PRELIMINARY NON-ATTAINMENT AREA POPULATION ESTIMATES FOR OFF-ROAD EQUIPMENT

ENERGY AND ENVIRONMENTAL ANALYSIS, INC.

1655 NORTH FORT MYER DR ARLINGTON, VIRGINIA 22209

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Prepared For:

U.S. Environmental Protection Agency

Office of Air and Radiation

2565 Plymouth Road

Ann Arbor, Michigan 48105

Prepared By:

Energy and Environmental Analysis, Inc.

1655 North Fort Myer Drive

Arlington, Virginia 22209

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1. INTRODUCTION

This memorandum presents EEA's preliminary population estimates of off-road equipment for each of the 23 non-attainment areas included in EPA's study on the contribution of non-road engines to emission inventories. The estimates were derived using EEA's methodology described in Methodology to Estimate Off-Road Equipment Populations, submitted to EPA on May 4, 1991. In addition to non-attainment area population estimates, this memorandum presents national data by equipment type on load factors, usage factors, and horsepower. A discussion regarding necessary changes to EEA's equipment classification scheme is also presented.

County level population estimates are not presented for marine equipment, airport service equipment, nor logging equipment. Population estimates for marine equipment will largely be derived from each state's Department of Natural Resources (DNR). EEA is in the process of contacting states to obtain this data. Airport service equipment population estimates will be delivered to EPA as an addendum to this memorandum. Population estimates for logging equipment were to be delivered to EPA in this memorandum. However, the methodology proved no statistical relationship between the indicators and state populations for these equipment (see Section 3 of this memorandum). As a result, EEA will use the backup methodology to arrive at county level populations, and deliver them along with airport service equipment estimates.

2. REVISIONS TO THE EQUIPMENT CLASSIFICATION SCHEME

Originally, EEA and EPA had identified over 100 equipment types that were to be considered in the analysis. However, because EEA's methodology mostly relies on data from Power Systems Research, it became necessary to alter the classification scheme. The equipment types that PSR includes in its AFTERMARKET data base did not map exactly to those originally specified by

EEA. These mapping problems were mostly caused by EEA's specification of certain low volume equipment as independent elements in the analysis. For example, EEA had originally defined forage harvesters, leaf harvesters, and fruit/nut harvesters as independent equipment types for which population estimates were to be derived separately. This created mapping problems, however, since PSR aggregates populations for these equipment (as well as others) into what they define as Other Agricultural Equipment. Given that harvesting equipment account for less than 440 nationwide unit sales per year, aggregating populations for the purpose of emissions inventory calculations does not present a major problem - specifically when the equipment use similar engines.

The fact that PSR provided less detailed data caused changes in the equipment classification scheme. The new classification scheme is shown in Appendix A. The most striking difference between the classification scheme in Appendix A and that presented in Methodology to Estimate Off-Road Equipment Populations is that under the new scheme the Public Utility class no longer exists. Under the new scheme, equipment used by municipalities is included in other equipment classes. For example, sweepers used by municipalities are now included in the Industrial Equipment class (Sweepers/Scrubbers), since PSR does not differentiate between sweepers used in industrial applications from those used by municipalities. Similarly, leaf collectors and vacuums are now under Lawn and Garden (Leaf Blowers/Vacuums), and account for a relatively low volume of 1,300 units per year. Snow removal equipment are also included in Lawn and Garden (125 units per year), while highway mowing equipment are represented by Agricultural Mowers in the Agricultural Equipment class and Commercial Turf Equipment in the Lawn and Garden class.

Another difference between the new and old classification schemes is that the use of sub-classes to categorize equipment by similar applications across an equipment class has been discontinued. Sub-classes were deemed inappropriate since they did not strengthen the statistical results. In addition, the use of classes to characterize similar equipment was a major concern of EMI - their argument being that many equipment are used in different applications.

While it is not practical, from an analytical perspective, to do away completely with the classification scheme, discontinuing the use of sub-classes should help to subdue some of the manufacturers' concerns.

3. METHODOLOGY

The methodology to distribute equipment populations to the non-attainment area makes use of activity indicators and state level populations for equipment classes. State level populations for each equipment category were acquired from PSR, while activity indicators were determined from economic data presented in the various Census publications. PSR obtains detailed sales data from manufacturers and dealers at the national level, and then utilizes engine life data as well as data on hours of use per year to derive a statistical scrappage curve, and hence estimate national populations. Given national population estimates, PSR employs U.S. Census data, PSR's survey data, and reports from dealers to distribute equipment to the state level.

In EEA's methodology, the relationship between specific activity indicators and an equipment class' state population is determined by regression analysis. In general, the model is formulated as follows:

$$STPOP_{ij} = b_0 + b_1*(AI_1) + b_2*(AI_2) + \ldots + b_n*(AI_n),$$

where, STPOP is state i's population of equipment class j and AI_1 through AI_n are the activity indicators for the equipment class at the state level. The estimated coefficients will provide the activity indices for each activity indicator, and are defined as b^*_k for k = 1, 2, ..., n.

Given the statistical relationship between equipment class j's population and the activity indicators (AI_k for k = 1, 2, ..., n), non-attainment area populations can be estimated by using activity indicators for those counties in the non-attainment area as follows:

$$NONAR_{tj} = b^*_0 + b^*_1*(AI_1) + b^*_2*(AI_2) + \ldots + b^*_n*(AI_n),$$

where, $NONAR_{tj}$ is non-attainment area t's estimated population of equipment class j, b^*_k are the estimated activity indices and AI_k are now the activity indicators for non-attainment area t (i.e., the sum of activity in the counties of non-attainment area t), for k = 1, 2, ..., n.

Finally, the estimate for $NONAR_{tj}$ must be adjusted to reflect prediction error at area t's state level. Let $ADNONAR_{tj}$ be area t's adjusted population of equipment class j. Then $ADNONAR_{tj}$ is defined as:

$$ADNONAR_{tj} = NONAR_{tj} * r,$$

$$\text{where, } r = \frac{\text{actual } STPOP_{ij}}{\text{predicted } STPOP_{ij}}.$$

For non-attainment areas that span more than one state, r is simply the arithmetic average of the estimation error for each relevant state

Given $ADNONAR_{tj}$, a population estimate for each equipment type in class j can be found by applying the ratio of that type's national population relative to the national population of class j. In this manner, when these fractions are multiplied by $ADNONAR_{tj}$ the results are population estimates for each equipment type included in the study. Similarly, applying national fractions for gasoline and diesel result with independent population estimates by fuel type, for each equipment type, at the non-attainment level.

This section provides population estimates derived by the above methodology. For each equipment class, many regression models employing different activity indicators were tested to determine the "best" model to estimate equipment populations at the non-attainment area level. EEA used three criteria to determine the "best" model:

- The model had to have a SQUARED MULTIPLE R (i.e., R^2) of greater than 0.8, allowing for a maximum of two outliers. (SQUARED MULTIPLE R denotes the proportion of variance in the dependent variable accounted for by the predictor.)

- The model's constant term could <u>not</u> be significantly different from zero at a 95% confidence level (i.e., accept the null hypothesis that the constant is not significantly different from zero), while the model's coefficient(s) had to be significantly different from zero at a 95% confidence level (i.e., reject the null hypothesis that the coefficient(s) of the predictor(s) is not significantly different from zero).

- If more than one model met these criteria, the one that made use of the more intuitive indicator was used.

What follows is a detailed discussion of the activity indicators that were used and the regression results for each equipment class' "best" model.

3.1 Class 1: Lawn and Garden Equipment

In general, lawn and garden equipment are used by households living in a single family housing unit where such equipment have use-value and by landscaping companies that provide lawn and gardening services to apartment complexes, office buildings, and households. Single family housing units can be defined as suburban-type detached 'one-family' homes typical to all metropolitan areas. Such a definition implicitly describes housing units that will most likely have lawn areas where lawn and garden equipment can be applied. On the other hand, landscaping services have become a growing industry in recent years. While such services have been traditionally employed by office complexes and apartment buildings, smaller landscaping companies have sprung up that provide services to suburban households.

EEA used two activity indicators to distribute lawn and garden equipment from the state level to the non-attainment area level. First, the number of single family housing units in a given area provides an estimate of the number of lawn and garden equipment that may be owned by households in that area. Second, some households may use landscaping services and, thus, not own any lawn and garden equipment, while apartment complexes and office buildings may

rely on landscaping companies to service their lawn and garden needs. To account for equipment owned by landscaping companies, SIC 078 - Landscape and Horticultural Services (Employees) - was used as a complementary indicator to distribute equipment to the county level.

The model that met the three criteria stipulated above was a multivariate model with both indicators as the independent variables and PSR's population of Class 1 equipment as the dependent variable. The regression results are presented in Table 1. The condition indices in Table 1 are the square roots of the ratio of the largest eigenvalue to each successive eigenvalue. A condition index greater than 15 indicates a possible problem with collinearity, while one greater than 30 indicates a serious problem. Although the two indicators for Class 1 are highly correlated (as shown by the correlation matrix of regression coefficients), the low condition indices indicate that a collinearity problem is not present and, thus, the predictor variables do not comprise a redundant set.

3.2 Class 3: Recreational Equipment

Determining an activity indicator for recreational equipment proved to be difficult at first. EEA tested many general indicators (such as, per capita income, population density, and percent of land that is public), but found no significant statistical relationships. With the premise that supply indicates demand, EEA tested the statistical power of SIC 557 - Motorcycle Dealers (Establishments) - in predicting recreational equipment populations. The results are shown in Table 2. It is clear that the model meets the first two criteria for "best" model. Realizing that most motorcycle dealers also sell ATV's, off-road motorcycles, minibikes, snowmobiles, and other recreational equipment, the use of SIC 557 as the activity indicator for Class 3 also is intuitively consistent - satisfying the third criterion.

While data for SIC 557 was available for most non-attainment areas, such data was not available for any of the counties in the following areas: Baton Rouge CMSA, El Paso CMSA, Provo-Orem CMSA, and Spokane CMSA. In these cases an

Table 1

Class 1: Lawn and Garden Equipment
"Best" Model

MODEL: PSRCLS1 = a + b(SINHOM) + c(EMP078)
PSRCLS1 = PSR STATE EQUIPMENT POPULATIONS FOR CLASS 1 (x1000)
SINHOM = NUMBER OF SINGLE FAMILY HOMES IN A STATE (x1000)
EMP078 = SIC 078 (EMPLOYEES) - LANDSCAPING AND HORTICULTURAL SERVICES (x1000)

EIGENVALUES OF UNIT SCALED X'X

1	2	3
2.607524	0.351239	0.041237

CONDITION INDICES

1	2	3
1.000000	2.724665	7.951883

VARIANCE PROPORTIONS

	1	2	3
CONSTANT	0.033516	0.543053	0.423431
SINHOM	0.009615	0.006082	0.984303
EMP078	0.013726	0.098443	0.887832

DEP VAR: PSRCLS1 N: 23 MULTIPLE R: .987 SQUARED MULTIPLE R: .974
ADJUSTED SQUARED MULTIPLE R: .971 STANDARD ERROR OF ESTIMATE: 525.073022

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-206.945392	201.375597	0.000000	.	-1.02766	0.31638
SINHOM	1.205430	0.196926	0.504833	0.19204	6.12122	0.00001
EMP078	173.441621	28.160237	0.507957	0.19204	6.15910	0.00001

CORRELATION MATRIX OF REGRESSION COEFFICIENTS

	CONSTANT	SINHOM	EMP078
CONSTANT	1.000000		
SINHOM	-0.685108	1.000000	
EMP078	0.403371	-0.898867	1.000000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	.205558E+09	2	.102779E+09	372.790208	0.000002
RESIDUAL	.551403E+07	20	.275702E+06		

Table 2

Class 3: Recreational Equipment
"Best" Model

MODEL: PSRCLS3 = a + b(EST557)
PSRCLS3 = PSR STATE EQUIPMENT POPULATIONS FOR CLASS 3 (x1000)
EST557 = SIC 557 (ESTABLISHMENTS) - MOTORCYCLE DEALERS

DEP VAR: PSRCLS3 N: 23 MULTIPLE R: .919 SQUARED MULTIPLE R: 844
ADJUSTED SQUARED MULTIPLE R: .837 STANDARD ERROR OF ESTIMATE: 26.655695

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	1.760700	8.663613	0.000000	.	0.20323	0.84091
EST557	0.616462	0.057767	0.918862	1.00000	.11E+02	0.00000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	.809155E+05	1	.809155E+05	113.881062	0.000000
RESIDUAL	.149210E+05	21	710.526056		

alternative model using SIC 55 - Automotive Dealers and Service Stations (Employees) - was used as a substitute. Given that SIC 557 is a subset of SIC 55, the use of SIC 55 as an indicator is not necessarily inconsistent with the analytical approach, although it is less intuitive Regression results for this alternative model are shown in Table 3.

3.3 Class 5: Light Commercial Equipment (< 50 HP)

Light commercial equipment are generally used in light manufacturing, and various wholesaling and retailing activities. The all encompassing nature of these equipment, in regard to applications, created difficulties in the identification of relevant activity indicators

EEA tested many models employing various SIC codes for explanatory power, but the model that resulted with the best statistical results used total wholesale activity (number of establishments) as the indicator Regression results for this model are presented in Table 4. Note that while the model meets two of the criteria for "best" model, its R^2 is below 0.8 at 0.698. Figure 1 shows the scatter plot between PSR' state light commercial equipment populations and wholesale trade at the state level. It also shows the regression line calculated by the model in Table 4. Clearly, Texas and New York are outliers in this model; Texas' equipment population being underestimated, while New York's overestimated. Eliminating the two outliers from the model resulted with an R^2 of 0.902, other statistics not changing significantly. The close scatter of other states, nine states actually on the regression line, indicates that this model meets the assumption, needed for hypothesis tests, of homogeneity of variance in the residuals across different values of the independent variable. This in turn suggests that the model will provide reliable estimates. Moreover, given that the methodology adjusts for estimation errors through r, the estimates for non-attainment areas in New York and Texas will also be reliable, although not as much so

Table 3

Class 3: Recreational Equipment
Alternative Model for Selected Non-Attainment Areas

MODEL: PSRCLS3 = a + b(EMP55)
PSRCLS3 = PSR STATE EQUIPMENT POPULATIONS FOR CLASS 3 (x1000)
EMP55 = SIC 55 (EMPLOYEES) - AUTOMOTIVE DEALERS AND SERVICE STATIONS (x1000)

DEP VAR: PSRCLS3 N: 23 MULTIPLE R: .942 SQUARED MULTIPLE R: .887
ADJUSTED SQUARED MULTIPLE R: .881 STANDARD ERROR OF ESTIMATE: 22.744393

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-9.785675	7.993347	0.000000	.	-1.22423	0.23442
EMP55	1.267529	0.098899	0.941619	1.00000	.13E+02	0.00000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	.849731E+05	1	.849731E+05	164.260267	0.000000
RESIDUAL	.108635E+05	21	517.307411		

Table 4

Class 5: Light Commercial Equipment
"Best" Model

MODEL: PSRCLS5 = a + b(ESTWHSL)
PSRCLS5 = PSR STATE EQUIPMENT POPULATIONS FOR CLASS 5 (x1000)
ESTWHSL = TOTAL WHOLESALE TRADE (ESTABLISHMENTS) (x1000)

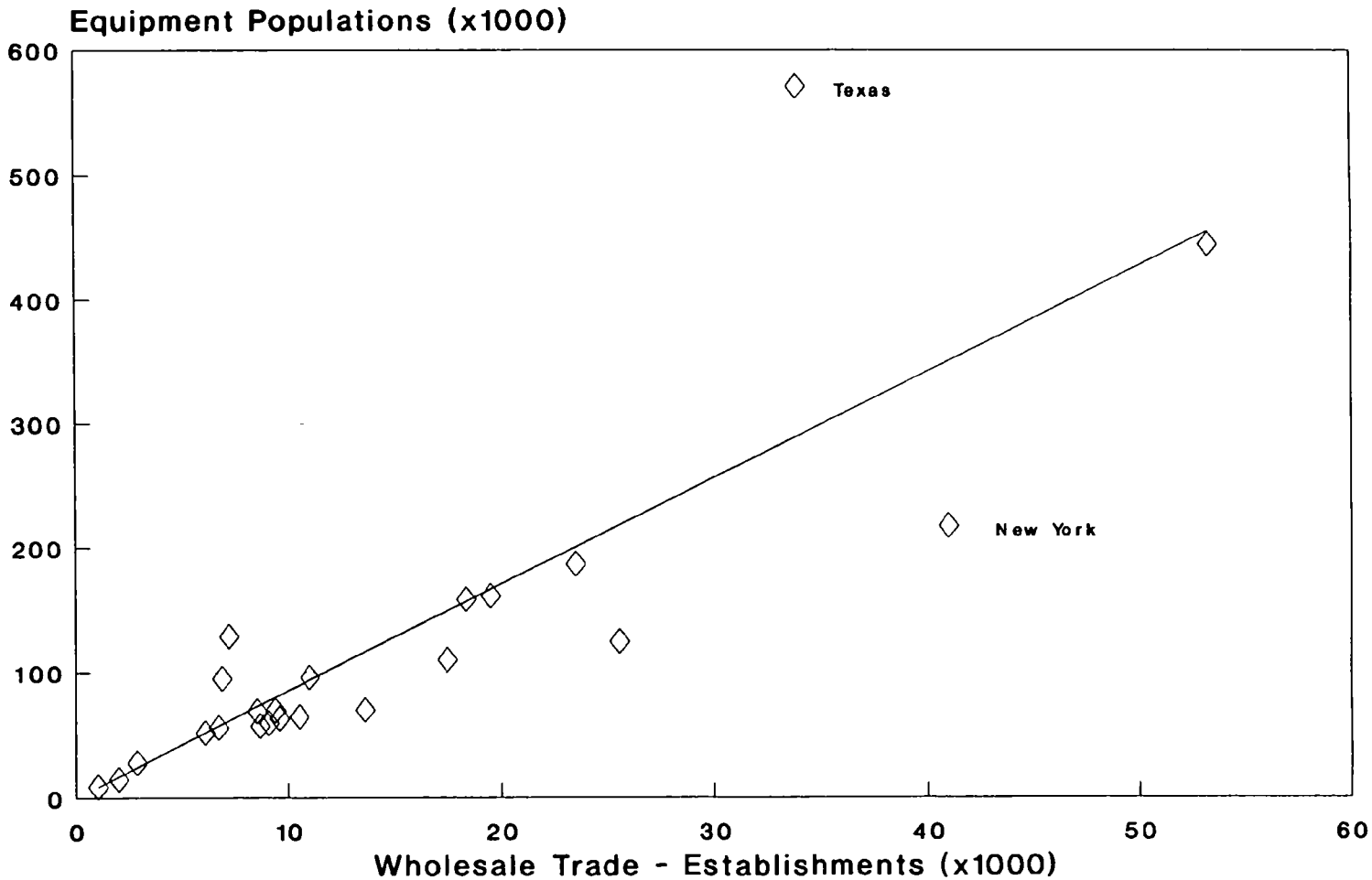
DEP VAR: PSRCLS5 N: 23 MULTIPLE R: .836 SQUARED MULTIPLE R: .698
ADJUSTED SQUARED MULTIPLE R: .684 STANDARD ERROR OF ESTIMATE: 74.744094

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-2.312631	24.130211	0.000000	.	-0.09584	0.92456
ESTWHSL	8.551879	1.226572	0.835658	1.00000	6.97218	0 00000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	.271575E+06	1	.271575E+06	48.611247	0.000001
RESIDUAL	.117320E+06	21	5586.679562		

Figure 1
Light Commercial Equipment
Regression Fit and Outliers



3.4 Class 6: Industrial Equipment

Industrial equipment are mostly used in various manufacturing activities As a result, EEA made use of manufacturing activity levels at state and county levels to distribute national populations of these equipment to the each non-attainment area. Specifically, EEA used the number of employees engaged in manufacturing as the activity indicator for Class 6, and regressed these data on PSR's state populations for industrial equipment. This model met all three criteria, as shown by Table 5.

3.5 Class 7: Construction Equipment

Originally, EEA had anticipated separate models for road construction equipment and general construction equipment. Various models were formulated for both subclasses of construction equipment using the following indicators: SIC 161 - Road Construction, total construction activity, and general construction activity (total minus road). Both subclasses responded best to total construction activity (number of employees) as the indicator. Due to this, and EMI's specific objections regarding disaggregation of construction equipment by applications, EEA decided to analyze construction equipment as one class (road plus general) using total construction activity as the indicator. Regression results for this "best" model are presented in Table 6. The model exhibits excellent statistical validity while considerably simplifying the analysis.

3.6 Class 8: Agricultural Equipment

Activity indicators for the agricultural equipment category were derived from data in the 1987 Census of Agriculture. County level populations were available for some equipment types (such as cotton gins and cotton pickers) from the Geographic Area Series, State and County Data, and in such circumstances EEA provided that data to EPA.

However, for the bulk of equipment in the Agricultural Equipment class, county nor state level populations are available. Therefore, EEA tested many combinations of activity indicators to determine their reliability in

Table 5

Class 6: Industrial Equipment
"Best" Model"

MODEL: PSRCLS6 = a + b(EMPMFG)
PSRCLS6 = PSR STATE EQUIPMENT POPULATIONS FOR CLASS 6 (x1000)
EMPMFG = TOTAL MANUFACTURING ACTIVITY (EMPLOYEES) (x1000)

DEP VAR: PSRCLS6 N: 23 MULTIPLE R: .966 SQUARED MULTIPLE R: .934
ADJUSTED SQUARED MULTIPLE R: .930 STANDARD ERROR OF ESTIMATE: 2 734937

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-0.379266	0.927407	0.000000	.	-0.40895	0.68671
EMPMFG	0.020828	0.001212	0.966237	1.00000	.17E+02	0.00000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	2209.064094	1	2209.064094	295.334044	0.000000
RESIDUAL	157.077543	21	7.479883		

Table 6

Class 7: Construction Equipment
"Best" Model

MODEL : PSRCLS7 = a + b(EMPCST)
PSRCLS7 = PSR STATE EQUIPMENT POPULATIONS FOR ALL CONSTRUCTION EQUPMENT (x1000)
EMPCST = TOTAL CONSTRUCTION ACTIVITY (EMPLOYEES) (x1000)

DEP VAR: PSRCLS7 N: 23 MULTIPLE R: .946 SQUARED MULTIPLE R: .895
ADJUSTED SQUARED MULTIPLE R: .890 STANDARD ERROR OF ESTIMATE: 23.878076

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-4.566209	7.866897	0.000000	.	-0 58043	0.56780
EMPCST	0.501182	0.037480	0.945991	1.00000	.13E+02	0.00000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	.101949E+06	1	.101949E+06	178.807047	0.000000
RESIDUAL	.119734E+05	21	570.162510		

distributing national populations to each non-attainment area. Data on the number of farms, average farm size, total farmed acreage, average farm revenue, the estimated market value of all machinery and equipment (average per farm), and the average expenditure per farm on petroleum products were collected at the national, state, and county level. EEA tested various combinations of these indicators to determine the indicators that best explain equipment populations. In each circumstance the models failed to meet one or more of the criteria outlined for "best" model.

Next, EEA tested the relationship between an adjusted SIC 07 - Agricultural Services (Employees). SIC 07 includes the following: soil preparation services (SIC 071), crop services (SIC 072), veterinary services (SIC 074), other animal services (SIC 075), farm labor and management services (SIC 076), and landscape and horticultural services (SIC 078). SIC 07 was, therefore, adjusted to exclude landscaping and horticultural services, since SIC 078 is used in estimation of lawn and garden equipment populations. EEA formulated a model using this adjusted SIC 07 as the independent variable to estimate agricultural equipment populations. The results of this model are presented in Table 7. Clearly, the model more than met each of the criteria for "best" model, and given the lack of a better alternative EEA employed this model in estimating agricultural equipment populations for each of the non-attainment areas.

3.7 Class 9: Logging Equipment

SIC code 241 - Logging - was tested for reliability as an activity indicator to allocate logging equipment from the national level to the each non-attainment area using the methodology described above. SIC 241 failed to meet two of the criteria stipified for "best" model. In fact, for both establishments and employees, the R^2's were below 0.1 indicating no linear relationship between logging equipment populations and logging activity as defined by SIC 241. Moreover, the t-statistics for the SIC 241 coefficient in each model were significant at only an 80% confidence level, indicating that the model would not provide reliable estimates.

Table 7

Class 8: Agricultural Equipment
"Best" Model

MODEL PSRCLS8 = a + b(EMPA07)
PSRCLS8 = PSR STATE EQUIPMENT POPULATIONS FOR CLASS 8 (x1000)
EMPA07 = SIC 07 MINUS SIC 078 (EMPLOYEES) (x1000)

DEP VAR: PSRCLS8 N: 23 MULTIPLE R: .985 SQUARED MULTIPLE R: .970
ADJUSTED SQUARED MULTIPLE R: .969 STANDARD ERROR OF ESTIMATE: 21.967344

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	4.945921	5.916288	0.000000	.	0 83598	0.41258
EMPA07	14.819782	0.565719	0.985042	1.00000	.26E+02	0.00000

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	.331160E+06	1	.331160E+06	686.249866	0.000000
RESIDUAL	.101338E+05	21	482.564189		

Given that SIC 241 is a sub-category of SIC 24 - Lumber and Wood Products, Except Furniture -, EEA next tested the reliability of SIC 24 as an indicator. At first sight, the model using SIC 24 (number of employees) seemed to meet two of the criteria, as shown in Table 8. The fact that the R^2 is below 0 8 would not cause significant problems if only a few outliers were driving it to 0.575. However, closer examination of the residuals showed problems with heteroscedasticity. Figure 2 plots the residuals against the estimates of the regression model in Table 8. Notice the fan shaped, or heteroscedastic, distribution of the residuals. This violates the assumption of homogeneity of variance in the residuals across different values of the independent variable, indicating that the model will not provide statistically reliable estimates, although the t-stat of the coefficient is significant at over 95% confidence. Weighted least squares may solve help this problem, but requires extensive analysis in the formulation of an appropriate model.

EEA was unable to determine an activity indicator that provided reliable results for logging equipment using regression analysis. One possible problem is that PSR's state level data for logging equipment is not derived appropriately. EEA will discuss this possibility with PSR. At this stage of the analysis, however, EEA plans to use the back up methodology (explained in Methodology to Estimate Off-Road Equipment Populations) to distribute national populations of logging equipment to each non-attainment area.

4. EQUIPMENT POPULATIONS BY NON-ATTAINMENT AREA

This section presents, in tabular form, the results of the estimation process for deriving non-road equipment populations for each of the 23 non-attainment areas included in the study. Populations are provided for all equipment types except those included under logging, airport service, and marine.

Table 8

Class 9: Logging Equipment
Biased Model

MODEL PSRCLS9 = a + b(EMP24)
PSRCLS9 = PSR STATE EQUIPMENT POPULATIONS FOR CLASS 9 (x1000)
EMP24 = SIC 24 (EMPLOYEES) - LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE

DEP VAR: PSRCLS9 N: 23 MULTIPLE R: .758 SQUARED MULTIPLE R: 575
ADJUSTED SQUARED MULTIPLE R: .554 STANDARD ERROR OF ESTIMATE: 3.595392

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	0.891069	1.180717	0.000000	.	0.75468	0.45882
EMP24	0.277289	0.052063	0.758032	1.00000	5 32604	0.00003

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	366.691623	1	366.691623	28.366681	0.000028
RESIDUAL	271.463694	21	12.926843		

Figure 2
Logging Equipment
Distribution of Residuals

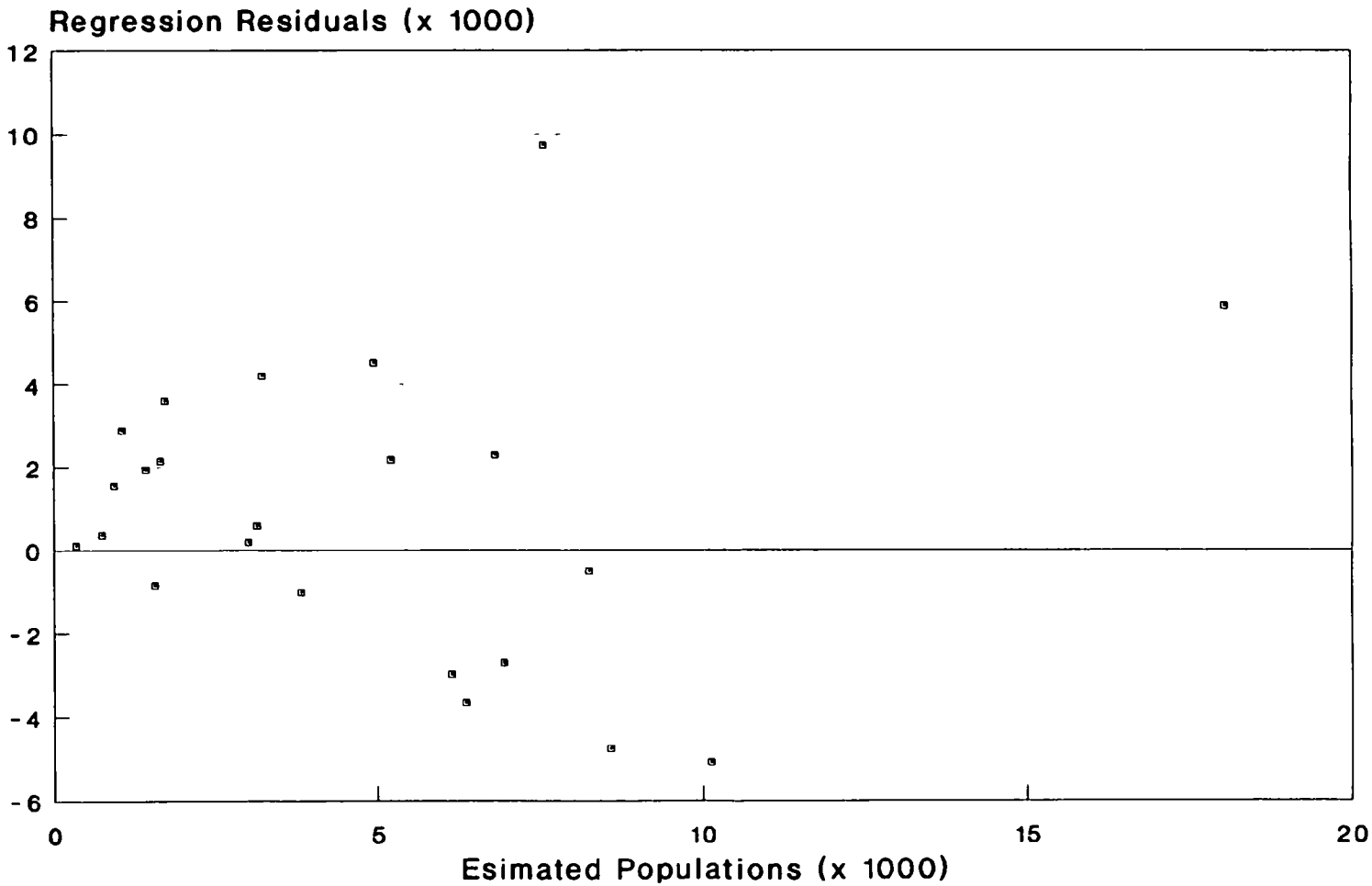


Table 9 provides national populations, usage hours, and load factors by fuel type for each equipment type. These data were acquired directly from PSR. Table 10 provides equipment populations for each non-attainment area. Snowmobiles and snowblowers were not allocated to those non-attainment areas with mild climate where snowfall is non-existent or rare. In each data table, those cells market by a hyphen will be filled in as data is made available from PSR.

T 9

National Populations, Load Factors, and Hours of Use by Equipment and Fuel Type

Class	Equipment Types	National Populations Diesel	Gasoline	Total	% Diesel	% of Class Total	Diesel Usage Hours	Diesel Load Factor	Diesel Mean HP	Gasoline Usage Hours	Gasoline Load Factor	Gasoline Mean HP
1	Trimmers/Edgers/Brush Cutters	21,401	18,172,282	18,193,683	0 12%	17.61%	35	43 00%	2.0	28	76.0%	1 0
1	Lawn Mowers	0	42,733,069	42,733,069	0.00%	41.36%	0	0 00%	0 0	76	81.0%	5 0
1	Leaf Blowers/Vacuums	0	2,025,786	2,025,786	0.00%	1.96%	0	0.00%	0 0	56	90 0%	1 0
1	Rear Engine Riding Mowers	4,725	1,484,059	1,488,784	0.32%	1.44%	975	64.00%	16 5	352	67 0%	10 0
1	Front Mowers	0	134,856	134,856	0.00%	0.13%	0	0 00%	0.0	352	67.0%	16 0
1	Chainsaws <4 HP	0	16,124,970	16,124,970	0.00%	15.61%	0	0.00%	0.0	26	92.0%	2 0
1	Shredders <5 HP	0	131,372	131,372	0 00%	0 13%	0	0.00%	0.0	50	80.0%	5 0
1	Tillers <5 HP	0	7,693,276	7,693,276	0.00%	7 45%	0	0 00%	0 0	43	71 0%	5 0
1	Lawn & Garden Tractors	241,919	7,749,492	7,991,411	3.03%	7 73%	544	62 00%	17.0	143	62 0%	18 0
1	Wood Splitters	79	1,350,159	1,350,238	0.01%	1 31%	265	55 00%	58.0	76	69 0%	4 0
1	Snowblowers	0	4,067,391	4,067,391	0 00%	3 94%	0	0 00%	0 0	72	78 0%	2 0
1	Chippers/Stump Grinders	17,087	16,791	33,878	50.44%	0 03%	465	73 00%	76 0	488	78 0%	61 0
1	Commercial Turf Equipment	87,807	480,925	568,732	15 44%	0 55%	1068	59 00%	20 0	917	61.0%	16 0
1	Other Lawn & Garden Equipment	180	792,978	793,158	0.02%	0.77%	433	65 00%	22 0	61	58 0%	3 5
3	All Terrain Vehicles (ATVs)	0	1,312,981	1,312,981	0.00%	47 39%	0	0 00%	0 0	135	72 0%	19 0
3	Minibikes	0	48,990	48,990	0.00%	1 77%	0	0 00%	0 0	55	62 0%	4 0
3	Off-Road Motorcycles	0	201,125	201,125	0.00%	7 26%	0	0 00%	0 0	120	76 0%	35 0
3	Golf Carts	0	122,670	122,670	0.00%	4.43%	0	0 00%	0 0	1080	46 0%	9 0
3	Snowmobiles	0	776,559	776,559	0.00%	28.03%	0	0 00%	0.0	121	81 0%	28 0
3	Specialty Vehicles Carts	3,344	305,209	308,553	1.08%	11 14%	435	65 00%	62.0	65	58 0%	7 0
5	Generator Sets <50 HP	198,391	2,943,286	3,141,677	6 31%	65 55%	350	65 00%	24.0	120	62 0%	8 0
5	Pumps <50 HP	61,810	651,688	713,498	8 66%	14 89%	-	-	-	-	-	-
5	Air Compressors <50 HP	15,713	176,124	191,837	8 19%	4 00%	1105	60 00%	22 0	915	60 0%	11 0
5	Gas Compressors <50 HP	0	-	-	0.00%	-	0	0 00%	0.0	-	-	-
5	Welders <50 HP	100,490	350,545	451,035	22 28%	9.41%	305	38 00%	24.0	305	35 0%	20 0
5	Pressure Washers <50 HP	3,943	290,959	294,902	1 34%	6 15%	-	-	-	-	-	-
6	Aerial Lifts	12,310	28,388	40,698	30 25%	10 81%	384	46.00%	35 0	361	46 0%	30 0
6	Forklifts	114,178	109,474	223,652	51 05%	59 39%	858	58 00%	72 0	806	63 0%	59 0
6	Sweepers/Scrubbers	36,977	25,892	62,869	58 82%	16 69%	1220	68 00%	70.0	516	71 0%	46 0
6	Other General Industrial Equipment	18,366	23,724	42,090	43 64%	11 18%	878	51 00%	100.0	713	54 0%	16 0
6	Other Material Handling Equipment	5,258	2,036	7,294	72 09%	1 94%	421	59 00%	101 0	386	53 0%	48 0
7	Asphalt Pavers	15,536	3,022	18,558	83 72%	0 73%	821	62 00%	105 0	392	66 0%	23 0
7	Tampers/Rammers	-	23,611	23,611	-	0 93%	-	-	-	160	55 0%	4 0
7	Plate Compactors	2,322	274,179	276,501	0 84%	10.86%	484	43.00%	8.0	166	55.0%	5 0
7	Concrete Pavers	5,511	0	5,511	100.00%	0.22%	821	68 00%	113 0	0	0 0%	0 0
7	Rollers	86,818	21,999	108,817	79 78%	4 28%	745	56 00%	80 0	621	62 0%	8 0
7	Scrapers	43,007	0	43,007	100.00%	1.69%	914	72.00%	350 0	0	0 0%	0 0
7	Paving Equipment	43,615	230,810	274,425	15 89%	10 78%	622	53.00%	120 0	175	59.0%	7 5
7	Surfacing Equipment	0	30,833	30,833	0 00%	1 21%	0	0 00%	0 0	488	49 0%	10 0
7	Signal Boards	20,384	1,559	21,943	92 90%	0.86%	815	82 00%	7 0	241	76 0%	8 0
7	Trenchers	50,510	27,170	77,680	65.02%	3 05%	593	75 00%	56 0	402	66 0%	20 0
7	Bore/Drill Rigs	7,761	8,501	16,262	47.72%	0.64%	466	75 00%	58 0	107	79 0%	18 0
7	Excavators	61,336	18	61,354	99 97%	2.41%	859	57 00%	152 0	378	53 0%	80 0
7	Concrete/Industrial Saws	135	36,900	37,035	0 36%	1 46%	580	73 00%	35 0	610	78 0%	9 0
7	Cement and Mortar Mixers	4,016	232,152	236,168	1 70%	9 28%	275	56 00%	11 0	84	59 0%	6 0
7	Cranes	98,357	2,541	100,898	97 48%	3 96%	806	43 00%	650.0	415	47 0%	61 0
7	Graders	70,045	0	70,045	100 00%	2 75%	821	61 00%	150 0	0	0 0%	0 0
7	Off-Highway Trucks	16,529	0	16,529	100 00%	0 65%	1641	57 00%	530 0	0	0 0%	0 0
7	Crushing/Proc Equipment	7,207	1,007	8,214	87 74%	0 32%	955	78.00%	58 0	241	85 0%	16 0
7	Rough Terrain Forklifts	53,853	2,217	56,070	96.05%	2 20%	662	60 00%	80 0	413	63 0%	70 0
7	Rubber Tired Loaders	209,454	3,433	212,887	98.39%	8.37%	761	68 00%	216.0	512	71 0%	70 0
7	Rubber Tired Dozers	7,757	0	7,757	100 00%	0.30%	899	59 00%	335 0	0	0 0%	0 0
7	Tractors/Loaders/Backhoes	299,265	1,365	300,630	99 55%	11 81%	1135	55 00%	80 0	870	48 0%	56 0
7	Crawler Tractors	285,923	0	285,923	100 00%	11.24%	936	64 00%	180 0	0	0 0%	0 0
7	Skid Steer Loaders	150,054	27,805	177,859	84 37%	6.99%	818	55.00%	35 0	310	58 0%	37 0
7	Off-Highway Tractors	38,921	0	38,921	100.00%	1.53%	855	65 00%	233 0	0	0 0%	0 0
7	Dumpers/Tenders	194	24,301	24,495	0 79%	0.96%	566	38 00%	23 0	127	41 0%	10 0
7	Other Construction Equipment	11,867	1,103	12,970	91 50%	0 51%	606	62 00%	58 0	371	48 0%	150 0
8	2-Wheel Tractors	0	-	0	-	0 00%	0	0 00%	0 0	286	62 0%	4 0
8	Agricultural Tractors	1,929,481	5,900	1,935,381	99 70%	54 98%	475	70.00%	185 0	550	62 0%	45 0
8	Agricultural Mowers	-	16,023	16,023	0 00%	0 46%	-	-	-	175	48 0%	6 0
8	Combines	284,846	1,843	286,689	99 36%	8 14%	150	70 00%	185 0	125	74 0%	60 0
8	Sprayers	9,693	72,720	82,413	11 76%	2 34%	90	58 00%	85 0	80	65 0%	18 0
8	Balers	2,033	31,437	33,470	6 07%	0 95%	95	58 00%	98 0	68	62 0%	37 0
8	Irrigation Sets	89,706	45,948	135,654	66 13%	3 85%	749	90 00%	100 0	816	65 0%	59 0
8	Tillers >5 HP	40	920,594	920,634	0 00%	26 15%	172	78 00%		43	71 0%	5 0
8	Swathers	50,031	32,858	82,889	60 36%	2 35%	110	55 00%	80 0	95	52 0%	132 0
8	Hydro Power Units	2,365	-	2,365	100 00%	0.07%	790	48 00%	33 0	-	-	-
8	Other Agricultural Equipment	18,043	6,404	24,447	73 80%	0 69%	381	51 00%	58 0	124	55 0%	9 0

Table 10
Estimated Non-Attainment Equipment
Populations by Fuel Type

Class	Equipment Types	0 Baltimore CMSA Diesel	Baltimore CMSA Gasoline	1 Chicago CMSA Diesel	Chicago CMSA Gasoline	2 Denver CMSA Diesel	Denver CMSA Gasoline	3 Houston CMSA Diesel	Houston CMSA Gasoline	4 Milwaukee CMSA Diesel	Milwaukee CMSA Gasoline	5 Boston NECMA Diesel	Boston NECMA Gasoline
1	Trimmers/Edgers/Brush Cutters	188	159,504	584	495,911	252	214,018	427	362,869	117	99,329	300	254,799
1	Lawn Mowers	0	375,081	0	1,166,161	0	503,273	0	853,306	0	233,577	0	599,174
1	Leaf Blowers/Vacuums	0	17,781	0	55,283	0	23,858	0	40,451	0	11,073	0	28,404
1	Rear Engine Riding Mowers	41	13,026	129	40,499	56	17,478	94	29,634	26	8,112	66	20,808
1	Front Mowers	0	1,184	0	3,680	0	1,588	0	2,693	0	737	0	1,891
1	Chainsaws <4 HP	0	141,534	0	440,041	0	189,906	0	321,988	0	88,138	0	226,093
1	Shredders <5 HP	0	1,153	0	3,585	0	1,547	0	2,623	0	718	0	1,842
1	Tillers <5 HP	0	67,526	0	209,945	0	90,605	0	153,622	0	42,051	0	107,870
1	Lawn & Garden Tractors	2,123	68,020	6,602	211,479	2,849	91,267	4,831	154,744	1,322	42,358	3,392	108,658
1	Wood Splitters	1	11,851	1	36,845	1	15,901	1	26,960	1	7,380	1	18,931
1	Snowblowers	0	35,701	0	110,997	0	47,902	0	0	0	22,232	0	57,030
1	Chippers/Stump Grinders	150	147	466	458	201	198	341	335	93	92	240	235
1	Commercial Turf Equipment	771	4,221	2,396	13,124	1,034	5,664	1,753	9,603	480	2,629	1,231	6,743
1	Other Lawn & Garden Equipment	2	6,960	5	21,640	2	9,339	4	15,834	1	4,334	3	11,119
3	All Terrain Vehicles (ATVs)	0	2,358	0	13,435	0	5,837	0	11,581	0	2,274	0	8,680
3	Minibikes	0	88	0	501	0	218	0	432	0	85	0	324
3	Off-Road Motorcycles	0	361	0	2,058	0	894	0	1,774	0	348	0	1,330
3	Golf Carts	0	220	0	1,255	0	545	0	1,082	0	212	0	811
3	Snowmobiles	0	1,395	0	7,946	0	3,452	0	0	0	1,345	0	5,134
3	Specialty Vehicles Carts	6	548	34	3,123	15	1,357	29	2,692	6	529	22	2,018
5	Generator Sets <50 HP	1,267	18,794	4,982	73,918	2,615	38,793	5,649	83,802	891	13,216	2,831	41,995
5	Pumps <50 HP	395	4,161	1,552	16,367	815	8,589	1,760	18,555	278	2,926	882	9,298
5	Air Compressors <50 HP	100	1,125	395	4,423	207	2,321	447	5,015	71	791	224	2,513
5	Gas Compressors <50 HP	0	-	0	-	0	-	0	-	0	-	0	-
5	Welders <50 HP	642	2,238	2,524	8,804	1,324	4,620	2,861	9,981	451	1,574	1,434	5,002
5	Pressure Washers <50 HP	25	1,858	99	7,307	52	3,835	112	8,284	18	1,306	56	4,151
6	Aerial Lifts	72	166	469	1,082	119	275	177	408	107	246	236	544
6	Forklifts	666	639	4,352	4,173	1,107	1,062	1,642	1,574	989	948	2,188	2,098
6	Sweepers/Scrubbers	216	151	1,409	987	359	251	532	372	320	224	709	496
6	Other General Industrial Equipment	107	138	700	904	178	230	264	341	159	205	352	455
6	Other Material Handling Equipment	31	12	200	78	51	20	76	29	46	18	101	39
7	Asphalt Pavers	141	27	454	88	195	38	475	92	78	15	213	41
7	Tampers/Rammers	-	214	-	690	-	296	-	722	-	119	-	323
7	Plate Compactors	21	2,480	68	8,009	29	3,435	71	8,385	12	1,381	32	3,752
7	Concrete Pavers	50	0	161	0	69	0	169	0	28	0	75	0
7	Rollers	785	199	2,536	643	1,088	276	2,655	673	437	111	1,188	301
7	Scrapers	389	0	1,256	0	539	0	1,315	0	217	0	589	0
7	Paving Equipment	394	2,087	1,274	6,742	546	2,891	1,334	7,058	220	1,162	597	3,159
7	Surfacing Equipment	0	279	0	901	0	386	0	943	0	155	0	422
7	Signal Boards	184	14	595	46	255	20	623	48	103	8	279	21
7	Trenchers	457	246	1,475	794	633	340	1,545	831	254	137	691	372
7	Bore/Drill Rigs	70	77	227	248	97	106	237	260	39	43	106	116
7	Excavators	555	0	1,792	1	768	0	1,876	1	309	0	839	0
7	Concrete/Industrial Saws	1	334	4	1,078	2	462	4	1,128	1	186	2	505
7	Cement and Mortar Mixers	36	2,100	117	6,781	50	2,908	123	7,099	20	1,169	55	3,177
7	Cranes	890	23	2,873	74	1,232	32	3,008	78	495	13	1,346	35
7	Graders	633	0	2,046	0	877	0	2,142	0	353	0	959	0
7	Off-Highway Trucks	149	0	483	0	207	0	505	0	83	0	226	0
7	Crushing/Proc Equipment	65	9	211	29	90	13	220	31	36	5	99	14
7	Rough Terrain Forklifts	487	20	1,573	65	675	28	1,647	68	271	11	737	30
7	Rubber Tired Loaders	1,894	31	6,118	100	2,624	43	6,405	105	1,055	17	2,866	47
7	Rubber Tired Dozers	70	0	227	0	97	0	237	0	39	0	106	0
7	Tractors/Loaders/Backhoes	2,706	12	8,741	40	3,749	17	9,152	42	1,507	7	4,095	19
7	Crawler Tractors	2,586	0	8,352	0	3,582	0	8,744	0	1,440	0	3,913	0
7	Skid Steer Loaders	1,357	251	4,383	812	1,880	348	4,589	850	756	140	2,053	381
7	Off-Highway Tractors	352	0	1,137	0	488	0	1,190	0	196	0	533	0
7	Dumpers/Tenders	2	220	6	710	2	304	6	743	1	122	3	333
7	Other Construction Equipment	107	10	347	32	149	14	363	34	60	6	162	15
8	2-Wheel Tractors	0	-	0	-	0	-	0	-	0	-	0	-
8	Agricultural Tractors	16,121	49	33,372	102	20,506	63	19,934	61	5,161	16	22,875	70
8	Agricultural Mowers	-	134	-	277	-	170	-	166	-	43	-	190
8	Combines	2,380	15	4,927	32	3,027	20	2,943	19	762	5	3,377	22
8	Sprayers	81	608	168	1,258	103	773	100	751	26	194	115	862
8	Balers	17	263	35	544	22	334	21	325	5	84	24	373
8	Irrigation Sets	749	384	1,552	795	953	488	927	475	240	123	1,064	545
8	Tillers >5 HP	0	7,691	1	15,923	0	9,784	0	9,511	0	2,462	0	10,914
8	Swathers	418	275	865	568	532	349	517	339	134	88	593	390
8	Hydro Power Units	20	-	41	-	25	-	24	-	6	-	28	-
8	Other Agricultural Equipment	151	54	312	111	192	68	186	66	48	17	214	76

Table 10, cont.
Estimated Non-Attainment Equipment
Populations by Fuel Type

Class	Equipment Types	6 Hartford NECMA Diesel	6 Hartford NECMA Gasoline	7 New York CMSA Diesel	7 New York CMSA Gasoline	8 Philadel CMSA Diesel	8 Philadel CMSA Gasoline	9 Seat-Tac CMSA Diesel	9 Seat-Tac CMSA Gasoline	10 Atlanta CMSA Diesel	10 Atlanta CMSA Gasoline	11 Baton Rouge CMSA Diesel	11 Baton Rouge CMSA Gasoline
1	Trimmers/Edgers/Brush Cutters	100	84,998	1,229	1,043,535	515	437,416	245	208,116	226	192,005	42	35,578
1	Lawn Mowers	0	199,878	0	2,453,927	0	1,028,606	0	489,397	0	451,510	0	83,664
1	Leaf Blowers/Vacuums	0	9,475	0	116,330	0	48,762	0	23,200	0	21,404	0	3,966
1	Rear Engine Riding Mowers	22	6,941	271	85,221	114	35,722	54	16,996	50	15,680	9	2,906
1	Front Mowers	0	631	0	7,744	0	3,246	0	1,544	0	1,425	0	264
1	Chainsaws <4 HP	0	75,422	0	925,969	0	388,136	0	184,670	0	170,373	0	31,570
1	Shredders <5 HP	0	614	0	7,544	0	3,162	0	1,505	0	1,388	0	257
1	Tillers <5 HP	0	35,984	0	441,783	0	185,181	0	88,107	0	81,286	0	15,062
1	Lawn & Garden Tractors	1,132	36,247	13,892	445,011	5,823	186,534	2,771	88,750	2,556	81,880	474	15,172
1	Wood Splitters	1	6,315	1	77,532	1	32,499	1	15,463	1	14,266	1	2,643
1	Snowblowers	0	19,025	0	233,568	0	97,904	0	4,658	0	0	0	0
1	Chippers/Stump Grinders	80	79	981	964	411	404	196	192	181	177	33	33
1	Commercial Turf Equipment	411	2,249	5,042	27,617	2,114	11,576	1,006	5,508	928	5,081	172	942
1	Other Lawn & Garden Equipment	1	3,709	10	45,536	4	19,087	2	9,082	2	8,378	0	1,553
3	All Terrain Vehicles (ATVs)	0	3,745	0	16,183	0	5,109	0	8,349	0	4,539	0	3,880
3	Minibikes	0	140	0	604	0	191	0	312	0	169	0	145
3	Off-Road Motorcycles	0	574	0	2,479	0	783	0	1,279	0	695	0	594
3	Golf Carts	0	350	0	1,512	0	477	0	780	0	424	0	363
3	Snowmobiles	0	2,215	0	9,571	0	3,022	0	494	0	0	0	0
3	Specialty Vehicles Carts	10	871	41	3,762	13	1,188	21	1,941	12	1,055	10	902
5	Generator Sets <50 HP	693	10,278	13,433	199,293	3,584	53,177	1,518	22,526	1,709	25,352	687	10,194
5	Pumps <50 HP	216	2,276	4,185	44,126	1,117	11,774	473	4,988	532	5,613	214	2,257
5	Air Compressors <50 HP	55	615	1,064	11,926	284	3,182	120	1,348	135	1,517	54	610
5	Gas Compressors <50 HP	0	-	0	-	0	-	0	-	0	-	0	-
5	Welders <50 HP	351	1,224	6,804	23,736	1,816	6,333	769	2,683	866	3,019	348	1,214
5	Pressure Washers <50 HP	14	1,016	267	19,701	71	5,257	30	2,227	34	2,506	14	1,008
6	Aerial Lifts	86	199	939	2,165	288	663	100	231	79	182	20	45
6	Forklifts	802	769	8,707	8,348	2,668	2,558	928	890	733	703	183	175
6	Sweepers/Scrubbers	260	182	2,820	1,974	864	605	301	210	238	166	59	41
6	Other General Industrial Equipment	129	167	1,401	1,809	429	554	149	193	118	152	29	38
6	Other Material Handling Equipment	37	14	401	155	123	48	43	17	34	13	8	3
7	Asphalt Pavers	79	15	1,018	198	310	60	175	34	185	36	92	18
7	Tampers/Rammers	-	120	-	1,547	-	471	-	267	-	282	-	140
7	Plate Compactors	12	1,389	152	17,961	46	5,474	26	3,096	28	3,271	14	1,629
7	Concrete Pavers	28	0	361	0	110	0	62	0	66	0	33	0
7	Rollers	440	111	5,687	1,441	1,733	439	980	248	1,036	262	516	131
7	Scrapers	218	0	2,817	0	859	0	486	0	513	0	256	0
7	Paving Equipment	221	1,169	2,857	15,120	871	4,608	492	2,606	520	2,753	259	1,371
7	Surfacing Equipment	0	156	0	2,020	0	616	0	348	0	368	0	183
7	Signal Boards	103	8	1,335	102	407	31	230	18	243	19	121	9
7	Trenchers	256	138	3,309	1,780	1,008	542	570	307	603	324	300	161
7	Bore/Drill Rigs	39	43	508	557	155	170	88	96	93	101	46	51
7	Excavators	311	0	4,018	1	1,225	0	693	0	732	0	364	0
7	Concrete/Industrial Saws	1	187	9	2,417	3	737	2	417	2	440	1	219
7	Cement and Mortar Mixers	20	1,176	263	15,208	80	4,635	45	2,621	48	2,769	24	1,379
7	Cranes	498	13	6,443	166	1,964	51	1,111	29	1,173	30	584	15
7	Graders	355	0	4,588	0	1,398	0	791	0	836	0	416	0
7	Off-Highway Trucks	84	0	1,083	0	330	0	187	0	197	0	98	0
7	Crushing/Proc Equipment	37	5	472	66	144	20	81	11	86	12	43	6
7	Rough Terrain Forklifts	273	11	3,528	145	1,075	44	608	25	642	26	320	13
7	Rubber Tired Loaders	1,061	17	13,721	225	4,182	69	2,365	39	2,499	41	1,245	20
7	Rubber Tired Dozers	39	0	508	0	155	0	88	0	93	0	46	0
7	Tractors/Loaders/Backhoes	1,516	7	19,604	89	5,975	27	3,379	15	3,570	16	1,778	8
7	Crawler Tractors	1,448	0	18,730	0	5,708	0	3,228	0	3,411	0	1,699	0
7	Skid Steer Loaders	760	141	9,830	1,821	2,996	555	1,694	314	1,790	332	892	165
7	Off-Highway Tractors	197	0	2,550	0	777	0	439	0	464	0	231	0
7	Dumpers/Tenders	1	123	13	1,592	4	485	2	274	2	290	1	144
7	Other Construction Equipment	60	6	777	72	237	22	134	12	142	13	71	7
8	2-Wheel Tractors	0	-	0	-	0	-	0	-	0	-	0	-
8	Agricultural Tractors	9,472	29	105,586	323	34,472	105	14,871	45	18,476	56	2,003	6
8	Agricultural Mowers	-	79	-	877	-	286	-	123	-	153	-	17
8	Combines	1,398	9	15,587	101	5,089	33	2,195	14	2,728	18	296	2
8	Sprayers	48	357	530	3,979	173	1,299	75	560	93	696	10	75
8	Balers	10	154	111	1,720	36	562	16	242	19	301	2	33
8	Irrigation Sets	440	226	4,909	2,514	1,603	821	691	354	859	440	93	48
8	Tillers >5 HP	0	4,519	2	50,377	1	16,447	0	7,095	0	8,815	0	956
8	Swathers	246	161	2,738	1,798	894	587	386	253	479	315	52	34
8	Hydro Power Units	12	-	129	-	42	-	18	-	23	-	2	-
8	Other Agricultural Equipment	89	31	987	350	322	114	139	49	173	61	19	7

Table 10, cont.
Estimated Non-Attainment Equipment
Populations by Fuel Type

Class	Equipment Types	12 Cleveland CMSA Diesel	12 Cleveland CMSA Gasoline	13 El Paso CMSA Diesel	13 El Paso CMSA Gasoline	14 San Jq Val. AB Diesel	14 San Jq Val. AB Gasoline	15 South Coast AB Diesel	15 South Coast AB Gasoline	16 Miami CMSA Diesel	16 Miami CMSA Gasoline	17 Min -St.Paul CMSA Diesel	17 Min -St.Paul CMSA Gasoline
1	Trimmers/Edgers/Brush Cutters	219	186,093	35	29,403	159	134,924	1,405	1,193,197	224	190,400	177	150,167
1	Lawn Mowers	0	437,609	0	69,142	0	317,280	0	2,805,866	0	447,735	0	353,126
1	Leaf Blowers/Vacuums	0	20,745	0	3,278	0	15,041	0	133,014	0	21,225	0	16,740
1	Rear Engine Riding Mowers	48	15,198	8	2,401	35	11,019	310	97,444	50	15,549	39	12,264
1	Front Mowers	0	1,381	0	218	0	1,001	0	8,855	0	1,413	0	1,114
1	Chainsaws <4 HP	0	165,128	0	26,090	0	119,723	0	1,058,770	0	168,949	0	133,249
1	Shredders <5 HP	0	1,345	0	213	0	975	0	8,626	0	1,376	0	1,086
1	Tillers <5 HP	0	78,783	0	12,448	0	57,120	0	505,143	0	80,606	0	63,574
1	Lawn & Garden Tractors	2,477	79,359	391	12,539	1,796	57,538	15,884	508,834	2,535	81,195	1,999	64,038
1	Wood Splitters	1	13,826	1	2,185	1	10,025	1	88,652	1	14,146	1	11,157
1	Snowblowers	0	41,652	0	0	0	0	0	0	0	0	0	33,611
1	Chippers/Stump Grinders	175	172	28	27	127	125	1,122	1,103	179	176	141	139
1	Commercial Turf Equipment	899	4,925	142	778	652	3,571	5,765	31,578	920	5,039	726	3,974
1	Other Lawn & Garden Equipment	2	8,121	0	1,283	1	5,888	12	52,067	2	8,308	1	6,553
3	All Terrain Vehicles (ATVs)	0	2,035	0	3,567	0	2,941	0	52,132	0	7,938	0	3,337
3	Minibikes	0	76	0	133	0	110	0	1,945	0	296	0	125
3	Off-Road Motorcycles	0	312	0	546	0	450	0	7,986	0	1,216	0	511
3	Golf Carts	0	190	0	333	0	275	0	4,871	0	742	0	312
3	Snowmobiles	0	1,203	0	0	0	0	0	0	0	0	0	1,974
3	Specialty Vehicles Carts	5	473	9	829	7	684	133	12,118	20	1,845	9	776
5	Generator Sets <50 HP	1,997	29,630	626	9,293	1,253	18,586	9,579	142,109	2,007	29,775	1,635	24,252
5	Pumps <50 HP	622	6,560	195	2,058	390	4,115	2,984	31,465	625	6,593	509	5,370
5	Air Compressors <50 HP	158	1,773	50	556	99	1,112	759	8,504	159	1,782	129	1,451
5	Gas Compressors <50 HP	0	-	0	-	0	-	0	-	0	-	0	-
5	Welders <50 HP	1,012	3,529	317	1,107	635	2,214	4,852	16,925	1,017	3,546	828	2,888
5	Pressure Washers <50 HP	40	2,929	12	919	25	1,837	190	14,048	40	2,943	32	2,397
6	Aerial Lifts	219	505	37	86	67	154	813	1,874	104	240	166	384
6	Forklifts	2,032	1,949	348	333	618	593	7,538	7,227	966	927	1,543	1,479
6	Sweepers/Scrubbers	658	461	113	79	200	140	2,441	1,709	313	219	500	350
6	Other General Industrial Equipment	327	422	56	72	99	128	1,213	1,566	155	201	248	321
6	Other Material Handling Equipment	94	36	16	6	28	11	347	134	44	17	71	28
7	Asphalt Pavers	156	30	40	8	141	27	857	167	152	30	169	33
7	Tampers/Rammers	-	237	-	61	-	215	-	1,303	-	231	-	257
7	Plate Compactors	23	2,750	6	714	21	2,494	128	15,133	23	2,684	25	2,983
7	Concrete Pavers	55	0	14	0	50	0	304	0	54	0	60	0
7	Rollers	871	221	226	57	790	200	4,792	1,214	850	215	945	239
7	Scrapers	431	0	112	0	391	0	2,374	0	421	0	468	0
7	Paving Equipment	437	2,315	114	601	397	2,099	2,407	12,739	427	2,259	475	2,511
7	Surfacing Equipment	0	309	0	80	0	280	0	1,702	0	302	0	335
7	Signal Boards	204	16	53	4	185	14	1,125	86	200	15	222	17
7	Trenchers	507	273	131	71	459	247	2,788	1,500	494	266	550	296
7	Bore/Drill Rigs	78	85	20	22	71	77	428	469	76	83	84	92
7	Excavators	615	0	160	0	558	0	3,385	1	600	0	667	0
7	Concrete/Industrial Saws	1	370	0	96	1	336	7	2,037	1	361	1	401
7	Cement and Mortar Mixers	40	2,328	10	604	37	2,111	222	12,813	39	2,272	44	2,526
7	Cranes	986	25	256	7	895	23	5,429	140	963	25	1,070	28
7	Graders	703	0	182	0	637	0	3,866	0	686	0	762	0
7	Off-Highway Trucks	166	0	43	0	150	0	912	0	162	0	180	0
7	Crushing/Proc Equipment	72	10	19	3	66	9	398	56	71	10	78	11
7	Rough Terrain Forklifts	540	22	140	6	490	20	2,972	122	527	22	586	24
7	Rubber Tired Loaders	2,101	34	545	9	1,905	31	11,560	189	2,050	34	2,279	37
7	Rubber Tired Dozers	78	0	20	0	71	0	428	0	76	0	84	0
7	Tractors/Loaders/Backhoes	3,001	14	779	4	2,722	12	16,517	75	2,929	13	3,256	15
7	Crawler Tractors	2,868	0	744	0	2,600	0	15,781	0	2,798	0	3,111	0
7	Skid Steer Loaders	1,505	279	391	72	1,365	253	8,282	1,535	1,469	272	1,633	303
7	Off-Highway Tractors	390	0	101	0	354	0	2,148	0	381	0	423	0
7	Dumpers/Tenders	2	244	1	63	2	221	11	1,341	2	238	2	264
7	Other Construction Equipment	119	11	31	3	108	10	655	61	116	11	129	12
8	2-Wheel Tractors	0	-	0	-	0	-	0	-	0	-	0	-
8	Agricultural Tractors	16,938	52	3,094	9	83,527	255	103,929	318	17,470	53	11,270	34
8	Agricultural Mowers	-	141	-	26	-	694	-	863	-	145	-	94
8	Combines	2,501	16	457	3	12,331	80	15,343	99	2,579	17	1,664	11
8	Sprayers	85	638	16	117	420	3,148	522	3,917	88	658	57	425
8	Balers	18	276	3	50	88	1,361	110	1,693	18	285	12	184
8	Irrigation Sets	788	403	144	74	3,883	1,989	4,832	2,475	812	416	524	268
8	Tillers >5 HP	0	8,082	0	1,476	2	39,852	2	49,586	0	8,335	0	5,377
8	Swathers	439	288	80	53	2,166	1,422	2,695	1,770	453	298	292	192
8	Hydro Power Units	21	-	4	-	102	-	127	-	21	-	14	-
8	Other Agricultural Equipment	158	56	29	10	781	277	972	345	163	58	105	37

Table 10, cont.
Estimated Non-Attainment Equipment
Populations by Fuel Type

Class	Equipment Types	18 Provo-Orem CMSA Diesel	Gasoline	19 San Diego AB Diesel	Gasoline	20 Spokane CMSA Diesel	Gasoline	21 St Louis CMSA Diesel	Gasoline	22 Washington DC CMSA Diesel	Gasoline	23 Springfield NECMA Diesel	Gasoline
1	Trimmers/Edgers/Brush Cutters	36	30,829	282	239,144	30	25,051	201	170,359	324	275,497	45	38,093
1	Lawn Mowers	0	72,497	0	562,360	0	58,909	0	400,607	0	647,845	0	89,578
1	Leaf Blowers/Vacuums	0	3,437	0	26,659	0	2,793	0	18,991	0	30,711	0	4,247
1	Rear Engine Riding Mowers	8	2,518	62	19,530	7	2,046	44	13,913	72	22,499	10	3,111
1	Front Mowers	0	229	0	1,775	0	186	0	1,264	0	2,044	0	283
1	Chainsaws <4 HP	0	27,356	0	212,202	0	22,229	0	151,166	0	244,459	0	33,802
1	Shredders <5 HP	0	223	0	1,729	0	181	0	1,232	0	1,992	0	275
1	Tillers <5 HP	0	13,052	0	101,242	0	10,605	0	72,122	0	116,632	0	16,127
1	Lawn & Garden Tractors	410	13,147	3,184	101,982	333	10,683	2,268	72,649	3,668	117,484	507	16,245
1	Wood Splitters	1	2,291	1	17,768	1	1,861	1	12,657	1	20,469	1	2,830
1	Snowblowers	0	6,900	0	0	0	561	0	38,130	0	15,416	0	8,526
1	Chippers/Stump Grinders	29	28	225	221	24	23	160	157	259	255	36	35
1	Commercial Turf Equipment	149	816	1,156	6,329	121	663	823	4,509	1,331	7,291	184	1,008
1	Other Lawn & Garden Equipment	0	1,345	2	10,435	0	1,093	2	7,434	3	12,022	0	1,662
3	All Terrain Vehicles (ATVs)	0	1,218	0	14,436	0	1,664	0	2,981	0	7,219	0	1,550
3	Minibikes	0	45	0	539	0	62	0	111	0	269	0	58
3	Off-Road Motorcycles	0	187	0	2,211	0	255	0	457	0	1,106	0	237
3	Golf Carts	0	114	0	1,349	0	155	0	279	0	674	0	145
3	Snowmobiles	0	720	0	0	0	98	0	1,763	0	1,067	0	917
3	Specialty Vehicles Carts	3	283	37	3,356	4	387	8	693	18	1,678	4	360
5	Generator Sets <50 HP	98	1,449	1,190	17,653	219	3,252	1,445	21,436	1,502	22,279	325	4,817
5	Pumps <50 HP	30	321	371	3,909	68	720	450	4,746	468	4,933	101	1,066
5	Air Compressors <50 HP	8	87	94	1,056	17	195	114	1,283	119	1,333	26	288
5	Gas Compressors <50 HP	0	-	0	-	0	-	0	-	0	-	0	-
5	Welders <50 HP	49	173	603	2,103	111	387	732	2,553	761	2,653	164	574
5	Pressure Washers <50 HP	2	143	24	1,745	4	321	29	2,119	30	2,202	6	476
6	Aerial Lifts	8	19	82	189	9	22	160	369	60	138	34	78
6	Forklifts	76	73	759	728	87	84	1,485	1,424	557	534	315	302
6	Sweepers/Scrubbers	25	17	246	172	28	20	481	337	180	126	102	71
6	Other General Industrial Equipment	12	16	122	158	14	18	239	309	90	116	51	65
6	Other Material Handling Equipment	4	1	35	14	4	2	68	26	26	10	14	6
7	Asphalt Pavers	10	2	180	35	16	3	182	35	271	53	25	5
7	Tampers/Rammers	-	15	-	273	-	25	-	277	-	411	-	38
7	Plate Compactors	1	170	27	3,173	2	291	27	3,212	40	4,776	4	446
7	Concrete Pavers	3	0	64	0	6	0	65	0	96	0	9	0
7	Rollers	54	14	1,005	255	92	23	1,017	258	1,512	383	141	36
7	Scrapers	27	0	498	0	46	0	504	0	749	0	70	0
7	Paving Equipment	27	143	505	2,671	46	245	511	2,704	760	4,020	71	376
7	Surfacing Equipment	0	19	0	357	0	33	0	361	0	537	0	50
7	Signal Boards	13	1	236	18	22	2	239	18	355	27	33	3
7	Trenchers	31	17	585	314	54	29	592	318	880	473	82	44
7	Bore/Drill Rigs	5	5	90	98	8	9	91	100	135	148	13	14
7	Excavators	38	0	710	0	65	0	718	0	1,068	0	100	0
7	Concrete/Industrial Saws	0	23	2	427	0	39	2	432	2	643	0	60
7	Cement and Mortar Mixers	2	144	46	2,687	4	246	47	2,719	70	4,044	7	378
7	Cranes	61	2	1,138	29	104	3	1,152	30	1,713	44	160	4
7	Graders	43	0	811	0	74	0	820	0	1,220	0	114	0
7	Off-Highway Trucks	10	0	191	0	18	0	194	0	288	0	27	0
7	Crushing/Proc Equipment	4	1	83	12	8	1	84	12	126	18	12	2
7	Rough Terrain Forklifts	33	1	623	26	57	2	631	26	938	39	88	4
7	Rubber Tired Loaders	130	2	2,424	40	222	4	2,453	40	3,648	60	341	6
7	Rubber Tired Dozers	5	0	90	0	8	0	91	0	135	0	13	0
7	Tractors/Loaders/Backhoes	185	1	3,463	16	318	1	3,505	16	5,213	24	487	2
7	Crawler Tractors	177	0	3,309	0	304	0	3,349	0	4,980	0	465	0
7	Skid Steer Loaders	93	17	1,737	322	159	30	1,758	326	2,614	484	244	45
7	Off-Highway Tractors	24	0	450	0	41	0	456	0	678	0	63	0
7	Dumpers/Tenders	0	15	2	281	0	26	2	285	3	423	0	40
7	Other Construction Equipment	7	1	137	13	13	1	139	13	207	19	19	2
8	2-Wheel Tractors	0	-	0	-	0	-	0	-	0	-	0	-
8	Agricultural Tractors	5,669	17	16,636	51	2,410	7	11,619	36	26,129	80	3,586	11
8	Agricultural Mowers	-	47	-	138	-	20	-	96	-	217	-	30
8	Combines	837	5	2,456	16	356	2	1,715	11	3,857	25	529	3
8	Sprayers	28	214	84	627	12	91	58	438	131	985	18	135
8	Balers	6	92	18	271	3	39	12	189	28	426	4	58
8	Irrigation Sets	264	135	773	396	112	57	540	277	1,215	622	167	85
8	Tillers >5 HP	0	2,705	0	7,937	0	1,150	0	5,544	1	12,467	0	1,711
8	Swathers	147	97	431	283	62	41	301	198	678	445	93	61
8	Hydro Power Units	7	-	20	-	3	-	14	-	32	-	4	-
8	Other Agricultural Equipment	53	19	156	55	23	8	109	39	244	87	34	12

Appendix A

New Equipment Classification Scheme

CLASS 1

LAWN AND GARDEN EQUIPMENT

Equipment Types	PSR Code
1. Trimmers/Edgers/Brush Cutters	53
2. Lawn Mowers	65
3. Leaf Blowers/Vacuums	66
4. Rear Engine Riding Mowers	82
5. Front Mowers	88
6. Chainsaws <4 HP	70 (0 - 4 HP)
7. Shredders <5 HP	96 (0 - 5 HP)
8. Tillers <5 HP	59 (0 - 5 HP)
9. Lawn and Garden Tractors	63
10. Wood Splitters	75
11. Snowblowers	56
12. Chippers/Stump Grinders	26
13. Commercial Turf Equipment	67
14. Other Lawn and Garden Equipment	76

Notes:

1) Commercial Turf Equipment includes the following:
   - Hydro/Seeders Mulchers (1,200 to 1,400 unit sales per year)
   - Riding Turf Mowers
   - Thatchers/Aerators
   - Other Misc. Equipment

2) Other Lawn and Garden Equipment includes the following:
   - Augers
   - Sickel Bar Mowers
   - Other Misc. Equipment

CLASS 2

AIRPORT SERVICE EQUIPMENT

Equipment Types	PSR Code
1. Aircraft Support Equipment	81
2. Terminal Tractors	16

Notes:

1) Aircraft Support Equipment includes the following:

- Aircraft Load Lifters
- De-icing Equipment/Heat and Start Units (about 630 unit sales per year)
- Ground Power Units
- Utility Service Equipment

Baggage Conveyors (about 880 units/year) and Airport Service Vehicles (95 units/year) are also included in Airport Service Equipment.

2) Terminal Tractors includes the following:

- Push-Back Tractors
- Tow Tractors
- Yard Spotters

Aircraft Towing Tractors (480 unit sales per year) and Baggage Towing Tractors (roughly 2,300 units/year) are included in Terminal Tractors.

CLASS 3

RECREATIONAL EQUIPMENT

Equipment Types	PSR Code
1. All Terrain Vehicles (ATVs)	91
2. Minibikes	93
3. Off-Road Motorcycles	92
4. Golf Carts	94
5. Snowmobiles	71
6. Specialty Vehicles/Carts	62

Notes:
1) ATVs include 3-wheeled and 4-wheeled vehicles.

2) Specialty Vehicles/Carts includes Snow Grooming Equipment (300 units/year) and Ice Maintenance Equipment (225 units/year).

CLASS 4

MARINE EQUIPMENT

Equipment Types

1. Inboard Boards <250 HP
2. Outboard Motors
3. Personal Watercraft

Notes:
1) This category will basically use DNR registrations data

CLASS 5

LIGHT COMMERCIAL EQUIPMENT <50 HP

Equipment Types	PSR Code	
1. Generator Sets	9	(0 - 50 HP)
2. Pumps	11	(0 - 50 HP)
3. Air Compressors	10	(0 - 50 HP)
4. Gas Compressors	89	(0 - 50 HP)
5. Welders	17	(0 - 50 HP)
6. Pressure Washers	58	(0 - 50 HP)

Notes:

1) Generator Sets includes the following:

- Baseload generators
- Co-Generation generators
- Marine generators
- Military generators
- Peaking generators
- Portable generators
- RV generators
- Stand-by generators

CLASS 6

INDUSTRIAL EQUIPMENT

Equipment Types	PSR Code
1. Aerial Lifts	64
2. Forklifts	18
3. Sweepers/Scrubbers	21
4. Other General Industrial Equipment	74
5. Other Material Handling Equipment	19

Notes:

1) Aerial Lifts include the following:

- Boom Lifts
- Scissor Lifts

Self Propelled Elevating Platforms are also included in Aerial Lifts.

2) Forklifts include those that are cushion tired and pneumatic tired.

3) Sweepers/Scrubbers equipment type includes Municipal Sweepers, Industrial Sweepers, and Scrubbers.

4) Other General Industrial Equipment includes the following:

- Abrasive Blasting Equipment
- Industrial Blowers/Vacuums
- Industrial Scrapers/Stripers
- Marine/Industrial Winches and Hoists
- Multipurpose Tool Carriers
- Other Misc. Industrial Equipment

5) Other Material Handling Equipment includes Conveyors and Other Misc. Material Handling Equipment.

CLASS 7

CONSTRUCTION EQUIPMENT

Equipment Types	PSR Code
1. Asphalt Pavers	41
2. Tampers/Rammers	95
3. Plate Compactors	61
4. Concrete Pavers	22
5. Rollers	39
6. Scrapers	29
7. Paving Equipment	35
8. Surfacing Equipment	23
9. Signal Boards	72
10. Trenchers	42
11. Bore/Drill Rigs	37
12. Excavators	28
13. Concrete/Industrial Saws	77
14. Cement and Mortar Mixers	57
15. Cranes	27
16. Graders	30
17. Off-Highway Trucks	40
18. Crushing/Proc. Equipment	34
19. Rough Terrain Forklifts	84
20. Rubber Tired Loaders	33
21. Rubber Tired Dozers	32
22. Tractors/Loaders/Backhoes	43
23. Crawler Tractors	31
24. Skid Steer Loaders	38
25. Off-Highway Tractors	68
26. Dumpers/Tenders	60
27. Other Construction Equipment	36

Notes:

1) Tampers/Rammers are the same as Compactors.

2) Concrete Pavers include Slip-Form Pavers. Curb Pavers (about 540 unit sales per year) are included in Concrete Pavers.

3) Rollers include the following:

- Landfill Compactors
- Static and Vibratory Rollers

4) Paving Equipment includes the following:

- Concrete Finishers
- Concrete Vibrators
- Other Misc. Paving Equipment

5) Surfacing Equipment includes the following:

- Asphalt/Gravel Planers
- Asphalt Mixers/Agitators
- Crack/Joint Routers
- Pumper Kettles/Melters
- Other Misc. Surfacing Equipment

Soil Stabilizers (about 35 units sold per year), Road Reclaimers and Pavement Profilers (together comprising about 130 unit sales per year), and Roofing Equipment are also included in Surfacing Equipment. Note that Cold Planers are the same as Pavement Profilers.

6) Trenchers include the following:

- Portable/Walk-Behind Trenchers
- Riding Trenchers

Cable Layers (about 260 units sold per year) and Wheel Trenchers (about 20 units/year) are also included in Trenchers.

7) Bore/Drill Rigs include the following:

- Horizontal Boring Machines
- Self Propelled Drills
- Truck-Mounted Drills

8) Excavators include the following:

- Dragline Excavators
- Hydraulic Excavators

9) Cranes include the following:

- Pedestal Cranes
- Rough Terrain Cranes
- Shovel-Type Cranes
- Straddle Cranes
- Truck Mounted Cranes

10) Other Construction Equipment includes the following:

- Concrete Pumps (about 660 units sold per year)
- Other Misc. Construction Equipment

CLASS 8

AGRICULTURAL EQUIPMENT

Equipment Types	PSR Code
1. 2-Wheel Tractors	98
2. Agricultural Tractors	45
3. Agricultural Mowers	55
4. Combines	47
5. Sprayers	69
6. Balers	49
7. Irrigation Sets	44
8. Tillers >5 HP	59 (> 5 HP)
9. Swathers	48
10. Hydro Power Units	85
11. Other Agricultural Equipment	46

Notes:

1) Agricultural Tractors include 2-wheel and 4-wheel drive tractors, as well as Track-Type Agricultural Tractors (about 150 units sold per year).

2) Sprayers includes the following:

- Back Pack Sprayers
- Self Propelled Sprayers
- Towable/Tractor-Mounted Sprayers

Fertilizer Spreaders (about 2,000 units sold per year) are included in Sprayers.

3) Other Agricultural Equipment includes the following:

- Harvesters
- Specialized Cultivating Equipment
- Specialized Harvesting Equipment
- Other Misc. Agricultural Equipment

Frost/Wind Mills (about 100 units sold per year) are included in Other Agricultural Equipment, as well as Forage Harvesters, Leaf Harvesters, Fruit/Nut Harvesters, Orchard Pruners, Detasslers, Cotton Strippers, and Cotton Pickers (all together only 440 units sold per year).

CLASS 9

LOGGING EQUIPMENT

Equipment Types	PSR Code
1. Chainsaws >4 HP	70 (> 4 HP)
2. Shredders >5 HP	96 (> 5 HP)
3. Skidders	25
4. Fellers/Bunchers	24

Notes:

1) Delimbers (about 55 units sold per year) are the same as Fellers/Bunchers.

2) Portable Saw Mills (about 10 units sold per year) are included in Concrete/Industrial Saws in the Construction - General Applications class.