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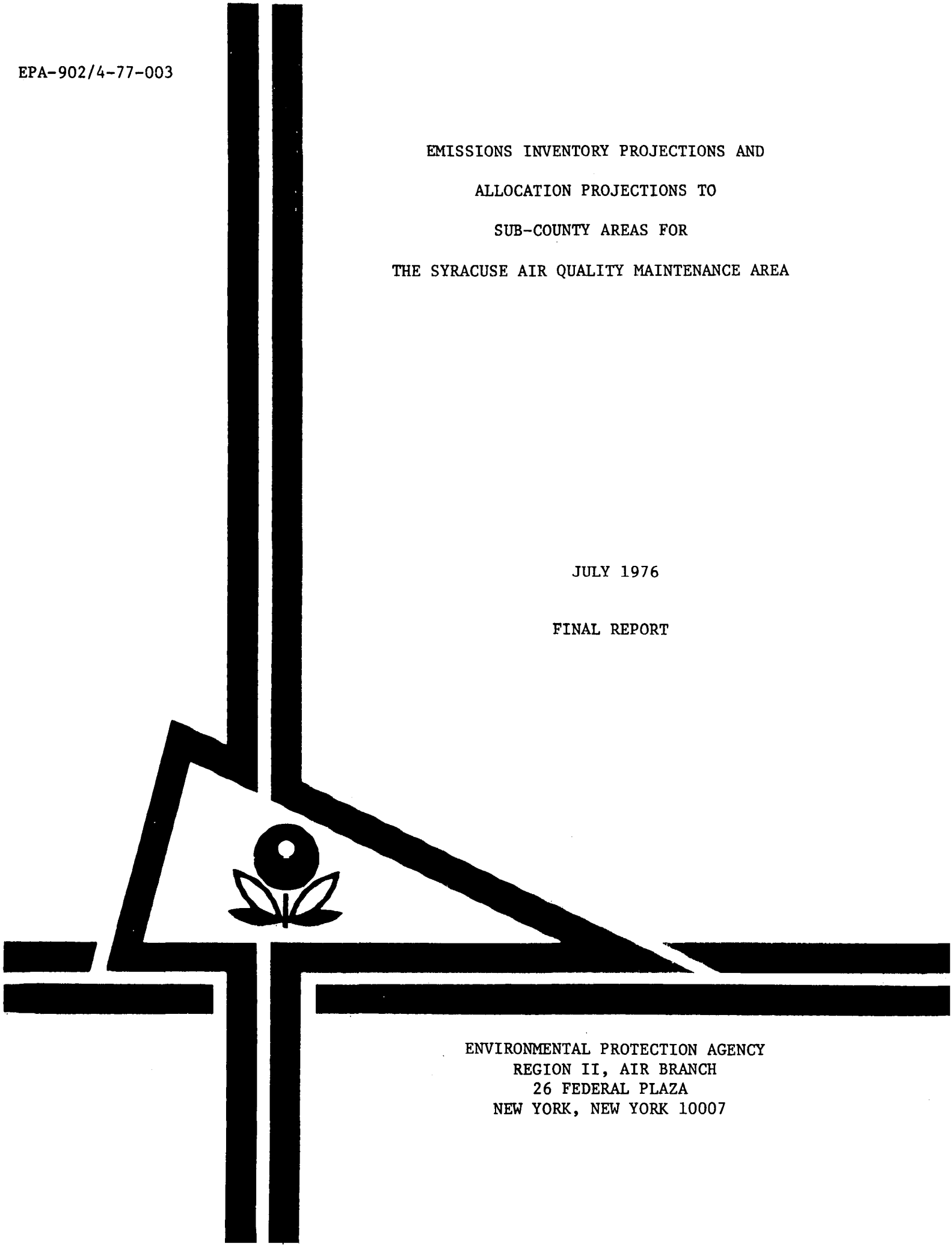
JULY 1976

FINAL REPORT



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Final Report

EMMISSIONS INVENTORY PROJECTIONS AND ALLOCATION PROJECTIONS TO SUB-COUNTY AREAS FOR THE SYRACUSE AIR QUALITY MAINTENANCE AREA

Contract No. 68-02-2302

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This study was conducted in cooperation with the
Central New York Regional Planning and Development Board
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FOREWARD

Pursuant to Federal regulations, New York State is required to identify those areas where, due to current air quality and/or projected growth rates, there is a potential for exceeding national air quality standards. The State must develop an analysis of the impact on air quality of projected growth in each identified problem area. Where necessary, plans must be developed which describe the measures that will be taken to ensure maintenance of the national standards.

To assist in the air quality planning process, this report provides a particulate matter emissions inventory for the Syracuse Air Quality Maintenance Area (Onondaga County, New York) projected to the years 1980, 1985, 1995, and 2000 which can be used as a basis for formulating an air quality maintenance plan.

ABSTRACT

This report provides a disaggregated particulate matter emissions inventory suitable for use in both base year and projection year air quality dispersion modeling required for the Syracuse Air Quality Maintenance Area (Onondaga County, New York). The allocation and projection methodology is essentially that of volumes 7 and 13 of the Guidelines for Air Quality Maintenance Planning series published by the U.S. Environmental Protection Agency.

The New York State Department of Environmental Conservation furnished point and area source emission inventories of particulate matter for the Syracuse AQMA. The Central New York Regional Planning and Development Board allocated the area source emissions inventory to square kilometer grids to establish the base year inventory and applied growth factor analysis to population, employment, transportation, and land use data to project point and area source emissions for the years 1980, 1985, 1995, and 2000. Allocations were made for population-based, transportation-based, commercial/institutional-based, industrial-based and solid waste-based emissions.

The study results clearly indicate that the dominant sources of particulate emissions in Onondaga County are industrial process and fuel point sources. Because Onondaga County is characterized by a uni-center activity area, relatively undeveloped hinterlands, and does not experience problems from exogenous particulate emission sources, technological control strategies applied to the dominant industrial point sources appear to offer the most promise as the initial control approach for particulate emissions in the County.

This report was submitted in fulfillment of Contract No. 68-02-2302 by the Central New York Regional Planning and Development Board under the sponsorship of the U.S. Environmental Protection Agency. This report covers the period 1 December 1975 to 15 June 1976, and work was completed as of 15 July 1977.

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INTRODUCTION

UNDERSTANDING OF PROBLEM

Pursuant to regulations promulgated on 18 June 1973 (38 FR 15834), New York State was required to identify those areas which, due to current air quality and/or projected growth rates, may have the potential for exceeding national standards. In addition, the State must submit an analysis of the impact on air quality of projected growth in each identified problem area. Where necessary, plans must be developed which describe the measures that will be taken to ensure maintenance of the national standards. Completion of this task will provide a comprehensive emissions inventory for the Syracuse AQMA projected to 1980, 1985, 1995, and 2000 which can be used as a basis for formulation of an air quality maintenance plan for AQMA.

Information derived as a result of completion of the task by the Central New York Regional Planning and Development Board will be utilized by the NYS Department of Environmental Conservation to quantify the emission reductions needed in order to develop the plan. DEC's submittal of the plan to EPA will be in accordance with Federal Regulation Requirements and will follow established time schedules for a one or two-year phase plan.

In providing this assistance to the State in a coordinated manner, the RPDB used analysis requirements specified by 40 CFR 51 regulations, subject to data analysis capabilities and needs of NYS DEC. EPA "Guidelines for Air Quality Maintenance Planning and Analysis" Volumes 1-13 served as a basis for the analysis.

TECHNICAL APPROACH

The Central New York Regional Planning and Development Board reviewed and evaluated existing data, developed growth factors, and upgraded and prepared data for planned development for the Syracuse Air Quality Maintenance Area consisting of the Onondaga County pollutant for which the area is designated -- particulate matter.

The RPDB acquired data necessary for the completion of the proposed task, including published guidelines for emission inventories furnished by the Environmental Protection Agency.

The NYS Department of Environmental Conservation furnished point and area source emission inventories of particulate matter for the Syracuse AQMA (Onondaga County) in both paper copy and computer tapes, and provided them in the required format for use by the diffusion model. The CNY RPDB provided current population, employment, transportation, and land use data in a Universal Transverse Mercator grid for the AQMA with cells from 1 to 64 sq. km.

The NYS Department of Environmental Conservation assembled, re-reviewed and evaluated the current point and area source emissions inventory for the Syracuse AQMA. In addition, the NYS DEC retained the industrial point source employment file and requested only area employment allocations by grid cell from the CNY RPDB.

After NYS Department of Environmental Conservation developed and furnished the total area source emissions inventory, the CNY RPDB allocated the area source inventory for the county to square kilometer grids using the methodology expressed in EPA document Volume 13: Allocating Projected Emissions to Sub-County Areas.

The Central New York Regional Planning and Development Board then developed growth factors. Applying growth factor analysis to population, employment, transportation, and land use data, the CNY RPDB made projections of point and area source emissions inventories for 1980, 1985, 1995, and 2000 using EPA Vol. 13: Allocating Projected Emissions to Sub-County Areas.

The requirements for developing AQMAs, including those requirements for intergovernmental cooperation, will be set forth in the Federal Regulations, 40 CFR 51, for the Preparation of State Implementation Plans, Maintenance of National Ambient Air Quality Standards. Until finalization of the Regulations, New York State DEC shall be guided by draft copies of the regulations and any subsequent proposals for promulgations of these regulations in the Federal Register.

The RPDB used the 13-volume set of EPA guidelines, herein listed, as an aid in the interpretation of federal regulations relating to the development of an AQMA. The CNY RPDB followed the EPA Guidelines, Volumes 1-13 where applicable and practical. Deviations from the exact methodology suggested in the guidelines are documented in the sections dealing with emission allocations and projections by type.

Volume

1. Designation of Air Quality Maintenance Areas
2. Plan Preparation
3. Control Strategies
4. Land Use and Transportation Consideration
5. Case Studies in Plan Development
6. Overview of Air Quality Maintenance Area Analysis
7. Projecting County Emissions
8. Computer-Assisted Area Source Emissions Gridding Procedure
9. Evaluating Indirect Sources
10. Reviewing New Stationary Sources
11. Air Quality Monitoring and Data Analysis
12. Applying Atmospheric Simulation Models to Air Quality Maintenance Areas
13. Allocating Projected Emissions to Sub-County Areas

The Central New York Regional Planning and Development Board consulted and worked with local and state agencies when necessary and used those data bases which were necessary to provide estimates of future emissions. Such agencies included, but were not limited to, the NYS Department of Environmental Conservation, NYS Department of Transportation, the Metropolitan Transportation Planning Team of the Syracuse Metropolitan Transportation Study, regional offices of DEC and DoT, the Syracuse-Onondaga County Planning Agency, and the Onondaga County Health Department.

In sum, the Central New York Regional Planning and Development produced sub-county areas and projected allocations and projections for 1975, 1980, 1985, 1995, and 2000.

METHODOLOGY

SCOPE AND STRUCTURE

The sub-county allocation procedure takes place in five distinct stages: (1) population-based; (2) transportation-based; (3) commercial/institional-based; (4) industrial-based; and (5) solid waste-based. The separation of these five stages allowed RPDB to perform the allocation using several different types of available data bases; RPDB combined data from each of the stages consistent with a master grid system.

We have chosen in all cases allocation procedures to fit the most detailed data that are readily available and commensurate with the air quality maintenance problem.

We used traffic districts designed by NYS DoT and towns as sub-areas for allocation. Our baseline year is 1975, and projected emissions are for the years 1980, 1985, 1995, and 2000.

RESIDENTIAL FUEL COMBUSTION EMISSIONS

Procedural Overview

The combustion of fuel for space heating in residential buildings is a ubiquitous source of emissions that can be directly related to population distribution or more specifically to household distribution. We accomplished an analysis by using local and regional studies in addition to U.S. Census and NYS DoT data to determine the household distribution in traffic districts.

Specific Methodology

1. Determine the number of households and the sub-area proportion from census data and the SMTS/SOCPA socio-economic file.

2. Using the allocation proportion, allocate residential fuel combustion emissions using the total area source emissions from the DEC emissions file.

3. Allocate residential fuel combustion emissions to each sub-area for projection years based on local, regional, and state growth factors.

TRANSPORTATION EMISSIONS

Procedural Overview

RPDB considered transportation emissions in the study area to be the result of three principal activities. It accounted for motor vehicle, airport and railyard emissions sources in the allocation procedure.

Allocation methodology applied to the three emissions sources is straightforward. Motor vehicle emissions are based on the SMTS 1975 and 1985 air quality listing provided by the NYS DoT. Hancock International Airport is the principal air facility in the County and is the only airport considered. Similarly, the DeWitt railyard is the principal emissions source for that activity in Onondaga County and the only such source we use for allocation procedures. Base year and forecast years emissions for the airport and railyard are allocated to the towns in which they are located.

Rail lines, barges, and recreational vehicles do not contribute significantly to the particulate emissions in Onondaga County, and RPDB did not consider them in this study.

Specific Methodology

1. Identify total annual vehicle miles traveled for each town using the 1975 SMTS Air Quality List.

2. Determine allocation proportion of each sub-area.

3. Calculate emissions for each sub-area using the DEC emissions inventory.

4. Identify airport location by subarea. Then calculate emissions from the DEC emissions inventory for each subarea containing the airport.

5. Identify railyard and activity proportion from DoT information. Then calculate emissions from the DEC emissions inventory for each subarea containing a railyard.

6. Determine growth factors for motor vehicles, airports, and railyards from local, regional, and state information.

7. Allocate transportation emissions for projection years.

COMMERCIAL/INSTITUTIONAL FUEL COMBUSTION EMISSIONS

Procedural Overview

Generally the commercial and institutional development follows the distribution of population. There are situations, however, where this assumption may not be accurate. Large urban CBD's, regional shopping centers, and regional hospitals are examples of development locating in an area of low population density.

We used the SMTS Onondaga County Employment File to determine commercial/institutional employment ratios in each traffic district. We calculated the proportion for each traffic district and applied proportions to the employment totals as developed in the 1976 CNY RPDB Economic Profile and Projections report.

Specific Methodology

1. Determine commercial/institutional employment proportions for each sub-area.

2. Allocate commercial/institutional employment to each sub-area.

3. Allocate commercial/institutional fuel combustion emissions to each sub-area.

4. Determine projections using 1976 CNY RPDB Economic Profile and Projections.

5. Allocate commercial/institutional fuel combustion emissions for projection years.

INDUSTRIAL EMPLOYMENT ALLOCATIONS

Procedural Overview

The CNY RPDB worked closely with the NYS DEC in order to provide them with the most useful data. Confidential point source employment was retained by DEC.

CNY RPDB located industries in appropriate grid squares from the Facilities Emissions Summary (FES) for Onondaga County. The 1975 SOCPA Industrial Index (IEE) provided RPDB with employment distribution ratios. The employment totals from the 1976 CNY RPDB Economic Profile and Projections report were allocated to grid squares.

Specific Methodology

1. Locate appropriate grid square for each industry listed in the FES.

2. Determine employment location ratios from the SOCPA 1975 IEE.

3. Allocate industrial employment from the 1976 Economic Profile and Projections report.

SOLID WASTE EMISSIONS

Procedural Overview

The RPDB used population as an allocator of residential open burning. Population proportions for each sub-area where open burning is allowable was calculated by RPDB.

In Onondaga County, cities and villages are prohibited from open burning. However, towns with populations of less than 20,000 are permitted to have burning of rubbish generated by residential activity. Therefore, we calculated emissions for those areas in which open burning is permitted.

Commercial/institutional and industrial incinerators are indicated on the DEC point source file. Therefore, RPDB allocated incinerator emission point sources to appropriate sub-areas.

Specific Methodology

1. Determine commercial/institutional and industrial incinerator point sources from the DEC point source file and allocate emissions to sub-area.

2. Determine sub-areas with populations of less than 20,000.

3. Determine allocation proportions for sub-areas and calculate residential open burning emissions using the area open burning factors from DEC data.

4. Using local, regional, and state information, allocate emissions for solid waste open burning for projection years.

RESIDENTIAL EMISSIONS

Particulate emissions which result from residential fuel combustion have been based by RPDB on the number and location of households within Onondaga County. We obtained 1975 base year and 1980, 1985, and 1995 forecast year horizon households from socio-economic data files provided by SMTS/SOCPA. In the data files, households for the base year 1975 and indicated forecast years were delineated by traffic zones. These zones were aggregated by RPDB to form traffic districts reducing the number of County subareas from 220 to 43.

RPDB assumed that each household required a dwelling unit, therefore the number of dwelling units in any subarea in any forecast year were assumed by RPDB to be equal to the number of households.

For forecast year 2000, the number of dwelling units was determined by applying the previous actual or proportional 5-year increase in each traffic district to the existing forecast year number of dwelling units. The equation used by RPDB to determine forecast year 2000 dwelling units was:

$$(\text{1995 dwelling units}_j / \text{1990 dwelling units}_j) \cdot \text{1995 dwelling units}_j = \text{year 2000 dwelling units}_j$$

where: j = traffic district subareas

RPDB determined allocation proportions for each traffic district by dividing the dwelling units in each traffic district subarea by the total dwelling units in the county for the given year. Allocation proportions were calculated through the following formula:

$$\text{Dwelling units}_{ij} / \text{Total dwelling units}_i = \text{Allocation proportion}_{ij}$$

where i = year
j = traffic district subarea

Several alternative methods were investigated by RPDB before the simple allocation based on dwelling units was adopted. Initially RPDB used census tract data to determine the number and location of dwelling units per building. Problems which the RPDB encountered in using this approach included the small number of larger buildings and subsequent difficulty in predicting their growth in forecast years.

We eliminated type of fuel as a factor due to the lack of precise data for fuel type below the SMSA level. The only means of classifying fuel type use by subarea would have been application of the SMSA fuel use characteristics to each subarea and building size. Such a process involving small numbers of dwelling units in the less populated census tracts would have made the predicted increases for forecast years too small to be meaningful. Because 85% of residential fuel type use is natural gas, we felt the benefit of uncertain fuel type forecasting would have been outweighed by the lack of significant results. Residential emissions are displayed in Table 1, Dwelling Unit-Based Allocation Projections and Particulate Emissions for Sub-County Areas.

TRANSPORTATION EMISSIONS

RPDB developed motor vehicle particulate emissions allocations in town-based subareas through the use of data supplied by the NYS DoT. The data base we used consisted of vehicle miles traveled (VMT) by traffic zone in the County of Onondaga. This data was provided to us for both base year 1975 and forecast year 1985.

RPDB used towns as the subarea designation due to difficulties in fitting the links, zones, and districts used in the DoT data set to the traffic districts used by the SMTS/SOCPA socio-economic file. Rather than attempt to allocate the schematically designated zones and districts which were the basis of the NYS DoT data file to the political- and geographic-based traffic districts used in the SMTS-SOCPA data file, we chose to use a town subarea system of designation. This provided continuity in the subarea designation system used for industrial, solid waste, and transportation emissions allocations.

To arrange the data for use on a town subarea basis, RPDB assigned the traffic zones contained in the NYS DoT data file to town-based political units. Those zones which crossed political unit boundaries were assigned to the political unit which contained the greatest amount of the traffic zone.

With the completion of the above procedure, RPDB had VMT in the average travel day by town-based political unit subareas for base year 1975 and forecast year 1985. We calculated the percent of change for each subarea by means of the following formula:

$$(1) \qquad (1985\ VMT_j - 1975\ VMT_j) / 1975\ VMT_j = \text{Percent change}_{1975\text{-}1985j}$$

where j = subarea

The results of equation 1 were multiplied by 0.5 in order to calculate the vehicle miles traveled in each subarea for forecast year 1980. The unchanged results of equation 1 were applied by us to the 1985 VMT in each subarea to obtain VMT in forecast year 1995. Finally, RPDB calculated forecast year 2000 VMT in a manner similar to that used for 1980 forecast. We used one-half of the change calculated in equation 1 as a multiplier of the 1995 vehicle miles traveled in each subarea.

We multiplied the results for each forecast year and subarea by 365 to determine the vehicle miles traveled in a year. The 365 figure was suggested to RPDB by the NYS DoT Region 3 Office as an appropriate factor for determining vehicle miles traveled in a year.

To determine the particulates emitted in each subarea by motor vehicles, RPDB developed allocation factors for each subarea by applying the following formula:

(2) $$VMT/year_{ij} / VMT/year_{i} = \% VMT/year_{ij}$$

where i = base or forecast year
j = subarea

Total motor vehicle particulate emissions were provided to RPDB by NYS DEC for base year 1975 and forecast years 1980 and 1985. RPDB calculated emissions for forecast years 1995 and 2000 through a linear projection of the average 1975-1985 emission increases. We multiplied the base year and forecast year emissions by the results of equation 2 to calculate particulate emissions by forecast year and subarea.

We added railroad and aircraft emissions to the appropriate subareas subsequent to the calculation of motor vehicle emissions. Information concerning railroad and aircraft emissions was provided by the NYS DEC. RPDB considered these emissions sources to be point sources located in discrete subareas. Transportation emissions are displayed in Table 2, Motor Vehicle Miles Traveled Allocation Projections, Table 3, Aircraft and Railyard Emissions, and Table 4, Transportation Particulate Emission Allocations.

COMMERCIAL/INSTITUTIONAL EMISSIONS

The CNY RPDB has based the allocation of commercial-institutional fuel combustion particulate emissions on location of employment. This method follows the general form of an order 2 analysis as presented in Guidelines for Air Quality Maintenance Planning and Analysis, Areawide Waste Water Treatment Management Planning Program, CNY RPDB, Nov. 1976. Commercial/ Institutional employment for AQMA consisted of the following categories from the Economic Profile and Projections Report: Transportation, Communications, Utilities, Wholesale and Retail Trade, Finance, Insurance, Real Estate, Service, and Government. Allocation ratios for traffic districts were derived from the Onondaga County SMTS Employment File.

The particulate emissions were allocated according to the employment ratios in each subarea and the total area-wide particulate emissions received from New York State Department of Environmental Conservation. Commercial/ Institutional emissions are displayed in Table 5, Commercial/Institutional Employment Allocations and Emissions for Sub-County Areas.

INDUSTRIAL EMPLOYMENT BY GRID SQUARE

RPDB calculated the industrial employment for grid squares using four sets of data: the Facility Emissions Summary (FES) for Onondaga County provided to RPDB by NYS DEC, the 1975 Industrial Index for Onondaga County, the 1975 Syracuse IEE file provided to the RPDB by the Syracuse-Onondaga County Planning Agency, and the 1976 RPDB Economic Profile and Projections.

RPDB first located the appropriate grid square for each industry listed in the FES by the grid coordinates. In several instances these had to be corrected, as the location indicated by the grid coordinates in the FES did not correspond to the actual location of the industry. Once located in a grid square, employment for the industry was taken by RPDB from the 1975 Industrial Index or the IEE file based on compatibility of location and SIC codes. This employment figure was then assigned to the grid square. When this procedure had been completed for those industries in the FES, all industries listed in the 1975 Industrial Index were located in grid squares based on addresses listed in the Index. Employment was determined and assigned to grid squares in the manner outlined above.

The last step in the employment calculation consisted of checking those grid squares where no industrial employment was indicated subsequent to the application of the method outlined above. The checking procedure consisted of determining the industrial employment for the traffic zone or zones which encompassed the grid square in question. If the industrial employment listed in the IEE file had not been accounted for it was listed in the grid square being checked. Industrial employment is displayed in Table 6, Industrial Employment Allocations.

SOLID WASTE EMISSIONS

RPDB was concerned with two factors in the allocation of particulate emissions resulting from solid waste disposal. These factors were emissions generated by open burning and those generated by incineration operations.

We calculated open burning emissions by applying the following formula supplied by the NYS DEC:

$$(1) \qquad \left(\text{Pop}\sum_{i}^{n} \text{ of exempt subareas}/1000\right) \times .976 = \text{Emissions in tons per year}$$

The subareas which we used for open burning emissions are based on town political units in the county. A number of the towns are prevented by NYS law from permitting burning. These limitations included restrictions on open burning in towns over 20,000 population and all incorporated villages. The population number used in equation 1 did not include the populations of incorporated villages which were encompassed by a town subarea. Forecast populations for towns under 20,000 population were taken by RPDB from the 1975 SMTS/SOCPA socio-economic characteristic file. Those towns in which the population exceeded 20,000 in a forecast year were then dropped by us from further consideration as a source of open-burning emissions.

The second source of solid waste disposal particulate emissions considered by RPDB was that produced by incinerator operations. We aggregated all incinerator emissions by subarea from the point source emission file provided by NYS DEC. No area source incinerator particulate emissions figure was available to RPDB, and consequently we did not forecast incinerator emissions. Forecasts developed through the application of a growth factor to the 1975 data were not seen as useful by RPDB due to the irregular mix of incinerator emissions sources in the subareas. Several subareas had base year emission sources which were not likely to expand, such as apartment buildings. Due to such source specific distortions and the small contribution made by incinerator emissions to total particulates, RPDB did not forecast incinerator particulate emissions but held the 1975 base year figures constant throughout the forecast years. Table 7 displays open burning particulate emissions and Table 8 incinerator emissions.

MASTER GRIDDING PROCEDURE

PROCEDURAL OVERVIEW

To this point, we have handled each of the stages of the allocation procedure separately: population, transportation, commercial/institutional/industrial, and solid waste. We have used a number of sub-county areas different from each other in allocating emissions from each source category. In order to coordinate the results from all the analyses, RPDB constructed a single master grid system.

We used a Universal Transverse Mercator (UTM) coordinate system superimposed on the Onondaga County base map. We chose grid squares according to various population and other demographic factors.

The objective of the gridding procedure is to provide a logically determined set of grid squares to which area source emissions can be allocated on the basis of both subjective and objective factors. Some pertinent grid characteristics are: contained population (or its inverse), area side length, contained housing units, housing per unit area (or its inverse), specific point sources, and commercial/industrial/institutional employment. These characteristics indicate the dominance of population as a basis for the distribution of area source emissions. We used specific land use data to determine the location of predominant land uses within each sub-area.

SPECIFIC METHODOLOGY

1. On a sheet of mylar, RPDB constructed a grid system using squares of 1 to 64 sq. km.

2. RPDB selected appropriate U.S. Geological Survey 1:24,000 scale maps to cover Onondaga County, and used topographic features, terrain characteristics, urbanization, forestation, transportation systems, and other pertinent characteristics to establish preliminary grid cells.

3. RPDB used a detailed land use map to further aid gridding. The grid obtained from (2) above served as a basis for further refinement by the land use information. In order to ensure compatibility with the projections of county emissions, we also used the Central New York Region Metropolitan Area Land Use Study to make the grid system compatible with the predictive nature of the air quality study.

4. Generally, RPDB assumed that having selected grid cells, the allocated particulate matter is evenly distributed over the entire grid cell.

The application of the above steps resulted in the distribution of town and traffic districts subarea to grid squares on the basis of the percentage of land each subarea had in each grid square. Table 9 shows the UTM coordinates for each grid square, Table 10 the grid square allocations by town, and Table 11 the grid square allocations by traffic districts.

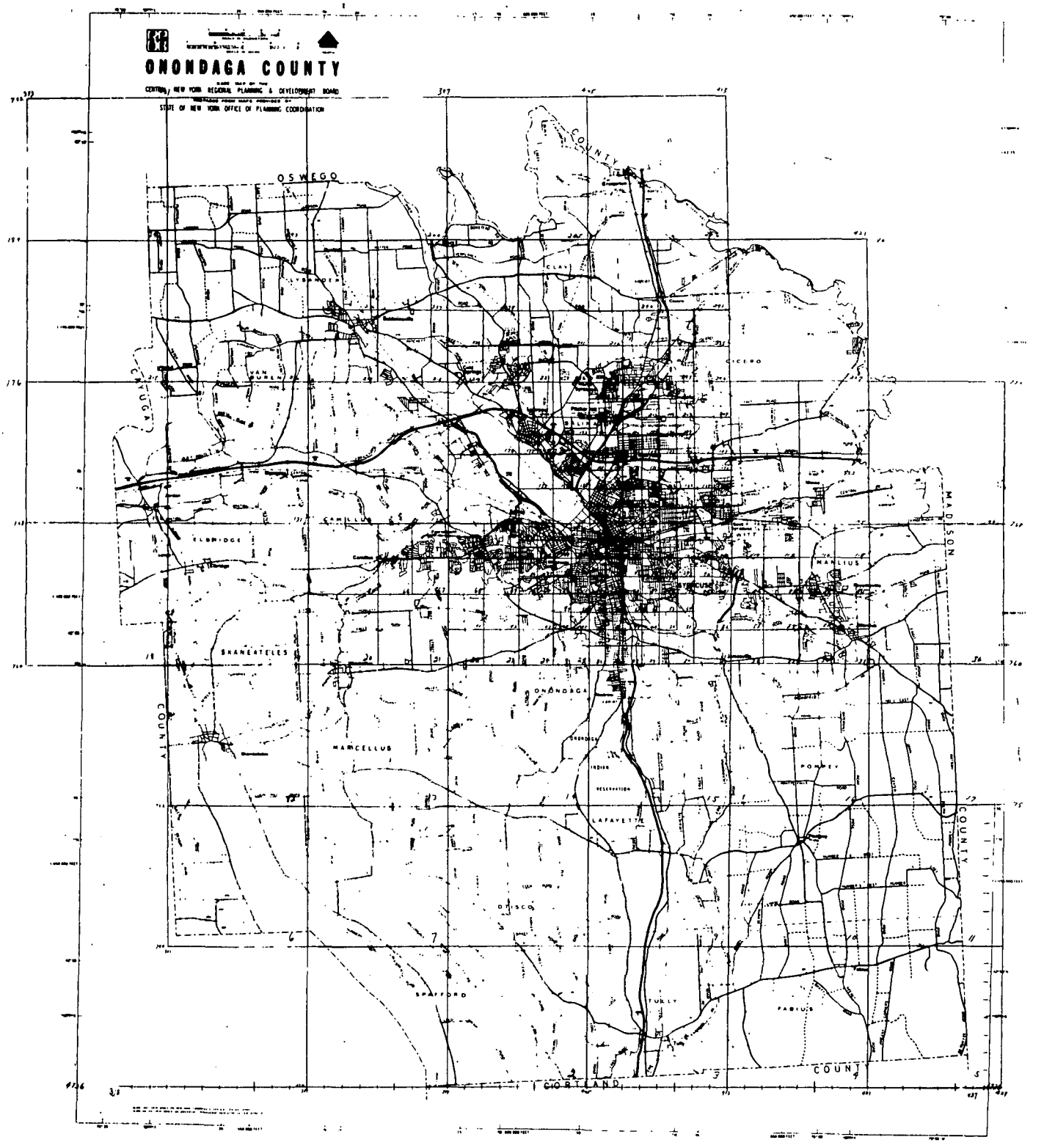

FIGURE 1. MASTER GRID FOR ONONDAGA COUNTY

CONCLUSIONS AND RECOMMENDATIONS

The particulate allocation procedure performed by RPDB requires that several cautionary notes be made regarding the methods used to determine the final particulate amounts allocated to each master grid square.

First, all procedures were based on essentially linear projection methods. This approach included both interpolation and extrapolation to generate control parameters. Within the framework of this method, sensitivity to either natural cyclical trends affecting economic activity in Onondaga County or subarea specific alterations of base year parameters is not reflected in the study results. The nature of the data manipulation techniques we used was not intended to account for non-linear change. Where rate of change varies between forecast years for a class of particulate emission sources, it is a result arising from the format of the data sources we felt best suited the purposes of the air quality study.

A second consideration regarding limitations on the study results concerns the assumed steady state of technological control of particulate emissions and a constant mix of fuel use type. In these respects, the study results illustrate "worst-case" particulate emissions situations for the forecast years, particularly in the industrial class of process particulate emissions sources. There was some discussion in the early phases of program execution concerning the impact of technological change in industrial groups, but the possible parameters accounting for such change were not sufficiently proven to justify their use as a factor for the forecasting of group specific industrial emissions.

Technological change is reflected in the transportation emissions. Consideration of this change is limited to increases in each forecast year in the number of vehicle miles traveled for each ton of particulate matter emitted. This change is a reflection of federally mandated improvements in mileage performance for passenger cars.

A corollary to the consideration of technological changes is the change in type of fuel use. The study did not account for possible changes in fuel use, particularly for those classes of particulate emissions sources, residential and commercial, where substititution for heating purposes is possible. The fuel currently in predominant use for heating in Onondaga County is natural gas. Available data on possible effects of price deregulation or rationing and subsequent change-over to alternate heat sources such as electricity, fuel oil, or coal were not of sufficient sensitivity to be used in this study.

SUMMARY

The study results clearly indicate that the dominant sources of particulate emissions in Onondaga County are industrial process and fuel point sources. Furthermore, the principal sources of these emissions are localized in certain

areas of the County. Within these considerations possible control strategies to ameliorate particulate emissions levels are best focused on the industrial group, which makes the significant contribution to particulate emissions levels.

Alternate strategies, such as land use controls directed at limiting concentration of emission sources, would not address the problems currently existing due to point sources emissions. Because Onondaga County is characterized by a uni-center activity area, relatively under-utilized hinterlands, and does not experience problems from exogenous particulate emissions sources, technological control strategies applied to the dominant industrial point sources appear to be the preferable initial control approach for particulate emissions in the County.

TABLE 1. DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1975

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
00	1,192	.0077	1.95
10	5,943	.0383	9.69
11	4,128	.0266	6.73
12	1,035	.0067	1.70
13	1,377	.0089	2.25
14	2,908	.0187	4.73
15	5,877	.0379	9.59
16	1,769	.0114	2.88
17	114	.0007	.18
18	3,673	.0237	6.00
20	4,750	.0306	7.74
21	7,278	.0469	11.87
22	5,967	.0384	9.72
23	5,166	.0333	8.43
24	6,671	.0430	10.88
25	5,946	.0383	9.69
26	4,425	.0285	7.21
27	4,154	.0268	6.68
28	1,780	.0115	2.91
30	12,319	.0794	20.09
31	3,148	.0203	5.14
32	5,534	.0357	9.03
33	1,044	.0067	1.70
34	1,063	.0068	1.75
35	1,894	.0122	3.09
36	4,835	.0312	7.89
37	1,610	.0104	2.63
38	11,556	.0745	18.85
40	4,479	.0288	7.29
41	473	.0030	.76

TABLE 1. DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1975

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
42	7,236	.0466	11.79
43	1,154	.0074	1.87
44	964	.0062	1.57
45	1,186	.0076	1.92
46	3,876	.0249	6.30
47	5,765	.0372	9.41
48	3,460	.0222	5.64
52	724	.0047	1.19
53	1,055	.0068	1.72
54	1,380	.0089	2.25
55	3,126	.0202	5.11
56	1,711	.0111	2.81
57	1,437	.0092	2.33
			253.00
County Total	155,182		

TABLE 1: DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1980

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
00	1,662	.0099	2.91
10	5,883	.0350	10.29
11	4,078	.0242	7.12
12	1,615	.0096	2.52
13	1,357	.0081	2.38
14	2,743	.0163	4.79
15	5,717	.0340	10.00
16	1,749	.0104	3.06
17	104	.0006	.18
18	3,673	.0218	6.41
20	4,757	.0283	8.32
21	7,495	.0445	13.08
22	6,132	.0364	10.70
23	5,166	.0307	9.03
24	6,666	.0396	11.64
25	5,951	.0354	10.41
26	4,535	.0270	8.00
27	4,234	.0252	7.41
28	1,790	.0106	3.12
30	12,380	.0736	21.64
31	3,353	.0199	5.85
32	5,818	.0356	10.47
33	1,259	.0075	2.91
34	1,078	.0064	1.88
35	2,300	.0137	4.03
36	5,345	.0318	9.35
37	1,625	.0097	2.85
38	12,456	.0740	21.76
40	5,013	.0298	8.76
41	498	.0030	.88

TABLE 1: DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1980

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
42	8,110	.0482	14.17
43	1,279	.0076	2.23
44	1,061	.0063	1.85
45	1,361	.0081	2.38
46	4,199	.0249	7.32
47	9,290	.0552	16.23
48	6,295	.0374	11.00
52	754	.0045	1.32
53	1,152	.0068	2.00
54	1,492	.0089	2.62
55	3,246	.0193	5.67
56	1,875	.0111	3.26
57	1,687	.0100	2.94
			294.00
County Total	168,233		

TABLE 1: DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1985

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
00	1,712	.0095	3.03
10	5,893	.0327	10.43
11	4,353	.0242	7.72
12	1,570	.0087	2.78
13	1,357	.0075	2.39
14	2,703	.0150	4.79
15	5,692	.0316	10.08
16	1,749	.0097	3.09
17	104	.0006	.19
18	3,683	.0204	6.51
20	4,737	.0263	8.39
21	7,515	.0417	13.30
22	6,167	.0342	10.91
23	5,216	.0290	9.25
24	6,666	.0370	11.80
25	5,951	.0330	10.53
26	4,540	.0252	8.04
27	4,244	.0236	7.53
28	1,789	.0099	3.16
30	12,621	.0701	22.36
31	3,520	.0195	6.22
32	6,033	.0335	10.69
33	1,559	.0087	2.78
34	1,097	.0061	1.95
35	2,515	.0140	4.47
36	6,918	.0384	12.25
37	1,660	.0092	2.94
38	13,155	.0730	23.29
40	5,595	.0311	9.92
41	588	.0033	1.05

TABLE 1: DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1985

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
42	8,785	.0488	15.57
43	1,419	.0079	2.52
44	1,143	.0063	2.01
45	1,521	.0084	2.68
46	5,217	.0290	9.25
47	11,390	.0632	20.16
48	8,745	.0485	15.47
52	779	.0043	1.37
53	1,262	.0070	2.23
54	1,612	.0089	2.84
55	3,399	.0189	6.03
56	2,050	.0114	3.64
57	1,887	.0105	3.35
County Total	180,111		319.00

TABLE 1. DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1995

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
00	1,182	.0091	3.13
10	5,988	.0302	10.39
11	4,343	.0219	7.53
12	1,550	.0078	2.68
13	1,357	.0068	2.34
14	2,673	.0135	4.64
15	5,602	.0283	9.74
16	1,764	.0089	3.06
17	104	.0005	.17
18	3,683	.0186	6.40
20	4,762	.0240	8.26
21	7,620	.0384	13.21
22	6,227	.0314	10.80
23	5,226	.0264	9.08
24	6,751	.0340	11.70
25	6,072	.0306	10.53
26	4,540	.0229	7.88
27	4,304	.0217	7.47
28	1,809	.0091	3.13
30	13,371	.0674	23.19
31	3,795	.0191	6.57
32	6,358	.0321	11.04
33	1,749	.0088	3.03
34	1,133	.0057	1.96
35	3.090	.0156	5.37
36	7,068	.0356	12.25
37	1,775	.0089	3.06
38	14,316	.0722	25.27
40	6,470	.0326	11.21
41	863	.0044	1.51

TABLE 1. DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 1995

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
42	9,735	.0491	16.89
43	1,704	.0086	2.96
44	1,363	.0069	2.37
45	2,061	.0104	3.58
46	7,142	.0360	12.38
47	15,438	.0779	26.80
48	12,165	.0164	15.64
52	879	.0044	1.51
53	1,543	.0078	2.68
54	1,888	.0095	3.27
55	3,689	.0186	6.40
56	2,390	.0121	4.16
57	2,157	.0109	3.75
			344.00
County Total	198,279		

TABLE 1: DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 2000

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
00	1,822	.0090	3.17
10	5,985	.0295	10.38
11	4,333	.0214	7.53
12	1,530	.0075	2.64
13	1,357	.0067	2.36
14	2,653	.0131	4.61
15	5,562	.0274	9.65
16	1,774	.0087	3.06
17	104	.0005	.18
18	3,683	.0182	6.41
20	4,795	.0237	8.34
21	7,630	.0376	13.24
22	6,257	.0309	10.88
23	5,226	.0258	9.08
24	6,811	.0336	11.83
25	6,092	.0301	10.60
26	4,540	.0224	7.89
27	4,304	.0212	7.46
28	1,809	.0089	3.13
30	13,971	.0689	24.25
31	3,945	.0195	6.86
32	6,658	.0328	11.55
33	1,801	.0089	3.13
34	1,233	.0061	2.15
35	3,496	.0172	6.05
36	7,098	.0350	12.39
37	1,840	.0091	3.20
38	15,116	.0746	26.26
40	6,880	.0339	11.93
41	910	.0045	1.58

TABLE 1: DWELLING UNIT-BASED ALLOCATION PROPORTIONS & PARTICULATE EMISSIONS FOR SUB-COUNTY AREAS

A. County - Onondaga
B. Year - 2000

Subarea	Number of Dwelling Units	Allocation Proportion	T/Yr.
42	10,085	.0497	17.49
43	1,804	.0089	3.13
44	1,410	.0070	2.46
45	2,171	.0107	3.77
46	7,162	.0353	12.43
47	15,738	.0776	27.32
48	12,565	.0620	21.82
52	835	.0041	1.44
53	1,563	.0077	2.71
54	1,898	.0093	3.27
55	3,701	.0183	6.44
56	2,410	.0119	4.19
57	2,157	.0106	3.73
			352.00

County Total 202,713

TABLE 2. MOTOR VEHICLE MILES TRAVELED ALLOCATION PROPORTIONS

SUBAREA	1975		1980		1985	
	VMT/YR.* (x100)	PRO.*	VMT/YR.* (x100)	PRO.*	VMT/YR.* (x100)	PRO.*
Camillus	976740	.0484	1190812	.0520	1404885	.0549
Cicero	1101205	.0546	1346120	.0588	1591035	.0622
Clay	1406345	.0697	1748532	.0764	2090720	.0817
Dewitt	2181970	.1082	2323774	.1015	2465575	.0964
Elbridge	586190	.0021	643717	.0281	641305	.0250
Fabius	42705	.0021	75372	.0033	108040	.0042
Geddes	1098285	.0545	1186470	.0518	1294655	.0506
Lafayette	772705	.0383	892425	.0390	1012145	.0396
Lysander	693500	.0344	1053390	.0460	1413280	.0553
Manlius	1203040	.0597	1374042	.0600	1545045	.0604
Marcellus	341275	.0169	389455	.0170	437635	.0171
Onondaga	953380	.0473	1280055	.0559	1606730	.0628
Otisco	101105	.0050	131765	.0057	162425	.0063
Pompey	21900	.0010	34127	.0015	46355	.0018
Salina	1804925	.0895	1842520	.0805	1880115	.0735
Skaneateles	323755	.0161	384345	.0168	444935	.0174
Spafford	82125	.0041	95082	.0041	108040	.0042
Syracuse	5001595	.2481	5266767	.2301	5531940	.2163
Tully	127385	.0063	153482	.0067	179580	.0070
Van Buren	1339195	.0064	1474422	.0644	1609650	.0629
Total VMT/Yr. (x100)	20160045		22886674		25574090	

*VMT/YR. = Vehicle miles traveled per year

*Pro. = Proportion of total VMT/Yr. in subarea

TABLE 2. MOTOR VEHICLE MILES TRAVELED ALLOCATION PROPORTIONS

SUBAREA	1995		2000	
	VMT/YR.* (x100)	PRO.*	VMT/YR.* (x100)	PRO.*
Camillus	1833029	.0592	2047101	.0608
Cicero	2080865	.0672	2325780	.0691
Clay	2775094	.0896	3117281	.0926
Dewitt	2749183	.0087	2890987	.0859
Elbridge	696419	.0225	723976	.0215
Fabius	173374	.0056	206041	.0061
Geddes	1471025	.0475	1559210	.0463
Lafayette	1251585	.0404	1371305	.0407
Lysander	2133060	.0689	2492950	.0704
Manlius	1887049	.0609	2058051	.0611
Marcellus	533995	.0172	582175	.0173
Onondaga	2260080	.0729	2586755	.0768
Otisco	223745	.0072	254405	.0075
Pompey	70809	.0023	83036	.0025
Salina	1955305	.0631	1992900	.0592
Skaneateles	566115	.0183	626705	.0186
Spafford	133954	.0043	146911	.0044
Syracuse	6062280	.1957	6327452	.1879
Tully	231774	.0075	257871	.0076
Van Buren	1880104	.0607	2015331	.0598
Total VMT/Yr. (x100)	30968844		33666223	

*VMT/YR. = Vehicle miles traveled per year

*Pro. = Proportion of total VMT/Yr. in Subarea

TABLE 3. AIRCRAFT AND RAILYARD EMISSIONS

SUBAREA	1975	1980	1985	1995	2000
	T/Y*	T/Y	T/Y	T/Y	T/Y
Dewitt	33.5	62.5	65.5	68.5	71.5
Manlius	12.5	12.5	12.5	12.5	12.5

*T/Y = particulate emissions in tons per year

TABLE 4. TRANSPORTATION PARTICULATE EMISSION ALLOCATIONS

SUBAREA	1975		1980		1985		1995		2000	
	Pro.*	T/Y*	Pro.*	T/Y*	Pro.*	T/Y*	Pro.*	T/Y*	Pro.*	T/Y*
Camillus	.0484	74.3	.0520	85.6	.0559	96.5	.0592	117.4	.0608	127.5
Cicero	.0546	83.8	.0588	96.7	.0622	109.3	.0672	133.3	.0691	145.0
Clay	.0697	106.9	.0764	125.7	.0817	143.6	.0896	177.8	.0926	194.2
Dewitt	.1082	166.1	.1015	167.1	.0964	169.4	.0870	172.2	.0859	180.4
Elbridge	.0290	44.5	.0281	46.2	.0250	43.9	.0225	44.6	.0215	45.1
Fabius	.0021	3.2	.0033	5.4	.0042	7.4	.0056	11.1	.0061	12.8
Geddes	.0545	83.6	.0518	85.2	.0506	88.9	.0475	94.2	.0463	97.1
Lafayette	.0383	58.8	.0390	64.2	.0396	69.6	.0404	80.1	.0407	85.4
Lysander	.0344	52.8	.0460	75.7	.0553	97.2	.0689	136.7	.0704	147.7
Manlius	.0597	91.7	.0600	98.8	.0604	106.2	.0609	120.8	.0611	128.2
Marcellus	.0169	25.9	.0170	27.9	.0171	30.1	.0172	34.1	.0173	36.3
Onondaga	.0473	72.6	.0559	92.0	.0628	110.4	.0729	144.6	.0768	161.1
Otisco	.0050	7.7	.0057	9.4	.0063	11.0	.0072	14.3	.0075	15.7
Pompey	.0010	1.5	.0015	2.5	.0018	3.1	.0023	4.6	.0025	5.2
Salina	.0895	137.4	.0805	132.5	.0735	129.2	.0631	125.2	.0592	124.2
Skaneateles	.0161	24.7	.0168	27.6	.0174	30.6	.0183	36.3	.0186	39.0
Spafford	.0041	6.3	.0041	6.7	.0042	7.4	.0043	8.5	.0044	9.2
Syracuse	.2481	380.8	.2301	378.7	.2163	380.2	.1957	388.3	.1879	394.4
Tully	.0063	9.6	.0067	11.0	.0070	12.3	.0075	14.9	.0076	15.9
Van Buren	.0064	9.8	.0644	106.0	.0629	110.6	.0607	120.4	.0598	125.4
TOTAL TONS/YEAR	1535		1646		1758		1984		2098	

PRO. = allocation proportion

T/Y = particulates in tons per year

ONONDAGA COUNTY
YEAR - 1975

TABLE 5. COMMERCIAL/INSTITUTIONAL EMPLOYMENT ALLOCATIONS AND EMISSIONS FOR SUB-COUNTY AREAS

Subarea	Commercial/Institutional Employment	Allocation Proportion	Particulate Tons/Year
00	29,433	.2223	206.50
10	4,012	.0303	28.58
11	4,594	.0347	32.13
12	2,993	.0226	20.93
13	11,797	.0891	82.51
14	3,628	.0891	82.51
15	1,086	.0082	7.59
16	3,284	.0248	22.97
17	5,389	.0407	37.69
18	1,403	.0106	9.82
20	2,529	.0191	17.69
21	5,389	.0407	37.69
22	4,727	.0357	33.06
23	967	.0073	6.76
24	2,317	.0175	16.21
25	1,655	.0125	11.58
26	2,185	.1065	15.28
27	2,860	.0216	20.00
28	2,052	.0155	14.35
30	4,568	.0345	31.95
31	8,646	.0653	60.47
32	5,018	.0379	35.10
33	1,086	.0082	7.59
34	636	.0098	4.45
35	2,542	.0192	17.78
36	3,019	.0228	21.11
37	1,099	.0083	7.69
38	4,846	.0366	33.90
40	1,523	.0115	10.65
41	291	.0022	2.03
42	2,542	.0192	17.78
43	172	.0013	1.20
44	371	.0028	2.59
45	93	.0007	.65
46	1,192	.0090	8.33
47	1,295	.0094	8.70
48	503	.0038	3.52
52	66	.0005	.46
53	225	.0017	1.57
54	252	.0019	1.76
55	808	.0061	5.65
56	397	.0030	2.78
57	93	.0007	.65
COUNTY TOTAL	133,533		935.07

ONONDAGA COUNTY
YEAR - 1980

TABLE 5. COMMERCIAL/INSTITUTIONAL EMPLOYMENT ALLOCATIONS AND EMISSIONS FOR SUB-COUNTY AREAS

Subarea	Commercial/Institutional Employment	Allocation Proportion	Particulate Tons/Year
00	38,922	.2621	269.64
10	3,876	.0261	26.85
11	4,411	.0297	30.56
12	4,544	.0306	31.48
13	12,222	.0823	84.67
14	3,371	.0227	23.35
15	1,025	.0069	7.10
16	3,163	.0213	21.91
17	4,782	.0322	33.13
18	1,366	.0092	9.47
20	2,465	.0166	17.08
21	6,460	.0435	44.75
22	4,737	.0319	32.82
23	1,040	.0070	7.20
24	2,257	.0152	15.64
25	1,604	.0108	11.11
26	2,183	.0147	15.12
27	2,851	.0192	19.75
28	2,020	.0136	13.99
30	4,604	.0310	31.89
31	8,969	.0604	62.14
32	5,391	.0363	37.34
33	1,277	.0086	8.85
34	639	.0043	4.42
35	3,000	.0202	20.78
36	3,252	.0219	22.53
37	1,084	.0073	7.51
38	5,331	.0359	36.93
40	1,648	.0111	11.42
41	297	.0020	2.06
42	2,777	.0187	12.24
43	193	.0013	1.34
44	401	.0027	2.78
45	104	.0007	.70
46	1,277	.0086	8.85
47	1,945	.0131	13.48
48	906	.0061	6.28
52	59	.0004	4.12
53	238	.0016	1.65
54	282	.0019	1.95
55	861	.0058	5.97
56	416	.0028	2.88
57	104	.0007	.72
COUNTY TOTALS	148,354		1,024.45

ONONDAGA COUNTY
YEAR - 1985

TABLE 5. COMMERCIAL/INSTITUTIONAL EMPLOYMENT ALLOCATIONS AND EMISSIONS FOR SUB-COUNTY AREAS

Subarea	Commercial/Institutional Employment	Allocation Proportion	Particulate Tons/Year
00	40,984	.2589	284.33
10	3,973	.0251	27.57
11	4,844	.0306	33.61
12	4,527	.0286	31.41
13	12,537	.0792	86.98
14	3,404	.0215	23.61
15	1,157	.0073	8.02
16	3,295	.0205	22.51
17	4,907	.0310	34.05
18	1,409	.0089	9.77
20	2,517	.0159	17.46
21	6,649	.0420	46.13
22	4,892	.0309	33.94
23	1,076	.0068	7.47
24	2,311	.0146	16.03
25	1,646	.0104	11.42
26	2,248	.0142	15.60
27	2,929	.0183	20.32
28	2,073	.0131	14.39
30	4,812	.0304	33.39
31	9,672	.0611	67.10
32	5,746	.0363	39.87
33	1,615	.0102	11.20
34	728	.0046	5.05
35	3.356	.0212	23.28
36	4,322	.0273	29.98
37	1,266	.0080	8.79
38	5,778	.0365	40.09
40	1,900	.0120	13.18
41	380	.0024	2.64
42	3,087	.0195	21.42
43	222	.0014	1.54
44	443	.0028	3.08
45	127	.0008	.88
46	1,631	.0103	11.31
47	2,454	.0155	17.02
48	1,282	.0081	8.90
52	79	.0005	.55
53	269	.0017	1.87
54	301	.0019	2.09
55	934	.0059	6.48
56	475	.0030	3.29
57	127	.0008	.88
COUNTY TOTAL	158,334		1,098.50

ONONDAGA COUNTY
YEAR - 1995

TABLE 5. COMMERCIAL/INSTITUTIONAL EMPLOYMENT ALLOCATIONS AND EMISSIONS FOR SUB-COUNTY AREAS

Subarea	Commercial/Institutional Employment	Allocation Proportion	Particulate Tons/Year
00	47,800	.2595	331.38
10	4,458	.0242	30.90
11	5,323	.0289	36.91
12	4,881	.0265	33.84
13	13,815	.0750	95.78
14	3,721	.0202	25.80
15	1,253	.0068	8.68
16	3,610	.0196	25.03
17	5,416	.0294	37.54
18	1,547	.0084	10.73
20	2,800	.0152	19.41
21	7,423	.0403	51.46
22	5,434	.0295	37.67
23	1,197	.0065	8.30
24	2,579	.0140	17.88
25	1,860	.0101	12.90
26	2,468	.0134	17.11
27	3,260	.0177	22.60
28	2,303	.0125	15.96
30	5,618	.0305	38.95
31	11,476	.0623	79.56
32	6,668	.0362	46.23
33	1,989	.0108	13.79
34	829	.0045	5.75
35	4,550	.0247	31.45
36	4,863	.0264	33.71
37	1,492	.0081	10.34
38	6,926	.0376	48.02
40	2,413	.0131	16.73
41	608	.0033	4.21
42	3,758	.0204	26.05
43	295	.0016	2.04
44	571	.0031	3.96
45	184	.0010	1.27
46	2,450	.0133	16.98
47	3,647	.0198	25.28
48	1,971	.0107	13.66
52	74	.0004	.51
53	350	.0019	2.43
54	387	.0021	2.68
55	1,105	.0060	7.66
56	608	.0033	4.21
57	166	.0009	1.15
COUNTY TOTAL	184,146		1,276.59

ONONDAGA COUNTY
YEAR - 2000

TABLE 5. COMMERCIAL/INSTITUTIONAL EMPLOYMENT ALLOCATIONS AND EMISSIONS FOR SUB-COUNTY AREAS

Subarea	Commercial/Institutional Employment	Allocation Proportion	Particulate Tons/Year
00	49,776	.2537	344.52
10	4,572	.0233	31.64
11	5,435	.0277	37.62
12	4,984	.0254	34.49
13	14,185	.0723	98.18
14	3,787	.0193	26.21
15	1,275	.0065	8.83
16	3,728	.0190	25.80
17	5,553	.0283	38.43
18	1,589	.0081	11.00
20	2,884	.0147	19.96
21	7,632	.0389	52.83
22	5,592	.0285	38.70
23	1,216	.0062	8.42
24	2,668	.0136	18.47
25	1,903	.0097	13.17
26	2,531	.0129	17.52
27	3,555	.0171	23.22
28	2,354	0.120	16.30
30	6,004	.0306	41.56
31	12,243	.0624	84.74
32	7,161	.0365	49.57
33	2,009	.0107	14.53
34	922	.0047	6.38
35	5,278	.0269	36.53
36	5,003	.0255	35.63
37	1,589	.0081	11.00
38	7,495	.0382	51.88
40	6,082	.0310	42.10
41	648	.0033	4.48
42	3,983	.0203	27.57
43	294	.0015	2.04
44	608	.0031	4.21
45	196	.0010	1.36
46	2,531	.0129	17.56
47	3,826	.0195	26.48
48	2,060	.0105	14.26
52	79	.0004	.54
53	353	.0018	2.44
54	392	.0020	2.72
55	1,138	.0058	7.88
56	628	.0032	4.35
57	137	.0007	.95
COUNTY TOTAL	195,877		1,355.07

ONONDAGA COUNTY
YEAR - 1975

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
1	0	38	41
2	0	39	23
3	84	40	3
4	18	41	139
5	7	42	43
6	0	43	44
7	28	44	5
8	0	45	7
9	91	46	23
10	0	47	94
11	2	48	480
12	152	49	66
13	42	50	0
14	16	51	0
15	160	52	15
16	2	53	13
17	9	54	16
18	0	55	81
19	564	56	51
20	22	57	19
21	23	58	97
22	0	59	107
23	6	60	42
24	12	61	13
25	13	62	16
26	16	63	8
27	27	64	4
28	5	65	2
29	6	66	300
30	28	67	193
31	135	68	506
32	0	69	409
33	0	70	32
34	66	71	49
35	319	72	51
36	5	73	97
37	26	74	58

(Continued)

ONONDAGA COUNTY
YEAR - 1975

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
75	65	112	41
76	35	117	16
77	0	114	84
78	224	115	9
79	0	116	6
80	0	117	0
81	18	118	21
82	77	119	652
83	336	120	1,263
84	650	121	222
85	42	122	840
86	36	123	1,165
87	45	124	186
88	10	125	176
89	87	126	195
90	497	127	73
91	363	128	113
92	4	129	70
93	41	130	120
94	73	131	16
95	134	132	267
96	56	133	840
97	33	134	2,092
98	290	135	453
99	295	136	970
100	524	137	97
101	302	138	247
102	46	139	233
103	34	140	293
104	47	141	640
105	694	142	2,680
106	886	143	241
107	1,394	144	90
108	254	145	29
109	413	146	9
110	97	147	466
111	97	148	145

(Continued)

ONONDAGA COUNTY
YEAR - 1975

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
149	137	186	0
150	254	187	254
151	333	188	448
152	772	189	38
153	536	190	53
154	0	191	130
155	89	192	3,324
156	0	193	53
157	7	194	35
158	2,065	195	0
159	195	196	3
160	173	197	0
161	1,381	198	0
162	48	199	0
163	203	200	261
164	5,597	201	317
165	0	302	39
166	156	203	0
167	0	204	18
168	0	205	0
169	219	206	0
170	58	207	4
171	1,063	208	76
172	77	209	30
173	105	210	0
174	216	211	8
175	3,227	212	0
176	383	213	8
177	31	214	25
178	53	215	0
179	53	216	5
180	43	217	327
181	14	218	738
182	0	219	14
183	10	220	177
184	0	221	519
185	37	222	447

(Continued)

ONONDAGA COUNTY
YEAR - 1975

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment
223	7
224	0
225	0
226	0
227	59
228	0
229	44
230	20
231	0
232	16
233	9
234	22
235	14
236	11
237	645
238	0
239	0
240	0
241	4
242	0
243	0
244	14
245	13
246	31
COUNTY TOTAL	54,035

ONONDAGA COUNTY
YEAR - 1980

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
1	0	38	41
2	0	39	23
3	83	40	3
4	18	41	138
5	7	42	43
6	0	43	44
7	28	44	5
8	0	45	7
9	90	46	23
10	0	47	93
11	2	48	477
12	151	49	66
13	42	50	0
14	16	51	0
15	159	52	15
16	2	53	13
17	9	54	16
18	0	55	81
19	560	56	51
20	22	57	19
21	23	58	96
22	0	59	106
23	6	60	42
24	12	61	13
25	13	62	16
26	16	63	8
27	27	64	4
28	5	65	2
29	6	66	298
30	28	67	192
31	134	68	503
32	0	69	406
33	0	70	32
34	66	71	49
35	317	72	51
36	5	73	96
37	26	74	58

(Continued)

ONONDAGA COUNTY
YEAR - 1980

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
75	65	113	16
76	35	114	84
77	0	115	9
78	222	116	6
79	0	117	0
80	0	118	21
81	18	119	648
82	17	120	1,256
83	334	121	221
84	646	122	835
85	42	123	1,158
86	36	124	185
87	45	125	175
88	10	126	193
89	87	127	73
90	494	128	112
91	360	129	70
92	4	130	119
93	41	131	16
94	73	132	265
95	133	133	835
96	56	134	2,080
97	33	135	450
98	239	136	964
99	293	137	96
100	521	138	245
101	300	139	231
102	46	140	291
103	34	141	636
104	47	142	2,665
105	690	143	239
106	881	144	89
107	1,386	145	29
108	252	146	9
109	410	147	463
110	96	148	144
111	96	149	136
112	41	150	252

(Continued)

ONONDAGA COUNTY
YEAR - 1980

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
151	331		
152	767	189	38
153	533	190	53
154	0	191	129
155	89	192	3,305
156	0	193	53
157	7	194	35
158	2,053	195	0
159	194	196	3
160	172	197	0
161	1,373	198	0
162	48	199	0
163	201	200	259
164	5,565	201	315
165	0	202	39
166	155	203	0
167	0	204	18
168	0	205	0
169	218	206	0
170	58	207	4
171	1,057	208	76
172	77	209	30
173	104	210	0
174	215	211	8
175	3,209	212	0
176	380	213	8
177	31	214	25
178	53	215	0
179	53	216	5
180	43	217	325
181	14	218	733
182	0	219	14
183	10	220	176
184	0	221	516
185	37	222	444
186	0	223	7
187	252	234	0
188	445	225	0

(Continued)

ONONDAGA COUNTY
YEAR - 1980

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment
226	0
227	59
228	0
229	44
230	20
231	0
232	16
233	9
234	22
235	14
236	11
237	641
238	0
239	0
240	0
241	4
242	0
243	0
244	14
245	13
246	31
COUNTY TOTAL	53,662

ONONDAGA COUNTY
YEAR - 1985

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
1	0	38	39
2	0	39	22
3	79	40	3
4	17	41	131
5	7	42	41
6	0	43	41
7	26	44	5
8	0	45	7
9	86	46	22
10	0	47	88
11	2	48	452
12	143	49	62
13	40	50	0
14	16	51	0
15	151	52	14
16	2	53	12
17	9	54	15
18	0	55	76
19	531	56	48
20	21	57	18
21	22	58	91
22	0	59	101
23	6	60	40
24	11	61	12
25	12	62	15
26	15	63	8
27	25	64	4
28	5	65	2
29	6	66	282
30	26	67	182
31	127	68	476
32	0	69	385
33	0	70	30
34	62	71	46
35	300	72	48
36	5	73	91
37	24	74	55

(Continued)

ONONDAGA COUNTY
YEAR - 1985

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
75	61	112	39
76	33	113	15
77	0	114	79
78	211	115	9
79	0	116	6
80	0	117	0
81	17	118	20
82	72	119	613
83	316	120	1,188
84	612	121	209
85	40	122	790
86	34	123	1,096
87	42	124	175
88	10	125	166
89	82	126	183
90	468	127	69
91	342	128	106
92	4	129	66
93	39	130	113
94	69	131	15
95	126	132	251
96	53	133	790
97	31	134	1,968
98	226	135	426
99	278	136	913
100	493	137	91
101	284	138	232
102	43	139	219
103	32	140	276
104	44	141	602
105	653	142	2,522
106	834	143	227
107	1,312	144	85
108	239	145	27
109	389	146	9
110	91	147	438
111	91	148	136

(Continued)

ONONDAGA COUNTY
YEAR - 1985

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
149	129	186	0
150	239	187	239
151	313	188	422
152	726	189	36
153	504	190	50
154	0	191	122
155	84	192	3,127
156	0	193	50
157	7	194	33
158	1,943	195	0
159	184	196	3
160	163	197	0
161	1,299	198	0
162	45	199	0
163	191	200	246
164	5,266	201	298
165	0	202	37
166	147	203	0
167	0	204	17
168	0	205	0
169	206	206	0
170	55	207	4
171	1,000	208	72
172	72	209	28
173	99	210	0
174	203	211	8
175	3,036	212	0
176	360	213	8
177	29	214	24
178	50	215	0
179	50	216	5
180	40	217	308
181	13	218	694
182	0	219	13
183	10	220	167
184	0	221	488
185	35	222	421

(Continued)

ONONDAGA COUNTY
YEAR - 1985

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment
223	7
224	0
225	0
226	0
227	56
228	0
229	41
230	19
231	0
232	15
233	9
234	21
235	13
236	10
237	607
238	0
239	0
240	0
241	4
242	0
243	0
244	13
245	12
246	29
COUNTY TOTAL	50,853

ONONDAGA COUNTY
YEAR - 1995

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
1	0	38	35
2	0	39	20
3	72	40	3
4	15	41	118
5	6	42	37
6	0	43	37
7	24	44	5
8	0	45	7
9	78	46	20
10	0	47	80
11	2	48	409
12	130	49	56
13	36	50	0
14	14	51	0
15	136	52	13
16	2	53	11
17	8	54	14
18	0	5	69
19	481	56	43
20	19	57	16
21	20	58	83
22	0	59	91
23	6	60	36
24	10	61	11
25	10	62	14
26	14	63	8
27	23	64	4
28	5	65	2
29	6	66	256
30	24	67	164
31	115	68	431
32	0	69	349
33	0	70	27
34	56	71	42
35	272	72	43
36	5	73	83
37	22	74	49

(Continued)

ONONDAGA COUNTY
YEAR - 1995

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
75	55	112	35
76	30	113	14
77	0	114	72
78	191	115	8
79	0	116	5
80	0	117	0
81	15	118	18
82	66	119	556
83	286	120	1,076
84	554	121	189
85	36	122	716
86	31	123	993
87	38	124	159
88	9	125	150
89	74	126	166
90	424	127	62
91	309	128	96
92	4	129	60
93	35	130	102
94	62	131	14
95	114	132	228
96	48	133	716
97	28	134	1,783
98	205	135	386
99	251	136	827
100	447	137	83
101	257	138	210
102	39	139	199
103	29	140	250
104	40	141	545
105	591	142	2,284
106	755	143	205
107	1,188	144	77
108	216	145	25
109	352	146	8
110	83	147	397
111	83	148	124

(Continued)

ONONDAGA COUNTY
YEAR - 1995

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
149	117	186	0
150	216	187	216
151	284	188	382
152	658	189	32
153	457	190	45
154	0	191	111
155	76	192	2,833
156	0	193	45
157	6	194	30
158	1,760	195	0
159	166	196	3
160	147	197	0
161	1,177	198	0
162	41	199	0
163	173	200	222
164	4,769	201	270
165	0	202	33
166	133	203	0
167	0	204	15
168	0	205	0
169	187	206	0
170	49	207	4
171	906	208	65
172	66	209	26
173	89	210	0
174	184	211	7
175	2,750	212	0
179	326	213	7
177	26	214	21
178	45	215	0
179	45	216	4
180	37	217	279
181	12	218	629
182	0	219	12
183	9	220	151
184	0	221	442
185	32	222	381

(Continued)

ONONDAGA COUNTY
YEAR - 1995

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment
223	6
224	0
225	0
226	0
227	50
228	0
229	38
230	17
231	0
232	14
233	8
234	19
235	12
236	10
237	550
238	0
239	0
240	0
241	4
242	0
243	0
244	13
245	12
246	26
COUNTY TOTAL	46,063

ONONDAGA COUNTY
YEAR - 2000

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
1	0	38	33
2	0	39	18
3	67	40	3
4	14	41	111
5	6	42	34
6	0	43	35
7	22	44	5
8	0	45	7
9	73	45	18
10	0	47	75
11	2	48	384
12	122	49	53
13	34	50	0
14	13	51	0
15	128	52	12
16	2	53	10
17	7	54	13
18	0	55	65
19	451	56	41
20	18	57	15
21	18	58	78
22	0	59	86
23	6	60	34
24	10	61	10
25	10	62	13
26	13	63	6
27	22	64	3
28	5	65	2
29	6	66	240
30	22	67	154
31	108	68	405
32	0	69	327
33	0	70	26
34	53	71	39
35	255	72	41
36	5	73	78
37	21	74	46

(Continued)

ONONDAGA COUNTY
YEAR - 2000

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
75	52	112	33
76	28	113	13
77	0	114	67
78	179	115	7
79	0	116	5
80	0	117	0
81	14	118	17
82	62	119	522
83	269	120	1,011
84	520	121	178
85	34	122	672
86	29	123	932
87	36	124	149
88	8	125	141
89	70	126	156
90	398	127	58
91	291	128	90
92	3	129	56
93	33	130	96
94	58	131	13
95	107	132	214
96	45	133	672
97	26	134	1,674
98	192	135	363
99	236	136	776
100	419	137	78
101	242	138	198
102	37	139	186
103	27	140	235
104	38	141	512
105	556	142	2,145
106	709	143	193
107	1,116	144	72
108	203	145	23
109	331	146	7
110	78	147	373
111	78	148	116

(Continued)

ONONDAGA COUNTY
YEAR - 2000

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment	Grid Square	Employment
149	110	186	0
150	203	187	203
151	267	188	359
152	618	189	30
153	429	190	42
154	0	191	104
155	71	192	2,660
156	0	193	42
157	6	194	28
158	1,653	195	0
159	156	196	2
160	138	197	0
161	1,105	198	0
162	38	199	0
167	142	200	209
164	4,480	201	254
165	0	202	31
166	125	203	0
167	0	204	14
168	0	205	0
169	175	206	0
170	46	207	3
171	851	208	61
172	62	209	24
173	84	210	0
174	173	211	6
175	2,583	212	0
176	307	213	6
177	25	214	20
178	42	215	0
179	42	216	4
180	34	217	262
181	11	218	591
182	0	219	11
183	8	220	142
184	0	221	415
185	30	222	358

(Continued)

ONONDAGA COUNTY
YEAR - 2000

TABLE 6. INDUSTRIAL EMPLOYMENT ALLOCATIONS

Grid Square	Employment
227	6
224	0
225	0
226	0
227	47
228	0
229	35
230	16
231	0
232	13
233	7
234	18
235	11
236	9
237	516
238	0
239	0
240	0
241	3
242	0
243	0
244	11
245	10
246	25
COUNTY TOTAL	43,231

TABLE 7. SOLID WASTE - OPEN BURNING PARTICULATE EMISSIONS

	Year									
	1975		1980		1985		1995		2000	
SUBAREA	Pop.*	Part.* t/y	Pop.*	Part.* t/y	Pop.*	Part.* t/y	Pop.*	Part.* t/y	Pop.*	Part.* t/y
Elbridge	4117	4.0	4350	4.2	4800	4.7	5400	5.3	5600	5.5
Fabius	1650	1.6	1700	1.7	1750	1.7	1850	1.8	1900	1.8
Lafayette	4600	4.5	4900	4.8	5200	5.1	5900	5.7	6200	6.1
Lysander	8436	8.2	12865	12.5	17448	17.0				
Marcellus	3862	3.8	4282	4.2	4787	4.7	5426	5.3	5826	5.7
Otisco	1550	1.5	1600	1.6	1650	1.6	1850	1.8	1950	1.9
Pompey	4950	4.8	5350	5.2	5900	5.8	6650	6.5	6950	6.8
Skaneateles	4936	4.8	5035	4.9	5207	5.1	5550	5.4	5700	5.5
Spafford	1200	1.2	1250	1.2	1300	1.3	1400	1.4	1450	1.4
Tully	1950	1.9	2000	1.9	2100	2.0	2300	2.2	2400	2.3
Van Buren	11143	10.9	14898	14.5	16647	16.2				

*Pop. = population

*Part. t/y = particulate emissions in tons per year

TABLE 8. SOLID WASTE - INCINERATOR EMISSIONS - TONS PER YEAR

	Year				
	1975	1980	1985	1995	2000
SUBAREA					
Camillus	1.63	1.63	1.63	1.63	1.63
Cicero	.26	.26	.26	.26	.26
Clay	.14	.14	.14	.14	.14
DeWitt	9.39	9.39	9.39	9.39	9.39
Geddes	.43	.43	.43	.43	.43
Lafayette	.18	.18	.18	.18	.18
Lysander	.15	.15	.15	.15	.15
Manlius	1.87	1.87	1.87	1.87	1.87
Salina	.53	.53	.53	.53	.53
Skaneateles	3.44	3.44	3.44	3.44	3.44
Syracuse	95.61	95.61	95.61	95.61	95.61
Tully	.20	.20	.20	.20	.20
Van Buren	.31	.31	.31	.31	.31
TOTAL	114.14				

TABLE 9. GRID SQUARE COORDINATES

GRID SQUARE NO.	UTM COORDINATES	GRID SQUARE NO.	UTM COORDINATES
1.	736-389	51.	762-410
2.	736-397	52.	762-411
3.	736-405	53.	762-413
4.	736-413	54.	762-415
5.	736-421	55.	762-417
6.	744-381	56.	762-419
7.	744-389	57.	763-403
8.	744-397	58.	763-404
9.	744-405	59.	763-405
10.	744-413	60.	763-406
11.	744-421	61.	763-407
12.	752-381	62.	763-408
13.	752-389	63.	763-409
14.	752-397	64.	763-410
15.	752-405	65.	764-389
16.	752-413	66.	764-393
17.	752-421	67.	764-395
18.	760-373	68.	764-397
19.	760-381	69.	764-399
20.	760-389	70.	764-401
21.	760-393	71.	764-402
22.	760-397	72.	764-403
23.	760-399	73.	764-404
24.	760-401	74.	764-405
25.	760-403	75.	764-406
26.	760-405	76.	764-407
27.	760-406	77.	764-408
28.	760-407	78.	764-409
29.	760-408	79.	764-410
30.	760-409	80.	764-411
31.	760-411	81.	764-412
32.	760-413	82.	764-413
33.	760-415	83.	764-415
34.	760-417	84.	764-417
35.	760-419	85.	764-419
36.	760-421	86.	765-401
37.	761-405	87.	765-402
38.	761-406	88.	765-403
39.	761-407	89.	765-404
40.	761-408	90.	765-405
41.	762-397	91.	765-406
42.	762-399	92.	765-407
43.	762-401	93.	765-408
44.	762-403	94.	765-409
45.	762-404	95.	765-410
46.	762-405	96.	765-411
47.	762-406	97.	765-412
48.	762-407	98.	766-393
49.	762-408	99.	766-395
50.	762-409	100.	766-397

TABLE 9. GRID SQUARE COORDINATES

GRID SQUARE NO.	UTM COORDINATES	GRID SQUARE NO.	UTM COORDINATES
101.	766-399	151.	769-409
102.	766-401	152.	769-410
103.	766-402	153.	769-411
104.	766-403	154.	769-412
105.	766-404	155.	770-401
106.	766-405	156.	770-403
107.	766-406	157.	770-404
108.	766-407	158.	770-405
109.	766-408	159.	770-406
110.	766-409	160.	770-407
111.	766-410	161.	770-408
112.	766-411	162.	770-409
113.	766-412	163.	770-410
114.	766-413	164.	770-411
115.	766-415	165.	770-412
116.	766-417	166.	771-403
117.	766-419	167.	771-404
118.	767-401	168.	771-405
119.	767-402	169.	771-406
120.	767-403	170.	771-407
121.	767-404	171.	771-408
122.	767-405	172.	771-409
123.	767-406	173.	771-410
124.	767-407	174.	771-411
125.	767-408	175.	771-412
126.	767-409	176.	772-397
127.	767-410	177.	772-401
128.	767-411	178.	772-402
129.	767-412	179.	772-403
130.	768-373	180.	772-404
131.	768-381	181.	772-405
132.	768-389	182.	772-406
133.	768-397	183.	772-407
134.	768-401	184.	772-408
135.	768-403	185.	772-409
136.	768-405	186.	772-410
137.	768-406	187.	772-411
138.	768-407	188.	772-413
139.	768-408	189.	772-417
140.	768-409	190.	773-401
141.	768-410	191.	773-402
142.	768-411	192.	773-403
143.	768-412	193.	773-404
144.	768-413	194.	773-405
145.	768-417	195.	773-406
146.	768-421	196.	773-407
147.	769-405	197.	773-408
148.	769-406	198.	773-409
149.	769-407	199.	773-410
150.	769-408	200.	774-401

TABLE 9. GRID SQUARE COORDINATES

GRID SQUARE NO.	UTM COORDINATES	GRID SQUARE NO.	UTM COORDINATES
201.	774-403	224.	776-407
202.	774-405	225.	776-409
203.	774-406	226.	776-411
204.	774-407	227.	776-413
205.	774-408	228.	778-397
206.	774-409	229.	778-399
207.	774-410	230.	778-401
208.	774-411	231.	778-403
209.	775-405	232.	778-405
210.	775-406	233.	778-407
211.	775-407	234.	778-409
212.	775-408	235.	778-411
213.	775-409	236.	780-389
214.	775-410	237.	780-393
215.	776-373	238.	780-397
216.	776-381	239.	780-401
217.	776-389	240.	780-405
218.	776-393	241.	780-409
219.	776-397	242.	784-373
220.	776-399	243.	784-381
221.	776-401	244.	784-389
222.	776-403	245.	784-397
223.	776-405	246.	784-405

TABLE 10. GRID SQUARE ALLOCATIONS -- TOWNS

Town	Grid Square	%
Camillus	19	5.6
	20	4.6
	21	1.6
	65	17.8
	66	4.6
	67	3.0
	68	3.0
	69	1.1
	98	4.6
	99	4.6
	100	4.6
	101	1.8
	131	3.1
	132	31.1
	133	9.0
Cicero	146	1.5
	188	3.4
	189	4.1
	205	.4
	206	.5
	207	.5
	208	2.0
	212	.6
	213	.7
	214	.7
	224	1.3
	225	2.7
	226	2.7
	227	44.1
	233	1.4
	234	2.7
	235	2.7
	240	4.3
	241	10.6
	246	13.1
Clay	176	.4
	200	2.7
	201	3.0
	202	.6
	203	.6
	204	.6
	205	.1
	209	.8
	210	.8
	211	.8
	212	.1
	220	2.4
	221	3.2
Clay cont'd	222	3.2
	223	3.2
	224	1.7
	228	1.1
	229	3.1
	230	3.2
	231	3.2
	232	3.2
	233	1.6
	237	2.5
	238	12.4
	239	12.4
	240	12.4
	244	.1
	245	15.3
	246	4.7
Dewitt	15	2.8
	16	2.7
	30	3.3
	31	4.7
	32	4.7
	33	3.4
	50	.6
	51	1.2
	52	4.7
	53	4.7
	54	2.8
	63	.8
	64	1.2
	78	.5
	79	1.2
	80	1.2
	81	1.2
	82	4.7
	83	1.2
	95	.2
	96	.5
	97	.9
	112	.7
	113	1.2
	114	4.7
	115	.9
	128	.6
	129	1.2
	142	.9
	143	1.2
	144	9.6
	151	.4
	152	.9

TABLE 10. GRID SQUARE ALLOCATIONS -- TOWNS

Town	Grid Square	%
Dewitt cont'd	153	1.2
	154	1.2
	162	1.2
	163	1.2
	164	1.2
	165	1.2
	172	1.2
	173	1.2
	174	1.2
	175	1.2
	185	1.2
	186	1.2
	187	4.7
	188	6.0
	198	1.2
	199	1.2
	205	.1
	206	.4
	207	.4
	208	1.3
Elbridge	18	16.8
	19	38.2
	130	16.3
	131	28.7
Fabius	3	10.0
	4	44.8
	5	28.2
	9	1.6
	10	8.3
	11	7.2
Geddes	69	5.0
	70	.6
	71	.6
	72	.3
	86	3.5
	87	3.5
	88	.9
	101	8.5
	102	3.5
	103	1.8
	118	3.5
	119	1.2
	132	2.9
	133	26.3
	134	12.6
	135	.9
	155	6.1
	176	18.4
Lafayette	8	3.6
	9	48.2
Lafayette cont'd	10	5.7
	14	3.3
	15	35.6
	16	3.6
Lysander	130	.8
	131	2.4
	132	.5
	176	.4
	215	3.3
	216	17.5
	217	1.3
	218	5.2
	219	1.5
	220	1.5
	228	1.0
	229	.1
	236	5.9
	237	4.6
	242	24.6
	243	24.6
	244	4.8
Manlius	16	1.6
	17	.7
	33	.8
	34	3.1
	35	3.1
	36	28.7
	54	1.2
	55	3.1
	56	3.1
	83	2.3
	84	3.1
	85	3.1
	115	2.5
	116	3.1
	117	3.1
	144	5.5
	145	11.8
	146	9.6
	188	3.9
	189	6.9
Marcellus	6	.5
	7	14.2
	12	4.3
	13	58.7
	19	2.1
	20	13.7
	21	6.6
Onondaga	7	1.4
	8	4.0

TABLE 10. GRID SQUARE ALLOCATIONS -- TOWNS

Town	Grid Square	%
Onondaga cont'd	13	6.8
	14	29.9
	15	32.1
	21	4.2
	22	2.0
	23	2.0
	24	2.0
	25	2.0
	29	.4
	30	.6
	37	.1
	40	.4
	41	2.0
	42	2.0
	43	2.0
	44	.5
	45	.4
	46	.4
	49	.3
	50	.2
	57	.4
	58	.4
	66	.1
	67	.7
	68	.7
	69	.8
	70	.4
	71	.5
	72	.1
Otisco	2	21.0
	7	16.9
	8	62.2
Pompey	10	27.2
	11	19.2
	16	31.9
	17	21.7
Salina	135	1.3
	150	1.5
	155	5.4
	156	2.5
	157	2.1
	158	1.0
	159	1.3
	160	2.1
	161	2.5
	166	2.5
	167	2.5
	168	2.5
	169	2.5
	170	2.5
	171	2.5
Salina cont'd	176	19.0
	177	2.5
	178	2.5
	179	2.5
	180	2.5
	181	2.5
	182	2.5
	183	2.5
	184	2.5
	190	2.5
	191	2.5
	192	2.5
	193	2.5
	194	2.5
	195	2.5
	196	2.5
	197	2.5
	200	1.5
	201	.8
	202	.6
	203	.6
	204	.8
	205	.6
	220	1.0
Skaneateles	6	35.3
	12	48.9
	18	.3
	19	15.6
Spafford	1	26.2
	2	32.2
	6	8.3
	7	33.1
	8	.2
Syracuse	15	1.8
	26	1.5
	27	1.5
	28	1.5
	29	.4
	37	1.3
	38	1.5
	39	1.5
	40	.3
	45	.4
	46	.4
	47	1.5
	48	1.5
	49	.6
	50	.3
	57	.3
	58	.4
	59	1.5

TABLE 10. GRID SQUARE ALLOCATIONS -- TOWNS

Town	Grid Square	%
Syracuse cont'd	60	1.5
	61	1.5
	62	1.5
	63	.5
	70	.1
	71	.9
	72	1.2
	73	1.5
	74	1.5
	75	1.5
	76	1.5
	77	1.5
	78	.9
	88	1.5
	89	1.5
	90	1.5
	91	1.5
	92	1.5
	93	1.5
	94	1.5
	95	1.3
	96	.9
	97	.4
	103	.8
	104	1.5
	105	1.5
	106	1.5
	107	1.5
	108	1.5
	109	1.5
	110	1.5
	111	1.5
	112	.7
	119	1.0
	120	1.5
	121	1.5
	122	1.5
	123	1.5
	124	1.5
	125	1.5
Syracuse cont'd	126	1.5
	127	1.5
	128	.8
	134	.5
	135	4.9
	136	1.5
	137	1.5
	138	1.5
	139	1.5
	140	1.5
	141	1.5
	142	.4
	147	1.5
	148	1.5
	149	1.5
	150	.6
	151	1.0
	152	.4
	157	.3
	158	.9
	159	.8
	160	.3
Tully	2	20.0
	3	72.5
	8	.2
	9	7.3
Van Buren	131	27.1
	132	38.0
	176	.3
	216	19.9
	217	12.7
	218	2.0

TABLE 11. GRID SQUARE ALLOCATIONS -- TRAFFIC DISTRICTS

Traffic District	Grid Square	%
00	106	6.3
	107	75.0
	122	6.3
	123	12.5
10	123	31.0
	124	6.9
	136	3.4
	137	13.8
	138	27.6
	148	6.9
	149	10.3
11	123	5.0
	124	50.0
	125	30.0
	138	5.0
	139	10.0
12	108	77.8
	109	22.2
13	92	63.2
	108	26.3
	109	10.5
14	75	33.3
	91	57.1
	107	9.5
15	74	23.1
	89	23.1
	90	46.2
	105	3.8
	106	3.8
16	105	20.0
	106	50.0
	121	10.0
	122	20.0
17	121	21.8
	122	30.4
	135	30.4
	136	17.4
18	136	20.6
	137	23.5
	147	8.8
	148	14.7
	158	26.5
	159	5.9
20	138	5.3
	139	1.8
	148	8.8
	149	15.8
	150	7.0
	151	3.5
	159	14.0
	160	21.1
	161	8.8
	162	1.8
	169	5.3
	170	7.0
21	125	5.9
	126	8.8
	128	4.4
	139	13.2
	140	17.7
	141	17.7
	142	5.9
	150	11.8
	151	10.3
	152	4.4
22	78	19.0
	93	4.3
	94	7.8
	95	10.3
	96	6.0
	97	1.7
	109	6.9
	110	10.3
	111	10.3
	112	4.3
	125	1.7
	126	5.2
	127	7.8
	128	4.3
23	48	7.7
	49	7.7
	50	2.6
	61	12.8
	62	15.4
	63	6.4
	76	12.8
	77	15.4
	78	15.4
	94	3.8
24	37	4.1
	38	9.6

TABLE 11. GRID SQUARE ALLOCATIONS -- TRAFFIC DISTRICTS

Traffic District	Grid Square	%
24 cont'd	39	5.5
	46	6.8
	47	15.1
	48	5.5
	49	5.5
	59	2.7
	60	16.4
	61	2.7
	74	2.7
	75	6.8
	76	16.4
25	43	2.5
	45	3.7
	46	4.9
	47	1.2
	57	3.7
	58	11.1
	59	12.3
	70	6.2
	71	11.1
	72	12.3
	73	14.8
	74	4.9
	88	6.2
	89	4.9
26	70	2.2
	71	2.2
	86	10.9
	87	13.0
	88	7.6
	89	2.2
	102	9.8
	103	13.0
	104	9.8
	105	2.2
	118	7.6
	119	8.7
	120	10.9
27	101	7.7
	104	1.9
	105	3.2
	118	2.6
	119	2.6
	120	1.3
	121	3.2
	133	15.4
	134	26.9
	135	19.9
	155	14.1
	176	1.3
28	135	10.0
	147	10.0
	155	4.4
	156	13.2
	157	13.2
	158	3.3
	159	2.2
	166	6.6
	167	12.1
	168	7.7
	169	3.3
	176	4.4
	177	5.5
	179	2.2
	180	2.2
30	161	2.5
	162	.4
	167	.4
	168	1.8
	169	2.1
	170	2.9
	171	4.3
	181	3.2
	182	4.3
	183	4.3
	184	4.3
	194	1.4
	195	4.3
	196	4.3
	197	4.3
	202	1.1
	203	4.3
	204	4.3
	205	4.3
	206	1.8
	207	.4
	210	4.3
	211	4.3
	212	4.3
	213	4.3
	214	1.8
	223	3.9
	224	11.4
	225	5.0
31	142	.4
	144	16.0
	151	.7
	152	.2
	153	2.6
	154	2.6
	162	2.2

TABLE 11. GRID SQUARE ALLOCATIONS -- TRAFFIC DISTRICTS

Traffic District	Grid Square	%
31 cont'd	163	2.6
	164	2.6
	165	2.6
	172	2.6
	173	2.6
	174	2.6
	175	2.6
	185	2.6
	186	2.6
	187	10.4
	188	16.5
	198	2.6
	199	2.6
	206	1.5
	207	2.4
	208	9.0
	214	1.1
	225	3.7
	226	2.6
32	31	.6
	32	.2
	33	1.0
	52	7.1
	53	8.1
	54	5.4
	63	.6
	64	.4
	78	1.0
	79	1.7
	80	2.3
	81	2.3
	82	9.0
	83	2.7
	96	1.0
	97	1.9
	113	2.3
	114	9.0
	115	2.1
	128	.8
	129	2.3
	142	1.2
	143	2.3
	144	34.8
33	15	39.1
	16	5.2
	29	1.9
	30	11.0
	31	10.3
	32	10.8
	33	6.8
	40	2.3
	50	2.3
33 cont'd	51	2.8
	52	2.3
	53	1.2
	63	.9
	64	2.3
	79	.7
34	14	8.8
	15	51.9
	26	8.8
	27	8.8
	28	8.8
	29	2.9
	39	5.8
	40	1.5
	48	1.5
	49	1.5
35	14	15.2
	23	5.0
	24	13.2
	25	14.7
	37	.07
	41	3.0
	42	13.2
	43	14.0
	44	4.0
	45	4.0
	46	1.0
	57	3.0
	58	1.0
	69	3.0
	70	1.3
	71	3.0
	72	.7
36	41	6.5
	42	2.0
	67	9.0
	68	23.6
	69	19.1
	70	.5
	86	1.0
	99	7.5
	100	14.1
	101	14.6
	102	1.5
	118	.5
37	37	1.5
	98	5.0
	99	3.9
	100	4.1
	101	1.3

TABLE 11. GRID SQUARE ALLOCATIONS -- TRAFFIC DISTRICTS

Traffic District	Grid Square	%
37 cont'd	132	34.0
	133	33.8
	134	1.1
	176	15.5
38	155	4.6
	166	1.3
	176	19.5
	177	1.6
	178	2.7
	179	2.7
	180	2.2
	181	.7
	190	2.7
	191	2.7
	192	2.7
	193	2.7
	194	1.8
	200	10.4
	201	10.4
	202	2.0
	209	1.5
	220	9.1
	221	10.4
	222	5.3
	223	.4
	229	1.8
	230	1.1
40	224	.7
	225	3.3
	226	.7
	227	30.3
	233	2.8
	234	5.2
	235	4.7
	240	7.1
	241	20.2
	246	25.0
41	144	8.3
	145	4.6
	146	4.5
	188	14.4
	189	24.0
	208	.8
	226	3.9
	227	38.9
	235	.7
42	16	14.3
	17	4.0
	33	2.1
	34	7.6
	35	7.6
42 cont'd	36	14.3
	54	3.0
	55	7.6
	56	7.1
	83	5.3
	84	4.0
	85	3.2
	115	5.9
	116	4.0
	144	3.2
	145	6.8
43	10	41.3
	15	45.8
	16	12.9
44	8	3.9
	9	52.0
	14	7.5
	15	36.6
45	7	3.1
	8	9.0
	13	14.6
	14	56.5
	21	3.2
	22	4.4
	23	3.0
	24	.7
	41	4.2
	42	1.2
46	12	.4
	13	4.0
	19	10.7
	20	18.6
	21	15.1
	65	18.6
	66	4.8
	67	3.0
	98	2.6
	99	1.4
	131	3.2
	132	17.4
47	131	15.5
	132	41.9
	176	1.5
	216	1.7
	217	1.1
	218	17.6
	219	4.6
	220	.6
	228	3.4
	229	.3

TABLE 11. GRID SQUARE ALLOCATIONS -- TRAFFIC DISTRICTS

Traffic District	Grid Square	%
47 cont'd	236	2.3
	237	9.5
48	209	.5
	222	2.1
	223	3.2
	224	.8
	228	1.1
	229	3.3
	230	3.9
	231	4.4
	232	4.4
	233	2.0
	237	2.9
	238	16.8
	239	16.8
	240	10.8
	245	20.7
	246	6.4
52	36	43.9
	56	.4
	84	2.7
	85	3.5
	116	2.7
	117	6.3
	145	13.1
	146	27.5
53	3	9.0
	4	19.0
	5	11.0
	9	1.0
	10	14.0
	11	19.0
	16	15.0
	17	12.0
54	1	14.0
	2	24.0
	3	22.0
	6	3.4
	7	18.2
	8	17.0
	9	1.4
55	6	22.0
	7	6.2
	12	38.0
	13	22.9
	18	.03
	19	10.6
56	18	17.7
	19	35.0
	130	16.9
	131	30.5
57	130	1.7
	131	10.9
	215	5.2
	216	41.0
	217	1.2
	236	7.8
	237	1.9
	242	1.9
	243	15.7
	244	12.7

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16. ABSTRACT

This report provides a disaggregated particulate matter emissions inventory suitable for use in both base year and projection year air quality dispersion modeling required for the Syracuse AQMA. The allocation and projection methodology is essentially that of volumes 7 and 13 of the Guidelines for Air Quality Maintenance Planning series (U.S. EPA). Allocations were made for population, transportation, commercial/institutional, industrial, and solid waste-based emissions. The study results clearly indicate that the dominant sources of particulate emissions in Onondaga County are industrial process and fuel point sources.

17. KEY WORDS AND DOCUMENT ANALYSIS

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