SECTION 5

ON-ROAD MOTOR VEHICLE EMISSIONS

This section of the inventory addresses ozone precursor emissions from all on-road vehicles using gasoline and diesel fuels. Emissions have been calculated for both annual and peak season conditions. The vehicle classes included in this inventory are listed below:

- Light duty gasoline vehicles (LDGV)
- Light duty gasoline trucks (LDGT12 and LDGT34)
- Heavy duty gasoline vehicles (HDGV)
- Motorcycles (MC)
- Light duty diesel vehicles (LDDV)
- Light duty diesel trucks (LDDT)
- Heavy duty diesel vehicles (HDDV)

The reported ozone precursor emissions include: volatile organic compounds (VOC), oxides of nitrogen (NO_x), and carbon monoxide (CO). These pollutant emission factors were calculated using the EPA model MOBILE6. MOBILE6 calculates emission factors for on-road (highway) vehicles expressed in grams of pollutant per mile traveled. The environmental and operational input parameters used to determine these emission factors are discussed in detail later in this section. The I&M program for Washoe County requires automotive technicians performing emissions equipment repairs to complete a emissions systems training course. The use of MOBILE6 incorporates the benefit of this training in the calculated emission rates. All MOBILE6 runs were performed by staff of the Washoe County District Health Department, Air Quality Management Division (AQMD).

The designated ozone non-attainment area for this inventory is the entire Washoe County as defined by its political boundaries. Thus, all data used for ozone precursor emission calculations represent data from the entire county. Vehicle and activity data were received from the Regional Transportation Commission of Washoe County (RTC), Nevada State Department of Transportation (NDOT), and the Nevada State Department of Motor Vehicles and Public Safety (DMV).

Separate MOBILE6 runs were conducted for the non-attainment area to simulate the different meteorological and operating conditions during each month of the year. Peak season emissions were determined using the emission factors and vehicle miles traveled (VMT) estimates for the summer months of June, July, and August. Copies of the MOBILE6 input files and resulting output data are contained in Appendix D.

On-road motor vehicles were responsible for 82,045 tons of CO, 9,913 tons of NO_x, and 5,432 tons of VOC emissions in 2002. Peak season emissions totaled 406,299 lbs/day of CO, 30,543 lbs/day of NO_x, and 56,811 lbs/day of VOC. Table 5-1 provides a summary of on-road mobile source emissions. Figures 5-1, 5-2 and 5-3 show the relative contribution of each source category to the total. The contribution by each of the vehicle classes listed above is shown in Figures 5-4 through 5-6. The remainder of this section will describe the methods used to determine emissions from each of these sources. Supporting documentation is provided in Appendix D.

TABLE 5-1
ON-ROAD MOBILE SOURCES EMISSIONS SUMMARY
FOR OZONE NON-ATTAINMENT AREA

Vehicle Class	VOC Emissions		NO_x Emissions		CO Emissions	
	Annual (tons/yr)	O_3 Season (lbs/day)	Annual (tons/yr)	O_3 Season (lbs/day)	Annual (tons/yr)	O_3 Season (lbs/day)
LDGV	2,172.50	12,194	2,007.85	11,365	32,645.15	157,486
LDGT 12	1,601.68	8,858	1,571.04	8,742	28,039.52	133,038
LDGT 34	945.64	5,251	673.92	3,696	12,819.63	64,303
HDGV	256.55	1,551	554.64	3,228	5,617.95	34,008
LDDV	2.33	14	4.87	29	5.78	34
LDDT	6.77	40	10.46	62	14.27	84
HDDV	383.80	2,239	5,067.24	29,570	2,349.94	13,697
MC	62.42	397	22.92	119	552.37	3,649
TOTAL*	5,432	30,543	9,913	56,811	82,045	406,299

* Sum of Vehicle Class numbers do not exactly equal TOTAL due to rounding in Mobile6.

2002 Washoe County Annual VOC Emissions for On-Road Mobile Sources (tons/year)

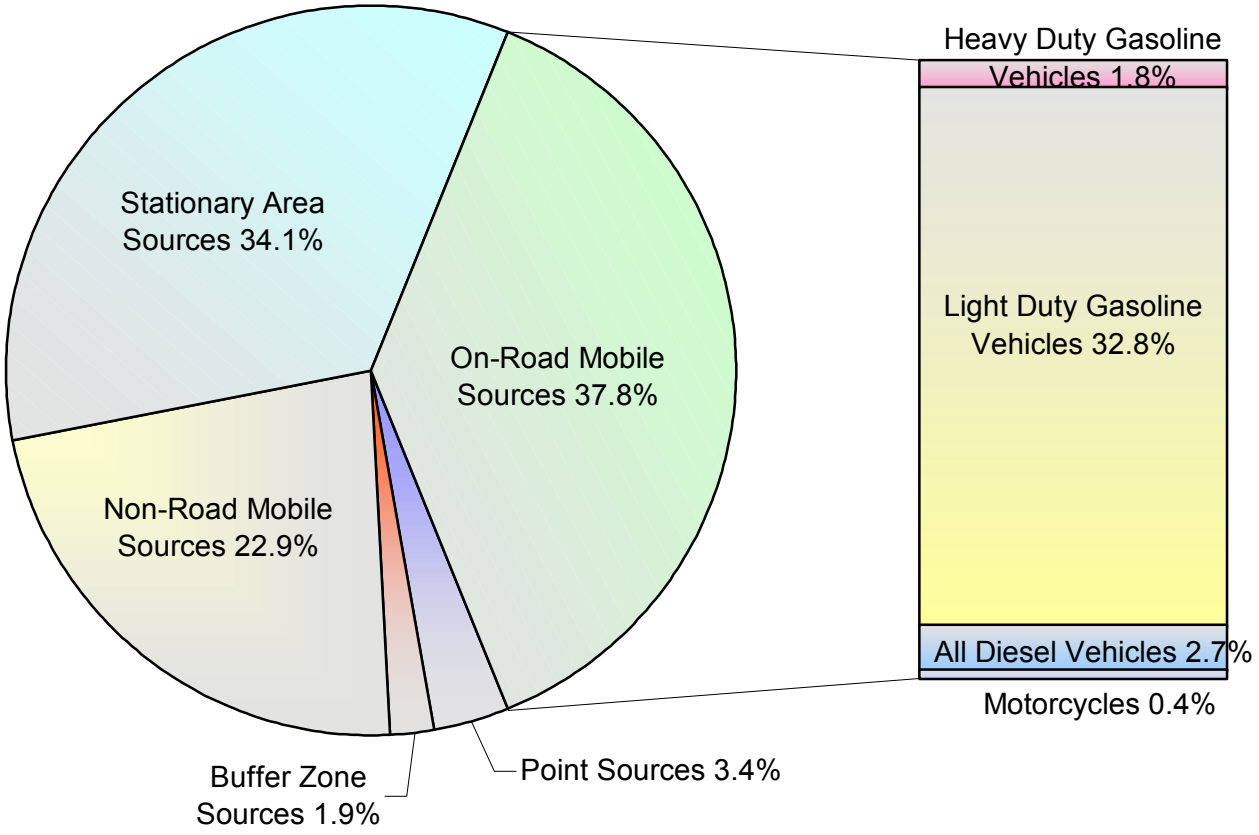

Figure 5-1

2002 Washoe County Annual NOx Emissions for On-Road Mobile Sources (tons/year)

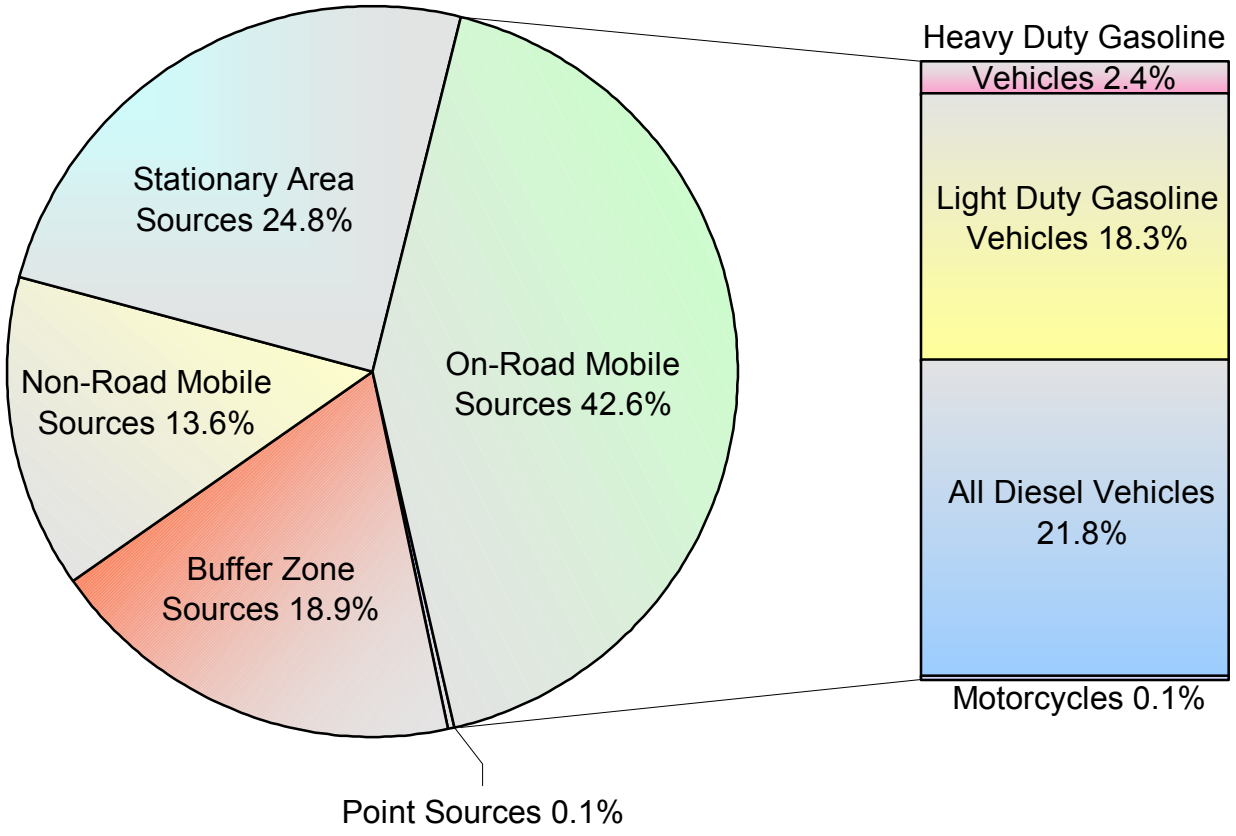

Figure 5-2

2002 Washoe County Annual CO Emissions for On-Road Mobile Sources (tons/year)

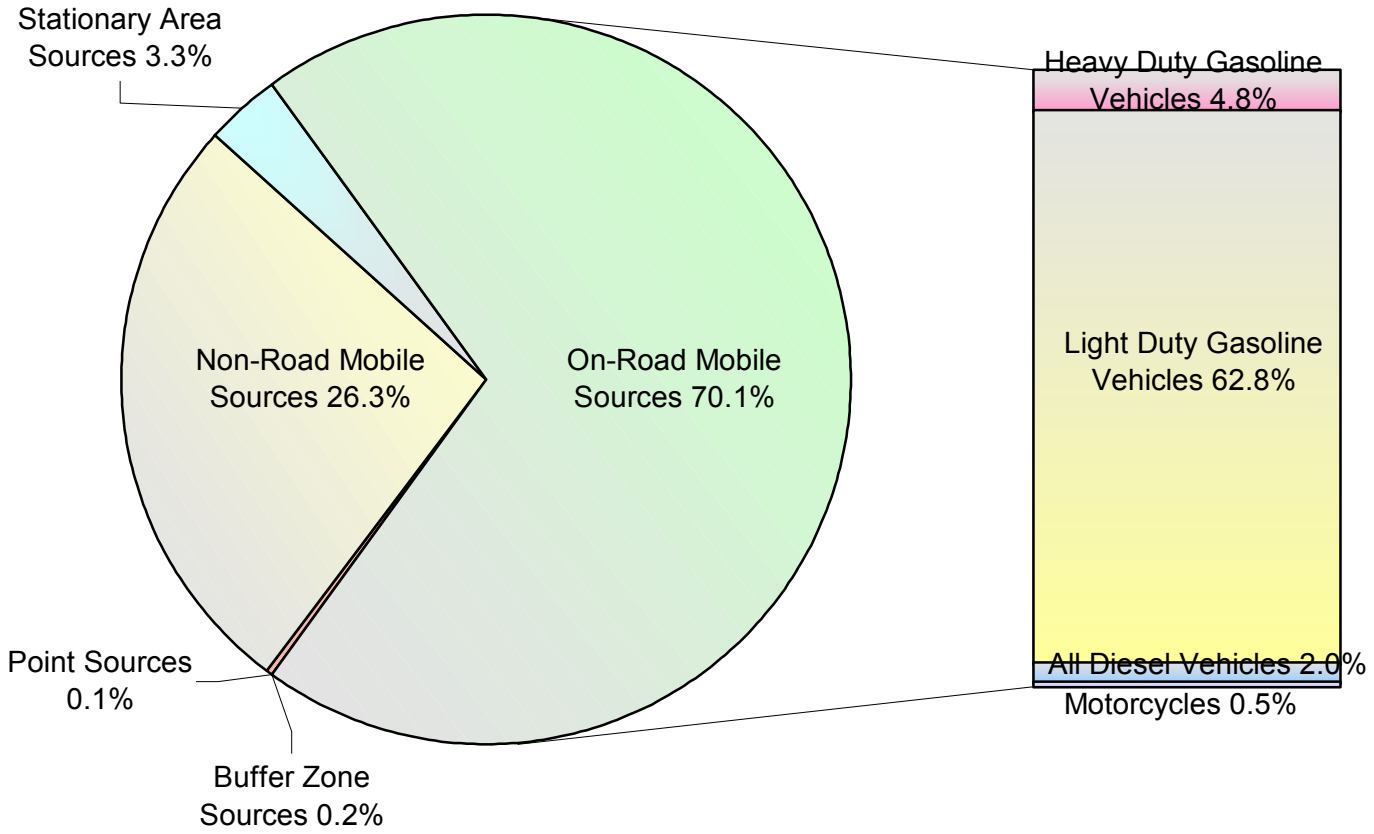

Figure 5-3

2002 Annual Washoe County On-Road VOC Emissions by Vehicle Class (tons/year)

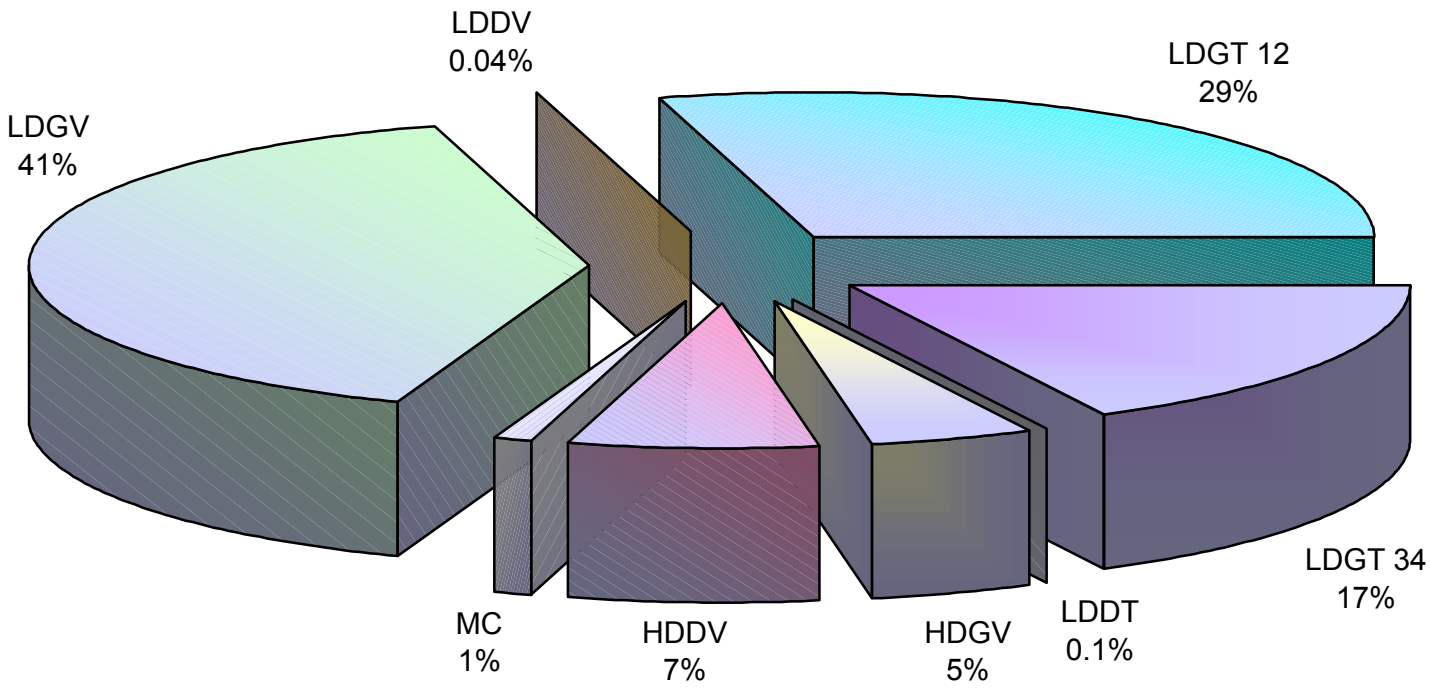

Figure 5-4

2002 Annual Washoe County On-Road NO_x Emissions by Vehicle Class (tons/year)

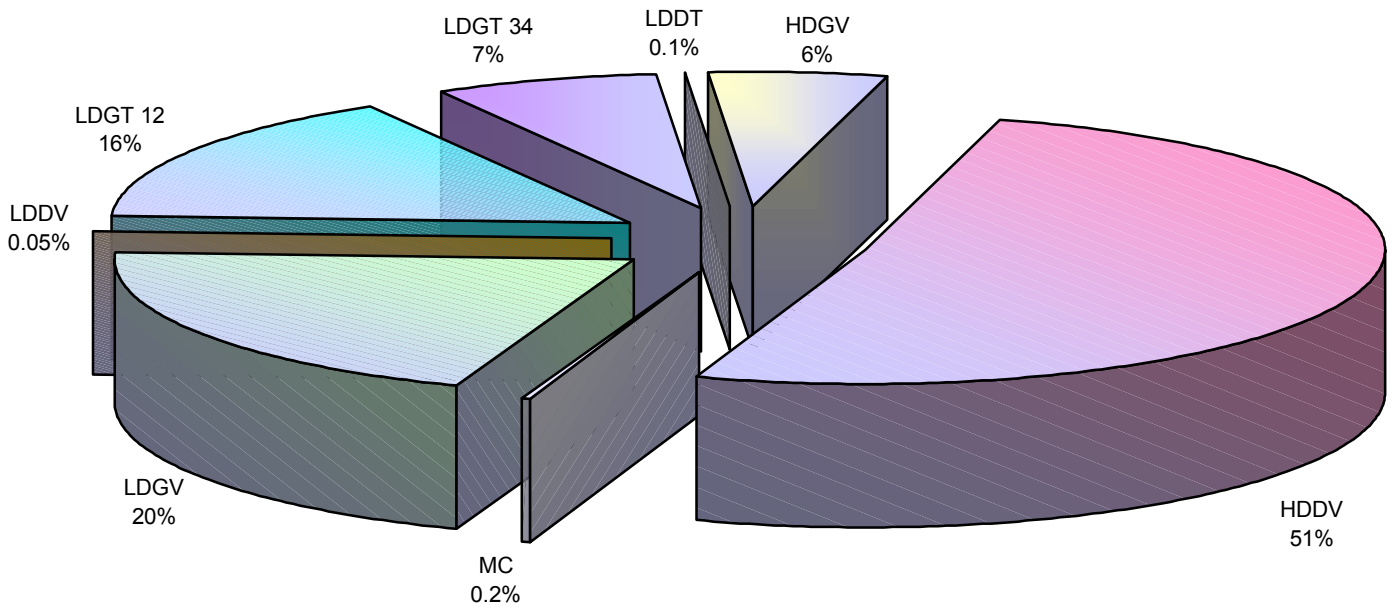

Figure 5-5

2002 Annual Washoe County On-Road CO Emissions by Vehicle Class (tons/year)

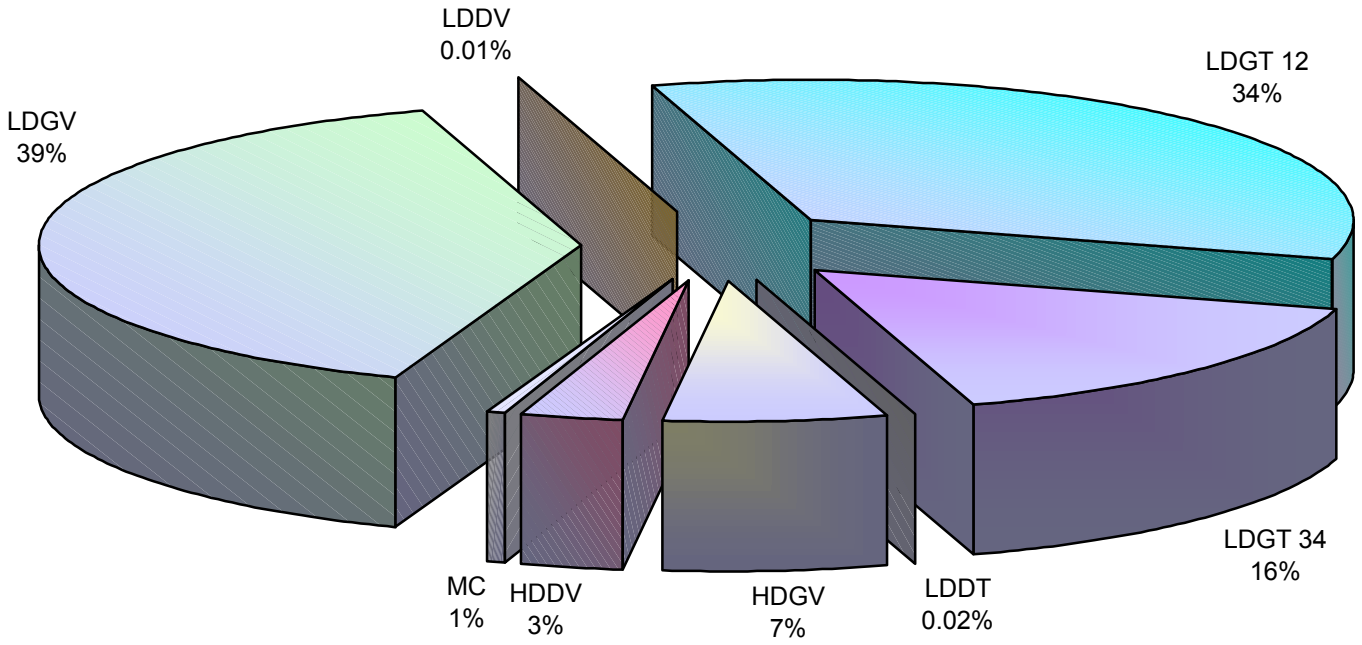

Figure 5-6

VMT ESTIMATION

The RTC is the designated Metropolitan Planning Organization (MPO) for Washoe County and, therefore, the agency responsible for transportation planning. The RTC maintains transportation models for estimating daily VMT and average peak hour speeds (APHS) for each road type classification, or otherwise known as facility type. Table 5-2 presents the data for Washoe County during 2002. However, the new MOBILE6 on-road model has consolidated the facility classes formerly known as collector, minor and major into a collective facility called arterial for both the urban and rural road ways.

As discussed previously, the MOBILE6 model was run for each of the 12 months of the year, adjusting each month for environmental and operational conditions such as temperature and fuel specifications. To correct the annual average daily VMT data for each month, monthly average daily traffic counts for seven NDOT monitoring sites located within the non-attainment area boundary were tabulated and applied to the VMT data. Table 5-3 lists the monthly average daily traffic counts for the seven NDOT monitoring sites.

TABLE 5-2
2002 AVERAGE PEAK HOUR SPEEDS (APHS) &
AVERAGE DAILY VEHICLE MILES TRAVELED (ADVMT)

Facility	APHS	ADVMT
Urban - Local	25.0	651,213
Urban - Collector	32.0	268,868
Urban - Minor	35.3	1,110,655
Urban - Major	38.5	1,876,541
Urban - Freeway	60.9	2,446,684
Urban - Ramps	36.9	222,700
Rural - Local	25.0	178,068
Rural - Collector	30.9	147,960
Rural - Minor	33.4	335,908
Rural - Major	36.2	406,474
Rural - Freeway	54.5	1,408,992
Rural - Ramps	33.5	75,662

Total Urban (NAA) ADVMT = 6,576,661
Total Rural ADVMT = 2,553,064
Total ADVMT = 9,129,725

MONTHLY TRAFFIC COUNT ADJUSTMENT

The Nevada Department of Transportation (NDOT) has several automatic traffic monitoring stations throughout the non-attainment area. The stations provide an average daily traffic counts for each month. This monthly data is applied to the ADVMT provided by the RTC to yield a monthly adjusted traffic volume or VMT. Monthly 2002 data from eleven urban and six rural NDOT monitoring stations and the resulting averages are presented in Tables 5-3A and 5-3B.

TABLE 5-3A (URBAN WASHOE COUNTY)
2002 AVERAGE DAILY TRAFFIC COUNTS

Month/ATR	3111109	31121109	3112209	3112309	3122109	31222209	3122309	3122509	3122609	3122809	3123009	Monthly Avg
Jan	21,683	109,998	67,588	78,178	14,443	21,590	11,890	16,035	32,061	17,179	17,435	37,098
Feb	23,481	118,586	71,861	83,535	15,353	23,237	12,739	16,969	34,659	19,053	18,575	39,823
Mar	24,270	120,233	73,784	84,356	15,353	23,921	13,094	17,333	34,453	19,607	19,208	40,510
Apr	25,730	122,528	76,254	85,049	15,613	24,012	13,251	17,849	35,688	19,492	19,898	41,397
May	27,075	124,347	78,593	86,215	15,759	24,085	13,532	17,675	34,912	19,177	20,588	41,996
Jun	29,740	127,338	82,828	90,297	16,469	24,170	13,451	19,982	35,301	18,690	21,380	43,604
Jul	29,618	125,495	80,037	89,223	15,696	22,966	12,810	19,376	34,424	17,824	20,134	42,509
Aug	30,993	127,392	77,316	92,834	17,263	24,466	14,147	22,265	38,069	19,421	20,313	44,044
Sep	28,703	122,968	73,903	91,314	16,387	25,351	14,456	20,608	34,480	21,633	19,790	42,690
Oct	27,680	118,845	73,365	88,356	16,056	24,675	14,253	19,783	33,752	20,341	19,300	41,491
Nov	25,360	110,746	69,225	83,365	15,566	23,915	13,844	18,798	32,918	19,302	18,376	39,220
Dec	23,764	102,956	67,000	78,989	15,500	22,947	13,959	17,542	33,168	17,739	17,636	37,382
Station Avg	26,508	119,286	74,313	85,976	15,788	23,778	13,452	18,685	34,490	19,122	19,386	

TABLE 5-3B (RURAL WASHOE COUNTY)
2002 AVERAGE DAILY TRAFFIC COUNTS

Month \ ATR	3111209	3121109	3121209	3122409	3122909	3171209	Monthly Avg
Jan	24,035	6,714	54,553	12,212	17,827	9,623	20,827
Feb	27,586	7,946	58,783	13,297	19,274	10,261	22,858
Mar	25,923	8,071	59,180	12,733	19,962	9,413	22,547
Apr	27,753	8,878	61,601	12,388	21,161	9,245	23,504
May	30,195	9,631	62,714	13,265	22,239	9,696	24,623
Jun	32,441	10,730	64,642	16,022	24,366	11,038	26,540
Jul	34,907	11,409	63,268	19,238	24,481	11,915	27,536
Aug	36,908	11,268	65,882	19,294	29,973	12,370	29,283
Sep	32,063	9,984	67,717	15,772	23,496	10,740	26,629
Oct	29,139	9,544	63,786	13,452	22,905	9,783	24,768
Nov	26,171	8,497	61,109	11,518	20,922	9,213	22,905
Dec	23,403	7,433	58,170	11,559	19,642	9,299	21,584
Station Avg	29,210	9,175	61,784	14,229	22,187	10,216	

Source: "2002 Annual Traffic Report" - Nevada Department of Transportation[8]

The monthly emission factors generated by MOBILE6 were applied to the monthly vehicular activity to result in an emission rate expressed by month, by vehicle type, and by facility. The monthly average miles by facility were calculated utilizing the following methodology:

ADM Mileage by Facility (Table 5-2)	X	# of Days in Month	X	Percent of Annual ADT for Month (Table 5-3)	=	Monthly Average Miles by Facility

INSPECTION & MAINTENANCE (I/M) PROGRAM

In Nevada, the I/M program is conducted by the Department of Motor Vehicles and Public Safety (DMV). Those vehicle classes required by statute to participate in the program are controlled through the vehicle registration process. Detailed and accurate information regarding the I/M program is an important element of the model. The following data were either received directly or calculated from quarterly reports received from the Nevada Department of Motor Vehicles and Public Safety.

TABLE 5-4
2002 INSPECTION & MAINTENANCE (I/M) PROGRAM STATISTICS

	Pre - 1981 Stringency Rate	Pre - 1981 Waiver Rate	1981 & newer Waiver Rate
January February March	18.8	1.4	0.1
April May June	27.3	2.0	0.2
July August September	29.0	1.0	0.2
October November December	25.2	1.0	0.2

MOBILE6 INPUT PARAMETERS

Start Year:	1978
Pre-1981 Stringency (Failure) rate:	18–29%
First model year covered:	1968
Last model year covered:	2003
Waiver rate (pre-1981):	1-2%
Waiver rate (1981 & newer):	0.1-0.2%
Compliance rate:	98%
Inspection type:	Computerized decentralized
Inspection frequency:	Annual
Vehicle type covered:	LDGV - Yes LDGT12 - Yes LDGT34 - Yes HDGV - Yes
1981 & Later MYR test type:	2500 rpm/Idle

ANTI-TAMPERING (ATP) PROGRAM

Like the I/M program, details of the Anti-Tampering program (ATP) are also important inputs to the model. The ATP program is implemented concurrent with the I/M program and, therefore, many of the program parameters are similar. As with the I/M data, the 2002 ATP data were supplied by DMV.

Start year:	1981
First model year covered:	1968
Last model year covered:	2003
Vehicle types covered:	LDGV, LDGT12, LDGT34, HDGV
Type:	Decentralized
Frequency:	Annual
Compliance rate:	98%
Air pump disablement:	Yes
Catalyst removals:	Yes
Fuel inlet restrictor disablements:	Yes
Tailpipe lead deposit test:	No
EGR disablement:	Yes
Evaporative system disablement:	Yes
PCV disablement:	Yes
Missing gas cap:	Yes

FLEET MIX AND MILEAGE ACCUMULATION DATA

Fleet mix and mileage accumulation data by vehicle class for 2002 were not available for the non-attainment area. The MOBILE6 default values, determined from national averages, were selected for all model runs.

HIGH ALTITUDE

Washoe County is listed in the Federal Register[9] as a high altitude region for compliance with emission standards for motor vehicles. Therefore, Option Two was selected as the region descriptor in the Scenario Data section of the MOBILE6 input stream.

OXYGENATED FUELS PROGRAM

The MOBILE6 model is capable of calculating the effects of an oxygenated fuels program on CO emissions. Monitoring and survey activities by the AQMD have found compliance with the oxygenated fuels program to be extremely high. The 2002 oxygenated fuels program parameters indicate that the market share for ethanol was greater than 99 percent with all fuels being blended to 2.7 percent oxygen by weight.

AMBIENT TEMPERATURE AND REID VAPOR PRESSURE (RVP)

Seasonal temperature averages were obtained from the monthly Local Climatological Data (LCD) reports published by the National Oceanic and Atmospheric Administration for the Reno area during 2002. Ozone peak season temperatures were determined from the LCD reports for the months of June, July, and August, 2002.

The model requires input of gasoline volatility, measured as Reid Vapor Pressure (RVP). The two values required are the "base" or pre-controlled RVP level and the "controlled" RVP standard.

Also included is the start year for in-use control. These values were obtained from the Federal Register[10]. The base and controlled RVP values for 2002 are the same value as new RVP standards that were implemented in 1992. Compliance with these federal standards has been monitored through samples taken by the Nevada Division of Agriculture, Bureau of Weights and Measures. Both local ambient temperatures and RVP by month are shown in Table 5-5.

TABLE 5-5
2002 TEMPERATURE[A] AND RVP[B] INPUTS FOR MOBILE6

	Maximum	Minimum	Average	RVP
January	45.5	23.2	34.4	15.0
February	54.4	27.3	40.9	15.0
March	56.3	29.0	42.7	13.5
April	65.7	38.2	52.0	13.5
May	73.9	42.7	58.3	9.0
June	86.9	53.0	70.0	7.8
July	95.7	61.1	78.4	7.8
August	89.9	55.0	72.5	7.8
September	83.2	49.5	66.4	9.0
October	68.6	36.5	52.6	10.0
November	56.6	29.6	43.1	13.5
December	48.1	26.8	37.5	15.0

[a] National Oceanic and Atmospheric Administration - Local Climatological Data for Reno, Nevada.

[b] RVP values represent both "Base" and "Controlled" levels as listed in 40 CFR 80.27 for this latitude.

MOBILE6 MODEL RESULTS

The model calculates vehicle emissions in grams of pollutant/mile by vehicle speed (facility type) and monthly conditions. This emission factor is then multiplied by the VMT for the given facility and month. The result is the total kilograms of pollutant for the month and specific facility type.

Facility Emission Factor (Grams/Mile) by month	X	Average Daily VMT (monthly)	X	Number of days in month	=	Total emissions by facility by month

Tables 5-6 through 5-8 show the annual average emissions in tons/year for the three ozone precursor pollutants. Tables 5-9 through 5-11 present peak season emissions in kilograms/day.

TABLE 5-6
WASHOE COUNTY OZONE NON-ATTAINMENT AREA
VOLATILE ORGANIC COMPOUNDS
AVERAGE ANNUAL EMISSIONS (TONS/YEAR)

FACILITY	LDGV	LDGT12	LDGT34	HDGV	LDDV	LDDT	HDDV	MC	ALL
Urban Local	225.3	159.2	91.2	46.9	0.3	0.8	58.8	6.1	588.5
Urban Arterial	764.7	566.5	337.4	88.6	0.8	2.4	139.5	21.4	1,921.4
Urban Freeway	530.9	395.3	234.7	49.1	0.5	1.6	77.0	15.2	1,304.3
Urban Ramps	62.3	46.0	25.7	6.1	0.1	0.2	9.6	1.5	151.4
URBAN TOTALS	1,583.2	1,167.1	689.1	190.7	1.7	5.0	284.8	44.1	3,965.6
Rural Local	61.4	43.5	24.9	12.8	0.1	0.2	16.1	1.7	160.6
Rural Arterial	206.2	152.8	91.1	23.2	0.2	0.7	36.5	5.8	516.5
Rural Freeway	300.6	222.7	131.9	27.8	0.3	0.9	43.2	10.4	737.8
Rural Ramps	21.1	15.5	8.7	2.1	0.0	0.1	3.3	0.5	51.2
RURAL TOTAL	589.3	434.6	256.6	65.8	0.6	1.8	99.0	18.4	1,466.1
GRAND TOTAL	2,172.5	1,601.7	945.6	256.6	2.3	6.8	383.8	62.4	5,431.7

TABLE 5-7
WASHOE COUNTY OZONE NON-ATTAINMENT AREA
OXIDES OF NITROGEN
AVERAGE ANNUAL EMISSIONS (TONS/YEAR)

FACILITY	LDGV	LDGT12	LDGT34	HDGV	LDDV	LDDT	HDDV	MC	ALL
Urban Local	133.5	102.9	44.9	31.0	0.4	0.8	314.2	1.1	628.8
Urban Arterial	688.8	539.9	233.5	186.9	1.4	3.0	1,410.9	7.7	3,072.2
Urban Freeway	553.5	434.2	184.9	162.0	1.4	3.1	1,647.2	6.8	2,993.1
Urban Ramps	60.1	46.7	19.5	12.8	0.1	0.2	78.2	0.5	218.1
URBAN TOTALS	1,435.9	1,123.7	482.9	392.7	3.3	7.1	3,450.6	16.1	6,912.2
Rural Local	36.5	28.1	12.2	8.5	0.1	0.2	85.9	0.3	171.8
Rural Arterial	188.8	147.8	63.8	51.9	0.4	0.8	388.5	2.1	844.0
Rural Freeway	326.3	255.8	108.5	97.3	1.0	2.2	1,115.7	4.2	1,911.0
Rural Ramps	20.3	15.8	6.6	4.3	0.0	0.1	26.6	0.2	73.9
RURAL TOTAL	571.9	447.4	191.1	162.0	1.5	3.3	1,616.7	6.8	3,000.7
GRAND TOTAL	2,007.9	1,571.0	673.9	554.6	4.9	10.5	5,067.2	22.9	9,912.9

TABLE 5-8
WASHOE COUNTY OZONE NON-ATTAINMENT AREA
CARBON MONOXIDE
AVERAGE ANNUAL EMISSIONS (TONS/YEAR)

FACILITY	LDGV	LDGT12	LDGT34	HDGV	LDDV	LDDT	HDDV	MC	ALL
Urban Local	1,828.1	1,664.9	826.2	912.8	0.7	1.6	400.5	56.6	5,691.5
Urban Arterial	10,642.1	9,246.5	4,288.9	1,685.0	2.0	4.9	754.6	172.0	26,795.9
Urban Freeway	9,433.7	8,057.4	3,618.6	1,277.4	1.4	3.5	497.4	117.2	23,006.6
Urban Ramps	1,238.1	950.9	404.2	115.7	0.1	0.3	51.8	11.7	2,773.0
URBAN TOTALS	23,141.9	19,919.8	9,138.0	3,990.8	4.2	10.3	1,704.3	357.6	58,267.0
Rural Local	489.9	447.7	223.5	250.4	0.2	0.4	109.5	15.7	1,537.2
Rural Arterial	2,918.8	2,529.2	1,173.8	447.2	0.5	1.3	198.0	46.2	7,314.9
Rural Freeway	5,678.8	4,824.9	2,148.7	890.1	0.8	2.1	320.6	128.9	13,994.9
Rural Ramps	415.8	317.9	135.6	39.4	0.0	0.1	17.6	4.0	930.5
RURAL TOTAL	9,503.3	8,119.7	3,681.6	1,627.1	1.6	4.0	645.6	194.8	23,777.6
GRAND TOTAL	32,645.2	28,039.5	12,819.6	5,617.9	5.8	14.3	2,349.9	552.4	82,044.6

TABLE 5-9
WASHOE COUNTY OZONE NON-ATTAINMENT AREA
VOLATILE ORGANIC COMPOUNDS
PEAK SEASON – AVERAGE DAILY EMISSIONS (LBS/DAY)

FACILITY	LDGV	LDGT12	LDGT34	HDGV	LDDV	LDDT	HDDV	MC	ALL
Urban Local	1,233.4	868.9	496.5	256.3	1.5	4.3	328.5	36.5	3,225.8
Urban Arterial	4,098.6	2,986.2	1,786.3	515.9	4.7	13.7	779.8	130.5	10,315.7
Urban Freeway	2,937.3	2,153.0	1,285.7	304.8	3.2	9.2	445.9	96.2	7,235.3
Urban Ramps	331.3	240.3	135.5	35.4	0.3	0.9	53.6	8.9	806.4
URBAN TOTALS	8,600.6	6,248.5	3,703.9	1,112.4	9.7	28.1	1,607.9	272.0	21,583.2
Rural Local	401.3	282.3	161.3	83.3	0.5	1.4	106.5	11.9	1,048.4
Rural Arterial	1,316.9	960.5	574.7	161.0	1.5	4.3	241.9	41.8	3,302.7
Rural Freeway	1,741.2	1,270.1	756.2	179.6	1.9	5.5	261.2	67.9	4,283.6
Rural Ramps	133.7	96.9	54.7	14.3	0.1	0.4	21.6	3.6	325.3
RURAL TOTAL	3,593.1	2,609.8	1,546.9	438.2	4.0	11.6	631.1	125.2	8,959.9
GRAND TOTAL	12,193.7	8,858.3	5,250.8	1,550.6	13.7	39.7	2,239.0	397.2	30,543.1

TABLE 5-10
WASHOE COUNTY OZONE NON-ATTAINMENT AREA
OXIDES OF NITROGEN
PEAK SEASON – AVERAGE DAILY EMISSIONS (LBS/DAY)

FACILITY	LDGV	LDGT12	LDGT34	HDGV	LDDV	LDDT	HDDV	MC	ALL
Urban Local	756.8	556.7	238.8	172.4	2.1	4.6	1,760.9	5.4	3,497.7
Urban Arterial	3,748.4	2,875.4	1,225.0	1,039.4	8.0	17.2	7,856.5	38.0	16,808.0
Urban Freeway	3,067.1	2,381.9	1,000.5	933.3	8.3	17.9	9,481.5	35.1	16,925.5
Urban Ramps	318.0	246.9	101.9	71.0	0.5	1.2	439.2	2.6	1,181.2
URBAN TOTALS	7,890.2	6,060.9	2,566.1	2,216.1	19.0	40.8	19,538.2	81.2	38,412.4
Rural Local	245.7	180.6	77.4	55.9	0.7	1.5	571.0	1.8	1,134.5
Rural Arterial	1,219.0	936.1	398.2	342.3	2.6	5.6	2,567.5	12.5	5,483.8
Rural Freeway	1,882.0	1,464.9	613.3	585.3	6.2	13.3	6,716.8	22.7	11,304.4
Rural Ramps	128.1	99.5	41.0	28.6	0.2	0.5	177.0	1.0	475.9
RURAL TOTAL	3,474.7	2,681.0	1,129.9	1,012.1	9.7	20.9	10,032.2	38.0	18,398.6
GRAND TOTAL	11,364.9	8,741.8	3,696.1	3,228.2	28.7	61.7	29,570.4	119.2	56,811.0

TABLE 5-11
WASHOE COUNTY OZONE NON-ATTAINMENT AREA
CARBON MONOXIDE
PEAK SEASON – AVERAGE DAILY EMISSIONS (LBS/DAY)

FACILITY	LDGV	LDGT12	LDGT34	HDGV	LDDV	LDDT	HDDV	MC	ALL
Urban Local	7,519.6	7,247.6	3,948.9	5,287.8	3.9	9.2	2,234.9	362.3	26,614.2
Urban Arterial	47,861.6	41,112.7	20,334.9	9,761.1	11.1	27.3	4,210.0	1,078.3	124,397.1
Urban Freeway	46,075.5	38,456.4	18,088.3	7,658.2	8.2	20.1	2,875.7	756.1	113,938.6
Urban Ramps	5,899.2	4,208.1	1,886.4	670.0	0.8	1.9	289.3	73.6	13,029.3
URBAN TOTALS	107,355.9	91,024.9	44,258.6	23,377.2	24.0	58.4	9,609.9	2,270.4	277,979.3
Rural Local	2,434.4	2,347.9	1,280.7	1,717.5	1.3	3.0	724.7	117.9	8,627.4
Rural Arterial	15,874.8	13,587.6	6,686.1	3,067.7	3.5	8.7	1,310.7	340.7	40,879.8
Rural Freeway	29,443.8	24,384.0	11,317.7	5,574.9	5.2	12.7	1,935.1	890.1	73,563.3
Rural Ramps	2,377.6	1,694.0	759.9	270.4	0.3	0.8	116.5	29.8	5,249.3
RURAL TOTAL	50,130.6	42,013.5	20,044.4	10,630.5	10.3	25.1	4,087.0	1,378.4	128,319.8
GRAND TOTAL	157,486.5	133,038.4	64,303.0	34,007.7	34.2	83.5	13,696.9	3,648.8	406,299.1