mix. The 2001 registration distribution and VMT mix survey information

indicates that this trend of an older fleet and a VMT mix of heavier vehicles continues in Colorado. As a result of these continuing trends, a Colorado fleet of vehicles will have higher emission rates than the national average. These new local data sets were included in this budget revision for 2005, 2007, 2010 and 2015. Since the 1990 base year inventory is closer to the 1988 survey data, the 1990 vehicle mix resulting from the 1988 survey information was used for 1990 (1988 survey data is 'aged' to 1990 using Mobile6.2 default VMT mix). The VMT mix by area type is appended to each area type scenario as described in the previous section. The reference to the registration distribution is included in the 'RUN DATA' section of the Mobile6.2 input files. The VMT mix information and registration distribution are included in the Appendix (available upon request) in the Mobile6.2 inputs.

Control Strategy Parameterization

The mobile source control programs in 1990, an idle inspection and maintenance (I/M) program and an oxygenated fuel program, are parameterized as they were operating in 1990. The mix of ethanol and MTBE oxygenate additives in 1990 results in a 2.2% oxygenated fuel program. The Mobile6.2 input files for 1990 has the descriptions of these programs. The I/M program and the oxygenated fuel program were not included in the 2005-2015 mobile6.2 runs. Consequently, the emission inventories for 2005-2015 represent the emission expected from a fleet of vehicles with no state or local I/M or oxygenated fuel programs.

Mobile Source Emission Inventories

The mobile source emission factors were calculated using Mobile6.2.

The following tables summarize the VMT, emissions factors and resulting on-road mobile source emissions inventories:

Table 2 - VMT, Emissions Factors and Resulting On-Road Mobile Source Emissions Inventories
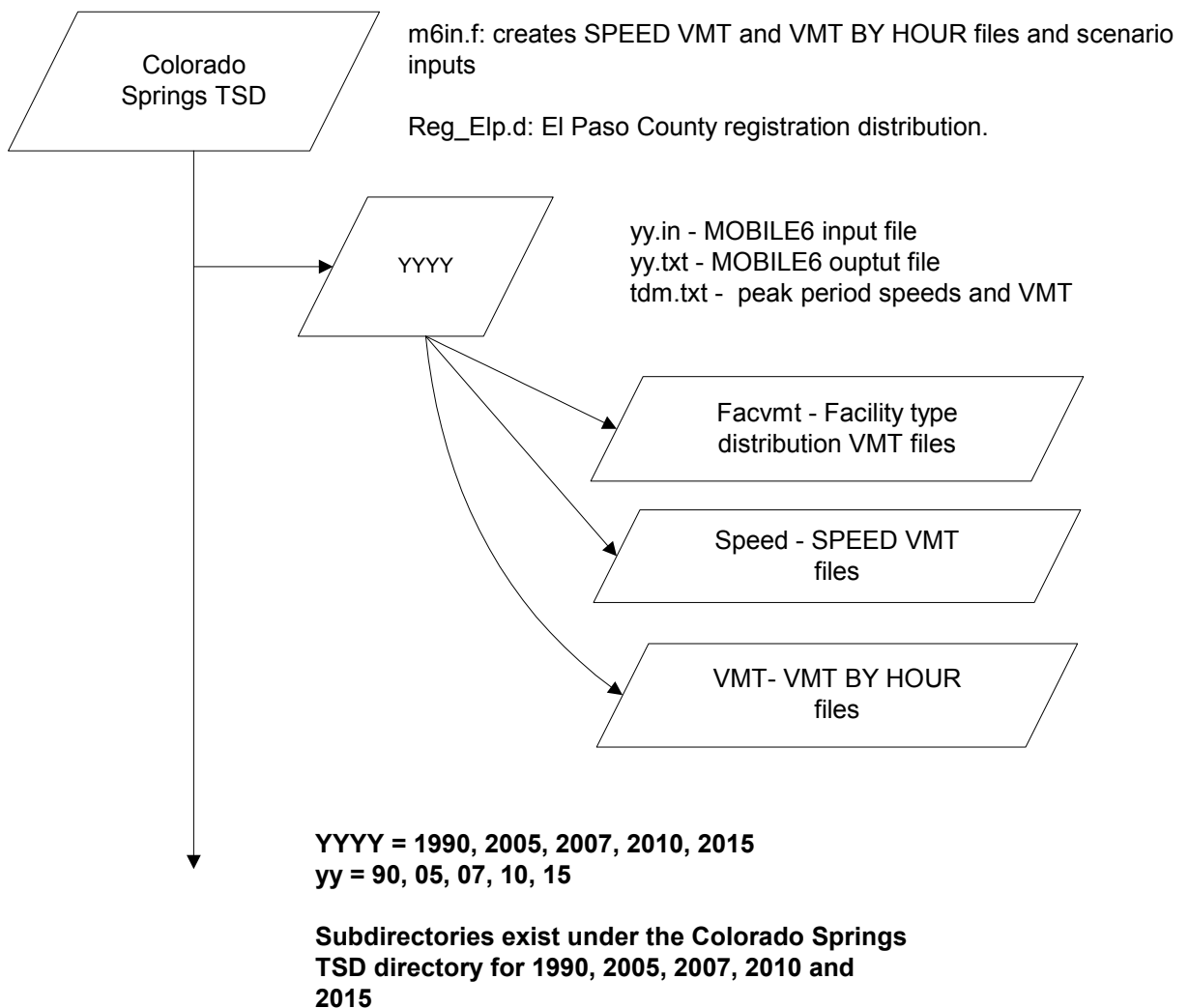
1990	VMT	CO Emission Rate	grams/day	tons/day
CBD	39348	62.43	2456456	2.708
CBD Fringe	475903	61.37	29206166	32.194
Residential	5065629	60.82	308096608	339.613
Outlying BD	424681	60.18	25558576	28.173
Rural	1982969	63.86	126630416	139.584
Totals	7988530	61.58	491948224	542.271

2005	VMT	CO Emission Rate	grams/day	tons/day
CBD	67505	28.53	1925783	2.123
CBD Fringe	554808	29.86	16566567	18.261
Residential	6194415	28.64	177389456	195.535
Outlying BD	2666952	28.1	74941352	82.607
Rural	3449203	31.33	108073880	119.129
Totals	12932883	29.3	378897056	417.655

2007	VMT	CO Emission Rate	grams/day	tons/day
CBD	70162	24.73	1735317	1.913
CBD Fringe	571331	25.73	14700346	16.204
Residential	6530328	24.86	162370080	178.979
Outlying BD	2849021	24.43	69593040	76.712
Rural	3882886	27.07	105117488	115.87
Totals	13903728	25.43	353516288	389.678

2010	VMT	CO Emission Rate	grams/day	tons/day
CBD	73056	20.75	1516131	1.671
CBD Fringe	584345	21.7	12681455	13.979
Residential	6868962	20.92	143712432	158.413
Outlying BD	3025019	20.55	62176244	68.536
Rural	4272066	22.85	97625248	107.612
Totals	14823448	21.43	317711488	350.211

2015	VMT	CO Emission Rate	grams/day	tons/day
CBD	74938	17.16	1285936	1.417
CBD Fringe	668561	18.23	12190541	13.438
Residential	7599395	17.42	132396664	145.94
Outlying BD	3077881	17.04	52447096	57.812
Rural	4806576	19.17	92166088	101.594
Totals	16227351	17.9	290486304	320.201

Mobile6.2 Input/Output File Documentation

Due to the volume and complexity of files utilized in the emission processing for this budget revision, the Mobile6.2 input and output files as well as all ancillary input files are included on a CD as an Appendix, available on request. The subdirectory structure of the files on this CD is described in the following diagram.

Directory structure of digital files for Colorado Springs Mobile Source Inventory TSD

Colorado Springs TSD

m6in.f: creates SPEED VMT and VMT BY HOUR files and scenario inputs

Reg_Elp.d: El Paso County registration distribution.

YYYY

yy.in - MOBILE6 input file
yy.txt - MOBILE6 ouptut file
tdm.txt - peak period speeds and VMT

Facvmt - Facility type distribution VMT files

Speed - SPEED VMT files

VMT- VMT BY HOUR files

YYYY = 1990, 2005, 2007, 2010, 2015
yy = 90, 05, 07, 10, 15

Subdirectories exist under the Colorado Springs TSD directory for 1990, 2005, 2007, 2010 and 2015

Area, Non-road and Point Source Emission Inventories

Residential and Commercial Heating Emissions for 2007, 2010 and 2015 were based on Version 1.5 of the 1999 EPA National Emissions Inventory (NEI) for El Paso and Teller Counties and were apportioned to the attainment area by households using the Pikes Peak Area Council of Governments (PPACG) Small Area Forecast (SAF). The SAF and census data were used to adjust emissions for growth. Daily emissions were obtained from annual emissions by multiplying by the ratio of heating degree days in the high CO season (November, December and January) to the entire year (0.46915, based on National Weather Service data for Colorado Springs for 1948 to 2000 with a base of 65 degrees F) and dividing by 92(the number of days in the season). Projections to other years were based on population and employment projections from PPACG's SAF.

The Non-Road Model was used to estimate the growth in non-road emissions from 1990 through 2015. Non-road Emissions were apportioned to the Colorado Springs attainment area by using households from the 1990 Census. The railroad and agriculture Non-road Emissions are an exception to this apportionment methodology. Railroad related Non-road Emissions were apportioned to the attainment area by the miles of track. Agricultural Non-road Emissions were apportioned to the Colorado Springs attainment area by land area. The following equipment categories were excluded from the Lawn and Garden categories in computing the winter emissions: Commercial Turf Equipment, Front Mowers, Lawn & Garden Tractors, Lawn mowers, Other Lawn & Garden Eqp., Rear Engine Riding Mowers, Rotary Tillers < 6 HP, Trimmers/Edgers/Brush Cutter. The following lawn and garden equipment winter emissions were included: Chippers/Stump Grinders, Chain Saws < 6 HP, Leafblowers/Vacuums, Shredders < 6 HP, Snowblowers. Based on the 1993 Revised Colorado Springs SIP Inventory, the following categories of non-road and area sources were excluded from the Colorado Springs inventory because they are insignificant or nonexistent: airport service equipment, logging equipment, recreational equipment, recreational marine equipment, aircraft/rocket engine testing, charcoal grilling, firefighter training, forest wildfires, managed burning, and orchard heaters.

Railroad Locomotive Emissions for 2007, 2010 and 2015 were based on Version 1.5 of the 1999 EPA National Emissions Inventory (NEI) for El Paso and Teller Counties and were apportioned to the attainment area by miles of track. Projections from 1999 to 2007, 2010 and 2015 were based on the change in employment in PPACG's SAF.

Wood burning emissions for 2007, 2010 and 2015 were developed using the same methodology as the 2000 Inventory by calculating per-household wood burning rates from the PPACG's 1996 Wood Burning Survey, and multiplying by the appropriate AP-42 emission factors. The number of households for each year was taken from PPACG's SAF. Daily emissions were obtained from annual emissions by multiplying by the ratio of heating degree days in the high CO season (November, December and January) to the entire year (0. 46915, based on National Weather Service data for Colorado Springs for 1948 to 2000 with a base of 65 degrees F) and dividing by 92(the number of days in the season).

2003 Point Source Emissions were taken from the Colorado Air Inventory System, which is based on the stationary source permit data. Point Source Emissions were grown to 2007, 2010 and 2015 by the growth in production employment based on the PPACG SAF.

Table 3 - Point Sources For Colorado Springs (tons/year)

Point Sources

county_fips	site_id	facility_name	pollutant	data_year	inventory_year	site_emis_estim	units
041	0004	COLORADO SPRINGS UTILITIES-DRAKE PLT	CO	2003	2003	288.020	TY
041	0897	FOUNTAIN VALLEY POWER, L.L.C.	CO	2001	2003	217.510	TY
041	0331	BROADACRE LANDFILL - FOUNTAIN LANDFILL	CO	2002	2003	78.770	TY
041	0014	FORT CARSON USARMY	CO	2002	2003	55.441	TY
041	0080	INTEL CORP (WAS ROCKWELL & UNITED TECH)	CO	2001	2003	52.228	TY
041	0003	COLORADO SPRINGS UTILITIES-BIRDSALL PLT	CO	2001	2003	46.780	TY
041	0548	VALERO LOGISTICS OPERATIONS, L.P.	CO	2000	2003	34.561	TY
041	0301	EAGLE-PICHER TECH LLC POWER SYSTEMS DEPT	CO	1997	2003	27.530	TY
041	0006	U.S. AIR FORCE ACADEMY	CO	2001	2003	26.454	TY
041	0017	LAFARGE WEST, INC. - FILLMORE	CO	1999	2003	21.000	TY
041	0041	ATMEL CORP	CO	1997	2003	20.780	TY
041	0684	BENNETTS BBQ INC	CO	1996	2003	19.955	TY
041	0036	WESTERN FORGE CORP	CO	2002	2003	19.098	TY
041	0022	COLORADO SPRINGS MEMORIAL HOSPITAL	CO	2002	2003	10.769	TY
041	0011	KANEB PIPE LINE OPERATING PARTNERSHIP LP	CO	2001	2003	10.500	TY
041	0056	PENROSE HOSP SISTERS OF CHARITY	CO	1996	2003	8.925	TY
041	0121	SCHRIEVER AFB USAF	CO	2000	2003	6.446	TY
041	1564	SUN BLEST ENERGY	CO	2002	2003	5.006	TY
041	0016	PETERSON AFB 21CES CEV	CO	2002	2003	4.961	TY
041	0050	OGLEBAY NORTON INDUSTRIAL SANDS	CO	2000	2003	4.368	TY
041	0007	COLORADO SPRINGS UTILITIES LAS VEGAS WWT	CO	2001	2003	4.300	TY
041	0069	COLORADO COLLEGE	CO	2000	2003	4.075	TY
041	0055	PENROSE COMMUNITY HOSPITAL	CO	1996	2003	3.430	TY
041	0045	SCHLAGE LOCK CO	CO	2000	2003	3.287	TY

Point Sources

county_fips	site_id	facility_name	pollutant	data_year	inventory_year	site_emis_estim	units
041	0037	AGILENT TECHNOLOGIES	CO	2000	2003	3.250	TY
041	0023	BROADMOOR HOTEL INC	CO	1996	2003	2.783	TY
041	0783	CHEYENNE MOUNTAIN AIR STATION	CO	2002	2003	1.950	TY
041	0010	TRANSIT MIX CONCRETE	CO	2001	2003	1.835	TY
041	0831	VITESSE SEMICONDUCTOR CORP	CO	2000	2003	1.763	TY
041	0054	PIKES PEAK COMMUNITY COLLEGE	CO	2001	2003	1.698	TY
041	0067	ST FRANCIS PENROSE HOSP SYS	CO	1996	2003	1.348	TY
041	0816	MITSUI ADVANCED MEDIA	CO	2001	2003	1.300	TY
041	0223	HEWLETT-PACKARD CORPORATION	CO	2000	2003	0.943	TY
041	0882	KLK INC. - IOWA AVE	CO	1999	2003	0.620	TY
041	0522	SINTON DAIRY FOODS CO	CO	1996	2003	0.595	TY
041	0535	SNO WHITE LINEN & UNIFORM RENTAL INC	CO	1996	2003	0.510	TY
041	0135	EMBASSY SUITES HOTEL	CO	1999	2003	0.431	TY
041	0063	CHEYENNE MTN ZOO	CO	2000	2003	0.360	TY
041	0192	PETE LIEN & SONS DBA TRANS-COLO.CONCRETE	CO	1998	2003	0.333	TY
041	0401	LOCKHEED MARTIN COMMAND & CONTROL SYSTEM	CO	1996	2003	0.280	TY
041	0115	WESTERN SCRAP PROCESSING CO_INC	CO	1999	2003	0.236	TY
041	0307	TUSCARORA INC	CO	2001	2003	0.200	TY
041	0809	DMI COLLISION CENTER INC	CO	1996	2003	0.200	TY
041	0411	AEROFLEX UTMC MICROELECTRONICS	CO	2002	2003	0.200	TY
041	0222	LOCKHEED MARTIN COMMAND & CONTROL SYSTEM	CO	1996	2003	0.198	TY
041	0850	COLORADO MORTUARY SERVICES	CO	1997	2003	0.188	TY
041	0316	RAMTRON INTL CORP	CO	2001	2003	0.175	TY
041	0812	COLORADO SPRINGS MORTUNARY & CREMATION S	CO	2002	2003	0.090	TY
041	0071	ROBINSON BLOCK LLC	CO	1998	2003	0.060	TY
041	0856	MCI TELECOMMUNICATIONS CORP	CO	2001	2003	0.053	TY
041	0042	TRANSIT MIX CONCRETE CO	CO	2001	2003	0.030	TY
041	0075	EVERGREEN PARK MAUSOLEUM ASSOCIATION	CO	2002	2003	0.020	TY
041	0310	BURTS AUTO SUPPLY	CO	2001	2003	0.015	TY
041	0178	VILLA SAN JOSE APT BLDG	CO	1996	2003	0.010	TY

Point Sources

county_fips	site_id	facility_name	pollutant	data_year	inventory_year	site_emis_estim	units
041	0073	COLORADO INTERSTATE GAS CO INCINERATOR	CO	1997	2003	0.010	TY
041	0249	EL PASO CNTY MEDICAL EXAMINER	CO	1996	2003	0.010	TY
		TOTAL				**995.888**	**TY**

Non-road Model Input File For 1990

The "Non-road Model Input File for 1990 " was produced automatically by the NonRoad Model. The inputs to the model that are reflected in this file are those within the /*NAME*/.../END/ delimiters such as:

```
            /OPTIONS/
Title 1          : COLORADO SPRINGS 1990 WINTER
Title 2          :
Fuel RVP for gas   : 12.4
Oxygen Weight %    : 2.2
Gas sulfur %       : 0.034
Diesel sulfur %    : 0.3300
CNG/LPG sulfur %   : 0.003
Minimum temper. (F): 26
Maximum temper. (F): 54
Average temper. (F): 40
Altitude of region : LOW
/END/
```

Written by Nonroad interface at 4/3/2003 9:34:31 AM
This is the options file for the NONROAD program.
The data is sperated into "packets" bases on common
information. Each packet is specified by an
identifier and a terminator. Any notes or descriptions
can be placed between the data packets.

10/8/1999 changed default RVP from 9.0 to 8.0

          PERIOD PACKET

This is the packet that defines the period for
which emissions are to be estimated. The order of the
records matter. The selection of certain parameters
will cause some of the record that follow to be ignored.
The order of the records is as follows:

1 - Char 10 - Period type for this simulation.
               Valid responses are: ANNUAL, SEASONAL, and MONTHLY
2 - Char 10 - Type of inventory produced.
               Valid responses are: TYPICAL DAY and PERIOD TOTAL
3 - Integer - year of episode (4 digit year)
4 - Char 10 - Month of episode (use complete name of month)
5 - Char 10 - Type of day
               Valid responses are: WEEKDAY and WEEKEND

/PERIOD/
Period type   : Seasonal
Summation type   : Typical day
Year of episode   : 1990
Season of year   : Winter
Month of year   :
Weekday or weekend : Weekday
/END/

          OPTIONS PACKET

This is the packet that defines some of the user
options that drive the model. Most parameters are
used to make episode specific emission factor
adjustments. The order of the records is fixed.
The order is as follows.

1 - Char 80 - First title on reports
2 - Char 80 - Second title on reports
3 - Real 10 - Fuel RVP of gasoline for this simulation
4 - Real 10 - Oxygen weight percent of gasoline for simulation
5 - Real 10 - Percent sulfur for gasoline
6 - Real 10 - Percent sulfur for diesel
7 - Real 10 - Percent sulfur for LPG/CNG
8 - Real 10 - Minimum daily temperature (deg. F)
9 - Real 10 - maximum daily temperature (deg. F)
10 - Real 10 - Representative average daily temperature (deg. F)
11 - Char 10 - Flag to determine if region is high altitude
                Valid responses are: HIGH and LOW
12 - Char 10 - Flag to determine if RFG adjustments are made
                Valid responses are: YES and NO

/OPTIONS/
Title 1   : COLORADO SPRINGS 1990 WINTER
Title 2   :
Fuel RVP for gas   : 12.4
Oxygen Weight %   : 2.2
Gas sulfur %   : 0.034
Diesel sulfur %   : 0.3300
CNG/LPG sulfur %   : 0.003
Minimum temper. (F): 26
Maximum temper. (F): 54
Average temper. (F): 40
Altitude of region : LOW
/END/

            REGION PACKET

This is the packet that defines the region for which
emissions are to be estimated.

The first record tells the type of region and
allocation to perform.

Valid responses are:
US TOTAL   - emissions are for entire USA without state
           breakout.

50STATE   - emissions are for all 50 states
           and Washington D.C., by state.

STATE   - emissions are for a select group of states
           and are state-level estimates

COUNTY   - emissions are for a select group of counties
           and are county level estimates. If necessary,
           allocation from state to county will be performed.

SUBCOUNTY - emissions are for the specified sub counties
           and are subcounty level estimates. If necessary,
           county to subcounty allocation will be performed.

The remaining records define the regions to be included.
The type of data which must be specified depends on the
region level.

US TOTAL   - Nothing needs to be specified. The FIPS
           code 00000 is used automatically.

50STATE   - Nothing needs to be specified. The FIPS
           code 00000 is used automatically.

STATE   - state FIPS codes

COUNTY   - state or county FIPS codes. State FIPS
           code means include all counties in the
           state.

SUBCOUNTY - county FIPS code and subregion code.

/REGION/
Region Level   : COUNTY

El Paso County CO : 08041
Teller County CO : 08119
/END/

or use -
Region Level : STATE
Michigan : 26000

     SOURCE CATEGORY PACKET

This packet is used to tell the model which source
categories are to be processed. It is optional.
If used, only those source categories list will
appear in the output data file. If the packet is
not found, the model will process all source
categories in the population files.

All Equipment - just put semicolon at start of packet name line
or use the following SCC list -
    :2260000000
    :2265000000
    :2267000000
    :2268000000
    :2270000000
    :2282000000
    :2285000000
Diesel Only -
    :2270000000
    :2282020000
    :2285002015
Spark Ignition Only -
    :2260000000
    :2265000000
    :2267000000
    :2268000000
    :2282005010
    :2282005015
    :2282010005
    :2285004015
    :2285006015

 This is the packet that lists the names of output files
 and some of the input data files read by the model. If
 a drive:\path\ is not given, the location of the
 NONROAD.EXE file itself is assumed. You will probably
 want to change the names of the Output and Message files
 to match that of the OPTion file, e.g., MICH-97.OPT,
 MICH-97.OUT, MICH-97.MSG, and if used MICH-97.AMS.

/RUNFILES/
ALLOC XREF : c:\nonroad\data\allocate\allocate.xrf
ACTIVITY : c:\nonroad\data\activity\activity.dat
TECHNOLOGY : c:\nonroad\data\tech\tech.dat
SEASONALITY : c:\nonroad\data\season\season.dat
REGIONS : c:\nonroad\data\season\season.dat
MESSAGE : c:\nonroad\outputs\cospco90.msg
OUTPUT DATA : c:\nonroad\outputs\cospco90.out
EPS2 AMS :
/END/

```
--------------------------------------------------
This is the packet that defines the equipment population
files read by the model.
--------------------------------------------------
/POP FILES/
Population File    :c:\nonroad\data\pop\co.pop
/END/


POPULATION FILE    : c:\nonroad\data\POP\MI.POP



--------------------------------------------------
This is the packet that defines the growth files
files read by the model.
--------------------------------------------------
/GROWTH FILES/
National defaults  :C:\nonroad\data\growth\nation.grw
/END/


--------------------------------------------------
This is the packet that defines the spatial
allocation files read by the model.
--------------------------------------------------
/ALLOC FILES/
Air Transportation :c:\nonroad\data\allocate\co_airtr.alo
Contruction empl.  :c:\nonroad\data\allocate\co_const.alo
Havested Cropland  :c:\nonroad\data\allocate\co_farms.alo
Golf Course estab. :c:\nonroad\data\allocate\co_golf.alo
Wholesale establis.:c:\nonroad\data\allocate\co_holsl.alo
Family housing     :c:\nonroad\data\allocate\co_house.alo
Logging empl.      :c:\nonroad\data\allocate\co_loggn.alo
Landscape empl.    :c:\nonroad\data\allocate\co_lscap.alo
Metal mining empl. :c:\nonroad\data\allocate\co_metal.alo
Manufacturing empl.:c:\nonroad\data\allocate\co_mnfg.alo
Oil & Gas employees:c:\nonroad\data\allocate\co_oil.alo
Census population  :c:\nonroad\data\allocate\co_pop.alo
RV Park employees  :c:\nonroad\data\allocate\co_rvprk.alo
Surface water area :c:\nonroad\data\allocate\co_water.alo
Allocation File    :c:\nonroad\data\allocate\co_sbr.alo
Allocation File    :c:\nonroad\data\allocate\co_sbc.alo
Allocation File    :c:\nonroad\data\allocate\co_snowm.alo
Allocation File    :c:\nonroad\data\allocate\co_wob.alo
Allocation File    :c:\nonroad\data\allocate\co_wib.alo
Allocation File    :c:\nonroad\data\allocate\co_coal.alo
/END/


--------------------------------------------------
This is the packet that defines the emssions factors
files read by the model.
--------------------------------------------------
/EMFAC FILES/
THC exhaust        : c:\nonroad\data\emsfac\exhthc.emf
CO exhaust         : c:\nonroad\data\emsfac\exhco.emf
NOX exhaust        : c:\nonroad\data\emsfac\exhnox.emf
PM exhaust         : c:\nonroad\data\emsfac\exhpm.emf
BSFC               : c:\nonroad\data\emsfac\bsfc.emf
Crankcase          : c:\nonroad\data\emsfac\crank.emf
Spillage           : c:\nonroad\data\emsfac\spillage.emf
Diurnal            : c:\nonroad\data\emsfac\diurnal.emf
/END/
```

```
-------------------------------------------------------
This is the packet that defines the deterioration factors
files read by the model.
-------------------------------------------------------
/DETERIORATE FILES/
THC exhaust        : c:\nonroad\data\detfac\exhthc.det
CO exhaust         : c:\nonroad\data\detfac\exhco.det
NOX exhaust         : c:\nonroad\data\detfac\exhnox.det
PM exhaust         : c:\nonroad\data\detfac\exhpm.det
/END/

Optional Packets - Add initial slash "/" to activate

/STAGE II/
Control Factor     : 0
/END/
Enter percent control: 95 = 95% control = 0.05 x uncontrolled
Default should be zero control.

MODELYEAR OUT/
by-model-year out  : C:\nonroad\outputs\template.bmy
/END/

SI REPORT/
SI report file-CSV :C:\NONROAD\OUTPUTS\NRPOLLUT.CSV
/END/
```

Appendix

(provided upon request in zip file or CD format)