APPENDIX C

COMMERCIAL SURVEY QUESTIONNAIRE

CIC RESEARCH, INC.

Economic Research • Marketing Research • Environmental Research • Survey Research

As a result of our recent telephone call to your company, CIC Research understands that you are the individual who can best describe the company's use of small gasoline powered equipment. This information is requested for a survey that CIC Research is conducting for the California Air Resources Board.

As you may know, the voters in California require the Air Resources Board to maintain an inventory of all emissions of air pollutants including those from small utility equipment. In the past the utility equipment inventory was based on information for the whole United States because no information was available on California use patterns. By answering the enclosed questionnaire, you will help the Board find out how this equipment is used in California. This information will help the Board in assessing the contribution of utility equipment to the State's pollution problem.

Should you have any questions regarding the study or the questionnaire itself, please feel free to call me at (714) 296-8844. Should you have any questions of the Air Resources Board, the research contract manager for this study is Dr. Robert Grant who may be reached at (916) 323-5774.

Thank you for your assistance.

Sincerely,

Katherine W. Wilson

Katherine W. Wilson, Ph.D.

KWW/hs
Enclosure

1215 CUSHMAN AVENUE • SAN DIEGO, CALIFORNIA 92110

TELEPHONE (714) 296-8844

CALIFORNIA UTILITY EQUIPMENT
USE SURVEY

This survey is confined to utility equipment of less than 25 horsepower. Engines for this equipment must use gasoline or diesel fuel. The study does not consider electrical equipment.

The survey would like to obtain information on the utility equipment use for your firm/department only. Home use and/or recreational use of the equipment is not included in this survey.

Please respond to the following questions and record answers in the appropriate spaces below.

Q1. Please record in Column B the number of each type of equipment used by your firm/department.

Q2. In Column C, please record the horsepower rating of the equipment (for generators, record watts). If you use several units, give information for each different type or size of unit.

Q3. In Column D please record the number of days per month that each type of equipment is used. If used differently in summer and winter, record summer use in Column D. If you use several units, give information for each different type or size of unit.

Q4. When you use each piece of equipment, how many hours does it run on the average on a typical work day? Please record in Column E. If you use several units, give information for each different type or size of unit.

Q5. In Column F please record the number of gallons of fuel used in an average month. If this information is not available, please record DK (don't know). If you use several units, give information for each different type or size of unit.

Q6. In Column G please record the age in years for the engine in your equipment. Please give information for each engine, not the average age of several engines.

Q7. In Column H list the occupational category of the principal user of the equipment. If convenient, use the categories listed in Q10 of Section 2 of this questionnaire.

Q8. Do you rent, rather than own, any of this equipment? If so, please indicate in Column I.

Column A Equipment Type	Column B Number of units used	Column C Rated Horsepower of units	Column D Days used per month	Column E Daily running time	Column F Fuel used per month	Column G Age of each engine	Column H Occupation of principal user	Column I Is equipment rented?
Chain saws								
Compressors								
Generators								
Grinders								
Pumps								
Refrigeration units								
Welding machines								
Lawn and garden:								
Lawn mower, walk behind, 2-cycle engine								
Lawn mower-walk behind 4-cycle engine								
Lawn mower-riding								
Garden tractor								
Other lawn & garden								
Other								
Name _____								
Name _____								
Name _____								

Section 2

In order to properly aggregate your information with that collected from other firms and departments, please answer the following questions.

Q9. At the present time, how many employees, including working owners and managers, are employed by your firm/department in California?

_____ Number of full-time employees

_____ Number of part-time employees (less than 20 hours per week)

Q10. How many employees does your firm/department have in each of the occupational categories listed below? Count employees who do not use utility equipment as well as those who use utility equipment. If you have employees in other categories who use utility equipment, please list these categories.

Number

_____ Auto mechanics
_____ Autobody repairers
_____ Carpenters
_____ Cement and concrete finishers
_____ Delivery and route workers
_____ Dry wall installers, lathers
_____ Electricians
_____ Electric powerline installers and repairers
_____ Gardeners, groundskeepers
_____ Heavy equipment mechanics
_____ Painters
_____ Plumbers and pipefitters
_____ Sheet metal workers
_____ Telephone line installers and repairers
_____ Truck drivers
_____ Welders and flame cutters

Other occupations: (please list)

_____ _____
_____ _____
_____ _____

Please return the completed questionnaire in the envelope provided. Thank you very much for your time and cooperation.

APPENDIX D

BREAKDOWN OF "OTHER" EQUIPMENT CATEGORIES

Table D-1

"OTHER" EQUIPMENT USE BY OCCUPATIONAL CATEGORY

LAWN AND GARDEN	Used by Entire Firm	Auto Mechanics	Carpenters	Cement Finishers	Foresters	Drywall Installers	Electric Powerline Installers	Gardeners
Other								
Trencher	--	--	--	--	--	--	--	4
Sod Cutter	--	--	--	--	--	--	--	1
Scooter	--	--	--	--	--	--	--	49
Spreader	--	--	1	--	--	1	--	16
Roller	--	--	--	--	--	--	--	1
Viber-Plate	--	--	--	--	--	--	--	1
Gas Rodder	--	--	--	--	--	--	--	1
HOME UTILITY								
Other								
Grinder	--	6	3	4	--	--	--	6
Pump	5	--	28	5	2	3	3	77
Refrigeration Unit	--	--	--	--	--	--	--	43
Welding Machine	--	31	2	--	--	--	--	16
Posthole Digger	--	--	1	--	--	--	--	1
Concrete Saw	--	--	1	2	--	--	--	--
Fork Lift	--	--	--	--	--	--	--	--
Mixer	--	--	2	1	--	7	--	13
Troweling Machine	--	--	1	20	--	--	--	--
Asphalt Reclaimer	--	--	--	1	--	--	--	--
Wash Trailer	--	--	--	--	--	--	--	--
Walker	--	--	2	--	--	--	--	--
Early Warner	--	--	--	--	--	--	--	97
High Pressure Machine	--	1	--	--	--	--	--	--
Paint Striper	--	--	--	--	--	--	--	3
Jumping Jack	--	--	--	--	--	--	--	--
Flat Wacker	--	--	--	--	--	--	--	2
Snake	--	--	--	--	--	--	--	--
Compactor	--	--	--	3	--	--	--	4

Table D-1 (Cont'd.)

LAWN AND GARDEN	Heavy Equipment Mechanics	Painters	Plumbers	Sheet Metal Workers	Truck Drivers	Welders	Excavating Grading Operators	Janitors	Electricians
Other									
Trencher	--	--	--	--	--	--	--	--	--
Sod Cutter	--	--	--	--	--	--	--	--	--
Scooter	--	--	--	--	--	--	--	--	--
Spreader	--	4	--	--	--	--	--	--	--
Roller	--	--	--	--	--	--	--	--	--
Viber-Plate	--	--	--	--	--	--	--	--	--
Gas Rodder	--	--	--	--	--	--	--	--	--
HOME UTILITY									
Other									
Grinder	2	1	--	--	--	--	--	--	--
Pump	17	1	95	--	--	--	16	--	--
Refrigeration Unit	--	--	--	--	12	--	--	--	--
Welding Machine	4	--	13	3	2	34	--	1	--
Posthole Digger	1	--	--	--	--	--	--	--	--
Concrete Saw	--	--	--	--	--	--	--	--	--
Fork Lift	--	--	--	--	1	--	--	--	--
Mixer	--	--	--	--	--	--	--	--	--
Troweling Machine	--	--	--	--	--	--	--	--	--
Asphalt Reclaimer	--	--	--	--	--	--	--	--	--
Wash Trailer	--	--	--	--	--	--	--	--	1
Walker	--	--	--	--	--	--	--	--	--
Early Warner	--	--	--	--	--	--	--	--	--
High Pressure Machine	5	--	--	--	--	--	--	--	--
Paint Striper	--	--	--	--	--	--	--	--	--
Jumping Jack	1	--	--	--	--	--	--	--	--
Flat Wacker	1	--	--	--	--	--	--	--	--
Snake	--	--	1	--	--	--	--	--	--
Compactor	--	--	--	--	--	--	--	--	--

Table D-2

ESTIMTATED NUMBER OF COMMERCIAL UTILITY EQUIPMENT UNITS: BREAKDOWN OF "OTHER" CATEGORY

Type of Equipment	California
LAWN AND GARDEN	
Other	
Trencher	100
Sod cutter	2,000
Scooters	1,500
Spreader	2,300
Roller	30
Viber-plate	30
Gas rodder	30
HOME UTILITY	
Other	
Grinders	4,000
Pumps	21,000
Refrigeration units	3,000
Welding machine	4,700
Post hole digger	600
Concrete saw	200
Fork lift	200
Mixers	2,000
Troweling machine	2,500
Asphalt reclaimer	100
Wash trailer	800
Walker	500
Early warner	3,000
High press machine	1,600
Paint striper	100
Jumping jack	200
Flat wacker	300
Snake	30
Compactor	500

Source: CIC Research, Inc.

Table D-3

AVERAGE HORSEPOWER OF COMMERCIAL UTILITY
BREAKDOWN OF "OTHER" CATEGORY

Type of Equipment	Average Horsepower	99 Percent Confidence Interval	Sample Size
LAWN AND GARDEN			
Other			
Trencher	19.3	--	3
Sod cutter	7.2	--	6
Scooters	14.6	--	9
Spreader	5.5	3.8-7.2	17
Roller	5.0	--	1
Viber-plate	5.0	--	1
Gas Rodder	3.0	--	1
HOME UTILITY			
Other			
Grinders	6.4	2.5-10.3	10
Pumps	6.2	4.5- 7.9	65
Refrigeration units	20.8	--	3
Welding machine	14.8	11.4-18.2	37
Post hole digger	2.2	--	3
Concrete saw	7.8	--	3
Fork lift	23.0	--	1
Mixers	7.1	--	7
Troweling machine	5.0	--	7
Asphalt reclaimer	7.5	--	1
Wash trailer	2.0	--	1
Walker	9.0	--	1
Early warner	5.0	--	1
High press machine	24.0	--	2
Paint striper	10.5	--	3
Jumping jack	5.0	--	1
Flat wacker	4.5	--	2
Snake	1.5	--	1
Compactor	2.0	--	2

Source: CIC Research, Inc.

Table D-4

AVERAGE USAGE OF COMMERCIAL UTILITY EQUIPMENT:
BREAKDOWN OF "OTHER" CATEGORY

Type of Equipment	Average Number of Hours Used per Year	99 Percent Confidence Interval	Sample Size
LAWN AND GARDEN			
Other			
Trencher	501.0	--	4
Sod cutter	302.4	--	5
Scooters	544.0		9
Spreader	320.5	128.5-512.5	17
Roller	96.0	--	1
Viber-plate	24.0	--	1
Gas Rodder	12.0	--	1
HOME UTILITY			
Other			
Grinders	219.0	33.9-404.1	11
Pumps	299.9	167.4-432.4	56
Refrigeration units	1472.0	--	3
Welding machine	312.5	175.6-449.4	42
Post hole digger	181.5	--	2
Concrete saw	212.0	--	3
Fork lift	720.0	--	1
Mixers	596.0	--	9
Troweling machine	508.5	--	8
Asphalt reclaimer	216.0	--	1
Wash trailer	96.0	--	1
Walker	360.0	--	1
Early warner	840.0	--	2
High press machine	384.0	--	2
Paint striper	224.0	--	3
Jumping jack	432.0	--	1
Flat wacker	216.0	--	3
Snake	12.0	--	1
Compactor	144.0	--	3

Source: CIC Research, Inc.

Table D-5

AVERAGE FUEL USE OF COMMERCIAL UTILITY EQUIPMENT:
BREAKDOWN OF "OTHER" CATEGORY

Type of Equipment	Average Fuel Use per Year (Gallons)	99 Percent Confidence Interval	Sample Size
LAWN AND GARDEN			
Other			
Trencher	861.0	--	4
Sod cutter	72.0	--	6
Scooters	606.7	--	9
Spreader	43.3	22.3-64.3	16
Roller	--	--	--
Viber-plate	6	--	1
Gas Rodder	3	--	1
HOME UTILITY			
Other			
Grinders	160.0	--	6
Pumps	183.1	53.5-312.7	42
Refrigeration units	1,440	--	1
Welding machine	127.2	61.1-193.3	24
Post hole digger	57.0	--	2
Concrete saw	72.0	--	3
Fork lift	240.0	--	1
Mixers	80.0	--	6
Troweling machine	60.0	--	8
Asphalt reclaimer	60	--	1
Wash trailer	3	--	1
Walker	--	--	--
Early warner	120.0	--	1
High press machine	408.0	-	2
Paint striper	60.0	--	1
Jumping jack	36.0	--	1
Flat wacker	40.0	--	3
Snake	12.0	-	1
Compactor	54.0	--	2

Source: CIC Research, Inc.

Table D-6

AVERAGE AGE OF COMMERCIAL UTILITY EQUIPMENT:
BREAKDOWN OF "OTHER" CATEGORY

Type of Equipment	Average Age (years)	99 Percent Confidence Interval	Sample Size
LAWN AND GARDEN			
Other			
Trencher	3.5	--	4
Sod cutter	8.9	--	5
Scooters	5.6	--	9
Spreader	7.7	3.4-12.0	17
Roller	7.0	--	1
Viber-plate	5.0	--	1
Gas Rodder	20.0	--	1
HOME UTILITY			
Other			
Grinders	5.3	1.4-9.2	10
Pumps	6.8	4.8-8.8	60
Refrigeration units	7.0	--	2
Welding machine	5.9	2.8-9.0	40
Post hole digger	10.0	--	3
Concrete saw	7.0	--	3
Fork lift	10.0	--	1
Mixers	7.8	--	8
Troweling machine	3.7	--	7
Asphalt reclaimer	2.0	--	1
Wash trailer	7.0	--	1
Walker	--	--	--
Early warner	.5	--	1
High press machine	6.0	--	2
Paint striper	8.0	--	3
Jumping jack	3.0	--	1
Flat wacker	3.3	--	3
Snake	4.0	--	1
Compactor	5.3	--	3

Source: CIC Research, Inc.

APPENDIX E

UTILITY EQUIPMENT EMISSIONS BY COUNTY

COMMENTS ON METHODOLOGY

Computations of utility equipment emissions for each county are given on the following pages. The methodology is discussed in Chapter 3 of the report, but some additional comments are required to explain the source of data on households and employment.

Numbers of households in each county for 1980 were taken from the Bureau of the Census reports; however, the same information could also have been obtained from the State Census Data Center.

Employment by occupational category for 1980 was taken from the reports of the California Employment Development Department. Since the Department does not provide data for each individual county, some data manipulation was required as follows:

- Fresno, Imperial, Kern, Los Angeles, Merced, Monterey, Orange, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Sonoma, Stanislaus and Ventura County employment data were taken directly from the corresponding reports.
- Alameda, Contra Costa, Marin, San Francisco, and San Mateo County employments were computed by apportioning the San Francisco-Oakland SMSA employment according to the households in each county.
- Butte, Colusa, Glenn, Sutter, and Yuba Counties were computed by apportioning the Sutter-Butte region employment according to the households in each county.
- Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama and Trinity Counties were computed by apportioning the Mt. Shasta region employment according to the households in each county.

- Placer, Sacramento, and Yolo Counties were computed by apportioning the Sacramento SMSA employment according to the households in each county.

- Del Norte and Humboldt Counties were computed by apportioning the Humbolt-Del Norte region employment according to the households in each county.

- Kings and Tulare Counties were computed by apportioning the Tulare-Kings employment according to households.

- Napa and Solano Counties were computed by apportioning the Vallejo-Fairfield SMSA employment according to households.

- Riverside and San Bernardino Counties were computed by apportioning the Riverside-San Bernardino employment according to households.

- Alpine, Amador, Calaveras, El Dorado, Inyo, Lake, Madera, Mariposa, Mendocino, Mono, Nevada, San Benito, Sierra, and Tuolumne Counties were computed by subtracting employment for all other counties from the State total and apportioning the remainder according to households.

- Number of timbercutters was obtained directly from the California Employment Development Division for all counties except Calaveras, El Dorado, Madera, Mendocino, Nevada, Sierra and Tuolumne. Data for these counties was derived by subtracting timbercutters for all other counties from the state total and apportioning the remainder according to board feet of lumber produced.

County AMADOR

Year 1980

No. of Households 9,446

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	916	7.8	
trimmers	.027	255	17.1	
chain saws	.161	1,521	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.0655	x 160 x 1.1 = 11.5 HC; x 360 x 1.1 = 25.9 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1,861	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0471	x 230 x 1.1 = 11.9 HC; x 510 x 1.1 = 26.4 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	2,815	17.6	
tillers	.085	803	30.2	
blowers	.005	47	14.7	
shredders	.006	57	9.7	
yard vaccuums	.004	38	15.0	
electric generators	.009	85	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0810	x 32 x 1.1 = 2.9 HC; x 380 x 1.1 = 33.9 CO; x 4.3 x 1.1 = 0.4 NO_x
Large 4-Cycle				
riding mowers	.015	142	24.1	
garden tractors	.021	198	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	38	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0100	x 37 x 1.1 = 0.4 HC; x 880 x 1.1 = 9.7 CO; x 29 x 1.1 = 0.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	26.7	HC
	95.9	CO
	0.9	NO_x
Commercial (from p.2)	9.2	HC
	72.4	CO
	1.7	NO_x
Grand Total	35.9	HC
	168.3	CO
	2.6	NO_x

AMADOR

County AMADOR

Year 1980

Type of Equipment \ Employment	Foresters 6	Carpenters 58	Cement Finishers 26	Electricians 135	Ex. Grading Machine Operators 28	Painters 115	Plumbers 76	Sheet Metal Workers 22	Auto Body Repairers 14	Auto Mechanics 92	Heavy Equipment Mechanics 141	Electric Power Line Installers 9	Welders 56	Dry Wall Installers 22	Truck Drivers 177	Gardeners 102	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	11	552	
chain saws		.176					.013				.113				.019	.234	54	394	
																	.0273		x160x1.1 = 4.8 HC; x360x1.1 = 10.8 CO; x1.2x1.1 = 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	11	578	
																	.0062		x230x1.1 = 1.6 HC; x510x1.1 = 3.5 CO; x2x1.1 = 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	18	618	
tillers																.006	1	151	
blowers							.002									.030	3	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	28	244	
																	.0197		x32x1.1 = 0.7 HC; x380x1.1 = 8.2 CO; x4.3x1.1 = 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	9	901	
garden tractors															.003	.026	3	712	
lawn & garden, other		.003				.029								.007		.043	8	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	31	294	
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	84	348	
																	.0515		x37x1.1 = 2.1 HC; x880x1.1 = 49.9 CO; x29x1.1 = 1.6 NO_x

$\sum \left(\text{Equip.pop.}\right) \left(\frac{\text{hrs.}}{\text{yrs.unit}}\right) \left(10^{-6}\right)$

Total Commercial Emissions

9.2 HC

72.4 CO

1.7 NO_x

AMADO

County ALPINE

Year 1980

No. of Households 933

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	91	7.8	
trimmers	.027	25	17.1	
chain saws	.161	150	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.0065	x 160 x 1.1 ____1.1____ HC x 360 x 1.1 ____2.6____ CO x 1.2 x 1.1 ____0.0____ NO_x
Medium 2-Cycle				
walk-behind mowers	.197	184	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0047	x 230 x 1.1 ____1.2____ HC x 510 x 1.1 ____2.6____ CO x 2 x 1.1 ____0.0____ NO_x
Medium 4-cycle				
walk-behind mowers	.298	278	17.6	
tillers	.085	79	30.2	
blowers	.005	5	14.7	
shredders	.006	6	9.7	
yard vaccuums	.004	4	15.0	
electric generators	.009	8	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0080	x 32 x 1.1 ____0.3____ HC x 380 x 1.1 ____3.3____ CO x 4.3 x 1.1 ____0.0____ NO_x
Large 4-Cycle				
riding mowers	.015	14	24.1	
garden tractors	.021	20	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	4	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0016	x 37 x 1.1 ____0.0____ HC x 880 x 1.1 ____1.0____ CO x 29 x 1.1 ____0.0____ NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	2.6	HC
	9.5	CO
	0.0	NO_x
Commercial (from p.2)	0.8	HC
	5.5	CO
	0.1	NO_x
Grand Total	3.4	HC
	15.0	CO
	0.1	NO_x

ALPINE

County ALPINE

Year 1980

Type of Equipment (Employment)	Foresters 1	Carpenters 6	Cement Finishers 3	Electricians 13	Ex. Grading Machine Operators 3	Painters 11	Plumbers 7	Sheet Metal Workers 2	Auto Body Repairers 1	Auto Mechanics 9	Heavy Equipment Mechanics 14	Electric Power Line Installers 1	Welders 6	Dry Wall Installers 2	Truck Drivers 17	Gardeners 10	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	1	552	x160x1.1 0.4 HC
chain saws		.176					.013				.113				.019	.234	5	394	x360x1.1 1.0 CO
																	.0025		x1.2x1.1 0.0 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	1	578	
																	.0006		x230x1.1 0.1 HC
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		x510x1.1 0.3 CO
Medium 4-Cycle																			x2x1.1 0.0 NO_x
walk-behind mowers															.011	.154	2	618	
tillers																.006	0	151	
blowers							.002									.030	0	414	
shredders																.003	0	500	
yard vaccuums																.011	0	382	x32x1.1 0.1 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	3	244	x380x1.1 0.8 CO
																	.0020		x4.3x1.1 0.0 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Large 4-Cycle																			
riding mowers																.090	1	901	
garden tractors															.003	.026	0	712	
lawn & garden, other		.003				.029								.007		.043	1	368	x37x1.1 0.1 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	3	294	x880x1.1 3.4 CO
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	4	348	x29x1.1 0.1 NO_x
																	.0035		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

Total Commercial Emissions

0.8 HC

5.5 CO

0.1 NO_x

County ALAMEDA

Year 1980

No. of Households 444,607

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	6,224	2.5	
trimmers	.007	3,112	24.4	
chain saws	.077	34,235	19.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.7728	x 160 x 1.1 = 136.0 HC; x 360 x 1.1 = 306.0 CO; x 1.2 x 1.1 = 0.9 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	47,573	16.9	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.8040	x 230 x 1.1 = 203.4 HC; x 510 x 1.1 = 451.0 CO; x 2 x 1.1 = 1.8 NO_x
Medium 4-cycle				
walk-behind mowers	.182	80,918	13.6	
tillers	.045	20,007	4.7	
blowers	.007	3,112	14.7	
shredders	.010	4,446	9.7	
yard vaccuums	.004	1,778	15.0	
electric generators	.011	4,891	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			1.6216	x 32 x 1.1 = 57.1 HC; x 380 x 1.1 = 677.8 CO; x 4.3 x 1.1 = 7.7 NO_x
Large 4-Cycle				
riding mowers	.007	3,112	24.1	
garden tractors	.009	4,891	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	1,778	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.2720	x 37 x 1.1 = 11.1 HC; x 880 x 1.1 = 263.3 CO; x 29 x 1.1 = 8.7 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	407.6	HC
	1,698.1	CO
	19.1	NO_x
Commercial (from p.2)	353.7	HC
	2663.1	CO
	67.9	NO_x
Grand Total	761.3	HC
	4,361.2	CO
	87.0	NO_x

ALAMEDA

County ALAMEDA

Year 1980

Type of Equipment (Employment)	Foresters 87	Carpenters 4903	Cement Finishers 559	Electricians 8740	Ex. Grading Machine Operators 918	Painters 2302	Plumbers 2165	Sheet Metal Workers 1446	Auto Body Repairers 679	Auto Mechanics 4987	Heavy Equipment Mechanics 3487	Electric Power Line Installers 377	Welders 2192	Dry Wall Installers 479	Truck Drivers 7222	Gardeners 3610	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	369	552	x160x1.1 193.1 HC
chain saws		.176					.013				.113				.019	.234	2267	394	x360x1.1 434.4 CO
																	1.0970		x1.2x1.1 1.4 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	383	578	
																	.2212		x230x1.1 56.0 HC
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		x510x1.1 124.1 CO
Medium 4-Cycle																			x2x1.1 0.5 NO_x
walk-behind mowers															.011	.154	635	618	
tillers																.006	22	151	
blowers							.002									.030	113	414	
shredders																.003	11	500	
yard vaccuums																.011	40	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	971	244	x32x1.1 24.6 HC
																	.7000		x380x1.1 298.6 CO
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		x4.3x1.1 3.3 NO_x
Large 4-Cycle																			
riding mowers																.090	325	901	
garden tractors															.003	.026	116	712	
lawn & garden, other		.003				.029								.007		.043	840	368	x37x1.1 80.0 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	1115	294	x880x1.1 1903.0 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	3376	348	x29x1.1 62.7 NO_x
																	1.9659		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

Total Commercial Emissions

353.7 HC

2663.1 CO

67.9 NO_x

ALAMEDA

County BUTTE

Year 1980

No. of Households 61,360

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	5,952	7.8	
trimmers	.027	1,657	17.1	
chain saws	.161	9,879	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.4255	x 160 x 1.1 = 74.9 HC; x 360 x 1.1 = 168.5 CO; x 1.2 x 1.1 = 0.6 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	12,088	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.3058	x 230 x 1.1 = 77.4 HC; x 510 x 1.1 = 171.6 CO; x 2 x 1.1 = 0.7 NO_x
Medium 4-cycle				
walk-behind mowers	.298	18,285	17.6	
tillers	.085	5,216	30.2	
blowers	.005	307	14.7	
shredders	.006	368	9.7	
yard vaccuums	.004	245	15.0	
electric generators	.009	552	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.5263	x 32 x 1.1 = 18.5 HC; x 380 x 1.1 = 220.0 CO; x 4.3 x 1.1 = 2.5 NO_x
Large 4-Cycle				
riding mowers	.015	920	24.1	
garden tractors	.021	1,289	24.9	
lawn & garden, other	-0-		-0-	
air compressors	.004	245	49.3	
home utility, other	-0-		-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0646	x 37 x 1.1 = 2.6 HC; x 880 x 1.1 = 62.6 CO; x 29 x 1.1 = 2.1 NO_x

*Selected from Table 2-3 and adjusted for owner/renter mobile if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	173.4	HC	
	622.7	CO	
	5.9	NO_x	
Commercial (from p.2)	42.3	HC	
	381.3	CO	
	9.5	NO_x	
			TIMBER CUTTING
Grand Total	221.7	HC	3.6
W/O TIMBER CUTTING	1004.0	CO	8.2
	15.4	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	225.3	HC	
	1012.2	CO	
	15.4	NO_x	

Butte

County BUTTE

Year 1980

Type of Equipment \ Employment	Foresters 230	Carpenters 928	Cement Finishers 41	Electricians 328	Ex. Grading Machine Operators 377	Painters 225	Plumbers 250	Sheet Metal Workers 95	Auto Body Repairers 70	Auto Mechanics 553	Heavy Equipment Mechanics 535	Electric Power Line Installers 92	Welders 367	Dry Wall Installers 45	Truck Drivers 1013	Gardeners 404	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	41	552	
chain saws		.176					.013				.113				.019	.234	341	394	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.1570		x160x1.1 = 27.6 HC; x360x1.1 = 62.2 CO; x1.2x1.1 = 0.2 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	43	578	
(Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0248		x230x1.1 = 6.3 HC; x510x1.1 = 13.9 CO; x2x1.1 = 0.1 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	73	618	
tillers																.006	2	151	
blowers							.002									.030	13	414	
shredders																.003	1	500	
yard vaccuums																.011	4	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	143	244	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0882		x32x1.1 = 3.1 HC; x380x1.1 = 36.9 CO; x4.3x1.1 = 0.4 NO_x
Large 4-Cycle																			
riding mowers																.090	36	901	
garden tractors															.003	.026	14	712	
lawn & garden, other		.003				.029								.007		.043	27	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	156	294	
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	514	348	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.2772		x37x1.1 = 11.3 HC; x880x1.1 = 268.3 CO; x29x1.1 = 8.8 NO_x

TIMBER CUTTERS
chainsaws (115)(360)(.500)(10^{-6})
- x160x1.1 = 3.6 tons/yr HC
- x360x1.1 = 8.2 tons/yr CO
- x1.2x1.1 = 0.0 tons/yr NO_x

Total Commercial Emissions

48.3 HC

381.3 CO

9.5 NO_x

But

County CALAVERAS

Year 1980

No. of Households 12,746

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	1236	7.8	
trimmers	.027	344	17.1	
chain saws	.161	2052	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0884	x 160 x 1.1 = 15.6 HC; x 360 x 1.1 = 35.0 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	2511	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0635	x 230 x 1.1 = 16.1 HC; x 510 x 1.1 = 35.6 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	3798	17.6	
tillers	.085	1083	30.2	
blowers	.005	64	14.7	
shredders	.006	76	9.7	
yard vaccuums	.004	51	15.0	
electric generators	.009	115	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1093	x 32 x 1.1 = 3.8 HC; x 380 x 1.1 = 45.7 CO; x 4.3 x 1.1 = 0.5 NO_x
Large 4-Cycle				
riding mowers	.015	191	24.1	
garden tractors	.021	268	24.9	
lawn & garden, other	-0-		-0-	
air compressors	.004	51	42.3	
home utility, other	-0-		-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0134	x 37 x 1.1 = 0.5 HC; x 880 x 1.1 = 13.0 CO; x 29 x 1.1 = 0.4 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	36.0	HC	
	129.3	CO	
	1.1	NO_x	
Commercial (from p.2)	12.3	HC	
	97.5	CO	
	2.3	NO_x	
Grand Total	48.3	HC	TIMBER CUTTING 2.9
W/O TIMBER CUTTING	226.8	CO	6.6
	3.4	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	51.2	HC	
	233.4	CO	
	3.4	NO_x	

County CALAVERAS

Year 1980

Type of Equipment (Employment)	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	8	78	35	181	37	155	102	30	19	109	130	12	75	30	637	137			
Small 2-Cycle																			
edgers/trimmers			.008													.101	15	552	x160x1.1 6.5 HC
chain saws		.176					.013				.113				.019	.234	73	394	x360x1.1 14.6 CO
																	.0367		x1.2x1.1 0.0 NO_x
												$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})							
Medium 2-Cycle																			
walk-behind mowers																.106	15	578	
																	.0084		x230x1.1 2.1 HC
												(Equip.pop.) (hrs./yrs.unit) (10^{-6})							x510x1.1 4.7 CO
Medium 4-Cycle																			x2x1.1 0.0 NO_x
walk-behind mowers															.011	.154	24	618	
tillers																.006	1	151	
blowers							.002									.030	4	414	
shredders																.003	0	500	
yard vaccuums																.011	2	382	x32x1.1 0.9 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	38	244	x380x1.1 11.0 CO
																	.0265		x4.3x1.1 0.1 NO_x
										$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})									
Large 4-Cycle																			
riding mowers																.090	12	901	
garden tractors															.003	.026	4	712	
lawn & garden, other		.003				.029								.007		.043	11	368	x37x1.1 2.8 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	42	294	x880x1.1 67.2 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	113	348	x29x1.1 2.2 NO_x
																	.0694		
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})				

TIMBERCUTTERS

Chainsaws (92)(360)(.500)(10^{-6})
- x160x1.1 2.9 tons/yr HC
- x360x1.1 6.6 tons/yr CO
- x1.2x1.1 0.0 tons/yr NO_x

Total Commercial Emissions

12.3 HC

97.5 CO

2.3 NO_x

County COLUSA

Year 1980

No. of Households 5,334

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	517	7.8	
trimmers	.027	144	17.1	
chain saws	.161	859	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.0370	x 160 x 1.1 = 6.5 HC; x 360 x 1.1 = 14.6 CO; x 1.2 x 1.1 = 0.0 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1051	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0266	x 230 x 1.1 = 6.7 HC; x 510 x 1.1 = 14.9 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	1590	17.6	
tillers	.085	453	30.2	
blowers	.005	27	14.7	
shredders	.006	32	9.7	
yard vaccuums	.004	21	15.0	
electric generators	.009	48	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0458	x 32 x 1.1 = 1.6 HC; x 380 x 1.1 = 19.1 CO; x 4.3 x 1.1 = 0.2 NO_x
Large 4-Cycle				
riding mowers	.015	80	24.1	
garden tractors	.021	112	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	21	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0056	x 37 x 1.1 = 0.2 HC; x 880 x 1.1 = 5.4 CO; x 29 x 1.1 = 0.2 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	15.0	HC
	54.0	CO
	0.5	NO_x
Commercial (from p.2)	4.2	HC
	33.1	CO
	0.8	NO_x
Grand Total	19.2	HC
	87.2	CO
	1.3	NO_x

COLUSA

County COLUSA

Year 1980

Type of Equipment \ Employment	Foresters 20	Carpenters 81	Cement Finishers 4	Electricians 29	Ex. Grading Machine Operators 33	Painters 20	Plumbers 22	Sheet Metal Workers 8	Auto Body Repairers 6	Auto Mechanics 48	Heavy Equipment Mechanics 47	Electric Power Line Installers 8	Welders 32	Dry Wall Installers 4	Truck Drivers 88	Gardeners 35	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	4	552	
chain saws		.176					.013				.113				.019	.234	30	394	
																	.0137		x160x1.1 2.4 HC; x360x1.1 5.4 CO; x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	4	578	
																	.0022		x230x1.1 0.5 HC; x510x1.1 1.2 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	6	618	
tillers																.006	0	151	
blowers							.002									.030	1	414	
shredders																.003	0	500	
yard vaccuums																.011	0	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	12	244	
																	.0077		x32x1.1 0.3 HC; x380x1.1 3.2 CO; x4.3x1.1 0.0 NO_x
Large 4-Cycle																			
riding mowers																.090	3	901	
garden tractors															.003	.026	1	712	
lawn & garden, other		.003				.029								.007		.043	2	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	14	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	45	348	
																	.0941		x37x1.1 1.0 HC; x880x1.1 23.3 CO; x29x1.1 0.8 NO_x

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

4.2 HC

33.1 CO

0.8 NO_x

COLUSA

County CONTRA COSTA

Year 1980

No. of Households 252,226

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	3,531	2.5	
trimmers	.007	1,766	24.4	
chain saws	.077	19,421	19.9	
	$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})	.4384		x 160 x 1.1 = 77.2 HC; x 360 x 1.1 = 173.6 CO; x 1.2 x 1.1 = 0.5 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	26,988	16.9	
	(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})	.4561		x 230 x 1.1 = 115.4 HC; x 510 x 1.1 = 255.9 CO; x 2 x 1.1 = 1.0 NO_x
Medium 4-cycle				
walk-behind mowers	.182	45,905	13.6	
tillers	.045	11,350	4.7	
blowers	.007	1,766	14.7	
shredders	.010	2,522	9.7	
yard vaccuums	.004	1,009	15.0	
electric generators	.011	2,774	63.7	
	$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})	.9199		x 32 x 1.1 = 32.4 HC; x 380 x 1.1 = 384.5 CO; x 4.3 x 1.1 = 4.4 NO_x
Large 4-Cycle				
riding mowers	.007	1,766	24.1	
garden tractors	.009	2,270	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	1,009	42.3	
home utility, other	-0-	-0-	-0-	
	$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})	.1543		x 37 x 1.1 = 6.3 HC; x 880 x 1.1 = 149.4 CO; x 29 x 1.1 = 4.9 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	231.2	HC
	963.3	CO
	10.8	NO_x
Commercial (from p.2)	200.8	HC
	1562.7	CO
	38.6	NO_x
Grand Total	432.0	HC
	2526.0	CO
	49.4	NO_x

CONTRA COSTA

County CONTRA COSTA

Year 1980

Type of Equipment (Employment)	Foresters 49	Carpenters 2782	Cement Finishers 317	Electricians 1668	Ex. Grading Machine Operators 521	Painters 1306	Plumbers 1228	Sheet Metal Workers 320	Auto Body Repairers 385	Auto Mechanics 2796	Heavy Equipment Mechanics 1979	Electric Power Line Installers 214	Welders 1414	Dry Wall Installers 272	Truck Drivers 4092	Gardeners 2042	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	209	552	x160x1.1 109.6 HC
chain saws		.176					.013				.113				.019	.234	1286	394	x360x1.1 246.5 CO
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.6224		x1.2x1.1 0.8 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	817	578	
(Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.1255		x230x1.1 31.8 HC
Medium 4-Cycle																			x510x1.1 70.4 CO
walk-behind mowers															.011	.154	360	618	x2x1.1 0.3 NO_x
tillers																.006	12	151	
blowers							.002									.030	64	414	
shredders																.003	6	500	
yard vaccuums																.011	23	382	x32x1.1 14.0 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	551	244	x380x1.1 166.0 CO
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.3972		x4.3x1.1 1.9 NO_x
Large 4-Cycle																			
riding mowers																.090	184	901	
garden tractors															.003	.026	66	712	x37x1.1 45.4 HC
lawn & garden, other		.003				.029								.007		.043	136	368	x880x1.1 1079.8 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	633	294	x29x1.1 35.6 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	1916	348	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	1.1155		

Total Commercial Emissions

200.8 HC

1562.7 CO

38.6 NO_x

CONTRA COST

County DEL NORTE

Year 1980

No. of Households 7581

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	735	7.8	
trimmers	.027	205	17.1	
chain saws	.161	1221	35.5	
$\sum$ (Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0526	x 160 x 1.1 = 9.3 HC; x 360 x 1.1 = 20.8 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1493	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0378	x 230 x 1.1 = 9.6 HC; x 510 x 1.1 = 21.2 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	2259	17.6	
tillers	.085	644	30.2	
blowers	.005	38	14.7	
shredders	.006	45	9.7	
yard vaccuums	.004	30	15.0	
electric generators	.009	68	63.7	
$\sum$ (Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0650	x 32 x 1.1 = 2.3 HC; x 380 x 1.1 = 27.2 CO; x 4.3 x 1.1 = 0.3 NO_x
Large 4-Cycle				
riding mowers	.015	114	24.1	
garden tractors	.021	159	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	30	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$ (Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0080	x 37 x 1.1 = 0.3 HC; x 880 x 1.1 = 7.7 CO; x 29 x 1.1 = 0.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	21.5	HC	
	76.9	CO	
	0.8	NO_x	
Commercial (from p.2)	8.2	HC	
	59.9	CO	
	1.4	NO_x	
Grand Total W/O TIMBER CUTTING	29.7	HC	TIMBER CUTTING 2.1
	136.8	CO	4.8
	2.2	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	31.8	HC	
	141.6	CO	
	2.2	NO_x	

Del Norte

County DEL NORTE

Year 1980

Type of Equipment / Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	62	104	4	41	46	25	27	6	18	97	68	8	30	6	210	90			
Small 2-Cycle																			
edgers/trimmers			.008													.101	9	552	
chain saws		.176					.013				.113				.019	.234	52	394	
																	.0253		x160x1.1 4.5 HC; x360x1.1 10.0 CO; x1.2x1.1 0.0 NO_x
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})								
Medium 2-Cycle																			
walk-behind mowers																.106	10	578	
											(Equip.pop.) (hrs./yrs.unit) (10^{-6})						.0055		x230x1.1 1.4 HC; x510x1.1 3.1 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	16	618	
tillers																.006	1	151	
blowers							.002									.030	3	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	0	244	
																	.0162		x32x1.1 0.6 HC; x380x1.1 6.8 CO; x4.3x1.1 0.1 NO_x
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})								
Large 4-Cycle																			
riding mowers																.090	8	901	
garden tractors															.003	.026	3	712	
lawn & garden, other		.003				.029								.007		.043	5	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	23	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	67	348	
																	.0413		x37x1.1 1.7 HC; x880x1.1 40.0 CO; x29x1.1 1.3 NO_x

TIMBERCUTTERS

Chainsaws (67)(360)(500)(10^{-6}) { x160x1.1 2.1 tons/yr HC; x360x1.1 4.8 tons/yr CO; x1.2x1.1 0.0 tons/yr NO_x } $\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})

Total Commercial Emissions: 8.2 HC; 59.9 CO; 1.4 NO_x

County EL DORADO

Year 1980

No. of Households 44,997

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	4364	7.8	
trimmers	.027	1215	17.1	
chain saws	.161	7243	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.3120	x 160 x 1.1 = 54.9 HC; x 360 x 1.1 = 123.5 CO; x 1.2 x 1.1 = 0.4 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	8862	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.2242	x 230 x 1.1 = 56.7 HC; x 510 x 1.1 = 125.8 CO; x 2 x 1.1 = 0.5 NO_x
Medium 4-cycle				
walk-behind mowers	.298	13,406	17.6	
tillers	.085	3824	30.2	
blowers	.005	225	14.7	
shredders	.006	270	9.7	
yard vaccuums	.004	180	15.0	
electric generators	.009	405	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.3859	x 32 x 1.1 = 13.6 HC; x 380 x 1.1 = 161.3 CO; x 4.3 x 1.1 = 1.8 NO_x
Large 4-Cycle				
riding mowers	.015	675	24.1	
garden tractors	.021	945	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	180	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0474	x 37 x 1.1 = 1.9 HC; x 880 x 1.1 = 45.8 CO; x 29 x 1.1 = 1.5 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

			TIMBER CUTTING
Household	127.1	HC	
	453.4	CO	
	4.2	NO_x	
Commercial (from p.2)	43.6	HC	
	344.4	CO	
	8.5	NO_x	
Grand Total w/o TIMBER CUTTING	170.7	HC	8.8
	800.8	CO	19.8
	12.7	NO_x	0.1
GRAND TOTAL w TIMBER CUTTING	179.5	HC	
	820.6	CO	
	12.8	NO_x	

El Dorado

County EL DORADO

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	29	276	124	642	133	547	362	105	67	432	671	43	265	105	843	425			
Small 2-Cycle																			
edgers/trimmers			.008													.101	52	552	x160x1.1 = 22.8 HC
chain saws		.176					.013				.113				.019	.234	257	394	x360x1.1 = 51.4 CO
																	.1299		x1.2x1.1 = 0.2 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	52	578	
																	.2295		x230x1.1 = 7.5 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	86	618	x510x1.1 = 16.6 CO
tillers																.006	5	151	x2x1.1 = 0.1 NO_x
blowers							.002									.030	14	414	
shredders																.003	2	500	
yard vaccuums																.011	6	382	x32x1.1 = 3.3 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	133	244	x380x1.1 = 39.2 CO
																	.0937		x4.3x1.1 = 0.4 NO_x
Large 4-Cycle																			
riding mowers																.090	43	901	
garden tractors															.003	.026	14	712	x37x1.1 = 10.0 HC
lawn & garden, other		.003				.029								.007		.043	38	368	x880x1.1 = 237.2 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	148	294	x29x1.1 = 7.8 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	400	348	
																	.2451		

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

TIMBERCUTTERS

Chainsaws (277)(360)(.500)(10^{-6})

- x160x1.1 = 8.8 tons/yr HC
- x360x1.1 = 19.8 tons/yr CO
- x1.2x1.1 = 0.1 tons/yr NO_x

Total Commercial Emissions

43.6 HC

344.4 CO

8.5 NO_x

County FRESNO

Year 1980

No. of Households 193,771

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	18,796	7.8	
trimmers	.027	5,232	17.1	
chain saws	.161	31,197	35.5	
	$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})		1.3437	x 160 x 1.1 = 236.5 HC; x 360 x 1.1 = 532.1 CO; x 1.2 x 1.1 = 1.8 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	38,173	25.3	
	(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.9657	x 230 x 1.1 = 244.3 HC; x 510 x 1.1 = 541.8 CO; x 2 x 1.1 = 8.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	57,744	17.6	
tillers	.085	16,471	30.2	
blowers	.005	968	14.7	
shredders	.006	1,163	9.7	
yard vaccuums	.004	775	15.0	
electric generators	.009	1,744	63.7	
	$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		1.6620	x 32 x 1.1 = 58.5 HC; x 380 x 1.1 = 694.7 CO; x 4.3 x 1.1 = 7.9 NO_x
Large 4-Cycle				
riding mowers	.015	2,907	24.1	
garden tractors	.021	4,069	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	775	42.3	
home utility, other	-0-	-0-	-0-	
	$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.2040	x 37 x 1.1 = 8.3 HC; x 880 x 1.1 = 197.5 CO; x 29 x 1.1 = 6.5 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-[illegible].

Emissions from All Utility Equipment

Tons/Year

Household	547.5	HC	
	1966.1	CO	
	18.3	NO_x	
Commercial (from p.2)	199.3	HC	
	1803.3	CO	
	47.6	NO_x	
Grand Total W/o TIMBER CUTTING	746.8	HC	TIMBER CUTTING 2.2
	3769.4	CO	5.1
	65.9	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	749.0	HC	
	3774.5	CO	
	65.9	NO_x	

Fresno

County FRESNO

Year 1980

Type of Equipment \ Employment	Foresters 212	Carpenters 2644	Cement Finishers 328	Electricians 1330	Ex. Grading Machine Operators 860	Painters 1327	Plumbers 1825	Sheet Metal Workers 465	Auto Body Repairers 416	Auto Mechanics 3477	Heavy Equipment Mechanics 3175	Electric Power Line Installers 636	Welders 3945	Dry Wall Installers 436	Truck Drivers 5179	Gardeners 2345	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	158	552	x160x1.1 105.5 HC
chain saws		.176					.013				.113				.019	.234	1300	394	x360x1.1 237.4 CO
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.5996		x1.2x1.1 0.8 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	163	578	
																(Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0945		x230x1.1 23.9 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	294	618	x510x1.1 53.0 CO
tillers																.006	9	151	x2x1.1 0.2 NO_x
blowers							.002									.030	49	414	
shredders																.003	5	500	
yard vaccuums																.011	17	382	x32x1.1 12.6 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	596	244	x380x1.1 149.5 CO
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.3578		x4.3x1.1 1.7 NO_x
Large 4-Cycle																			
riding mowers																.090	139	901	
garden tractors															.003	.026	56	712	x37x1.1 57.3 HC
lawn & garden, other		.003				.029								.007		.043	116	368	x880x1.1 1363.4 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	772	294	x29x1.1 44.9 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	2778	348	
																	1.4085		

TIMBERCUTTERS

Chainsaws (71)(360)(.500)(10^{-6}) $\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})

- x 160x1.1 2.0 tons/yr HC
- x 360x1.1 5.1 tons/yr CO
- x 1.2x1.1 0.0 tons/yr NO_x

Total Commercial Emissions

199.3 HC

1803.3 CO

47.6 NO_x

County GLENN

Year 1980

No. of Households 8,425

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	817	7.8	
trimmers	.027	227	17.1	
chain saws	.161	1356	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0584	x 160 x 1.1 = 10.3 HC; x 360 x 1.1 = 23.1 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1660	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0420	x 230 x 1.1 = 10.6 HC; x 510 x 1.1 = 23.6 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	2,511	17.6	
tillers	.085	716	30.2	
blowers	.005	42	14.7	
shredders	.006	51	9.7	
yard vaccuums	.004	34	15.0	
electric generators	.009	76	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0723	x 32 x 1.1 = 2.5 HC; x 380 x 1.1 = 30.2 CO; x 4.3 x 1.1 = 0.3 NO_x
Large 4-Cycle				
riding mowers	.015	126	24.1	
garden tractors	.021	177	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	34	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0089	x 37 x 1.1 = 0.4 HC; x 880 x 1.1 = 8.6 CO; x 29 x 1.1 = 0.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter mode if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	23.8	HC
	85.5	CO
	0.8	NO_x
Commercial (from p.2)	6.7	HC
	52.3	CO
	1.3	NO_x
Grand Total	30.5	HC
	137.8	CO
	2.1	NO_x

GLENN

County GLENN

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	32	127	6	45	52	31	34	13	10	76	73	13	50	6	139	55			
Small 2-Cycle																			
edgers/trimmers			.008													.101	6	552	
chain saws		.176					.013				.113				.019	.234	47	394	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0216		x160x1.1 = 3.8 HC; x360x1.1 = 8.5 CO; x1.2x1.1 = 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	6	578	
(Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0034		x230x1.1 = 0.9 HC; x510x1.1 = 1.9 CO; x2x1.1 = 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	10	618	
tillers																.006	0	151	
blowers							.002									.030	2	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	20	244	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0121		x32x1.1 = 0.4 HC; x380x1.1 = 5.1 CO; x4.3x1.1 = 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	5	901	
garden tractors															.003	.026	2	712	
lawn & garden, other		.003				.029								.007		.043	4	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	21	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	71	348	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0381		x37x1.1 = 1.6 HC; x880x1.1 = 36.8 CO; x29x1.1 = 1.2 NO_x

Total Commercial Emissions

6.7 HC

52.3 CO

1.3 NO_x

County HUMBOLDT

Year 1985

No. of Households 45,192

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	4,384	7.8	
trimmers	.027	1,220	17.1	
chain saws	.161	7,276	35.5	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)\left(10^{-6}\right)$			.3134	x 160 x 1.1 = 55.2 HC; x 360 x 1.1 = 124.1 CO; x 1.2 x 1.1 = 0.4 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	8,903	25.3	
$\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{6}\right)$			.2252	x 230 x 1.1 = 57.0 HC; x 510 x 1.1 = 126.4 CO; x 2 x 1.1 = 0.5 NO_x
Medium 4-cycle				
walk-behind mowers	.298	13,467	17.6	
tillers	.085	3,841	30.2	
blowers	.005	226	14.7	
shredders	.006	271	9.7	
yard vaccuums	.004	181	15.0	
electric generators	.009	407	63.7	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{6}\right)$			.3876	x 32 x 1.1 = 13.6 HC; x 380 x 1.1 = 162.0 CO; x 4.3 x 1.1 = 1.8 NO_x
Large 4-Cycle				
riding mowers	.015	678	24.1	
garden tractors	.021	949	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	181	42.3	
home utility, other	-0-	-0-	-0-	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{6}\right)$			.0476	x 37 x 1.1 = 1.9 HC; x 880 x 1.1 = 46.1 CO; x 29 x 1.1 = 1.5 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	127.7	HC	
	458.6	CO	
	4.6	NO_x	
Commercial (from p.2)	48.3	HC	
	356.8	CO	
	8.7	NO_x	
Grand Total w/o TIMBER CUTTING	176.0	HC	TIMBER CUTTING 12.7
	815.4	CO	28.5
	12.9	NO_x	0.1
GRAND TOTAL W TIMBER CUTTING	188.7	HC	
	843.9	CO	
	13.0	NO_x	

Humboldt

County HUMBOLDT

Year 1980

Type of Equipment / Employment	Foresters 369	Carpenters 683	Cement Finishers 22	Electricians 241	Ex. Grading Machine Operators 275	Painters 149	Plumbers 161	Sheet Metal Workers 33	Auto Body Repairers 109	Auto Mechanics 579	Heavy Equipment Mechanics 402	Electric Power Line Installers 45	Welders 176	Dry Wall Installers 38	Truck Drivers 1450	Gardeners 535	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	54	552	x160x1.1 26.6 HC
chain saws		.176					.013				.113				.019	.234	307	394	x360x1.1 59.7 CO
																	.1509		x1.2x1.1 0.2 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	57	578	
																	.0382		x230x1.1 8.3 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	96	618	x510x1.1 18.4 CO
tillers																.006	3	151	x2x1.1 0.1 NO_x
blowers							.002									.030	16	414	
shredders																.003	2	500	
yard vaccuums																.011	6	382	x32x1.1 3.4 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	110	244	x380x1.1 40.4 CO
																	.0966		x4.3x1.1 0.5 NO_x
Large 4-Cycle																			
riding mowers																.090	48	901	
garden tractors															.003	.026	12	712	x37x1.1 10.0 HC
lawn & garden, other		.003				.029								.007		.043	29	368	x880x1.1 238.3 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	135	294	x29x1.1 7.9 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	401	348	
																	.2462		

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

TIMBERCUTTERS
Chainsaws (400)(360)(.500)(10^{-6})
- x 160 x 1.1 — 12.7 tons/yr HC
- x 360 x 1.1 — 28.5 tons/yr CO
- x 1.2 x 1.1 — 0.1 tons/yr NO_x

Total Commercial Emissions
48.3 HC
356.8 CO
8.7 NO_x

County IMPERIAL

Year 1980

No. of Households 32,088

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	3,113	7.8	
trimmers	.027	866	17.1	
chain saws	.161	5,166	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^6)			.2225	x 160 x 1.1 = 39.2 HC; x 360 x 1.1 = 88.1 CO; x 1.2 x 1.1 = 0.3 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	6,321	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.1599	x 230 x 1.1 = 40.5 HC; x 510 x 1.1 = 89.7 CO; x 2 x 1.1 = 0.4 NO_x
Medium 4-cycle				
walk-behind mowers	.298	9,562	17.6	
tillers	.085	2,727	30.2	
blowers	.005	160	14.7	
shredders	.006	193	9.7	
yard vaccuums	.004	128	15.0	
electric generators	.009	289	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.2752	x 32 x 1.1 = 9.7 HC; x 380 x 1.1 = 115.0 CO; x 4.3 x 1.1 = 1.3 NO_x
Large 4-Cycle				
riding mowers	.015	481	24.1	
garden tractors	.021	674	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	128	48.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.0338	x 37 x 1.1 = 1.4 HC; x 880 x 1.1 = 32.7 CO; x 29 x 1.1 = 1.1 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	90.8	HC
	325.6	CO
	3.1	NO_x
Commercial (from p.2)	28.6	HC
	252.8	CO
	6.5	NO_x
Grand Total	119.4	HC
	578.4	CO
	9.6	NO_x

IMPERIAL

County IMPERIAL

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
	50	296	39	190	164	111	110	20	29	405	473	2	463	28	806	251			
Small 2-Cycle																			
edgers/trimmers			.008													.101	26	552	
chain saws		.176					.013				.113				.019	.234	181	394	
																	.0855		x160x1.1 15.0 HC; x360x1.1 33.9 CO; x1.2x1.1 0.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	27	578	
																	.0154		x230x1.1 3.9 HC; x510x1.1 8.6 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	48	618	
tillers																.006	2	151	
blowers							.002									.030	8	414	
shredders																.003	1	500	
yard vaccuums																.011	3	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	73	244	
																	.0520		x32x1.1 1.8 HC; x380x1.1 21.7 CO; x4.3x1.1 0.2 NO_x
Large 4-Cycle																			
riding mowers																.090	23	901	
garden tractors															.003	.026	9	712	
lawn & garden, other		.003				.029								.007		.043	15	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	92	294	
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	389	348	
																	.1948		x37x1.1 7.9 HC; x880x1.1 182.6 CO; x29x1.1 6.2 NO_x

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Total Commercial Emissions

28.6 HC

252.8 CO

6.5 NO_x

IMPERIAL

County INYO

Year 1980

No. of Households 8,484

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	823	7.8	
trimmers	.027	229	17.1	
chain saws	.161	1,366	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.0588	x 160 x 1.1 = 10.4 HC; x 360 x 1.1 = 23.3 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1,671	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0423	x 230 x 1.1 = 10.7 HC; x 510 x 1.1 = 23.7 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	2,528	17.6	
tillers	.085	721	30.2	
blowers	.005	42	14.7	
shredders	.006	51	9.7	
yard vaccuums	.004	34	15.0	
electric generators	.009	76	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0728	x 32 x 1.1 = 2.6 HC; x 380 x 1.1 = 30.4 CO; x 4.3 x 1.1 = 0.3 NO_x
Large 4-Cycle				
riding mowers	.015	127	24.1	
garden tractors	.021	178	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	34	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0089	x 37 x 1.1 = 0.4 HC; x 880 x 1.1 = 8.6 CO; x 29 x 1.1 = 0.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio as necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	24.1	HC
	86.0	CO
	0.8	NO_x
Commercial (from p.2)	8.2	HC
	64.9	CO
	1.5	NO_x
Grand Total	32.3	HC
	150.9	CO
	2.3	NO_x

INYO

County INYO

Year 1980

Type of Equipment (Employment)	Foresters 31	Carpenters 52	Cement Finishers 23	Electricians 121	Ex. Grading Machine Operators 25	Painters 103	Plumbers 68	Sheet Metal Workers 20	Auto Body Repairers 13	Auto Mechanics 82	Heavy Equipment Mechanics 126	Electric Power Line Installers 8	Welders 50	Dry Wall Installers 20	Truck Drivers 159	Gardeners 91	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	10	552	x160x1.1 4.3 HC
chain saws		.176					.013				.113				.019	.234	48	394	x360x1.1 9.7 CO
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0245		x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	10	578	
																(Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0056		x230x1.1 1.4 HC
Medium 4-Cycle																			x510x1.1 3.1 CO
walk-behind mowers															.011	.154	16	618	
tillers																.006	1	151	x2x1.1 0.0 NO_x
blowers							.002									.030	3	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	x32x1.1 0.6 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	25	244	x380x1.1 7.4 CO
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0177		x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	8	901	
garden tractors															.003	.026	3	712	
lawn & garden, other		.003				.029								.007		.043	7	368	x37x1.1 1.9 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	28	294	x880x1.1 44.7 CO
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	75	348	x29x1.1 1.4 NO_x
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0462		

Total Commercial Emissions

8.2 HC

64.9 CO

1.5 NO_x

County KERN

Year 1980

No. of Households 155,702

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	15,103	7.8	
trimmers	.027	4,204	17.1	
chain saws	.161	25,068	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			1.0797	x 160 x 1.1 = 190.0 HC; x 360 x 1.1 = 427.6 CO; x 1.2 x 1.1 = 1.4 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	30,673	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.7760	x 230 x 1.1 = 196.3 HC; x 510 x 1.1 = 435.3 CO; x 2 x 1.1 = 1.7 NO_x
Medium 4-cycle				
walk-behind mowers	.298	46,399	17.6	
tillers	.085	13,235	30.2	
blowers	.005	779	14.7	
shredders	.006	934	9.7	
yard vaccuums	.004	623	15.0	
electric generators	.009	1,401	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			1.3355	x 32 x 1.1 = 47.0 HC; x 380 x 1.1 = 558.2 CO; x 4.3 x 1.1 = 6.3 NO_x
Large 4-Cycle				
riding mowers	.015	2,336	24.1	
garden tractors	.021	3,270	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	623	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1639	x 37 x 1.1 = 6.7 HC; x 880 x 1.1 = 158.7 CO; x 29 x 1.1 = 5.2 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	440.0	HC
	1579.8	CO
	14.6	NO_x
Commercial (from p.2)	129.7	HC
	1172.7	CO
	30.8	NO_x
Grand Total	569.7	HC
	2752.5	CO
	45.4	NO_x

KERN

County KERN

Year 1980

Type of Equipment / Employment	Foresters 191	Carpenters 1628	Cement Finishers 305	Electricians 1444	Ex. Grading Machine Operators 859	Painters 924	Plumbers 879	Sheet Metal Workers 296	Auto Body Repairers 139	Auto Mechanics 1896	Heavy Equipment Mechanics 8337	Electric Power Line Installers 282	Welders 1959	Dry Wall Installers 181	Truck Drivers 3513	Gardeners 969	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	100	552	x160x1.1 69.1 HC
chain saws		.176					.013				.113				.019	.234	856	394	x360x1.1 155.4 CO
																	.3924		x1.2x1.1 0.5 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	103	578	
																	.0594		x230x1.1 15.0 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	188	618	x510x1.1 33.3 CO
tillers																.006	6	151	x2x1.1 0.1 NO_x
blowers							.002									.030	31	414	
shredders																.003	3	500	
yard vaccuums																.011	11	382	x32x1.1 8.4 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	42.6	244	x380x1.1 99.9 CO
																	.2391		x4.3x1.1 1.1 NO_x
Large 4-Cycle																			
riding mowers																.090	87	901	
garden tractors															.003	.026	36	712	x37x1.1 37.2 HC
lawn & garden, other		.003				.029								.007		.043	75	368	x880x1.1 884.1 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	476	294	x29x1.1 29.1 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	1844	348	
																	.9133		

$\sum \left(\text{Equip.pop.}\right) \left(\frac{\text{hrs.}}{\text{yrs.unit}}\right) \left(10^{-6}\right)$

Total Commercial Emissions 189.7 HC

1,172.7 CO

30.8 NO_x

County KINGS

Year 1980

No. of Households 25,694

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	2,492	7.8	
trimmers	.027	694	17.1	
chain saws	.161	4,137	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.1782	x 160 x 1.1 = 31.4 HC; x 360 x 1.1 = 70.6 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	5,062	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.1281	x 230 x 1.1 = 32.4 HC; x 510 x 1.1 = 71.8 CO; x 2 x 1.1 = 0.3 NO_x
Medium 4-cycle				
walk-behind mowers	.298	7,657	17.6	
tillers	.085	2,184	30.2	
blowers	.005	128	14.7	
shredders	.006	154	9.7	
yard vaccuums	.004	103	15.0	
electric generators	.009	231	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.2204	x 32 x 1.1 = 7.8 HC; x 380 x 1.1 = 92.1 CO; x 4.3 x 1.1 = 1.0 NO_x
Large 4-Cycle				
riding mowers	.015	385	24.1	
garden tractors	.021	540	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	103	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0271	x 37 x 1.1 = 1.1 HC; x 880 x 1.1 = 26.2 CO; x 29 x 1.1 = 0.9 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	72.7	HC
	260.7	CO
	2.4	NO_x
Commercial (from p.2)	24.4	HC
	204.3	CO
	5.2	NO_x
Grand Total	97.1	HC
	465.0	CO
	7.6	NO_x

KINGS

County KINGS

Year 1980

Type of Equipment (Employment)	Foresters 80	Carpenters 284	Cement Finishers 47	Electricians 158	Ex. Grading Machine Operators 88	Painters 120	Plumbers 131	Sheet Metal Workers 41	Auto Body Repairers 34	Auto Mechanics 334	Heavy Equipment Mechanics 275	Electric Power Line Installers 35	Welders 277	Dry Wall Installers 81	Truck Drivers 669	Gardeners 238	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	24	552	x160x1.1 = 12.9 HC
chain saws		.176					.013				.113				.019	.234	151	394	x360x1.1 = 28.9 CO
																	.0731		x1.2x1.1 = 0.1 NO_x
																	$\sum$ (Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	25	578	
																	.0146		x230x1.1 = 3.7 HC; x510x1.1 = 8.2 CO; x2x1.1 = 0.0 NO_x
																	(Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})		
Medium 4-Cycle																			
walk-behind mowers															.011	.154	44	618	
tillers																.006	1	151	
blowers							.002									.030	8	414	
shredders																.003	1	500	
yard vaccuums																.011	3	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	63	244	x32x1.1 = 1.6 HC; x380x1.1 = 19.7 CO; x4.3x1.1 = 0.2 NO_x
																	.0472		
																	$\sum$ (Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})		
Large 4-Cycle																			
riding mowers																.090	21	901	
garden tractors															.003	.026	8	712	
lawn & garden, other		.003				.029								.007		.043	15	368	x37x1.1 = 6.2 HC; x880x1.1 = 147.5 CO; x29x1.1 = 4.9 NO_x
air compressors		.056				.050			.250	.031	.096			.052		.012	71	294	
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	290	348	
																	.1524		
																	$\sum$ (Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})		

Total Commercial Emissions

24.4 HC

204.3 CO

5.2 NO_x

KINGS

County LAKE

Year 1980

No. of Households 23,008

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	2,232	7.8	
trimmers	.027	621	17.1	
chain saws	.161	3,704	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.1595	x 160 x 1.1 = 28.1 HC; x 360 x 1.1 = 63.2 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	4,533	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1147	x 230 x 1.1 = 29.0 HC; x 510 x 1.1 = 64.3 CO; x 2 x 1.1 = 0.3 NO_x
Medium 4-cycle				
walk-behind mowers	.298	6,856	17.6	
tillers	.085	1,956	30.2	
blowers	.005	115	14.7	
shredders	.006	138	9.7	
yard vaccuums	.004	92	15.0	
electric generators	.009	207	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1973	x 32 x 1.1 = 6.9 HC; x 380 x 1.1 = 82.5 CO; x 4.3 x 1.1 = 0.9 NO_x
Large 4-Cycle				
riding mowers	.015	345	24.1	
garden tractors	.021	483	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	92	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0242	x 37 x 1.1 = 1.0 HC; x 880 x 1.1 = 23.4 CO; x 29 x 1.1 = 0.8 NO_x

*Selected from Table 2-3 and adjusted for owner/renter mode if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	65.0	HC
	233.4	CO
	2.2	NO_x
Commercial (from p.2)	22.4	HC
	176.3	CO
	4.2	NO_x
Grand Total	87.4	HC
	409.7	CO
	6.4	NO_x

County LAKE

Year 1980

Type of Equipment \ Employment	Foresters 15	Carpenters 141	Cement Finishers 63	Electricians 329	Ex. Grading Machine Operators 68	Painters 283	Plumbers 185	Sheet Metal Workers 54	Auto Body Repairers 34	Auto Mechanics 224	Heavy Equipment Mechanics 343	Electric Power Line Installers 22	Welders 136	Dry Wall Installers 54	Truck Drivers 431	Gardeners 248	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	27	552	x160x1.1 = 11.7 HC
chain saws		.176					.013				.113				.019	.234	131	394	x360x1.1 = 26.3 CO
																	.0665		x1.2x1.1 = 0.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	27	578	
																	.0151		x230x1.1 = 3.9 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	44	618	x510x1.1 = 8.5 CO
tillers																.006	2	151	x2x1.1 = 0.0 NO_x
blowers							.002									.030	7	414	
shredders																.003	1	500	
yard vaccuums																.011	2	382	x32x1.1 = 1.7 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	68	244	x380x1.1 = 20.0 CO
																	.0480		x4.3x1.1 = 0.2 NO_x
Large 4-Cycle																			
riding mowers																.090	22	901	
garden tractors															.003	.026	7	712	
lawn & garden, other		.003				.029								.007		.043	19	368	x37x1.1 = 5.1 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	75	294	x880x1.1 = 121.5 CO
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	204	348	x29x1.1 = 3.9 NO_x
																	.1254		

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

22.4 HC

176.3 CO

4.2 NO_x

County LASSEN

Year 1980

No. of Households 8,899

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	863	7.8	
trimmers	.027	240	17.1	
chain saws	.161	1,433	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0617	x 160 x 1.1 = 10.9 HC; x 360 x 1.1 = 24.4 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1,753	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0443	x 230 x 1.1 = 11.2 HC; x 510 x 1.1 = 24.9 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	2,652	17.6	
tillers	.085	756	30.2	
blowers	.005	44	14.7	
shredders	.006	53	9.7	
yard vaccuums	.004	36	15.0	
electric generators	.009	80	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0763	x 32 x 1.1 = 2.7 HC; x 380 x 1.1 = 31.9 CO; x 4.3 x 1.1 = 0.4 NO_x
Large 4-Cycle				
riding mowers	.015	133	24.1	
garden tractors	.021	187	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	36	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0094	x 37 x 1.1 = 0.4 HC; x 880 x 1.1 = 9.1 CO; x 29 x 1.1 = 0.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

			TIMBER CUTTING
Household	25.2	HC	
	90.3	CO	
	0.9	NO_x	
Commercial (from p.2)	7.0	HC	
	56.2	CO	
	1.4	NO_x	
Grand Total W/O TIMBER CUTTING	32.2	HC	2.2
	146.5	CO	4.9
	2.3	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	34.4	HC	
	151.4	CO	
	2.3	NO_x	

Lassen

County LASSEN

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	109	114	51	46	56	23	31	9	11	25	74	18	35	7	693	61			
Small 2-Cycle																			
edgers/trimmers			.008													.101	6	552	
chain saws		.176					.013				.113				.019	.234	47	394	
																	.0216		x160x1.1 3.2 HC; x360x1.1 8.7 CO; x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	7	578	
																	.0037		x230x1.1 1.0 HC; x510x1.1 2.1 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	12	618	
tillers																.006	6	151	
blowers							.002									.030	2	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	20	244	
																	.0131		x32x1.1 0.5 HC; x380x1.1 5.5 CO; x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	5	901	
garden tractors															.003	.026	2	712	
lawn & garden, other		.003				.029								.007		.043	5	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	21	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	77	348	
																	.0112		x37x1.1 1.7 HC; x880x1.1 39.9 CO; x29x1.1 1.3 NO_x

TIMBER CUTTERS

Chainsaws $(69)(360)(.500)(10^{-6})\left\{\begin{array}{l} \times 160\times1.1 \\ \times 360\times1.1 \\ \times 1.2\times1.1 \end{array}\right. \sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

2.2 tons/yr HC; 4.9 tons/yr CO; 0.0 tons/yr NO_x

Total Commercial Emissions

7.0 HC

56.2 CO

1.4 NO_x

County LASSEN

Year 1980

Employment / Type of Equipment	Foresters 109	Carpenters 114	Cement Finishers 51	Electricians 46	Ex. Grading Machine Operators 56	Painters 23	Plumbers 31	Sheet Metal Workers 9	Auto Body Repairers 11	Auto Mechanics 25	Heavy Equipment Mechanics 79	Electric Power Line Installers 18	Welders 35	Dry Wall Installers 7	Truck Drivers 193	Gardeners 61	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	6	552	
chain saws		.176					.013				.113				.019	.234	47	394	
																	.0216		x160x1.1 3.7 HC; x360x1.1 8.7 CO; x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	7	578	
																	.0037		x230x1.1 1.0 HC; x510x1.1 2.1 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers																.011	12	618	
tillers																.154			
blowers							.002									.006	6	151	
shredders																.030	2	414	
yard vaccuums																.003	0	500	
electric generators		.059		.037		.021	.047			.011	.056	.095				.011	1	382	
																.038	20	244	
																	.0131		x32x1.1 0.5 HC; x380x1.1 5.5 CO; x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	5	901	
garden tractors																			
lawn & garden, other		.003				.029									.003	.026	2	712	
air compressors		.056				.050			.250	.031	.096			.007		.043	5	368	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.052	.016	.012	21	294	
														.074		.072	77	348	
																	.0412		x37x1.1 1.7 HC; x880x1.1 39.9 CO; x29x1.1 1.3 NO_x

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

TIMBER CUTTERS

Chainsaws $(69)(360)(.500)(10^{-6})$ { x 160x1.1 0.2 tons/yr HC; x 360x1.1 4.9 tons/yr CO; x 1.2x1.1 0.0 tons/yr NO_x } $\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

7.0 HC

56.2 CO

1.4 NO_x

County Los Angeles

Year 1980

No. of Households 2,855,775

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.063	179,914	15.0	
trimmers	.007	19,990	9.1	
chain saws	.054	154,212	15.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			5.3336	x 160 x 1.1 = 938.5 HC; x 360 x 1.1 = 2,111.7 CO; x 1.2 x 1.1 = 11.7 NO_x
Medium 2-Cycle				
walk-behind mowers	.099	282,722	31.4	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			8.8715	x 230 x 1.1 = 2,246.0 HC; x 510 x 1.1 = 4,980.3 CO; x 2 x 1.1 = 19.5 NO_x
Medium 4-cycle				
walk-behind mowers	.202	576,867	22.6	
tillers	.018	51,404	4.7	
blowers	.005	14,279	14.7	
shredders	.006	17,135	9.7	
yard vaccuums	.004	11,423	15.0	
electric generators	.009	25,702	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			15.4635	x 32 x 1.1 = 544.3 HC; x 380 x 1.1 = 6,463.7 CO; x 4.3 x 1.1 = 73.1 NO_x
Large 4-Cycle				
riding mowers	.007	19,990	24.1	
garden tractors	.009	25,702	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	11,423	49.3	
home utility, other	-0-	-0-		
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			1.6050	x 37 x 1.1 = 65.3 HC; x 880 x 1.1 = 1553.6 CO; x 29 x 1.1 = 51.2 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	3,794.1	HC
	15,109.3	CO
	155.5	NO_x
Commercial (from p.2)	2,838.7	HC
	22,625.9	CO
	563.5	NO_x
Grand Total	6,632.8	HC
	37,735.2	CO
	719.0	NO_x

LOS ANGELES

County Los Angeles

Year 1980

Type of Equipment (Employment)	Foresters 159	Carpenters 27182	Cement Finishers 4036	Electricians 19451	Ex. Grading Machine Operators 4200	Painters 17650	Plumbers 14140	Sheet Metal Workers 8792	Auto Body Repairers 5375	Auto Mechanics 48514	Heavy Equipment Mechanics 4779	Electric Power Line Installers 6503	Welders 26771	Dry Wall Installers 2727	Truck Drivers 57141	Gardeners 32023	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	3073	552	x160x1.1 1474.9 HC
chain saws		.176					.013				.113				.019	.234	16624	394	x360x1.1 3318.5 CO
																	8.3800		x1.2x1.1 11.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	3401	578	
																	1.9657		x230x1.1 497.3 HC
Medium 4-Cycle																			x510x1.1 1102.7 CO
walk-behind mowers															.011	.154	5569	618	x2x1.1 4.3 NO_x
tillers																.006	192	151	
blowers							.002									.030	991	414	
shredders																.003	96	500	
yard vaccuums																.011	353	382	x32x1.1 201.8 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	6836	244	x380x1.1 2396.0 CO
																	5.7321		x4.3x1.1 27.1 NO_x
Large 4-Cycle																			
riding mowers																.090	2887	901	
garden tractors															.003	.026	1006	712	
lawn & garden, other		.003				.029								.007		.043	1992	368	x37x1.1 664.7 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	8266	294	x880x1.1 15808.7 CO
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	88306	348	x29x1.1 521.0 NO_x
																	16.3313		

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions 2838.7 HC

22625.9 CO

563.5 NO_x

County MADERA

Year 1980

No. of Households 24,607

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	2,387	7.8	
trimmers	.027	664	17.1	
chain saws	.161	3,962	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.1706	x 160 x 1.1 = 30.0 HC; x 360 x 1.1 = 67.6 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	4,848	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1226	x 230 x 1.1 = 31.0 HC; x 510 x 1.1 = 68.8 CO; x 2 x 1.1 = 0.3 NO_x
Medium 4-cycle				
walk-behind mowers	.298	7,333	17.6	
tillers	.085	2,092	30.2	
blowers	.005	123	14.7	
shredders	.006	148	9.7	
yard vaccuums	.004	98	15.0	
electric generators	.009	221	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.2111	x 32 x 1.1 = 7.4 HC; x 380 x 1.1 = 88.2 CO; x 4.3 x 1.1 = 1.0 NO_x
Large 4-Cycle				
riding mowers	.015	369	24.1	
garden tractors	.021	517	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	98	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0259	x 37 x 1.1 = 1.1 HC; x 880 x 1.1 = 25.1 CO; x 29 x 1.1 = 0.8 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	69.5	HC	
	542.7	CO	
	2.3	NO_x	
Commercial (from p.2)	24.0	HC	
	188.4	CO	
	4.7	NO_x	
Grand Total	93.5	HC	TIMBER CUTTING 4.9
W/O TIMBER CUTTING	438.1	CO	11.0
	7.0	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	98.4	HC	
	449.1	CO	
	7.0	NO_x	

County MADERA

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
	16	151	68	351	73	299	198	57	36	240	367	93	145	57	451	556			
Small 2-Cycle																			
edgers/trimmers			.008													.101	29	552	x160x1.1 12.5 HC
chain saws		.176					.013				.113				.019	.234	141	394	x360x1.1 28.1 CO
																	.0711		x1.2x1.1 0.1 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	29	578	
																	.0161		x230x1.1 4.2 HC
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		x510x1.1 9.1 CO
Medium 4-Cycle																			x2x1.1 0.0 NO_x
walk-behind mowers															.011	.154	47	618	
tillers																.006	2	151	
blowers							.002									.030	8	414	
shredders																.003	1	500	
yard vaccuums																.011	3	382	x32x1.1 1.8 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	73	244	x380x1.1 21.3 CO
																	.0513		x4.3x1.1 0.2 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Large 4-Cycle																			
riding mowers																.090	23	901	
garden tractors															.003	.026	8	712	x37x1.1 5.5 HC
lawn & garden, other		.003				.029								.007		.043	21	368	x880x1.1 129.9 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	81	294	x29x1.1 4.2 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	819	348	
																	.1341		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

TIMBERCUTTERS

Chainsaws (154)(360)(.500)(10^{-6}) { x160x1.1 4.9 Tons/yr HC; x360x1.1 11.0 Tons/yr CO; x1.2x1.1 0.0 Tons/yr NO_x

Total Commercial Emissions

24.0 HC

188.4 CO

4.7 NO_x

County MARIN

Year 1980

No. of Households 92,903

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	1,301	2.5	
trimmers	.007	650	24.4	
chain saws	.077	7,153	19.9	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.1615	x 160 x 1.1 = 28.4 HC; x 360 x 1.1 = 63.9 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	9,941	16.9	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.1680	x 230 x 1.1 = 42.5 HC; x 510 x 1.1 = 94.2 CO; x 2 x 1.1 = 0.4 NO_x
Medium 4-cycle				
walk-behind mowers	.182	16,908	13.6	
tillers	.045	4,181	4.7	
blowers	.007	650	14.7	
shredders	.010	929	9.7	
yard vaccuums	.004	372	15.0	
electric generators	.011	1,022	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.3388	x 32 x 1.1 = 11.9 HC; x 380 x 1.1 = 141.6 CO; x 4.3 x 1.1 = 1.6 NO_x
Large 4-Cycle				
riding mowers	.007	650	24.1	
garden tractors	.009	836	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	372	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0568	x 37 x 1.1 = 2.3 HC; x 880 x 1.1 = 55.0 CO; x 29 x 1.1 = 1.8 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	25.2	HC
	354.8	CO
	4.0	NO_x
Commercial (from p.2)	73.8	HC
	575.2	CO
	14.2	NO_x
Grand Total	159.0	HC
	930.0	CO
	18.2	NO_x

MARIN

County MARIN

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	18	1084	117	614	192	481	452	302	142	1029	728	79	521	100	1509	754			
Small 2-Cycle																			
edgers/trimmers			.008													.101	77	552	x160x1.1 = 40.3 HC
chain saws		.176					.013				.113				.019	.234	474	394	x360x1.1 = 90.7 CO
																	.0292		x1.2x1.1 = 0.3 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	80	578	
																	.0462		
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 4-Cycle																			
walk-behind mowers															.011	.154	133	618	x230x1.1 = 11.7 HC
tillers																.006	5	151	x510x1.1 = 25.9 CO
blowers							.002									.030	24	414	x2x1.1 = 0.1 NO_x
shredders																.003	2	500	
yard vaccuums																.011	8	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	203	244	x32x1.1 = 5.1 HC
																	.1462		x380x1.1 = 61.1 CO
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		x4.3x1.1 = 0.7 NO_x
Large 4-Cycle																			
riding mowers																.090	68	901	
garden tractors															.003	.026	24	712	
lawn & garden, other		.003				.029								.007		.043	50	368	x37x1.1 = 16.7 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	233	294	x880x1.1 = 397.5 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	705	348	x29x1.1 = 13.1 NO_x
																	.4107		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

Total Commercial Emissions

73.8 HC

575.2 CO

14.2 NO_x

MARIN

County MARIPOSA

Year 1980

No. of Households 5,762

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	559	7.8	
trimmers	.027	156	17.1	
chain saws	.161	928	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.0400	x 160 x 1.1 = 7.0 HC; x 360 x 1.1 = 15.8 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1,135	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0287	x 230 x 1.1 = 7.3 HC; x 510 x 1.1 = 16.1 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	1,717	17.6	
tillers	.085	490	30.2	
blowers	.005	29	14.7	
shredders	.006	35	9.7	
yard vaccuums	.004	23	15.0	
electric generators	.009	52	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0494	x 32 x 1.1 = 1.7 HC; x 380 x 1.1 = 20.7 CO; x 4.3 x 1.1 = 0.2 NO_x
Large 4-Cycle				
riding mowers	.015	86	24.1	
garden tractors	.021	121	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	23	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0061	x 37 x 1.1 = 0.2 HC; x 880 x 1.1 = 5.9 CO; x 29 x 1.1 = 0.2 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	16.2	HC
	58.5	CO
	0.6	NO_x
Commercial (from p.2)	5.6	HC
	44.2	CO
	1.1	NO_x
Grand Total	21.8	HC
	102.7	CO
	1.7	NO_x

MARIPOSA

County MARIPOSA

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
	4	35	16	82	17	70	46	13	9	56	86	51	34	13	108	62			
Small 2-Cycle																			
edgers/trimmers			.008													.101	7	552	
chain saws		.176					.013				.113				.019	.234	33	394	x160x1.1 2.9 HC; x360x1.1 6.6 CO; x1.2x1.1 0.0 NO_x
																	.0167		
										$\sum$ (Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})									
Medium 2-Cycle																			
walk-behind mowers																.106	7	578	
																	.0038		
											(Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})									
Medium 4-Cycle																			
walk-behind mowers															.011	.154	11	618	
tillers																.006	0	151	
blowers							.002									.030	2	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	17	244	x32x1.1 0.4 HC; x380x1.1 5.0 CO; x4.3x1.1 0.1 NO_x
																	.0120		
											$\sum$ (Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})									
Large 4-Cycle																			
riding mowers																.090	5	901	
garden tractors															.003	.026	2	712	
lawn & garden, other		.003				.029								.007		.043	5	368	x37x1.1 1.3 HC; x880x1.1 30.5 CO; x29x1.1 1.0 NO_x
air compressors		.056				.050			.250	.031	.096			.052		.012	19	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	51	348	
																	.0314		
										$\sum$ (Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})									

Total Commercial Emissions

5.6 HC

44.2 CO

1.1 NO_x

County MENDOCINO

Year 1980

No. of Households 28,998

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	2,813	7.8	
trimmers	.027	783	17.1	
chain saws	.161	4,669	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.2011	x 160 x 1.1 = 35.4 HC; x 360 x 1.1 = 79.6 CO; x 1.2 x 1.1 = 0.3 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	5,713	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1445	x 230 x 1.1 = 36.6 HC; x 510 x 1.1 = 81.1 CO; x 2 x 1.1 = 0.3 NO_x
Medium 4-cycle				
walk-behind mowers	.298	8,641	17.6	
tillers	.085	2,465	30.2	
blowers	.005	145	14.7	
shredders	.006	174	9.7	
yard vaccuums	.004	116	15.0	
electric generators	.009	261	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.2487	x 32 x 1.1 = 8.8 HC; x 380 x 1.1 = 104.0 CO; x 4.3 x 1.1 = 1.2 NO_x
Large 4-Cycle				
riding mowers	.015	435	24.1	
garden tractors	.021	609	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	116	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0305	x 37 x 1.1 = 1.2 HC; x 880 x 1.1 = 29.6 CO; x 29 x 1.1 = 1.0 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

			TIMBER CUTTING
Household	82.0	HC	
	294.3	CO	
	2.8	NO_x	
Commercial (from p.2)	28.1	HC	
	222.1	CO	
	5.3	NO_x	
Grand Total	110.1	HC	19.1
W/O TIMBER CUTTING	516.4	CO	43.0
	8.1	NO_x	0.1
GRAND TOTAL W TIMBER CUTTING	129.2	HC	
	559.4	CO	
	8.2	NO_x	

Mendocino

County MENDOCINO

Year 1980

Employment / Type of Equipment	Foresters 18	Carpenters 172	Cement Finishers 80	Electricians 414	Ex. Grading Machine Operators 26	Painters 353	Plumbers 233	Sheet Metal Workers 67	Auto Body Repairers 43	Auto Mechanics 222	Heavy Equipment Mechanics 133	Electric Power Line Installers 28	Welders 172	Dry Wall Installers 67	Truck Drivers 543	Gardeners 313	Equipment Population	hrs. / yr.unit
Small 2-Cycle																		
edgers/trimmers			.008													.101	34	552
chain saws		.176					.013				.113				.019	.234	166	394
Medium 2-Cycle																		
walk-behind mowers																.106	34	578
Medium 4-Cycle																		
walk-behind mowers															.011	.154	55	618
tillers																.006	2	151
blowers							.002									.030	9	414
shredders																.003	1	500
yard vaccuums																.011	3	382
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	26	244
Large 4-Cycle																		
riding mowers																.090	28	901
garden tractors		.003				.029									.003	.026	9	712
lawn & garden, other		.056				.050			.250	.031	.096			.007		.043	25	368
air compressors														.052		.012	95	294
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	258	348

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

	.0232
	.0190
	.0604
	.1520

Emissions, tons/yr.

x160x1.1	14.7	HC
x360x1.1	33.1	CO
x1.2x1.1	0.1	NO_x
x230x1.1	4.9	HC
x510x1.1	10.7	CO
x2x1.1	0.0	NO_x
x32x1.1	2.1	HC
x380x1.1	25.2	CO
x4.3x1.1	0.3	NO_x
x37x1.1	6.4	HC
x880x1.1	153.1	CO
x29x1.1	4.9	NO_x

TIMBERCUTTERS

Chainsaws $(603)(360)(.500)(10^{-6})$ $\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

x 160 x 1.1	19.1	tons/yr HC
x 360 x 1.1	43.0	tons/yr CO
x 1.2 x 1.1	0.1	tons/yr NO_x

Total Commercial Emissions

28.1	HC
222.1	CO
5.3	NO_x

County MERCED

Year 1980

No. of Households 50,050

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	4,855	7.8	
trimmers	.027	1,351	17.1	
chain saws	.161	8,058	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.3471	x 160 x 1.1 = 61.1 HC; x 360 x 1.1 = 137.4 CO; x 1.2 x 1.1 = 0.5 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	9,860	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.2494	x 230 x 1.1 = 63.1 HC; x 510 x 1.1 = 140.0 CO; x 2 x 1.1 = 0.5 NO_x
Medium 4-cycle				
walk-behind mowers	.298	14,915	17.6	
tillers	.085	4,254	30.2	
blowers	.005	250	14.7	
shredders	.006	300	9.7	
yard vaccuums	.004	200	15.0	
electric generators	.009	450	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.4293	x 32 x 1.1 = 15.1 HC; x 380 x 1.1 = 179.4 CO; x 4.3 x 1.1 = 2.0 NO_x
Large 4-Cycle				
riding mowers	.015	751	24.1	
garden tractors	.021	1051	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	200	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0527	x 37 x 1.1 = 2.1 HC; x 880 x 1.1 = 51.0 CO; x 29 x 1.1 = 1.7 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	141.4	HC
	507.8	CO
	4.7	NO_x
Commercial (from p.2)	46.5	HC
	350.0	CO
	8.5	NO_x
Grand Total	187.9	HC
	857.8	CO
	13.2	NO_x

County MERCED

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
	40	587	86	274	148	259	149	64	69	619	633	41	235	43	1219	467			
Small 2-Cycle																			
edgers/trimmers			.008													.101	48	552	
chain saws		.176					.013				.113				.019	.234	309	394	
																	.1482		x160x1.1 = 26.1 HC; x360x1.1 = 58.7 CO; x1.2x1.1 = 0.2 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	50	578	
																	.0286		x230x1.1 = 7.2 HC; x510x1.1 = 16.1 CO; x2x1.1 = 0.1 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	85	618	
tillers																.006	3	151	
blowers							.002									.030	14	414	
shredders																.003	1	500	
yard vaccuums																.011	5	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	12.1	244	
																	.0913		x32x1.1 = 3.2 HC; x380x1.1 = 38.2 CO; x4.3x1.1 = 0.4 NO_x
Large 4-Cycle																			
riding mowers																.090	42	901	
garden tractors															.003	.026	16	712	
lawn & garden, other		.003				.029								.007		.043	30	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	151	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	404	348	
																	.2448		x37x1.1 = 10.0 HC; x880x1.1 = 237.0 CO; x29x1.1 = 7.8 NO_x

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

46.5 HC

350.0 CO

8.5 NO_x

County MODOC

Year 1980

No. of Households 3,738

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	363	7.8	
trimmers	.027	101	17.1	
chain saws	.161	602	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.0259	x 160 x 1.1 = 4.6 HC; x 360 x 1.1 = 10.3 CO; x 1.2 x 1.1 = 0.0 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	736	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0186	x 230 x 1.1 = 4.7 HC; x 510 x 1.1 = 10.5 CO; x 2 x 1.1 = 0.0 NO_x
Medium 4-cycle				
walk-behind mowers	.298	1114	17.6	
tillers	.085	318	30.2	
blowers	.005	19	14.7	
shredders	.006	22	9.7	
yard vaccuums	.004	15	15.0	
electric generators	.009	34	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0321	x 32 x 1.1 = 1.1 HC; x 380 x 1.1 = 13.4 CO; x 4.3 x 1.1 = 0.2 NO_x
Large 4-Cycle				
riding mowers	.015	56	24.1	
garden tractors	.021	78	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	15	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0039	x 37 x 1.1 = 0.2 HC; x 880 x 1.1 = 3.8 CO; x 29 x 1.1 = 0.1 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	10.6	HC
	38.0	CO
	0.3	NO_x
Commercial (from p.2)	2.9	HC
	23.6	CO
	0.6	NO_x
Grand Total	13.5	HC
	61.6	CO
	0.9	NO_x

MODOC

County Modoc

Year 1980

Type of Equipment (Employment)	Foresters 46	Carpenters 48	Cement Finishers 2	Electricians 19	Ex. Grading Machine Operators 24	Painters 10	Plumbers 13	Sheet Metal Workers 4	Auto Body Repairers 4	Auto Mechanics 36	Heavy Equipment Mechanics 31	Electric Power Line Installers 7	Welders 15	Dry Wall Installers 3	Truck Drivers 81	Gardeners 26	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	3	552	x160x1.1 1.6 HC
chain saws		.176					.013				.113				.019	.234	20	394	x360x1.1 3.6 CO
																	.0092		x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	3	578	
																	.0016		x230x1.1 0.4 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	5	618	x510x1.1 0.9 CO
tillers																.006	0	151	x2x1.1 0.0 NO_x
blowers							.002									.030	1	414	
shredders																.003	0	500	
yard vaccuums																.011	0	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	8	244	x32x1.1 0.2 HC
																	.0055		x380x1.1 2.3 CO
Large 4-Cycle																			x4.3x1.1 0.0 NO_x
riding mowers																.090	2	901	
garden tractors															.003	.026	1	712	
lawn & garden, other		.003				.029								.007		.043	2	368	x37x1.1 0.7 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	9	294	x880x1.1 16.8 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	32	348	x29x1.1 0.6 NO_x
																	.0173		

$\sum \left(\text{Equip.pop.}\right) \left(\frac{\text{hrs.}}{\text{yrs.unit}}\right) \left(10^{-6}\right)$

Total Commercial Emissions

2.9 HC

23.6 CO

0.6 NO_x

County MONO

Year 1980

No. of Households 8,397

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	815	7.8	
trimmers	.027	227	17.1	
chain saws	.161	1352	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.0587	x 160 x 1.1 ____10.2____ HC x 360 x 1.1 ____23.1____ CO x 1.2 x 1.1 ____0.1____ NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1,654	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0418	x 230 x 1.1 ____10.6____ HC x 510 x 1.1 ____23.5____ CO x 2 x 1.1 ____0.1____ NO_x
Medium 4-cycle				
walk-behind mowers	.298	2,502	17.6	
tillers	.085	714	30.2	
blowers	.005	42	14.7	
shredders	.006	50	9.7	
yard vaccuums	.004	34	15.0	
electric generators	.009	76	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0720	x 32 x 1.1 ____2.5____ HC x 380 x 1.1 ____30.1____ CO x 4.3 x 1.1 ____0.3____ NO_x
Large 4-Cycle				
riding mowers	.015	126	24.1	
garden tractors	.021	176	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	34	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0088	x 37 x 1.1 ____0.4____ HC x 880 x 1.1 ____8.6____ CO x 29 x 1.1 ____0.3____ NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	23.7	HC
	85.3	CO
	0.8	NO_x
Commercial (from p.2)	8.2	HC
	64.3	CO
	1.5	NO_x
Grand Total	31.9	HC
	149.6	CO
	2.3	NO_x

MONO

County MONO

Year 1980

Employment / Type of Equipment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	5	51	23	120	25	102	67	20	12	82	125	8	50	20	157	91			
Small 2-Cycle																			
edgers/trimmers			.008													.101	10	552	x160x1.1 4.3 HC
chain saws		.176					.013				.113				.019	.234	48	394	x360x1.1 9.6 CO
																	.0242		x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	10	578	
																	.0056		x230x1.1 1.4 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	16	618	x510x1.1 3.1 CO
tillers																.006	1	151	x2x1.1 0.0 NO_x
blowers							.002									.030	3	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	x32x1.1 0.6 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	25	244	x380x1.1 7.3 CO
																	.0175		x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	8	901	
garden tractors															.003	.026	3	712	
lawn & garden, other		.003				.029								.007		.043	7	368	x37x1.1 1.9 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	28	294	x880x1.1 44.3 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	75	348	x29x1.1 1.4 NO_x
																	.0457		

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

8.2 HC

64.3 CO

1.5 NO_x

County MONTEREY

Year 1985

No. of Households 103,557

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	10,045	7.8	
trimmers	.027	2,796	17.1	
chain saws	.161	16,673	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.7181	x 160 x 1.1 = 126.4 HC; x 360 x 1.1 = 284.4 CO; x 1.2 x 1.1 = 0.9 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	20,401	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.5161	x 230 x 1.1 = 130.6 HC; x 510 x 1.1 = 289.5 CO; x 2 x 1.1 = 1.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	30,860	17.6	
tillers	.085	8,802	30.2	
blowers	.005	518	14.7	
shredders	.006	621	9.7	
yard vaccuums	.004	414	15.0	
electric generators	.009	932	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.8882	x 32 x 1.1 = 31.3 HC; x 380 x 1.1 = 371.3 CO; x 4.3 x 1.1 = 4.2 NO_x
Large 4-Cycle				
riding mowers	.015	1,553	24.1	
garden tractors	.021	2,175	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	414	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1090	x 37 x 1.1 = 4.4 HC; x 880 x 1.1 = 105.5 CO; x 29 x 1.1 = 3.5 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	292.7	HC
	1050.7	CO
	9.7	NO_x
Commercial (from p.2)	112.8	HC
	807.3	CO
	19.2	NO_x
Grand Total	405.5	HC
	1,858.0	CO
	28.9	NO_x

MONTEREY

County MONTEREY

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	105	1402	121	607	285	492	368	55	125	1202	1145	151	507	107	2211	128			
Small 2-Cycle																			
edgers/trimmers			.008													.101	130	552	x160x1.1 62.8 HC
chain saws		.176					.013				.113				.019	.234	723	394	x360x1.1 141.2 CO
																	.3567		x1.2x1.1 0.5 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	136	578	
																	.0785		x230x1.1 19.9 HC
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		x510x1.1 44.0 CO
Medium 4-Cycle																			x2x1.1 0.2 NO_x
walk-behind mowers															.011	.154	222	618	
tillers																.006	8	151	
blowers							.002									.030	39	414	
shredders																.003	4	500	
yard vaccuums																.011	14	382	x32x1.1 8.0 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	273	244	x380x1.1 95.4 CO
																	.2283		x4.3x1.1 1.1 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Large 4-Cycle																			
riding mowers																.090	115	901	
garden tractors															.003	.026	40	712	
lawn & garden, other		.003				.029								.007		.043	74	368	x37x1.1 22.1 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	303	294	x880x1.1 526.7 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	849	348	x29x1.1 17.4 NO_x
																	.5441		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

Total Commercial Emissions

112.8 HC

807.3 CO

19.2 NO_x

County NAPA

Year 1980

No. of Households 40,052

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	541	2.5	
trimmers	.007	280	24.4	
chain saws	.077	3084	19.9	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$		.0696		x 160 x 1.1 = 12.3 HC; x 360 x 1.1 = 27.6 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	4286	16.9	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$		.0724		x 230 x 1.1 = 18.3 HC; x 510 x 1.1 = 40.6 CO; x 2 x 1.1 = 0.2 NO_x
Medium 4-cycle				
walk-behind mowers	.182	7,289	13.6	
tillers	.045	1,802	4.7	
blowers	.007	280	14.7	
shredders	.010	401	9.7	
yard vaccuums	.004	160	15.0	
electric generators	.011	441	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$		.1461		x 32 x 1.1 = 5.1 HC; x 380 x 1.1 = 61.1 CO; x 4.3 x 1.1 = 0.7 NO_x
Large 4-Cycle				
riding mowers	.007	280	24.1	
garden tractors	.009	360	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	160	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$		.0245		x 37 x 1.1 = 1.0 HC; x 880 x 1.1 = 23.7 CO; x 29 x 1.1 = 0.8 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	36.7	HC
	153.0	CO
	1.7	NO_x
Commercial (from p.2)	37.2	HC
	316.0	CO
	8.0	NO_x
Grand Total	73.9	HC
	469.0	CO
	9.7	NO_x

NAPA

County NAPA

Year 1980

Type of Equipment \ Employment	Foresters 10	Carpenters 560	Cement Finishers 49	Electricians 388	Ex. Grading Machine Operators 153	Painters 221	Plumbers 476	Sheet Metal Workers 124	Auto Body Repairers 59	Auto Mechanics 431	Heavy Equipment Mechanics 296	Electric Power Line Installers 26	Welders 502	Dry Wall Installers 55	Truck Drivers 635	Gardeners 351	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	36	552	x160x1.1 = 19.6 HC
chain saws		.176					.013				.113				.019	.234	232	394	x360x1.1 = 44.1 CO
																	.1113		x1.2x1.1 = 0.1 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	37	578	
																	.0215		x230x1.1 = 5.4 HC
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		x510x1.1 = 12.1 CO
Medium 4-Cycle																			x2x1.1 = 0.0 NO_x
walk-behind mowers															.011	.154	61	618	
tillers																.006	2	151	
blowers							.002									.030	11	414	
shredders																.003	1	500	
yard vaccuums																.011	4	382	x32x1.1 = 2.5 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	112	244	x380x1.1 = 30.1 CO
																	.0720		x4.3x1.1 = 0.3 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Large 4-Cycle																			
riding mowers																.090	31	901	
garden tractors															.003	.026	11	712	
lawn & garden, other		.003				.029								.007		.043	24	368	x37x1.1 = 9.7 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	106	294	x880x1.1 = 229.7 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	463	348	x29x1.1 = 7.6 NO_x
																	.2372		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

Total Commercial Emissions

37.2 HC

316.0 CO

8.0 NO_x

County NEVADA

Year 1980

No. of Households 24,759

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	2,402	7.8	
trimmers	.027	668	17.1	
chain saws	.161	3,986	35.5	
	$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})		.1717	x 160 x 1.1 = 30.2 HC; x 360 x 1.1 = 68.0 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	4,878	25.3	
	(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.1234	x 230 x 1.1 = 31.2 HC; x 510 x 1.1 = 69.2 CO; x 2 x 1.1 = 0.3 NO_x
Medium 4-cycle				
walk-behind mowers	.298	7,378	17.6	
tillers	.085	2,105	30.2	
blowers	.005	124	14.7	
shredders	.006	149	9.7	
yard vaccuums	.004	99	15.0	
electric generators	.009	223	63.7	
	$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.2124	x 32 x 1.1 = 7.5 HC; x 380 x 1.1 = 88.8 CO; x 4.3 x 1.1 = 1.0 NO_x
Large 4-Cycle				
riding mowers	.015	371	24.1	
garden tractors	.021	520	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	99	42.3	
home utility, other	-0-	-0-	-0-	
	$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.0261	x 37 x 1.1 = 1.1 HC; x 880 x 1.1 = 25.2 CO; x 29 x 1.1 = 0.8 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	10.0	HC	
	251.2	CO	
	9.3	NO_x	
Commercial (from p.2)	24.1	HC	
	189.7	CO	
	4.5	NO_x	
Grand Total w/o TIMBER CUTTING	94.1	HC	TIMBER CUTTING 1.5
	440.9	CO	5.7
	6.8	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	95.6	HC	
	446.6	CO	
	6.8	NO_x	

County NEVADA

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	16	152	68	354	73	301	199	58	37	241	363	24	147	57	464	267			
Small 2-Cycle																			
edgers/trimmers			.008													.101	29	552	x160x1.1 12.6 HC
chain saws		.176					.013				.113				.019	.234	141	394	x360x1.1 28.3 CO
																	.0715		x1.2x1.1 0.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	29	578	
																	.0162		x230x1.1 4.2 HC
Medium 4-Cycle																			x510x1.1 9.2 CO
walk-behind mowers															.011	.154	47	618	x2x1.1 0.0 NO_x
tillers																.006	2	151	
blowers							.002									.030	9	414	
shredders																.003	1	500	
yard vaccuums																.011	3	382	x32x1.1 1.8 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	73	244	x380x1.1 21.5 CO
																	.0516		x4.3x1.1 0.2 NO_x
Large 4-Cycle																			
riding mowers																.090	24	901	
garden tractors															.003	.026	8	712	
lawn & garden, other		.003				.029								.007		.043	21	368	x37x1.1 5.5 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	81	294	x880x1.1 130.7 CO
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	220	348	x29x1.1 4.2 NO_x
																	.1349		

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

TIMBERCUTTERS

Chainsaws (80)(360)(.500)(10^{-6})

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

160 x 1.1 1.5 Tons/yr HC

360 x 1.1 5.7 Tons/yr CO

1.2 x 1.1 0.0 Tons/yr NO_x

Total Commercial Emissions

24.1 HC

189.7 CO

4.5 NO_x

County ORANGE

Year 1980

No. of Households 720,984

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.063	45,422	15.0	
trimmers	.007	5,047	9.1	
chain saws	.054	38,933	15.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^6)			1.3465	x 160 x 1.1 = 237.0 HC; x 360 x 1.1 = 533.2 CO; x 1.2 x 1.1 = 3.0 NO_x
Medium 2-Cycle				
walk-behind mowers	.099	71,377	31.4	
(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			2.2416	x 230 x 1.1 = 567.1 HC; x 510 x 1.1 = 1257.5 CO; x 2 x 1.1 = 4.9 NO_x
Medium 4-cycle				
walk-behind mowers	.202	145,639	22.6	
tillers	.018	12,978	4.7	
blowers	.005	3,605	14.7	
shredders	.006	4,326	9.7	
yard vaccuums	.004	2,884	15.0	
electric generators	.009	6,489	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			3.9045	x 32 x 1.1 = 137.4 HC; x 380 x 1.1 = 1632.1 CO; x 4.3 x 1.1 = 18.5 NO_x
Large 4-Cycle				
riding mowers	.007	5,047	24.1	
garden tractors	.009	6,489	24.9	
lawn & garden, other	-o-	-o-	-.o-	
air compressors	.004	2,884	42.3	
home utility, other	-o-	-o-		
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			0.4053	x 37 x 1.1 = 16.5 HC; x 880 x 1.1 = 392.3 CO; x 29 x 1.1 = 12.9 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	958.0	HC
	3,815.1	CO
	39.3	NO_x
Commercial (from p.2)	806.8	HC
	5949.9	CO
	142.7	NO_x
Grand Total	1,764.8	HC
	9,765.0	CO
	182.0	NO_x

County ORANGE

Year 1980

Type of Equipment (Employment)	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	63	7807	1537	5367	1591	3337	3217	1764	793	9735	6491	358	4553	1917	10893	10037			
Small 2-Cycle																			
edgers/trimmers			.008													.101	102.6	552	x160x1.1 426.5 HC
chain saws		.176					.013				.113				.019	.234	4713	394	x360x1.1 959.6 CO
																	2.4232		x1.2x1.1 3.2 NO_x
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																			
Medium 2-Cycle																			
walk-behind mowers																.106	1064	578	
(Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.6149		x230x1.1 155.6 HC
Medium 4-Cycle																			x510x1.1 345.0 CO
walk-behind mowers															.011	.154	1666	618	x2x1.1 1.4 NO_x
tillers																.006	60	151	
blowers							.002									.030	309	414	
shredders																.003	30	500	
yard vaccuums																.011	110	382	x32x1.1 58.6 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	1805	244	x380x1.1 695.5 CO
																	1.6638		x4.3x1.1 7.9 NO_x
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																			
Large 4-Cycle																			
riding mowers																.090	903	901	
garden tractors															.003	.026	294	712	
lawn & garden, other		.003				.029								.007		.043	580	368	x37x1.1 166.1 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	1972	294	x880x1.1 3949.8 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	6501	348	x29x1.1 130.2 NO_x
																	4.0804		
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																			

Total Commercial Emissions 806.8 HC

5949.9 CO

142.7 NO_x

ORANGE

County PLACER

Year 1980

No. of Households 54,014

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	5,239	7.8	
trimmers	.027	1,458	17.1	
chain saws	.161	8,696	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.3746	x 160 x 1.1 = 65.9 HC; x 360 x 1.1 = 148.3 CO; x 1.2 x 1.1 = 0.5 NO_x
Medium 2-Cycle				
walk-behind mowers	.197		25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.2692	x 230 x 1.1 = 68.1 HC; x 510 x 1.1 = 151.0 CO; x 2 x 1.1 = 0.6 NO_x
Medium 4-cycle				
walk-behind mowers	.298	10,641	17.6	
tillers	.085	4,591	30.2	
blowers	.005	270	14.7	
shredders	.006	324	9.7	
yard vaccuums	.004	216	15.0	
electric generators	.009	486	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.4633	x 32 x 1.1 = 16.3 HC; x 380 x 1.1 = 193.7 CO; x 4.3 x 1.1 = 2.2 NO_x
Large 4-Cycle				
riding mowers	.015	810	24.1	
garden tractors	.021	1,134	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	216	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0569	x 37 x 1.1 = 2.3 HC; x 880 x 1.1 = 55.0 CO; x 29 x 1.1 = 1.8 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	152.6	HC
	548.0	CO
	5.1	NO_x
Commercial (from p.2)	50.5	HC
	386.6	CO
	9.5	NO_x
Grand Total	203.1	HC
	934.6	CO
	14.6	NO_x

PLACER

County PLACER

Year 1980

Type of Equipment (Employment)	Foresters 35	Carpenters 753	Cement Finishers 96	Electricians 463	Ex. Grading Machine Operators 169	Painters 302	Plumbers 272	Sheet Metal Workers 142	Auto Body Repairers 110	Auto Mechanics 756	Heavy Equipment Mechanics 417	Electric Power Line Installers 42	Welders 267	Dry Wall Installers 121	Truck Drivers 925	Gardeners 527	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	54	552	x160x1.1 = 27.7 HC
chain saws		.176					.013				.113				.019	.234	324	394	x360x1.1 = 62.4 CO
																	.1574		x1.2x1.1 = 0.2 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	56	578	
																	.0323		
Medium 4-Cycle																			
walk-behind mowers															.011	.154	91	618	x230x1.1 = 8.2 HC
tillers																.006	3	151	x510x1.1 = 18.1 CO
blowers							.002									.030	16	414	x2x1.1 = 0.1 NO_x
shredders																.003	2	500	
yard vaccuums																.011	6	382	x32x1.1 = 3.5 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	136	244	x380x1.1 = 41.8 CO
																	.099		x4.3x1.1 = 0.5 NO_x
Large 4-Cycle																			
riding mowers																.090	47	901	
garden tractors															.003	.026	17	712	x37x1.1 = 11.1 HC
lawn & garden, other		.003				.029								.007		.043	35	368	x880x1.1 = 864.3 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	161	294	x29x1.1 = 8.7 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	456	348	
																	.2730		

$\sum \left(\text{Equip.pop.}\right) \left(\frac{\text{hrs.}}{\text{yrs.unit}}\right) \left(10^{-6}\right)$

Total Commercial Emissions

50.5 HC

386.6 CO

9.5 NO_x

PLACER

County PLUMAS

Year 1980

No. of Households 9,451

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	917	7.8	
trimmers	.027	255	17.1	
chain saws	.161	1522	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0655	x 160 x 1.1 = 11.5 HC; x 360 x 1.1 = 26.0 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1,862	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0471	x 230 x 1.1 = 11.9 HC; x 510 x 1.1 = 26.4 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	2,816	17.6	
tillers	.085	803	30.2	
blowers	.005	47	14.7	
shredders	.006	57	9.7	
yard vaccuums	.004	38	15.0	
electric generators	.009	85	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0811	x 32 x 1.1 = 2.9 HC; x 380 x 1.1 = 33.9 CO; x 4.3 x 1.1 = 0.4 NO_x
Large 4-Cycle				
riding mowers	.015	142	24.1	
garden tractors	.021	198	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	38	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0100	x 37 x 1.1 = 0.4 HC; x 880 x 1.1 = 9.6 CO; x 29 x 1.1 = 0.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

			TIMBER CUTTING
Household	26.7	HC	
	95.9	CO	
	0.9	NO_x	
Commercial (from p.2)	7.4	HC	
	59.6	CO	
	1.5	NO_x	
Grand Total W/O TIMBER CUTTING	34.1	HC	2.3
	155.5	CO	5.2
	2.4	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	36.4	HC	
	160.7	CO	
	2.4	NO_x	

Plumas

County PLUMAS

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	115	121	5	48	60	25	33	9	11	91	79	19	37	1	205	65			
Small 2-Cycle																			
edgers/trimmers			.008													.101	7	552	
chain saws		.176					.013				.113				.019	.234	52	394	
																	.0232		x160x1.1 4.1 HC; x360x1.1 9.2 CO; x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	7	578	
																	.0040		x230x1.1 1.0 HC; x510x1.1 2.2 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	12	618	
tillers																.006	0	151	
blowers							.002									.030	2	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	21	244	
																	.0139		x32x1.1 0.5 HC; x380x1.1 5.8 CO; x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	6	901	
garden tractors															.003	.026	2	712	
lawn & garden, other		.003				.029								.007		.043	5	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	23	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	81	348	
																	.0438		x37x1.1 1.8 HC; x880x1.1 42.4 CO; x29x1.1 1.4 NO_x

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

TIMBERCUTTERS

Chainsaws (73)(360)(.500)(10^{-6}) { x160x1.1 2.3 tons/yr HC; x360x1.1 5.2 tons/yr CO; x1.2x1.1 0.0 tons/yr NO_x }

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Total Commercial Emissions 7.4 HC; 59.6 CO; 1.5 NO_x

County RIVERSIDE

Year 1980

No. of Households 295,119

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.063	18,592	15.0	
trimmers	.007	2,066	9.1	
chain saws	.054	15,936	15.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^6)			.5509	x 160 x 1.1 = 96.9 HC; x 360 x 1.1 = 218.1 CO; x 1.2 x 1.1 = 1.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.099	29,217	31.4	
(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.9170	x 230 x 1.1 = 232.0 HC; x 510 x 1.1 = 514.5 CO; x 2 x 1.1 = 2.0 NO_x
Medium 4-cycle				
walk-behind mowers	.202	59,614	22.6	
tillers	.018	5,312	4.7	
blowers	.005	1,476	14.7	
shredders	.006	1,771	9.7	
yard vaccuums	.004	1,180	15.0	
electric generators	.009	2,656	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			1.5974	x 32 x 1.1 = 56.2 HC; x 380 x 1.1 = 667.7 CO; x 4.3 x 1.1 = 7.6 NO_x
Large 4-Cycle				
riding mowers	.007	2,066	24.1	
garden tractors	.009	2,656	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	1,180	42.3	
home utility, other	-0-	-0-		
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.1658	x 37 x 1.1 = 6.7 HC; x 880 x 1.1 = 160.5 CO; x 29 x 1.1 = 5.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	391.9	HC
	1,560.8	CO
	16.1	NO_x
Commercial (from p.2)	270.6	HC
	2075.7	CO
	50.8	NO_x
Grand Total	662.5	HC
	3636.5	CO
	66.9	NO_x

RIVERSIDE

County RIVERSIDE

Year 1980

Type of Equipment (Employment)	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	192	3687	692	2387	1102	1310	1651	432	353	3067	2319	325	1897	475	3844	2927			
Small 2-Cycle																			
edgers/trimmers			.008													.101	301	552	
chain saws		.176					.013				.113				.019	.234	1690	394	x160x1.1 146.5 HC
																	.8323		x360x1.1 329.6 CO
																			x1.2x1.1 1.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	310	578	
																	.1793		x230x1.1 45.4 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	493	618	x510x1.1 100.6 CO
tillers																.006	18	151	x2x1.1 0.4 NO_x
blowers							.002									.030	91	414	
shredders																.003	9	500	
yard vaccuums																.011	32	382	x32x1.1 18.9 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	717	244	x380x1.1 224.3 CO
																	.5366		x4.3x1.1 2.5 NO_x
Large 4-Cycle																			
riding mowers																.090	263	901	
garden tractors															.003	.026	88	712	
lawn & garden, other		.003				.029								.007		.043	178	368	x37x1.1 59.8 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	738	294	x880x1.1 1,421.2 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	2546	348	x29x1.1 46.8 NO_x
																	1.4682		

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Total Commercial Emissions

270.6 HC

2075.7 CO

50.8 NO_x

RIVERSIDE

County SACRAMENTO

Year 1980

No. of Households 323,702

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	31,399	7.8	
trimmers	.027	8,740	17.1	
chain saws	.161	52,116	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			2.2447	x 160 x 1.1 = 395.1 HC; x 360 x 1.1 = 888.9 CO; x 1.2 x 1.1 = 3.0 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	63,769	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			1.6132	x 230 x 1.1 = 408.1 HC; x 510 x 1.1 = 905.0 CO; x 2 x 1.1 = 3.5 NO_x
Medium 4-cycle				
walk-behind mowers	.298	96,463	17.6	
tillers	.085	27,515	30.2	
blowers	.005	1,618	14.7	
shredders	.006	1,942	9.7	
yard vaccuums	.004	1,295	15.0	
electric generators	.009	2,913	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			2.7765	x 32 x 1.1 = 97.7 HC; x 380 x 1.1 = 1160.6 CO; x 4.3 x 1.1 = 13.1 NO_x
Large 4-Cycle				
riding mowers	.015	4,856	24.1	
garden tractors	.021	6,798	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	1,295	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.3408	x 37 x 1.1 = 13.9 HC; x 880 x 1.1 = 329.9 CO; x 29 x 1.1 = 10.9 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	914.8	HC
	3,284.4	CO
	30.5	NO_x
Commercial (from p.2)	302.6	HC
	2,315.8	CO
	56.6	NO_x
Grand Total	1,217.4	HC
	5,600.2	CO
	87.1	NO_x

SACRAMENTO

County SACRAMENTO

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
	210	4514	573	2172	1013	1308	1630	849	660	4529	2499	250	1597	725	5541	3155			
Small 2-Cycle																			
edgers/trimmers			.008													.101	323	552	x160x1.1 166.0 HC
chain saws		.176					.013				.113				.019	.234	1942	394	x360x1.1 373.6 CO
																	.9434		x1.2x1.1 1.2 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	334	578	
																	.1933		x230x1.1 48.9 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	547	618	x510x1.1 108.4 CO
tillers																.006	19	151	x2x1.1 0.4 NO_x
blowers							.002									.030	98	414	
shredders																.003	9	500	
yard vaccuums																.011	35	382	x32x1.1 21.1 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	817	244	x380x1.1 250.2 CO
																	.5986		x4.3x1.1 2.8 NO_x
Large 4-Cycle																			
riding mowers																.090	284	901	
garden tractors															.003	.026	99	712	
lawn & garden, other		.003				.029								.007		.043	207	368	x37x1.1 66.6 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	964	294	x880x1.1 1583.6 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	2731	348	x29x1.1 52.2 NO_x
																	1.6359		

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Total Commercial Emissions

302.6 HC

2315.8 CO

56.6 NO_x

SACRAMENTO

County SAN BENITO

Year 1980

No. of Households 8,750

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	849	7.8	
trimmers	.027	236	17.1	
chain saws	.161	1409	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0607	x 160 x 1.1 = 10.7 HC; x 360 x 1.1 = 24.0 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1724	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0436	x 230 x 1.1 = 11.0 HC; x 510 x 1.1 = 24.5 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	2608	17.6	
tillers	.085	744	30.2	
blowers	.005	44	14.7	
shredders	.006	53	9.7	
yard vaccuums	.004	35	15.0	
electric generators	.009		63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0751	x 32 x 1.1 = 2.6 HC; x 380 x 1.1 = 31.4 CO; x 4.3 x 1.1 = 0.4 NO_x
Large 4-Cycle				
riding mowers	.015	79	24.1	
garden tractors	.021	131	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	35	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0092	x 37 x 1.1 = 0.4 HC; x 880 x 1.1 = 8.9 CO; x 29 x 1.1 = 0.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	24.7	HC
	88.8	CO
	0.9	NO_x
Commercial (from p.2)	8.4	HC
	67.0	CO
	1.6	NO_x
Grand Total	33.1	HC
	155.8	CO
	2.5	NO_x

SAN BENITO

County SAN BENITO

Year 1980

Employment / Type of Equipment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	6	54	24	125	26	106	70	20	13	85	130	8	52	20	164	94			
Small 2-Cycle																			
edgers/trimmers			.008													.101	10	552	
chain saws		.176					.013				.113				.019	.234	50	394	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0252		x160x1.1 = 4.4 HC; x360x1.1 = 10.0 CO; x1.2x1.1 = 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	10	578	
(Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0057		x230x1.1 = 1.5 HC; x510x1.1 = 3.2 CO; x2x1.1 = 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	17	618	
tillers																.006	1	151	
blowers							.002									.030	3	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	26	244	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0182		x32x1.1 = 0.6 HC; x380x1.1 = 7.6 CO; x4.3x1.1 = 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	8	901	
garden tractors															.003	.026	3	712	
lawn & garden, other		.003				.029								.007		.043	7	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	29	294	
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	78	348	
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0476		x37x1.1 = 1.9 HC; x880x1.1 = 46.2 CO; x29x1.1 = 1.5 NO_x

Total Commercial Emissions

8.4 HC

67.0 CO

1.6 NO_x

County SAN BERNARDINO

Year 1980

No. of Households 369,534

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.063	23,281	15.0	
trimmers	.007	2,587	9.1	
chain saws	.054	19,955	15.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^6)			.6900	x 160 x 1.1 = 121.4 HC; x 360 x 1.1 = 273.3 CO; x 1.2 x 1.1 = 1.5 NO_x
Medium 2-Cycle				
walk-behind mowers	.099	36,584	31.4	
(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			1.1487	x 230 x 1.1 = 290.6 HC; x 510 x 1.1 = 644.5 CO; x 2 x 1.1 = 2.5 NO_x
Medium 4-cycle				
walk-behind mowers	.202	74,646	22.6	
tillers	.018	6,652	4.7	
blowers	.005	1,848	14.7	
shredders	.006	2,217	9.7	
yard vaccuums	.004	1,478	15.0	
electric generators	.009	3,326	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			2.0010	x 32 x 1.1 = 70.4 HC; x 380 x 1.1 = 836.4 CO; x 4.3 x 1.1 = 9.5 NO_x
Large 4-Cycle				
riding mowers	.007	2,587	24.1	
garden tractors	.009	3,326	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	1,478	42.3	
home utility, other	-0-	-0-		
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.2077	x 37 x 1.1 = 8.4 HC; x 880 x 1.1 = 201.0 CO; x 29 x 1.1 = 6.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	491.0	HC
	1,955.1	CO
	20.1	NO_x
Commercial (from p.2)	339.0	HC
	2599.5	CO
	63.6	NO_x
Grand Total	830.0	HC
	4554.6	CO
	83.7	NO_x

SAN BERNARDINO

County SAN BERNARDINO

Year 1980

Type of Equipment / Employment	Foresters 240	Carpenters 4617	Cement Finishers 867	Electricians 2989	Ex. Grading Machine Operators 1380	Painters 1641	Plumbers 2068	Sheet Metal Workers 541	Auto Body Repairers 442	Auto Mechanics 3841	Heavy Equipment Mechanics 2704	Electric Power Line Installers 407	Welders 2376	Dry Wall Installers 575	Truck Drivers 4814	Gardeners 3665	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	377	552	
chain saws		.176					.013				.113				.019	.234	2116	394	
																	1.0423		x160x1.1 183.5 HC; x360x1.1 412.8 CO; x1.2x1.1 1.4 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	388	578	
																	.2245		x230x1.1 56.9 HC; x510x1.1 126.0 CO; x2x1.1 0.5 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	617	618	
tillers																.006	23	151	
blowers							.002									.030	114	414	
shredders																.003	11	500	
yard vaccuums																.011	40	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	898	244	
																	.6720		x32x1.1 23.7 HC; x380x1.1 280.9 CO; x4.3x1.1 3.1 NO_x
Large 4-Cycle																			
riding mowers																.090	329	901	
garden tractors															.003	.026	110	712	
lawn & garden, other		.003				.029								.007		.043	223	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	924	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	3188	348	
																	1.8386		x37x1.1 74.9 HC; x880x1.1 1779.8 CO; x29x1.1 58.6 NO_x

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Total Commercial Emissions: 339.0 HC; 2599.5 CO; 63.6 NO_x

SAN BERNARDI

County SAN DIEGO

Year 1980

No. of Households 720,346

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.063	45,382	15.0	
trimmers	.007	5,043	9.1	
chain saws	.054	38,899	15.9	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)\left(10^6\right)$			1.3449	x 160 x 1.1 = 236.7 HC; x 360 x 1.1 = 532.6 CO; x 1.2 x 1.1 = 3.0 NO_x
Medium 2-Cycle				
walk-behind mowers	.099	71,314	31.4	
$\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^6\right)$			2.2389	x 230 x 1.1 = 566.4 HC; x 510 x 1.1 = 1,256.0 CO; x 2 x 1.1 = 4.9 NO_x
Medium 4-cycle				
walk-behind mowers	.202	145,510	22.6	
tillers	.018	12,966	4.7	
blowers	.005	3,602	14.7	
shredders	.006	4,322	9.7	
yard vaccuums	.004	2,881	15.0	
electric generators	.009	6,483	63.7	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^6\right)$			3.8999	x 32 x 1.1 = 137.3 HC; x 380 x 1.1 = 1,630.1 CO; x 4.3 x 1.1 = 18.4 NO_x
Large 4-Cycle				
riding mowers	.007	5,048	24.1	
garden tractors	.009	6,483	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	2,881	42.3	
home utility, other	-0-	-0-		
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^6\right)$			.4648	x 37 x 1.1 = 16.5 HC; x 880 x 1.1 = 391.8 CO; x 29 x 1.1 = 12.9 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	956.9	HC
	3,810.6	CO
	39.2	NO_x
Commercial (from p.2)	690.3	HC
	5,251.9	CO
	127.9	NO_x
Grand Total	1,647.2	HC
	9,062.5	CO
	167.1	NO_x

SAN DIEGO

County SAN DIEGO

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	833	8109	1059	4573	2711	3592	4357	1770	1079	8384	3952	567	4953	1978	7545	8342			
Small 2-Cycle																			
edgers/trimmers			.008													.101	851	552	x160x1.1 = 361.8 HC
chain saws		.176					.013				.113				.019	.234	4026	394	x360x1.1 = 814.1 CO
																	2.0559		x1.2x1.1 = 2.7 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	884	578	
																	.5111		x230x1.1 = 129.3 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	1368	618	x510x1.1 = 286.7 CO
tillers																.006	50	151	x2x1.1 = 1.1 NO_x
blowers							.002									.030	259	414	
shredders																.003	25	500	
yard vaccuums																.011	92	382	x32x1.1 = 49.3 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	1612	244	x380x1.1 = 585.6 CO
																	1.4009		x4.3x1.1 = 6.6 NO_x
Large 4-Cycle																			
riding mowers																.090	751	901	
garden tractors															.003	.026	240	712	
lawn & garden, other		.003				.029								.007		.043	501	368	x37x1.1 = 149.9 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	1746	294	x880x1.1 = 3565.5 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	6146	348	x29x1.1 = 117.5 NO_x
																	3.6834		

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

690.3 HC

5251.9 CO

127.9 NO_x

County SAN FRANCISCO

Year 1980

No. of Households 316,609

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	4,433	2.5	
trimmers	.007	2,216	24.4	
chain saws	.077	24,379	19.9	
	$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$	.5503		x 160 x 1.1 = 96.8 HC; x 360 x 1.1 = 217.9 CO; x 1.2 x 1.1 = 0.6 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	33,877	16.9	
	$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$	.5725		x 230 x 1.1 = 144.8 HC; x 510 x 1.1 = 321.2 CO; x 2 x 1.1 = 1.3 NO_x
Medium 4-cycle				
walk-behind mowers	.182	57,623	13.6	
tillers	.045	14,247	4.7	
blowers	.007	2,216	14.7	
shredders	.010	3,166	9.7	
yard vaccuums	.004	1,266	15.0	
electric generators	.011	3,483	63.7	
	$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$	1.1548		x 32 x 1.1 = 40.7 HC; x 380 x 1.1 = 482.7 CO; x 4.3 x 1.1 = 5.5 NO_x
Large 4-Cycle				
riding mowers	.007	2,216	24.1	
garden tractors	.009	2,849	24.9	
lawn & garden, other	-o-	-o-	-o-	
air compressors	.004	1,266	42.3	
home utility, other	-o-	-o-	-o-	
	$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$	.1937		x 37 x 1.1 = 7.9 HC; x 880 x 1.1 = 187.5 CO; x 29 x 1.1 = 6.2 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	290.3	HC
	1209.2	CO
	13.6	NO_x
Commercial (from p.2)	251.9	HC
	1961.2	CO
	48.2	NO_x
Grand Total	542.2	HC
	3170.4	CO
	61.8	NO_x

SAN FRANCISCO

County SAN FRANCISCO

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	62	3491	398	2094	654	1637	1542	1030	483	3509	2483	368	1775	341	5143	2570			
Small 2-Cycle																			
edgers/trimmers			.008													.101	263	552	x160x1.1 137.5 HC
chain saws		.176					.013				.113				.019	.234	1614	394	x360x1.1 309.3 CO
																	.7812		x1.2x1.1 1.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	273	578	
																	.1575		
Medium 4-Cycle																			
walk-behind mowers															.011	.154	452	618	x230x1.1 39.9 HC
tillers																.006	16	151	x510x1.1 88.4 CO
blowers							.002									.030	80	414	x2x1.1 0.3 NO_x
shredders																.003	8	500	
yard vaccuums																.011	28	382	x32x1.1 17.5 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	691	244	x380x1.1 208.4 CO
																	.4985		x4.3x1.1 2.3 NO_x
Large 4-Cycle																			
riding mowers																.090	231	901	
garden tractors															.003	.026	83	712	x37x1.1 57.0 HC
lawn & garden, other		.003				.029								.007		.043	171	368	x880x1.1 1355.1 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	794	294	x29x1.1 44.6 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	2404	348	
																	1.3997		

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

251.9 HC

1961.2 CO

48.2 NO_x

County SAN JOAQUIN

Year 1980

No. of Households 136,001

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	13,192	7.8	
trimmers	.027	3,672	17.1	
chain saws	.161	21,896	35.5	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)\left(10^{-6}\right)$			.9431	x 160 x 1.1 = 166.0 HC; x 360 x 1.1 = 373.5 CO; x 1.2 x 1.1 = 1.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	26,792	25.3	
$\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.6778	x 230 x 1.1 = 171.5 HC; x 510 x 1.1 = 380.2 CO; x 2 x 1.1 = 1.5 NO_x
Medium 4-cycle				
walk-behind mowers	.298	40,528	17.6	
tillers	.085	11,660	30.2	
blowers	.005	680	14.7	
shredders	.006	816	9.7	
yard vaccuums	.004	544	15.0	
electric generators	.009	1224	63.7	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			1.1665	x 32 x 1.1 = 41.1 HC; x 380 x 1.1 = 487.6 CO; x 4.3 x 1.1 = 5.5 NO_x
Large 4-Cycle				
riding mowers	.015	2,040	24.1	
garden tractors	.021	2,856	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	544	42.3	
home utility, other	-0-	-0-	-0-	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.1432	x 37 x 1.1 = 5.8 HC; x 880 x 1.1 = 138.6 CO; x 29 x 1.1 = 4.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	384.4	HC
	1379.9	CO
	12.8	NO_x
Commercial (from p.2)	117.3	HC
	973.5	CO
	24.7	NO_x
Grand Total	501.7	HC
	2,353.4	CO
	37.5	NO_x

SAN JOAQUIN

County SAN JOAQUIN

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	58	1453	315	1137	482	732	672	354	244	1625	1829	108	1161	149	3973	1013			
Small 2-Cycle																			
edgers/trimmers			.008													.101	104	552	x160x1.1 64.2 HC
chain saws		.176					.013				.113				.019	.234	781	394	x360x1.1 144.5 CO
																	.3650		x1.2x1.1 0.5 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	107	578	
																	.0621		x230x1.1 15.7 HC
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		x510x1.1 34.8 CO
Medium 4-Cycle																			x2x1.1 0.1 NO_x
walk-behind mowers															.011	.154	200	618	
tillers																.006	6	151	
blowers							.002									.030	32	414	
shredders																.003	3	500	
yard vaccuums																.011	11	382	x32x1.1 8.0 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	344	244	x380x1.1 94.9 CO
																	.2271		x4.3x1.1 1.1 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Large 4-Cycle																			
riding mowers																.090	91	901	
garden tractors															.003	.026	38	712	
lawn & garden, other		.003				.029								.007		.043	70	368	x37x1.1 29.4 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	425	294	x880x1.1 699.3 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	1328	348	x29x1.1 23.0 NO_x
																	.7224		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

Total Commercial Emissions

117.3 HC

973.5 CO

24.7 NO_x

SAN JOAQUI

SAN LUIS OBISPO

County SAN LUIS OBISPO

Year 1980

No. of Households 66,745

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	6,474	7.8	
trimmers	.027	1,802	17.1	
chain saws	.161	10,746	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.4628	x 160 x 1.1 = 21.5 HC; x 360 x 1.1 = 183.3 CO; x 1.2 x 1.1 = 0.6 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	13,149	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.3326	x 230 x 1.1 = 84.2 HC; x 510 x 1.1 = 186.6 CO; x 2 x 1.1 = 0.7 NO_x
Medium 4-cycle				
walk-behind mowers	.298	19,890	17.6	
tillers	.085	5,673	30.2	
blowers	.005	334	14.7	
shredders	.006	400	9.7	
yard vaccuums	.004	267	15.0	
electric generators	.009	601	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.5725	x 32 x 1.1 = 20.8 HC; x 380 x 1.1 = 239.3 CO; x 4.3 x 1.1 = 2.7 NO_x
Large 4-Cycle				
riding mowers	.015	1001	24.1	
garden tractors	.021	1402	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	267	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0703	x 37 x 1.1 = 2.9 HC; x 880 x 1.1 = 68.0 CO; x 29 x 1.1 = 2.2 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment
Tons/Year

Household	122.8	HC
	677.2	CO
	6.2	NO_x
Commercial (from p.2)	103.4	HC
	685.2	CO
	15.4	NO_x
Grand Total	292.2	HC
	1362.4	CO
	21.6	NO_x

County SAN LUIS OBISPO

Year 1980

Employment / Type of Equipment	Foresters 53	Carpenters 917	Cement Finishers 108	Electricians 264	Ex. Grading Machine Operators 442	Painters 328	Plumbers 365	Sheet Metal Workers 105	Auto Body Repairers 117	Auto Mechanics 627	Heavy Equipment Mechanics 267	Electric Power Line Installers 181	Welders 323	Dry Wall Installers 131	Truck Drivers 795	Gardeners 1524	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	155	552	
chain saws		.176					.013				.113				.019	.234	568	394	
																	.3092		x160x1.1 54.4 HC; x360x1.1 122.5 CO; x1.2x1.1 0.4 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	162	578	
																	.0934		x230x1.1 23.6 HC; x510x1.1 52.4 CO; x2x1.1 0.2 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	213	618	
tillers																.006	9	151	
blowers							.002									.030	46	414	
shredders																.003	5	500	
yard vaccuums																.011	17	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	185	244	
																	.2249		x32x1.1 7.9 HC; x380x1.1 94.0 CO; x4.3x1.1 1.1 NO_x
Large 4-Cycle																			
riding mowers																.090	137	901	
garden tractors															.003	.026	42	712	
lawn & garden, other		.003				.029								.007		.043	79	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	167	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	570	348	
																	.4300		x37x1.1 17.5 HC; x880x1.1 416.3 CO; x29x1.1 13.7 NO_x

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

103.4 HC

685.2 CO

15.4 NO_x

County SAN MATEO

Year 1980

No. of Households 233,494

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	3,269	2.5	
trimmers	.007	1,634	24.4	
chain saws	.077	17,979	19.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})		.4059		x 160 x 1.1 = 71.4 HC; x 360 x 1.1 = 160.7 CO; x 1.2 x 1.1 = 0.5 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	24,984	16.9	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.4222		x 230 x 1.1 = 106.8 HC; x 510 x 1.1 = 236.9 CO; x 2 x 1.1 = 0.9 NO_x
Medium 4-cycle				
walk-behind mowers	.182	42,496	13.6	
tillers	.045	10,507	4.7	
blowers	.007	1,634	14.7	
shredders	.010	2,335	9.7	
yard vaccuums	.004	934	15.0	
electric generators	.011	2,568	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.8516		x 32 x 1.1 = 30.0 HC; x 380 x 1.1 = 356.0 CO; x 4.3 x 1.1 = 4.0 NO_x
Large 4-Cycle				
riding mowers	.007	1,634	24.1	
garden tractors	.009	2,101	24.9	
lawn & garden, other	-o-	-o-	-o-	
air compressors	.004	934	42.3	
home utility, other	-o-	-o-	-o-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})		.1428		x 37 x 1.1 = 5.8 HC; x 880 x 1.1 = 138.3 CO; x 29 x 1.1 = 4.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.

**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	214.1	HC
	891.9	CO
	10.0	NO_x
Commercial (from p.2)	185.6	HC
	1445.5	CO
	35.7	NO_x
Grand Total	399.7	HC
	2337.3	CO
	45.7	NO_x

SAN MATEO

County SAN MATEO

Year 1980

Type of Equipment \ Employment	Foresters 46	Carpenters 2574	Cement Finishers 293	Electricians 1543	Ex. Grading Machine Operators 482	Painters 1208	Plumbers 1136	Sheet Metal Workers 759	Auto Body Repairers 356	Auto Mechanics 2586	Heavy Equipment Mechanics 1830	Electric Power Line Installers 198	Welders 1308	Dry Wall Installers 251	Truck Drivers 3791	Gardeners 1895	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	194	552	x160x1.1 = 101.3 HC
chain saws		.176					.013				.113				.019	.234	1190	394	x360x1.1 = 228.0 CO
																	.5758		x1.2x1.1 = 0.8 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 2-Cycle																			
walk-behind mowers																.106	201	578	
																	.1161		
																	(Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Medium 4-Cycle																			
walk-behind mowers															.011	.154	334	618	x230x1.1 = 29.4 HC
tillers																.006	11	151	x510x1.1 = 65.1 CO
blowers							.002									.030	59	414	x2x1.1 = 0.3 NO_x
shredders																.003	6	500	
yard vaccuums																.011	21	382	x32x1.1 = 12.9 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	509	244	x380x1.1 = 153.6 CO
																	.3674		x4.3x1.1 = 1.7 NO_x
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		
Large 4-Cycle																			
riding mowers																.090	171	901	
garden tractors															.003	.026	61	712	
lawn & garden, other		.003				.029								.007		.043	126	368	x37x1.1 = 42.0 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	585	294	x880x1.1 = 998.8 CO
home utility, other	.154	.107	.291	.012	.061	.007	.033	.046		.109	.088	.020	.425	.074	.016	.072	1772	348	x29x1.1 = 32.9 NO_x
																	1.0318		
																	$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})		

Total Commercial Emissions

185.6 HC

1445.5 CO

35.7 NO_x

SAN MATEO

County SANTA BARBARA

Year 1980

No. of Households 114,933

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	11,148	7.8	
trimmers	.027	3,103	17.1	
chain saws	.161	18,504	35.5	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)\left(10^{-6}\right)$			.7970	x 160 x 1.1 = 140.3 HC; x 360 x 1.1 = 315.6 CO; x 1.2 x 1.1 = 1.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	22,642	25.3	
$\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.5728	x 230 x 1.1 = 144.9 HC; x 510 x 1.1 = 321.3 CO; x 2 x 1.1 = 1.3 NO_x
Medium 4-cycle				
walk-behind mowers	.298	34,250	17.6	
tillers	.085	9,769	30.2	
blowers	.005	575	14.7	
shredders	.006	690	9.7	
yard vaccuums	.004	460	15.0	
electric generators	.009	1,034	63.7	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.9858	x 32 x 1.1 = 34.7 HC; x 380 x 1.1 = 412.1 CO; x 4.3 x 1.1 = 4.7 NO_x
Large 4-Cycle				
riding mowers	.015	1,724	24.1	
garden tractors	.021	2,414	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	460	42.3	
home utility, other	-0-	-0-	-0-	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.1310	x 37 x 1.1 = 4.9 HC; x 880 x 1.1 = 117.1 CO; x 29 x 1.1 = 3.9 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	324.8	HC
	1,166.1	CO
	11.0	NO_x
Commercial (from p.2)	147.3	HC
	1039.6	CO
	24.6	NO_x
Grand Total	472.1	HC
	2205.7	CO
	35.6	NO_x

SANTA BARBARA

County SANTA BARBARA

Year 1980

Type of Equipment \ Employment	Foresters 123	Carpenters 1111	Cement Finishers 152	Electricians 786	Ex. Grading Machine Operators 298	Painters 274	Plumbers 513	Sheet Metal Workers 160	Auto Body Repairers 148	Auto Mechanics 1584	Heavy Equipment Mechanics 1310	Electric Power Line Installers 99	Welders 632	Dry Wall Installers 240	Truck Drivers 1581	Gardeners 1981	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	201	552	x160x1.1 78.1 HC
chain saws		.176					.013				.113				.019	.234	844	394	x360x1.1 175.7 CO
																	.4436		x1.2x1.1 0.6 NO_x
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})								
Medium 2-Cycle																			
walk-behind mowers																.106	210	578	
											(Equip.pop.) (hrs./yrs.unit) (10^{-6})						.1214		x230x1.1 30.7 HC
Medium 4-Cycle																			x510x1.1 68.1 CO
walk-behind mowers															.011	.154	322	618	x2x1.1 0.3 NO_x
tillers																.006	12	151	
blowers							.002									.030	60	414	
shredders																.003	6	500	
yard vaccuums																.011	22	382	x32x1.1 10.1 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	313	244	x380x1.1 119.4 CO
																	.2857		x4.3x1.1 1.4 NO_x
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})								
Large 4-Cycle																			
riding mowers																.090	178	901	
garden tractors															.003	.026	56	712	x37x1.1 28.4 HC
lawn & garden, other		.003				.029								.007		.043	116	368	x880x1.1 676.4 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	351	294	x29x1.1 22.3 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	1010	348	
																	.6987		
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})								

Total Commercial Emissions

147.3 HC

1039.6 CO

24.6 NO_x

SANTA BARBAR

County SANTA CLARA

Year 1980

No. of Households 473,817

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	6,633	2.5	
trimmers	.007	3,317	24.4	
chain saws	.077	36,484	19.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.8236	x 160 x 1.1 = 144.9 HC; x 360 x 1.1 = 326.1 CO; x 1.2 x 1.1 = 1.0 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	50,698	16.9	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.8568	x 230 x 1.1 = 216.8 HC; x 510 x 1.1 = 480.6 CO; x 2 x 1.1 = 1.9 NO_x
Medium 4-cycle				
walk-behind mowers	.182	86,235	13.6	
tillers	.045	21,322	4.7	
blowers	.007	3,317	14.7	
shredders	.010	4,738	9.7	
yard vaccuums	.004	1,895	15.0	
electric generators	.011	5,212	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			1.7281	x 32 x 1.1 = 60.9 HC; x 380 x 1.1 = 722.3 CO; x 4.3 x 1.1 = 8.2 NO_x
Large 4-Cycle				
riding mowers	.007	3,317	24.1	
garden tractors	.009	4,264	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	1,895	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.2899	x 37 x 1.1 = 11.8 HC; x 880 x 1.1 = 280.6 CO; x 29 x 1.1 = 9.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	434.4	HC
	1,809.7	CO
	20.4	NO_x
Commercial (from p.2)	545.9	HC
	4005.5	CO
	95.7	NO_x
Grand Total	980.3	HC
	5815.2	CO
	116.1	NO_x

SANTA CLARA

County SANTA CLARA

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit
	108	5097	918	3817	967	2338	2162	1757	971	5870	4978	339	3823	1188	7562	6767		
Small 2-Cycle																		
edgers/trimmers			.008													.101	691	552
chain saws		.176					.013				.113				.019	.234	3215	394
																	1.6480	
Medium 2-Cycle																		
walk-behind mowers																.106	717	578
																	.4146	
Medium 4-Cycle																		
walk-behind mowers															.011	.154	1125	618
tillers																.006	41	151
blowers							.002									.030	207	414
shredders																.003	20	500
yard vaccuums																.011	74	382
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	1225	244
																	1.250	
Large 4-Cycle																		
riding mowers																.090	609	901
garden tractors															.003	.026	23	712
lawn & garden, other		.003				.029								.007		.043	382	368
air compressors		.056				.050			.250	.031	.096			.052		.012	1448	294
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	4616	348
																	2.7377	

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Emissions, tons/yr.		
x160x1.1	290.0	HC
x360x1.1	652.6	CO
x1.2x1.1	2.2	NO_x
x230x1.1	104.9	HC
x510x1.1	232.6	CO
x2x1.1	0.9	NO_x
x32x1.1	39.6	HC
x380x1.1	470.2	CO
x4.3x1.1	5.3	NO_x
x37x1.1	111.4	HC
x880x1.1	2,650.1	CO
x29x1.1	87.3	NO_x

Total Commercial Emissions

545.9	HC
4005.5	CO
95.7	NO_x

SANTA CLARA

County SANTA CRUZ

Year 1980

No. of Households 80,863

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	7,844	7.8	
trimmers	.027	2,183	17.1	
chain saws	.161	13,019	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.5607	x 160 x 1.1 = 98.7 HC; x 360 x 1.1 = 222.1 CO; x 1.2 x 1.1 = 0.7 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	15,930	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.4030	x 230 x 1.1 = 102.0 HC; x 510 x 1.1 = 226.1 CO; x 2 x 1.1 = 0.9 NO_x
Medium 4-cycle				
walk-behind mowers	.298	24,097	17.6	
tillers	.085	6,873	30.2	
blowers	.005	404	14.7	
shredders	.006	485	9.7	
yard vaccuums	.004	323	15.0	
electric generators	.009	728	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.6936	x 32 x 1.1 = 24.4 HC; x 380 x 1.1 = 289.9 CO; x 4.3 x 1.1 = 3.3 NO_x
Large 4-Cycle				
riding mowers	.015	1,213	24.1	
garden tractors	.021	1,698	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	323	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0851	x 37 x 1.1 = 3.5 HC; x 880 x 1.1 = 82.4 CO; x 29 x 1.1 = 2.7 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	228.6	HC
	820.5	CO
	7.6	NO_x
Commercial (from p.2)	72.3	HC
	512.2	CO
	12.0	NO_x
Grand Total	300.9	HC
	1332.7	CO
	19.6	NO_x

County SANTA CRUZ

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	79	951	101	427	288	382	317	36	71	664	546	57	294	91	1002	858			
Small 2-Cycle																			
edgers/trimmers			.008													.101	87	552	
chain saws		.176					.013				.113				.019	.234	453	394	
																	.2268		x160x1.1 39.9 HC; x360x1.1 89.8 CO; x1.2x1.1 0.3 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	91	578	
																	.0526		x230x1.1 13.3 HC; x510x1.1 29.5 CO; x2x1.1 0.1 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	143	618	
tillers																.006	5	151	
blowers							.002									.030	26	414	
shredders																.003	3	500	
yard vaccuums																.011	9	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	171	244	
																	.1467		x32x1.1 5.2 HC; x380x1.1 61.3 CO; x4.3x1.1 0.7 NO_x
Large 4-Cycle																			
riding mowers																.090	77	901	
garden tractors															.003	.026	25	712	
lawn & garden, other		.003				.029								.007		.043	51	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	178	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	528	348	
																	.3425		x37x1.1 13.9 HC; x880x1.1 331.6 CO; x29x1.1 10.9 NO_x

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

72.3 HC

512.2 CO

12.0 NO_x

SANTA CRUZ

County SHASTA

Year 1980

No. of Households 47,446

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	4,602	7.8	
trimmers	.027	1,281	17.1	
chain saws	.161	7,639	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.3290	x 160 x 1.1 = 57.9 HC; x 360 x 1.1 = 130.3 CO; x 1.2 x 1.1 = 0.4 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	9,347	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.2365	x 230 x 1.1 = 59.8 HC; x 510 x 1.1 = 132.7 CO; x 2 x 1.1 = 0.5 NO_x
Medium 4-cycle				
walk-behind mowers	.298	14,139	17.6	
tillers	.085	4,033	30.2	
blowers	.005	237	14.7	
shredders	.006	285	9.7	
yard vaccuums	.004	190	15.0	
electric generators	.009	427	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.4070	x 32 x 1.1 = 14.3 HC; x 380 x 1.1 = 170.1 CO; x 4.3 x 1.1 = 1.9 NO_x
Large 4-Cycle				
riding mowers	.015	712	24.1	
garden tractors	.021	996	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	190	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0500	x 37 x 1.1 = 2.0 HC; x 880 x 1.1 = 48.4 CO; x 29 x 1.1 = 1.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	134.0	HC	
	421.5	CO	
	4.4	NO_x	
Commercial (from p.2)	37.0	HC	
	212.7	CO	
	7.0	NO_x	
Grand Total	171.0	HC	TIMBER CUTTING 11.6
W/O TIMBER CUTTING	694.2	CO	26.0
	11.4	NO_x	0.1
GRAND TOTAL W TIMBER CUTTING	182.6	HC	
	720.2	CO	
	11.5	NO_x	

County SHASTA

Year 1980

Type of Equipment / Employment	Foresters 579	Carpenters 607	Cement Finishers 26	Electricians 243	Ex. Grading Machine Operators 299	Painters 125	Plumbers 167	Sheet Metal Workers 46	Auto Body Repairers 56	Auto Mechanics 455	Heavy Equipment Mechanics 345	Electric Power Line Installers 85	Welders 196	Dry Wall Installers 42	Truck Drivers 1077	Gardeners 225	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	33	552	x160x1.1 20.5 HC
chain saws		.176					.013				.113				.019	.234	250	394	x360x1.1 46.2 CO
																	.1166		x1.2x1.1 0.2 NO_x
										$\sum$ (Equip.pop.)	(hrs./yrs.unit)	(10^{-6})							
Medium 2-Cycle																			
walk-behind mowers																.106	35	578	
										(Equip.pop.)	(hrs./yrs.unit)	(10^{-6})					.0200		
Medium 4-Cycle																			x230x1.1 5.1 HC
walk-behind mowers															.011	.154	62	618	x510x1.1 11.2 CO
tillers																.006	2	151	x2x1.1 0.0 NO_x
blowers							.002									.030	10	414	
shredders																.003	1	500	
yard vaccuums																.011	4	382	x32x1.1 2.5 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	104	244	x380x1.1 29.2 CO
																	.0698		x4.3x1.1 0.3 NO_x
										$\sum$ (Equip.pop.)	(hrs./yrs.unit)	(10^{-6})							
Large 4-Cycle																			
riding mowers																.090	29	901	
garden tractors															.003	.026	12	712	x37x1.1 8.9 HC
lawn & garden, other		.003				.029								.007		.043	27	368	x880x1.1 212.7 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	113	294	x29x1.1 7.0 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	407	348	
																	.2197		

TIMBERCUTTERS

Chainsaws (365)(360)(.500)(10^{-6}) $\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})

160x1.1 11.6 tons/yr HC

360x1.1 26.0 tons/yr CO

1.2x1.1 0.1 tons/yr NO_x

Total Commercial Emissions

37.0 HC

299.3 CO

7.5 NO_x

County SIERRA

Year 1985

No. of Households 1,293

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	184	7.8	
trimmers	.027	51	17.1	
chain saws	.161	305	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0131	x 160 x 1.1 = 2.3 HC; x 360 x 1.1 = 5.2 CO; x 1.2 x 1.1 = 0.0 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	373	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0094	x 230 x 1.1 = 2.4 HC; x 510 x 1.1 = 5.3 CO; x 2 x 1.1 = 0.0 NO_x
Medium 4-cycle				
walk-behind mowers	.298	564	17.6	
tillers	.085	161	30.2	
blowers	.005	9	14.7	
shredders	.006	11	9.7	
yard vaccuums	.004	8	15.0	
electric generators	.009	17	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0162	x 32 x 1.1 = 0.6 HC; x 380 x 1.1 = 6.8 CO; x 4.3 x 1.1 = 0.1 NO_x
Large 4-Cycle				
riding mowers	.015	28	24.1	
garden tractors	.021	40	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	8	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0080	x 37 x 1.1 = 0.1 HC; x 880 x 1.1 = 1.9 CO; x 29 x 1.1 = 0.1 NO_x

*Selected from Table 2-3 and adjusted for owner/renter mode if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

			TIMBER CUTTING
Household	5.4	HC	
	19.8	CO	
	0.2	NO_x	
Commercial (from p.2)	1.8	HC	
	14.5	CO	
	0.3	NO_x	
Grand Total W/O TIMBER CUTTING	7.2	HC	7.8
	33.7	CO	17.6
	0.5	NO_x	0.1
GRAND TOTAL W TIMBER CUTTING	15.0	HC	
	51.3	CO	
	0.6	NO_x	

County SIERRA

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	1	12	5	27	6	23	15	4	3	12	22	2	11	4	35	2.0			
Small 2-Cycle																			
edgers/trimmers			.008													.101	2	552	
chain saws		.176					.013				.113				.019	.234	11	394	
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0054		x160x1.1 1.0 HC; x360x1.1 2.2 CO; x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	2	578	
																(Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0012		x230x1.1 0.3 HC; x510x1.1 0.7 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	4	618	
tillers																.006	0	151	
blowers							.002									.030	1	414	
shredders																.003	0	500	
yard vaccuums																.011	0	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	6	244	
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0039		x32x1.1 0.1 HC; x380x1.1 1.6 CO; x4.3x1.1 0.0 NO_x
Large 4-Cycle																			
riding mowers																.090	2	901	
garden tractors															.003	.026	1	712	
lawn & garden, other		.003				.029								.007		.043	2	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	6	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	17	348	
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0103		x37x1.1 0.4 HC; x880x1.1 10.0 CO; x29x1.1 0.3 NO_x

TIMBERCUTTERS

Chainsaws (247)(.500)(360)(10^{-6}) $\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})

- x160x1.1 7.8 tons/yr HC
- x360x1.1 17.6 tons/yr CO
- x1.2x1.1 0.1 tons/yr NO_x

Total Commercial Emissions

1.8 HC

14.5 CO

0.3 NO_x

County SISKIYOU

Year 1975

No. of Households 17,504

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	1,698	7.8	
trimmers	.027	473	17.1	
chain saws	.161	2,818	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.1214	x 160 x 1.1 = 21.4 HC; x 360 x 1.1 = 48.1 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	3,448	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0872	x 230 x 1.1 = 22.1 HC; x 510 x 1.1 = 48.9 CO; x 2 x 1.1 = 0.2 NO_x
Medium 4-cycle				
walk-behind mowers	.298	5,216	17.6	
tillers	.085	1,488	30.2	
blowers	.005	88	14.7	
shredders	.006	105	9.7	
yard vaccuums	.004	70	15.0	
electric generators	.009	158	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1501	x 32 x 1.1 = 5.3 HC; x 380 x 1.1 = 62.8 CO; x 4.3 x 1.1 = 0.7 NO_x
Large 4-Cycle				
riding mowers	.015	263	24.1	
garden tractors	.021	368	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	70	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0184	x 37 x 1.1 = 0.8 HC; x 880 x 1.1 = 17.8 CO; x 29 x 1.1 = 0.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

			TIMBER CUTTING
Household	49.6	HC	
	177.6	CO	
	1.7	NO_x	
Commercial (from p.2)	13.7	HC	
	110.4	CO	
	2.8	NO_x	
Grand Total w/o TIMBER CUTTING	63.3	HC	1.1
	288.0	CO	1.9
	4.5	NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	64.4	HC	
	289.9	CO	
	4.5	NO_x	

Siskiyou

County SISKIYOU

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit
	214	224	10	90	110	46	62	17	21	169	145	35	69	16	373	[illegible]		
Small 2-Cycle																		
edgers/trimmers			.008													.101	12	552
chain saws		.176					.013				.113				.019	.234	90	394
																	.0430	
Medium 2-Cycle																		
walk-behind mowers																.106	13	578
																	.0074	
Medium 4-Cycle																		
walk-behind mowers															.011	.154	23	618
tillers																.006	1	151
blowers							.002									.030	4	414
shredders																.003	0	500
yard vaccuums																.011	1	382
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	38	244
																	.0257	
Large 4-Cycle																		
riding mowers																.090	11	901
garden tractors															.003	.026	4	712
lawn & garden, other		.003				.029								.007		.043	10	368
air compressors		.056				.050			.250	.031	.096			.052		.012	42	294
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	151	348
																	.0810	

$\sum$ (Equip.pop.) $\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)$ (10^{-6})

TIMBER CUTTERS

Chainsaws (135)(.500)(360)(10^{-6}) {
- ×160×1.1 1.1 tons/yr HC
- ×360×1.1 1.9 tons/yr CO
- ×1.2×1.1 0.0 tons/yr NO_x

Emissions, tons/yr.

x160x1.1	7.6	HC
x360x1.1	17.0	CO
x1.2x1.1	0.1	NO_x
x230x1.1	1.9	HC
x510x1.1	4.1	CO
x2x1.1	0.0	NO_x
x32x1.1	0.9	HC
x380x1.1	10.8	CO
x4.3x1.1	0.1	NO_x
x37x1.1	3.3	HC
x880x1.1	78.5	CO
x29x1.1	2.6	NO_x

Total Commercial Emissions 13.7 HC

110.4 CO

2.8 NO_x

County SOLANO

Year 1980

No. of Households 84,270

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	1,180	2.5	
trimmers	.007	590	24.4	
chain saws	.077	6,489	19.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.1465	x 160 x 1.1 = 25.8 HC; x 360 x 1.1 = 58.0 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	9,017	16.9	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1584	x 230 x 1.1 = 38.6 HC; x 510 x 1.1 = 85.5 CO; x 2 x 1.1 = 0.3 NO_x
Medium 4-cycle				
walk-behind mowers	.182	15,337	13.6	
tillers	.045	3,792	4.7	
blowers	.007	590	14.7	
shredders	.010	843	9.7	
yard vaccuums	.004	337	15.0	
electric generators	.011	927	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.3074	x 32 x 1.1 = 10.8 HC; x 380 x 1.1 = 128.5 CO; x 4.3 x 1.1 = 1.5 NO_x
Large 4-Cycle				
riding mowers	.007	590	24.1	
garden tractors	.009	758	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	337	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0516	x 37 x 1.1 = 2.1 HC; x 880 x 1.1 = 49.9 CO; x 29 x 1.1 = 1.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	77.3	HC
	341.9	CO
	3.6	NO_x
Commercial (from p.2)	78.2	HC
	664.5	CO
	17.0	NO_x
Grand Total	155.5	HC
	986.4	CO
	20.6	NO_x

SOLANO

County SOLANO

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
	20	1177	103	816	322	464	1002	261	125	906	623	55	1057	115	1335	738			
Small 2-Cycle																			
edgers/trimmers			.008													.101	75	552	x160x1.1 41.2 HC
chain saws		.176					.013				.113				.019	.234	489	394	x360x1.1 92.7 CO
																	.2341		x1.2x1.1 0.3 NO_x
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})								
Medium 2-Cycle																			
walk-behind mowers																.106	78	578	
											(Equip.pop.) (hrs./yrs.unit) (10^{-6})						.0452		x230x1.1 11.4 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	128	618	x510x1.1 25.4 CO
tillers																.006	4	151	x2x1.1 0.1 NO_x
blowers							.002									.030	24	414	
shredders																.003	2	500	
yard vaccuums																.011	8	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	235	244	x32x1.1 5.3 HC
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})						.1514		x380x1.1 63.3 CO
Large 4-Cycle																			x4.3x1.1 0.7 NO_x
riding mowers																.090	66	901	
garden tractors															.003	.026	23	712	
lawn & garden, other		.003				.029								.007		.043	50	368	x37x1.1 20.3 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	223	294	x880x1.1 483.1 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	974	348	x29x1.1 15.9 NO_x
																	.4990		
											$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})								Total Commercial Emissions

78.2 HC

664.5 CO

17.0 NO_x

County SONOMA

Year 1980

No. of Households 124,223

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.014	1,739	2.5	
trimmers	.007	870	24.4	
chain saws	.077	9,565	19.9	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.2159	x 160 x 1.1 = 38.0 HC; x 360 x 1.1 = 85.5 CO; x 1.2 x 1.1 = 0.3 NO_x
Medium 2-Cycle				
walk-behind mowers	.107	13,292	16.9	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.2246	x 230 x 1.1 = 56.8 HC; x 510 x 1.1 = 126.0 CO; x 2 x 1.1 = 0.5 NO_x
Medium 4-cycle				
walk-behind mowers	.182	22,609	13.6	
tillers	.045	5,590	4.7	
blowers	.007	870	14.7	
shredders	.010	1,242	9.7	
yard vaccuums	.004	497	15.0	
electric generators	.011	1,366	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.4531	x 32 x 1.1 = 16.0 HC; x 380 x 1.1 = 189.4 CO; x 4.3 x 1.1 = 2.2 NO_x
Large 4-Cycle				
riding mowers	.007	870	24.1	
garden tractors	.009	1,118	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	497	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0760	x 37 x 1.1 = 3.1 HC; x 880 x 1.1 = 73.6 CO; x 29 x 1.1 = 2.4 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	113.9	HC
	474.4	CO
	5.3	NO_x
Commercial (from p.2)	120.1	HC
	866.8	CO
	20.7	NO_x
Grand Total	234.0	HC
	1341.2	CO
	26.0	NO_x

SONOMA

County SONOMA

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	81	2267	89	660	805	586	638	198	286	1352	824	216	441	143	2307	1217			
Small 2-Cycle																			
edgers/trimmers			.008													.101	124	552	x160x1.1 68.8 HC
chain saws		.176					.013				.113				.019	.234	818	394	x360x1.1 154.7 CO
																	.3907		x1.2x1.1 0.5 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	129	578	
																	.0746		x230x1.1 18.9 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	213	618	x510x1.1 41.8 CO
tillers																.006	7	151	x2x1.1 0.2 NO_x
blowers							.002									.030	38	414	
shredders																.003	4	500	
yard vaccuums																.011	13	382	x32x1.1 8.3 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	325	244	x380x1.1 98.0 CO
																	.2344		x4.3x1.1 1.1 NO_x
Large 4-Cycle																			
riding mowers																.090	110	901	
garden tractors															.003	.026	39	712	
lawn & garden, other		.003				.029								.007		.043	77	368	x37x1.1 24.1 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	367	294	x880x1.1 570.3 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	944	348	x29x1.1 18.9 NO_x
																	.5912		

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Total Commercial Emissions 120.1 HC

866.8 CO

20.7 NO_x

County STANISLAUS

Year 1980

No. of Households 102,537

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	9,946	7.8	
trimmers	.027	2,768	17.1	
chain saws	.161	16,508	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.7110	x 160 x 1.1 = 125.1 HC; x 360 x 1.1 = 281.6 CO; x 1.2 x 1.1 = 0.9 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	20,200	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.5110	x 230 x 1.1 = 129.3 HC; x 510 x 1.1 = 286.7 CO; x 2 x 1.1 = 1.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	30,556	17.6	
tillers	.085	8,716	30.2	
blowers	.005	513	14.7	
shredders	.006	615	9.7	
yard vaccuums	.004	410	15.0	
electric generators	.009	923	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.8795	x 32 x 1.1 = 31.0 HC; x 380 x 1.1 = 367.6 CO; x 4.3 x 1.1 = 4.2 NO_x
Large 4-Cycle				
riding mowers	.015	1,538	24.1	
garden tractors	.021	2,153	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	410	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.1080	x 37 x 1.1 = 4.4 HC; x 880 x 1.1 = 104.5 CO; x 29 x 1.1 = 3.4 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	289.8	HC
	1040.4	CO
	9.6	NO_x
Commercial (from p.2)	118.6	HC
	980.1	CO
	25.0	NO_x
Grand Total	408.4	HC
	2020.5	CO
	34.6	NO_x

STANISLAUS

County STANISLAUS

Year 1980

Type of Equipment \ Employment	Foresters 43	Carpenters 2188	Cement Finishers 197	Electricians 1021	Ex. Grading Machine Operators 531	Painters 614	Plumbers 705	Sheet Metal Workers 192	Auto Body Repairers 203	Auto Mechanics 1433	Heavy Equipment Mechanics 1722	Electric Power Line Installers 120	Welders 1271	Dry Wall Installers 350	Truck Drivers 2564	Gardeners 888	Equipment Population	hrs. yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	91	552	x160x1.1 67.5 HC
chain saws		.176					.013				.113				.019	.234	845	394	x360x1.1 151.8 CO
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.3834		x1.2x1.1 0.5 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	94	578	
(Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.0544		x230x1.1 13.8 HC; x510x1.1 30.5 CO; x2x1.1 0.1 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	165	618	
tillers																.006	5	151	
blowers							.002									.030	28	414	
shredders																.003	3	500	
yard vaccuums																.011	10	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	370	244	x32x1.1 7.4 HC; x380x1.1 87.7 CO; x4.3x1.1 1.0 NO_x
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.2098		
Large 4-Cycle																			
riding mowers																.090	80	901	
garden tractors															.003	.026	31	712	
lawn & garden, other		.003				.029								.007		.043	65	368	x37x1.1 29.9 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	443	294	x880x1.1 710.1 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	1396	348	x29x1.1 23.4 NO_x
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																	.7336		

Total Commercial Emissions

118.6 HC

980.1 CO

25.0 NO_x

County SUTTER

Year 1980

No. of Households 20,425

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	1,981	7.8	
trimmers	.027	551	17.1	
chain saws	.161	3,288	35.5	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)(10^{-6})$			.1416	x 160 x 1.1 = 24.9 HC; x 360 x 1.1 = 56.1 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	4,024	25.3	
$(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.1018	x 230 x 1.1 = 25.8 HC; x 510 x 1.1 = 57.1 CO; x 2 x 1.1 = 0.2 NO_x
Medium 4-cycle				
walk-behind mowers	.298	6,087	17.6	
tillers	.085	1,736	30.2	
blowers	.005	102	14.7	
shredders	.006	123	9.7	
yard vaccuums	.004	82	15.0	
electric generators	.009	184	63.7	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.1752	x 32 x 1.1 = 6.2 HC; x 380 x 1.1 = 73.2 CO; x 4.3 x 1.1 = 0.8 NO_x
Large 4-Cycle				
riding mowers	.015	306	24.1	
garden tractors	.021	429	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	82	42.3	
home utility, other	-0-	-0-	-0-	
$\sum(\text{Eq.Pop.})\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)(10^{-6})$			.0215	x 37 x 1.1 = 0.9 HC; x 880 x 1.1 = 20.8 CO; x 29 x 1.1 = 0.7 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	57.8	HC
	207.2	CO
	1.9	NO_x
Commercial (from p.2)	16.1	HC
	126.9	CO
	3.1	NO_x
Grand Total	73.9	HC
	334.1	CO
	5.0	NO_x

SUTTER

County SUTTER

Year _____

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
	77	309	14	109	125	75	83	32	23	184	178	31	122	15	337	134			
Small 2-Cycle																			
edgers/trimmers			.008													.101	14	552	
chain saws		.176					.013				.113				.019	.234	113	394	
																	.0522		x160x1.1 9.2 HC; x360x1.1 20.7 CO; x1.2x1.1 0.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	14	578	
																	.0083		x230x1.1 2.1 HC; x510x1.1 4.6 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	24	618	
tillers																.006	1	151	
blowers							.002									.030	4	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	48	244	
																	.0294		x32x1.1 1.0 HC; x380x1.1 12.3 CO; x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	12	901	
garden tractors															.003	.026	5	712	
lawn & garden, other		.003				.029								.007		.043	9	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	52	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	171	348	
																	.0993		x37x1.1 3.8 HC; x880x1.1 89.3 CO; x29x1.1 2.9 NO_x

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

Total Commercial Emissions

16.1 HC

126.9 CO

3.1 NO_x

County TEHAMA

Year 1985

No. of Households 16,556

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	1,606	7.8	
trimmers	.027	447	17.1	
chain saws	.161	2,666	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.1148	x 160 x 1.1 = 20.6 HC; x 360 x 1.1 = 45.5 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	3,262	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0825	x 230 x 1.1 = 20.9 HC; x 510 x 1.1 = 46.3 CO; x 2 x 1.1 = 0.2 NO_x
Medium 4-cycle				
walk-behind mowers	.298	4,934	17.6	
tillers	.085	1,407	30.2	
blowers	.005	83	14.7	
shredders	.006	99	9.7	
yard vaccuums	.004	66	15.0	
electric generators	.009	149	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1420	x 32 x 1.1 = 5.0 HC; x 380 x 1.1 = 59.4 CO; x 4.3 x 1.1 = 0.7 NO_x
Large 4-Cycle				
riding mowers	.015	248	24.1	
garden tractors	.021	348	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	66	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0174	x 37 x 1.1 = 0.7 HC; x 880 x 1.1 = 16.9 CO; x 29 x 1.1 = 0.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	46.2 HC	
	161.1 CO	
	1.7 NO_x	
Commercial (from p.2)	13.0 HC	
	104.4 CO	
	2.6 NO_x	
		TIMBER CUTTING
Grand Total	59.8 HC	4.1
W/O TIMBER CUTTING	272.5 CO	9.1
	4.3 NO_x	0.0
GRAND TOTAL W TIMBER CUTTING	63.9 HC	
	281.6 CO	
	4.3 NO_x	

Tehama

County TEHAMA

Year 1980

Type of Equipment / Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
	202	212	9	85	104	44	58	16	20	159	138	33	65	15	358	114			
Small 2-Cycle																			
edgers/trimmers			.008													.101	12	552	x160x1.1 7.2 HC
chain saws		.176					.013				.113				.019	.234	87	394	x360x1.1 16.1 CO
																	.0407		x1.2x1.1 0.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	12	578	
																	.0070		x230x1.1 1.8 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	22	618	x510x1.1 3.9 CO
tillers																.006	1	151	x2x1.1 0.0 NO_x
blowers							.002									.030	3	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	x32x1.1 0.9 HC
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	35	244	x380x1.1 10.2 CO
																	.0244		x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	10	901	
garden tractors															.003	.026	4	712	x37x1.1 3.1 HC
lawn & garden, other		.003				.029								.007		.043	9	368	x880x1.1 74.2 CO
air compressors		.056				.050			.250	.031	.096			.052		.012	39	294	x29x1.1 8.4 NO_x
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	142	348	
																	.0767		

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

TIMBERCUTTERS

Chainsaws (129)(.500)(360)(10^{-6})

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

- x160x1.1 → 4.1 tons/yr. HC
- x360x1.1 → 9.1 tons/yr. CO
- x1.2x1.1 → 0.0 tons/yr. NO_x

Total Commercial Emissions

13.0 HC

104.4 CO

2.6 NO_x

County TRINITY

Year 1980

No. of Households 6,350

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	616	7.8	
trimmers	.027	171	17.1	
chain saws	.161	1022	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.0440	x 160 x 1.1 = 7.8 HC; x 360 x 1.1 = 17.4 CO; x 1.2 x 1.1 = 0.1 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	1251	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0316	x 230 x 1.1 = 8.0 HC; x 510 x 1.1 = 17.8 CO; x 2 x 1.1 = 0.1 NO_x
Medium 4-cycle				
walk-behind mowers	.298	1,892	17.6	
tillers	.085	540	30.2	
blowers	.005	32	14.7	
shredders	.006	38	9.7	
yard vaccuums	.004	25	15.0	
electric generators	.009	57	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0545	x 32 x 1.1 = 1.9 HC; x 380 x 1.1 = 22.8 CO; x 4.3 x 1.1 = 0.3 NO_x
Large 4-Cycle				
riding mowers	.015	95	24.1	
garden tractors	.021	133	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	25	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0067	x 37 x 1.1 = 0.3 HC; x 880 x 1.1 = 6.5 CO; x 29 x 1.1 = 0.2 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	19.0	HC
	64.5	CO
	0.7	NO_x
Commercial (from p.2)	4.9	HC
	40.1	CO
	0.9	NO_x
Grand Total	22.9	HC
	104.6	CO
	1.6	NO_x

TRINITY

County TRINITY

Year 1980

Type of Equipment \ Employment	Foresters 78	Carpenters 81	Cement Finishers 3	Electricians 33	Ex. Grading Machine Operators 40	Painters 17	Plumbers 22	Sheet Metal Workers 6	Auto Body Repairers 8	Auto Mechanics 61	Heavy Equipment Mechanics 53	Electric Power Line Installers 13	Welders 25	Dry Wall Installers 6	Truck Drivers 138	Gardeners 44	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	4	552	
chain saws		.176					.013				.113				.019	.234	34	394	
																	.0156		x160x1.1 2.7 HC; x360x1.1 6.2 CO; x1.2x1.1 0.0 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	5	578	
																	.0027		x230x1.1 0.7 HC; x510x1.1 1.5 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	8	618	
tillers																.006	0	151	
blowers							.002									.030	1	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	14	244	
																	.0094		x32x1.1 0.3 HC; x380x1.1 3.9 CO; x4.3x1.1 0.0 NO_x
Large 4-Cycle																			
riding mowers																.090	4	901	
garden tractors															.003	.026	2	712	
lawn & garden, other		.003				.029								.007		.043	4	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	15	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	55	348	
																	.0894		x37x1.1 1.2 HC; x880x1.1 28.5 CO; x29x1.1 0.9 NO_x

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

4.9 HC

40.1 CO

0.9 NO_x

County TULARE

Year 1980

No. of Households 88,788

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	8,612	7.8	
trimmers	.027	2,397	17.1	
chain saws	.161	14,295	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.6157	x 160 x 1.1 = 108.4 HC; x 360 x 1.1 = 243.8 CO; x 1.2 x 1.1 = 0.8 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	17,491	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.4425	x 230 x 1.1 = 112.0 HC; x 510 x 1.1 = 248.2 CO; x 2 x 1.1 = 1.0 NO_x
Medium 4-cycle				
walk-behind mowers	.298	26,459	17.6	
tillers	.085	7,547	30.2	
blowers	.005	444	14.7	
shredders	.006	533	9.7	
yard vaccuums	.004	355	15.0	
electric generators	.009	799	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.7616	x 32 x 1.1 = 26.8 HC; x 380 x 1.1 = 318.3 CO; x 4.3 x 1.1 = 3.6 NO_x
Large 4-Cycle				
riding mowers	.015	1332	24.1	
garden tractors	.021	1865	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	355	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0935	x 37 x 1.1 = 3.8 HC; x 880 x 1.1 = 90.5 CO; x 29 x 1.1 = 3.0 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	251.0	HC
	900.8	CO
	8.4	NO_x
Commercial (from p.2)	84.4	HC
	706.5	CO
	18.0	NO_x
Grand Total	335.4	HC
	1607.3	CO
	26.4	NO_x

TULARE

County TULARE

Year 1980

Type of Equipment (Employment)	Foresters 275	Carpenters 982	Cement Finishers 163	Electricians 546	Ex. Grading Machine Operators 302	Painters 416	Plumbers 452	Sheet Metal Workers 140	Auto Body Repairers 118	Auto Mechanics 1155	Heavy Equipment Mechanics 952	Electric Power Line Installers 123	Welders 993	Dry Wall Installers 71	Truck Drivers 2313	Gardeners 823	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	84	552	x160x1.1 = 44.5 HC
chain saws		.176					.013				.113				.019	.234	523	394	x360x1.1 = 100.0 CO
																	.2526		x1.2x1.1 = 0.3 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	87	578	
																	.0504		
Medium 4-Cycle																			
walk-behind mowers															.011	.154	152	618	x230x1.1 = 12.8 HC
tillers																.006	5	151	x510x1.1 = 28.3 CO
blowers							.002									.030	2.6	414	x2x1.1 = 0.1 NO_x
shredders																.003	2	500	
yard vaccuums																.011	9	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	217	244	x32x1.1 = 5.7 HC
																	.1631		x380x1.1 = 68.2 CO
																			x4.3x1.1 = 0.8 NO_x
Large 4-Cycle																			
riding mowers																.090	74	901	
garden tractors															.003	.026	28	712	
lawn & garden, other		.003				.029								.007		.043	51	368	x37x1.1 = 21.4 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	8.46	294	x880x1.1 = 510.0 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	1002	348	x29x1.1 = 16.8 NO_x
																	.5268		

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

84.4 HC

706.5 CO

18.0 NO_x

TULARE

County TUOLUMNE

Year 1980

No. of Households 19,175

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	1,860	7.8	
trimmers	.027	518	17.1	
chain saws	.161	3,087	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.1330	x 160 x 1.1 = 23.4 HC; x 360 x 1.1 = 52.7 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	3,777	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0956	x 230 x 1.1 = 24.2 HC; x 510 x 1.1 = 53.6 CO; x 2 x 1.1 = 0.2 NO_x
Medium 4-cycle				
walk-behind mowers	.298	5,714	17.6	
tillers	.085	1,630	30.2	
blowers	.005	96	14.7	
shredders	.006	115	9.7	
yard vaccuums	.004	77	15.0	
electric generators	.009	173	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.1645	x 32 x 1.1 = 5.8 HC; x 380 x 1.1 = 68.7 CO; x 4.3 x 1.1 = 0.8 NO_x
Large 4-Cycle				
riding mowers	.015	288	24.1	
garden tractors	.021	403	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	77	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0202	x 37 x 1.1 = 0.8 HC; x 880 x 1.1 = 19.5 CO; x 29 x 1.1 = 0.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	54.4	HC	
	194.5	CO	
	1.8	NO_x	
Commercial (from p.2)	18.6	HC	
	146.8	CO	
	3.5	NO_x	
			TIMBER CUTTING-
Grand Total	72.8	HC	8.0
W/O TIMBER CUTTING	341.3	CO	17.8
	5.3	NO_x	0.1
GRAND TOTAL W TIMBER CUTTING	80.8	HC	
	359.1	CO	
	5.4	NO_x	

Tuolumne

County TUOLUMNE

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	12	118	53	274	57	233	154	45	28	187	286	18	114	45	353	207			
Small 2-Cycle																			
edgers/trimmers			.008													.101	22	552	
chain saws		.176					.013				.113				.019	.234	110	394	
																	.0554		x160x1.1 9.7 HC; x360x1.1 21.9 CO; x1.2x1.1 0.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	22	578	
																	.0126		x230x1.1 3.2 HC; x510x1.1 7.1 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	37	618	
tillers																.006	2	151	
blowers							.002									.030	6	414	
shredders																.003	1	500	
yard vaccuums																.011	3	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	57	244	
																	.0400		x32x1.1 1.4 HC; x380x1.1 16.6 CO; x4.3x1.1 0.2 NO_x
Large 4-Cycle																			
riding mowers																.090	17	901	
garden tractors															.003	.026	6	712	
lawn & garden, other		.003				.029								.007		.043	16	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	63	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	170	348	
																	.1045		x37x1.1 4.3 HC; x880x1.1 101.2 CO; x29x1.1 3.2 NO_x

$$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$$

TIMBER CUTTERS

Chainsaws $(250)(.500)(360)(10^{-6})\left\{\begin{array}{l} \times 160 \times 1.1 \\ \times 360 \times 1.1 \\ \times 1.2 \times 1.1 \end{array}\right. \sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

8.0 tons/yr HC

17.8 tons/yr CO

0.1 tons/yr NO_x

Total Commercial Emissions

18.6 HC

146.8 CO

3.5 NO_x

County VENTURA

Year 1980

No. of Households 183,857

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.063	11,583	15.0	
trimmers	.007	1,287	9.1	
chain saws	.054	9,928	15.9	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^6)			.3433	x 160 x 1.1 = 60.4 HC; x 360 x 1.1 = 136.0 CO; x 1.2 x 1.1 = 0.8 NO_x
Medium 2-Cycle				
walk-behind mowers	.099	18,202	31.4	
(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.5715	x 230 x 1.1 = 144.6 HC; x 510 x 1.1 = 320.6 CO; x 2 x 1.1 = 1.3 NO_x
Medium 4-cycle				
walk-behind mowers	.202	37,139	22.6	
tillers	.018	3,309	4.7	
blowers	.005	919	14.7	
shredders	.006	1,103	7.7	
yard vaccuums	.004	735	15.0	
electric generators	.009	1,655	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.9956	x 32 x 1.1 = 35.0 HC; x 380 x 1.1 = 416.1 CO; x 4.3 x 1.1 = 4.7 NO_x
Large 4-Cycle				
riding mowers	.007	1,287	24.1	
garden tractors	.009	1,655	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	735	42.3	
home utility, other	-0-	-0-		
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^6)			.1033	x 37 x 1.1 = 4.2 HC; x 880 x 1.1 = 100.0 CO; x 29 x 1.1 = 3.3 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	244.3	HC
	972.8	CO
	10.0	NO_x
Commercial (from p.2)	146.9	HC
	1139.8	CO
	25.3	NO_x
Grand Total	391.2	HC
	2112.6	CO
	35.3	NO_x

VENTURA

County VENTURA

Year 1980

Type of Equipment / Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
	50	1467	250	1843	577	792	781	228	281	1955	1437	282	1031	413	2792	1678			
Small 2-Cycle																			
edgers/trimmers			.008													.101	171	552	
chain saws		.176					.013				.113				.019	.234	876	394	x160x1.1 77.4 HC
																	.4399		x360x1.1 174.2 CO
																			x1.2x1.1 0.6 NO_x
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																			
Medium 2-Cycle																			
walk-behind mowers																.106	178	578	
																	.1028		
(Equip.pop.) (hrs./yrs.unit) (10^{-6})																			
Medium 4-Cycle																			
walk-behind mowers																.011	.154	289	618
tillers																	.006	10	151
blowers							.002										.030	52	414
shredders																	.003	5	500
yard vaccuums																	.011	18	382
electric generators		.059		.037		.021	.047			.011	.056	.095					.038	378	244
																	.3035		x32x1.1 10.7 HC
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																			x380x1.1 126.9 CO
																			x4.3x1.1 1.4 NO_x
Large 4-Cycle																			
riding mowers																.090	151	901	
garden tractors															.003	.026	52	712	
lawn & garden, other		.003				.029								.007		.043	102	368	x37x1.1 32.8 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	432	294	x880x1.1 781.0 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	1348	348	x29x1.1 23.1 NO_x
																	.8068		
$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})																			

Total Commercial Emissions

146.9 HC

1139.8 CO

25.3 NO_x

County Yolo

Year 1980

No. of Households 43,605

WORKSHEET FOR COMPUTING EMISSIONS
FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	4,230	7.8	
trimmers	.027	1,177	17.1	
chain saws	.161	7,020	35.5	
$\sum$(Eq.Pop.)(Hrs./Yr.unit)(10^{-6})			.3024	x 160 x 1.1 = 53.2 HC; x 360 x 1.1 = 119.7 CO; x 1.2 x 1.1 = 0.4 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	8,590	25.3	
(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.2173	x 230 x 1.1 = 55.0 HC; x 510 x 1.1 = 121.9 CO; x 2 x 1.1 = 0.5 NO_x
Medium 4-cycle				
walk-behind mowers	.298	12,944	17.6	
tillers	.085	3,706	30.2	
blowers	.005	218	14.7	
shredders	.006	262	9.7	
yard vaccuums	.004	174	15.0	
electric generators	.009	392	63.7	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.3740	x 32 x 1.1 = 13.2 HC; x 380 x 1.1 = 156.3 CO; x 4.3 x 1.1 = 1.8 NO_x
Large 4-Cycle				
riding mowers	.015	654	24.1	
garden tractors	.021	916	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	174	42.3	
home utility, other	-0-	-0-	-0-	
$\sum$(Eq.Pop.)(Hrs./Yr.Unit)(10^{-6})			.0459	x 37 x 1.1 = 1.9 HC; x 880 x 1.1 = 44.4 CO; x 29 x 1.1 = 1.5 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	123.3	HC
	442.3	CO
	4.2	NO_x
Commercial (from p.2)	40.8	HC
	311.9	CO
	7.7	NO_x
Grand Total	164.1	HC
	754.2	CO
	11.9	NO_x

YOLO

County Yolo

Year 1980

Type of Equipment \ Employment	Foresters	Carpenters	Cement Finishers	Electricians	Ex. Grading Machine Operators	Painters	Plumbers	Sheet Metal Workers	Auto Body Repairers	Auto Mechanics	Heavy Equipment Mechanics	Electric Power Line Installers	Welders	Dry Wall Installers	Truck Drivers	Gardeners	Equipment Population	hrs./yr.unit	Emissions, tons/yr.
	28	608	77	373	136	244	220	114	89	610	337	34	215	98	746	425			
Small 2-Cycle																			
edgers/trimmers			.008													.101	44	552	x160x1.1 = 22.4 HC
chain saws		.176					.013				.113				.019	.234	262	394	x360x1.1 = 50.3 CO
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.1271		x1.2x1.1 = 0.2 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	45	578	
																(Equip.pop.) (hrs./yrs.unit) (10^{-6})	.02760		x230x1.1 = 6.6 HC
Medium 4-Cycle																			
walk-behind mowers															.011	.154	74	618	x510x1.1 = 14.6 CO
tillers																.006	3	151	
blowers							.002									.030	13	414	x2x1.1 = 0.1 NO_x
shredders																.003	1	500	
yard vaccuums																.011	5	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	110	244	x32x1.1 = 2.8 HC
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	.0806		x380x1.1 = 33.7 CO
Large 4-Cycle																			x4.3x1.1 = 0.4 NO_x
riding mowers																.090	38	901	
garden tractors															.003	.026	13	712	
lawn & garden, other		.003				.029								.007		.043	28	368	x37x1.1 = 9.0 HC
air compressors		.056				.050			.250	.031	.096			.052		.012	130	294	x880x1.1 = 213.3 CO
home utility, other	.154	.107	.291	.012	.061	.007	.083	.046		.109	.088	.020	.425	.074	.016	.072	368	348	x29x1.1 = 7.0 NO_x
																$\sum$ (Equip.pop.) (hrs./yrs.unit) (10^{-6})	0.2204		

Total Commercial Emissions

40.8 HC

311.9 CO

7.7 NO_x

YOLO

County YUBA

Year 1980

No. of Households 19,248

WORKSHEET FOR COMPUTING EMISSIONS FROM UTILITY EQUIPMENT

Type of Equipment	Prevalence Rate*	Equipment Population	Hrs.** / Yr.Unit	Emissions, tons/year
Small 2-Cycle				
edgers	.097	1,867	7.8	
trimmers	.027	520	17.1	
chain saws	.161	3,099	35.5	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.unit}}\right)\left(10^{-6}\right)$			.1335	x 160 x 1.1 = 23.5 HC; x 360 x 1.1 = 52.9 CO; x 1.2 x 1.1 = 0.2 NO_x
Medium 2-Cycle				
walk-behind mowers	.197	3,792	25.3	
$\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.0959	x 230 x 1.1 = 24.3 HC; x 510 x 1.1 = 53.8 CO; x 2 x 1.1 = 0.2 NO_x
Medium 4-cycle				
walk-behind mowers	.298	5,736	17.6	
tillers	.085	1,636	30.2	
blowers	.005	96	14.7	
shredders	.006	115	9.7	
yard vaccuums	.004	77	15.0	
electric generators	.009	173	63.7	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.1651	x 32 x 1.1 = 5.8 HC; x 380 x 1.1 = 69.0 CO; x 4.3 x 1.1 = 0.8 NO_x
Large 4-Cycle				
riding mowers	.015	289	24.1	
garden tractors	.021	404	24.9	
lawn & garden, other	-0-	-0-	-0-	
air compressors	.004	77	42.3	
home utility, other	-0-	-0-	-0-	
$\sum\left(\text{Eq.Pop.}\right)\left(\frac{\text{Hrs.}}{\text{Yr.Unit}}\right)\left(10^{-6}\right)$			.0203	x 37 x 1.1 = 0.8 HC; x 880 x 1.1 = 19.6 CO; x 29 x 1.1 = 0.6 NO_x

*Selected from Table 2-3 and adjusted for owner/renter ratio if necessary.
**Selected from Table 2-8.

Emissions from All Utility Equipment

Tons/Year

Household	54.4	HC
	195.3	CO
	1.8	NO_x
Commercial (from p.2)	15.2	HC
	119.6	CO
	3.0	NO_x
Grand Total	69.6	HC
	314.9	CO
	4.8	NO_x

06761

County YUBA

Year 1980

Type of Equipment (Employment)	Foresters 72	Carpenters 291	Cement Finishers 13	Electricians 103	Ex. Grading Machine Operators 118	Painters 71	Plumbers 78	Sheet Metal Workers 30	Auto Body Repairers 82	Auto Mechanics 173	Heavy Equipment Mechanics 168	Electric Power Line Installers 29	Welders 115	Dry Wall Installers 14	Truck Drivers 318	Gardeners 127	Equipment Population	hrs. / yr.unit	Emissions, tons/yr.
Small 2-Cycle																			
edgers/trimmers			.008													.101	13	552	
chain saws		.176					.013				.113				.019	.234	107	394	
																	.0492		x160x1.1 8.7 HC; x360x1.1 19.5 CO; x1.2x1.1 0.1 NO_x
Medium 2-Cycle																			
walk-behind mowers																.106	13	578	
																	.0078		x230x1.1 2.0 HC; x510x1.1 4.4 CO; x2x1.1 0.0 NO_x
Medium 4-Cycle																			
walk-behind mowers															.011	.154	23	618	
tillers																.006	1	151	
blowers							.002									.030	4	414	
shredders																.003	0	500	
yard vaccuums																.011	1	382	
electric generators		.059		.037		.021	.047			.011	.056	.095				.038	45	244	
																	.0277		x32x1.1 1.0 HC; x380x1.1 11.6 CO; x4.3x1.1 0.1 NO_x
Large 4-Cycle																			
riding mowers																.090	11	901	
garden tractors															.003	.026	4	712	
lawn & garden, other		.003				.029								.007		.043	8	368	
air compressors		.056				.050			.250	.031	.096			.052		.012	49	294	
home utility, other	.154	.107	.291	.012	.061	.007	.083	.040		.109	.088	.020	.425	.074	.016	.072	161	348	
																	.0869		x37x1.1 3.5 HC; x880x1.1 84.1 CO; x29x1.1 2.8 NO_x

$\sum \left(\text{Equip.pop.}\right)\left(\frac{\text{hrs.}}{\text{yrs.unit}}\right)\left(10^{-6}\right)$

Total Commercial Emissions

15.2 HC

119.6 CO

3.0 NO_x

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Supplementary Notes

...ecutive Summary available through the Air Resources Board

Abstract (Limit: 200 words)

...emission inventory for small, gasoline-powered utility equipment was developed for ...e State of California and for each of the counties within the State. Information on ...usehold equipment populations and use patterns was collected by surveying a random ...atistical sample of 1,926 households. Commercial equipment populations and use ...tterns were estimated for each of 21 occupational categories by surveying 785 ...sinesses and government agencies. Information from these surveys was used to ...timate populations, yearly use (in hours), and average horsepower for the following ...pes of equipment: walk-behind mowers (2-cycle), walk-behind mowers (4-cycle), riding ...wers, tillers, garden tractors, blowers, edgers/trimmers, shredders, yard vacuums, ...her lawn and garden equipment, chain saws, electric generators, air compressors, ...d other. Separate data bases were developed for household and commercial use. The ...iterature on emission factors was reviewed, and the most appropriate factors were ...sed to compute tons per year of exhaust emissions of hydrocarbons, CO and NO_x. Methods ...ere presented for updating these emission inventories by utilizing yearly published ...formation on numbers of households and employment in each of the 21 selected ...ccupational categories.

Document Analysis a. Descriptors

...missions
...ydrocarbons
...arbon Monoxide
...itrogen Oxides
Spark Ignition Engines

TJ 1789 E

b. Identifiers/Open-Ended Terms

...awn and Garden Equipment
...hain Saws
...lectric Generators
Air Compressors
Emission Inventory Methods

c. COSATI Field/Group

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