EPA-AA-TEB-EF-81-1

Air Quality Analysis for the Revised Gaseous Emission Regulations for 1984 and Later Model Year Light Duty Trucks and Heavy Duty Engines

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September, 1981

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Introduction

This report describes the analysis performed by the Test and Evaluation Branch to support the revised 1984 and later model year light duty truck (LDT) and heavy duty engine (HDV) CO regulations being considered by the Standards Development and Support Branch. This analysis examined the air quality impact of such regulations in both low and high altitude non-California areas under the presence of inspection and maintenance (I/M). Six strategies are examined in this analysis. These six strategies are as follows:

1) The 1984+ LDT and HDV CO standards at low altitude are assumed to be 10 grams/mile (gm/mi) and 15.5 grams/brake horsepower-hour (gm/bhp-hr), respectively. Both vehicle types are assumed to have a 10 percent AQL SEA program beginning with the 1984 model year. The 1983+ light duty vehicle (LDV) CO standard is assumed to be 3.4 gm/mi.

2) The 1984+ LDT and HDV CO standards and regulations at low altitude are assumed to be identical to strategy one. The difference is the assumed 1983+ LDV CO standard at 7.0 gm/mi.

3) The 1984+ LDT and HDV CO standards at low altitude are assumed to be 10 gm/mi and 35 gm/bhp-hr, respectively. Both vehicle types are assumed to have a 40 percent AQL SEA program implemented. The implementation model year is 1984 for the LDTs and 1986 for the HDVs. The 1983+ LDV CO standard is assumed to be 3.4 gm/mi.

4) The 1984 LDT and HDV CO standards and regulations at low altitude are assumed to be identical to strategy 3. The difference is the assumed 1983+ LDV CO standard at 7.0 gm/mi.

5) This high altitude strategy assumes the 1984+ LDT CO standard is 14 gm/mi. The 1984+ HDVs are assumed to be the low altitude vehicles, reflected in strategies 1 and 2, operating at high altitude. Also, no specific high altitude SEA programs are assumed. The 1983+ LDVs are assumed to have a 7.8 gm/mi CO standard.

6) This high altitude strategy also assumes the 1984+ LDT CO standard is 14 gm/mi. The 1984+ HDVs are assumed to be the low altitude vehicles, reflected in strategies 3 and 4, operating at high altitude. No specific HDV high altitude standards are assumed. Also, no specific high altitude SEA programs are assumed. Identical to strategy 5 is the assumption of a 7.8 gm/mi CO standard on the 1983+ LDVs.

A total of six runs resulted from the six strategies being analyzed at low and high altitudes, with I/M.

This report is presented in two parts. The first part presents the analysis performed to estimate CO emissions from the highway mobile sources while the second part presents the assumptions and results of the air quality assessment.

1. Highway Mobile Source CO Emissions

This part presents the analysis performed to estimate the CO emission levels. The analysis performed is described in four sections. The first section presents the scenario information used to run the MOBILE2 computer program[1]. Section two details how MOBILE2 and the basic emission rates were modified to perform the analysis[2]. Section three describes in detail the six strategies examined, and section four presents the MOBILE2 results.

1.A General MOBILE2 Scenario Information

In total, six runs were performed with a modified MOBILE2 program: Four runs for the low altitude non-California region and two runs for the high altitude non-California region. Each region had only I/M runs performed. Each run examined only highway mobile source CO emission levels (in grams per mile). Also, each run projected the emission levels for calendar years 1977, 1985, 1987, 1988, 1990, 1995, and 2000. Finally, each run was performed such that only the basic exhaust emission levels were output. That is, all correction factors were assigned such that they would have no effect on the emission results.

Since all runs included the benefits of I/M, the characteristics of the I/M programs assumed are as follows:

1) The I/M programs begin on January 1, 1982.

2) The LDGT and pre-1981 LDGV I/M stringency rate is 30 percent.

3) The I/M programs have a functioning mechanics training program.

4) All 1968 and later model year vehicles and trucks are affected by the I/M programs.

5) The LDGV, LDGT1, and LDGT2 vehicle types are tested in the I/M programs.

6) There is a 70 percent identification rate for the 1981 and later model year LDGVs.

1.B MOBILE2 Modifications

MOBILE2 was modified in two areas to perform the runs necessary for the revised LDT and HDV CO regulations:

1) I/M technology groups, and

2) Alternate emission rates for various model years and vehicle types.

The I/M subprograms were altered to increase the number of technology groups from three to five. Also, the subprograms were altered to redefine, by vehicle type, the I/M credits used. The following technology group definitions are used in this analysis:

1) Technology 1: Pre-1975 LDGVs, pre-1975 LDGTls, and pre-1979 LDGT2s.

2) Technology 2: 1975-1980 LDGVs, 1975+ LDGTls, and 1979+ LDGT2s.

3) Technology 3: Undefined.

4) Technology 4: 1981 LDGVs.

5) Technology 5: 1982 LDGVs.

6) Technology 6: 1983+ LDGVs.

Alternate I/M credits are used in the runs to accredit the emission rate and technology differences between this analysis and those in MOBILE2. Appendix A presents the alternate I/M credits used for the different strategies.

Except for the 1984+ LDGT and HDGV CO emissions, and the 1983+ LDGV CO emissions, other low altitude model year and/or vehicle type CO emissions differ from those in MOBILE2 as a result of expected changes in regulations, technology mix, and/or emission data. The emissions from the 1981 and 1982 LDGVs are different from those in MOBILE2 as a result of an expected change in the technology mix. The emissions from the 1979 through 1983 HDGVs are different from those in MOBILE2 as a result of more current emission information.

Similarly, some high altitude model year and/or vehicle type CO emissions differ from those in MOBILE2 as a result of expected changes in regulations, technology mix, and/or emission data. For the most part, the high altitude CO emission rates change as a result of the changes to the low altitude vehicle types. However, the 1984+ LDDV and LDDT CO emissions and the 1983+ LDGV CO emissions change since the emission standards assumed are different between this analysis and MOBILE2. MOBILE2 assumes these vehicle type emission standards equal their corresponding low altitude vehicle type emission standards. The proportional emission standards are assumed for this analysis.

Except for the emissions from the 1983 and later LDGVs, and the 1984+ LDGTs and HDGVs, the emissions given in Table 1 are used in every low altitude strategy. Similarly, the emissions given in Table 2 are used in every high altitude strategy, except for the 1984+ LDGT and HDGV emissions.

1.C Strategies of Analysis

Six strategies are examined in this analysis. These six strategies are discussed below in six subsections. Within each subsection, the basic exhaust emission rates, emission standards, SEA program, useful life definition, and technology mix for the 1984 and later model year LDGTs and HDGVs are discussed. These five components are summarized in Table 1 for all low altitude strategies and Table 2 for all high altitude strategies.

1) Strategy One - Low Altitude Base Case for Option 1

This strategy represents the current set of low altitude non-California LDV, LDT, and HDV CO regulations. That is, the 1983 and later model year LDV regulations require a 3.4 gm/mi CO emission standard, a 40% AQL SEA program, and a one-half useful life definition. The expected technology mix is assumed to be 59.2 percent closed loop throttle body, 10.2 percent closed loop carbureted, and 30.6 percent open loop carbureted systems. This technology mix is different from the MOBILE2 technology mix.

The regulations for the 1984 and later model year LDTs require a 10 gm/mi CO emission standard, a 10% AQL SEA program, and a full useful life definition. The expected technology mix is assumed to be 100 percent oxidation catalysts. No threeway catalysts are assumed in this analysis.

The 1984 and later model year HDVs have the following regulations: A 15.5 gm/bhp-hr CO emission standard, a 10% AQL SEA program, and a full useful life definition. There is expected to be a 100 percent oxidation catalyst technology mix. No threeway catalysts are assumed in this analysis.

The technology mixes given above are for the gasoline powered, as opposed to diesel powered, vehicle types. The emission rates along with the other regulations mentioned above are summarized in Table 1.

2) Strategy Two - Low Altitude Base Case for Option 2

With two exceptions, strategy two is identical to strategy one. The two exceptions are as follows:

1) The 1983 and later model year LDV CO standard is 7.0 gm/mi instead of 3.4 gm/mi.

2) The 1983 and later model year LDGV technology mix is estimated to be 5.3 percent closed loop throttle body, 57.9 percent closed loop carbureted, and 36.8 percent open loop carbureted systems.

These differences are summarized in Table 1 along with all other revised MOBILE2 CO emission rates and regulations used in this strategy.

3) Strategy 3 - Low Altitude Comparison Case for Option 1

Strategy three is the comparison case to strategy one. With five exceptions, the strategy is identical to strategy one. The five exceptions are as follows:

1) The SEA program for the 1984 and later model year LDTs requires a 40 percent AQL instead of a 10 percent AQL regulation.

2) The 1984 and later model year HDV CO emission standard is 35 gm/bhp-hr instead of 15.5 gm/bhp-hr.

3) There is no HDV 1984 or 1985 model year SEA program.

4) The SEA program for the 1986 and later model year HDVs has a 40 percent AQL instead of a 10 percent AQL regulation.

5) The 1984 and later model year HDGVs are assumed not to need catalysts to achieve the emission standards.

These regulations are summarized in Table 1 along with the revised MOBILE2 emission rates used for strategy three.

4) Strategy Four - Low Altitude Comparison Case For Option 2

Strategy four is the comparison to strategy two. With two exceptions, strategy four is identical to strategy three. These two differences are those listed below:

1) The 1983 and later model year LDV CO standard is 7.0 gm/mi instead of 3.4 gm/mi.

2) The 1983 and later model year LDGV technology mix is estimated to be 5.3 percent closed loop throttle body, 57.9 percent closed loop carbureted, and 36.8 percent open loop carbureted systems.

These differences are summarized in Table 1 along with all other revised MOBILE2 CO emission rates and regulations.

5) Strategy Five - High Altitude Base Case

In strategy five, the 1984+ LDTs are assumed to be designed to the proportional CO emission standards while the HDVs are assumed to be low altitude vehicles operated at high altitude.

The 1984 and later model year LDTs differ from MOBILE2 in that they reflect the 14 gm/mi CO emission (proportional) standard, no specific SEA program, and a full useful life definition. The expected technology mix is 100 percent oxidation catalyst systems. No threeway catalysts are assumed for the high altitude LDGTs.

The CO emission rates for the 1984 and later model year HDVs reflect the low altitude vehicles operated at high altitude from strategies 1 and 2.

The revised MOBILE2 emission rates and regulations referenced above are given in Table 2.

6) Strategy Six - High Altitude Comparison Case

Strategy six has two differences from strategy five. With the exception of these two differences, described below, all other vehicle type emission rates and regulations are identical to those in strategy five.

1) The low altitude SEA program for the 1984 and later model year LDTs in strategies 3 and 4 requires a 40 percent AQL instead of a 10 percent AQL regulation. This is assumed to affect the high altitude LDGT CO emission rates.

2) Although there are no specific HDV high altitude regulations, HDGVs are assumed to be the low altitude HDGVs, from strategies 3 and 4, being operated at high altitude.

1.D MOBILE2 Output

Table 3 through 8 present the MOBILE2 results for all six runs performed for this analysis of revised CO emission standards on 1984 and later model year LDTs and HDVs. Table 3 presents the MOBILE2 results for the existing LDV, LDT, and HDV low altitude regulations - strategy one. Table 4 gives the strategy two results from MOBILE2. Strategy two reflects the current regulations for LDTs and HDVs, and assumes a 7.0 gm/mi CO standard on the 1983+ LDVs. The results from MOBILE2 for strategy three are given in Table 5. Strategy three, which presents the emission results of the proposed LDT and HDV regulation revisions, is the comparison case to strategy one. The results from MOBILE2 for strategy four are given in Table 6. Strategy four, which presents the emission results of the proposed LDT and HDV regulation revisions, is the comparison case to strategy two. The results from MOBILE2 for strategy five, the high altitude base case, are given in Table 7. Strategy five represents the current set of high altitude HDV, and proportional LDT and LDV regulations. Table 8 presents the MOBILE2 results for strategy six, the comparison case to strategy five. Strategy six represents the proposed revisions to the LDT and HDV regulations.

The second part of this report presents the assumptions and results of the air quality assessment.

2. Air Quality Models

The modified linear rollback model (Rollback) was used to estimate CO ambient concentrations in the future. In Rollback, a proportional relationship is assumed to exist between the ambient concentration of a pollutant at a monitoring site and the total inventory of that pollutant emitted in the vicinity of the site. Thus, if emissions decline over time, ambient concentrations are assumed to decline in the same proportion. A detailed description of Rollback is contained in reference [3].

2.A Inventories

The National Emission Data System (NEDS) provided the basic inventory estimates for the urban areas studied in this analysis[4]. These areas are listed in Table 9. The total tonnage of pollution emitted within the counties associated with these urban areas was used as the base year (1977) inventory. NEDS provides estimates for both mobile and stationary emission sources. However, since the highway mobile source portion of the current (1977) NEDS inventory utilizes March, 1978 emission factors (MOBILE1), this portion of the inventory was adjusted for the new emission factors contained in MOBILE2[5], [2]. Stationary area source emissions were obtained directly from NEDS. Appendix B contains the adjusted inventory for the 1977 base year used in this analysis. The appendix also presents in graphical form the future inventory levels predicted for the six scenarios considered for this report.

2.B Source Contribution Factors

A source contribution factor is designed to account for stack height and distance between an emissions source and the ambient monitor. Since dispersion models have indicated that CO stationary point source emissions do not influence the ambient concentration measurements made at urban monitors, those sources are assigned a source contribution factor of zero[6]. For the same reason CO stationary area sources as well as off-highway mobile sources are assigned source contribution factors of 0.20; that is, emissions from those sources are discounted to 20 percent of their total value. Emissions from highway mobile sources are not discounted.

2.C Design Values

Design values are measured ambient air quality concentrations from which future concentrations are predicted. The ambient concentration measurements are generally collected by the states and entered into the Storage and Retrieval of Aerometric Data (SAROAD) system maintained by EPA. Design values are calculated from those data in a manner that

conforms to the National Ambient Air Quality Standard (NAAQS) for the pollutant and urban area under study. The design values for CO are based upon the second maximum non-overlapping 8-hour concentrations in the worst year of record. For this analysis the worst year of record in the three year period of 1976-1978 was used.[1]

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[1]Rollback only requires that ambient pollutant concentrations be known for the same year that the emissions inventory is estimated. However, design values are generally estimated from the worst year of record in the three year period bracketing the base year inventory. This approach prevents Rollback from underestimating future concentration levels in the presence of one year of favorable meteorological conditions.

2.D Background Levels

Background levels refer to natural background ambient pollutant concentrations that are the result of emissions from natural sources, such as decaying vegetation, forest fires, and lightning. All man-made sources are specifically excluded from this classification, even if the man-made pollution originating from sources outside of the study area is transported into the area by repetitive weather patterns. Normally, natural background sources of CO contribute a negligible amount to the ambient concentrations measured at urban monitoring sites. In this analysis, natural background levels were assumed to be zero. This is in keeping with recent EPA guidance[7].

2.E Stationary Source Control

No control was assumed on stationary sources of CO emissions, since emissions from these sources are generally attributed to space heating devices and the likelihood of controls being applied to them is low.

2.F Growth and Retirement Rates

The retirement rate is essentially a scrapage rate; that is, the rate at which old equipment is retired and replaced by new equipment. For the purposes of this analysis, a zero retirement is assumed for CO stationary area sources.

Growth rates express the expected increase in usage associated with each pollution source. Since area CO sources are, for the most part, space heating devices, their usage rate has been assumed to increase at the expected 0.8 percent annual population growth rate.

The mobile source growth rates assumed to apply in this analysis are listed in Table 10. The heavy duty gasoline and diesel truck rates and the motorcycle growth rate are derived directly from the Methodology to Conduct Air Quality Assessments[6]. The growth rate of non-highway mobile sources is an approximate average of the rates listed for separate categories in that publication. The light duty truck and passenger vehicle fleet growth rates were derived from the data presented in the "Automotive Fuel Demand" paper [8] using the methodology presented in Assessments reference. The two sets of calculations (Assessments versus Table 10) differ only in that the Assessments reference computes an annual growth rate based on the differences in vehicle miles traveled (VMT) estimates between 1977 and 1990 whereas the rates listed in Table 10 are based on differences between the longer period of 1977 to 1995. The effect of this change is to lower the annual compound growth rate.

2.H Summary of Results

The air quality impact of the various control strategies is evaluated in terms of three indicators. These are as follows:

1. The average percent change in 8-hour CO concentrations between 1977 and the future years studied;

2. The estimated number of counties above the ambient CO standard in the future; and

3. The predicted number of exceedences of the ambient CO standard.

When comparing emission control strategies, it is generally better to focus on the aggregate differences in these air quality indicators rather than on the absolute numbers of predicted violations for each urban area.

The first section of Table 11 presents the average percent change of the expected 8-hour average ambient CO concentrations from 1977 levels in low altitude, 49-state urban areas. The first two scenarios refer to a 15.5 gm/bhp-hr CO standard for HDVs and SEA programs for HDVs and LDTs based on 10% AQL. The comparison scenarios refer to a 35 gm/bhp-hr CO level for HDVs and a 40% AQL in SEA for HDVs and LDTs. All scenarios assume that inspection maintenance programs are in place by January 1, 1982. As indicated in Table 11, if the 3.4 gm/mi CO LDV "low standard" strategy prevails, the 8-hour average ambient CO concentration levels will be 77 percent lower in 1995 than they were in 1977. In comparison, the 3.4 gm/mi CO LDV 'high standard' case is expected to exhibit a 75 percent reduction in the same time frame. The 7.0 gm/mi CO LDV "low standard" strategy is expected to exhibit a 74 percent reduction in ambient CO concentrations in 1995. The comparable 7.0 gm/mi CO LDV "high standard" case will have a 72 percent reduction in ambient CO concentrations in 1995. A smaller improvement would also be expected if growth in vehicle miles traveled is greater than forecast.

Table 11 also provides the number of counties expected to exceed the 10 mg/m^3 8-hour average CO NAAQS in each projection year. All urban areas are expected to comply with the NAAQS by 1990 if any of the first three strategies prevails. If the 7.0 gm/mi CO LDV "high standard" is adopted, the date of compliance is somewhat later. The third section of Table 11 provides the total number of NAAQS exceedences in each projection year. In 1987 these range from three exceedences under the 3.4 gm/mi "low standard" case to seven exceedences in the 7.0 gm/mi "high standard" case. Finally, the last section of Table 11 shows the total tons of CO emitted for each low altitude strategy in each projection year.

Table 12 displays the same information for the two high altitude scenarios as Table 11 displays for the low altitude, 49-state scenarios. Generally, greater improvement in the air quality indicators is shown for the base case than for the comparison case.

The middle sections of Tables 11 and 12 have been presented to show the number of areas expected to exceed the NAAQS in each projection year. These tables should be used cautiously. A comparison of differences among scenarios is least apt to be affected by changes in the underlying analytical assumptions. Statements about the number of violations or the number of urban areas in non-attainment status at any particular year are more sensitive to changes in the basic assumptions.

Table 1
Low Altitude Emission Rates and Regulations
For The LDT-HDV CO Air Quality Analysis

Vehicle Type	Model Year	Emission Rate ZM	DR	Std	SEA	Description Life	Technology Mix	Strategy
LDGV	1981	4.93	2.50	3.4/7.0	40%	Half	73.2% CLC & 26.8% OLC	1-4
LDGV	1982	4.70	2.50	3.4/7.0	40%	Half	73.2% CLC & 26.8% OLC	1-4
LDGV	1983+	3.21	1.88	3.4	40%	Half	10.2% CLC, 59.2% CTB, 30.6% OLC	1&3
LDGV	1983+	5.86	2.35	7.0	40%	Half	57.9% CLC, 5.3% CTB, 36.8% OLC	2&4
LDGTs	1984+	6.14	1.35	10	10%	Full	100% Ox. Cat. (no 3ws)	1&2
LDGTs	1984+	7.13	1.35	10	40%	Full	100% Ox. Cat (no 3ws)	3&4
HDGV	1979-83	174.96	8.37	25	-	Half	No Catalyst Tech.	1-4
HDGV	1984+	12.10	2.66	15.5	10%	Full	100% Ox. Cat (no 3ws)	1&2
HDGV	1984-85	56.15	5.63	35	-	Full	No Catalyst Tech.	3&4
HDGV	1986+	44.36	5.63	35	40%	Full	No Catalyst Tech.	3&4

CTB is short for the closed-loop throttle body injected technology.
CLC is short for the closed-loop carbureted technology.
OLC is short for the open-loop carbureted technology.

Table 2
High Altitude Emission Rates and Regulations
For The LDT-HDV CO Air Quality

Vehicle Type	Year	Model ZM	Emission Rate DR	Std	SEA	Description Life	Technology Mix	Strategy
LDGV	1981	10.78	3.07	-	-	-	73.2% CLC & 26.8 OLC	5-6
LDGV	1982	8.13	3.12	7.8/11.0	-	Half	73.2% CLC & 26.8 OLC	5-6
LDGV	1983+	6.18	2.15	7.8	-	Half	65.2% CLC, 5.4% CTB, & 29.4% OLC	5-6
LDGTs	1984+	8.48	1.35	14	-	Full	100% Ox. Cat (no 3ws)	5
LDGTs	1984+	9.85	1.35	14	-	Full	100% Ox. Cat (no 3ws)	6
HDGV	1979-83	324.55	8.37	-	-	-	No Catalyst Tech.	5-6
HDGV	1984+	38.50	2.66	-	-	-	100% Ox. Cat. (no 3ws)	5
HDGV	1984-85	104.16	5.63	-	-	-	No Catalyst Tech.	6
HDGV	1986+	82.29	5.63	-	-	-	No Catalyst Tech.	6
LDDV	1984+	2.22	0.05	7.8	-	Half	-	5-6
LDDT	1984+	2.77	0.09	14	-	Full	-	5-6

CTB is short for the closed-loop throttle body injected technology.
CLC is short for the closed-loop carbureted technology.
OLC is short for the open-loop carbureted technology.

TABLE 3

BASE CASE LOW ALTITUDE WITH I/M 10% AQL LOW STANDARDS 3.4 CO 7/10/81

AMBIENT TEMP. = 75 F; ALTITUDE=1800 FT.; COLD/HOT START = 20.6/27.3/20.6;
VEHICLE SPEEDS = 19.6 MPH FOR LD & MC, 20.0 MPH FOR HD; MOBILE2 CALCULATED VMT MIX.

R E G		COMPOSITE EMISSION FACTORS									C.E.F.
	CY	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	ALL VEH
1	77	58.70	56.72	67.67	60.65	246.71	1.32	0.0	13.16	35.79	65.10
1	85	18.26	19.54	14.78	17.78	200.69	1.47	2.27	13.16	20.35	25.04
1	87	14.69	15.48	11.11	13.84	150.93	1.48	2.31	13.16	19.95	19.47
1	88	13.59	14.06	10.19	12.60	127.92	1.48	2.33	13.16	19.81	17.38
1	90	12.09	11.78	8.84	10.65	89.03	1.50	2.37	13.16	19.73	14.17
1	95	10.55	8.93	7.56	8.38	48.28	1.55	2.47	13.16	19.73	10.68
1	0	10.26	7.93	7.25	7.65	33.08	1.58	2.52	13.16	19.73	9.63

TABLE 4

BASE CASE LOW ALTITUDE WITH I/M 10% AQL HIGHER STANDARDS 7.0 CO 7/10/81

AMBIENT TEMP. = 75 F; ALTITUDE=1800 FT.; COLD/HOT START = 20.6/27.3/20.6;
VEHICLE SPEEDS = 19.6 MPH FOR LD & MC, 20.0 MPH FOR HD; MOBILE2 CALCULATED VMT MIX.

R E G		COMPOSITE EMISSION FACTORS									C.E.F.
	CY	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	ALL VEH
1	77	58.70	56.72	67.67	60.65	246.71	1.32	0.0	13.16	35.79	65.10
1	85	18.91	19.54	14.78	17.78	200.69	1.47	2.27	13.16	20.35	25.53
1	87	15.76	15.48	11.11	13.84	150.93	1.48	2.31	13.16	19.95	20.25
1	88	14.96	14.06	10.19	12.60	127.92	1.48	2.33	13.16	19.81	18.37
1	90	13.97	11.78	8.84	10.65	89.03	1.50	2.37	13.16	19.73	15.46
1	95	13.20	8.93	7.56	8.38	48.28	1.55	2.47	13.16	19.73	12.39
1	0	13.07	7.93	7.25	7.65	33.08	1.58	2.52	13.16	19.73	11.40

TABLE 5

COMPARISON CASE LOW ALTITUDE WITH I/M 40% AQL LOW STANDARDS 3.4 CO 7/10/81

AMBIENT TEMP. = 75 F; ALTITUDE=1800 FT.; COLD/HOT START = 20.6/27.3/20.6;
VEHICLE SPEEDS = 19.6 MPH FOR LD & MC, 20.0 MPH FOR HD; MOBILE2 CALCULATED VMT MIX.

R E G	CY	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	C.E.F. ALL VEH
		COMPOSITE EMISSION FACTORS									
1	77	58.70	56.72	67.67	60.65	246.71	1.32	0.0	13.16	35.79	65.10
1	85	18.26	19.72	15.17	18.04	210.23	1.47	2.27	13.16	20.35	25.48
1	87	14.69	15.80	11.70	14.26	172.61	1.48	2.31	13.16	19.95	20.43
1	88	13.59	14.43	10.82	13.07	154.89	1.48	2.33	13.16	19.81	18.57
1	90	12.09	12.25	9.52	11.20	125.92	1.50	2.37	13.16	19.73	15.78
1	95	10.55	9.50	8.28	9.01	95.32	1.55	2.47	13.16	19.73	12.72
1	0	10.26	8.54	7.98	8.31	84.42	1.58	2.52	13.16	19.73	11.86

TABLE 6

COMPARISON CASE LOW ALTITUDE WITH I/M 40% AQL HIGHER STANDARDS 7.0 CO 7/10/81

AMBIENT TEMP. = 75 F; ALTITUDE=1800 FT.; COLD/HOT START = 20.6/27.3/20.6;
VEHICLE SPEEDS = 19.6 MPH FOR LD & MC, 20.0 MPH FOR HD; MOBILE2 CALCULATED VMT MIX.

R E G	CY	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	C.E.F. ALL VEH
		COMPOSITE EMISSION FACTORS									
1	77	58.70	56.72	67.67	60.65	246.71	1.32	0.0	13.16	35.79	65.10
1	85	18.91	19.72	15.17	18.04	210.23	1.47	2.27	13.16	20.35	25.96
1	87	15.76	15.80	11.70	14.26	172.61	1.48	2.31	13.16	19.95	21.21
1	88	14.96	14.43	10.82	13.07	154.89	1.48	2.33	13.16	19.81	19.56
1	90	13.97	12.25	9.52	11.20	125.92	1.50	2.37	13.16	19.73	17.08
1	95	13.20	9.50	8.28	9.01	95.32	1.55	2.47	13.16	19.73	14.44
1	0	13.07	8.54	7.98	8.31	84.42	1.58	2.52	13.16	19.73	13.63

TABLE 7

BASE CASE HIGH ALTITUDE WITH I/M 7/10/81

AMBIENT TEMP. = 75 F; ALTITUDE=5300 FT.; COLD/HOT START = 20.6/27.3/20.6;
VEHICLE SPEEDS = 19.6 MPH FOR LD & MC, 20.0 MPH FOR HD; MOBILE2 CALCULATED VMT MIX.

R E G	CY	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	C.E.F. ALL VEH
		COMPOSITE EMISSION FACTORS									
3	77	91.71	90.74	116.36	99.95	400.18	2.25	0.0	21.34	53.08	103.00
3	85	26.19	27.48	20.89	25.05	327.66	2.43	3.49	21.34	36.60	37.70
3	87	20.17	20.69	15.02	18.57	244.89	2.43	3.35	21.34	36.38	28.47
3	88	18.18	18.55	13.52	16.64	207.74	2.44	3.29	21.34	36.21	25.01
3	90	15.49	15.00	11.40	13.61	146.18	2.45	3.23	21.34	36.18	19.79
3	95	12.69	10.75	9.44	10.22	83.54	2.50	3.27	21.34	36.18	14.32
3	0	12.17	9.42	8.99	9.25	60.91	2.53	3.31	21.34	36.18	12.76

TABLE 8

COMPARISON CASE HIGH ALTITUDE WITH I/M 7/10/81

AMBIENT TEMP. = 75 F; ALTITUDE=5300 FT.; COLD/HOT START = 20.6/27.3/20.6;
VEHICLE SPEEDS = 19.6 MPH FOR LD & MC, 20.0 MPH FOR HD; MOBILE2 CALCULATED VMT MIX.

R E G	CY	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	C.E.F. ALL VEH
		COMPOSITE EMISSION FACTORS									
3	77	91.71	90.74	116.36	99.95	400.18	2.25	0.0	21.34	53.08	103.00
3	85	26.19	27.74	21.43	25.41	341.58	2.43	3.49	21.34	36.60	38.33
3	87	20.17	21.13	15.84	19.14	274.58	2.43	3.35	21.34	36.38	29.79
3	88	18.18	19.06	14.39	17.29	243.58	2.44	3.29	21.34	36.21	26.59
3	90	15.49	15.65	12.34	14.37	193.62	2.45	3.23	21.34	36.18	21.88
3	95	12.69	11.54	10.44	11.10	141.79	2.50	3.27	21.34	36.18	16.86
3	0	12.17	10.27	10.01	10.17	123.80	2.53	3.31	21.34	36.18	15.50

Table 9

Low Altitude Urban Areas

Urban Area		Urban Area		Urban Area	
Jefferson Co	AL	Olmsted Co	MN	Franklin Co	OH
Maricopa Co	AZ	Ramsey Co	MN	Hamilton Co	OH
Pima Co	AZ	St Louis Co	MN	Jefferson Co	OH
Fairfield Co	CN	Greene Co	MO	Lucas Co	OH
Hartford Co	CN	St Louis	MO	Montgomery Co	OH
New Haven Co	CN	Cascade Co	MT	Summit Co	OH
Washington	DC	Missoula Co	MT	Oklahoma Co	OK
Broward Co	FL	Yellowstone	MT	Tulsa Co	OK
Duval Co	FL	Lancaster Co	NB	Lane Co	OR
Fulton Co	GA	Clark Co	NV	Marion Co	OR
Ada Co	ID	Atlantic Co	NJ	Multnomah Co	OR
Cook Co	IL	Bergen Co	NJ	Allegheny Co	PA
Marion Co	IN	Burlington Co	NJ	Luzerne Co	PA
Linn Co	IA	Camden Co	NJ	Northampton	PA
Polk Co	IA	Essex Co	NJ	Philadelphia	PA
Scott Co	IA	Gloucester Co	NJ	Providence Co	RI
Douglas Co	KS	Hudson Co	NJ	Richland Co	SC
Sedgwick Co	KS	Middlesex Co	NJ	Davidson Co	TN
Daviess Co	KY	Monmouth Co	NJ	Hamilton Co	TN
Jefferson Co	KY	Morris Co	NJ	Knox Co	TN
Mc Cracken Co	KY	Ocean Co	NJ	Shelby Co	TN
Androscoggin	ME	Passaic Co	NJ	El Paso Co	TX
Penobscot Co	ME	Somerset Co	NJ	Harris Co	TX
Allegany Co	MD	Union Co	NJ	Chittenden Co	VT
Baltimore	MD	Chaves Co	NM	Alexandria	VA
Montgomery Co	MD	Dona Ana Co	NM	Arlington Co	VA
Prince George	MD	Bronx Co	NY	Fairfax Co	VA
Washington Co	MD	Erie Co	NY	Hampton	VA
Central Mass	MA	Nassau Co	NY	Norfolk	VA
Metro Boston	MA	New York Co	NY	Richmond Co	VA
Macomb Co	MI	Queens Co	NY	King Co	WA
Saginaw Co	MI	Schenectady	NY	Pierce Co	WA
Wayne Co	MI	Mecklenburg	NC	Spokane Co	WA
Hennepin Co	MN	Cuyahoga Co	OH	Milwaukee Co	WI

High Altitude Urban Areas

Urban Area		Urban Area		Urban Area	
Adams Co	CO	Larimer Co	Co	Santa Fe Co	NM
Arapahoe Co	CO	Weld Co	Co	Davis Co	UT
Boulder Co	CO	Douglas Co	NV	Salt Lake Co	UT
Denver Co	CO	Washoe Co	NV	Utah Co	UT
El Paso Co	CO	Bernalillo Co	NM	Weber Co	UT
Jefferson Co	CO	San Juan Co	NM		

Table 10

Fleet Specific Mobile Source Growth Rates

	Medium Growth*
Light Duty Vehicles	+1.4
Light Duty Trucks	+1.4
Heavy Duty Gasoline Vehicles	-2.0
Heavy Duty Diesel Vehicles	+5.0
Motorcycles	+2.5
Off-Highway Vehicles	+2.5

*Compound annual rate.

TABLE 11

CO 8 HOUR AVERAGE MEDIUM GROWTH LOW ALTITUDE 49-STATE 1981

AVERAGE PERCENT CHANGE IN THE AMBIENT
CO CONCENTRATION LEVEL FROM THE BASE YEAR

SCENARIO	LDGV	HDV	SEA AQL	1985	1987	1988	1990	1995	2000
1	3.4 G/M	15.5 G/BHPHR	10%	-58	-67	-70	-73	-77	-77
2	7.0 G/M	15.5 G/BHPHR	10%	-58	-65	-68	-72	-74	-74
3	3.4 G/M	35.0 G/BHPHR	40%	-58	-66	-68	-71	-75	-74
4	7.0 G/M	35.0 G/BHPHR	40%	-57	-64	-67	-70	-72	-72

ESTIMATED NUMBER OF COUNTIES ABOVE STANDARD

SCENARIO	LDGV	HDV	SEA AQL	1985	1987	1988	1990	1995	2000
1	3.4 G/M	15.5 G/BHPHR	10%	6	2	1	0	0	0
2	7.0 G/M	15.5 G/BHPHR	10%	6	2	1	0	0	0
3	3.4 G/M	35.0 G/BHPHR	40%	6	2	2	0	0	0
4	7.0 G/M	35.0 G/BHPHR	40%	6	2	2	1	0	0

TOTAL NUMBER OF NAAQS EXCEEDANCES

SCENARIO	LDGV	HDV	SEA AQL	1985	1987	1988	1990	1995	2000
1	3.4 G/M	15.5 G/BHPHR	10%	25	3	1	0	0	0
2	7.0 G/M	15.5 G/BHPHR	10%	28	5	2	0	0	0
3	3.4 G/M	35.0 G/BHPHR	40%	31	6	2	0	0	0
4	7.0 G/M	35.0 G/BHPHR	40%	32	7	4	1	0	0

TOTAL CO EMISSIONS (1000 TONS/YEAR)

SCENARIO	LDGV	HDV	SEA AQL	1985	1987	1988	1990	1995	2000
1	3.4 G/M	15.5 G/BHPHR	10%	13771	11836	11220	10457	9826	10449
2	7.0 G/M	15.5 G/BHPHR	10%	13956	12216	11604	10852	10674	11132
3	3.4 G/M	35.0 G/BHPHR	40%	13943	12139	11582	10966	10369	11032
4	7.0 G/M	35.0 G/BHPHR	40%	14128	12518	11967	11361	11218	11714

TABLE 12

CO 8 HOUR AVERAGE | MEDIUM GROWTH | HIGH ALTITUDE | 1981

AVERAGE PERCENT CHANGE IN THE AMBIENT
CO CONCENTRATION LEVEL FROM THE BASE YEAR

SCENARIO	DESCRIPTION	1985	1987	1988	1990	1995	2000
5	BASE CASE	-59	-68	-72	-77	-81	-82
6	COMPARISON CASE	-58	-66	-70	-75	-79	-80

ESTIMATED NUMBER OF COUNTIES ABOVE STANDARD

SCENARIO	DESCRIPTION	1985	1987	1988	1990	1995	2000
5	BASE CASE	2	0	0	0	0	0
6	COMPARISON CASE	2	0	0	0	0	0

TOTAL NUMBER OF NAAQS EXCEEDANCES

SCENARIO	DESCRIPTION	1985	1987	1988	1990	1995	2000
5	BASE CASE	4	0	0	0	0	0
6	COMPARISON CASE	5	0	0	0	0	0

TOTAL CO EMISSIONS (1000 TONS/YEAR)

SCENARIO	DESCRIPTION	1985	1987	1988	1990	1995	2000
5	BASE CASE	1451	1185	1067	918	796	801
6	COMPARISON CASE	1475	1237	1125	985	877	885

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4. AEROS, Volume II, EPA/450-2-76-029, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, 1976.

5. Mobile Source Emission Factors: Final Document, EPA 400/9-78-006, U.S. Environmental Protection Agency, Washington, D.C. March, 1978.

6. Methodology to Conduct Air Quality Assessments of National Mobile Source Emission Control Strategies, Final Report, EPA-450/4-80-026, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, October, 1980.

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8. McNutt, B., Dulla, R., and Lax, D., "Factors Influencing Automotive Fuel Demand," SAE Technical Paper Series No. 790226, Congress and Exposition, Detroit, Michigan, March, 1979.

Appendix A

Alternate I/M Credits For The LDT-HDV Air Quality Analysis

Seven alternate sets of I/M credits were generated for the LDT-HDV air quality analysis. The seven sets were generated for the 1981 and later model year light duty gasoline powered vehicles. Four sets for the low altitude and three sets for the high altitude passenger cars. Table A-1 presents a summary of the seven alternate sets. This table gives the table number for each model year, strategy, and region for which the I/M credits are valid.

Table A-1

Summary Table for Alternate I/M Credits Used For
The LDT-HDV Air Quality Analysis

Region	Model Year	Strategy[1]	Table Number
Low	1981	1-4	A-2
Low	1982	1-4	A-3
Low	1983+	1&3	A-4
Low	1983+	2&4	A-5
High	1981	5-6	A-6
High	1982	5-6	A-7
High	1983+	5-6	A-8

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1 Strategy 1: Low Altitude Base Case for Option 1.
Strategy 2: Low Altitude Base Case for Option 2.
Strategy 3: Low Altitude Comparison Case for Option 1.
Strategy 4: Low Altitude Comparison Case for Option 2.
Strategy 5: High Altitude Base Case.
Strategy 6: High Altitude Comparison Case.

TABLE A-2 (CONT.)

LOW ALTITUDE 1981 LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

40	41	41	41	41	41	41	41	42	45	45	45	45	45	45	44	44	44	44
41	41	41	41	41	41	42	42	45	45	45	45	44	44	44	44	44	44	44
41	41	41	41	42	42	42	45	45	44	44	44	44	44	44	44	44	43	43
41	41	42	42	42	42	44	44	44	44	44	44	44	44	44	43	43	43	42
42	42	42	42	42	44	44	44	44	44	44	44	44	43	43	43	43	42	42
42	42	42	42	44	44	44	44	44	44	44	43	43	43	43	42	42	41	40
42	42	42	44	44	44	44	44	44	43	43	43	43	43	42	42	41	40	39
42	42	44	44	44	44	44	44	43	43	43	43	42	42	42	41	40	39	37
42	44	44	44	44	44	43	43	43	43	43	42	42	41	41	40	39	37	34
44	44	44	44	44	43	43	43	43	43	42	42	41	41	40	39	37	34	10
9	29	33	36	38	39	40	41	41	42	42	43	43	43	43	43	43	44	44
29	33	36	38	39	40	41	41	42	42	43	43	43	43	43	43	44	44	52
33	36	38	39	40	41	41	42	42	43	43	43	43	43	44	44	44	52	52
36	38	39	40	41	41	42	42	43	43	43	43	43	44	44	44	51	51	51
38	39	40	41	42	42	42	43	43	43	43	43	44	44	44	51	51	51	51
39	40	41	42	42	42	43	43	43	43	43	44	44	44	51	51	51	51	51
40	41	42	42	42	43	43	43	43	44	44	44	44	51	51	51	51	51	51
41	42	42	43	43	43	43	43	44	44	44	44	51	51	51	51	51	50	50
42	42	43	43	43	43	43	44	44	44	44	51	51	51	50	50	50	50	50
42	43	43	43	43	44	44	44	44	44	51	51	50	50	50	50	50	50	50
43	43	43	43	44	44	44	44	44	50	50	50	50	50	50	50	50	49	49
43	43	44	44	44	44	44	44	50	50	50	50	50	50	50	49	49	49	49
43	44	44	44	44	44	44	50	50	50	50	50	50	50	49	49	49	49	48
44	44	44	44	44	44	50	50	50	50	50	50	49	49	49	49	48	48	47
44	44	44	44	44	50	50	50	50	50	49	49	49	49	49	48	48	47	47
44	44	44	44	50	50	50	50	49	49	49	49	49	48	48	48	47	46	45
44	44	45	50	50	50	50	49	49	49	49	49	48	48	48	47	46	45	44
45	45	50	50	50	49	49	49	49	49	49	48	48	47	47	46	45	44	42
45	50	50	50	49	49	49	49	49	48	48	48	47	47	46	45	44	42	38
50	50	50	49	49	49	49	49	48	48	48	47	47	46	45	44	41	38	12
10	30	35	38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47
30	35	38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57
35	38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57	57
38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57	57	57
40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57	57	56	56
42	43	43	44	44	45	45	46	46	46	46	46	46	47	57	56	56	56	56
43	43	44	45	45	45	46	46	46	46	46	47	47	56	56	56	56	56	56
44	44	45	45	45	46	46	46	46	46	47	47	56	56	56	56	56	56	56
44	45	45	45	46	46	46	46	46	47	47	56	56	56	56	56	56	55	55
45	45	45	46	46	46	46	46	47	47	56	56	56	56	56	56	55	55	55
45	45	46	46	46	46	46	47	47	56	56	56	56	56	55	55	55	55	54
45	46	46	46	46	47	47	47	56	56	56	56	56	55	55	55	55	54	54
46	46	46	46	47	47	47	56	56	56	56	55	55	55	55	55	54	54	53
46	46	46	47	47	47	56	56	56	56	55	55	55	55	54	54	54	53	53
46	47	47	47	47	56	56	56	55	55	55	55	55	54	54	54	53	53	52
47	47	47	47	56	56	56	55	55	55	55	55	54	54	54	53	52	52	51
47	47	47	56	56	56	55	55	55	55	55	54	54	53	53	52	52	50	49
47	47	56	56	56	55	55	55	55	54	54	54	53	53	52	51	50	49	46
47	56	56	55	55	55	55	55	54	54	54	53	53	52	51	50	49	46	42
56	56	55	55	55	55	55	54	54	54	53	53	52	51	50	49	46	42	13

TABLE A-3

LOW ALTITUDE 1982 LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

7	23	27	30	31	32	33	34	34	35	35	35	35	35	36	36	36	36	36
23	27	30	31	32	33	34	34	35	35	35	35	35	36	36	36	36	36	37
27	30	31	32	33	34	34	35	35	35	35	36	36	36	36	36	36	37	37
30	31	32	33	34	34	35	35	35	35	36	36	36	36	36	36	36	36	36
31	33	33	34	34	35	35	35	35	36	36	36	36	36	36	36	36	36	36
33	33	34	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36	36
34	34	35	35	35	35	36	36	36	36	36	36	36	36	36	36	36	36	36
34	35	35	35	36	36	36	36	36	36	36	36	35	35	35	35	35	35	35
35	35	35	36	36	36	36	36	36	36	36	35	35	35	35	35	35	35	35
35	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36	37	35	35	35	35	35	34	34	34	34	34
36	36	36	36	36	37	37	37	35	35	34	34	34	34	34	34	34	34	34
36	36	37	37	37	37	37	34	34	34	34	34	34	34	34	34	34	33	33
37	37	37	37	37	37	34	34	34	34	34	34	34	34	33	33	33	33	33
37	37	37	37	37	34	34	34	34	34	34	34	33	33	33	33	33	32	32
37	37	37	37	34	34	34	34	34	34	33	33	33	33	33	32	32	32	31
37	37	37	34	34	34	34	34	33	33	33	33	33	32	32	32	31	31	30
37	37	34	34	34	34	33	33	33	33	33	33	32	32	32	31	30	29	28
37	34	34	34	33	33	33	33	33	33	32	32	32	31	31	30	29	28	26
34	34	34	33	33	33	33	33	33	32	32	32	31	31	30	29	28	26	8
8	25	29	32	33	35	35	36	37	37	37	38	38	38	38	38	38	38	38
25	29	32	33	35	35	36	37	37	37	38	38	38	38	38	38	38	38	42
29	32	33	35	35	36	37	37	37	38	38	38	38	38	38	38	38	42	42
32	34	35	36	36	37	37	37	38	38	38	38	38	38	38	39	41	41	42
34	35	36	36	37	37	37	38	38	38	38	38	38	38	39	41	41	41	41
35	36	36	37	37	38	38	38	38	38	38	38	39	39	41	41	41	41	41
36	36	37	37	38	38	38	38	38	38	39	39	39	41	41	41	41	41	41
37	37	37	38	38	38	38	38	38	39	39	39	41	41	41	41	41	41	40
37	38	38	38	38	38	38	39	39	39	39	40	40	40	40	40	40	40	40
38	38	38	38	38	39	39	39	39	39	40	40	40	40	40	40	40	40	40
38	38	38	39	39	39	39	39	39	40	40	40	40	40	40	40	40	40	39
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39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	38	38	37	37
39	39	39	40	39	39	39	39	39	39	39	39	38	38	38	38	37	37	36
40	40	40	39	39	39	39	39	39	39	38	38	38	38	37	37	36	36	35
40	40	39	39	39	39	39	39	38	38	38	38	38	37	37	36	36	35	33
40	39	39	39	39	39	39	38	38	38	38	37	37	37	36	35	34	33	30
39	39	39	39	39	38	38	38	38	38	37	37	37	36	35	34	33	30	9
8	27	31	34	36	37	38	38	39	39	40	40	40	40	41	41	41	41	41
27	31	34	36	37	38	38	39	39	40	40	40	40	41	41	41	41	41	47
31	34	36	37	38	38	39	39	40	40	40	40	41	41	41	41	41	47	47
34	36	37	38	39	39	39	40	40	40	40	41	41	41	41	41	47	47	47
36	37	38	39	39	40	40	40	40	41	41	41	41	41	41	47	47	47	46
37	38	39	39	40	40	40	40	41	41	41	41	41	41	46	46	46	46	46
38	39	39	40	40	40	40	41	41	41	41	41	41	46	46	46	46	46	46
39	39	40	40	40	41	41	41	41	41	41	41	46	46	46	46	46	46	46
40	40	40	40	41	41	41	41	41	41	41	46	46	46	46	46	46	45	45
40	40	41	41	41	41	41	41	41	41	46	46	45	45	45	45	45	45	45

TABLE A-3 (CONT.)

LOW ALTITUDE 1982 LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

40	41	41	41	41	41	41	41	42	45	45	45	45	45	45	45	45	45	45
41	41	41	41	41	41	42	42	45	45	45	45	45	45	45	45	45	44	44
41	41	41	41	42	42	42	45	45	45	45	45	45	45	44	44	44	44	44
41	41	42	42	42	42	45	45	45	45	45	45	44	44	44	44	44	43	43
42	42	42	42	42	45	45	45	45	44	44	44	44	44	44	43	43	43	42
42	42	42	42	45	45	45	44	44	44	44	44	44	44	43	43	42	42	41
42	42	42	45	45	44	44	44	44	44	44	44	43	43	43	42	42	41	40
42	42	45	44	44	44	44	44	44	44	44	43	43	43	42	42	41	40	38
42	45	44	44	44	44	44	44	44	43	43	43	43	42	41	41	39	38	35
45	44	44	44	44	44	44	44	43	43	43	42	42	41	41	39	38	35	11
9	29	33	36	38	39	40	41	41	42	42	43	43	43	43	43	43	44	44
29	33	36	38	39	40	41	41	42	42	43	43	43	43	43	43	44	44	52
33	36	38	39	40	41	41	42	42	43	43	43	43	43	44	44	44	52	52
36	38	39	40	41	41	42	42	43	43	43	43	43	44	44	44	52	52	52
38	39	40	41	42	42	42	43	43	43	43	43	44	44	44	52	52	52	52
39	40	41	42	42	42	43	43	43	43	43	44	44	44	52	52	52	52	51
40	41	42	42	42	43	43	43	43	44	44	44	44	52	51	51	51	51	51
41	42	42	43	43	43	43	43	44	44	44	44	51	51	51	51	51	51	51
42	42	43	43	43	43	43	44	44	44	44	51	51	51	51	51	51	51	51
42	43	43	43	43	44	44	44	44	44	51	51	51	51	51	51	51	50	50
43	43	43	43	44	44	44	44	44	51	51	51	51	51	51	50	50	50	50
43	43	44	44	44	44	44	44	51	51	51	51	50	50	50	50	50	50	49
43	44	44	44	44	44	44	51	51	51	50	50	50	50	50	50	49	49	49
44	44	44	44	44	44	51	51	50	50	50	50	50	50	50	49	49	49	48
44	44	44	44	44	51	50	50	50	50	50	50	50	49	49	49	48	48	47
44	44	44	44	50	50	50	50	50	50	50	50	49	49	49	48	48	47	46
44	44	45	50	50	50	50	50	50	50	49	49	49	49	48	48	47	46	45
45	45	50	50	50	50	50	50	50	49	49	49	48	48	48	47	46	45	43
45	50	50	50	50	50	50	49	49	49	49	48	48	47	47	46	44	42	39
50	50	50	50	50	50	49	49	49	49	48	48	47	47	46	44	42	39	12
10	30	35	38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47
30	35	38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57
35	38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57	57
38	40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57	57	57
40	42	43	43	44	44	45	45	45	46	46	46	46	46	47	57	57	57	57
42	43	43	44	44	45	45	46	46	46	46	46	46	47	57	57	57	57	57
43	43	44	45	45	45	46	46	46	46	46	47	47	57	57	57	57	57	56
44	44	45	45	45	46	46	46	46	46	47	47	57	57	57	57	56	56	56
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45	45	46	46	46	46	46	47	47	57	57	56	56	56	56	56	56	55	55
45	46	46	46	46	47	47	47	57	57	56	56	56	56	56	56	55	55	55
46	46	46	46	47	47	47	57	56	56	56	56	56	56	55	55	55	55	54
46	46	46	47	47	47	57	56	56	56	56	56	56	55	55	55	54	54	53
46	47	47	47	47	56	56	56	56	56	56	56	55	55	55	54	54	53	52
47	47	47	47	56	56	56	56	56	56	55	55	55	55	54	54	53	52	51
47	47	47	56	56	56	56	56	56	55	55	55	55	54	54	53	52	51	50
47	47	56	56	56	56	56	56	55	55	55	55	54	54	53	52	51	50	47
47	56	56	56	56	56	56	55	55	55	54	54	54	53	52	51	50	47	44
56	56	56	56	56	56	55	55	55	54	54	54	53	52	51	50	47	44	14

TABLE A-4

LOW ALTITUDE 1983+ LDGV I/M CREDITS
AT THE 3.4 GRAM/MILE CO STANDARD
FOR THE LDT-HDV AIR QUALITY ANALYSIS

6	20	24	27	29	30	31	31	32	32	33	33	33	33	34	34	34	34	34
20	24	27	29	30	31	31	32	32	33	33	33	33	34	34	34	34	34	31
24	27	29	30	31	31	32	32	33	33	33	33	34	34	34	34	34	31	31
27	29	30	31	31	32	32	33	33	33	33	34	34	34	34	34	31	31	31
29	30	31	31	32	32	33	33	33	33	34	34	34	34	34	31	31	31	31
30	31	31	32	32	33	33	33	33	34	34	34	34	34	31	31	31	31	31
31	31	32	32	33	33	33	33	34	34	34	34	34	31	31	31	30	30	30
32	32	32	33	33	33	33	34	34	34	34	34	31	31	30	30	30	30	30
32	32	33	33	33	34	34	34	34	34	34	31	30	30	30	30	30	30	30
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33	33	33	34	34	34	34	34	34	30	30	30	30	30	30	30	30	29	29
33	33	34	34	34	34	34	34	30	30	30	30	30	30	30	29	29	29	29
33	34	34	34	34	34	34	30	30	30	30	30	30	30	29	29	29	29	28
34	34	34	34	34	34	30	30	30	30	30	30	29	29	29	29	29	28	28
34	34	34	34	34	30	30	30	30	30	30	29	29	29	29	29	28	28	27
34	34	34	34	30	30	30	30	30	29	29	29	29	29	28	28	28	27	27
34	34	34	30	30	30	30	30	29	29	29	29	29	28	28	28	27	27	26
34	34	30	30	30	30	29	29	29	29	29	29	28	28	28	27	26	26	24
35	30	30	30	30	29	29	29	29	29	29	28	28	27	27	26	25	24	22
30	30	30	30	29	29	29	29	29	28	28	28	27	27	26	25	24	22	7
6	21	26	28	30	31	32	33	33	34	34	34	35	35	35	35	35	35	36
21	26	28	30	31	32	33	33	34	34	34	35	35	35	35	35	35	36	35
26	28	30	31	32	33	33	34	34	34	35	35	35	35	35	35	36	35	35
28	30	31	32	33	33	34	34	34	35	35	35	35	35	35	36	35	35	35
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31	32	33	33	34	34	34	35	35	35	35	35	35	36	35	35	34	34	34
32	33	33	34	34	34	35	35	35	35	35	35	36	35	34	34	34	34	34
33	33	34	34	35	35	35	35	35	35	36	36	34	34	34	34	34	34	34
33	34	34	35	35	35	35	35	35	36	36	34	34	34	34	34	34	34	34
34	34	35	35	35	35	35	35	36	36	34	34	34	34	34	34	34	34	33
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35	35	35	35	35	36	36	36	34	34	34	34	34	34	33	33	33	33	33
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36	36	36	34	34	34	34	33	33	33	33	33	32	32	32	31	31	30	29
36	36	34	34	34	33	33	33	33	33	33	32	32	32	31	31	30	29	28
36	34	34	34	33	33	33	33	33	33	32	32	32	31	31	30	29	28	26
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7	22	27	30	31	33	33	34	35	35	36	36	36	36	37	37	37	37	37
22	27	30	31	33	33	34	35	35	36	36	36	36	37	37	37	37	37	39
27	30	31	33	33	34	35	35	36	36	36	36	37	37	37	37	37	39	39
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31	33	34	34	35	35	36	36	36	36	37	37	37	37	37	39	38	38	38
33	34	34	35	35	36	36	36	36	37	37	37	37	37	38	38	38	38	38
34	34	35	35	36	36	36	36	37	37	37	37	37	38	38	38	38	38	38
34	35	35	36	36	36	36	37	37	37	37	37	38	38	38	38	38	38	38
35	35	36	36	36	36	37	37	37	37	37	38	38	38	38	38	38	38	38
35	36	36	36	36	37	37	37	37	37	38	38	38	38	38	38	38	37	37

TABLE A-4 (CONT.)

LOW ALTITUDE 1983+ LDGV I/M CREDITS
AT THE 3.4 GRAM/MILE CO STANDARD
FOR THE LDT-HDV AIR QUALITY ANALYSIS

36	36	36	37	37	37	37	37	37	38	38	38	38	38	38	37	37	37	37
36	36	37	37	37	37	37	37	38	38	38	38	38	38	37	37	37	37	37
36	37	37	37	37	37	37	38	38	38	38	38	37	37	37	37	37	36	36
37	37	37	37	37	37	38	38	38	38	37	37	37	37	37	37	36	36	36
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37	37	37	38	38	38	37	37	37	37	37	37	36	36	36	35	35	34	33
37	37	38	38	38	37	37	37	37	37	37	36	36	36	35	35	34	33	32
37	38	38	37	37	37	37	37	37	37	36	36	36	35	35	34	33	31	29
38	38	37	37	37	37	37	37	37	36	36	36	35	35	34	33	31	29	9
7	24	28	31	33	34	35	36	36	37	37	37	38	38	38	38	38	39	39
24	28	31	33	34	35	36	36	37	37	37	38	38	38	38	38	39	39	43
28	31	33	34	35	36	36	37	37	37	38	38	38	38	38	39	39	43	42
31	33	34	35	36	36	37	37	37	38	38	38	38	38	39	39	42	42	42
33	34	35	36	36	37	37	37	38	38	38	38	38	39	39	42	42	42	42
34	35	36	36	37	37	37	38	38	38	38	38	39	39	42	42	42	42	42
35	36	36	37	37	37	38	38	38	38	38	39	39	42	42	42	42	42	42
36	36	37	37	37	38	38	38	38	38	39	39	42	42	42	42	42	42	42
36	37	37	37	38	38	38	38	38	39	39	42	42	42	42	42	42	42	41
37	37	38	38	38	38	38	38	39	39	42	42	42	42	42	42	41	41	41
37	38	38	38	38	38	39	39	39	42	42	42	42	42	42	41	41	41	41
38	38	38	38	38	39	39	39	42	42	42	42	42	41	41	41	41	41	40
38	38	38	38	39	39	39	42	42	42	42	42	41	41	41	41	41	40	40
38	38	38	39	39	39	42	42	42	42	41	41	41	41	41	41	40	40	40
38	39	39	39	39	42	42	42	42	41	41	41	41	41	41	40	40	39	39
39	39	39	39	42	42	42	42	41	41	41	41	41	40	40	40	39	39	38
39	39	39	42	42	42	41	41	41	41	41	41	40	40	40	39	39	38	37
39	39	42	42	42	41	41	41	41	41	41	40	40	40	39	39	38	37	35
39	42	42	42	41	41	41	41	41	41	40	40	40	39	39	38	37	35	32
42	42	42	41	41	41	41	41	41	40	40	40	39	39	38	37	35	32	10
8	25	29	32	34	35	36	37	38	38	39	39	39	39	40	40	40	40	40
25	29	32	34	35	36	37	38	38	39	39	39	39	40	40	40	40	40	46
29	32	34	35	36	37	38	38	39	39	39	39	40	40	40	40	40	46	46
32	34	35	36	37	38	38	39	39	39	39	40	40	40	40	40	46	46	46
34	35	36	37	38	38	39	39	39	39	40	40	40	40	40	46	46	46	46
35	36	37	38	38	39	39	39	39	40	40	40	40	40	46	46	46	46	46
36	37	38	38	39	39	39	39	40	40	40	40	40	46	46	46	46	46	46
37	38	38	39	39	39	39	40	40	40	40	40	46	46	46	46	46	46	45
38	38	39	39	39	39	40	40	40	40	40	46	46	46	46	46	46	45	45
38	39	39	39	39	40	40	40	40	40	46	46	46	46	46	46	45	45	45
39	39	39	40	40	40	40	40	40	46	46	46	46	46	45	45	45	45	45
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40	40	40	40	40	46	46	46	46	46	45	45	45	45	45	44	44	43	43
40	40	40	40	46	46	46	46	45	45	45	45	45	44	44	44	43	43	42
40	40	40	46	46	46	46	45	45	45	45	45	44	44	44	43	43	42	41
40	40	46	46	46	46	45	45	45	45	45	44	44	44	43	43	42	41	39
40	46	46	46	46	45	45	45	45	45	44	44	44	43	43	42	41	39	36
46	46	46	46	45	45	45	45	45	44	44	44	43	43	42	41	39	36	11

TABLE A-5

LOW ALTITUDE 1983+ LDGV I/M CREDITS
AT THE 7.0 GRAM/MILE CO STANDARD
FOR THE LDT-HDV AIR QUALITY ANALYSIS

7	22	26	29	30	31	32	33	33	33	34	34	34	34	34	35	35	35	35
22	26	29	30	31	32	33	33	33	34	34	34	34	34	35	35	35	35	35
26	29	30	31	32	33	33	33	34	34	34	34	34	35	35	35	35	35	35
29	30	31	32	33	33	34	34	34	34	34	34	35	35	35	35	35	35	35
30	31	32	33	33	34	34	34	34	34	35	35	35	35	35	35	35	35	35
32	32	33	33	34	34	34	34	34	35	35	35	35	35	35	35	35	35	35
32	33	33	34	34	34	34	34	35	35	35	35	35	34	34	34	34	34	34
33	34	34	34	34	34	35	35	35	35	35	35	34	34	34	34	34	34	34
34	34	34	34	35	35	35	35	35	35	35	34	34	34	34	34	34	34	34
34	34	34	35	35	35	35	35	35	35	34	34	34	34	34	34	34	34	34
34	35	35	35	35	35	35	35	35	34	34	34	34	34	33	33	33	33	33
35	35	35	35	35	35	35	35	34	33	33	33	33	33	33	33	33	33	33
35	35	35	35	35	35	35	33	33	33	33	33	33	33	33	33	33	33	32
35	35	35	35	35	35	33	33	33	33	33	33	33	33	33	32	32	32	32
35	35	35	36	36	33	33	33	33	33	33	33	33	32	32	32	32	32	31
35	36	36	36	33	33	33	33	33	33	33	32	32	32	32	32	31	31	30
36	36	36	33	33	33	33	33	33	32	32	32	32	32	31	31	31	30	29
36	36	33	33	33	33	33	32	32	32	32	32	32	31	31	31	30	29	28
36	33	33	33	33	32	32	32	32	32	32	31	31	31	30	30	29	28	26
33	33	33	33	32	32	32	32	32	32	31	31	31	30	30	29	28	26	8
7	24	28	30	32	33	34	35	35	35	36	36	36	36	36	37	37	37	37
24	28	31	32	33	34	35	35	35	36	36	36	36	36	37	37	37	37	40
28	31	32	33	34	35	35	35	36	36	36	36	36	37	37	37	37	40	40
31	32	33	34	35	35	35	36	36	36	36	36	37	37	37	37	40	40	40
32	33	34	35	35	36	36	36	36	36	36	37	37	37	37	39	39	39	39
33	34	35	35	36	36	36	36	36	37	37	37	37	37	39	39	39	39	39
34	35	35	36	36	36	36	36	37	37	37	37	37	39	39	39	39	39	39
35	35	36	36	36	36	37	37	37	37	37	37	39	39	39	39	39	39	39
36	36	36	36	36	37	37	37	37	37	37	39	39	39	39	39	39	39	39
36	36	36	37	37	37	37	37	37	37	39	38	38	38	38	38	38	38	38
36	37	37	37	37	37	37	37	37	38	38	38	38	38	38	38	38	38	38
37	37	37	37	37	37	37	37	38	38	38	38	38	38	38	38	38	38	37
37	37	37	37	37	37	37	38	38	38	38	38	38	38	38	37	37	37	37
37	37	37	37	37	37	38	38	38	38	38	38	38	37	37	37	37	37	36
37	37	37	38	38	38	38	38	38	38	37	37	37	37	37	37	37	36	36
37	38	38	38	38	38	38	37	37	37	37	37	37	37	37	36	36	36	35
38	38	38	38	38	37	37	37	37	37	37	37	37	36	36	36	35	35	34
38	38	38	37	37	37	37	37	37	37	37	37	36	36	36	35	35	34	32
38	37	37	37	37	37	37	37	37	37	36	36	36	36	35	34	34	32	30
37	37	37	37	37	37	37	37	37	36	36	36	36	35	34	34	32	30	9
8	26	30	32	34	35	36	37	37	37	38	38	38	38	38	39	39	39	39
26	30	32	34	35	36	37	37	37	38	38	38	38	38	39	39	39	39	45
30	32	34	35	36	37	37	37	38	38	38	38	39	39	39	39	39	44	44
32	34	35	36	37	37	37	38	38	38	38	39	39	39	39	39	44	44	44
34	35	36	37	37	37	38	38	38	38	39	39	39	39	39	44	44	44	44
35	36	37	37	38	38	38	38	38	39	39	39	39	39	44	44	44	44	44
36	37	37	38	38	38	38	39	39	39	39	39	39	44	44	44	44	44	44
37	37	38	38	38	38	39	39	39	39	39	39	44	44	44	44	43	43	43
37	38	38	38	38	39	39	39	39	39	39	43	43	43	43	43	43	43	43
38	38	38	39	39	39	39	39	39	39	43	43	43	43	43	43	43	43	43

TABLE A-5 (CONT.)

LOW ALTITUDE 1983+ LDGV I/M CREDITS
AT THE 7.0 GRAM/MILE CO STANDARD
FOR THE LDT-HDV AIR QUALITY ANALYSIS

38	38	39	39	39	39	39	39	39	43	43	43	43	43	43	43	43	43	43
39	39	39	39	39	39	39	39	43	43	43	43	43	43	43	43	42	42	42
39	39	39	39	39	39	39	43	43	43	43	43	43	42	42	42	42	42	42
39	39	39	39	39	40	43	43	43	43	42	42	42	42	42	42	42	41	41
39	39	39	40	40	43	43	43	42	42	42	42	42	42	42	42	41	41	40
39	40	40	40	43	42	42	42	42	42	42	42	42	42	41	41	41	40	40
40	40	40	42	42	42	42	42	42	42	42	42	41	41	41	41	40	39	38
40	40	42	42	42	42	42	42	42	42	42	41	41	41	40	40	39	38	37
40	42	42	42	42	42	42	42	42	41	41	41	41	40	40	39	38	37	34
42	42	42	42	42	42	42	42	41	41	41	41	40	40	39	38	37	34	11
9	27	32	34	36	37	38	39	39	39	40	40	40	40	41	41	41	41	41
27	32	34	36	37	38	39	39	39	40	40	40	40	41	41	41	41	41	49
32	34	36	37	38	39	39	39	40	40	40	40	41	41	41	41	41	49	49
34	36	37	38	39	39	39	40	40	40	41	41	41	41	41	41	49	49	49
36	37	38	39	39	40	40	40	40	41	41	41	41	41	41	49	49	49	49
37	38	39	39	40	40	40	40	41	41	41	41	41	41	49	49	49	49	49
38	39	39	40	40	40	40	41	41	41	41	41	41	49	49	48	48	48	48
39	39	40	40	40	40	41	41	41	41	41	41	48	48	48	48	48	48	48
39	40	40	40	41	41	41	41	41	41	41	48	48	48	48	48	48	48	48
40	40	40	41	41	41	41	41	41	41	48	48	48	48	48	48	48	48	48
40	40	41	41	41	41	41	41	41	48	48	48	48	48	48	48	47	47	47
41	41	41	41	41	41	41	41	48	48	48	48	48	48	47	47	47	47	47
41	41	41	41	41	41	42	48	48	48	48	48	47	47	47	47	47	47	46
41	41	41	41	42	42	48	48	48	48	47	47	47	47	47	47	46	46	46
41	41	41	42	42	48	48	48	47	47	47	47	47	47	47	46	46	46	45
41	42	42	42	48	48	47	47	47	47	47	47	47	46	46	46	45	45	44
42	42	42	48	47	47	47	47	47	47	47	47	46	46	46	45	45	44	43
42	42	47	47	47	47	47	47	47	47	47	46	46	46	45	45	44	43	41
42	47	47	47	47	47	47	47	47	46	46	46	46	45	45	44	43	41	38
47	47	47	47	47	47	47	47	46	46	46	46	45	45	44	43	41	38	12
9	29	33	36	38	39	40	41	41	42	42	42	42	43	43	43	43	43	43
29	33	36	38	39	40	41	41	42	42	42	42	43	43	43	43	43	43	54
33	36	38	39	40	41	41	42	42	42	42	43	43	43	43	43	43	54	54
36	38	39	40	41	41	42	42	42	42	43	43	43	43	43	43	54	54	53
38	39	40	41	41	42	42	42	42	43	43	43	43	43	43	54	53	53	53
39	40	41	41	42	42	42	43	43	43	43	43	43	44	53	53	53	53	53
40	41	41	42	42	42	43	43	43	43	43	43	44	53	53	53	53	53	53
41	41	42	42	42	43	43	43	43	43	43	44	53	53	53	53	53	53	53
41	42	42	42	43	43	43	43	43	43	44	53	53	53	53	53	53	53	52
42	42	42	43	43	43	43	43	43	44	53	53	53	53	53	53	53	52	52
42	42	43	43	43	43	43	44	44	53	53	53	53	53	53	52	52	52	52
42	43	43	43	43	43	44	44	53	53	53	53	53	53	52	52	52	52	51
43	43	43	43	43	44	44	53	53	53	53	53	52	52	52	52	52	51	51
43	43	43	43	44	44	53	53	53	53	53	52	52	52	52	52	51	51	50
43	43	44	44	44	53	53	53	53	52	52	52	52	52	52	51	51	50	50
43	44	44	44	53	53	53	53	52	52	52	52	52	51	51	51	50	50	49
44	44	44	53	53	53	53	52	52	52	52	52	51	51	51	50	50	49	48
44	44	53	53	53	52	52	52	52	52	52	51	51	51	50	50	49	47	46
44	53	53	53	52	52	52	52	52	52	51	51	51	50	49	49	47	46	42
53	53	53	52	52	52	52	52	52	51	51	51	50	49	49	47	46	42	14

TABLE A-6

HIGH ALTITUDE 1981 LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

5	19	24	27	29	30	31	32	33	33	34	34	34	35	35	35	35	35	35
19	24	27	29	30	31	32	33	33	34	34	34	35	35	35	35	35	35	37
24	27	29	30	31	32	33	33	34	34	34	35	35	35	35	35	35	37	37
27	29	30	31	32	33	33	34	34	34	35	35	35	35	35	35	37	37	37
29	30	32	32	33	33	34	34	35	35	35	35	35	35	36	37	37	37	37
31	32	32	33	34	34	34	35	35	35	35	35	35	36	37	36	36	36	36
32	33	33	34	34	34	35	35	35	35	35	36	36	36	36	36	36	36	36
33	33	34	34	35	35	35	35	35	36	36	36	36	36	36	36	36	36	36
33	34	34	35	35	35	35	35	36	36	36	36	36	36	36	35	35	35	35
34	34	35	35	35	35	36	36	36	36	36	36	35	35	35	35	35	35	35
35	35	35	35	36	36	36	36	36	35	35	35	35	35	35	35	34	34	34
35	35	36	36	36	36	36	36	35	35	35	35	35	35	34	34	34	34	33
35	36	36	36	36	36	36	35	35	35	35	35	34	34	34	34	33	33	32
36	36	36	36	36	36	35	35	35	34	34	34	34	34	33	33	33	32	32
36	36	36	36	36	35	35	34	34	34	34	34	33	33	33	32	32	31	30
36	36	36	37	35	34	34	34	34	34	34	33	33	33	32	32	31	30	29
37	37	37	34	34	34	34	34	34	33	33	33	32	32	31	31	30	29	27
37	37	34	34	34	34	34	34	33	33	33	32	32	31	31	30	28	27	25
37	34	34	34	34	34	34	33	33	33	32	32	31	30	30	28	27	24	21
34	34	34	34	34	33	33	33	33	32	32	31	30	29	28	27	24	21	6
6	21	26	29	31	32	34	35	35	36	36	37	37	37	37	38	38	38	38
21	26	29	31	32	34	35	35	36	36	37	37	37	37	38	38	38	38	43
26	29	31	33	34	35	35	36	36	37	37	37	37	38	38	38	38	43	43
29	31	33	34	35	35	36	36	37	37	37	37	38	38	38	38	43	43	42
31	33	34	35	35	36	36	37	37	37	38	38	38	38	38	42	42	42	42
33	34	35	36	36	36	37	37	37	38	38	38	38	38	42	42	42	42	42
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36	36	37	37	37	38	38	38	38	38	38	41	41	41	41	41	41	41	41
37	37	37	38	38	38	38	38	38	39	41	41	41	41	41	41	40	40	40
37	37	38	38	38	38	38	39	39	41	41	41	41	41	40	40	40	40	39
38	38	38	38	38	39	39	39	41	41	41	40	40	40	40	40	39	39	39
38	38	38	38	39	39	39	41	40	40	40	40	40	40	39	39	39	38	38
38	38	39	39	39	39	40	40	40	40	40	40	39	39	39	38	38	37	37
39	39	39	39	39	40	40	40	40	40	40	39	39	39	38	38	37	36	35
39	39	39	39	40	40	40	40	40	39	39	39	38	38	38	37	36	35	34
39	39	39	40	40	40	40	39	39	39	39	38	38	37	37	36	35	34	32
39	39	40	40	40	40	39	39	39	39	38	38	37	37	36	35	33	31	29
39	40	40	40	39	39	39	39	38	38	38	37	36	36	35	33	31	29	25
40	40	40	39	39	39	39	38	38	38	37	36	36	35	33	31	29	25	7
6	23	28	31	33	35	36	37	38	38	39	39	40	40	40	40	40	41	41
23	28	31	33	35	36	37	38	38	39	39	40	40	40	40	40	41	41	49
28	31	33	35	36	37	38	38	39	39	40	40	40	40	40	41	41	48	48
31	33	35	36	37	38	38	39	39	40	40	40	40	41	41	41	48	48	48
33	35	36	37	38	38	39	39	40	40	40	40	41	41	41	48	48	48	48
35	36	37	38	39	39	39	40	40	40	40	41	41	41	48	48	48	47	47
36	37	38	39	39	39	40	40	40	41	41	41	41	48	47	47	47	47	47
37	38	39	39	40	40	40	40	41	41	41	41	47	47	47	47	47	47	46
38	39	39	40	40	40	40	41	41	41	41	47	47	47	47	47	46	46	46
39	39	40	40	40	41	41	41	41	41	47	47	47	47	46	46	46	46	45

TABLE A-6 (CONT.)

HIGH ALTITUDE 1981 LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

40	40	40	40	41	41	41	41	41	47	47	47	46	46	46	46	45	45	45
40	40	41	41	41	41	41	41	47	46	46	46	46	46	45	45	45	44	44
40	41	41	41	41	41	41	46	46	46	46	46	46	45	45	45	44	44	43
41	41	41	41	41	42	46	46	46	46	46	45	45	45	44	44	43	43	42
41	41	41	42	42	46	46	46	46	45	45	45	45	44	44	43	42	42	40
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42	42	46	46	46	45	45	45	45	44	44	43	43	42	41	40	38	36	33
42	46	46	45	45	45	45	44	44	44	43	43	42	41	40	38	36	33	28
46	46	45	45	45	45	44	44	44	43	43	42	41	40	38	36	33	28	8
7	24	30	33	35	37	38	39	40	41	41	42	42	43	43	43	43	43	44
24	30	33	35	37	38	39	40	41	41	42	42	43	43	43	43	43	44	54
30	33	35	37	38	39	40	41	41	42	42	43	43	43	43	43	44	54	54
33	36	37	38	39	40	41	41	42	42	43	43	43	43	44	44	54	54	54
36	37	39	40	40	41	42	42	42	43	43	43	43	44	44	54	54	53	53
37	39	40	40	41	42	42	42	43	43	43	43	44	44	54	53	53	53	53
39	40	40	41	42	42	42	43	43	43	43	44	44	53	53	53	53	53	52
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41	41	42	42	43	43	43	43	44	44	44	53	53	53	53	52	52	52	51
41	42	42	43	43	43	43	44	44	44	53	53	53	52	52	52	52	51	51
42	42	43	43	43	44	44	44	44	53	53	52	52	52	52	51	51	51	50
42	43	43	43	44	44	44	44	53	52	52	52	52	51	51	51	50	50	49
43	43	43	44	44	44	44	52	52	52	52	52	51	51	51	50	50	49	48
43	44	44	44	44	44	52	52	52	52	52	51	51	50	50	49	49	48	47
44	44	44	44	44	52	52	52	52	51	51	51	50	50	49	49	48	47	45
44	44	44	44	52	52	52	52	51	51	51	50	50	49	48	48	47	45	43
44	44	44	52	52	52	51	51	51	51	50	50	49	48	47	46	45	43	41
44	45	52	52	52	51	51	51	50	50	50	49	48	47	46	45	43	41	37
45	52	52	52	51	51	51	50	50	49	49	48	47	46	45	43	41	37	32
52	52	52	51	51	51	50	50	49	49	48	47	46	45	43	41	37	32	9
7	26	32	35	38	39	41	42	43	44	44	45	45	45	46	46	46	46	47
26	32	35	38	39	41	42	43	44	44	45	45	45	46	46	46	46	47	60
32	35	38	39	41	42	43	44	44	45	45	45	46	46	46	46	47	60	59
35	38	40	41	42	43	44	44	45	45	45	46	46	46	46	47	60	59	59
38	40	41	42	43	44	44	45	45	45	46	46	46	46	47	59	59	59	59
40	41	42	43	44	44	45	45	45	46	46	46	46	47	59	59	59	59	58
41	42	43	44	44	45	45	46	46	46	46	47	47	59	59	59	59	58	58
42	43	44	44	45	45	46	46	46	46	47	47	59	59	59	58	58	58	57
43	44	44	45	45	46	46	46	46	47	47	59	59	59	58	58	58	57	57
44	44	45	45	46	46	46	46	47	47	59	59	59	58	58	58	57	57	56
44	45	45	46	46	46	46	47	47	59	59	58	58	58	57	57	57	56	55
45	45	46	46	46	46	47	47	59	59	58	58	58	57	57	56	56	55	54
45	46	46	46	47	47	47	59	59	58	58	58	57	57	56	56	55	54	53
46	46	46	47	47	47	59	58	58	58	58	57	57	56	56	55	54	53	52
46	46	47	47	47	59	58	58	58	58	57	57	56	56	55	54	53	52	50
46	47	47	47	59	58	58	58	57	57	57	56	56	55	54	53	52	50	48
47	47	47	59	58	58	58	57	57	57	56	55	55	54	53	52	50	48	45
47	47	59	58	58	58	57	57	57	56	55	55	54	53	52	50	48	45	42
47	58	58	58	58	57	57	57	56	55	55	54	53	52	50	48	45	41	36
58	58	58	58	57	57	56	56	55	55	54	53	52	50	48	45	41	36	10

TABLE A-7

HIGH ALTITUDE 1982 LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

6	21	25	28	30	31	32	33	34	34	35	35	35	35	35	36	36	36	36
21	26	28	30	31	32	33	34	34	35	35	35	35	35	36	36	36	36	38
26	28	30	31	32	33	34	34	35	35	35	35	35	36	36	36	36	38	38
28	30	32	33	33	34	34	35	35	35	35	36	36	36	36	36	38	38	38
30	32	33	33	34	34	35	35	35	35	36	36	36	36	36	38	38	38	38
32	33	33	34	34	35	35	35	36	36	36	36	36	36	37	37	37	37	37
33	34	34	35	35	35	35	36	36	36	36	36	36	37	37	37	37	37	37
34	34	35	35	35	36	36	36	36	36	36	36	37	37	37	37	37	37	37
34	35	35	35	36	36	36	36	36	36	36	37	37	37	37	37	36	36	36
35	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
35	36	36	36	36	36	36	36	37	36	36	36	36	36	36	36	36	36	35
36	36	36	36	36	37	37	37	36	36	36	36	36	36	36	35	35	35	35
36	36	36	37	37	37	37	36	36	36	36	35	35	35	35	35	35	35	34
36	37	37	37	37	37	36	36	35	35	35	35	35	35	35	34	34	34	33
37	37	37	37	37	35	35	35	35	35	35	35	35	34	34	34	34	33	33
37	37	37	37	35	35	35	35	35	35	35	34	34	34	34	33	33	32	31
37	37	37	35	35	35	35	35	35	35	34	34	34	34	33	33	32	31	30
37	37	35	35	35	35	35	35	34	34	34	34	33	33	32	32	31	30	28
37	35	35	35	35	35	34	34	34	34	34	33	33	32	32	31	29	27	24
35	35	35	35	35	34	34	34	34	34	33	33	32	32	31	29	27	24	7
7	23	28	31	32	34	35	36	36	37	37	37	38	38	38	38	38	39	39
23	28	31	32	34	35	36	36	37	37	37	38	38	38	38	38	39	39	44
28	31	33	34	35	36	36	37	37	38	38	38	38	38	38	39	39	44	44
31	33	34	35	36	36	37	37	38	38	38	38	38	39	39	39	44	44	44
33	34	35	36	36	37	37	38	38	38	38	38	39	39	39	44	44	44	44
34	35	36	37	37	37	38	38	38	38	39	39	39	39	43	43	43	43	43
35	36	37	37	38	38	38	38	38	39	39	39	39	43	43	43	43	43	43
36	37	37	38	38	38	38	39	39	39	39	39	43	43	43	43	43	43	43
37	37	38	38	38	38	39	39	39	39	39	43	43	42	42	42	42	42	42
38	38	38	38	39	39	39	39	39	39	42	42	42	42	42	42	42	42	42
38	38	39	39	39	39	39	39	39	42	42	42	42	42	42	42	42	41	41
38	39	39	39	39	39	39	39	42	42	42	42	42	41	41	41	41	41	41
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39	39	39	39	40	40	42	41	41	41	41	41	41	41	41	40	40	40	39
39	39	40	40	40	41	41	41	41	41	41	41	41	40	40	40	39	39	38
40	40	40	40	41	41	41	41	41	41	41	40	40	40	39	39	38	38	37
40	40	40	41	41	41	41	41	41	40	40	40	40	39	39	38	37	36	35
40	40	41	41	41	41	41	40	40	40	40	39	39	39	38	37	36	35	32
40	41	41	41	41	41	40	40	40	40	39	39	38	38	37	36	34	32	29
41	41	41	41	41	40	40	40	40	39	39	38	38	37	36	34	32	29	9
7	25	30	33	35	36	37	38	39	39	40	40	40	41	41	41	41	41	42
25	30	33	35	36	37	38	39	39	40	40	41	41	41	41	41	41	42	50
30	33	35	36	37	38	39	39	40	40	41	41	41	41	41	41	42	50	50
33	35	36	38	38	39	40	40	40	41	41	41	41	41	41	42	50	50	50
35	37	38	38	39	40	40	40	41	41	41	41	41	42	42	49	49	49	49
37	38	39	39	40	40	40	41	41	41	41	41	42	42	49	49	49	49	49
38	39	39	40	40	41	41	41	41	41	42	42	42	49	49	49	49	49	49
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40	40	40	41	41	41	41	42	42	42	42	49	49	48	48	48	48	48	48
40	41	41	41	41	41	42	42	42	42	48	48	48	48	48	48	48	48	47

TABLE A-7 (CONT.)

HIGH ALTITUDE 1982 LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

41	41	41	41	42	42	42	42	42	48	48	48	48	48	48	48	47	47	47
41	41	42	42	42	42	42	42	48	48	48	48	48	47	47	47	47	47	46
41	42	42	42	42	42	42	48	48	48	48	47	47	47	47	47	46	46	46
42	42	42	42	42	42	48	48	47	47	47	47	47	47	46	46	46	45	45
42	42	42	42	42	48	47	47	47	47	47	47	46	46	46	45	45	44	43
42	42	42	43	47	47	47	47	47	47	47	46	46	46	45	45	44	43	42
43	43	43	47	47	47	47	47	47	46	46	46	46	45	45	44	43	42	40
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43	47	47	47	47	47	46	46	46	46	45	45	44	44	43	41	40	37	33
47	47	47	47	47	46	46	46	46	45	45	44	44	43	41	40	37	33	10
8	27	32	35	37	39	40	41	42	42	43	43	43	44	44	44	44	44	45
27	32	35	37	39	40	41	42	42	43	43	43	44	44	44	44	44	45	56
32	35	37	39	40	41	42	42	43	43	43	44	44	44	44	44	45	56	56
35	37	39	40	41	42	42	43	43	43	44	44	44	44	44	45	56	56	55
38	39	40	41	42	42	43	43	43	44	44	44	44	44	45	55	55	55	55
39	40	41	42	42	43	43	44	44	44	44	44	45	45	55	55	55	55	55
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42	43	43	43	44	44	44	44	45	45	45	55	55	55	54	54	54	54	54
43	43	43	44	44	44	44	45	45	45	55	55	54	54	54	54	54	53	53
43	44	44	44	44	45	45	45	45	54	54	54	54	54	54	54	53	53	53
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45	46	54	54	53	53	53	53	53	52	52	51	51	50	49	48	47	45	42
46	54	54	53	53	53	53	53	52	52	51	51	50	49	48	47	45	42	37
54	54	53	53	53	53	53	52	52	51	51	50	49	48	47	45	42	37	11
8	29	34	37	40	41	43	44	44	45	45	46	46	47	47	47	47	48	48
29	34	38	40	41	43	44	44	45	45	46	46	47	47	47	47	48	48	62
34	38	40	41	43	44	44	45	46	46	46	47	47	47	47	48	48	62	62
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47	47	48	48	48	48	61	61	60	60	60	60	59	59	58	58	57	57	56
47	48	48	48	48	61	60	60	60	60	60	59	59	58	58	57	57	56	54
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48	48	61	60	60	60	60	59	59	59	58	58	57	56	55	54	52	50	47
48	60	60	60	60	60	59	59	59	58	58	57	56	55	54	52	50	47	42
60	60	60	60	60	59	59	59	58	58	57	56	55	54	52	50	47	42	13

TABLE A-8

HIGH ALTITUDE 1983+ LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

6	21	25	28	30	31	32	33	34	34	34	35	35	35	35	35	36	36	36
21	25	28	30	31	32	33	34	34	34	35	35	35	35	35	36	36	36	38
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32	33	33	34	34	35	35	35	35	35	36	36	36	36	37	37	37	37	37
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36	36	36	36	36	36	37	35	35	35	35	35	35	35	35	35	34	34	34
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35	35	35	34	34	34	34	34	34	33	33	33	32	31	30	29	27	24	7
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40	40	40	41	41	41	41	41	41	41	48	48	47	47	47	47	47	47	47

TABLE A-8 (CONT.)

HIGH ALTITUDE 1983+ LDGV I/M CREDITS
FOR THE LDT-HDV AIR QUALITY ANALYSIS

40	40	41	41	41	41	41	41	41	47	47	47	47	47	47	47	47	46	46
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8	28	33	37	39	41	42	43	43	44	45	45	45	46	46	46	46	47	47
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47	59	59	59	59	59	58	58	58	57	57	56	55	54	53	52	50	47	42
59	59	59	59	59	58	58	58	57	57	56	55	54	53	52	50	46	42	13

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
JEFFERSON COAL	176.8	31.5	32.4	2.7	10.3	122.2	18.2	253.7	140.4	394.1
	(44.9)	(8.0)	(8.2)	(0.7)	(2.6)	(31.0)	(4.6)	(64.4)	(35.6)	(100.0)
MARICOPA CO AZ	436.2	76.8	44.4	7.8	25.7	7.6	21.6	590.9	29.2	620.1
	(70.3)	(12.4)	(7.2)	(1.3)	(4.1)	(1.2)	(3.5)	(95.3)	(4.7)	(100.0)
PIMA CO AZ	147.1	25.4	22.2	2.4	7.6	0.9	8.3	204.7	9.2	213.9
	(68.8)	(11.9)	(10.4)	(1.1)	(3.6)	(0.4)	(3.9)	(95.7)	(4.3)	(100.0)
FAIRFIELD COCN	217.7	37.7	35.2	1.4	14.3	9.0	3.0	306.3	12.0	318.3
	(68.4)	(11.8)	(11.1)	(0.4)	(4.5)	(2.8)	(0.9)	(96.2)	(3.8)	(100.0)
HARTFORD CO CN	210.1	35.8	40.9	1.7	16.0	7.7	11.1	304.5	18.8	323.3
	(65.0)	(11.1)	(12.7)	(0.5)	(4.9)	(2.4)	(3.4)	(94.2)	(5.8)	(100.0)
NEW HAVEN COCN	192.8	33.4	41.3	1.6	11.3	1.0	10.2	280.4	11.2	291.6
	(66.1)	(11.5)	(14.2)	(0.5)	(3.9)	(0.3)	(3.5)	(96.2)	(3.8)	(100.0)
WASHINGTON DC	127.4	22.5	42.2	1.4	7.1	7.4	2.7	200.6	10.1	210.7
	(60.5)	(10.7)	(20.0)	(0.7)	(3.4)	(3.5)	(1.3)	(95.2)	(4.8)	(100.0)
BROWARD CO FL	269.9	48.4	46.6	2.2	23.6	5.0	16.3	390.7	21.3	412.0
	(65.5)	(11.7)	(11.3)	(0.5)	(5.7)	(1.2)	(4.0)	(94.8)	(5.2)	(100.0)
DUVAL CO FL	103.6	17.9	267.6	3.0	11.9	4.3	20.4	404.0	24.7	428.7
	(24.2)	(4.2)	(62.4)	(0.7)	(2.8)	(1.0)	(4.8)	(94.2)	(5.8)	(100.0)
FULTON CO GA	245.8	44.8	53.2	3.9	18.3	0.1	4.2	366.0	4.3	370.3
	(66.4)	(12.1)	(14.4)	(1.1)	(4.9)	(0.0)	(1.1)	(98.8)	(1.2)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY		LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
ADA CO	ID	40.7	7.3	12.8	0.5	6.7	0.0	12.0	68.0	12.0	80.0
		(50.9)	(9.1)	(16.0)	(0.6)	(8.4)	(0.0)	(15.0)	(85.0)	(15.0)	(100.0)
COOK CO	IL	1202.7	212.8	184.5	14.2	79.1	73.2	25.5	1693.3	98.7	1792.0
		(67.1)	(11.9)	(10.3)	(0.8)	(4.4)	(4.1)	(1.4)	(94.5)	(5.5)	(100.0)
MARION CO	IN	211.1	37.7	5.2	4.1	13.8	53.4	14.7	271.9	68.1	340.0
		(62.1)	(11.1)	(1.5)	(1.2)	(4.1)	(15.7)	(4.3)	(80.0)	(20.0)	(100.0)
LINN CO	IA	53.9	9.1	5.1	0.6	7.1	1.7	3.7	75.8	5.4	81.2
		(66.4)	(11.2)	(6.3)	(0.7)	(8.7)	(2.1)	(4.6)	(93.3)	(6.7)	(100.0)
POLK CO	IA	114.0	19.6	22.4	1.4	7.4	5.3	6.3	164.8	11.6	176.4
		(64.6)	(11.1)	(12.7)	(0.8)	(4.2)	(3.0)	(3.6)	(93.4)	(6.6)	(100.0)
SCOTT CO	IA	53.6	8.8	2.9	0.6	5.4	2.2	3.2	71.3	5.4	76.7
		(69.9)	(11.5)	(3.8)	(0.8)	(7.0)	(2.9)	(4.2)	(93.0)	(7.0)	(100.0)
DOUGLAS CO	KS	18.4	3.3	2.9	0.2	2.6	0.6	0.6	27.4	1.2	28.6
		(64.3)	(11.5)	(10.1)	(0.7)	(9.1)	(2.1)	(2.1)	(95.8)	(4.2)	(100.0)
SEDGWICK CO	KS	108.4	19.0	27.6	1.0	11.5	0.4	20.0	167.5	20.4	187.9
		(57.7)	(10.1)	(14.7)	(0.5)	(6.1)	(0.2)	(10.6)	(89.1)	(10.9)	(100.0)
DAVIESS CO	KY	27.9	4.9	1.2	0.2	3.8	2.1	1.2	38.0	3.3	41.3
		(67.6)	(11.9)	(2.9)	(0.5)	(9.2)	(5.1)	(2.9)	(92.0)	(8.0)	(100.0)
JEFFERSON CO	KY	209.4	35.7	21.5	2.3	13.3	10.6	9.2	282.2	19.8	302.0
		(69.3)	(11.8)	(7.1)	(0.8)	(4.4)	(3.5)	(3.0)	(93.4)	(6.6)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
MC CRACKEN CKY	21.0	3.8	0.2	0.2	2.3	2.4	1.1	27.5	3.5	31.0
	(67.7)	(12.3)	(0.6)	(0.6)	(7.4)	(7.7)	(3.5)	(88.7)	(11.3)	(100.0)
ANDROSCOGGINME	25.0	4.3	5.4	0.3	2.5	2.2	2.0	37.5	4.2	41.7
	(60.0)	(10.3)	(12.9)	(0.7)	(6.0)	(5.3)	(4.8)	(89.9)	(10.1)	(100.0)
PENOBSCOT COME	34.5	5.9	14.4	0.5	4.4	9.9	3.3	59.7	13.2	72.9
	(47.3)	(8.1)	(19.8)	(0.7)	(6.0)	(13.6)	(4.5)	(81.9)	(18.1)	(100.0)
ALLEGANY CO MD	24.5	4.3	4.3	0.2	1.3	0.3	0.5	34.6	0.8	35.4
	(69.2)	(12.1)	(12.1)	(0.6)	(3.7)	(0.8)	(1.4)	(97.7)	(2.3)	(100.0)
BALTIMORE MD	303.4	53.4	152.1	3.4	11.5	5.3	2.1	523.8	7.4	531.2
	(57.1)	(10.1)	(28.6)	(0.6)	(2.2)	(1.0)	(0.4)	(98.6)	(1.4)	(100.0)
MONTGOMERY CMD	137.9	23.3	17.7	0.8	6.6	0.8	3.0	186.3	3.8	190.1
	(72.5)	(12.3)	(9.3)	(0.4)	(3.5)	(0.4)	(1.6)	(98.0)	(2.0)	(100.0)
PRINCE GEORGMD	137.0	23.3	34.2	1.2	8.1	0.7	2.6	203.8	3.3	207.1
	(66.2)	(11.3)	(16.5)	(0.6)	(3.9)	(0.3)	(1.3)	(98.4)	(1.6)	(100.0)
WASHINGTON CMD	34.9	6.1	5.1	0.2	3.9	0.3	4.6	50.2	4.9	55.1
	(63.3)	(11.1)	(9.3)	(0.4)	(7.1)	(0.5)	(8.3)	(91.1)	(8.9)	(100.0)
CENTRAL MASSMA	188.3	33.0	34.0	1.1	13.0	16.7	12.4	269.4	29.1	298.5
	(63.1)	(11.1)	(11.4)	(0.4)	(4.4)	(5.6)	(4.2)	(90.3)	(9.7)	(100.0)
METRO BOSTONMA	760.7	132.6	165.0	5.0	39.0	12.7	27.6	1102.3	40.3	1142.6
	(66.6)	(11.6)	(14.4)	(0.4)	(3.4)	(1.1)	(2.4)	(96.5)	(3.5)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
MACOMB CO MI	183.3	30.6	46.1	1.4	10.2	9.6	9.9	271.6	19.5	291.1
	(63.0)	(10.5)	(15.8)	(0.5)	(3.5)	(3.3)	(3.4)	(93.3)	(6.7)	(100.0)
SAGINAW CO MI	60.8	10.7	19.9	0.6	5.2	66.4	6.5	97.2	72.9	170.1
	(35.7)	(6.3)	(11.7)	(0.4)	(3.1)	(39.0)	(3.8)	(57.1)	(42.9)	(100.0)
WAYNE CO MI	634.7	109.6	253.0	5.2	31.8	88.8	46.1	1034.3	134.9	1169.2
	(54.3)	(9.4)	(21.6)	(0.4)	(2.7)	(7.6)	(3.9)	(88.5)	(11.5)	(100.0)
HENNEPIN CO MN	270.4	45.8	81.4	3.2	21.3	1.3	12.6	422.1	13.9	436.0
	(62.0)	(10.5)	(18.7)	(0.7)	(4.9)	(0.3)	(2.9)	(96.8)	(3.2)	(100.0)
OLMSTED CO MN	21.3	3.6	13.5	0.3	5.4	0.1	1.7	44.1	1.8	45.9
	(46.4)	(7.8)	(29.4)	(0.7)	(11.8)	(0.2)	(3.7)	(96.1)	(3.9)	(100.0)
RAMSEY CO MN	107.6	18.3	155.2	2.2	7.5	0.9	6.9	290.8	7.8	298.6
	(36.0)	(6.1)	(52.0)	(0.7)	(2.5)	(0.3)	(2.3)	(97.4)	(2.6)	(100.0)
ST LOUIS CO MN	58.6	9.8	12.9	0.6	13.1	1.6	26.6	95.0	28.2	123.2
	(47.6)	(8.0)	(10.5)	(0.5)	(10.6)	(1.3)	(21.6)	(77.1)	(22.9)	(100.0)
GREENE CO MO	49.1	8.6	2.7	0.7	4.6	0.6	19.2	65.7	19.8	85.5
	(57.4)	(10.1)	(3.2)	(0.8)	(5.4)	(0.7)	(22.5)	(76.8)	(23.2)	(100.0)
ST LOUIS MO	337.7	58.3	98.0	4.8	9.5	39.8	5.7	508.3	45.5	553.8
	(61.0)	(10.5)	(17.7)	(0.9)	(1.7)	(7.2)	(1.0)	(91.8)	(8.2)	(100.0)
CASCADE CO MT	25.8	4.3	3.3	0.4	3.5	10.6	1.5	37.3	12.1	49.4
	(52.2)	(8.7)	(6.7)	(0.8)	(7.1)	(21.5)	(3.0)	(75.5)	(24.5)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
MISSOULA CO MT	18.5	3.1	2.3	0.3	2.3	8.7	11.1	26.5	19.8	46.3
	(40.0)	(6.7)	(5.0)	(0.6)	(5.0)	(18.8)	(24.0)	(57.2)	(42.8)	(100.0)
YELLOWSTONE MT	30.6	5.2	4.1	0.6	4.7	59.4	1.7	45.2	61.1	106.3
	(28.8)	(4.9)	(3.9)	(0.6)	(4.4)	(55.9)	(1.6)	(42.5)	(57.5)	(100.0)
LANCASTER CONB	58.8	10.2	12.0	0.6	6.7	0.6	3.4	88.3	4.0	92.3
	(63.7)	(11.1)	(13.0)	(0.7)	(7.3)	(0.7)	(3.7)	(95.7)	(4.3)	(100.0)
CLARK CO NV	114.4	20.6	15.1	1.4	11.7	2.3	0.9	163.2	3.2	166.4
	(68.7)	(12.4)	(9.1)	(0.8)	(7.0)	(1.4)	(0.5)	(98.1)	(1.9)	(100.0)
ATLANTIC CO NJ	44.8	8.2	0.8	0.6	6.8	0.0	3.8	61.2	3.8	65.0
	(68.9)	(12.6)	(1.2)	(0.9)	(10.5)	(0.0)	(5.8)	(94.2)	(5.8)	(100.0)
BERGEN CO NJ	254.8	43.9	50.8	2.4	12.0	2.5	4.5	363.9	7.0	370.9
	(68.7)	(11.8)	(13.7)	(0.6)	(3.2)	(0.7)	(1.2)	(98.1)	(1.9)	(100.0)
BURLINGTON CNJ	81.3	14.3	8.6	0.8	6.1	23.7	7.3	111.1	31.0	142.1
	(57.2)	(10.1)	(6.1)	(0.6)	(4.3)	(16.7)	(5.1)	(78.2)	(21.8)	(100.0)
CAMDEN CO NJ	127.4	22.2	13.8	1.3	4.4	1.7	3.9	169.1	5.6	174.7
	(72.9)	(12.7)	(7.9)	(0.7)	(2.5)	(1.0)	(2.2)	(96.8)	(3.2)	(100.0)
ESSEX CO NJ	212.4	38.5	47.1	2.7	11.1	2.1	3.8	311.8	5.9	317.7
	(66.9)	(12.1)	(14.8)	(0.8)	(3.5)	(0.7)	(1.2)	(98.1)	(1.9)	(100.0)
GLOUCESTER CNJ	55.2	9.6	2.9	0.6	4.4	97.8	3.5	72.7	101.3	174.0
	(31.7)	(5.5)	(1.7)	(0.3)	(2.5)	(56.2)	(2.0)	(41.8)	(58.2)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
HUDSON CO NJ	108.9	19.3	109.3	2.0	7.1	3.1	3.3	246.6	6.4	253.0
	(43.0)	(7.6)	(43.2)	(0.8)	(2.8)	(1.2)	(1.3)	(97.5)	(2.5)	(100.0)
MIDDLESEX CONJ	164.8	28.1	42.1	2.3	7.4	69.0	5.8	244.7	74.8	319.5
	(51.6)	(8.8)	(13.2)	(0.7)	(2.3)	(21.6)	(1.8)	(76.6)	(23.4)	(100.0)
MONMOUTH CO NJ	127.9	22.8	2.1	1.1	6.1	0.1	7.6	160.0	7.7	167.7
	(76.3)	(13.6)	(1.3)	(0.7)	(3.6)	(0.1)	(4.5)	(95.4)	(4.6)	(100.0)
MORRIS CO NJ	113.0	20.1	5.9	1.2	6.1	0.1	3.2	146.3	3.3	149.6
	(75.5)	(13.4)	(3.9)	(0.8)	(4.1)	(0.1)	(2.1)	(97.8)	(2.2)	(100.0)
OCEAN CO NJ	82.8	14.3	4.6	0.6	10.3	0.1	6.7	112.6	6.8	119.4
	(69.3)	(12.0)	(3.9)	(0.5)	(8.6)	(0.1)	(5.6)	(94.3)	(5.7)	(100.0)
PASSAIC CO NJ	137.9	23.7	9.4	1.4	5.9	0.3	2.1	178.3	2.4	180.7
	(76.3)	(13.1)	(5.2)	(0.8)	(3.3)	(0.2)	(1.2)	(98.7)	(1.3)	(100.0)
SOMERSET CO NJ	43.1	7.4	3.4	0.5	3.7	0.1	2.8	58.1	2.9	61.0
	(70.7)	(12.1)	(5.6)	(0.8)	(6.1)	(0.2)	(4.6)	(95.2)	(4.8)	(100.0)
UNION CO NJ	180.0	30.7	44.8	1.9	7.3	17.0	3.0	264.7	20.0	284.7
	(63.2)	(10.8)	(15.7)	(0.7)	(2.6)	(6.0)	(1.1)	(93.0)	(7.0)	(100.0)
CHAVES CO NM	23.2	4.2	7.5	0.5	2.3	0.1	0.7	37.7	0.8	38.5
	(60.3)	(10.9)	(19.5)	(1.3)	(6.0)	(0.3)	(1.8)	(97.9)	(2.1)	(100.0)
DONA ANA CO NM	43.7	7.8	10.2	0.7	2.8	0.1	1.2	65.2	1.3	66.5
	(65.7)	(11.7)	(15.3)	(1.1)	(4.2)	(0.2)	(1.8)	(98.0)	(2.0)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
BRONX CO NY	132.7	23.5	50.1	0.6	5.3	0.9	10.6	212.2	11.5	223.7
	(59.3)	(10.5)	(22.4)	(0.3)	(2.4)	(0.4)	(4.7)	(94.9)	(5.1)	(100.0)
ERIE CO NY	200.1	35.0	61.5	1.5	14.2	3.2	7.8	312.3	11.0	323.3
	(61.9)	(10.8)	(19.0)	(0.5)	(4.4)	(1.0)	(2.4)	(96.6)	(3.4)	(100.0)
NASSAU CO NY	390.0	69.0	71.4	1.7	11.7	20.8	10.1	543.8	30.9	574.7
	(67.9)	(12.0)	(12.4)	(0.3)	(2.0)	(3.6)	(1.8)	(94.6)	(5.4)	(100.0)
NEW YORK CO NY	70.1	13.0	85.3	1.5	27.9	10.2	13.5	197.8	23.7	221.5
	(31.6)	(5.9)	(38.5)	(0.7)	(12.6)	(4.6)	(6.1)	(89.3)	(10.7)	(100.0)
QUEENS CO NY	310.1	54.5	65.6	1.2	15.3	7.6	13.7	446.7	21.3	468.0
	(66.3)	(11.6)	(14.0)	(0.3)	(3.3)	(1.6)	(2.9)	(95.4)	(4.6)	(100.0)
SCHENECTADY NY	38.0	6.5	8.5	0.3	2.4	0.1	1.1	55.7	1.2	56.9
	(66.8)	(11.4)	(14.9)	(0.5)	(4.2)	(0.2)	(1.9)	(97.9)	(2.1)	(100.0)
MECKLENBURG NC	69.0	12.7	104.5	3.9	7.4	4.1	1.0	197.5	5.1	202.6
	(34.1)	(6.3)	(51.6)	(1.9)	(3.7)	(2.0)	(0.5)	(97.5)	(2.5)	(100.0)
CUYAHOGA CO OH	413.9	69.7	67.4	4.5	22.8	49.4	28.1	578.3	77.5	655.8
	(63.1)	(10.6)	(10.3)	(0.7)	(3.5)	(7.5)	(4.3)	(88.2)	(11.8)	(100.0)
FRANKLIN CO OH	224.8	36.8	47.8	3.6	12.8	1.8	13.4	325.8	15.2	341.0
	(65.9)	(10.8)	(14.0)	(1.1)	(3.8)	(0.5)	(3.9)	(95.5)	(4.5)	(100.0)
HAMILTON CO OH	230.8	37.9	68.9	3.4	13.0	9.0	15.2	354.0	24.2	378.2
	(61.0)	(10.0)	(18.2)	(0.9)	(3.4)	(2.4)	(4.0)	(93.6)	(6.4)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
JEFFERSON COOH	25.3	4.1	3.5	0.3	1.6	26.4	2.2	34.8	28.6	63.4
	(39.9)	(6.5)	(5.5)	(0.5)	(2.5)	(41.6)	(3.5)	(54.9)	(45.1)	(100.0)
LUCAS CO OH	130.0	21.3	36.6	2.0	8.4	20.7	8.2	198.3	28.9	227.2
	(57.2)	(9.4)	(16.1)	(0.9)	(3.7)	(9.1)	(3.6)	(87.3)	(12.7)	(100 0)
MONTGOMERY COH	184.4	29.7	17.1	2.1	11.7	7.4	9.8	245.0	17.2	262.2
	(70.3)	(11.3)	(6.5)	(0.8)	(4.5)	(2.8)	(3.7)	(93.4)	(6.6)	(100.0)
SUMMIT CO OH	142.5	23.5	48.9	3.5	8.9	1.1	8.9	227.3	10.0	237.3
	(60.1)	(9.9)	(20.6)	(1.5)	(3.8)	(0.5)	(3.8)	(95.8)	(4.2)	(100.0)
OKLAHOMA CO OK	180.9	34.5	79.6	3.3	9.0	0.5	2.3	307.3	2.8	310.1
	(58.3)	(11.1)	(25.7)	(1.1)	(2.9)	(0.2)	(0.7)	(99.1)	(0.9)	(100.0)
TULSA CO OK	134.9	25.7	62.7	2.6	11.3	66.3	3.1	237.2	69.4	306.6
	(44.0)	(8.4)	(20.5)	(0.8)	(3.7)	(21.6)	(1.0)	(77.4)	(22.6)	(100.0)
LANE CO OR	77.1	13.5	27.3	1.3	7.0	2.8	30.1	126.2	32.9	159.1
	(48.5)	(8.5)	(17.2)	(0.8)	(4.4)	(1.8)	(18.9)	(79.3)	(20.7)	(100.0)
MARION CO OR	63.7	11.2	13.3	0.9	6.7	0.2	8.8	95.8	9.0	104.8
	(60.8)	(10.7)	(12.7)	(0.9)	(6.4)	(0.2)	(8.4)	(91.4)	(8.6)	(100.0)
MULTNOMAH COOR	211.5	37.0	88.4	4.6	12.3	0.3	21.9	353.8	22.2	376.0
	(56.3)	(9.8)	(23.5)	(1.2)	(3.3)	(0.1)	(5.8)	(94.1)	(5.9)	(100.0)
ALLEGHENY COPA	284.4	50.5	35.9	5.2	23.0	144.9	5.5	399.0	150.4	549.4
	(51.8)	(9.2)	(6.5)	(0.9)	(4.2)	(26.4)	(1.0)	(72.6)	(27.4)	(100.0)

TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

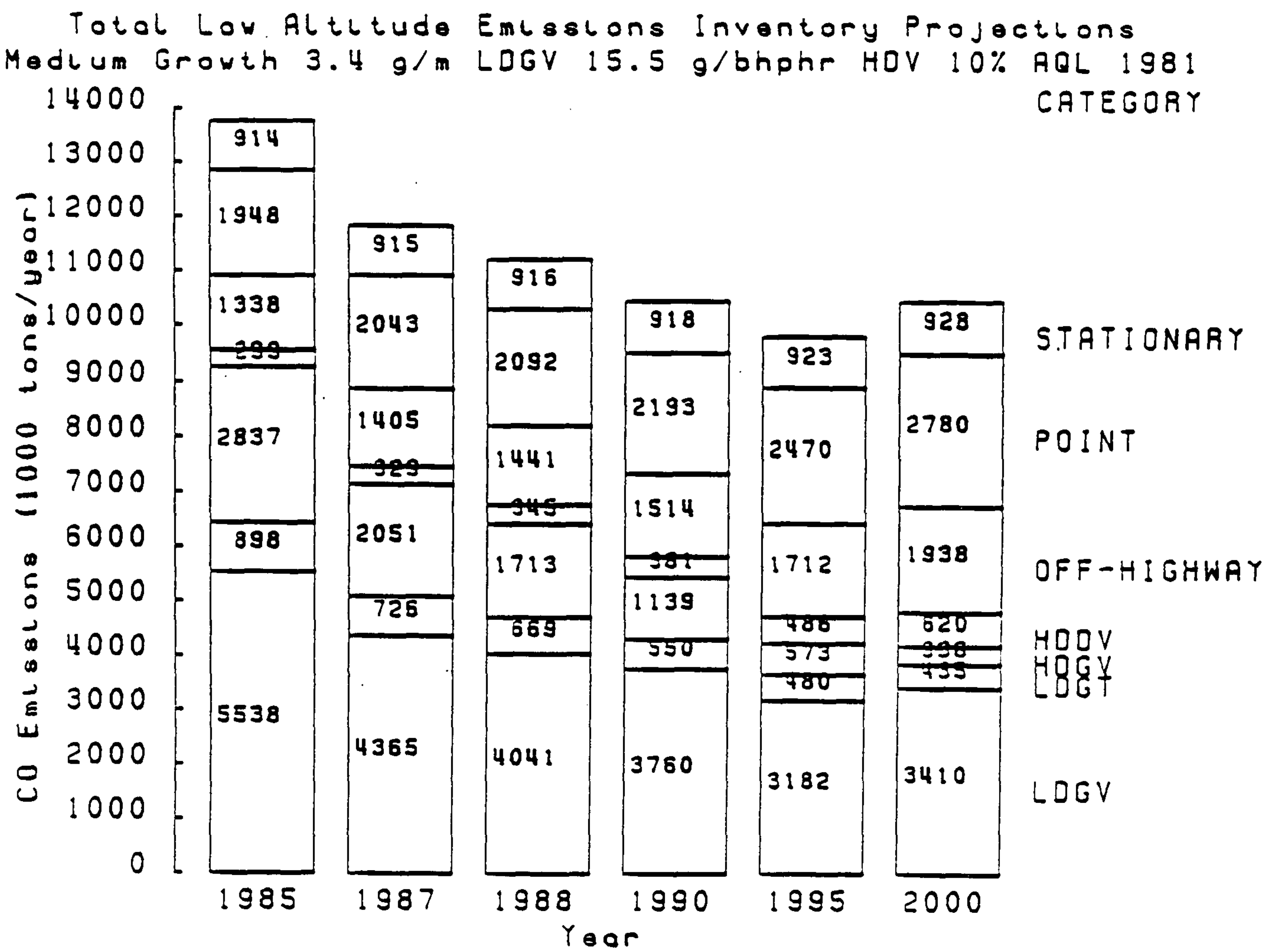
COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
LUZERNE CO PA	72.3	13.0	10.0	1.2	6.6	1.7	6.7	103.1	8.4	111.5
	(64.8)	(11.7)	(9.0)	(1.1)	(5.9)	(1.5)	(6.0)	(92.5)	(7.5)	(100.0)
NORTHAMPTON PA	77.0	13.5	8.0	0.8	4.7	83.2	2.3	104.0	85.5	189.5
	(40.6)	(7.1)	(4.2)	(0.4)	(2.5)	(43.9)	(1.2)	(54.9)	(45.1)	(100.0)
PHILADELPHIAPA	280.2	50.4	149.8	5.4	23.2	9.1	6.1	509.0	15.2	524.2
	(53.5)	(9.6)	(28.6)	(1.0)	(4.4)	(1.7)	(1.2)	(97.1)	(2.9)	(100.0)
PROVIDENCE CRI	162.9	29.2	72.5	1.1	6.9	2.9	7.3	272.6	10.2	282.8
	(57.6)	(10.3)	(25.6)	(0.4)	(2.4)	(1.0)	(2.6)	(96.4)	(3.6)	(100.0)
RICHLAND CO SC	61.0	12.1	14.6	1.6	3.1	0.7	7.6	92.4	8.3	100.7
	(60.6)	(12.0)	(14.5)	(1.6)	(3.1)	(0.7)	(7.5)	(91.8)	(8.2)	(100.0)
DAVIDSON CO TN	136.0	24.2	12.6	3.5	9.0	2.6	4.5	185.3	7.1	192.4
	(70.7)	(12.6)	(6.5)	(1.8)	(4.7)	(1.4)	(2.3)	(96.3)	(3.7)	(100.0)
HAMILTON CO TN	76.9	13.6	5.3	1.4	6.4	22.0	4.2	103.6	26.2	129.8
	(59.2)	(10.5)	(4.1)	(1.1)	(4.9)	(16.9)	(3.2)	(79.8)	(20.2)	(100.0)
KNOX CO TN	89.3	15.4	9.1	1.3	5.8	2.3	3.7	120.9	6.0	126.9
	(70.4)	(12.1)	(7.2)	(1.0)	(4.6)	(1.8)	(2.9)	(95.3)	(4.7)	(100.0)
SHELBY CO TN	194.9	34.0	8.6	3.4	14.7	29.7	7.4	255.6	37.1	292.7
	(66.6)	(11.6)	(2.9)	(1.2)	(5.0)	(10.1)	(2.5)	(87.3)	(12.7)	(100.0)
EL PASO CO TX	162.4	29.6	17.1	1.8	9.9	18.1	3.4	220.8	21.5	242.3
	(67.0)	(12.2)	(7.1)	(0.7)	(4.1)	(7.5)	(1.4)	(91.1)	(8.9)	(100.0)

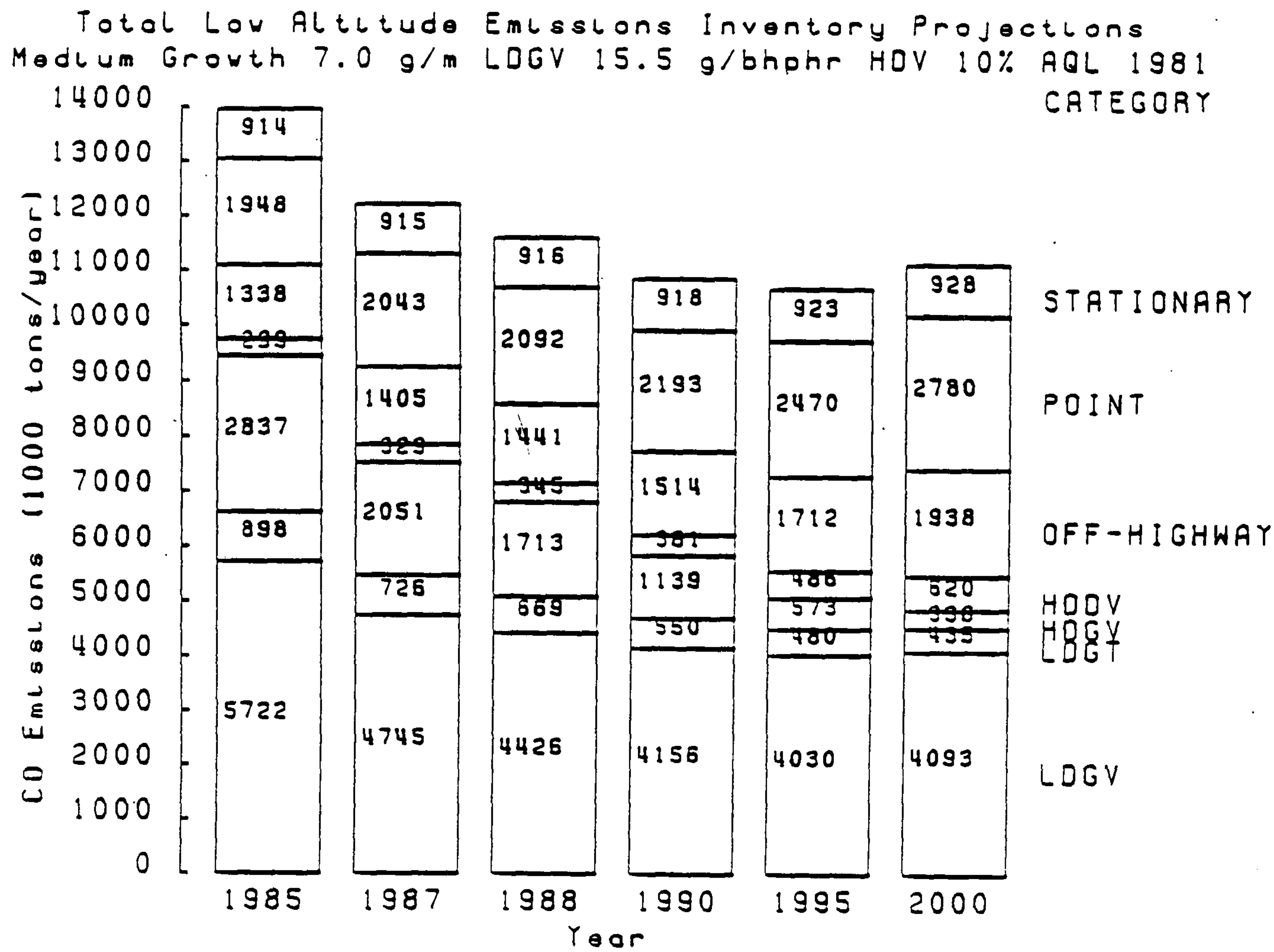
TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
HARRIS CO TX	567.7	97.8	97.5	7.2	47.2	120.1	17.1	817.4	137.2	954.6
	(59.5)	(10.2)	(10.2)	(0.8)	(4.9)	(12.6)	(1.8)	(85.6)	(14.4)	(100.0)
CHITTENDEN CVT	21.6	3.9	0.6	0.4	4.0	0.1	2.2	30.5	2.3	32.8
	(65.9)	(11.9)	(1.8)	(1.2)	(12.2)	(0.3)	(6.7)	(93.0)	(7.0)	(100.0)
ALEXANDRIA VA	80.9	13.3	20.6	1.1	1.2	0.5	0.5	117.1	1.0	118.1
	(68.5)	(11.3)	(17.4)	(0.9)	(1.0)	(0.4)	(0.4)	(99.2)	(0.8)	(100.0)
ARLINGTON COVA	78.4	12.9	9.7	0.4	1.9	0.0	0.7	103.3	0.7	104.0
	(75.4)	(12.4)	(9.3)	(0.4)	(1.8)	(0.0)	(0.7)	(99.3)	(0.7)	(100.0)
FAIRFAX CO VA	121.6	20.3	19.8	1.4	7.1	0.3	0.5	170.2	0.8	171.0
	(71.1)	(11.9)	(11.6)	(0.8)	(4.2)	(0.2)	(0.3)	(99.5)	(0.5)	(100.0)
HAMPTON VA	36.4	5.9	4.1	0.2	2.3	0.0	0.9	48.9	0.9	49.8
	(73.1)	(11.8)	(8.2)	(0.4)	(4.6)	(0.0)	(1.8)	(98.2)	(1.8)	(100.0)
NORFOLK VA	50.6	8.2	43.9	1.9	7.0	0.5	0.6	111.6	1.1	112.7
	(44.9)	(7.3)	(39.0)	(1.7)	(6.2)	(0.4)	(0.5)	(99.0)	(1.0)	(100.0)
RICHMOND CO VA	0.5	0.1	1.3	0.0	0.8	0.0	0.4	2.7	0.4	3.1
	(16.1)	(3.2)	(41.9)	(0.0)	(25.8)	(0.0)	(12.9)	(87.1)	(12.9)	(100.0)
KING CO WA	482.6	80.5	67.0	5.3	33.6	9.2	25.9	669.0	35.1	704.1
	(68.5)	(11.4)	(9.5)	(0.8)	(4.8)	(1.3)	(3.7)	(95.0)	(5.0)	(100.0)
PIERCE CO WA	158.9	26.8	18.6	1.4	13.4	15.4	49.1	219.1	64.5	283.6
	(56.0)	(9.4)	(6.6)	(0.5)	(4.7)	(5.4)	(17.3)	(77.3)	(22.7)	(100.0)

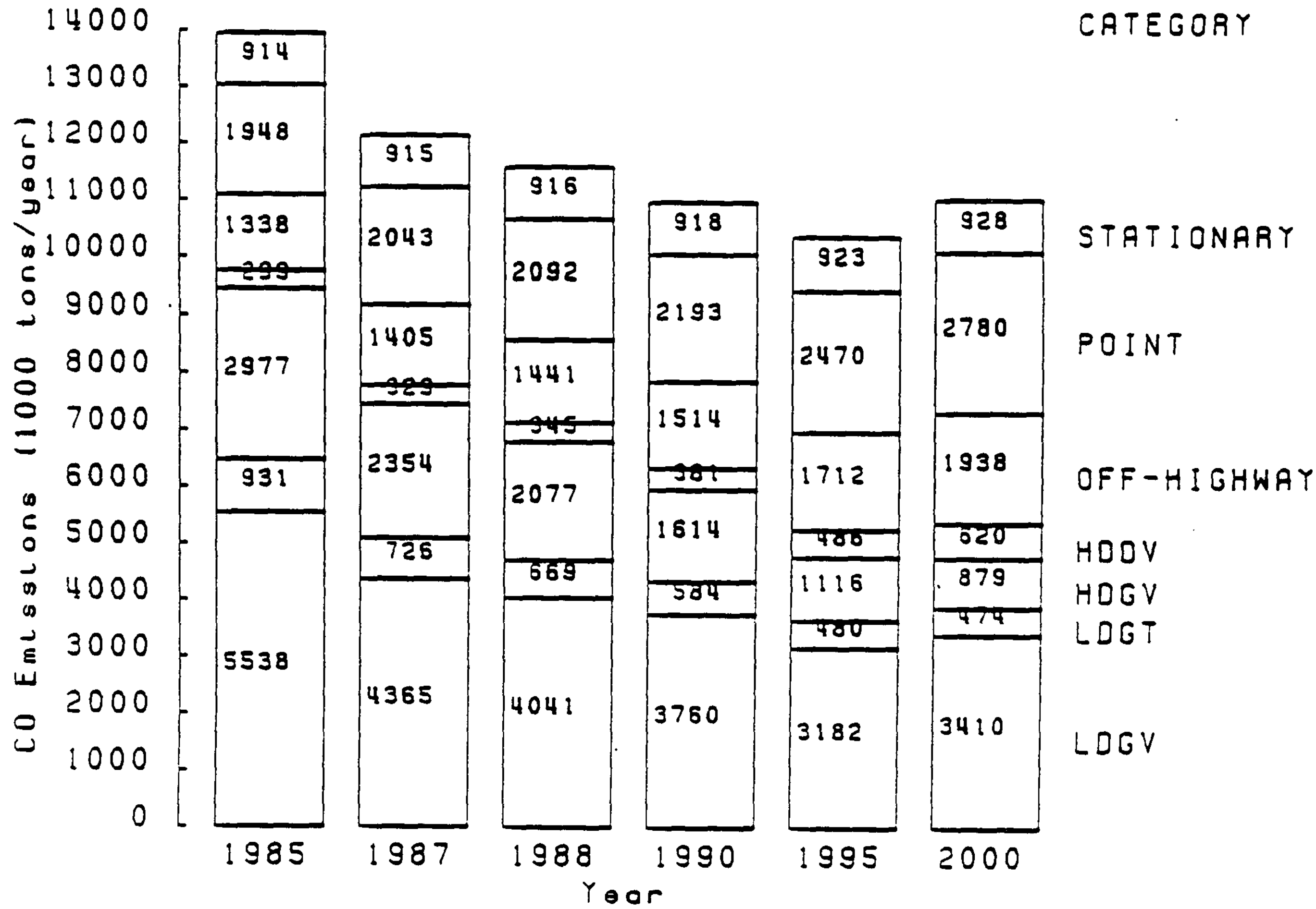
TOTAL 1977 LOW ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

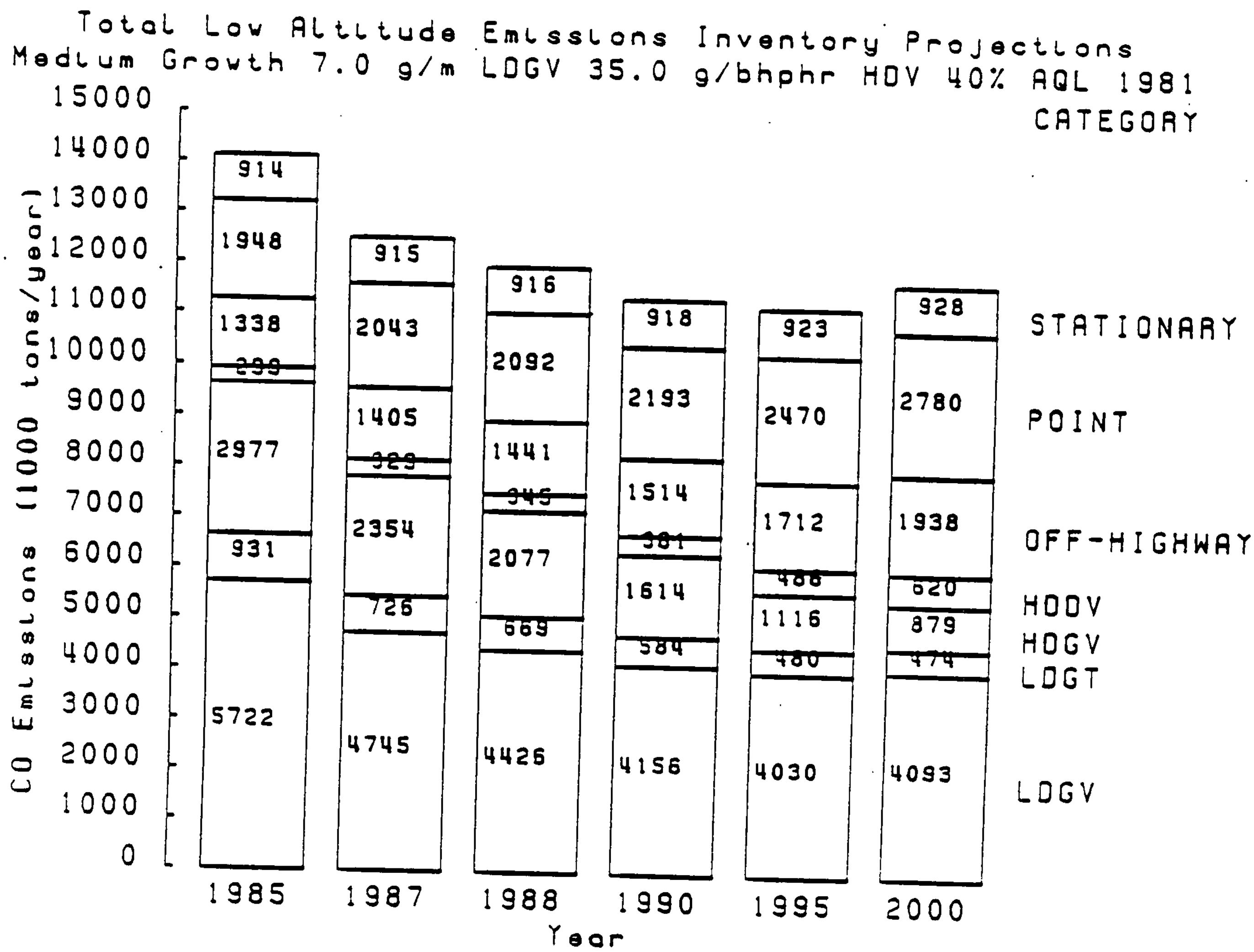
COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
SPOKANE CO WA	130.9	22.3	20.0	0.8	7.5	34.3	19.1	181.5	53.4	234.9
	(55.7)	(9.5)	(8.5)	(0.3)	(3.2)	(14.6)	(8.1)	(77.3)	(22.7)	(100.0)
MILWAUKEE COWI	351.2	59.2	33.9	3.4	18.3	6.6	32.8	466.0	39.4	505.4
	(69.5)	(11.7)	(6.7)	(0.7)	(3.6)	(1.3)	(6.5)	(92.2)	(7.8)	(100.0)
TOTAL	16515.8	2872.0	4116.2	202.0	1098.0	1611.5	906.9	24803.9	2518.4	27322.3
	(60.4)	(10.5)	(15.1)	(0.7)	(4.0)	(5.9)	(3.3)	(90.8)	(9.2)	(100.0)


Total Low Altitude Emissions Inventory Projections
Medium Growth 3.4 g/m LDGV 15.5 g/bhphr HDV 10% AQL 1981
CO Emissions (1000 tons/year)
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1985
1987
1988
1990
1995
2000
Year
CATEGORY
STATIONARY
POINT
OFF-HIGHWAY
HDDV
HDGV
LDGT
LDGV
914
1948
1338
2837
898
5538
915
2043
1405
2051
726
4365
916
2092
1441
1713
669
4041
918
2193
1514
1139
550
3760
923
2470
1712
573
480
3182
928
2780
1938
620
3410


Total Low Altitude Emissions Inventory Projections
Medium Growth 7.0 g/m LDGV 15.5 g/bhphr HDV 10% AQL 1981
CO Emissions (1000 tons/year)
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
CATEGORY
STATIONARY
POINT
OFF-HIGHWAY
HDDV
HDGV
LDGT
LDGV
914
1948
1338
299
2837
898
5722
915
2043
1405
329
2051
726
4745
916
2092
1441
345
1713
669
4426
918
2193
1514
381
1139
550
4156
923
2470
1712
4030
928
2780
1938
4093
1985
1987
1988
1990
1995
2000
Year

Total Low Altitude Emissions Inventory Projections
Medium Growth 3.4 g/m LDGV 35.0 g/bhphr HDV 40% AQL 1981



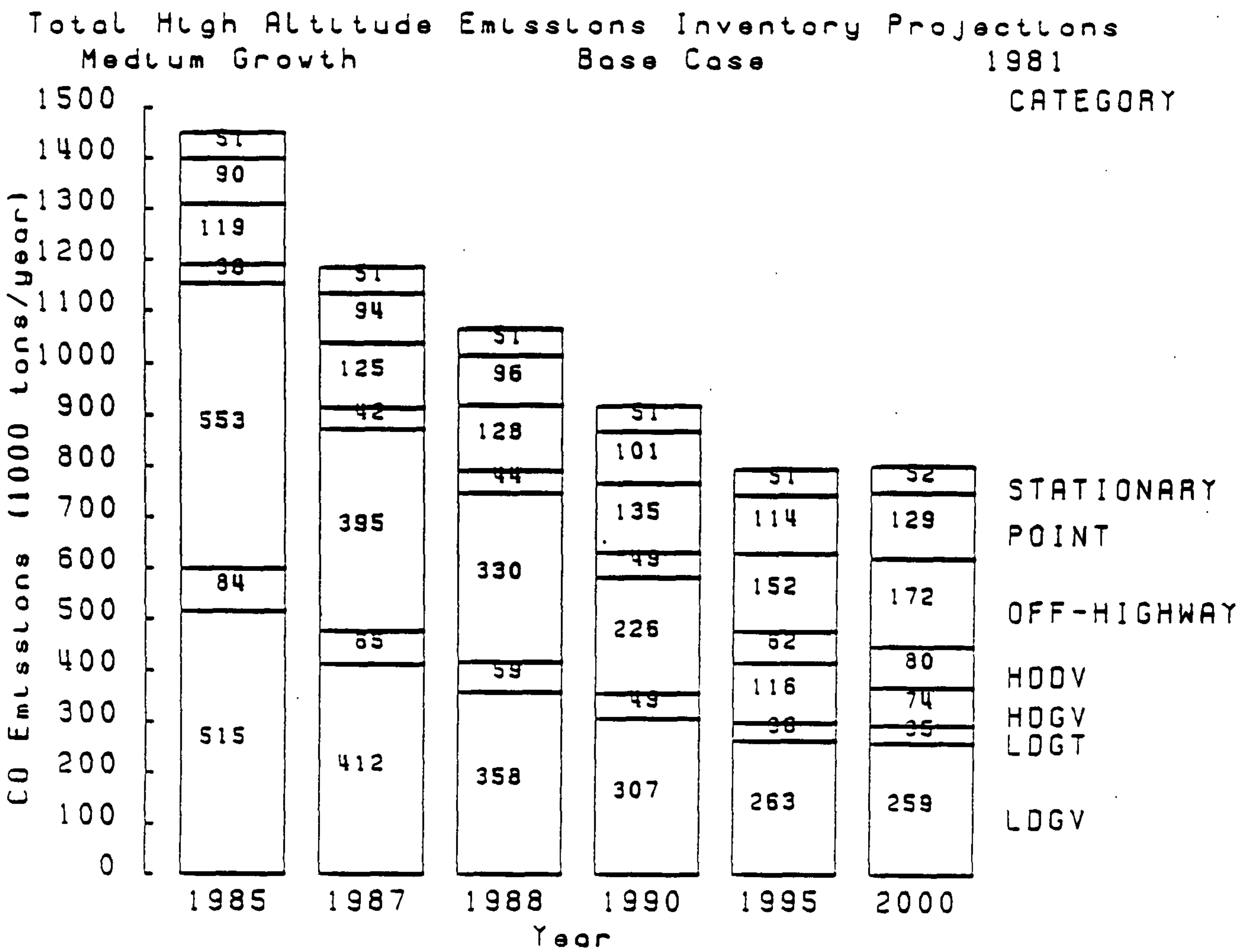

Total Low Altitude Emissions Inventory Projections
Medium Growth 7.0 g/m LDGV 35.0 g/bhphr HDV 40% AQL 1981
CATEGORY
STATIONARY
POINT
OFF-HIGHWAY
HDDV
HDGV
LDGT
LDGV
CO Emissions (1000 tons/year)
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
914
1948
1338
2977
931
5722
915
2043
1405
2354
726
4745
916
2092
1441
2077
669
4426
918
2193
1514
1614
584
4156
923
2470
1712
1116
4030
928
2780
1938
879
4093
1985
1987
1988
1990
1995
2000
Year

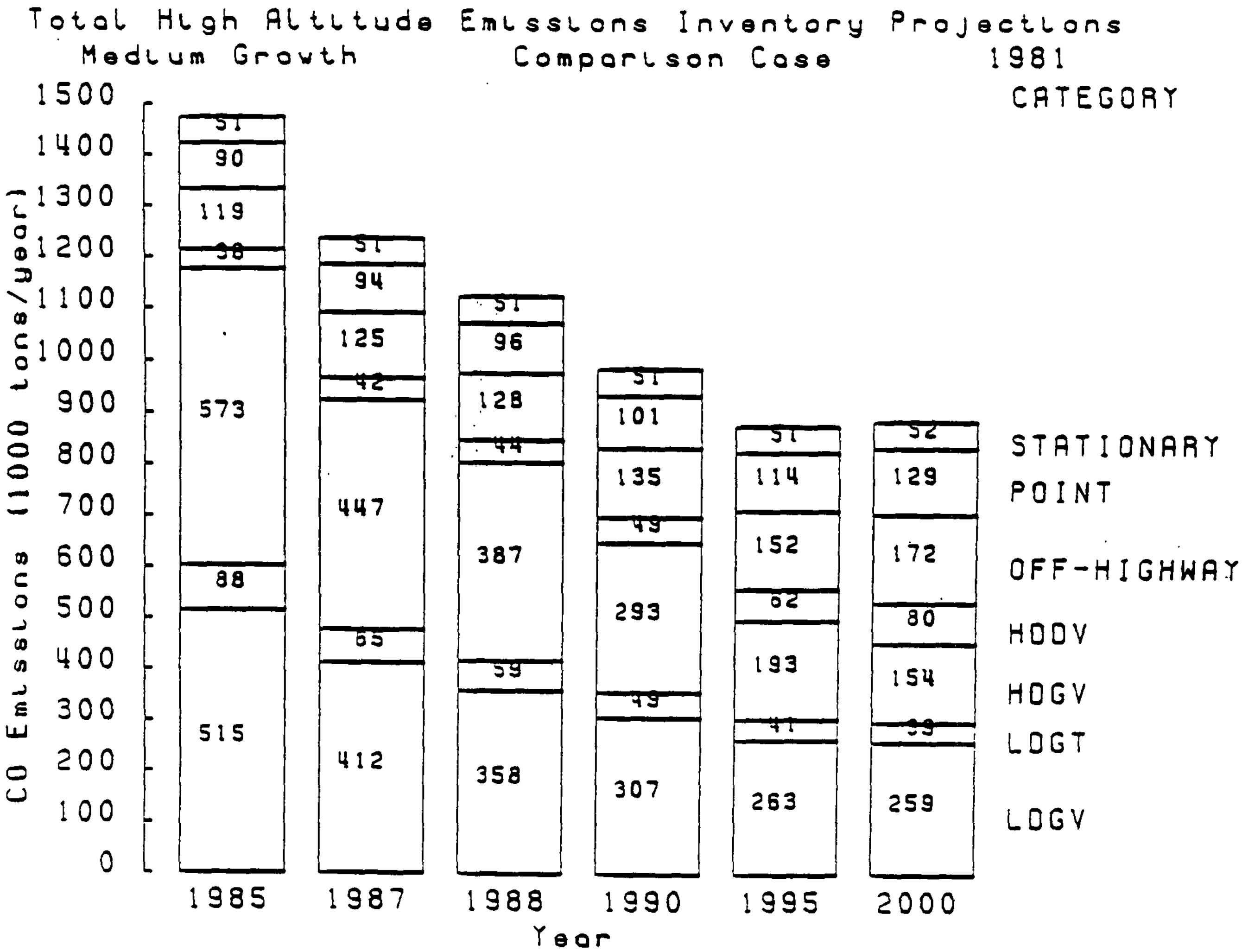
TOTAL 1977 HIGH ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
ADAMS CO CO	90.3	16.3	37.6	1.0	4.6	19.8	3.6	149.8	23.4	173.2
	(52.1)	(9.4)	(21.7)	(0.6)	(2.7)	(11.4)	(2.1)	(86.5)	(13.5)	(100.0)
ARAPAHOE CO CO	76.4	14.4	22.0	0.6	5.0	0.1	3.1	118.4	3.2	121.6
	(62.8)	(11.8)	(18.1)	(0.5)	(4.1)	(0.1)	(2.5)	(97.4)	(2.6)	(100.0)
BOULDER CO CO	80.0	14.7	19.5	0.6	4.1	0.3	3.1	118.9	3.4	122.3
	(65.4)	(12.0)	(15.9)	(0.5)	(3.4)	(0.2)	(2.5)	(97.2)	(2.8)	(100.0)
DENVER CO CO	353.4	65.4	307.1	4.1	14.5	0.6	7.3	744.5	7.9	752.4
	(47.0)	(8.7)	(40.8)	(0.5)	(1.9)	(0.1)	(1.0)	(99.0)	(1.0)	(100.0)
EL PASO CO CO	138.1	25.8	28.7	1.0	8.3	0.4	5.7	201.9	6.1	208.0
	(66.4)	(12.4)	(13.8)	(0.5)	(4.0)	(0.2)	(2.7)	(97.1)	(2.9)	(100.0)
JEFFERSON COCO	80.0	14.7	39.9	1.1	5.3	0.1	4.9	141.0	5.0	146.0
	(54.8)	(10.1)	(27.3)	(0.8)	(3.6)	(0.1)	(3.4)	(96.6)	(3.4)	(100.0)
LARIMER CO CO	67.0	12.2	14.5	0.4	4.3	0.1	3.3	98.4	3.4	101.8
	(65.8)	(12.0)	(14.2)	(0.4)	(4.2)	(0.1)	(3.2)	(96.7)	(3.3)	(100.0)
WELD CO CO	62.0	11.3	24.6	0.5	9.9	0.3	1.7	108.3	2.0	110.3
	(56.2)	(10.2)	(22.3)	(0.5)	(9.0)	(0.3)	(1.5)	(98.2)	(1.8)	(100.0)
DOUGLAS CO NV	8.1	1.5	1.5	0.1	0.8	0.0	1.4	12.0	1.4	13.4
	(60.4)	(11.2)	(11.2)	(0.7)	(6.0)	(0.0)	(10.4)	(89.6)	(10.4)	(100.0)
WASHOE CO NV	85.1	15.4	11.3	1.2	5.2	0.0	4.1	118.2	4.1	122.3
	(69.6)	(12.6)	(9.2)	(1.0)	(4.3)	(0.0)	(3.4)	(96.6)	(3.4)	(100.0)

TOTAL 1977 HIGH ALTITUDE CO EMISSIONS INVENTORY
(1000 TONS/YEAR)

COUNTY	LDGV	LDGT	HDGV	HDDV	OFF-HIGH	POINT	STATION	MOBILE SOURCE TOTAL	STATIONARY SOURCE TOTAL	GRAND TOTAL
BERNALILLO CNM	193.3	36.5	95.7	5.0	7.5	0.1	5.4	338.0	5.5	343.5
	(56.3)	(10.6)	(27.9)	(1.5)	(2.2)	(0.0)	(1.6)	(98.4)	(1.6)	(100.0)
SAN JUAN CO NM	18.8	3.2	45.8	2.5	2.2	6.0	1.8	72.5	7.8	80.3
	(23.4)	(4.0)	(57.0)	(3.1)	(2.7)	(7.5)	(2.2)	(90.3)	(9.7)	(100.0)
SANTA FE CO NM	43.9	8.3	11.1	0.6	1.5	0.0	1.7	65.4	1.7	67.1
	(65.4)	(12.4)	(16.5)	(0.9)	(2.2)	(0.0)	(2.5)	(97.5)	(2.5)	(100.0)
DAVIS CO UT	53.4	9.8	12.0	0.9	5.2	26.0	0.3	81.3	26.3	107.6
	(49.6)	(9.1)	(11.2)	(0.8)	(4.8)	(24.2)	(0.3)	(75.6)	(24.4)	(100.0)
SALT LAKE COUT	213.7	39.3	102.0	4.3	11.2	5.5	1.8	370.5	7.3	377.8
	(56.6)	(10.4)	(27.0)	(1.1)	(3.0)	(1.5)	(0.5)	(98.1)	(1.9)	(100.0)
UTAH CO UT	72.4	13.2	13.9	1.1	4.9	14.5	0.9	105.5	15.4	120.9
	(59.9)	(10.9)	(11.5)	(0.9)	(4.1)	(12.0)	(0.7)	(87.3)	(12.7)	(100.0)
WEBER CO UT	72.2	13.3	5.5	0.9	3.2	0.7	0.5	95.1	1.2	96.3
	(75.0)	(13.8)	(5.7)	(0.9)	(3.3)	(0.7)	(0.5)	(98.8)	(1.2)	(100.0)
TOTAL	1708.1	315.3	792.7	25.9	97.7	74.5	50.6	2939.7	125.1	3064.8
	(55.7)	(10.3)	(25.9)	(0.8)	(3.2)	(2.4)	(1.7)	(95.9)	(4.1)	(100.0)


Total High Altitude Emissions Inventory Projections
Medium Growth
Base Case
1981
CATEGORY
STATIONARY
POINT
OFF-HIGHWAY
HDDV
HDGV
LDGT
LDGV
CO Emissions (1000 tons/year)
Year
1985
1987
1988
1990
1995
2000
515
84
553
38
119
90
412
65
395
42
125
94
358
59
330
44
128
96
307
49
226
49
135
101
263
116
62
152
114
259
74
80
172
129


Total High Altitude Emissions Inventory Projections
Medium Growth
Comparison Case
1981
CATEGORY
CO Emissions (1000 tons/year)
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
51
90
119
38
573
88
515
51
94
125
42
447
65
412
51
96
128
44
387
59
358
51
101
135
49
293
49
307
51
114
152
62
193
41
263
52
129
172
80
154
39
259
1985
1987
1988
1990
1995
2000
Year
STATIONARY
POINT
OFF-HIGHWAY
HDDV
HDGV
LDGT
LDGV