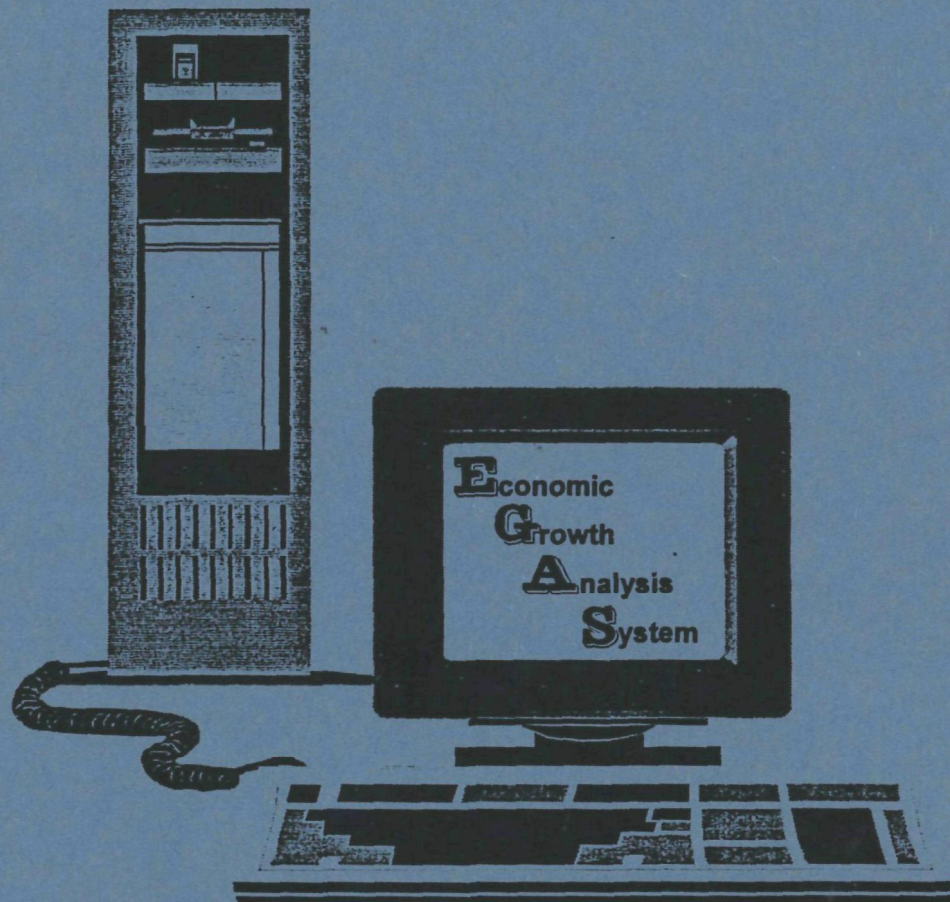


 **EPA Economic Growth
Analysis System:
User's Guide
Version 3.0**



NARSTO

Prepared for Office of Air Quality Planning and Standards

Prepared by Air Pollution Prevention and Control Division

PREFACE

The U.S. Environmental Protection Agency is charged by Congress with protecting the Nation's land, air, and water resources. Under a mandate of national environmental laws, the Agency strives to formulate and implement actions leading to a compatible balance between human activities and the ability of natural systems to support and nurture life. To meet this mandate, EPA's research program is providing data and technical support for solving environmental problems today and building a science knowledge base necessary to manage our ecological resources wisely, understand how pollutants affect our health, and prevent or reduce environmental risks in the future.

The National Risk Management Research Laboratory is the Agency's center for investigation of technological and management approaches for reducing risks from threats to human health and the environment. The focus of the Laboratory's research program is on methods for the prevention and control of pollution to air, land, water, and subsurface resources; protection of water quality in public water systems; remediation of contaminated sites and groundwater; and prevention and control of indoor air pollution. The goal of this research effort is to catalyze development and implementation of innovative, cost-effective environmental technologies; develop scientific and engineering information needed by EPA to support regulatory and policy decisions; and provide technical support and information transfer to ensure effective implementation of environmental regulations and strategies.

This publication has been produced as part of the Laboratory's strategic long-term research plan. It is published and made available by EPA's Office of Research and Development to assist the user community and to link researchers with their clients.

E. Timothy Oppelt, Director
National Risk Management Research Laboratory

EPA REVIEW NOTICE

This report has been reviewed by the U.S. Environmental Protection Agency, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policy of the Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.

**ECONOMIC GROWTH ANALYSIS SYSTEM:
VERSION 3.0 USER'S GUIDE**

FINAL REPORT

Prepared by:

Terri Young

**TRC ENVIRONMENTAL CORPORATION
6340 Quadrangle Drive, Suite 200
Chapel Hill, North Carolina 27514**

**EPA Contract 68-D2-0181
Work Assignment 2/019**

**Project Officer: Sue Kimbrough
U.S. Environmental Protection Agency
National Risk Management Research Laboratory
Research Triangle Park, NC 27711**

Prepared for:

**U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711**

**U.S. Environmental Protection Agency
Office of Research and Development
Washington, DC 20460**

FOREWORD

Previous versions of this report were prepared under the auspices of the Joint Emissions Inventory Oversight Group (JEIOG). However, this version was prepared under the auspices of the North American Research Strategy for Tropospheric Ozone (NARSTO). NARSTO evolved out of a call by the Clean Air Act Amendments (CAAA) of 1990 [Sec. 185B], in conjunction with the National Academy of Sciences (NAS), to examine the role of ozone (O_3) precursors in tropospheric O_3 formation and control. In addition, the study called for an examination of the roles of nitrogen oxide (NO_x) and volatile organic compound (VOC) emission reductions, the extent to which NO_x reductions may contribute (or be counterproductive) to achievement of attainment in different nonattainment areas, the sensitivity of O_3 to the control of NO_x , the availability and extent of controls for NO_x , the role of biogenic VOC emissions, and the basic information required for air quality models.

The NAS called for a rethinking of the O_3 problem through a comprehensive program of tropospheric O_3 research coordinated across organizations from government (federal, state/provincial, and local), industry, academia, and other private-sector interests within North America. This call is based on the apparently disappointing results of recent efforts to control high O_3 concentrations and the lack of coordination of ongoing research efforts in tropospheric O_3 science. This effort is known as NARSTO.

ABSTRACT

This guide is intended to function as a manual for Version 3.0 of the Economic Growth Analysis System (E-GAS), which was developed under EPA Contract No. 68-D2-0181. The objective of this report is to describe the usage of the E-GAS modeling system. The E-GAS model will be used to project emissions inventories of volatile organic compounds, oxides of nitrogen, and carbon monoxide for ozone nonattainment areas and Regional Oxidation Model (ROM) modeling regions.

This guide describes in detail the workings of the E-GAS computer modeling software, and its relationships with internal modeling software components, like Regional Economic Models, Inc. (REMI) models, and external software, like the Regional Oxidant Model (ROM), the Aerometric Information Retrieval System (AIRS), and the Urban Airshed Model (UAM). The guide describes all inputs to and outputs from the software, and includes a description of all variables used by the E-GAS system.

TABLE OF CONTENTS

Section	Page
FOREWORD	ii
ABSTRACT	ii
LIST OF FIGURES	v
LIST OF ACRONYMS	vi
ACKNOWLEDGEMENTS	vii
 1 INTRODUCTION	 1-1
1.1 BACKGROUND	1-1
1.2 PURPOSE	1-4
1.3 BEFORE USING THE SYSTEM	1-4
1.4 CONCEPTS AND KEYWORDS	1-5
1.5 PROGRAM INPUT AND USER GUIDE SYNTAX	1-6
1.6 REFERENCES	1-7
 2 GETTING STARTED	 2-1
2.1 INSTALLING E-GAS	2-1
2.2 RUNNING E-GAS	2-1
2.3 MAIN MENU	2-2
2.4 E-GAS MAIN MENU	2-3
2.5 E-GAS UTILITIES	2-5
2.5.1 Help	2-6
2.5.2 User Assumptions	2-6
2.5.3 Abort Execution	2-6
 3 ECONOMIC MODELS IN E-GAS	 3-1
3.1 INTRODUCTION	3-1
3.2 THE BLS / REMI U.S. FORECAST	3-2
3.3 WHARTON ECONOMETRIC FORECASTING ASSOCIATES (WEFA)	3-2
3.4 REFERENCES	3-3
 4 POLICY VARIABLE CHANGES	 4-1
4.1 INTRODUCTION	4-1
4.2 REGULAR POLICY VARIABLES	4-2
4.3 TRANSLATOR POLICY VARIABLES	4-5
4.4 POPULATION VARIABLE	4-7
 5 MODEL SUPPRESSIONS	 5-1

TABLE OF CONTENTS (continued)

Section	Page
6 TIER 1: THE NATIONAL MODEL	6-1
6.1 INTRODUCTION	6-1
6.2 NATIONAL MODEL MAIN SCREEN	6-1
6.3 BASELINE FORECAST	6-1
6.4 MAIN MENU	6-3
7 TIER 2: THE REGIONAL MODEL	7-1
7.1 INTRODUCTION	7-1
7.2 REGIONAL MODEL TIER MAIN SCREEN	7-2
7.3 BASELINE FORECAST	7-2
7.4 SIMULATION FORECAST	7-3
7.5 MAIN MENU	7-3
8 TIER 3: THE GROWTH FACTOR MODULE	8-1
8.1 INTRODUCTION	8-1
8.2 OUTPUT FILE SELECTION SCREENS	8-2
8.2.1 Output File Format Selection Screen	8-2
8.2.2 Output File Year Selection Screen	8-3
8.2.3 Output File Area/State/County Selection Screens	8-4
8.3 VMT DATA ENTRY SEQUENCE	8-5
8.3.1 VMT Data Source Screen	8-5
8.3.2 VMT Data Detail Screen	8-6
8.3.3 VMT Data Entry Screens	8-7
9 FOR FURTHER INFORMATION	9-1
APPENDIX A E-GAS MODELING AREAS	A-1
APPENDIX B FILE FORMATS FOR E-GAS VEHICLE VMT INPUT	B-1
APPENDIX C E-GAS OUTPUT FILES	C-1
APPENDIX D BEA MODULE MESSAGE AND OUTPUT FILES	D-1

LIST OF FIGURES

Number	Page
2-1 Main menu.	2-2
2-2 BEA module message	2-3
2-3 E-GAS main menu	2-4
2-4 E-GAS utilities	2-5
6-1 National model main screen.	6-2
6-2 National model baseline forecast screen.	6-2
7-1 Regional model main screen.	7-2
8-1 Output file format selection screen.	8-2
8-2 Output file year selection screen.	8-4
8-3 Output file area selection screen.	8-5
8-4 VMT data screen.	8-6
8-5 VMT data detail screen.	8-7
8-6 Single growth factor screen.	8-8
8-7 Growth factor by road type screen.	8-8
8-8 Growth factor by road and vehicle type screen.	8-9

LIST OF ACRONYMS

AEERL	Air and Energy Engineering Research Laboratory (now APPCD)
AIRS	Aerometric Information Retrieval System
APPCD	Air Pollution Prevention and Control Division
BEA	U.S. Department of Commerce Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
CAAA	Clean Air Act Amendments of 1990
CO	carbon monoxide
CPI	consumer price index
CSEMS	Commercial Sector Energy Model by State
E-GAS	Economic Growth Analysis System
EPA	U.S. Environmental Protection Agency
EPS	Emissions Preprocessor System
EPV	employees per dollar value added
EUMOD	Electric Utility Model
FHWA	Federal Highway Administration
FIPS	Federal Information Processing Standards
GNP	Gross National Product
GRP	Gross Regional Product
HH	Household
HOMES	Household Model of Energy by State
HPMS	Highway Performance Monitoring System
INRAD	Industrial Regional Activity and Energy Demand Model
JEIOG	Joint Emissions Inventory Oversight Group (now NARSTO)
MSA	Metropolitan Statistical Area
NAS	National Academy of Science
NAAQS	national ambient air quality standards
NARSTO	North American Research Strategy for Tropospheric Ozone
NRML	National Risk Management Research Laboratory
NUMOD	Neural Network Electric Utility Model
OAQPS	Office of Air Quality Planning and Standards
PCE	Personal Consumption Expenditures
REMI	Regional Economic Models, Inc.
REO	regional economic opportunity
ROM	Regional Oxidant Model
RPC	regional price coefficient
RWM	relative wage mix
RWR	relative wage rate
SCC	source classification code
SIC	Standard Industrial Classification (code)
UAM	Urban Airshed Model
WEFA	Wharton Econometric Forecasting Associates
VMT	vehicle miles traveled

ACKNOWLEDGEMENTS

This document was prepared by TRC Environmental Corporation, for the U.S. Environmental Protection Agency's (EPA's) Office of Research and Development, Air Pollution Prevention and Control Division (APPCD) and Office of Air Quality Planning and Standards (OAQPS) under the auspices of the North American Research Strategy for Tropospheric Ozone (NARSTO). EPA involvement included: Sue Kimbrough (Work Assignment Manager) and Larry Jones of the APPCD Emissions and Modeling Branch; Richard Wayland of the OAQPS Technical Support Division; and Laurel Schultz of the OAQPS Air Quality Management Division. Further significant contributions to this document have been made by staff from Regional Economic Models, Inc. (REMI), Amherst, MA, and their documents.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The Clean Air Act Amendments (CAAA) of 1990 were signed into law on November 15, 1990. The CAAA require that extreme, severe, serious, and multi-State moderate ozone non-attainment areas use photochemical grid modeling to demonstrate future attainment with the ozone national ambient air quality standard (NAAQS) [Section 182(e)(2)(A)]. In addition to photochemical grid modeling, the CAAA require that moderate, serious, severe, and extreme ozone nonattainment areas submit rate-of-progress plans demonstrating a 15 percent reduction in emissions from 1990 to 1996 [Section 182(b)(1)(A)]. Further, rate-of-progress plans for serious, severe, and extreme areas must include demonstration of a three percent reduction (averaged over three years) from 1996 until attainment is achieved [Section 182(c)(2)(B)].

Section 182(b)(1)(A) of the CAAA specifies that the 15 percent reduction from baseline emissions accounts for any growth in emissions after 1990. A key component of the rate-of-progress plans and photochemical grid modeling demonstrations will be the development of credible growth factors for the existing inventories.

When emission source growth estimates are not available by directly surveying individual facilities or from other local sources, surrogate growth indicators must be used. The Economic Growth Analysis System (E-GAS) Model is one source for these growth factors. The EPA also endorses the use of economic data to forecast growth in emissions. Acceptable economic indicators are product output, value added, earnings, and employment. Product output is measured in physical units; value added is the difference between the value of industry outputs and inputs; earnings denotes wage earnings in an industry; and employment measures the number of workers in an industry. The emission projection guidance suggests that product output is the best indicator of future emission source growth and that its use is "preferable to any of the [other] indicators, if it is available".¹ If product output projections are not available, value added data should be used, and if they are not available, earnings data may be used. Finally, employment projections may be used, but are not considered to be "an effective growth indicator in most

cases." The guidance also indicates that for the purposes of projecting SIP inventories, States are expected to use earnings, value added, or product output data.¹

The traditional data source for economic indicators used in projecting stationary source growth is the U.S. Department of Commerce's Bureau of Economic Analysis (BEA) growth factors. The BEA has published Metropolitan Statistical Area (MSA), State and regional growth factors in print and disk formats under the titles, *Bureau of Economic Analysis Regional Projections to 2040 Volumes 1, 2, and 3*.^{2,3,4} This source includes personal income, earnings, and employment data for the MSAs, States, regions, and the entire United States.

EPA guidance on projection of mobile source emissions can also be found in *Procedures for Preparing Emissions Projections*.¹ This guidance covers highway vehicles as well as some non-highway mobile sources (aircraft and railroads). Additional guidance specific to highway mobile source inventory forecasting and tracking for carbon monoxide (CO) nonattainment areas is contained in *Section 187 VMT Forecasting and Tracking Guidance*, a document required by Section 187 of the Clean Air Act Amendments.⁵ These two documents discuss the same basic methods and sources for mobile source projections. In order of preference, these include the following:

1. Use of projections based on a network-type travel demand model for the area of concern
2. Use of projections based on data generated by the Federal Highway Administration (FHWA) Highway Performance Monitoring System (HPMS) for the subject area
3. Use of "any reasonable methodology" for areas not covered by HPMS

The *Procedures for Preparing Emissions Projections* states that the preferred method for performing vehicle miles traveled (VMT) projections for on-road mobile sources is to use a validated travel demand model. Travel demand models are locality-specific computerized models which simulate travel on a network representing an area's transportation system. The number of cities with a current travel demand model is limited and there are many nonattainment areas without such models. For areas that do not have a validated travel demand model, this guidance permits VMT projections to be based on the FHWA's HPMS. For areas outside the domain of a travel demand model and/or HPMS reporting area, the use of an historically-based extrapolation

method is allowed. An example trend projection method, requiring the quantifying of road mileage and associated VMT, is outlined; however, details on these methodologies are not provided.

Since growth in source emissions largely depends on the amount of economic activity growth in an area, a consistent set of growth factors requires forecasts using consistent Gross National Product (GNP) forecasts and a consistent methodology for estimating economic activity in Urban Airshed Model (UAM) and Regional Oxidant Model (ROM) modeling regions. The need for consistent economic growth factors, however, must be satisfied in a way that allows States to use their own estimates of national and regional economic activity. The E-GAS is an economic and activity forecast model which satisfies both of these standards.

Inventories for rate-of-progress plans and photochemical modeling will be housed in the Aerometric Information Retrieval System (AIRS). E-GAS generated growth factors can be applied to AIRS inventories for the development of emission projections to the year 2015. State users can create custom regional forecasts by modifying input assumptions for the regional models in the E-GAS system.

The E-GAS modeling system contains three tiers. The first tier includes available national economic forecasts which are used to drive the regional economic models. The second tier includes regional economic models for the UAM modeling areas, as well as the States in the ROM modeling regions. The third tier estimates fuel consumption, physical output, and VMT based on the second tier's regional economic forecasts. The tiers must be sequentially executed, since data are created by early tiers for transfer to later tiers. The three-tiered structure of E-GAS allows users flexibility in modeling. Although a tier must be run before proceeding to the next tier, the system allows the models to be rerun at the user's discretion. For example, users may run the national model using either Bureau of Labor Statistics (BLS) or Wharton Econometrics Forecasting Associates (WEFA) forecasts before performing regional modeling on the last national model run.

The E-GAS system also has a module which allows users to select the BEA growth factors as output. This module uses the growth factors created by the program BEAFAC which is part of the UAM/ROM Emission Preprocessor. This option does not rely on economic data from the REMI models. Appendix H of the E-GAS Reference Manual contains more information on this module.

1.2 PURPOSE

The purpose of this User's Guide is to provide a guide through the E-GAS system. This chapter introduces the terminology used with the system as well as the syntax and format of the program and user's guide. Chapter 2 discusses the use of E-GAS by explaining the logical progression of the program, presenting sample screens, providing explanations of input formats, and describing the E-GAS utilities found throughout the system. Chapter 3 describes the role of national economic models in E-GAS and the two options available to the user. Chapter 4 first explains the general function of E-GAS's policy variables, then describes the specific variables while explaining their input. Chapter 5 describes the role of model suppressions in E-GAS and describes all suppressions available to the user. Chapter 6 describes the operation and type of data required for the E-GAS National Model (Tier 1). Chapter 7 provides similar descriptions of the Regional Model (Tier 2), and Chapter 8 describes the Growth Factor Module (Tier 3). Chapter 9 identifies contacts for further information regarding the operation of E-GAS and the logic of the system.

This document only addresses the use of the E-GAS model for economic and emissions modeling. Background material regarding economics and economic forecasting techniques are available from a variety of sources, including the E-GAS Reference Manual.⁶

1.3 BEFORE USING THE SYSTEM

The program has been designed for an IBM-compatible personal computer environment. The system requires the following *minimum* hardware configurations:

- IBM 80386 or 100 percent compatible personal computer
- Math coprocessor
- 580 Kilobytes of Free Conventional Memory
- 100 Megabytes of available fixed disk storage
- VGA graphics capabilities
- DOS 5.0 or higher
- 5¼ or 3½ inch floppy disk drive

1.4 CONCEPTS AND KEYWORDS

The following definitions present the major keywords and expressions as used in this guide.

- **Baseline Forecast:** The default economic activity forecast without any policy variable changes.
- **Demand Data:** Demand for products is usually measured in dollars and in many models is considered equal to the level of spending for a type of product. **Final demand** represents the demand for a finished product. Regional consumer and government spending are representative of final demand in an area. In contrast, **industrial demand** for products is typically for subsequent use in producing another product.
- **Growth Factor Module:** The third tier of E-GAS. This system translates economic activity data from the first two tiers into source classification code (SCC)-level growth factors.
- **Model Response Suppression:** When running a regional simulation in E-GAS the user is given the option of suppressing model responses. Such suppressions dissolve links between key elements of the model, thus changing the simulation.
- **National REMI Forecast:** An economic activity forecast for the entire United States. The user is given the choice of two forecasts: BLS and WEFA.
- **Policy Variables:** E-GAS provides policy variables that can be used in scenario testing for a region. Changing policy variables allows the user to simulate the economic impact of anticipated government policy changes, market changes, or other exogenous changes to the regional economy. The effect of a policy change is the difference between a baseline forecast and the simulation forecast with policy variable changes.
- **Regional REMI Model:** An economic model for a subset, or region, of the country.
- **Relative Costs/Prices:** Some of the policy variables that can be defined in E-GAS are described as relative costs or prices. In these cases, the default cost per unit represents the average cost for the nation and is standardized to a value of one (1). Therefore, only the relative change in cost needs to be entered, rather than the actual local cost. If default = 1.0 and a 10 percent increase in the price of gasoline was entered, it would indicate a relative gasoline cost of 1.1. A 10 percent decrease would indicate a 0.9 relative cost.
- **REMI Model:** An economic model developed by Regional Economic Models, Inc. REMI models are incorporated into E-GAS to forecast economic activity.

- **Simulation Forecast:** An economic activity forecast allowing policy variable changes. Model responses can be suppressed in the simulation forecasts. If model responses are suppressed in a simulation, a baseline forecast is also created using the model suppression.
- **Tiers:** E-GAS is a series of three related tiers. The tiers must be executed consecutively, but may be run any number of times before proceeding to the next. The tiers are as follows:
 - Tier 1: National Economic Forecast
 - Tier 2: Regional Economic Forecast
 - Tier 3: Growth Factor Computations

1.5 PROGRAM INPUT AND USER GUIDE SYNTAX

E-GAS is a menu-driven system that guides the user through a series of screens which collect information for adapting the model to the user's needs. User input is limited to selecting menu items and setting parameters by entering data in text boxes.

It should be noted that, in both the E-GAS system and this guide, references to specific computer keys are enclosed with **< >** symbols: for example, the Escape key is identified as **<Esc>**, the Control key is **<Ctrl>**, and the function keys use **<F1>** notation.

Menu screens offer choices regarding progress through E-GAS. Vertical and horizontal movement is brought about with the cursor control keys (Up, Down, Left, and Right arrows). These screens only offer choices of data entry screens or other menu screens. Cursor keys are used to highlight the desired choice. The **<Enter>** key is then pressed to select the option. Pressing the highlighted letter in the choice can also select the option.

Text boxes allow users to answer system questions necessary for model execution. Data can be entered by basic typing, edited with the **<Backspace>** and cursor keys, and accepted with the **<Enter>** key.

1.6 REFERENCES

1. U.S. Environmental Protection Agency. *Procedures for Preparing Emissions Projections*. EPA-450/4/91-019 (NTIS PB91-242404). Office of Air Quality Planning and Standards, Research Triangle Park, NC. July 1991.
2. U.S. Department of Commerce. *BEA Regional Projections to 2040, Volume 1: States*. Bureau of Economic Analysis. Washington, DC. 1990.
3. U.S. Department of Commerce. *BEA Regional Projections to 2040, Volume 2: Metropolitan Statistical Areas*. Bureau of Economic Analysis. Washington, DC. 1990.
4. U.S. Department of Commerce. *BEA Regional Projections to 2040, Volume 3: BEA Economic Areas*. Bureau of Economic Analysis. Washington, DC. 1990.
5. U.S. Environmental Protection Agency. *VMT Forecasting and Tracking Guidance, Section 187*. (NTIS PB92-164961). Office of Mobile Sources. Ann Arbor, MI. January 1992.
6. Young, T., and R. Capone. *Economic Growth Analysis System: Reference Manual Version 3.0*. EPA-600/R-95-132a. U.S. Environmental Protection Agency, Air Pollution Prevention and Control Division, Research Triangle Park, NC. August 1995.

CHAPTER 2

GETTING STARTED

2.1 INSTALLING E-GAS

E-GAS can be installed through the following steps:

1. Place the E-GAS Program Diskette 1 in the appropriate disk drive.
2. Switch to the floppy disk drive containing the E-GAS diskette.
e.g.: **A:<Enter>**
3. Run the Install Program.
e.g.: **INSTALL<Enter>**
4. Follow instructions printed to the screen to select installation disk and path.

The install routine will create the specified directory on the destination (fixed) disk drive. If no directory is entered, the install routine will create an \EGAS directory. Once installation is complete, the E-GAS system will automatically be started and the title screen will appear.

2.2 RUNNING E-GAS

After E-GAS has been installed, the system can easily be run by:

1. Setting the default drive to the fixed disk containing E-GAS.
e.g.: **C:<Enter>**
2. Setting the default directory to the one chosen when installing the system.
e.g.: **CD \EGAS<Enter>**
3. Typing **EGAS<Enter>** at the DOS prompt.

Upon successful start-up of the system, the title screen is presented, asking the user to press any key to continue.

2.3 MAIN MENU

After leaving the title screen, the user arrives at the Main Menu.

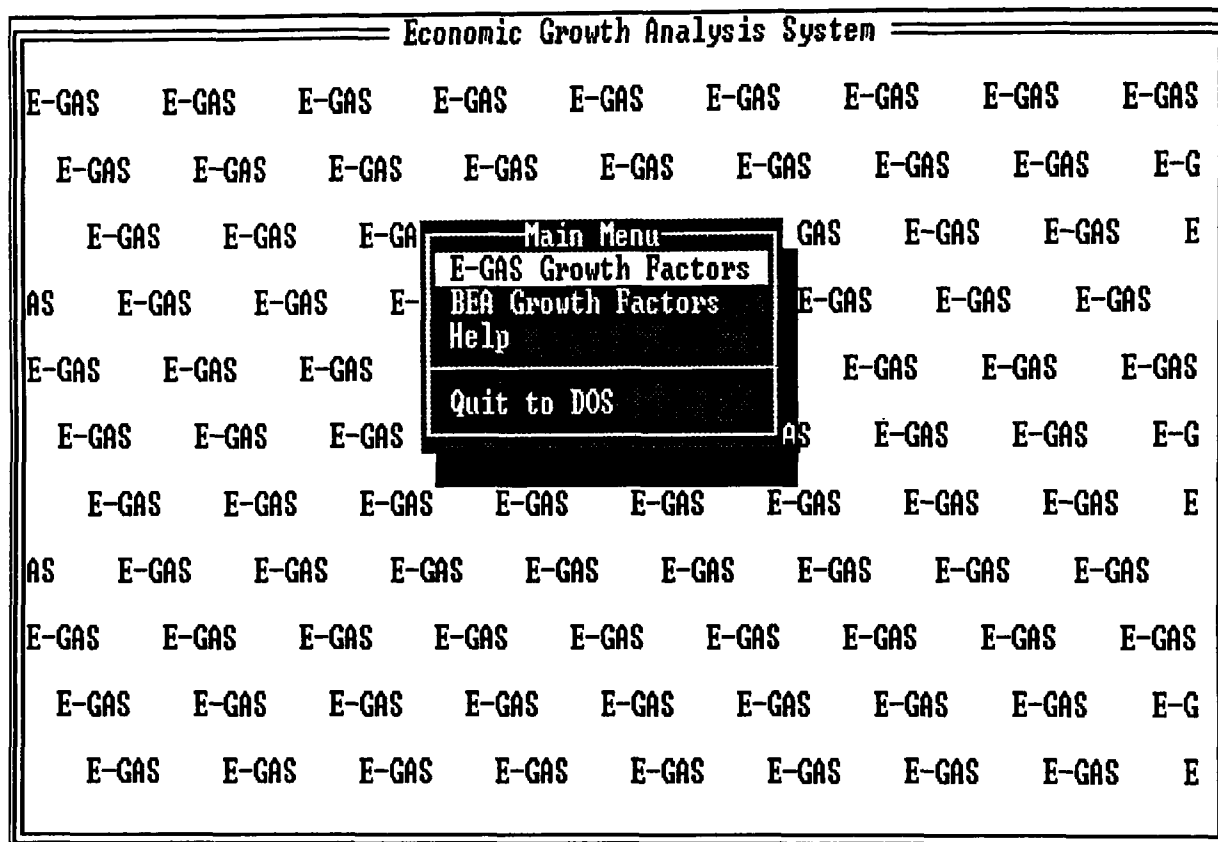


Figure 2-1. Main menu.

The user has the option of using the E-GAS system to develop the growth factors or using the BEA growth factors. If the user selects the BEA growth factors option, the system provides a message informing the user that neither the economic data from E-GAS nor any of the E-GAS modules will be used to develop these growth factors. This screen is shown in Figure 2-2. The user may return to the menu by pressing <F4> or continue by pressing <F3>. The full text of this message may be found in Appendix D along with the output file naming conventions.

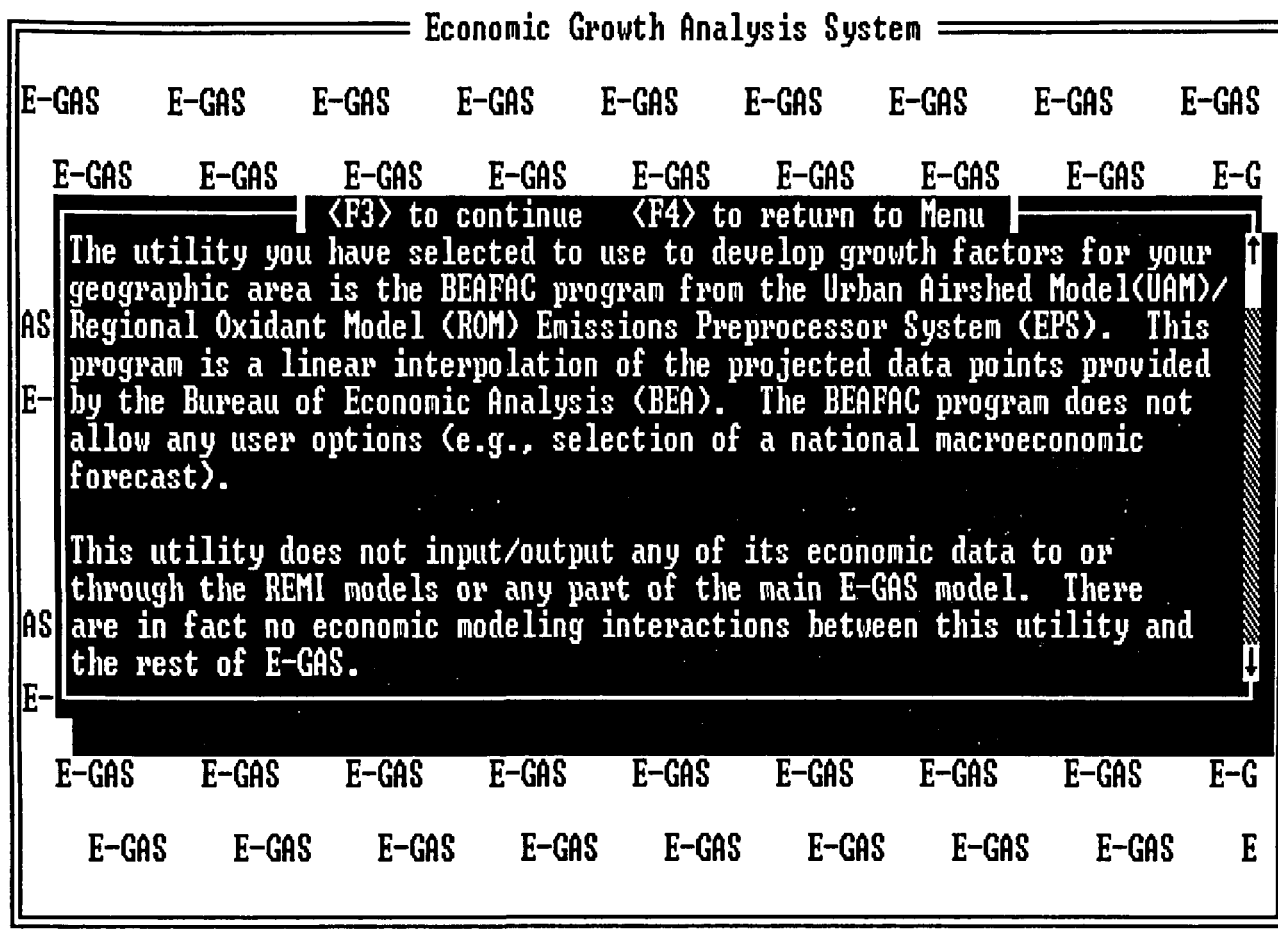


Figure 2-2. BEA module message.

If the user continues using the BEA option, the system allows for selecting the specific years and counties which can be output. This option provides either a 2-digit SIC or SCC level output file. The process for selecting the file format, years, and counties is the same as the one used in Tier 3 of the E-GAS system. Chapter 8 contains the instructions and sample screens used in these selections.

2.4 E-GAS MAIN MENU

Upon selecting the E-GAS growth factors option, the user arrives at the E-GAS Main Menu.

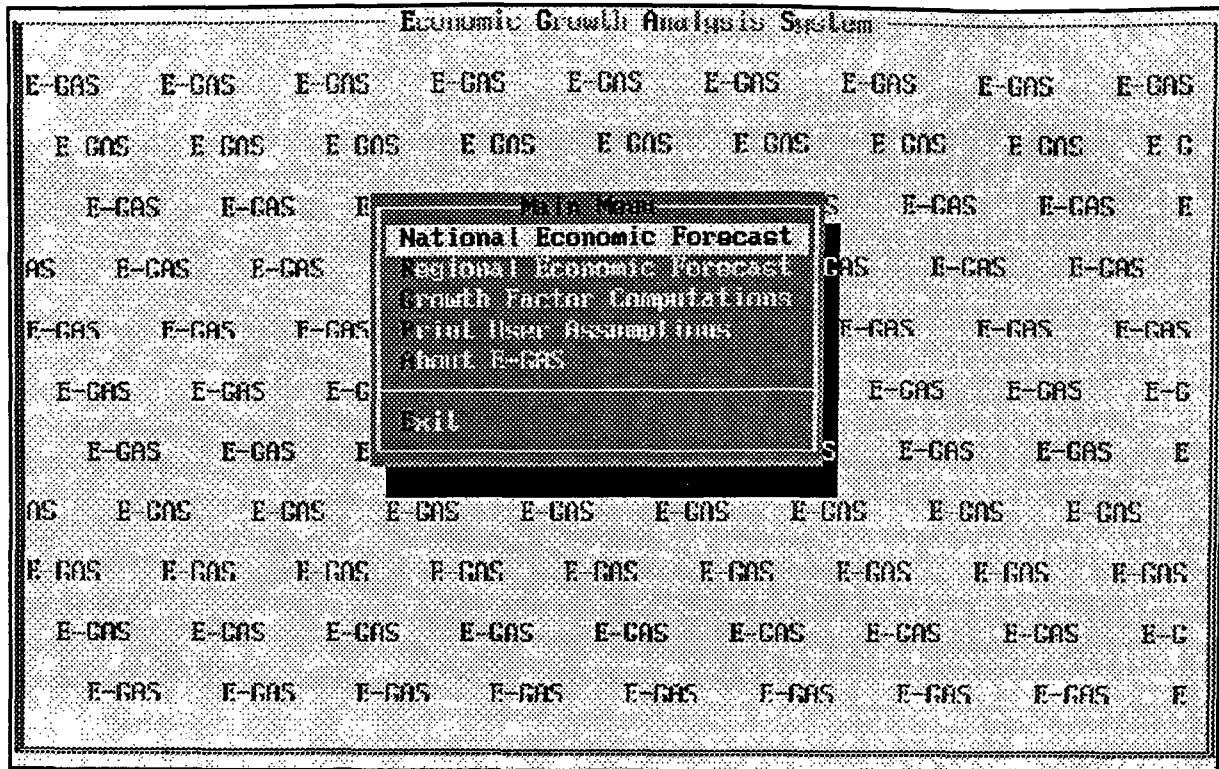


Figure 2-3. E-GAS main menu.

The user can advance to the major tiers of E-GAS through the Main Menu. Options can be chosen by pressing the first letter of the option name or by highlighting the choice and pressing the <Enter> key. The Main Menu's options are as follows:

- **National Economic Forecast:** This option allows the user to create a national-level economic forecast and is Tier 1 of the three-part process of creating estimated growth factors; it generates data to drive the Regional Economic Forecast (Tier 2). This tier may be rerun any number of times before proceeding to Tier 2. Use of the national model is discussed in Chapter 6 of this guide.
- **Regional Economic Forecast:** This choice allows the user to develop a regional economic forecast. This is Tier 2 of the three-part process of creating estimated growth factors which generate data to drive the Growth Factor Computations (Tier 3). This tier may be rerun any number of times before proceeding to Tier 3. Use of the regional model is discussed in Chapter 7 of this guide.
- **Growth Factor Computations:** This is the third tier where growth factors are generated and written to files in the current subdirectory. Tier 3 is discussed in Chapter 8.
- **Print User Assumptions:** This option prints the user assumptions.

- **About E-GAS:** This provides a summary of the E-GAS program and its components.
- **Exit:** This option returns the user to the operating system after leaving E-GAS.

2.5 E-GAS UTILITIES

Several features are available to E-GAS users throughout the three tiers of the system. These features are available to users whenever they are indicated on the information bars. Figure 2-4, from the Regional Model Tier, illustrates some of these options.

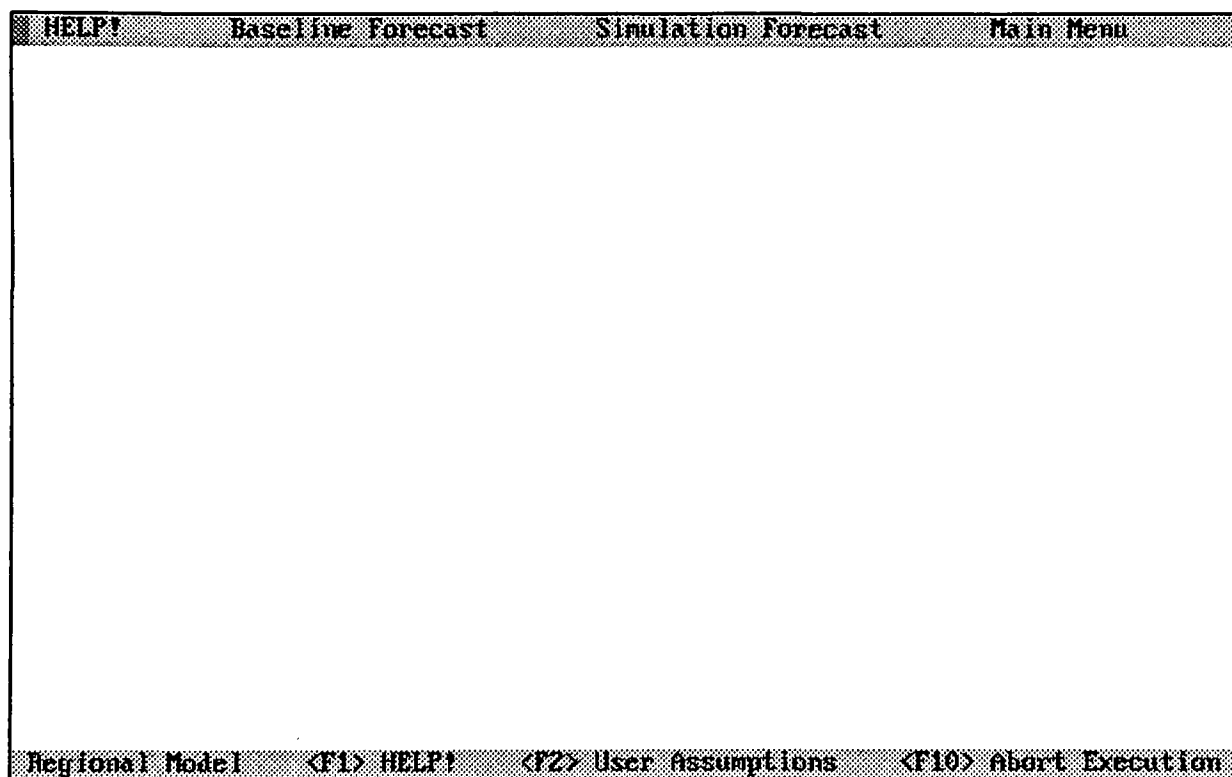


Figure 2-4. E-GAS utilities.

The E-GAS utilities include the following:

- **Help** screens summarizing system operation
- **User Assumptions** under which the model is currently being run
- **Abort Execution** option (Tiers 1 and 2 only)

2.5.1 Help

Pressing <F1> while running E-GAS or <H> from the menu will display help text or a menu of topics associated with the part of E-GAS currently being used. When the system is at the menu, the Help screen is a menu from which the user can highlight the preferred topic and select it for review by pressing <Enter>. The <F1> Help provides information about the specific topic and its relation to the current execution point of the system. Help screens include instructions on closing the help function and returning to regular system operation.

2.5.2 User Assumptions

Pressing <F2> while running E-GAS returns information on the user assumptions under which the model is operating. The assumptions including the chosen national model, changes in policy variables, and model response suppressions are summarized in full-screen windows. The assumptions are presented for the current tier, if it has previously been run, as well as preceding tiers.

2.5.3 Abort Execution

Pressing <F10> while the system is performing calculations will end the data processing and return the user to the menu bar. This is convenient when the user realizes that the current tier has been misspecified through choice of an inappropriate model, policy variable changes, or model response suppressions. Aborting execution of E-GAS calculations does not undermine data from previous runs of the current tier or data from other tiers. This option is only available in Tiers 1 and 2 of the system.

CHAPTER 3

ECONOMIC MODELS IN E-GAS

3.1 INTRODUCTION

E-GAS is designed such that growth factor projection scenarios for each nonattainment area and attainment portion of States can be made using a common assumption about future U.S. economic activity. The national economic forecasts in E-GAS can provide a common forecast with which to forecast regional economic growth. The nature of ozone formation requires attention to the location as well as the level of economic activity. National forecasts provide estimates of total economic activity. The regional model will distribute this activity among U.S. urban areas, States, and regions. The spatial characteristics of the regional forecasts are designed to meet the needs of the photochemical models used by the ozone nonattainment areas.

A major component of the E-GAS system is the REMI EDFS-14 economic model. The major advantage of the REMI system is its ability to distribute modeled national growth to smaller modeling regions comprising the United States. The REMI model also contains a national economic growth model, which creates national growth projections for distribution by the regional model. The REMI national model can create forecasts from its own data or other compatible national forecasts. E-GAS allows the user to specify national macroeconomic forecasts to produce the outputs necessary to run the regional model.

In the REMI regional models, growth is affected by a number of factors, including the performance of the national economy and the relative costs of doing business in the modeled region. The relative costs of doing business are determined endogenously, although the user may simulate policies which would affect the relative costs in a region. The growth or decline of the national economy, however, is determined outside of the regional model.¹ The choice of national forecast is left solely to the user. This choice can have a large impact on the estimates of growth in the region being modeled.

3.2 THE BLS / REMI U.S. FORECAST

The REMI U.S. forecast is based on the BLS Trend-2000 forecast. The BLS forecast provides "fundamental information" for use in the REMI national and regional models. The methodology for projecting U.S. final demand by industry relies on the creation of technical coefficient matrices for each historical and forecasted year. This methodology involves developing an input-output model for the years for which BLS provides input-output accounts (1982, 1986, and 2000).² The BLS forecasts include employment and output by industry, as well as GNP. The final demand components of the BLS forecast are used to drive the input-output models, resulting in a prediction of intermediate demand for and output by industries.

3.3 WHARTON ECONOMETRIC FORECASTING ASSOCIATES (WEFA)

The WEFA Group produces short- and long-term economic forecasts of U.S. economic activity. The short-term forecasts range from 10 to 13 quarters (2.5 to 3.25 years) and are issued monthly. The long-term forecasts are 25-year forecasts which are issued quarterly. In addition to the baseline short-term forecast, the WEFA Group provides two alternative forecasts focusing on macroeconomic risks and their probable effects on industries. The 25-year forecasts include trend, cycle, and two alternative forecasts.³

The WEFA Group uses Mark 9, a quarterly economic model developed at WEFA, to produce its short- and long-term forecasts. The model is comprised of over 1200 equations and contains a "satellite" industry model which produces detailed industrial forecasts using outputs from the core macroeconomic model.⁴ The Mark 9 model contains the following nine major sectors:

- Personal Consumption Expenditures
- Fixed Investment
- Inventory Investment
- Government
- International Trade
- Labor Market
- Wages and Prices
- Financial Market
- Income

Variables included in the WEFA model include consumption, investment, income, and inflation data from the National Income and Product Accounts; population, employment, and wage rate data from the BLS; industrial production data from the Federal Reserve Board; and demand, production, and price data for the auto, housing, and energy sectors of the economy.⁴

The long-term economic forecasts are issued in a two-volume report. The first volume of the report covers the trend or moderate growth scenario and contains an overview of the forecast results and detailed sector reviews of the population, housing, investment, government, inflation, labor market, industrial activity, and energy forecasts in addition to tables detailing the sector forecasts.⁴

The REMI models may be run using 92 forecasted variables from WEFA. These 92 variables include 25 final demand variables. WEFA also forecasts housing and energy variables which may be used in E-GAS development and simulations. Mark 9 forecasts detailed energy price, supply, demand, and consumption variables. The model also forecasts housing variables including housing starts, sales, stocks, and prices.

3.4 REFERENCES

1. Regional Economic Models, Inc. *Operator's Manual for a Single Region EDFS-14 Conjoined Forecasting and Simulation Model*. REMI Reference Set, Volume 2. Amherst, MA. 1991.
2. Shao, G., and G. Treyz. *Building a U.S. and Regional Forecasting and Simulation Model*. Research Paper. Regional Economic Models, Inc. Amherst, MA. 1991.
3. Randall, T., Wharton Econometric Forecasting Associates. Telecon with Teresa Lynch, Alliance Technologies Corporation. Chapel Hill, NC. April 1992.
4. Wharton Econometric Forecasting Associates. *Mark 9 Model Reference*. The WEFA Group. Bala Cynwyd, PA. January 1990.

CHAPTER 4

POLICY VARIABLE CHANGES

4.1 INTRODUCTION

By changing policy variables, the user is allowed to simulate the economic impact of anticipated government policy changes, market changes, or other exogenous changes to the regional economy. The effect of a policy change is the difference between a baseline forecast and the simulation forecast with policy variable changes.

In the E-GAS model, there are over 100 regular economic policy variables, translator policy variables (which control combinations of economic policy variables), and population variables that can be adjusted. These variables are accessed from the REMI EDF5-14 model and offer scenarios for changes in tax rates (corporate profit tax, equipment tax, investment tax, personal income tax, and property tax), costs (including relative production cost, import cost, and export cost), wage rate, employment transfer payments, purchasing power, and final demand.

Policy variables have default values for baseline scenarios. Variables that describe additive changes have defaults of 0, and multiplicative variables use 1 for the default. Therefore, entered values for additive changes will represent the injection (of dollars, employees, etc.) into the economy and values for multiplicative phenomena will represent the ratio of the new value (cost, tax points, etc.) to the default.

The policy variables in E-GAS are grouped into three categories: (1) regular economic policy variables, (2) translator variables, and (3) population variables. Variable changes may have any number of decimal places and may be positive or negative. These categories are broken into subcategories containing the individual variables that can be changed by the user. Category, subcategory, and variable descriptions follow. The numbers in parentheses are two-digit Standard Industrial Classification (SIC) codes which apply to the policy variable.

4.2 REGULAR POLICY VARIABLES

Employment

EMPLOYMENT CHNG - DURABLE(24,25,32-39)	Durable Goods
EMPLOYMENT CHNG - NONDUR.(20-23,26-31)	Nondurable Goods
EMPLOYMENT CHNG - MINING(10,12-14)	Mining
EMPLOYMENT CHNG - CONSTRUCTION(15-17)	Construction
EMPLOYMENT CHNG - TRANSP+PUB UT(40-49)	Transportation and Public Utilities
EMPLOYMENT CHNG - FIN, INS, + RE(60-67)	Finance, Insurance, and Real Estate
EMPLOYMENT CHNG - RETAIL TRADE(52-59)	Retail Trade
EMPLOYMENT CHNG - WHOLESALE TR(50,51)	Wholesale Trade
EMPLOYMENT CHNG - SERVICE(70-79,80-89)	Services
EMPLOYMENT CHNG - AGRI/F/F SERV(07-09)	Agriculture, Farm, and Fishing Services
EMPLOYMENT CHNG - STATE & LOCAL GOVT	State and Local Government
EMPLOYMENT CHNG - FEDERAL CIVILIAN	Federal Civilian Government
EMPLOYMENT CHNG - FEDERAL MILITARY	Federal Military
EMPLOYMENT CHNG - AGRICULTURE	Agriculture

Policy variables for employment can be used to simulate the growth of the labor force that is not attributable to factors from within the region. For example, the opening of a major appliance manufacturing factory in the region would increase employment in the durable goods sector. The value entered should be in thousands (1000s) of employees.

Non-government Final Demand

FINAL DEM - PCE AUTOS & PARTS	Autos and Parts
FINAL DEM - PCE FURN & HH EQUIP	Furniture and Household Equipment
FINAL DEM - PCE OTHER DURABLES	Other Durables
FINAL DEM - PCE FOOD & BEVERAGES	Food and Beverages
FINAL DEM - PCE CLOTHING AND SHOES	Clothing and Shoes
FINAL DEM - PCE GASOLINE & OIL	Gasoline and Oil
FINAL DEM - PCE FUEL OIL & COAL	Fuel Oil and Coal
FINAL DEM - PCE OTHER NONDURABLES	Other Nondurables
FINAL DEM - PCE HOUSING	Housing
FINAL DEM - PCE HSEHLD OPERATION	Household Operation
FINAL DEM - PCE TRANSPORT + PUB UT	Transportation and Public Utilities
FINAL DEM - PCE HEALTH SERVICES	Health Services
FINAL DEM - PCE OTHER SERVICES	Other Services
FINAL DEM - INV RESIDENTIAL	Residential Investment
FINAL DEM - INV NON RESIDENTIAL	Nonresidential Investment
FINAL DEM - INV PROD DUR EQUIP	Durable Equipment Investment

Non-government final demand [*i.e.*, personal consumption expenditures (PCE)] represents consumer spending and investment in the region. The combination of this section and government

spending represents final demand for the region. Intermediate demand for products to subsequently be used in industry is not included. This section can be used to anticipate economic impacts of changes in consumer behavior. For example, the economic effects of introducing appealing, popular electric automobiles could be explored by deflating the consumer spending for gasoline and oil increasing the Transportation and Public Utilities (in areas where electricity is publicly provided). Consumer demand/spending should be entered as millions of dollars.

Government Final Demand

FINAL DEM - GOV ST/LOC-EDUC	State and Local Government Education
FINAL DEM - GOV ST/LOC HLTH/WLFAR	State and Local Government Health and Welfare
FINAL DEM - GOV ST/LOC SAFETY	State and Local Government Public Safety
FINAL DEM - GOV ST/LOC OTHER	State and Local Government Other

Government Final Demand represents the public sector's purchase of finished products. For example, purchase of new fire-fighting equipment would represent government spending for safety, but any increases in staff expenses would represent an increase in employment. Government demand/spending should be entered as millions of dollars.

Relative Cost Change

REL COST CHANGE - DURABLE(24,25,32-39)	Durable Goods
REL COST CHANGE - NONDUR.(20-23,26-31)	Nondurable Goods
REL COST CHANGE - MINING(10,12-14)	Mining
REL COST CHANGE - CONSTRUCTION(15-17)	Construction
REL COST CHANGE - TRANSP+PUB UT(40-49)	Transportation and Public Utilities
REL COST CHANGE - FIN, INS, + RE(60-67)	Finance, Insurance, and Real Estate
REL COST CHANGE - RETAIL TRADE(52-59)	Retail Trade
REL COST CHANGE - WHOLESALE TR(50,51)	Wholesale Trade
REL COST CHANGE - SERVICE(70-79,80-89)	Services
REL COST CHANGE - AGRI/F/F SERV(07-09)	Agriculture, Farm, and Fishing Services

Relative cost change represents changes in production costs due to a policy change. The relative change in costs can be entered as millions of dollars per year or as percent change, where entering -1.0 would decrease the value by one percent and entering 1.0 would increase it by one percent. The choice of dollars or percent must be used for all changes within a single simulation. Cost changes from additional health regulations placed on agriculture, therefore, would involve entry of a positive value for the AGRI/F/F variable.

Industry Demand

DEMAND CHANGE - DURABLE(24,25,32-39)	Durable Goods
DEMAND CHANGE - NONDUR.(20-23,26-31)	Nondurable Goods
DEMAND CHANGE - MINING(10,12-14)	Mining
DEMAND CHANGE - CONSTRUCTION(15-17)	Construction
DEMAND CHANGE - TRANSP+PUB UT(40-49)	Transportation and Public Utilities
DEMAND CHANGE - FIN, INS, + RE(60-67)	Finance, Insurance, and Real Estate
DEMAND CHANGE - RETAIL TRADE(52-59)	Retail Trade
DEMAND CHANGE - WHOLESALE TR(50,51)	Wholesale Trade
DEMAND CHANGE - SERVICE(70-79,80-89)	Services
DEMAND CHANGE - AGRI/F/F SERV(07-09)	Agriculture, Farm, and Fishing Services

Industry demand describes sales of intermediate goods that will be incorporated into the final product of another industry. Increased sales of motors for electric vehicles would be an increase in industry demand. Changes in industry demand are entered in millions of dollars.

(Relative) Fuel Costs

REL ELEC FUEL COSTS CHNG - COMM	Relative Price of Commercial Electric
REL ELEC FUEL COSTS CHNG - IND	Relative Price of Industrial Electricity
REL NATRL GAS FUEL COSTS CHNG - COMM	Relative Price of Commercial Natural Gas
REL NATRL GAS FUEL COSTS CHNG - IND	Relative Price of Industrial Natural Gas
REL RESIDUAL FUEL COSTS CHNG - COMM	Relative Price of Commercial Oil
REL RESIDUAL FUEL COSTS CHNG - IND	Relative Price of Industrial Oil

Relative fuel cost change represents changes in industrial and commercial fuel costs due to a policy change. The relative change in costs needs to be entered as a percent, where entering -1.0 would decrease the value by one percent and entering 1.0 would increase it by one percent.

Tax Rates

CORPORATE PROFIT TAX RATE	Corporate Profit Tax Rate
EQUIPMENT TAX RATE	Equipment Tax Rate
INVESTMENT TAX CREDIT	Investment Tax Credit

Changes in business tax rates attributable to policy changes are entered as a change in percentage points charged.

Changes in personal taxes attributable to policy changes are entered as a change in millions of dollars collected.

Purchasing Power

CHANGE IN PURCHASING POWER

Change in Purchasing Power

Purchasing power represents the amount of disposable income available to consumers. The value entered represents the *decrease* in purchasing power experienced by consumers. Therefore, the decrease in a community's disposable income associated with automobile tire disposal fees would be entered as a positive number. Changes in the purchasing power of consumers are entered as millions of dollars.

4.3 TRANSLATOR POLICY VARIABLES

Translator policy variables can be used to automatically change the series of regular economic policy variables associated with the output of a variety of industrial/service/government sectors. These changes may be entered as millions of nominal or real dollars. The choice of nominal or real dollars must be applied to all changes within a single simulation.

New Utilities and Facilities

NEW COMMUNICATIONS FACILITIES
NEW ELECTRIC UTILITY FACILITIES
NEW WATER SUPPLY AND SEWER FACILITIES
NEW GAS UTILITY AND PIPELINE FACILITIES
NEW ROADS
NEW LOCAL TRANSIT FACILITIES
NEW CONSERVATION AND DEVELOPMENT FACILITIES

Changes in production from new utilities and facilities can be simulated by entering the changes in spending in millions of dollars.

Transit

LOCAL GOVERNMENT PASSENGER TRANSIT
STATE AND LOCAL ELECTRIC UTILITIES
STATE AND LOCAL GOVT ENTERPRISES, NEC

Changes in production from transit and other public enterprises can be simulated by entering the changes in spending in millions of dollars.

Purchase of Electricity and Natural Gas

ELECTRICITY; PCE
NATURAL GAS; PCE

Changes in the final demand for electricity and natural gas should be entered as millions of dollars.

Local Transportation Expenditures

BUS AND TROLLEY CAR TRANSPORTATION; PCE
TAXICABS; PCE
COMMUTER RAIL TRANSPORTATION; PCE
RAILWAY TRANSPORTATION; PCE
INTERCITY BUS; PCE

Changes in final demand for the various modes of local transportation should be entered in millions of dollars.

State and Local Government Expenditures

ELEMENTARY AND SECON. EDUCATION; STATE & LOCAL GOVT (SL GOVT)
HIGHER EDUCATION; SL GOVT
OTHER EDUCATION AND LIBRARIES; SL GOVT
HEALTH AND HOSPITALS; SL GOVT
PUBLIC ASSISTANCE AND RELIEF; SL GOVT
SEWERAGE; SL GOVT
SANITATION; SL GOVT
POLICE; SL GOVT
FIRE; SL GOVT
CORRECTIONS; SL GOVT
HIGHWAYS; SL GOVT
WATER AND AIR FACILITIES; SL GOVT
TRANSIT UTILITIES; SL GOVT
OTHER COMMERCE AND TRANSPORTATION; SL GOVT
GAS AND ELECTRIC UTILITIES; SL GOVT

WATER; SL GOVT

URBAN RENEWAL AND COMMUNITY FACILITIES; SL GOVT

NATURAL AND AGRICULTURAL RESOURCES AND RECREATION; SL GOVT

Changes in final demand for the services of local government should be entered in millions of dollars.

4.4 POPULATION VARIABLE

POPULATION AMENITY TERM

The population amenity term represents changes in the quality of life and appeal of a region. This term is an indicator for the morbidity, crime, visibility or other characteristics of a region. This is defined as a real wage gain to individuals moving into and out of the area (migrants) and can be interpreted as the portion of a migrant's salary that is equivalent to the quality of living in the area.

The values for the population amenity term are entered as the equivalent proportion of migrant earnings gained in quality of life. For example, if it is estimated that migrants value the effects of certain pollution control measures at one half of one percent of their income, then the entered value should be 0.5. If the negative environmental and convenience effects of reducing public transit is equivalent to losing one percent of the migrants' income, then the entered value should be -1.0.

CHAPTER 5

MODEL SUPPRESSIONS

When running a regional simulation in E-GAS, the user is given the option of suppressing model responses. Such suppressions dissolve links between key elements of the model. Model suppressions are designed to provide flexibility in modeling policy changes; therefore, model suppressions cannot be imposed during baseline forecasts and should only be imposed in conjunction with a policy variable change in a simulation forecast. When a model response is suppressed, a baseline forecast will be created before developing the simulation forecast. The decision to suppress model responses should be carefully considered, since changes in the structure of the model can reverberate throughout the forecasting process and undermine the credibility of the results. The available model suppressions are described below.

- **Wage Response Suppression:** If this response is suppressed, the wage rates in the baseline forecast and the simulation will not be connected to changes in occupational demand or changes in relative economic opportunity (REO).
- **Labor Intensity Response Suppression:** If this response is suppressed, labor intensity in the baseline forecast and in the simulation is not influenced by local determinants of the labor force, but instead maintains the value appearing for the most recent year recorded by the model.
- **Net Migration Response Suppression:** If this response is suppressed, net migration will not respond to changes in REO, relative wage rate (RWR), and relative wage mix (RWM) and will be kept at zero in the baseline forecast and the simulation.
- **Regional Price Coefficients' (RPC) Response to GRP and Selling Price Suppression:** When this response is suppressed, the regional purchase coefficients are fixed for the baseline and simulation forecasts at the value appearing for the most recent year recorded by the model.
- **RPC Response to GRP Only Suppression:** This suppression changes exogenous RPC response to GRP to endogenous response (as output expands, RPCs will increase, and vice versa), but retains endogenous response to selling price with either setting.
- **Export Response Suppression:** If this response is suppressed, exports will not respond to changes in relative costs or changes in profitability.

- **Consumer Price Index CPI-WAGE Response Suppression:** When this response is suppressed, increases in the consumer price index (CPI) are not transmitted to wages.
- **House-Land Price Response Suppression:** If this response is suppressed, housing and land prices will not fluctuate with the market, but will be fixed in the forecast years with the value appearing for the most recent year recorded by the model.
- **Property Income Response to Population Suppression:** If this response is suppressed, property income will not respond to a change in the population density (population of the region relative to the United States).
- **Transfer Payment Response to Dependent Population Suppression:** Similar to property income, transfer payments will not respond to a change in the dependent population of the region relative to the United States.
- **Local Consumption Suppression:** If this suppression is used, local consumption will not respond to a change in the real disposable income of the region relative to the United States in the forecast years.
- **Investment Suppression:** If this response is suppressed, investment will not respond to changes in the local optimal capital stock.
- **Changing the Default Status of Stock Adjustment Investment Process:** This option changes default Stock Adjustment Investment Process' status (either replaces old investment equations with stock adjustment investment equations, or vice versa). Use of the stock adjustment investment equations leads to more immediate investment impacts during simulations. The short-term properties will also differ.
- **Government Demand Response to Population Suppression:** If this response is suppressed, government demand will not respond to a change in the population of the region relative to the United States.
- **Changing the Default Status of Employees Per Dollar Value Added (EPV):** Endogenous EPV will endogenize productivity so that when output increases, productivity will increase accordingly in the short run. This results in less new employment in the initial years of a simulation.

CHAPTER 6

TIER 1: THE NATIONAL MODEL

6.1 INTRODUCTION

The national tier of E-GAS provides forecasts of national economic activity to drive the regional economic models and, subsequently, the growth factor tier. The user may choose one of two forecasts (BLS or WEFA) to create the national forecast. The growth forecasted by this model is then distributed among and within regions in Tier 2. The national tier may be changed and rerun any number of times before proceeding to Tier 2. Unless the user chooses to change the national forecast, the national model needs to be run only once before advancing to or subsequently rerunning the Regional Tier. Output from the National Tier is maintained through multiple runs of subsequent tiers.

6.2 NATIONAL MODEL MAIN SCREEN

Upon entering the subsystem, the user is presented with the screen shown in Figure 6-1. At the top of the screen are options that can be selected by pressing the first letter of the option or highlighting the choice and pressing the <ENTER> key. These options are discussed in Sections 6.3 and 6.4. The E-GAS Utilities found in the information bar at the bottom of the screen are described in Section 2.4.

6.3 BASELINE FORECAST

Choosing the **Baseline Forecast** option from the National Model Main Screen leads to the display of the screen shown in Figure 6-2. The menu items are the two national forecasts which can be baseline forecasts. These forecasts include:

BLS:	Bureau of Labor Statistics
WEFA:	Wharton Econometrics Forecasting Associates

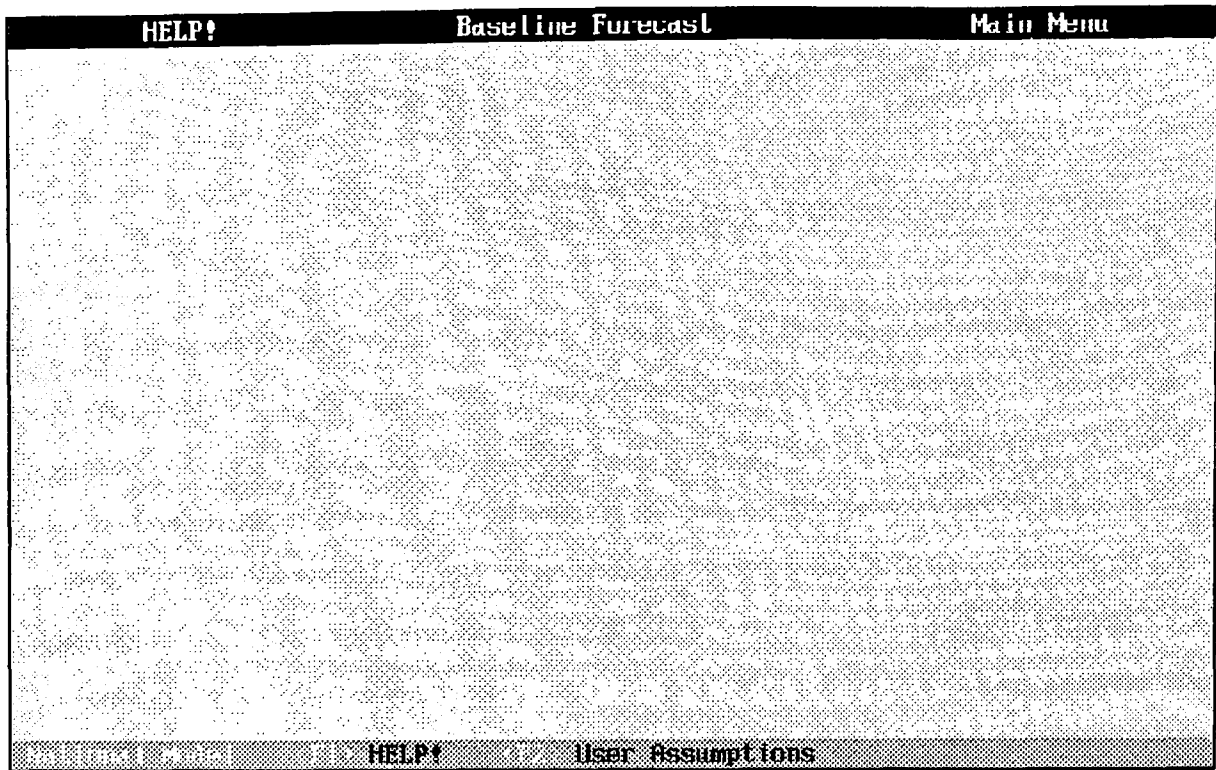


Figure 6-1. National model main screen.

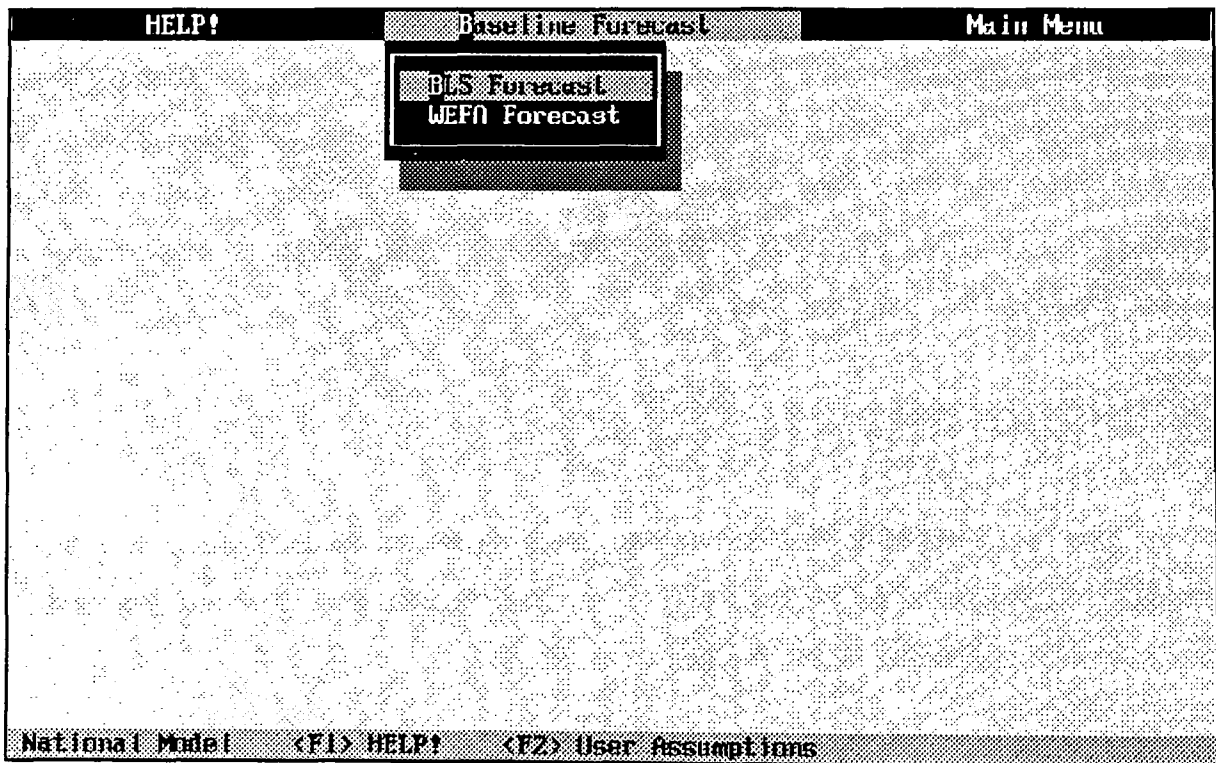


Figure 6-2. National model baseline forecast screen.

Further information on these forecasts can be found in this tier's help screens and Chapter 3 of this guide.

6.4 MAIN MENU

Choosing the **Main Menu** option from the National Model Main Screen returns the user to the E-GAS Main Menu.

CHAPTER 7

TIER 2: THE REGIONAL MODEL

7.1 INTRODUCTION

The regional tier of E-GAS provides economic forecasts for the UAM and ROM modeling regions. E-GAS includes separate economic forecasts for extreme, severe, serious, and multi-State moderate ozone nonattainment areas, as well as models for the attainment portions of these States. In addition, an economic model for each State in a ROM modeling region is included in E-GAS.

The regional tier, Tier 2, takes input from the National Model and cannot be run unless that model has been run at least once. Tier 2 can be adjusted and rerun any number of times without rerunning the national tier, unless the user wishes to change the national forecast. The regional tier must be run before proceeding to the Growth Factor Computations tier.

Model responses can be suppressed in a regional simulation. A baseline forecast is run automatically using the model suppressions before the requested simulation is run.

A baseline forecast must be generated within Tier 2. Baseline forecasts use the REMI/E-GAS default settings to distribute growth within the region. Simulation forecasts may be run if the user wishes to change policy variables for any area within their region (policy variables are described in Chapter 5). Tier 2 may be run several times before proceeding to the growth factor computations (Tier 3). The latest regional model run will drive the growth factor computations. The user may abandon the simulation forecast by running another baseline forecast and advancing to the Growth Factor Computations. If the national forecast needs to be changed, the user should return to Tier 1.

7.2 REGIONAL MODEL TIER MAIN SCREEN

This is the regional model's main screen:

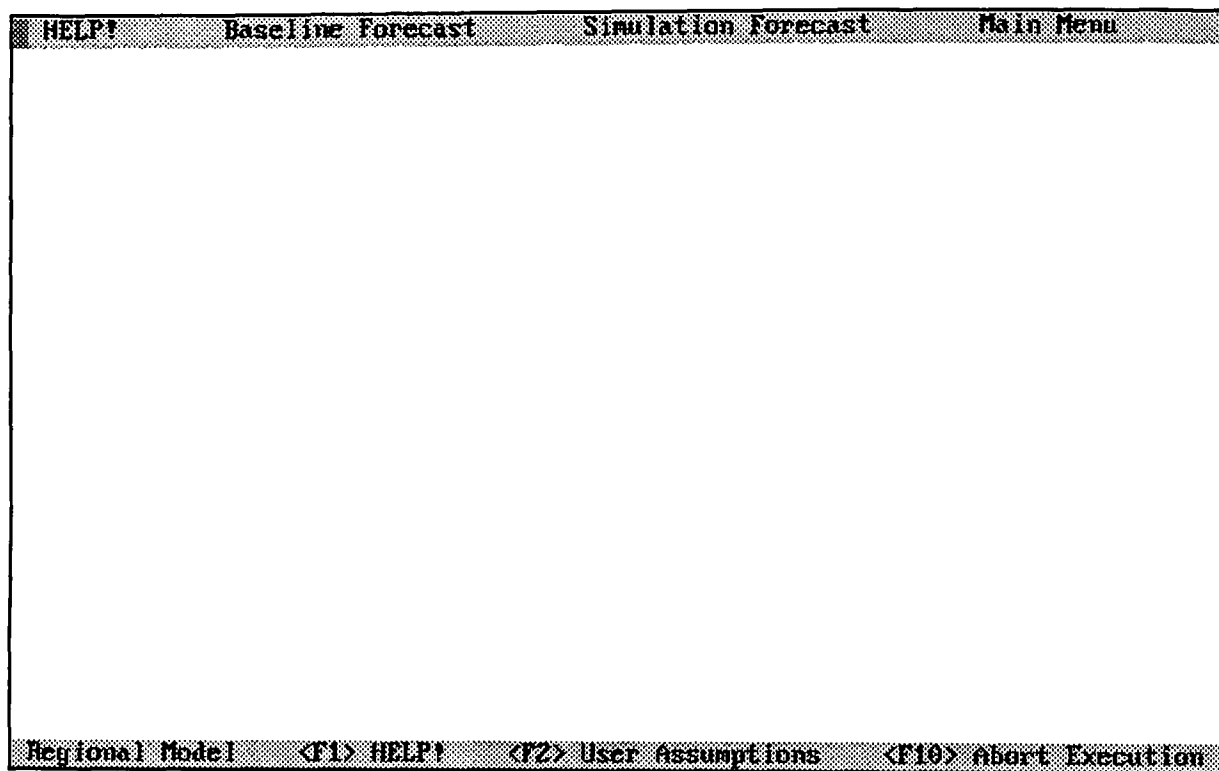


Figure 7-1. Regional model main screen.

At the top of the screen are four options that can be selected by pressing the first letter of the option or highlighting the choice and pressing the **<ENTER>** key. With the exception of the HELP option, these options are discussed in Sections 7.3 through 7.5. The E-GAS Utilities found in the information bar at the bottom of the screen are described in Section 2.4.

7.3 BASELINE FORECAST

Choosing the **Baseline Forecast** option from the Regional Model Main Screen causes E-GAS to take the parameters from the selected national economic forecast and apply them to the

regional modeling program. Upon completion of the regional baseline, the user is returned to the Regional Model Tier Main Screen.

7.4 SIMULATION FORECAST

Regional simulation forecasting cannot be executed until a regional baseline scenario has been run. Choosing the **Simulation Forecast** option from the Regional Model Main Screen, after having run the baseline, leads to a sequence of screens soliciting input.

The user must provide additional information to execute simulation forecasts in Regional Simulation Forecasting. The system requires the user to enter the ending year, as well as any model suppressions (see Chapter 5 for an explanation of model suppressions). The user may then change one or more policy variables for any of the areas within the user's region (Chapter 4 describes the E-GAS policy variables). Multiple policy variable changes should be made with caution since excessive changes would distort any causality between results and policy variable changes. After supplying all of the required additional information, the system processes the data and returns the user to the Regional Model Main Screen.

7.5 MAIN MENU

Choosing the **Main Menu** option from the Regional Model Main Screen returns the user to the E-GAS Main Menu.

CHAPTER 8

TIER 3: THE GROWTH FACTOR MODULE

8.1 INTRODUCTION

The growth factor tier in E-GAS translates changes in the economic activity levels of the most recent regional forecast to growth factors for physical output, fuel consumption, and VMT. These growth factors will be developed for two-, three-, and four-digit SIC levels depending on available data for developing and disaggregating the factors. These SIC-level growth factors will be matched with SCC codes. The final output from this tier will be ASCII files containing SCC growth factors to be used for AIRS inventories.

The growth factor tier cannot be run unless Tiers 1 and 2 have been run, generating the economic data necessary for energy consumption calculation. Tier 3 uses the following six modules to calculate the activity growth factors from the diverse economic data produced by the first two tiers:

- Household Model of Energy by State (HOMES)
- Commercial Sector Energy Model by State (CSEMS)
- Industrial Regional Activity and Energy Demand (INRAD) Model
- Electric Utility Model (EUMOD)
- VMT Module
- Physical Output Module

E-GAS's crosswalk module translates the energy consumption factors to point, area, and mobile SCC growth factors. The output ASCII files are named:

- | | |
|----------------|-------------------------------------|
| • RES_FUEL.SCC | HOMES / residential fossil fuel |
| • COM_FUEL.SCC | CSEMS / commercial fossil fuel |
| • IND_FUEL.SCC | INRAD / industrial fossil fuel |
| • ELECTRIC.SCC | EUMOD / electric growth factors |
| • VMT.SCC | VMT / transportation |
| • PHY.SCC | PHYSICAL OUTPUT / industrial output |
| • OTHER.SCC | Growth for unclassified SCC's |

The user can exit E-GAS to read and print the E-GAS output (SCC) files with an ASCII file reader/editor.

8.2 OUTPUT FILE SELECTION SCREENS

The user has the opportunity to choose the layout of the E-GAS output files. The first data entry screens of the Growth Factor Tier allow the user to choose the years and counties to be included in the output files.

8.2.1 Output File Format Selection Screen

This screen follows the User Assumption screen series:

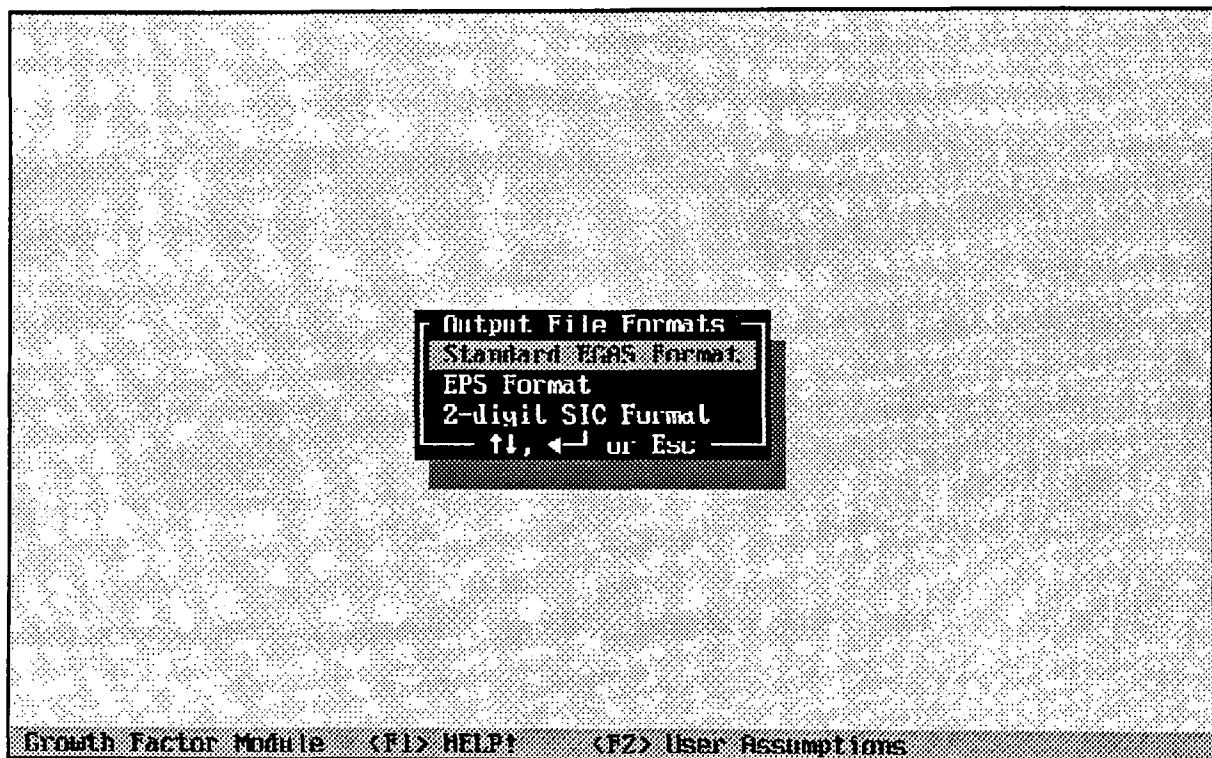


Figure 8-1. Output file format selection screen.

The user should use the up and down cursor keys to highlight desired format and press the **<Enter>** key. Three output formats are available:

- **Standard E-GAS Format:** The output data are aggregated by SCC and are prefaced with a header describing the modeling regions represented, selected policy variable changes and model suppressions, and the date and time that the file was generated.
- **EPS Format:** The input format for the Emissions Preprocessor System (EPS) for the UAM. This format does not include the data header found in the Standard E-GAS Format.
- **2-digit SIC Format:** Output data are aggregated by SIC instead of SCC. This format includes a header describing the modeling regions represented; selected policy variable changes and model suppressions; and the date and time that the file was generated.

All three output formats are standard text files that can be read with text editors or imported into analytical software. After the user has chosen a format, E-GAS proceeds to the Output File Year Selection Screen. The E-GAS Utilities found in the information bar at the bottom of the screen are described in Section 2.4.

8.2.2 Output File Year Selection Screen

The screen that appears after the file format has been chosen is shown in Figure 8-2. The user should use up and down cursor keys to highlight desired years or the *All Years* option and mark the highlighted selection by pressing the space bar. The user should press the **<Enter>** key when all of the desired choices have been marked. E-GAS then proceeds to the Output File Area selection screen. If *All Years* is one of the marked choices, the system will ignore any individual year selections and print data for all of the available years.

The size of the output files will be significantly smaller if only the desired areas, counties, and years are selected.

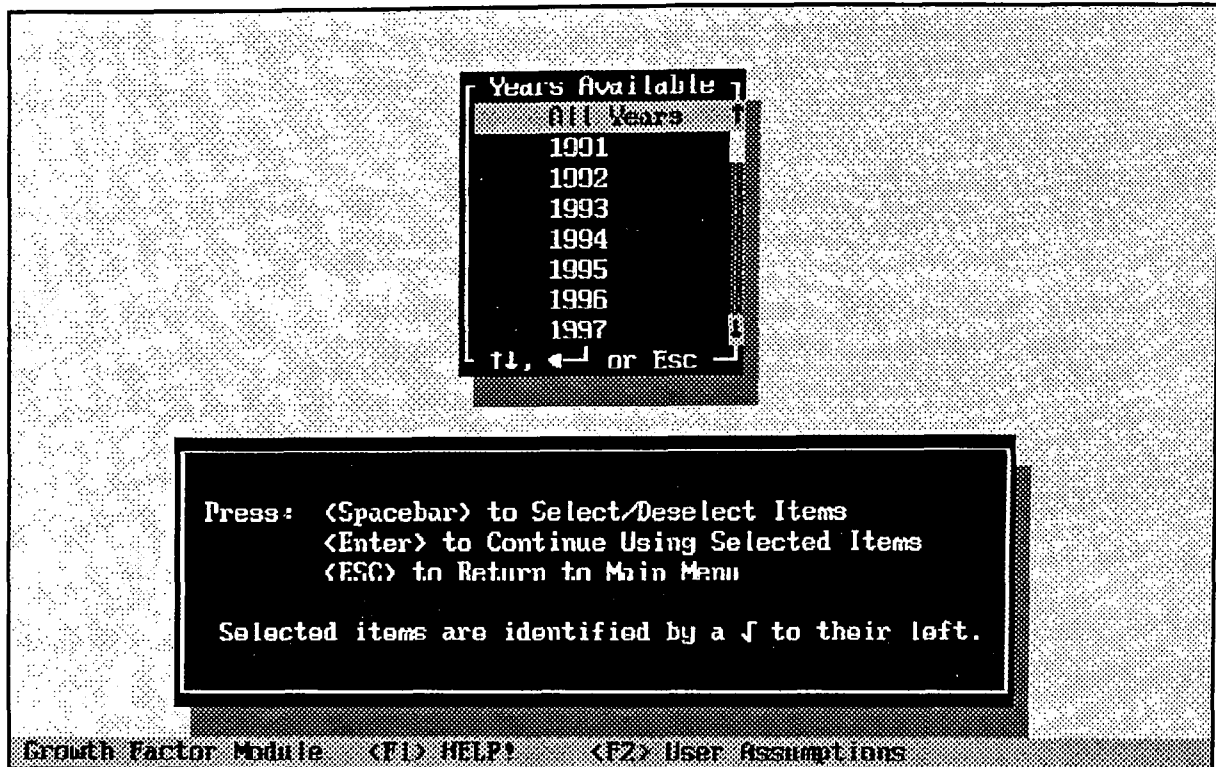


Figure 8-2. Output file year selection screen.

8.2.3 Output File Area/State/County Selection Screens

After the years to be included in output have been selected, the desired areas of the REMI region can be chosen from the screen shown in Figure 8-3. The up and down cursor keys may be used to highlight desired areas or the *All Model Areas* option and mark the highlighted selection by pressing the space bar. The user should press the <Enter> key when all of the desired choices have been marked.

After the user chooses the area of interest, States and counties within the chosen area can be selected through similar screens. If there is only one county in the chosen State/area combination, it is automatically selected and the county selection screen is not displayed. Appendix A lists the E-GAS modeling areas and the States, counties and/or independent cities that comprise each. The system proceeds to the VMT Data Source Screen after the areas, States, and counties have been chosen.

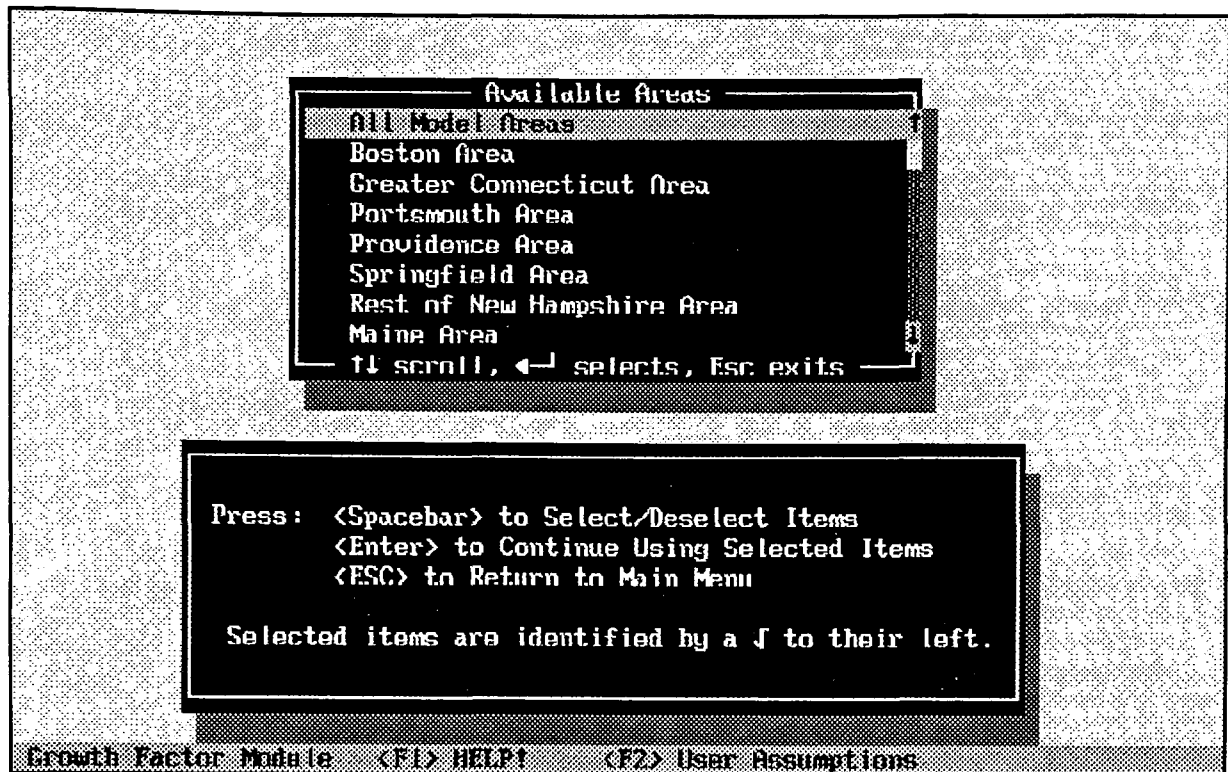


Figure 8-3. Output file area selection screen.

8.3 VMT DATA ENTRY SEQUENCE

The user has several options for entering VMT data. The user can enter data from the keyboard or through user-prepared files. The E-GAS VMT module can be chosen, avoiding any need for user data, or the VMT section can be omitted from E-GAS if no VMT output is needed.

8.3.1 VMT Data Source Screen

The first screen in the VMT data entry sequence is shown in Figure 8-4. If the user selects the E-GAS VMT module or elects to skip the VMT module, the system proceeds to calculate the output files and returns to the Main Menu. If the *Enter user VMT growth factors from the keyboard* or *Enter user VMT growth factors from a file* is chosen, the system advances to the VMT Data Detail Screen. Pressing <Esc> exits the Growth Factor Computations before data processing begins.

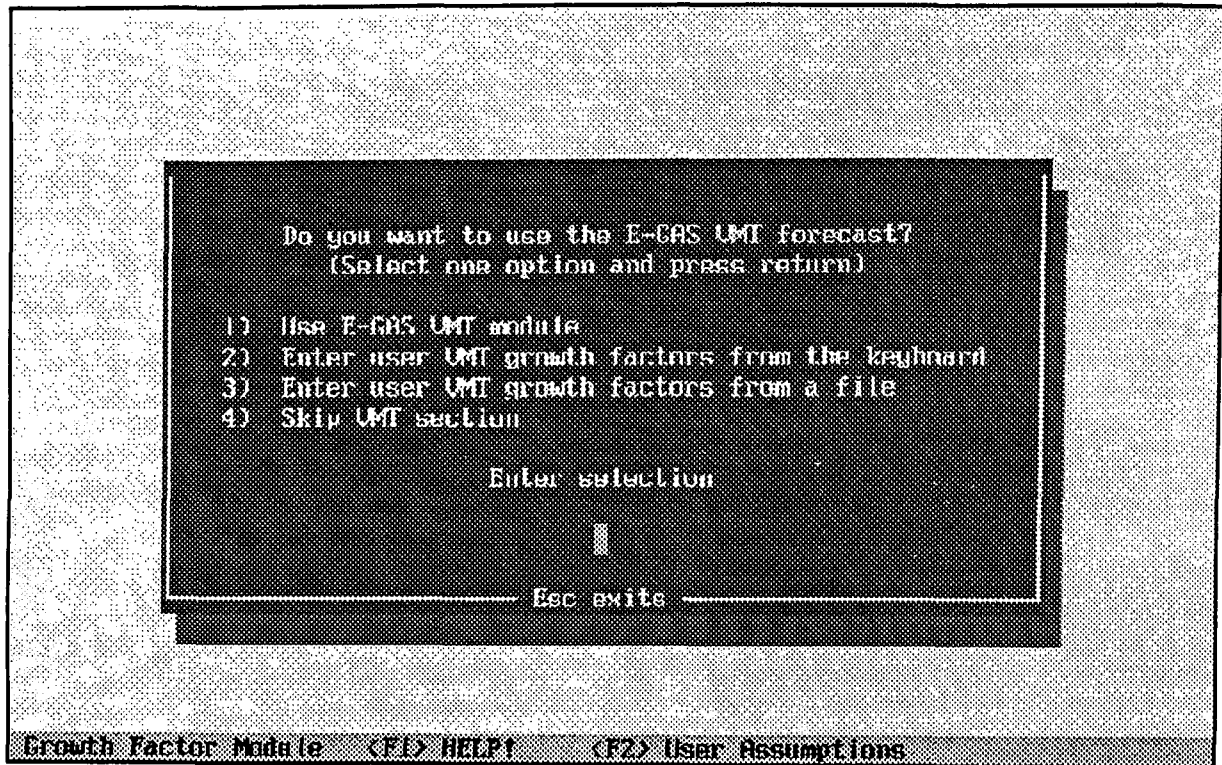


Figure 8-4. VMT data screen.

8.3.2 VMT Data Detail Screen

When the *Enter user VMT growth factors from the keyboard* or *Enter user VMT growth factors from a file* options are chosen from the VMT Data Screen, the screen shown in Figure 8-5 is produced. This screen is used to choose the VMT data inputs which are appropriate for the level of detail found in the user's data. The higher levels of detail are accommodated by the choices found lower on the list. If *Enter user VMT growth factors from a file* is chosen from the VMT Data Screen, the user is prompted for the file name; if *Enter user VMT growth factors from the keyboard* is chosen, the system moves to the appropriate VMT data entry screen. If the VMT data are to be entered from the keyboard, the system will present the user with the Data Detail Screen and Data Entry Screen for each county selected for output. Since there are no VMT defaults for manual data entry, VMT calculations will not be performed on counties not addressed in user output.

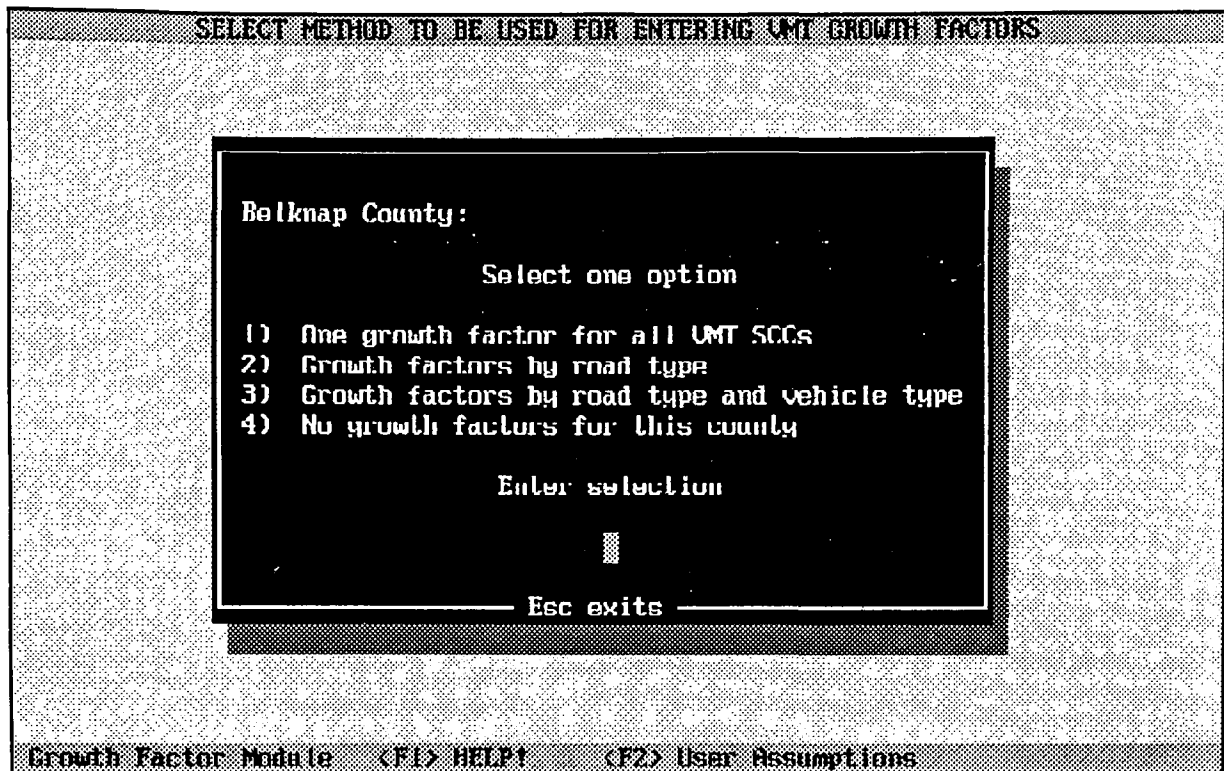


Figure 8-5. VMT data detail screen.

8.3.3 VMT Data Entry Screens

After defining the VMT data table, a screen for entering data into the table is provided. The user can accept the entered data by pressing **<F5>** or exit by pressing **<Esc>**. The three available tables are shown in Figures 8-6, 8-7, and 8-8. Only the table chosen with the VMT Data Detail Screen is produced by the system. The user will be presented with the Data Entry Screen for each year selected to be output.

Since the system is capable of dealing with floating decimal points, an example entry for this screen might be 0.1, 1.1, 1.123, or 1.1234.

Select each road type by using the **<spacebar>** in the USE column. An X will appear in the USE column and the cursor will automatically tab over to the factor column. Pressing **<Enter>** will send the cursor to the next road type selection in the USE column.

ENTER UMT GROWTH FACTOR FOR Belknap County

Input the growth factor to be used for all SCCs for Year 1991.

Growth Factor Module <F1> HELP <F2> User Assumptions

Figure 8-6. Single growth factor screen.

ENTER UMT GROWTH FACTORS FOR Belknap County

Growth Factors by Road Type for the Year 1991

ROAD TYPE	USE	FACTOR
1 Interstate: Rural	[]	0.00
2 Other Principal Arterial: Rural	[]	0.00
3 Minor Arterial: Rural	[]	0.00
4 Major Collector: Rural Total	[]	0.00
5 Minor Collector: Rural Total	[]	0.00
6 Local: Rural	[]	0.00
7 Interstate: Urban	[]	0.00
8 Other Freeways & Expressways: Urban	[]	0.00
9 Other Principal Arterial: Urban	[]	0.00
10 Minor Arterial: Urban	[]	0.00
11 Collector: Urban	[]	0.00
12 Local: Urban	[]	0.00

<SPACE> Select Road Type <F5> Save <Esc> Exit Without Saving

Growth Factor Module <F1> HELP <F2> User Assumptions

Figure 8-7. Growth factor by road type screen.

ENTER UNIT GROWTH FACTORS FOR Bellway County

Growth Factors by Vehicle and Road Types for Year 1991			
LDCU	1. Interstate: Rural	[]	0.0000
LDCU	2. Other Principal Arterial: Rural	[]	0.0000
LDCU	3. Minor Arterial: Rural	[]	0.0000
LDCU	4. Major Collector: Rural Total	[]	0.0000
LDCU	5. Minor Collector: Rural Total	[]	0.0000
LDCU	6. Local: Rural	[]	0.0000
LDCU	7. Interstate: Urban	[]	0.0000
LDCU	8. Other Freeways & Expressways: Urban	[]	0.0000
LDCU	9. Other Principal Arterial: Urban	[]	0.0000
LDCU	10. Minor Arterial: Urban	[]	0.0000
LDCU	11. Collector: Urban	[]	0.0000
LDCU	12. Local: Urban	[]	0.0000

<SPACE> Select ↑↓ Scroll <F5> Save <Esc> Exit Without Saving

Growth Factor Module <F1> HELP! <F2> User Assumptions

Figure 8-8. Growth factor by road and vehicle type screen.

Select each vehicle/road type by using the <spacebar>. An X will appear in the USE column and the cursor will automatically tab over to the factor column. Pressing <Enter> will send the cursor to the next vehicle/road type selection. The left column identifies vehicle types. The following types are found in E-GAS:

- LDGV - Light Duty Gasoline Vehicle
- LDGT1 - Light Duty Gasoline Truck 1
- LDGT2 - Light Duty Gasoline Truck 1
- LDGT - Light Duty Gasoline Truck Total
- HDGV - Heavy Duty Gasoline Vehicle
- LDDV - Light Duty Diesel Vehicle
- LDDT - Light Duty Diesel Truck
- HDDV - Heavy Duty Diesel Vehicle

CHAPTER 9

FOR FURTHER INFORMATION

In the event that the on-line help function and this user's guide are unable to answer questions about E-GAS, please call Charles O. Mann of the U.S. Environmental Protection Agency at (919) 541-4593 or write to:

Charles O. Mann
APPCD/MD-62
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

Please have the following information available:

- Hardware issues
 - hardware configuration
 - type of computer
 - amount of available memory
 - display type
 - peripherals
- Any memory-resident software used including network drivers
- The version of DOS being used
- Specific description of the problem

APPENDIX A
E-GAS MODELING AREAS

BOSTON Nonattainment AREA - NE1
 25 001 Massachusetts Barnstable
 25 005 Massachusetts Bristol
 25 007 Massachusetts Dukes
 25 009 Massachusetts Essex
 25 017 Massachusetts Middlesex
 25 019 Massachusetts Nantucket
 25 021 Massachusetts Plymouth
 25 023 Massachusetts Suffolk
 25 025 Massachusetts Worcester
 33 011 New Hampshire Hillsborough

GREATER CONNECTICUT Nonattainment AREA - NE2

09 003 Connecticut Hartford
 09 007 Connecticut Middlesex
 09 009 Connecticut New Haven
 09 011 Connecticut New London
 09 013 Connecticut Tolland
 09 015 Connecticut Windham

PORTSMOUTH Nonattainment AREA - NE3

33 015 New Hampshire Rockingham
 33 017 New Hampshire Strafford

PROVIDENCE Nonattainment AREA - NE4

44 001 Rhode Island Bristol
 44 003 Rhode Island Kent
 44 005 Rhode Island Newport
 44 007 Rhode Island Providence
 44 009 Rhode Island Washington

SPRINGFIELD Nonattainment AREA - NE5

25 003 Massachusetts Berkshire
 25 011 Massachusetts Franklin
 25 013 Massachusetts Hampden
 25 015 Massachusetts Hampshire

ATTAINMENT PORTION OF NEW HAMPSHIRE - NE6

33 001 New Hampshire Belknap
 33 003 New Hampshire Carroll
 33 005 New Hampshire Cheshire
 33 007 New Hampshire Coos
 33 009 New Hampshire Grafton
 33 013 New Hampshire Merrimack
 33 019 New Hampshire Sullivan

MAINE - NE7

23 001 Maine Androscoggin
 23 003 Maine Aroostook
 23 005 Maine Cumberland
 23 007 Maine Franklin
 23 009 Maine Hancock

23 011 Maine Kennebec
 23 013 Maine Knox
 23 015 Maine Lincoln
 23 017 Maine Oxford
 23 019 Maine Penobscot
 23 021 Maine Piscataquis
 23 023 Maine Sagadahoc
 23 025 Maine Somerset
 23 027 Maine Waldo
 23 029 Maine Washington
 23 031 Maine York

VERMONT - NE8

50 001 Vermont Addison
 50 003 Vermont Bennington
 50 005 Vermont Caledonia
 50 007 Vermont Chittenden
 50 009 Vermont Essex
 50 011 Vermont Franklin
 50 013 Vermont Grand Isle
 50 015 Vermont Lamoille
 50 017 Vermont Orange
 50 019 Vermont Orleans
 50 021 Vermont Rutland
 50 023 Vermont Washington
 50 025 Vermont Windham
 50 027 Vermont Windsor

NEW YORK-NEW JERSEY-LONG ISLAND Nonattainment AREA - M1

09 001 Connecticut Fairfield
 09 005 Connecticut Litchfield
 34 003 New Jersey Bergen
 34 013 New Jersey Essex
 34 017 New Jersey Hudson
 34 019 New Jersey Hunterdon
 34 023 New Jersey Middlesex
 34 025 New Jersey Monmouth
 34 027 New Jersey Morris
 34 029 New Jersey Ocean
 34 031 New Jersey Passaic
 34 035 New Jersey Somerset
 34 037 New Jersey Sussex
 34 039 New Jersey Union
 36 005 New York Bronx
 36 047 New York Kings
 36 059 New York Nassau
 36 061 New York New York
 36 071 New York Orange
 36 079 New York Putnam
 36 081 New York Queens
 36 085 New York Richmond
 36 087 New York Rockland
 36 103 New York Suffolk

36 119 New York Westchester

BALTIMORE Nonattainment AREA - M2

24 003 Maryland Anne Arundel

24 005 Maryland Baltimore

24 510 Maryland City of Baltimore

24 013 Maryland Carroll

24 025 Maryland Harford

24 027 Maryland Howard

PHILADELPHIA-WILMINGTON-TRENTON
Nonattainment AREA - M3

10 001 Delaware Kent

10 003 Delaware New Castle

24 015 Maryland Cecil

34 005 New Jersey Burlington

34 007 New Jersey Camden

34 011 New Jersey Cumberland

34 015 New Jersey Gloucester

34 021 New Jersey Mercer

34 033 New Jersey Salem

42 017 Pennsylvania Bucks

42 029 Pennsylvania Chester

42 045 Pennsylvania Delaware

42 091 Pennsylvania Montgomery

42 101 Pennsylvania Philadelphia

WASHINGTON, DC Nonattainment AREA - M4

11 011 District of Columbia District of Columbia

24 009 Maryland Calvert

24 017 Maryland Charles

24 021 Maryland Frederick

24 031 Maryland Montgomery

24 033 Maryland Prince George's

51 510 Virginia City of Alexandria

51 013 Virginia Arlington

51 059 Virginia Fairfax

51 600 Virginia City of Fairfax

51 610 Virginia City of Falls Church

51 107 Virginia Loudoun

51 683 Virginia City of Manassas

51 685 Virginia City of Manassas Park

51 153 Virginia Prince William

51 179 Virginia Stafford

HUNGTION-ASHLAND Nonattainment AREA - M5

21 019 Kentucky Boyd

21 089 Kentucky Greenup

54 011 West Virginia Cabell

54 099 West Virginia Wayne

ATTAINMENT PORTION OF NEW YORK - M6

36 001 New York Albany

36 003 New York Allegany

36 007 New York Broome

36 009 New York Cattaraugus

36 011 New York Cayuga

36 013 New York Chautauqua

36 015 New York Chemung

36 017 New York Chenango

36 019 New York Clinton

36 021 New York Columbia

36 023 New York Cortland

36 025 New York Delaware

36 027 New York Dutchess

36 029 New York Erie

36 031 New York Essex

36 033 New York Franklin

36 035 New York Fulton

36 037 New York Genesee

36 039 New York Greene

36 041 New York Hamilton

36 043 New York Herkimer

36 045 New York Jefferson

36 049 New York Lewis

36 051 New York Livingston

36 053 New York Madison

36 055 New York Monroe

36 057 New York Montgomery

36 063 New York Niagara

36 065 New York Oneida

36 067 New York Onondaga

36 069 New York Ontario

36 073 New York Orleans

36 075 New York Oswego

36 077 New York Otsego

36 083 New York Rensselaer

36 089 New York St. Lawrence

36 091 New York Saratoga

36 093 New York Schenectady

36 095 New York Schoharie

36 097 New York Schuyler

36 099 New York Seneca

36 101 New York Steuben

36 105 New York Sullivan

36 107 New York Tioga

36 109 New York Tompkins

36 111 New York Ulster

36 113 New York Warren

36 115 New York Washington

36 117 New York Wayne

36 121 New York Wyoming

36 123 New York Yates

ATTAINMENT PORTION OF NEW JERSEY - M7

34 001 New Jersey Atlantic

34 009 New Jersey Cape May

34 041 New Jersey Warren

ATTAINMENT PORTION OF PENNSYLVANIA -
M8

42 001	Pennsylvania	Adams
42 003	Pennsylvania	Allegheny
42 005	Pennsylvania	Armstrong
42 007	Pennsylvania	Beaver
42 009	Pennsylvania	Bedford
42 011	Pennsylvania	Berks
42 013	Pennsylvania	Blair
42 015	Pennsylvania	Bradford
42 017	Pennsylvania	Bucks
42 019	Pennsylvania	Butler
42 021	Pennsylvania	Cambria
42 023	Pennsylvania	Cameron
42 025	Pennsylvania	Carbon
42 027	Pennsylvania	Centre
42 031	Pennsylvania	Clarion
42 033	Pennsylvania	Clearfield
42 035	Pennsylvania	Clinton
42 037	Pennsylvania	Columbia
42 039	Pennsylvania	Crawford
42 041	Pennsylvania	Cumberland
42 043	Pennsylvania	Dauphin
42 047	Pennsylvania	Elk
42 049	Pennsylvania	Erie
42 051	Pennsylvania	Fayette
42 053	Pennsylvania	Forest
42 055	Pennsylvania	Franklin
42 057	Pennsylvania	Fulton
42 059	Pennsylvania	Greene
42 061	Pennsylvania	Huntingdon
42 063	Pennsylvania	Indiana
42 065	Pennsylvania	Jefferson
42 067	Pennsylvania	Juniata
42 069	Pennsylvania	Lackawanna
42 071	Pennsylvania	Lancaster
42 073	Pennsylvania	Lawrence
42 075	Pennsylvania	Lebanon
42 077	Pennsylvania	Lehigh
42 079	Pennsylvania	Luzerne
42 081	Pennsylvania	Lycoming
42 083	Pennsylvania	Mc Kean
42 085	Pennsylvania	Mercer
42 087	Pennsylvania	Mifflin
42 089	Pennsylvania	Monroe
42 093	Pennsylvania	Montour
42 095	Pennsylvania	Northampton
42 097	Pennsylvania	Northumberland
42 099	Pennsylvania	Perry
42 103	Pennsylvania	Pike
42 105	Pennsylvania	Potter
42 107	Pennsylvania	Schuylkill
42 109	Pennsylvania	Snyder
42 111	Pennsylvania	Somerset

42 113	Pennsylvania	Sullivan
42 115	Pennsylvania	Susquehanna
42 117	Pennsylvania	Tioga
42 119	Pennsylvania	Union
42 121	Pennsylvania	Venango
42 123	Pennsylvania	Warren
42 125	Pennsylvania	Washington
42 127	Pennsylvania	Wayne
42 129	Pennsylvania	Westmoreland
42 131	Pennsylvania	Wyoming
42 133	Pennsylvania	York

ATTAINMENT PORTION OF DELAWARE - M9
10 005 Delaware Sussex

ATTAINMENT PORTION OF VIRGINIA - M10

51 001	Virginia	Accomack
51 003	Virginia	Albemarle
51 005	Virginia	Alleghany
51 007	Virginia	Amelia
51 009	Virginia	Amherst
51 011	Virginia	Appomattox
51 015	Virginia	Augusta
51 017	Virginia	Bath
51 019	Virginia	Bedford
51 515	Virginia	City of Bedford
51 021	Virginia	Bland
51 023	Virginia	Botetourt
51 520	Virginia	City of Bristol
51 025	Virginia	Brunswick
51 027	Virginia	Buchanan
51 029	Virginia	Buckingham
51 530	Virginia	City of Buena Vista
51 031	Virginia	Campbell
51 033	Virginia	Caroline
51 035	Virginia	Carroll
51 036	Virginia	Charles City
51 037	Virginia	Charlotte
51 540	Virginia	City of Charlottesville
51 041	Virginia	Chesterfield
51 550	Virginia	City of Chesapeake
51 043	Virginia	Clarke
51 560	Virginia	City of Clifton Forge
51 570	Virginia	City of Colonial Heights
51 580	Virginia	City of Covington
51 045	Virginia	Craig
51 047	Virginia	Culpeper
51 049	Virginia	Cumberland
51 590	Virginia	City of Danville
51 051	Virginia	Dickenson
51 053	Virginia	Dinwiddie
51 595	Virginia	City of Emporia
51 057	Virginia	Essex
51 061	Virginia	Fauquier

51 063 Virginia Floyd
 51 065 Virginia Fluvanna
 51 067 Virginia Franklin
 51 620 Virginia City of Franklin
 51 069 Virginia Frederick
 51 630 Virginia City of Fredericksburg
 51 640 Virginia City of Galax
 51 071 Virginia Giles
 51 073 Virginia Gloucester
 51 075 Virginia Goochland
 51 077 Virginia Grayson
 51 079 Virginia Greene
 51 081 Virginia Greensville
 51 083 Virginia Halifax
 51 650 Virginia City of Hampton
 51 085 Virginia Hanover
 51 660 Virginia City of Harrisonburg
 51 087 Virginia Henrico
 51 089 Virginia Henry
 51 091 Virginia Highland
 51 670 Virginia City of Hopewell
 51 093 Virginia Isle of Wright
 51 095 Virginia James City
 51 097 Virginia King and Queen
 51 099 Virginia King George
 51 101 Virginia King William
 51 103 Virginia Lancaster
 51 105 Virginia Lee
 51 678 Virginia City of Lexington
 51 109 Virginia Louisa
 51 111 Virginia Lunenburg
 51 680 Virginia City of Lynchburg
 51 113 Virginia Madison
 51 690 Virginia City of Martinsville
 51 115 Virginia Mathews
 51 117 Virginia Mecklenburg
 51 119 Virginia Middlesex
 51 121 Virginia Montgomery
 51 123 Virginia Nansemond
 51 125 Virginia Nelson
 51 127 Virginia New Kent
 51 700 Virginia City of Newport News
 51 710 Virginia City of Norfolk
 51 131 Virginia Northampton
 51 133 Virginia Northumberland
 51 720 Virginia City of Norton
 51 135 Virginia Nottoway
 51 137 Virginia Orange
 51 139 Virginia Page
 51 141 Virginia Patrick
 51 730 Virginia City of Petersburg
 51 143 Virginia Pittsylvania
 51 145 Virginia Powhatan
 51 735 Virginia City of Poquoson

51 740 Virginia City of Portsmouth
 51 147 Virginia Prince Edward
 51 149 Virginia Prince George
 51 155 Virginia Pulaski
 51 750 Virginia City of Radford
 51 157 Virginia Rappahannock
 51 159 Virginia Richmond
 51 760 Virginia City of Richmond
 51 161 Virginia Roanoke
 51 770 Virginia City of Roanoke
 51 163 Virginia Rockbridge
 51 165 Virginia Rockingham
 51 167 Virginia Russell
 51 775 Virginia City of Salem
 51 169 Virginia Scott
 51 171 Virginia Shenandoah
 51 173 Virginia Smyth
 51 780 Virginia City of South Boston
 51 175 Virginia Southampton
 51 177 Virginia Spotsylvania
 51 790 Virginia City of Staunton
 51 800 Virginia City of Suffolk
 51 181 Virginia Surry
 51 183 Virginia Sussex
 51 185 Virginia Tazewell
 51 810 Virginia City of Virginia Beach
 51 187 Virginia Warren
 51 191 Virginia Washington
 51 820 Virginia City of Waynesboro
 51 193 Virginia Westmoreland
 51 830 Virginia City of Williamsburg
 51 840 Virginia City of Winchester
 51 195 Virginia Wise
 51 197 Virginia Wythe
 51 199 Virginia York

ATTAINMENT PORTION OF WEST VIRGINIA

M11

54 001	West Virginia	Barbour
54 003	West Virginia	Berkeley
54 005	West Virginia	Boone
54 007	West Virginia	Braxton
54 009	West Virginia	Brooke
54 013	West Virginia	Calhoun
54 015	West Virginia	Clay
54 017	West Virginia	Doddridge
54 019	West Virginia	Fayette
54 021	West Virginia	Gilmer
54 023	West Virginia	Grant
54 025	West Virginia	Greenbrier
54 027	West Virginia	Hampshire
54 029	West Virginia	Hancock
54 031	West Virginia	Hardy
54 033	West Virginia	Harrison

54 035	West Virginia	Jackson
54 037	West Virginia	Jefferson
54 039	West Virginia	Kanawha
54 041	West Virginia	Lewis
54 043	West Virginia	Lincoln
54 045	West Virginia	Logan
54 047	West Virginia	McDowell
54 049	West Virginia	Marion
54 051	West Virginia	Marshall
54 053	West Virginia	Mason
54 055	West Virginia	Mercer
54 057	West Virginia	Mineral
54 059	West Virginia	Mingo
54 061	West Virginia	Monongalia
54 063	West Virginia	Monroe
54 065	West Virginia	Morgan
54 067	West Virginia	Nicholas
54 069	West Virginia	Ohio
54 071	West Virginia	Pendleton
54 073	West Virginia	Pleasants
54 075	West Virginia	Pocahontas
54 077	West Virginia	Preston
54 079	West Virginia	Putnam
54 081	West Virginia	Raleigh
54 083	West Virginia	Randolph
54 085	West Virginia	Ritchie
54 087	West Virginia	Roane
54 089	West Virginia	Summers
54 091	West Virginia	Taylor
54 093	West Virginia	Tucker
54 095	West Virginia	Tyler
54 097	West Virginia	Upshur
54 101	West Virginia	Webster
54 103	West Virginia	Wetzel
54 105	West Virginia	Wirt
54 107	West Virginia	Wood
54 109	West Virginia	Wyoming

ATTAINMENT PORTION OF MARYLAND - M12

24 001	Maryland	Allegany
24 009	Maryland	Calvert
24 017	Maryland	Charles
24 021	Maryland	Frederick
24 027	Maryland	Howard
24 033	Maryland	Prince Georges
24 035	Maryland	Queen Annes
24 037	Maryland	St. Marys
24 039	Maryland	Somerset
24 041	Maryland	Talbot
24 043	Maryland	Washington
24 045	Maryland	Wicomico

ATLANTA Nonattainment AREA - S1

13 057	Georgia	Cherokee
--------	---------	----------

13 063	Georgia	Clayton
13 067	Georgia	Cobb
13 077	Georgia	Coweta
13 089	Georgia	De Kalb
13 097	Georgia	Douglas
13 113	Georgia	Fayette
13 117	Georgia	Forsyth
13 121	Georgia	Fulton
13 135	Georgia	Gwinnett
13 151	Georgia	Henry
13 223	Georgia	Paulding
13 247	Georgia	Rockdale

LOUISVILLE Nonattainment AREA - S2

18 019	Indiana	Clark
18 043	Indiana	Floyd
21 029	Kentucky	Bullitt
21 111	Kentucky	Jefferson
21 185	Kentucky	Oldham

ATTAINMENT PORTION OF KENTUCKY - S3

21 001	Kentucky	Adair
21 003	Kentucky	Allen
21 005	Kentucky	Anderson
21 007	Kentucky	Ballard
21 009	Kentucky	Barren
21 011	Kentucky	Bath
21 013	Kentucky	Bell
21 017	Kentucky	Bourbon
21 021	Kentucky	Boyle
21 023	Kentucky	Bracken
21 025	Kentucky	Breathitt
21 027	Kentucky	Breckinridge
21 031	Kentucky	Butler
21 033	Kentucky	Caldwell
21 035	Kentucky	Calloway
21 039	Kentucky	Carlisle
21 041	Kentucky	Carroll
21 043	Kentucky	Carter
21 045	Kentucky	Casey
21 047	Kentucky	Christian
21 049	Kentucky	Clark
21 051	Kentucky	Clay
21 053	Kentucky	Clinton
21 055	Kentucky	Crittenden
21 057	Kentucky	Cumberland
21 059	Kentucky	Daviess
21 061	Kentucky	Edmonson
21 063	Kentucky	Elliott
21 065	Kentucky	Estill
21 067	Kentucky	Fayette
21 069	Kentucky	Fleming
21 071	Kentucky	Floyd
21 073	Kentucky	Franklin

21 075	Kentucky	Fulton	21 191	Kentucky	Pendleton
21 077	Kentucky	Gallatin	21 193	Kentucky	Perry
21 079	Kentucky	Garrard	21 195	Kentucky	Pike
21 081	Kentucky	Grant	21 197	Kentucky	Powell
21 083	Kentucky	Graves	21 199	Kentucky	Pulaski
21 085	Kentucky	Grayson	21 201	Kentucky	Robertson
21 087	Kentucky	Green	21 203	Kentucky	Rockcastle
21 091	Kentucky	Hancock	21 205	Kentucky	Rowan
21 093	Kentucky	Hardin	21 207	Kentucky	Russell
21 095	Kentucky	Harlan	21 209	Kentucky	Scott
21 097	Kentucky	Harrison	21 211	Kentucky	Shelby
21 099	Kentucky	Hart	21 213	Kentucky	Simpson
21 101	Kentucky	Henderson	21 215	Kentucky	Spencer
21 103	Kentucky	Henry	21 217	Kentucky	Taylor
21 105	Kentucky	Hickman	21 219	Kentucky	Todd
21 107	Kentucky	Hopkins	21 221	Kentucky	Trigg
21 109	Kentucky	Jackson	21 223	Kentucky	Trimble
21 113	Kentucky	Jessamine	21 225	Kentucky	Union
21 115	Kentucky	Johnson	21 227	Kentucky	Warren
21 119	Kentucky	Knott	21 229	Kentucky	Washington
21 121	Kentucky	Knox	21 231	Kentucky	Wayne
21 123	Kentucky	Larue	21 233	Kentucky	Webster
21 125	Kentucky	Laurel	21 235	Kentucky	Whitley
21 127	Kentucky	Lawrence	21 237	Kentucky	Wolfe
21 129	Kentucky	Lee	21 239	Kentucky	Woodford
21 131	Kentucky	Leslie			
21 133	Kentucky	Letcher		ATTAINMENT PORTION OF GEORGIA - S4	
21 135	Kentucky	Lewis	13 001	Georgia	Appling
21 137	Kentucky	Lincoln	13 003	Georgia	Atkinson
21 139	Kentucky	Livingston	13 005	Georgia	Bacon
21 141	Kentucky	Logan	13 007	Georgia	Baker
21 143	Kentucky	Lyon	13 009	Georgia	Baldwin
21 145	Kentucky	McCracken	13 011	Georgia	Banks
21 147	Kentucky	McCreary	13 013	Georgia	Barrow
21 149	Kentucky	McLean	13 015	Georgia	Bartow
21 151	Kentucky	Madison	13 017	Georgia	Ben Hill
21 153	Kentucky	Magoffin	13 019	Georgia	Berrien
21 155	Kentucky	Marion	13 021	Georgia	Bibb
21 157	Kentucky	Marshall	13 023	Georgia	Bleckley
21 159	Kentucky	Martin	13 025	Georgia	Brantley
21 161	Kentucky	Mason	13 027	Georgia	Brooks
21 163	Kentucky	Meade	13 029	Georgia	Bryan
21 165	Kentucky	Meniffee	13 031	Georgia	Bulloch
21 167	Kentucky	Mercer	13 033	Georgia	Burke
21 169	Kentucky	Metcalfe	13 035	Georgia	Butts
21 171	Kentucky	Monroe	13 037	Georgia	Calhoun
21 173	Kentucky	Montgomery	13 039	Georgia	Camden
21 175	Kentucky	Morgan	13 043	Georgia	Candler
21 177	Kentucky	Muhlenberg	13 045	Georgia	Carroll
21 179	Kentucky	Nelson	13 047	Georgia	Catoosa
21 181	Kentucky	Nicholas	13 049	Georgia	Charlton
21 183	Kentucky	Ohio	13 051	Georgia	Chatham
21 187	Kentucky	Owen	13 053	Georgia	Chattahoochee
21 189	Kentucky	Owsley	13 055	Georgia	Chattooga

13 059	Georgia	Clarke	13 187	Georgia	Lumpkin
13 061	Georgia	Clay	13 189	Georgia	McDuffie
13 065	Georgia	Clinch	13 191	Georgia	McIntosh
13 069	Georgia	Coffee	13 193	Georgia	Macon
13 071	Georgia	Colquitt	13 195	Georgia	Madison
13 073	Georgia	Columbia	13 197	Georgia	Marion
13 075	Georgia	Cook	13 199	Georgia	Meriwether
13 079	Georgia	Crawford	13 201	Georgia	Miller
13 081	Georgia	Crisp	13 205	Georgia	Mitchell
13 083	Georgia	Dade	13 207	Georgia	Monroe
13 085	Georgia	Dawson	13 209	Georgia	Montgomery
13 087	Georgia	Decatur	13 211	Georgia	Morgan
13 091	Georgia	Dodge	13 213	Georgia	Murray
13 093	Georgia	Dooly	13 215	Georgia	Muscogee
13 095	Georgia	Dougherty	13 217	Georgia	Newton
13 099	Georgia	Early	13 219	Georgia	Oconee
13 101	Georgia	Echols	13 221	Georgia	Oglethorpe
13 103	Georgia	Effingham	13 223	Georgia	Paulding
13 105	Georgia	Elbert	13 225	Georgia	Peach
13 107	Georgia	Emanuel	13 227	Georgia	Pickens
13 109	Georgia	Evans	13 229	Georgia	Pierce
13 111	Georgia	Fannin	13 231	Georgia	Pike
13 115	Georgia	Floyd	13 233	Georgia	Polk
13 119	Georgia	Franklin	13 235	Georgia	Pulaski
13 123	Georgia	Gilmer	13 237	Georgia	Putnam
13 125	Georgia	Glascok	13 239	Georgia	Quitman
13 127	Georgia	Glynn	13 241	Georgia	Rabun
13 129	Georgia	Gordon	13 243	Georgia	Randolph
13 131	Georgia	Grady	13 245	Georgia	Richmond
13 133	Georgia	Greene	13 249	Georgia	Schley
13 137	Georgia	Habersham	13 251	Georgia	Screven
13 139	Georgia	Hall	13 253	Georgia	Seminole
13 141	Georgia	Hancock	13 255	Georgia	Spalding
13 143	Georgia	Haralson	13 257	Georgia	Stephens
13 145	Georgia	Harris	13 259	Georgia	Stewart
13 147	Georgia	Hart	13 261	Georgia	Sumter
13 149	Georgia	Heard	13 263	Georgia	Talbot
13 153	Georgia	Houston	13 265	Georgia	Taliaferro
13 155	Georgia	Irwin	13 267	Georgia	Tattmail
13 157	Georgia	Jackson	13 269	Georgia	Taylor
13 159	Georgia	Jasper	13 271	Georgia	Telfair
13 161	Georgia	Jeff Davis	13 273	Georgia	Terrell
13 163	Georgia	Jefferson	13 275	Georgia	Thomas
13 165	Georgia	Jenkins	13 277	Georgia	Tift
13 167	Georgia	Johnson	13 279	Georgia	Toombs
13 169	Georgia	Jones	13 281	Georgia	Towns
13 171	Georgia	Lamar	13 283	Georgia	Treutlen
13 173	Georgia	Lanier	13 285	Georgia	Troup
13 175	Georgia	Laurens	13 287	Georgia	Turner
13 177	Georgia	Lee	13 289	Georgia	Twiggs
13 179	Georgia	Liberty	13 291	Georgia	Union
13 181	Georgia	Lincoln	13 293	Georgia	Upson
13 183	Georgia	Long	13 295	Georgia	Walker
13 185	Georgia	Lowndes	13 297	Georgia	Walton

13	299	Georgia	Ware	47	081	Tennessee	Hickman
13	301	Georgia	Warren	47	083	Tennessee	Houston
13	303	Georgia	Washington	47	085	Tennessee	Humphreys
13	305	Georgia	Wayne	47	087	Tennessee	Jackson
13	307	Georgia	Webster	47	089	Tennessee	Jefferson
13	309	Georgia	Wheeler	47	091	Tennessee	Johnson
13	311	Georgia	White	47	093	Tennessee	Knox
13	313	Georgia	Whitfield	47	095	Tennessee	Lake
13	315	Georgia	Wilcox	47	097	Tennessee	Lauderdale
13	317	Georgia	Wilkes	47	099	Tennessee	Lawrence
13	319	Georgia	Wilkinson	47	101	Tennessee	Lewis
13	321	Georgia	Worth	47	103	Tennessee	Lincoln
TENNESSEE - S5				47	105	Tennessee	Loudon
47	001	Tennessee	Anderson	47	107	Tennessee	McMinn
47	003	Tennessee	Bedford	47	109	Tennessee	McNairy
47	005	Tennessee	Benton	47	111	Tennessee	Macon
47	007	Tennessee	Bledsoe	47	113	Tennessee	Madison
47	009	Tennessee	Blount	47	115	Tennessee	Marion
47	011	Tennessee	Bradley	47	117	Tennessee	Marshall
47	013	Tennessee	Campbell	47	119	Tennessee	Maur
47	015	Tennessee	Cannon	47	121	Tennessee	Meigs
47	017	Tennessee	Carroll	47	123	Tennessee	Monroe
47	019	Tennessee	Carter	47	125	Tennessee	Montgomery
47	021	Tennessee	Cheatham	47	127	Tennessee	Moore
47	023	Tennessee	Chester	47	129	Tennessee	Morgan
47	025	Tennessee	Claiborne	47	131	Tennessee	Obion
47	027	Tennessee	Clay	47	133	Tennessee	Overton
47	029	Tennessee	Cocke	47	135	Tennessee	Perry
47	031	Tennessee	Coffee	47	137	Tennessee	Pickett
47	033	Tennessee	Crockett	47	139	Tennessee	Polk
47	035	Tennessee	Cumberland	47	141	Tennessee	Putnam
47	037	Tennessee	Davidson	47	143	Tennessee	Rhea
47	039	Tennessee	Decatur	47	145	Tennessee	Roane
47	041	Tennessee	DeKalb	47	147	Tennessee	Robertson
47	043	Tennessee	Dickson	47	149	Tennessee	Rutherford
47	045	Tennessee	Dyer	47	151	Tennessee	Scott
47	047	Tennessee	Fayette	47	153	Tennessee	Sequatchie
47	049	Tennessee	Fentress	47	155	Tennessee	Sevier
47	051	Tennessee	Franklin	47	157	Tennessee	Shelby
47	053	Tennessee	Gibson	47	159	Tennessee	Smith
47	055	Tennessee	Giles	47	161	Tennessee	Stewart
47	057	Tennessee	Grainger	47	163	Tennessee	Sullivan
47	059	Tennessee	Greene	47	165	Tennessee	Sumner
47	061	Tennessee	Grundy	47	167	Tennessee	Tipton
47	063	Tennessee	Hamblen	47	169	Tennessee	Trousdale
47	065	Tennessee	Hamilton	47	171	Tennessee	Unicoi
47	067	Tennessee	Hancock	47	173	Tennessee	Union
47	069	Tennessee	Hardeman	47	175	Tennessee	Van Buren
47	071	Tennessee	Hardin	47	177	Tennessee	Warren
47	073	Tennessee	Hawkins	47	179	Tennessee	Washington
47	075	Tennessee	Haywood	47	181	Tennessee	Wayne
47	077	Tennessee	Henderson	47	183	Tennessee	Weakley
47	079	Tennessee	Henry	47	185	Tennessee	White
				47	187	Tennessee	Williamson

47	189	Tennessee	Wilson	37	103	North Carolina	Jones
				37	105	North Carolina	Lee
NORTH CAROLINA - S6				37	107	North Carolina	Lenoir
37	001	North Carolina	Alamance	37	109	North Carolina	Lincoln
37	003	North Carolina	Alexander	37	111	North Carolina	McDowell
37	005	North Carolina	Alleghany	37	113	North Carolina	Macon
37	007	North Carolina	Anson	37	115	North Carolina	Madison
37	009	North Carolina	Ashe	37	117	North Carolina	Martin
37	011	North Carolina	Avery	37	119	North Carolina	Mecklenburg
37	013	North Carolina	Beaufort	37	121	North Carolina	Mitchell
37	015	North Carolina	Bertie	37	123	North Carolina	Montgomery
37	017	North Carolina	Bladen	37	125	North Carolina	Moore
37	019	North Carolina	Brunswick	37	127	North Carolina	Nash
37	021	North Carolina	Buncombe	37	129	North Carolina	New Hanover
37	023	North Carolina	Burke	37	131	North Carolina	Northampton
37	025	North Carolina	Cabarrus	37	133	North Carolina	Onslow
37	027	North Carolina	Caldwell	37	135	North Carolina	Orange
37	029	North Carolina	Camden	37	137	North Carolina	Pamlico
37	031	North Carolina	Carteret	37	139	North Carolina	Pasquotank
37	033	North Carolina	Caswell	37	141	North Carolina	Pender
37	035	North Carolina	Catawba	37	143	North Carolina	Perquimans
37	037	North Carolina	Chatham	37	145	North Carolina	Person
37	039	North Carolina	Cherokee	37	147	North Carolina	Pitt
37	041	North Carolina	Chowan	37	149	North Carolina	Polk
37	043	North Carolina	Clay	37	151	North Carolina	Randolph
37	045	North Carolina	Cleveland	37	153	North Carolina	Richmond
37	047	North Carolina	Columbus	37	155	North Carolina	Robeson
37	049	North Carolina	Craven	37	157	North Carolina	Rockingham
37	051	North Carolina	Cumberland	37	159	North Carolina	Rowan
37	053	North Carolina	Currituck	37	161	North Carolina	Rutherford
37	055	North Carolina	Dare	37	163	North Carolina	Sampson
37	057	North Carolina	Davidson	37	165	North Carolina	Scotland
37	059	North Carolina	Davie	37	167	North Carolina	Stanly
37	061	North Carolina	Duplin	37	169	North Carolina	Stokes
37	063	North Carolina	Durham	37	171	North Carolina	Surry
37	065	North Carolina	Edgecombe	37	173	North Carolina	Swain
37	067	North Carolina	Forsyth	37	175	North Carolina	Transylvania
37	069	North Carolina	Franklin	37	177	North Carolina	Tyrrell
37	071	North Carolina	Gaston	37	179	North Carolina	Union
37	073	North Carolina	Gates	37	181	North Carolina	Vance
37	075	North Carolina	Graham	37	183	North Carolina	Wake
37	077	North Carolina	Granville	37	185	North Carolina	Warren
37	079	North Carolina	Greene	37	187	North Carolina	Washington
37	081	North Carolina	Guilford	37	189	North Carolina	Watauga
37	083	North Carolina	Halifax	37	191	North Carolina	Wayne
37	085	North Carolina	Harnett	37	193	North Carolina	Wilkes
37	087	North Carolina	Haywood	37	195	North Carolina	Wilson
37	089	North Carolina	Henderson	37	197	North Carolina	Yadkin
37	091	North Carolina	Hertford	37	199	North Carolina	Yancey
37	093	North Carolina	Hoke				
37	095	North Carolina	Hyde	MISSISSIPPI - S7			
37	097	North Carolina	Iredell	28	001	Mississippi	Adams
37	099	North Carolina	Jackson	28	003	Mississippi	Alcorn
37	101	North Carolina	Johnston	28	005	Mississippi	Amite

28 007	Mississippi	Attala	28 115	Mississippi	Pontotoc
28 009	Mississippi	Benton	28 117	Mississippi	Prentiss
28 011	Mississippi	Bolivar	28 119	Mississippi	Quitman
28 013	Mississippi	Calhoun	28 121	Mississippi	Rankin
28 015	Mississippi	Carroll	28 123	Mississippi	Scott
28 017	Mississippi	Chickasaw	28 125	Mississippi	Sharkey
28 019	Mississippi	Choctaw	28 127	Mississippi	Simpson
28 021	Mississippi	Claiborne	28 129	Mississippi	Smith
28 023	Mississippi	Clarke	28 131	Mississippi	Stone
28 025	Mississippi	Clay	28 133	Mississippi	Sunflower
28 027	Mississippi	Coahoma	28 135	Mississippi	Tallahatchie
28 029	Mississippi	Copiah	28 137	Mississippi	Tate
28 031	Mississippi	Covington	28 139	Mississippi	Tippah
28 033	Mississippi	De Soto	28 141	Mississippi	Tishomingo
28 035	Mississippi	Forrest	28 143	Mississippi	Tunica
28 037	Mississippi	Franklin	28 145	Mississippi	Union
28 039	Mississippi	George	28 147	Mississippi	Walthall
28 041	Mississippi	Greene	28 149	Mississippi	Warren
28 043	Mississippi	Grenada	28 151	Mississippi	Washington
28 045	Mississippi	Hancock	28 153	Mississippi	Wayne
28 047	Mississippi	Harrison	28 155	Mississippi	Webster
28 049	Mississippi	Hinds	28 157	Mississippi	Wilkinson
28 051	Mississippi	Holmes	28 159	Mississippi	Winston
28 053	Mississippi	Humphreys	28 161	Mississippi	Yalobusha
28 055	Mississippi	Issaquena	28 163	Mississippi	Yazoo
28 057	Mississippi	Itawamba			
28 059	Mississippi	Jackson	ALABAMA - S8		
28 061	Mississippi	Jasper	01 001	Alabama	Autauga
28 063	Mississippi	Jefferson	01 003	Alabama	Baldwin
28 065	Mississippi	Jefferson Davis	01 005	Alabama	Barbour
28 067	Mississippi	Jones	01 007	Alabama	Bibb
28 069	Mississippi	Kemper	01 009	Alabama	Blount
28 071	Mississippi	Lafayette	01 011	Alabama	Bullock
28 073	Mississippi	Lamar	01 013	Alabama	Butler
28 075	Mississippi	Lauderdale	01 015	Alabama	Calhoun
28 077	Mississippi	Lawrence	01 017	Alabama	Chambers
28 079	Mississippi	Leake	01 019	Alabama	Cherokee
28 081	Mississippi	Lee	01 021	Alabama	Chilton
28 083	Mississippi	Leflore	01 023	Alabama	Choctaw
28 085	Mississippi	Lincoln	01 025	Alabama	Clarke
28 087	Mississippi	Lowndes	01 027	Alabama	Clay
28 089	Mississippi	Madison	01 029	Alabama	Cleburne
28 091	Mississippi	Marion	01 031	Alabama	Coffee
28 093	Mississippi	Marshall	01 033	Alabama	Colbert
28 095	Mississippi	Monroe	01 035	Alabama	Conecuh
28 097	Mississippi	Montgomery	01 037	Alabama	Coosa
28 099	Mississippi	Neshoba	01 039	Alabama	Covington
28 101	Mississippi	Newton	01 041	Alabama	Crenshaw
28 103	Mississippi	Noxubee	01 043	Alabama	Cullman
28 105	Mississippi	Oktibbeha	01 045	Alabama	Dale
28 107	Mississippi	Panola	01 047	Alabama	Dallas
28 109	Mississippi	Pearl River	01 049	Alabama	De Kalb
28 111	Mississippi	Perry	01 051	Alabama	Elmore
28 113	Mississippi	Pike	01 053	Alabama	Escambia

12 037	Florida	Franklin
12 039	Florida	Gadsden
12 041	Florida	Gilchrist
12 043	Florida	Glades
12 045	Florida	Gulf
12 047	Florida	Hamilton
12 049	Florida	Hardee
12 051	Florida	Hendry
12 053	Florida	Hernando
12 055	Florida	Highlands
12 057	Florida	Hillsborough
12 059	Florida	Holmes
12 061	Florida	Indian River
12 063	Florida	Jackson
12 065	Florida	Jefferson
12 067	Florida	Lafayette
12 069	Florida	Lake
12 071	Florida	Lee
12 073	Florida	Leon
12 075	Florida	Levy
12 077	Florida	Liberty
12 079	Florida	Madison
12 081	Florida	Manatee
12 083	Florida	Marion
12 085	Florida	Martin
12 087	Florida	Monroe
12 089	Florida	Nassau
12 091	Florida	Okaloosa
12 093	Florida	Okeechobee
12 095	Florida	Orange
12 097	Florida	Osceola
12 099	Florida	Palm Beach
12 101	Florida	Pasco
12 103	Florida	Pinellas
12 105	Florida	Polk
12 107	Florida	Putnam
12 109	Florida	St. Johns
12 111	Florida	St. Lucie
12 113	Florida	Santa Rosa
12 115	Florida	Sarasota
12 117	Florida	Seminole
12 119	Florida	Sumter
12 121	Florida	Suwannee
12 123	Florida	Taylor
12 125	Florida	Union
12 127	Florida	Volusia
12 129	Florida	Wakulla
12 131	Florida	Walton
12 133	Florida	Washington

CHICAGO-GARY-LAKE COUNTY Nonattainment
AREA - G1

17 031	Illinois	Cook
17 043	Illinois	Du Page

17 063	Illinois	Grundy
17 089	Illinois	Kane
17 093	Illinois	Kendall
17 097	Illinois	Lake
17 111	Illinois	McHenry
17 197	Illinois	Will
18 089	Indiana	Lake
18 127	Indiana	Porter

MILWAUKEE-RACINE NONATTAINMENT
AREA - G2

55 059	Wisconsin	Kenosha
55 079	Wisconsin	Milwaukee
55 089	Wisconsin	Ozaukee
55 101	Wisconsin	Racine
55 131	Wisconsin	Washington
55 133	Wisconsin	Waukesha

MUSKEGON NONATTAINMENT AREA - G3
26 121 Michigan Muskegon

SHEBOYGAN NONATTAINMENT AREA - G4
55 117 Wisconsin Sheboygan

CINCINNATI-HAMILTON NONATTAINMENT
AREA - G5

21 015	Kentucky	Boone
21 037	Kentucky	Campbell
21 117	Kentucky	Kenton
39 017	Ohio	Butler
39 025	Ohio	Clermont
39 061	Ohio	Hamilton
39 165	Ohio	Warren

ST. LOUIS NONATTAINMENT AREA - G6

17 119	Illinois	Madison
17 133	Illinois	Monroe
17 163	Illinois	St. Clair
29 071	Missouri	Franklin
29 099	Missouri	Jefferson
29 183	Missouri	St. Charles
29 510	Missouri	St. Louis
29 229	Missouri	Wright

ATTAINMENT PORTION OF ILLINOIS - G7

17 001	Illinois	Adams
17 003	Illinois	Alexander
17 005	Illinois	Bond
17 007	Illinois	Boone
17 009	Illinois	Brown
17 011	Illinois	Bureau
17 013	Illinois	Calhoun
17 015	Illinois	Carroll
17 017	Illinois	Cass

17 019 Illinois	Champaign	17 145 Illinois	Perry
17 021 Illinois	Christian	17 147 Illinois	Piatt
17 023 Illinois	Clark	17 149 Illinois	Pike
17 025 Illinois	Clay	17 151 Illinois	Pope
17 027 Illinois	Clinton	17 153 Illinois	Pulaski
17 029 Illinois	Coles	17 155 Illinois	Putnam
17 033 Illinois	Crawford	17 157 Illinois	Randolph
17 035 Illinois	Cumberland	17 159 Illinois	Richland
17 037 Illinois	DeKalb	17 161 Illinois	Rock Island
17 039 Illinois	DeWitt	17 165 Illinois	Saline
17 041 Illinois	Douglas	17 167 Illinois	Sangamon
17 045 Illinois	Edgar	17 169 Illinois	Schuyler
17 047 Illinois	Edwards	17 171 Illinois	Scott
17 049 Illinois	Effingham	17 173 Illinois	Shelby
17 051 Illinois	Fayette	17 175 Illinois	Stark
17 053 Illinois	Ford	17 177 Illinois	Stephenson
17 055 Illinois	Franklin	17 179 Illinois	Tazewell
17 057 Illinois	Fulton	17 181 Illinois	Union
17 059 Illinois	Gallatin	17 183 Illinois	Vermilion
17 061 Illinois	Greene	17 185 Illinois	Wabash
17 065 Illinois	Hamilton	17 187 Illinois	Warren
17 067 Illinois	Hancock	17 189 Illinois	Washington
17 069 Illinois	Hardin	17 191 Illinois	Wayne
17 071 Illinois	Henderson	17 193 Illinois	White
17 073 Illinois	Henry	17 195 Illinois	Whiteside
17 075 Illinois	Iroquois	17 199 Illinois	Williamson
17 077 Illinois	Jackson	17 201 Illinois	Winnebago
17 079 Illinois	Jasper	17 203 Illinois	Woodford
17 081 Illinois	Jefferson		
17 083 Illinois	Jersey	ATTAINMENT PORTION OF INDIANA - G8	
17 085 Illinois	Jo Davies	18 001 Indiana	Adams
17 087 Illinois	Johnson	18 003 Indiana	Allen
17 091 Illinois	Kankakee	18 005 Indiana	Bartholomew
17 095 Illinois	Knox	18 007 Indiana	Benton
17 099 Illinois	La Salle	18 009 Indiana	Blackford
17 101 Illinois	Lawrence	18 011 Indiana	Boone
17 103 Illinois	Lee	18 013 Indiana	Brown
17 105 Illinois	Livingston	18 015 Indiana	Carroll
17 107 Illinois	Logan	18 017 Indiana	Cass
17 109 Illinois	McDonough	18 021 Indiana	Clay
17 113 Illinois	McLean	18 023 Indiana	Clinton
17 115 Illinois	Macon	18 025 Indiana	Crawford
17 117 Illinois	Macoupin	18 027 Indiana	Davies
17 121 Illinois	Marion	18 029 Indiana	Dearborn
17 123 Illinois	Marshall	18 031 Indiana	Decatur
17 125 Illinois	Mason	18 033 Indiana	DeKalb
17 127 Illinois	Massac	18 035 Indiana	Delaware
17 129 Illinois	Menard	18 037 Indiana	Dubois
17 131 Illinois	Mercer	18 039 Indiana	Elkhart
17 135 Illinois	Montgomery	18 041 Indiana	Fayette
17 137 Illinois	Morgan	18 045 Indiana	Fountain
17 139 Illinois	Moultrie	18 047 Indiana	Franklin
17 141 Illinois	Ogle	18 049 Indiana	Fulton
17 143 Illinois	Peoria	18 051 Indiana	Gibson

18 053	Indiana	Grant
18 055	Indiana	Greene
18 057	Indiana	Hamilton
18 059	Indiana	Hancock
18 061	Indiana	Harrison
18 063	Indiana	Hendricks
18 065	Indiana	Henry
18 067	Indiana	Howard
18 069	Indiana	Huntington
18 071	Indiana	Jackson
18 073	Indiana	Jasper
18 075	Indiana	Jay
18 077	Indiana	Jefferson
18 079	Indiana	Jennings
18 081	Indiana	Johnson
18 083	Indiana	Knox
18 085	Indiana	Kosciusko
18 087	Indiana	Lagrange
18 091	Indiana	La Porte
18 093	Indiana	Lawrence
18 095	Indiana	Madison
18 097	Indiana	Marion
18 099	Indiana	Marshall
18 101	Indiana	Martin
18 103	Indiana	Miami
18 105	Indiana	Monroe
18 107	Indiana	Montgomery
18 109	Indiana	Morgan
18 111	Indiana	Newton
18 113	Indiana	Noble
18 115	Indiana	Ohio
18 117	Indiana	Orange
18 119	Indiana	Owen
18 121	Indiana	Parke
18 123	Indiana	Perry
18 125	Indiana	Pike
18 129	Indiana	Pisey
18 131	Indiana	Pulaski
18 133	Indiana	Putnam
18 135	Indiana	Randolph
18 137	Indiana	Ripley
18 139	Indiana	Rush
18 141	Indiana	St. Joseph
18 143	Indiana	Scott
18 145	Indiana	Shelby
18 147	Indiana	Spencer
18 149	Indiana	Starke
18 151	Indiana	Steuben
18 153	Indiana	Sullivan
18 155	Indiana	Switzerland
18 157	Indiana	Tippecanoe
18 159	Indiana	Tipton
18 161	Indiana	Union
18 163	Indiana	Vanderburgh

18 165	Indiana	Vermillion
18 167	Indiana	Vigo
18 169	Indiana	Wabash
18 171	Indiana	Warren
18 173	Indiana	Warrick
18 175	Indiana	Washington
18 177	Indiana	Wayne
18 179	Indiana	Wells
18 181	Indiana	White
18 183	Indiana	Whitley

ATTAINMENT PORTION OF WISCONSIN - G9

55 001	Wisconsin	Adams
55 003	Wisconsin	Ashland
55 005	Wisconsin	Barron
55 007	Wisconsin	Bayfield
55 009	Wisconsin	Brown
55 011	Wisconsin	Buffalo
55 013	Wisconsin	Burnett
55 015	Wisconsin	Calumet
55 017	Wisconsin	Chippewa
55 019	Wisconsin	Clark
55 021	Wisconsin	Columbia
55 023	Wisconsin	Crawford
55 025	Wisconsin	Dane
55 027	Wisconsin	Dodge
55 029	Wisconsin	Door
55 031	Wisconsin	Douglas
55 033	Wisconsin	Dunn
55 035	Wisconsin	Eau Claire
55 037	Wisconsin	Florence
55 039	Wisconsin	Fond Du Lac
55 041	Wisconsin	Forest
55 043	Wisconsin	Grant
55 045	Wisconsin	Green
55 047	Wisconsin	Green Lake
55 049	Wisconsin	Iowa
55 051	Wisconsin	Iron
55 053	Wisconsin	Jackson
55 055	Wisconsin	Jefferson
55 057	Wisconsin	Juneau
55 061	Wisconsin	Kewaunee
55 063	Wisconsin	La Crosse
55 065	Wisconsin	Lafayette
55 067	Wisconsin	Langlade
55 069	Wisconsin	Lincoln
55 071	Wisconsin	Manitowoc
55 073	Wisconsin	Marathon
55 075	Wisconsin	Marinette
55 077	Wisconsin	Marquette
55 081	Wisconsin	Monroe
55 083	Wisconsin	Oconto
55 085	Wisconsin	Oneida
55 087	Wisconsin	Outagamie

55 091	Wisconsin	Pepin	39 067	Ohio	Harrison
55 093	Wisconsin	Pierce	39 069	Ohio	Henry
55 095	Wisconsin	Polk	39 071	Ohio	Highland
55 097	Wisconsin	Portage	39 073	Ohio	Hocking
55 099	Wisconsin	Price	39 075	Ohio	Holmes
55 103	Wisconsin	Richland	39 077	Ohio	Huron
55 105	Wisconsin	Rock	39 079	Ohio	Jackson
55 107	Wisconsin	Rusk	39 081	Ohio	Jefferson
55 109	Wisconsin	St. Croix	39 083	Ohio	Knox
55 111	Wisconsin	Sauk	39 085	Ohio	Lake
55 113	Wisconsin	Sawyer	39 087	Ohio	Lawrence
55 115	Wisconsin	Shawano	39 089	Ohio	Licking
55 119	Wisconsin	Taylor	39 091	Ohio	Logan
55 121	Wisconsin	Trempealeau	39 093	Ohio	Lorain
55 123	Wisconsin	Vernon	39 095	Ohio	Lucas
55 125	Wisconsin	Vilas	39 097	Ohio	Madison
55 127	Wisconsin	Walworth	39 099	Ohio	Mahoning
55 129	Wisconsin	Washburn	39 101	Ohio	Marion
55 135	Wisconsin	Waupaca	39 103	Ohio	Medina
55 137	Wisconsin	Waushara	39 105	Ohio	Meigs
55 139	Wisconsin	Winnebago	39 107	Ohio	Mercer
55 141	Wisconsin	Wood	39 109	Ohio	Miami
ATTAINMENT PORTION OF OHIO - G10			39 111	Ohio	Monroe
39 001	Ohio	Adams	39 113	Ohio	Montgomery
39 003	Ohio	Allen	39 115	Ohio	Morgan
39 005	Ohio	Ashland	39 117	Ohio	Morrow
39 007	Ohio	Ashtabula	39 119	Ohio	Muskingum
39 009	Ohio	Athens	39 121	Ohio	Noble
39 011	Ohio	Auglaize	39 123	Ohio	Ottawa
39 013	Ohio	Belmont	39 125	Ohio	Paulding
39 015	Ohio	Brown	39 127	Ohio	Perry
39 019	Ohio	Carroll	39 129	Ohio	Pickaway
39 021	Ohio	Champaign	39 131	Ohio	Pike
39 023	Ohio	Clark	39 133	Ohio	Portage
39 027	Ohio	Clinton	39 135	Ohio	Preble
39 029	Ohio	Columbiana	39 137	Ohio	Putnam
39 031	Ohio	Coshocton	39 139	Ohio	Richland
39 033	Ohio	Crawford	39 141	Ohio	Ross
39 035	Ohio	Cuyahoga	39 143	Ohio	Sandusky
39 037	Ohio	Darke	39 145	Ohio	Scioto
39 039	Ohio	Defiance	39 147	Ohio	Seneca
39 041	Ohio	Delaware	39 149	Ohio	Shelby
39 043	Ohio	Erie	39 151	Ohio	Stark
39 045	Ohio	Fairfield	39 153	Ohio	Summit
39 047	Ohio	Fayette	39 155	Ohio	Trumbull
39 049	Ohio	Franklin	39 157	Ohio	Tuscarawas
39 051	Ohio	Fulton	39 159	Ohio	Union
39 053	Ohio	Gallia	39 161	Ohio	Van Wert
39 055	Ohio	Geauga	39 163	Ohio	Vinton
39 057	Ohio	Greene	39 167	Ohio	Washington
39 059	Ohio	Guernsey	39 169	Ohio	Wayne
39 063	Ohio	Hancock	39 171	Ohio	Williams
39 065	Ohio	Hardin	39 173	Ohio	Wood
			39 175	Ohio	Wyandot

ATTAINMENT PORTION OF MICHIGAN - G11

26 001	Michigan	Alcona
26 003	Michigan	Alger
26 005	Michigan	Allegan
26 007	Michigan	Alpena
26 009	Michigan	Antrim
26 011	Michigan	Arenac
26 013	Michigan	Baraga
26 015	Michigan	Barry
26 017	Michigan	Bay
26 019	Michigan	Benzie
26 021	Michigan	Berrien
26 023	Michigan	Branch
26 025	Michigan	Calhoun
26 027	Michigan	Cass
26 029	Michigan	Charlevoix
26 031	Michigan	Cheboygan
26 033	Michigan	Chippewa
26 035	Michigan	Clare
26 037	Michigan	Clinton
26 039	Michigan	Crawford
26 041	Michigan	Delta
26 043	Michigan	Dickinson
26 045	Michigan	Eaton
26 047	Michigan	Emmet
26 049	Michigan	Genesee
26 051	Michigan	Gladwin
26 053	Michigan	Gogebic
26 055	Michigan	Grand Traverse
26 057	Michigan	Gratiot
26 059	Michigan	Hillsdale
26 061	Michigan	Houghton
26 063	Michigan	Huron
26 065	Michigan	Ingham
26 067	Michigan	Ionia
26 069	Michigan	Iosco
26 071	Michigan	Iron
26 073	Michigan	Isabella
26 075	Michigan	Jackson
26 077	Michigan	Kalamazoo
26 079	Michigan	Kalkaska
26 081	Michigan	Kent
26 083	Michigan	Keweenaw
26 085	Michigan	Lake
26 087	Michigan	Lapeer
26 089	Michigan	Leelanau
26 091	Michigan	Lenawee
26 093	Michigan	Livingston
26 095	Michigan	Luce
26 097	Michigan	Mackinac
26 099	Michigan	Macomb
26 101	Michigan	Manistee
26 103	Michigan	Marquette
26 105	Michigan	Mason

26 107	Michigan	Mecosta	27 047	Minnesota	Freeborn
26 109	Michigan	Menominee	27 049	Minnesota	Goodhue
26 111	Michigan	Midland	27 051	Minnesota	Grant
26 113	Michigan	Missaukee	27 053	Minnesota	Hennepin
26 115	Michigan	Monroe	27 055	Minnesota	Houston
26 117	Michigan	Montcalm	27 057	Minnesota	Hubbard
26 119	Michigan	Montmorency	27 059	Minnesota	Isanti
26 123	Michigan	Newaygo	27 061	Minnesota	Itasca
26 125	Michigan	Oakland	27 063	Minnesota	Jackson
26 127	Michigan	Oceana	27 065	Minnesota	Kanabec
26 129	Michigan	Ogemaw	27 067	Minnesota	Kandiyohi
26 131	Michigan	Ontonagon	27 069	Minnesota	Kittson
26 133	Michigan	Osceola	27 071	Minnesota	Koochiching
26 135	Michigan	Oscoda	27 073	Minnesota	Lac qui Parle
26 137	Michigan	Otsego	27 075	Minnesota	Lake
26 139	Michigan	Ottawa	27 077	Minnesota	Lake of the Woods
26 141	Michigan	Presque Isle	27 079	Minnesota	Le Sueur
26 143	Michigan	Roscommon	27 081	Minnesota	Lincoln
26 145	Michigan	Saginaw	27 083	Minnesota	Lyon
26 147	Michigan	St. Clair	27 085	Minnesota	McLeod
26 149	Michigan	St. Joseph	27 087	Minnesota	Mahnomen
26 151	Michigan	Sanilac	27 089	Minnesota	Marshall
26 153	Michigan	Schoolcraft	27 091	Minnesota	Martin
26 155	Michigan	Shiawassee	27 093	Minnesota	Meeker
26 157	Michigan	Tuscola	27 095	Minnesota	Mille Lacs
26 159	Michigan	Van Buren	27 097	Minnesota	Morrison
26 161	Michigan	Washtenaw	27 099	Minnesota	Mower
26 163	Michigan	Wayne	27 101	Minnesota	Murray
26 165	Michigan	Wexford	27 103	Minnesota	Nicollet
ATTAINMENT PORTION OF MINNESOTA - G12			27 105	Minnesota	Nobles
27 001	Minnesota	Aitkin	27 107	Minnesota	Norman
27 003	Minnesota	Anoka	27 109	Minnesota	Olmsted
27 005	Minnesota	Becker	27 111	Minnesota	Otter Tail
27 007	Minnesota	Beltrami	27 113	Minnesota	Pennington
27 009	Minnesota	Benton	27 115	Minnesota	Pine
27 011	Minnesota	Big Stone	27 117	Minnesota	Pipestone
27 013	Minnesota	Blue Earth	27 119	Minnesota	Polk
27 015	Minnesota	Brown	27 121	Minnesota	Pope
27 017	Minnesota	Carlton	27 123	Minnesota	Ramsey
27 019	Minnesota	Carver	27 125	Minnesota	Red Lake
27 021	Minnesota	Cass	27 127	Minnesota	Redwood
27 023	Minnesota	Chippewa	27 129	Minnesota	Renville
27 025	Minnesota	Chisago	27 131	Minnesota	Rice
27 027	Minnesota	Clay	27 133	Minnesota	Rock
27 029	Minnesota	Clearwater	27 135	Minnesota	Roseau
27 031	Minnesota	Cook	27 137	Minnesota	St. Louis
27 033	Minnesota	Cottonwood	27 139	Minnesota	Scott
27 035	Minnesota	Crow Wing	27 141	Minnesota	Sherburne
27 037	Minnesota	Dakota	27 143	Minnesota	Sibley
27 039	Minnesota	Dodge	27 145	Minnesota	Stearns
27 041	Minnesota	Douglas	27 147	Minnesota	Steele
27 043	Minnesota	Faribault	27 149	Minnesota	Stevens
27 045	Minnesota	Fillmore	27 151	Minnesota	Swift
			27 153	Minnesota	Todd

27	155	Minnesota	Traverse
27	157	Minnesota	Wabasha
27	159	Minnesota	Wadena
27	161	Minnesota	Waseca
27	163	Minnesota	Washington
27	165	Minnesota	Watsonwan
27	167	Minnesota	Wilkin
27	169	Minnesota	Winona
27	171	Minnesota	Wright
27	173	Minnesota	Yellow Medicine

HOUSTON-GALVESTON-BRAZORIA

NONATTAINMENT AREA - SW1

48	039	Texas	Brazoria
48	071	Texas	Chambers
48	157	Texas	Fort Bend
48	167	Texas	Galveston
48	201	Texas	Harris
48	291	Texas	Liberty
48	339	Texas	Montgomery
48	473	Texas	Waller

BATON ROUGE NONATTAINMENT AREA - SW2

22	005	Louisiana	Ascension
22	033	Louisiana	East Baton Rouge
22	047	Louisiana	Iberville
22	063	Louisiana	Livingston
22	077	Louisiana	Pointe Coupee
22	121	Louisiana	West Baton Rouge

BEAUMONT-PORT ARTHUR NONATTAINMENT AREA - SW3

48	199	Texas	Hardin
48	245	Texas	Jefferson
48	361	Texas	Orange

EL PASO NONATTAINMENT AREA - SW4

48	141	Texas	El Paso
----	-----	-------	---------

ATTAINMENT PORTION OF TEXAS - SW5

48	001	Texas	Anderson
48	003	Texas	Andrews
48	005	Texas	Angelina
48	007	Texas	Aransas
48	009	Texas	Archer
48	011	Texas	Armstrong
48	013	Texas	Atascosa
48	015	Texas	Austin
48	017	Texas	Bailey
48	019	Texas	Bandera
48	021	Texas	Bastrop
48	023	Texas	Baylor
48	025	Texas	Bee
48	027	Texas	Bell

48	029	Texas
48	031	Texas
48	033	Texas
48	035	Texas
48	037	Texas
48	041	Texas
48	043	Texas
48	045	Texas
48	047	Texas
48	049	Texas
48	051	Texas
48	053	Texas
48	055	Texas
48	057	Texas
48	059	Texas
48	061	Texas
48	063	Texas
48	065	Texas
48	067	Texas
48	069	Texas
48	073	Texas
48	075	Texas
48	077	Texas
48	079	Texas
48	081	Texas
48	083	Texas
48	085	Texas
48	087	Texas
48	089	Texas
48	091	Texas
48	093	Texas
48	095	Texas
48	097	Texas
48	099	Texas
48	101	Texas
48	103	Texas
48	105	Texas
48	107	Texas
48	109	Texas
48	111	Texas
48	113	Texas
48	115	Texas
48	117	Texas
48	119	Texas
48	121	Texas
48	123	Texas
48	125	Texas
48	127	Texas
48	129	Texas
48	131	Texas
48	133	Texas
48	135	Texas
48	137	Texas
48	139	Texas

Bexar
Blanco
Borden
Bosque
Bowie
Brazos
Brewster
Briscoe
Brooks
Brown
Burleson
Burnet
Caldwell
Calhoun
Callahan
Cameron
Camp
Carson
Cass
Castro
Cherokee
Childress
Clay
Cochran
Coke
Coleman
Collin
Collingsworth
Colorado
Comal
Comanche
Concho
Cooke
Coryell
Cottle
Crane
Crockett
Crosby
Culberson
Dallam
Dallas
Dawson
Deaf Smith
Delta
Denton
DeWitt
Dickens
Dimmit
Donley
Duval
Eastland
Ector
Edwards
Ellis

48 143	Texas	Erath	48 261	Texas	Kenedy
48 145	Texas	Falls	48 263	Texas	Kent
48 147	Texas	Fannin	48 265	Texas	Kerr
48 149	Texas	Fayette	48 267	Texas	Kimble
48 151	Texas	Fisher	48 269	Texas	King
48 153	Texas	Floyd	48 271	Texas	Kinney
48 155	Texas	Foard	48 273	Texas	Kleberg
48 159	Texas	Franklin	48 275	Texas	Knox
48 161	Texas	Freestone	48 277	Texas	Lamar
48 163	Texas	Frio	48 279	Texas	Lamb
48 165	Texas	Gaines	48 281	Texas	Lampasas
48 169	Texas	Garza	48 283	Texas	La Salle
48 171	Texas	Gillespie	48 285	Texas	Lavaca
48 173	Texas	Glasscock	48 287	Texas	Lee
48 175	Texas	Goliad	48 289	Texas	Leon
48 177	Texas	Gonzales	48 293	Texas	Limestone
48 179	Texas	Gray	48 295	Texas	Lipscomb
48 181	Texas	Grayson	48 297	Texas	Live Oak
48 183	Texas	Gregg	48 299	Texas	Llano
48 185	Texas	Grimes	48 301	Texas	Loving
48 187	Texas	Guadalupe	48 303	Texas	Lubbock
48 189	Texas	Hale	48 305	Texas	Lynn
48 191	Texas	Hall	48 307	Texas	McCulloch
48 193	Texas	Hamilton	48 309	Texas	McLennan
48 195	Texas	Hansford	48 311	Texas	McMullen
48 197	Texas	Hardeman	48 313	Texas	Madison
48 203	Texas	Harrison	48 315	Texas	Marion
48 205	Texas	Hartley	48 317	Texas	Martin
48 207	Texas	Haskell	48 319	Texas	Mason
48 209	Texas	Hays	48 321	Texas	Matagorda
48 211	Texas	Hemphill	48 323	Texas	Maverick
48 213	Texas	Henderson	48 325	Texas	Medina
48 215	Texas	Hidalgo	48 327	Texas	Menard
48 217	Texas	Hill	48 329	Texas	Midland
48 219	Texas	Hockley	48 331	Texas	Milam
48 221	Texas	Hood	48 333	Texas	Mills
48 223	Texas	Hopkins	48 335	Texas	Mitchell
48 225	Texas	Houston	48 337	Texas	Montague
48 227	Texas	Howard	48 341	Texas	Moore
48 229	Texas	Hudspeth	48 343	Texas	Morris
48 231	Texas	Hunt	48 345	Texas	Motley
48 233	Texas	Hutchinson	48 347	Texas	Nacogdoches
48 235	Texas	Irion	48 349	Texas	Navarro
48 237	Texas	Jack	48 351	Texas	Newton
48 239	Texas	Jackson	48 353	Texas	Nolan
48 241	Texas	Jasper	48 355	Texas	Nueces
48 243	Texas	Jeff Davis	48 357	Texas	Ochiltree
48 247	Texas	Jim Hogg	48 359	Texas	Oldham
48 249	Texas	Jim Wells	48 363	Texas	Palo Pinto
48 251	Texas	Johnson	48 365	Texas	Panola
48 253	Texas	Jones	48 367	Texas	Parker
48 255	Texas	Karnes	48 369	Texas	Parmer
48 257	Texas	Kaufman	48 371	Texas	Pecos
48 259	Texas	Kendall	48 373	Texas	Polk

48 375	Texas	Potter	48 485	Texas	Wichita
48 377	Texas	Presidio	48 487	Texas	Wilbarger
48 379	Texas	Rains	48 489	Texas	Willacy
48 381	Texas	Randall	48 491	Texas	Williamson
48 383	Texas	Reagan	48 493	Texas	Wilson
48 385	Texas	Real	48 495	Texas	Winkler
48 387	Texas	Red River	48 497	Texas	Wise
48 389	Texas	Reeves	48 499	Texas	Wood
48 391	Texas	Refugio	48 501	Texas	Yoakum
48 393	Texas	Roberts	48 503	Texas	Young
48 395	Texas	Robertson	48 505	Texas	Zapata
48 397	Texas	Rockwall	48 507	Texas	Zavala
48 399	Texas	Runnels			
48 401	Texas	Rusk	ATTAINMENT PORTION OF LOUISIANA - SW6		
48 403	Texas	Sabine	22 001	Louisiana	Acadia
48 405	Texas	San Augustine	22 003	Louisiana	Allen
48 407	Texas	San Jacinto	22 007	Louisiana	Assumption
48 409	Texas	San Patricio	22 009	Louisiana	Avoyelles
48 411	Texas	San Saba	22 011	Louisiana	Beauregard
48 413	Texas	Schleicher	22 013	Louisiana	Bienville
48 415	Texas	Scurry	22 015	Louisiana	Bossier
48 417	Texas	Shackelford	22 017	Louisiana	Caddo
48 419	Texas	Shelby	22 019	Louisiana	Calcasieu
48 421	Texas	Sherman	22 021	Louisiana	Caldwell
48 423	Texas	Smith	22 023	Louisiana	Cameron
48 425	Texas	Somervell	22 025	Louisiana	Catahoula
48 427	Texas	Starr	22 027	Louisiana	Claiborne
48 429	Texas	Stephens	22 029	Louisiana	Concordia
48 431	Texas	Sterling	22 031	Louisiana	De Soto
48 433	Texas	Stonewall	22 035	Louisiana	East Carroll
48 435	Texas	Sutton	22 037	Louisiana	East Feliciana
48 437	Texas	Swisher	22 039	Louisiana	Evangeline
48 439	Texas	Tarrant	22 041	Louisiana	Franklin
48 441	Texas	Taylor	22 043	Louisiana	Grant
48 443	Texas	Terrell	22 045	Louisiana	Iberia
48 445	Texas	Terry	22 049	Louisiana	Jackson
48 447	Texas	Throckmorton	22 051	Louisiana	Jefferson
48 449	Texas	Titus	22 053	Louisiana	Jefferson Davis
48 451	Texas	Tom Green	22 055	Louisiana	Lafayette
48 453	Texas	Travis	22 057	Louisiana	Lafourche
48 455	Texas	Trinity	22 059	Louisiana	La Salle
48 457	Texas	Tyler	22 061	Louisiana	Lincoln
48 459	Texas	Upshur	22 065	Louisiana	Madison
48 461	Texas	Upton	22 067	Louisiana	Morehouse
48 463	Texas	Uvalde	22 069	Louisiana	Natchitoches
48 465	Texas	Val Verde	22 071	Louisiana	Orleans
48 467	Texas	Van Zandt	22 073	Louisiana	Oauchita
48 469	Texas	Victoria	22 075	Louisiana	Plaquemines
48 471	Texas	Walker	22 079	Louisiana	Rapides
48 475	Texas	Ward	22 081	Louisiana	Red River
48 477	Texas	Washington	22 083	Louisiana	Richland
48 479	Texas	Webb	22 085	Louisiana	Sabine
48 481	Texas	Wharton	22 087	Louisiana	St. Bernard
48 483	Texas	Wheeler	22 089	Louisiana	St. Charles

22	091	Louisiana	St. Helena	40	001	Oklahoma	Adair
22	093	Louisiana	St. James	40	003	Oklahoma	Alfalfa
22	095	Louisiana	St. John the Baptist	40	005	Oklahoma	Atoka
22	097	Louisiana	St. Landry	40	007	Oklahoma	Beaver
22	099	Louisiana	St. Martin	40	009	Oklahoma	Beckham
22	101	Louisiana	St. Mary	40	011	Oklahoma	Blaine
22	103	Louisiana	St. Tammany	40	013	Oklahoma	Bryan
22	105	Louisiana	Tangipahoa	40	015	Oklahoma	Caddo
22	107	Louisiana	Tensas	40	017	Oklahoma	Canadian
22	109	Louisiana	Terrebonne	40	019	Oklahoma	Carter
22	111	Louisiana	Union	40	021	Oklahoma	Cherokee
22	113	Louisiana	Vermilion	40	023	Oklahoma	Choctaw
22	115	Louisiana	Vernon	40	025	Oklahoma	Cimarron
22	117	Louisiana	Washington	40	027	Oklahoma	Cleveland
22	119	Louisiana	Webster	40	029	Oklahoma	Coal
22	123	Louisiana	West Carroll	40	031	Oklahoma	Comanche
22	125	Louisiana	West Feliciana	40	033	Oklahoma	Cotton
22	127	Louisiana	Winn	40	035	Oklahoma	Craig
NEW MEXICO - SW7				40	037	Oklahoma	Creek
35	001	New Mexico	Bernalillo	40	039	Oklahoma	Custer
35	003	New Mexico	Catron	40	041	Oklahoma	Delaware
35	005	New Mexico	Chaves	40	043	Oklahoma	Dewey
35	007	New Mexico	Colfax	40	045	Oklahoma	Ellis
35	009	New Mexico	Curry	40	047	Oklahoma	Garfield
35	011	New Mexico	De Baca	40	049	Oklahoma	Garvin
35	013	New Mexico	Dona Ana	40	051	Oklahoma	Grady
35	015	New Mexico	Eddy	40	053	Oklahoma	Grant
35	017	New Mexico	Grant	40	055	Oklahoma	Greer
35	019	New Mexico	Guadalupe	40	057	Oklahoma	Harmon
35	021	New Mexico	Harding	40	059	Oklahoma	Harper
35	023	New Mexico	Hidalgo	40	061	Oklahoma	Haskell
35	025	New Mexico	Lea	40	063	Oklahoma	Hughes
35	027	New Mexico	Lincoln	40	065	Oklahoma	Jackson
35	028	New Mexico	Los Alamos	40	067	Oklahoma	Jefferson
35	029	New Mexico	Luna	40	069	Oklahoma	Johnston
35	031	New Mexico	McKinley	40	071	Oklahoma	Kay
35	033	New Mexico	Mora	40	073	Oklahoma	Kingfisher
35	035	New Mexico	Otero	40	075	Oklahoma	Kiowa
35	037	New Mexico	Quay	40	077	Oklahoma	Latimer
35	039	New Mexico	Rio Arriba	40	079	Oklahoma	Le Flore
35	041	New Mexico	Roosevelt	40	081	Oklahoma	Lincoln
35	043	New Mexico	Sandoval	40	083	Oklahoma	Logan
35	045	New Mexico	San Juan	40	085	Oklahoma	Love
35	047	New Mexico	San Miguel	40	087	Oklahoma	McClain
35	049	New Mexico	Santa Fe	40	089	Oklahoma	McCurtain
35	051	New Mexico	Sierra	40	091	Oklahoma	McIntosh
35	053	New Mexico	Socorro	40	093	Oklahoma	Major
35	055	New Mexico	Taos	40	095	Oklahoma	Marshall
35	057	New Mexico	Torrance	40	097	Oklahoma	Mayes
35	059	New Mexico	Union	40	099	Oklahoma	Murray
35	061	New Mexico	Valencia	40	101	Oklahoma	Muskogee
OKLAHOMA - SW8				40	103	Oklahoma	Noble
				40	105	Oklahoma	Nowata
				40	107	Oklahoma	Okfuskee

40	109	Oklahoma	Oklahoma	05	059	Arkansas	Hot Spring
40	111	Oklahoma	Okmulgee	05	061	Arkansas	Howard
40	113	Oklahoma	Osage	05	063	Arkansas	Independence
40	115	Oklahoma	Ottawa	05	065	Arkansas	Izard
40	117	Oklahoma	Pawnee	05	067	Arkansas	Jackson
40	119	Oklahoma	Payne	05	069	Arkansas	Jefferson
40	121	Oklahoma	Pittsburg	05	071	Arkansas	Johnson
40	123	Oklahoma	Pontotoc	05	073	Arkansas	Lafayette
40	125	Oklahoma	Pottawatomie	05	075	Arkansas	Lawrence
40	127	Oklahoma	Pushmataha	05	077	Arkansas	Lee
40	129	Oklahoma	Roger Mills	05	079	Arkansas	Lincoln
40	131	Oklahoma	Rogers	05	081	Arkansas	Little River
40	133	Oklahoma	Seminole	05	083	Arkansas	Logan
40	135	Oklahoma	Sequoyah	05	085	Arkansas	Lonoke
40	137	Oklahoma	Stephens	05	087	Arkansas	Madison
40	139	Oklahoma	Texas	05	089	Arkansas	Marion
40	141	Oklahoma	Tillman	05	091	Arkansas	Miller
40	143	Oklahoma	Tulsa	05	093	Arkansas	Mississippi
40	145	Oklahoma	Wagoner	05	095	Arkansas	Monroe
40	147	Oklahoma	Washington	05	097	Arkansas	Montgomery
40	149	Oklahoma	Washita	05	099	Arkansas	Nevada
40	151	Oklahoma	Woods	05	101	Arkansas	Newton
40	153	Oklahoma	Woodward	05	103	Arkansas	Ouachita
ARKANSAS - SW9				05	105	Arkansas	Perry
05	001	Arkansas	Arkansas	05	107	Arkansas	Phillips
05	003	Arkansas	Ashley	05	109	Arkansas	Pike
05	005	Arkansas	Baxter	05	111	Arkansas	Poinsett
05	007	Arkansas	Benton	05	113	Arkansas	Polk
05	009	Arkansas	Boone	05	115	Arkansas	Pope
05	011	Arkansas	Bradley	05	117	Arkansas	Prairie
05	013	Arkansas	Calhoun	05	119	Arkansas	Pulaski
05	015	Arkansas	Carroll	05	121	Arkansas	Randolph
05	017	Arkansas	Chicot	05	123	Arkansas	St. Francis
05	019	Arkansas	Clark	05	125	Arkansas	Saline
05	021	Arkansas	Clay	05	127	Arkansas	Scott
05	023	Arkansas	Cleburne	05	129	Arkansas	Searcy
05	025	Arkansas	Cleveland	05	131	Arkansas	Sebastian
05	027	Arkansas	Columbia	05	133	Arkansas	Sevier
05	029	Arkansas	Conway	05	135	Arkansas	Sharp
05	031	Arkansas	Craighead	05	137	Arkansas	Stone
05	033	Arkansas	Crawford	05	139	Arkansas	Union
05	035	Arkansas	Crittenden	05	141	Arkansas	Van Buren
05	037	Arkansas	Cross	05	143	Arkansas	Washington
05	039	Arkansas	Dallas	05	145	Arkansas	White
05	041	Arkansas	Desha	05	147	Arkansas	Woodruff
05	043	Arkansas	Drew	05	149	Arkansas	Yell
05	045	Arkansas	Faulkner	ATTAINMENT PORTION OF MISSOURI - PL1			
05	047	Arkansas	Franklin	29	001	Missouri	Adair
05	049	Arkansas	Fulton	29	003	Missouri	Andrew
05	051	Arkansas	Garland	29	005	Missouri	Atchison
05	053	Arkansas	Grant	29	007	Missouri	Audrain
05	055	Arkansas	Greene	29	009	Missouri	Barry
05	057	Arkansas	Hempstead	29	011	Missouri	Barton

29	013	Missouri	Bates	29	125	Missouri	Maries
29	015	Missouri	Benton	29	127	Missouri	Marion
29	017	Missouri	Bollinger	29	129	Missouri	Mercer
29	019	Missouri	Boone	29	131	Missouri	Miller
29	021	Missouri	Buchanan	29	133	Missouri	Mississippi
29	023	Missouri	Butler	29	135	Missouri	Moniteau
29	025	Missouri	Caldwell	29	137	Missouri	Monroe
29	027	Missouri	Callaway	29	139	Missouri	Montgomery
29	029	Missouri	Camden	29	141	Missouri	Morgan
29	031	Missouri	Cape Girardeau	29	143	Missouri	New Madrid
29	033	Missouri	Carroll	29	145	Missouri	Newton
29	035	Missouri	Carter	29	147	Missouri	Nodaway
29	037	Missouri	Cass	29	149	Missouri	Oregon
29	039	Missouri	Cedar	29	151	Missouri	Osage
29	041	Missouri	Chariton	29	153	Missouri	Ozark
29	043	Missouri	Christian	29	155	Missouri	Pemiscot
29	045	Missouri	Clark	29	157	Missouri	Perry
29	047	Missouri	Clay	29	159	Missouri	Pettis
29	049	Missouri	Clinton	29	161	Missouri	Phelps
29	051	Missouri	Cole	29	163	Missouri	Pike
29	053	Missouri	Cooper	29	165	Missouri	Platte
29	055	Missouri	Crawford	29	167	Missouri	Polk
29	057	Missouri	Dade	29	169	Missouri	Pulaski
29	059	Missouri	Dallas	29	171	Missouri	Putnam
29	061	Missouri	Davies	29	173	Missouri	Ralls
29	063	Missouri	DeKalb	29	175	Missouri	Randolph
29	065	Missouri	Dent	29	177	Missouri	Ray
29	067	Missouri	Douglas	29	179	Missouri	Reynolds
29	069	Missouri	Dunklin	29	181	Missouri	Ripley
29	073	Missouri	Gasconade	29	185	Missouri	St. Clair
29	075	Missouri	Gentry	29	186	Missouri	Ste. Genevieve
29	077	Missouri	Green	29	187	Missouri	St. Francois
29	079	Missouri	Grundy	29	510	Missouri	St. Louis City
29	081	Missouri	Harrison	29	195	Missouri	Saline
29	083	Missouri	Henry	29	197	Missouri	Schuyler
29	085	Missouri	Hickory	29	199	Missouri	Scotland
29	087	Missouri	Holt	29	201	Missouri	Scott
29	089	Missouri	Howard	29	203	Missouri	Shannon
29	091	Missouri	Howell	29	205	Missouri	Shelby
29	093	Missouri	Iron	29	207	Missouri	Stoddard
29	095	Missouri	Jackson	29	209	Missouri	Stone
29	097	Missouri	Jasper	29	211	Missouri	Sullivan
29	101	Missouri	Johnson	29	213	Missouri	Taney
29	103	Missouri	Knox	29	215	Missouri	Texas
29	105	Missouri	Laclede	29	217	Missouri	Vernon
29	107	Missouri	Lafayette	29	219	Missouri	Warren
29	109	Missouri	Lawrence	29	221	Missouri	Washington
29	111	Missouri	Lewis	29	223	Missouri	Wayne
29	113	Missouri	Lincoln	29	225	Missouri	Webster
29	115	Missouri	Linn	29	227	Missouri	Worth
29	117	Missouri	Livingston				
29	119	Missouri	McDonald			KANSAS - PL2	
29	121	Missouri	Macon	20	001	Kansas	Allen
29	123	Missouri	Madison	20	003	Kansas	Anderson

20 005	Kansas	Atchison	20 113	Kansas	McPherson
20 007	Kansas	Barber	20 115	Kansas	Marion
20 009	Kansas	Barton	20 117	Kansas	Marshall
20 011	Kansas	Bourbon	20 119	Kansas	Meade
20 013	Kansas	Brown	20 121	Kansas	Miami
20 015	Kansas	Butler	20 123	Kansas	Mitchell
20 017	Kansas	Chase	20 125	Kansas	Montgomery
20 019	Kansas	Chautauqua	20 127	Kansas	Morris
20 021	Kansas	Cherokee	20 129	Kansas	Morton
20 023	Kansas	Cheyenne	20 131	Kansas	Nemaha
20 025	Kansas	Clark	20 133	Kansas	Neosho
20 027	Kansas	Clay	20 135	Kansas	Ness
20 029	Kansas	Cloud	20 137	Kansas	Norton
20 031	Kansas	Coffey	20 139	Kansas	Osage
20 033	Kansas	Comanche	20 141	Kansas	Osborne
20 035	Kansas	Cowley	20 143	Kansas	Ottawa
20 037	Kansas	Crawford	20 145	Kansas	Pawnee
20 039	Kansas	Decatur	20 147	Kansas	Phillips
20 041	Kansas	Dickinson	20 149	Kansas	Pottawatomie
20 043	Kansas	Doniphan	20 151	Kansas	Pratt
20 045	Kansas	Douglas	20 153	Kansas	Rawlins
20 047	Kansas	Edwards	20 155	Kansas	Reno
20 049	Kansas	Elk	20 157	Kansas	Republic
20 051	Kansas	Ellis	20 159	Kansas	Rice
20 053	Kansas	Ellsworth	20 161	Kansas	Riley
20 055	Kansas	Finney	20 163	Kansas	Rooks
20 057	Kansas	Ford	20 165	Kansas	Rush
20 059	Kansas	Franklin	20 167	Kansas	Russell
20 061	Kansas	Geary	20 169	Kansas	Saline
20 063	Kansas	Gove	20 171	Kansas	Scott
20 065	Kansas	Graham	20 173	Kansas	Sedgwick
20 067	Kansas	Grant	20 175	Kansas	Seward
20 069	Kansas	Gray	20 177	Kansas	Shawnee
20 071	Kansas	Greeley	20 179	Kansas	Sheridan
20 073	Kansas	Greenwood	20 181	Kansas	Sherman
20 075	Kansas	Hamilton	20 183	Kansas	Smith
20 077	Kansas	Harper	20 185	Kansas	Stafford
20 079	Kansas	Harvey	20 187	Kansas	Stanton
20 081	Kansas	Haskell	20 189	Kansas	Stevens
20 083	Kansas	Hodgeman	20 191	Kansas	Sumner
20 085	Kansas	Jackson	20 193	Kansas	Thomas
20 087	Kansas	Jefferson	20 195	Kansas	Trego
20 089	Kansas	Jewell	20 197	Kansas	Wabaunsee
20 091	Kansas	Johnson	20 199	Kansas	Wallace
20 093	Kansas	Kearny	20 201	Kansas	Washington
20 095	Kansas	Kingman	20 203	Kansas	Wichita
20 097	Kansas	Kiowa	20 205	Kansas	Wilson
20 099	Kansas	Labette	20 207	Kansas	Woodson
20 101	Kansas	Lane	20 209	Kansas	Wyandotte
20 103	Kansas	Leavenworth			
20 105	Kansas	Lincoln		NEBRASKA - PL3	
20 107	Kansas	Linn	31 001	Nebraska	Adams
20 109	Kansas	Logan	31 003	Nebraska	Antelope
20 111	Kansas	Lyon	31 005	Nebraska	Arthur

31 007	Nebraska	Banner	31 115	Nebraska	Loup
31 009	Nebraska	Blaine	31 117	Nebraska	McPherson
31 011	Nebraska	Boone	31 119	Nebraska	Madison
31 013	Nebraska	Box Butte	31 121	Nebraska	Merrick
31 015	Nebraska	Boyd	31 123	Nebraska	Morrill
31 017	Nebraska	Brown	31 125	Nebraska	Nance
31 019	Nebraska	Buffalo	31 127	Nebraska	Nemaha
31 021	Nebraska	Burt	31 129	Nebraska	Nuckolls
31 023	Nebraska	Butler	31 131	Nebraska	Otoe
31 025	Nebraska	Cass	31 133	Nebraska	Pawnee
31 027	Nebraska	Cedar	31 135	Nebraska	Perkins
31 029	Nebraska	Chase	31 137	Nebraska	Phelps
31 031	Nebraska	Cherry	31 139	Nebraska	Pierce
31 033	Nebraska	Cheyenne	31 141	Nebraska	Platte
31 035	Nebraska	Clay	31 143	Nebraska	Polk
31 037	Nebraska	Colfax	31 145	Nebraska	Red Willow
31 039	Nebraska	Cuming	31 147	Nebraska	Richardson
31 041	Nebraska	Custer	31 149	Nebraska	Rock
31 043	Nebraska	Dakota	31 151	Nebraska	Saline
31 045	Nebraska	Dawes	31 153	Nebraska	Sarpy
31 047	Nebraska	Dawson	31 155	Nebraska	Saunders
31 049	Nebraska	Deuel	31 157	Nebraska	Scotts Bluff
31 051	Nebraska	Dixon	31 159	Nebraska	Seward
31 053	Nebraska	Dodge	31 161	Nebraska	Sheridan
31 055	Nebraska	Douglas	31 163	Nebraska	Sherman
31 057	Nebraska	Dundy	31 165	Nebraska	Sioux
31 059	Nebraska	Fillmore	31 167	Nebraska	Stanton
31 061	Nebraska	Franklin	31 169	Nebraska	Thayer
31 063	Nebraska	Frontier	31 171	Nebraska	Thomas
31 065	Nebraska	Furnas	31 173	Nebraska	Thurston
31 067	Nebraska	Gage	31 175	Nebraska	Valley
31 069	Nebraska	Garden	31 177	Nebraska	Washington
31 071	Nebraska	Garfield	31 179	Nebraska	Wayne
31 073	Nebraska	Gosper	31 181	Nebraska	Webster
31 075	Nebraska	Grant	31 183	Nebraska	Wheeler
31 077	Nebraska	Greeley	31 185	Nebraska	York
31 079	Nebraska	Hall			
31 081	Nebraska	Hamilton	IOWA - PL4		
31 083	Nebraska	Harlan	19 001	Iowa	Adair
31 085	Nebraska	Hayes	19 003	Iowa	Adams
31 087	Nebraska	Hitchcock	19 005	Iowa	Allamakee
31 089	Nebraska	Holt	19 007	Iowa	Appanoose
31 091	Nebraska	Hooker	19 009	Iowa	Audubon
31 093	Nebraska	Howard	19 011	Iowa	Benton
31 095	Nebraska	Jefferson	19 013	Iowa	Black Hawk
31 097	Nebraska	Johnson	19 015	Iowa	Boone
31 099	Nebraska	Kearney	19 017	Iowa	Bremer
31 101	Nebraska	Keith	19 019	Iowa	Buchanan
31 103	Nebraska	Keya Paha	19 021	Iowa	Buena Vista
31 105	Nebraska	Kimball	19 023	Iowa	Butler
31 107	Nebraska	Knox	19 025	Iowa	Calhoun
31 109	Nebraska	Lancaster	19 027	Iowa	Carroll
31 111	Nebraska	Lincoln	19 029	Iowa	Cass
31 113	Nebraska	Logan	19 031	Iowa	Cedar

19 033	Iowa	Cerro Gordo	19 141	Iowa	O'Brien
19 035	Iowa	Cherokee	19 143	Iowa	Osceola
19 037	Iowa	Chickasaw	19 145	Iowa	Page
19 039	Iowa	Clarke	19 147	Iowa	Palo Alto
19 041	Iowa	Clay	19 149	Iowa	Plymouth
19 043	Iowa	Clayton	19 151	Iowa	Pocahontas
19 045	Iowa	Clinton	19 153	Iowa	Polk
19 047	Iowa	Crawford	19 155	Iowa	Pottawattamie
19 049	Iowa	Dallas	19 157	Iowa	Poweshiek
19 051	Iowa	Davis	19 159	Iowa	Ringgold
19 053	Iowa	Decatur	19 161	Iowa	Sac
19 055	Iowa	Delaware	19 163	Iowa	Scott
19 057	Iowa	Des Moines	19 165	Iowa	Shelby
19 059	Iowa	Dickinson	19 167	Iowa	Sioux
19 061	Iowa	Dubuque	19 169	Iowa	Story
19 063	Iowa	Emmet	19 171	Iowa	Tama
19 065	Iowa	Fayette	19 173	Iowa	Taylor
19 067	Iowa	Floyd	19 175	Iowa	Union
19 069	Iowa	Franklin	19 177	Iowa	Van Buren
19 071	Iowa	Fremont	19 179	Iowa	Wapello
19 073	Iowa	Greene	19 181	Iowa	Warren
19 075	Iowa	Grundy	19 183	Iowa	Washington
19 077	Iowa	Guthrie	19 185	Iowa	Wayne
19 079	Iowa	Hamilton	19 187	Iowa	Webster
19 081	Iowa	Hancock	19 189	Iowa	Winnebago
19 083	Iowa	Hardin	19 191	Iowa	Winneshiek
19 085	Iowa	Harrison	19 193	Iowa	Woodbury
19 087	Iowa	Henry	19 195	Iowa	Worth
19 089	Iowa	Howard	19 197	Iowa	Wright
19 091	Iowa	Humboldt			
19 093	Iowa	Ida		COLORADO - RM1	
19 095	Iowa	Iowa	08 001	Colorado	Adams
19 097	Iowa	Jackson	08 003	Colorado	Alamosa
19 099	Iowa	Jasper	08 005	Colorado	Arapahoe
19 101	Iowa	Jefferson	08 007	Colorado	Archuleta
19 103	Iowa	Johnson	08 009	Colorado	Baca
19 105	Iowa	Jones	08 011	Colorado	Bent
19 107	Iowa	Keokuk	08 013	Colorado	Boulder
19 109	Iowa	Kossuth	08 015	Colorado	Chaffee
19 111	Iowa	Lee	08 017	Colorado	Cheyenne
19 113	Iowa	Linn	08 019	Colorado	Clear Creek
19 115	Iowa	Louisa	08 021	Colorado	Conejos
19 117	Iowa	Lucas	08 023	Colorado	Costilla
19 119	Iowa	Lyon	08 025	Colorado	Crowley
19 121	Iowa	Madison	08 027	Colorado	Custer
19 123	Iowa	Mahaska	08 029	Colorado	Delta
19 125	Iowa	Marion	08 031	Colorado	Denver
19 127	Iowa	Marshall	08 033	Colorado	Dolores
19 129	Iowa	Mills	08 035	Colorado	Douglas
19 131	Iowa	Mitchell	08 037	Colorado	Eagle
19 133	Iowa	Monona	08 039	Colorado	Elbert
19 135	Iowa	Monroe	08 041	Colorado	El Paso
19 137	Iowa	Montgomery	08 043	Colorado	Fremont
19 139	Iowa	Muscatine	08 045	Colorado	Garfield

08 047	Colorado	Gilpin	49 025	Utah	Kane
08 049	Colorado	Grand	49 027	Utah	Millard
08 051	Colorado	Gunnison	49 029	Utah	Morgan
08 053	Colorado	Hinsdale	49 031	Utah	Piute
08 055	Colorado	Huerfano	49 033	Utah	Rich
08 057	Colorado	Jackson	49 035	Utah	Salt Lake
08 059	Colorado	Jefferson	49 037	Utah	San Juan
08 061	Colorado	Kiowa	49 039	Utah	Sanpete
08 063	Colorado	Kit Carson	49 041	Utah	Sevier
08 065	Colorado	Lake	49 043	Utah	Summit
08 067	Colorado	La Plata	49 045	Utah	Tooele
08 069	Colorado	Larimer	49 047	Utah	Uintah
08 071	Colorado	Las Animas	49 049	Utah	Utah
08 073	Colorado	Lincoln	49 051	Utah	Wasatch
08 075	Colorado	Logan	49 053	Utah	Washington
08 077	Colorado	Mesa	49 055	Utah	Wayne
08 079	Colorado	Mineral	49 057	Utah	Weber
08 081	Colorado	Moffat			
08 083	Colorado	Montezuma	WYOMING - RM3		
08 085	Colorado	Montrose	56 001	Wyoming	Albany
08 087	Colorado	Morgan	56 003	Wyoming	Big Horn
08 089	Colorado	Otero	56 005	Wyoming	Campbell
08 091	Colorado	Ouray	56 007	Wyoming	Carbon
08 093	Colorado	Park	56 009	Wyoming	Converse
08 095	Colorado	Phillips	56 011	Wyoming	Crook
08 097	Colorado	Pitkin	56 013	Wyoming	Fremont
08 099	Colorado	Prowers	56 015	Wyoming	Goshen
08 101	Colorado	Pueblo	56 017	Wyoming	Hot Springs
08 103	Colorado	Rio Blanco	56 019	Wyoming	Johnson
08 105	Colorado	Rio Grande	56 021	Wyoming	Laramie
08 107	Colorado	Routt	56 023	Wyoming	Lincoln
08 109	Colorado	Saguache	56 025	Wyoming	Natrona
08 111	Colorado	San Juan	56 027	Wyoming	Niobrara
08 113	Colorado	San Miguel	56 029	Wyoming	Park
08 115	Colorado	Sedgwick	56 031	Wyoming	Platte
08 117	Colorado	Summit	56 033	Wyoming	Sheridan
08 119	Colorado	Teller	56 035	Wyoming	Sublette
08 121	Colorado	Washington	56 037	Wyoming	Sweetwater
08 123	Colorado	Weld	56 039	Wyoming	Teton
08 125	Colorado	Yuma	56 041	Wyoming	Uinta
			56 043	Wyoming	Washakie
			56 045	Wyoming	Weston
UTAH - RM2					
49 001	Utah	Beaver			
49 003	Utah	Box Elder	NORTH DAKOTA - RM4		
49 005	Utah	Cache	38 001	North Dakota	Adams
49 007	Utah	Carbon	38 003	North Dakota	Barnes
49 009	Utah	Daggett	38 005	North Dakota	Benson
49 011	Utah	Davis	38 007	North Dakota	Billings
49 013	Utah	Duchesne	38 009	North Dakota	Bottineau
49 015	Utah	Emery	38 011	North Dakota	Bowman
49 017	Utah	Garfield	38 013	North Dakota	Burke
49 019	Utah	Grand	38 015	North Dakota	Burleigh
49 021	Utah	Iron	38 017	North Dakota	Cass
49 023	Utah	Juab	38 019	North Dakota	Cavalier

38 021	North Dakota	Dickey	46 021	South Dakota	Campbell
38 023	North Dakota	Divide	46 023	South Dakota	Charles Mix
38 025	North Dakota	Dunn	46 025	South Dakota	Clark
38 027	North Dakota	Eddy	46 027	South Dakota	Clay
38 029	North Dakota	Emmons	46 029	South Dakota	Codington
38 031	North Dakota	Foster	46 031	South Dakota	Corson
38 033	North Dakota	Golden Valley	46 033	South Dakota	Custer
38 035	North Dakota	Grand Forks	46 035	South Dakota	Davison
38 037	North Dakota	Grant	46 037	South Dakota	Day
38 039	North Dakota	Griggs	46 039	South Dakota	Deuel
38 041	North Dakota	Hettinger	46 041	South Dakota	Dewey
38 043	North Dakota	Kidder	46 043	South Dakota	Douglas
38 045	North Dakota	LaMoure	46 045	South Dakota	Edmunds
38 047	North Dakota	Logan	46 047	South Dakota	Fall River
38 049	North Dakota	McHenry	46 049	South Dakota	Faulk
38 051	North Dakota	McIntosh	46 051	South Dakota	Grant
38 053	North Dakota	McKenzie	46 053	South Dakota	Gregory
38 055	North Dakota	McLean	46 055	South Dakota	Haakon
38 057	North Dakota	Mercer	46 057	South Dakota	Hamlin
38 059	North Dakota	Morton	46 059	South Dakota	Hand
38 061	North Dakota	Mountrail	46 061	South Dakota	Hanson
38 063	North Dakota	Nelson	46 063	South Dakota	Harding
38 065	North Dakota	Oliver	46 065	South Dakota	Hughes
38 067	North Dakota	Pembina	46 067	South Dakota	Hutchinson
38 069	North Dakota	Pierce	46 069	South Dakota	Hyde
38 071	North Dakota	Ramsey	46 071	South Dakota	Jackson
38 073	North Dakota	Ransom	46 073	South Dakota	Jerauld
38 075	North Dakota	Renville	46 075	South Dakota	Jones
38 077	North Dakota	Richland	46 077	South Dakota	Kingsbury
38 079	North Dakota	Rolette	46 079	South Dakota	Lake
38 081	North Dakota	Sargent	46 081	South Dakota	Lawrence
38 083	North Dakota	Sheridan	46 083	South Dakota	Lincoln
38 085	North Dakota	Sioux	46 085	South Dakota	Lyman
38 087	North Dakota	Slope	46 087	South Dakota	McCook
38 089	North Dakota	Stark	46 089	South Dakota	McPherson
38 091	North Dakota	Steele	46 091	South Dakota	Marshall
38 093	North Dakota	Stutsman	46 093	South Dakota	Meade
38 095	North Dakota	Towner	46 095	South Dakota	Mellette
38 097	North Dakota	Trail	46 097	South Dakota	Miner
38 099	North Dakota	Walsh	46 099	South Dakota	Minnehaha
38 101	North Dakota	Ward	46 101	South Dakota	Moody
38 103	North Dakota	Wells	46 103	South Dakota	Pennington
38 105	North Dakota	Williams	46 105	South Dakota	Perkins
			46 107	South Dakota	Potter
			46 109	South Dakota	Roberts
			46 111	South Dakota	Sanborn
			46 113	South Dakota	Shannon
			46 115	South Dakota	Spink
			46 117	South Dakota	Stanley
			46 119	South Dakota	Sully
			46 121	South Dakota	Todd
			46 123	South Dakota	Tripp
			46 125	South Dakota	Turner
			46 127	South Dakota	Union
SOUTH DAKOTA - RM5					
46 003	South Dakota	Aurora			
46 005	South Dakota	Beadle			
46 007	South Dakota	Bennett			
46 009	South Dakota	Bon Homme			
46 011	South Dakota	Brookings			
46 013	South Dakota	Brown			
46 015	South Dakota	Brule			
46 017	South Dakota	Buffalo			
46 019	South Dakota	Butte			

46 129	South Dakota	Walworth	30 097	Montana	Sweet Grass
46 131	South Dakota	Washabaugh	30 099	Montana	Teton
46 135	South Dakota	Yankton	30 101	Montana	Toole
46 137	South Dakota	Ziebach	30 103	Montana	Treasure
			30 105	Montana	Valley
			30 107	Montana	Wheatland
			30 109	Montana	Wibaux
			30 111	Montana	Yellowstone
			30 113	Montana	Yellowstone Park
MONTANA - RM6					
30 001	Montana	Beaverhead			
30 003	Montana	Big Horn			
30 005	Montana	Blaine			
30 007	Montana	Broadwater			
30 009	Montana	Carbon			
30 011	Montana	Carter			
30 013	Montana	Cascade			
30 015	Montana	Chouteau			
31 017	Montana	Custer			
30 019	Montana	Daniels			
30 021	Montana	Dawson			
30 023	Montana	Deer Lodge			
30 025	Montana	Fallon			
30 027	Montana	Fergus			
30 029	Montana	Flat Head			
30 030	Montana	Gallatin			
30 033	Montana	Garfield			
30 035	Montana	Glacier			
30 037	Montana	Golden Valley			
30 039	Montana	Granite			
30 041	Montana	Hill			
30 043	Montana	Jefferson			
30 045	Montana	Judith Basin			
30 047	Montana	Lake			
30 049	Montana	Lewis and Clark			
30 051	Montana	Liberty			
30 053	Montana	Lincoln			
30 055	Montana	McCone			
30 057	Montana	Madison			
30 059	Montana	Meagher			
30 061	Montana	Mineral			
30 063	Montana	Missoula			
30 065	Montana	Musselshell			
30 067	Montana	Park			
30 069	Montana	Petroleum			
30 071	Montana	Phillips			
30 073	Montana	Pondera			
30 075	Montana	Powder River			
30 077	Montana	Powell			
30 079	Montana	Prairie			
30 081	Montana	Ravalli			
30 083	Montana	Richland			
30 085	Montana	Roosevelt			
30 087	Montana	Rosebud			
30 089	Montana	Sanders			
30 091	Montana	Sheridan			
30 093	Montana	Silver Bow			
30 095	Montana	Stillwater			
IDAHO - RM7					
16 001	Idaho				Ada
16 003	Idaho				Adams
16 005	Idaho				Bannock
16 007	Idaho				Bear Lake
16 009	Idaho				Benewah
16 011	Idaho				Bingham
16 013	Idaho				Blaine
16 015	Idaho				Boise
16 017	Idaho				Bonner
16 019	Idaho				Bonneville
16 021	Idaho				Boundary
16 023	Idaho				Butte
16 025	Idaho				Camas
16 027	Idaho				Canyon
16 029	Idaho				Caribou
16 031	Idaho				Cassia
16 033	Idaho				Clark
16 035	Idaho				Clearwater
16 037	Idaho				Custer
16 039	Idaho				Elmore
16 041	Idaho				Franklin
16 043	Idaho				Fremont
16 045	Idaho				Gem
16 047	Idaho				Gooding
16 049	Idaho				Idaho
16 051	Idaho				Jefferson
16 053	Idaho				Jerome
16 055	Idaho				Kootenai
16 057	Idaho				Latah
16 059	Idaho				Lemhi
16 061	Idaho				Lewis
16 063	Idaho				Lincoln
16 065	Idaho				Madison
16 067	Idaho				Minidoka
16 069	Idaho				Nez Perce
16 071	Idaho				Oneida
16 073	Idaho				Owyhee
16 075	Idaho				Payette
16 077	Idaho				Power
16 079	Idaho				Shoshone
16 081	Idaho				Teton
16 083	Idaho				Twin Falls
16 085	Idaho				Valley

16 087 Idaho Washington

OREGON - RM8

41 001 Oregon Baker
41 003 Oregon Benton
41 005 Oregon Clackamas
41 007 Oregon Clatsop
41 009 Oregon Columbia
41 011 Oregon Coos
41 013 Oregon Crook
41 015 Oregon Curry
41 017 Oregon Deschutes
41 019 Oregon Douglas
41 021 Oregon Gilliam
41 023 Oregon Grant
41 025 Oregon Harney
41 027 Oregon Hood River
41 029 Oregon Jackson
41 031 Oregon Jefferson
41 033 Oregon Josephine
41 035 Oregon Klamath
41 037 Oregon Lake
41 039 Oregon Lane
41 041 Oregon Lincoln
41 043 Oregon Linn
41 045 Oregon Malheur
41 047 Oregon Marion
41 049 Oregon Morrow
41 051 Oregon Multnomah
41 053 Oregon Polk
41 055 Oregon Sherman
41 057 Oregon Tillamook
41 059 Oregon Umatilla
41 061 Oregon Union
41 063 Oregon Wallowa
41 065 Oregon Wasco
41 067 Oregon Washington
41 069 Oregon Wheeler
41 071 Oregon Yamhill

WASHINGTON - RM9

53 001 Washington Adams
53 003 Washington Asotin
53 005 Washington Benton
53 007 Washington Chelan
53 009 Washington Clallam
53 011 Washington Clark
53 013 Washington Columbia
53 015 Washington Cowlitz
53 017 Washington Douglas
53 019 Washington Ferry
53 021 Washington Franklin
53 023 Washington Garfield
53 025 Washington Grant

53 027 Washington Grays Harbor
53 029 Washington Island
53 031 Washington Jefferson
53 033 Washington King
53 035 Washington Kitsap
53 037 Washington Kittitas
53 039 Washington Klickitat
53 041 Washington Lewis
53 043 Washington Lincoln
53 045 Washington Mason
53 047 Washington Okanogan
53 049 Washington Pacific
53 051 Washington Pend Oreille
53 053 Washington Pierce
53 055 Washington San Juan
53 057 Washington Skagit
53 059 Washington Skamania
53 061 Washington Snohomish
53 063 Washington Spokane
53 065 Washington Stevens
53 067 Washington Thurston
53 069 Washington Wahkiakum
53 071 Washington Walla Walla
53 073 Washington Whatcom
53 075 Washington Whitman
53 077 Washington Yakima

LOS ANGELES-SOUTH COAST AIR BASIN
NONATTAINMENT AREA - FW1

06 037 California Los Angeles
06 053 California Monterey
06 059 California Orange
06 065 California Riverside
06 069 California San Benito
06 071 California San Bernardino
06 087 California Santa Cruz

SAN DIEGO NONATTAINMENT AREA - FW2

06 073 California San Diego

VENTURA COUNTY NONATTAINMENT AREA
FW3

06 111 California Ventura

SACRAMENTO METRO NONATTAINMENT
AREA FW4

06 017 California El Dorado
06 061 California Placer
06 067 California Sacramento
06 095 California Solano
06 101 California Sutter
06 113 California Yolo

SAN JOAQUIN VALLEY NONATTAINMENT

AREA - FW5

06 019	California	Fresno
06 029	California	Kern
06 031	California	Kings
06 039	California	Madera
06 047	California	Merced
06 077	California	San Joaquin
06 099	California	Stanislaus
06 107	California	Tulare

32 011	Nevada
32 013	Nevada
32 015	Nevada
32 017	Nevada
32 019	Nevada
32 021	Nevada
32 023	Nevada
32 027	Nevada
32 029	Nevada
32 031	Nevada
32 033	Nevada

Eureka
Humboldt
Lander
Lincoln
Lyon
Mineral
Nye
Pershing
Storey
Washoe
White Pine

ATTAINMENT PORTION OF CALIFORNIA FW6

06 001	California	Alameda
06 003	California	Alpine
06 005	California	Amador
06 007	California	Butte
06 009	California	Calaveras
06 011	California	Colusa
06 013	California	Contra Costa
06 015	California	Del Norte
06 021	California	Glenn
06 023	California	Humboldt
06 025	California	Imperial
06 027	California	Inyo
06 033	California	Lake
06 035	California	Lassen
06 041	California	Marin
06 043	California	Mariposa
06 045	California	Mendocino
06 049	California	Modoc
06 051	California	Mono
06 055	California	Napa
06 057	California	Nevada
06 063	California	Plumas
06 075	California	San Francisco
06 079	California	San Luis Obispo
06 081	California	San Mateo
06 083	California	Santa Barbara
06 085	California	Santa Clara
06 089	California	Shasta
06 091	California	Sierra
06 093	California	Siskiyou
06 097	California	Sonoma
06 103	California	Tehama
06 105	California	Trinity
06 109	California	Tuolumne
06 115	California	Yuba

ARIZONA FW8

04 001	Arizona
04 003	Arizona
04 005	Arizona
04 007	Arizona
04 009	Arizona
04 011	Arizona
04 013	Arizona
04 015	Arizona
04 017	Arizona
04 019	Arizona
04 021	Arizona
04 023	Arizona
04 025	Arizona
04 027	Arizona

Apache
Cochise
Coconino
Gila
Graham
Greenlee
Maricopa
Mohave
Navajo
Pima
Pinal
Santa Cruz
Yavapai
Yuma

NEVADA - FW7

32 510	Nevada	Carson City
32 001	Nevada	Churchill
32 003	Nevada	Clark
32 005	Nevada	Douglas
32 007	Nevada	Elko
32 009	Nevada	Esmeralda

APPENDIX B

FILE FORMATS FOR E-GAS VEHICLE VMT INPUT

E-GAS VEHICLE MILES Traveled (VMT) INPUT FILE FORMAT

Filename: chosen by user

1. For one growth factor for all VMT SCCs.

FORMAT:

STATE COUNTY YEAR FACTOR

2. For one growth factor for each road type.

FORMAT:

STATE COUNTY YEAR ROAD TYPE FACTOR

ROAD TYPE CODES:

11 - Interstate - Rural
13 - Other principal arterial - Rural
15 - Minor Arterial - Rural
17 - Major Collector - Rural Total
19 - Minor Collector - Rural Total
21 - Local Rural
23 - Interstate - Urban
25 - Other freeways and expressways - Urban
27 - Other principal arterial - Urban
29 - Minor arterial Urban
31 - Collector - Urban
33 - Local - Urban

3. For one growth factor for each road and vehicle type combination.

FORMAT:

STATE COUNTY YEAR ROAD TYPE VEHICLE TYPE FACTOR

ROAD TYPE CODES:

11 - Interstate - Rural
13 - Other principal arterial - Rural
15 - Minor Arterial Rural
17 - Major Collector - Rural Total

19 - Minor Collector - Rural Total
21 - Local Rural
23 - Interstate Urban
25 - Other freeways and expressways Urban
27 - Other principal arterial Urban
29 - Minor arterial Urban
31 - Collector - Urban
33 - Local Urban

VEHICLE TYPE CODES:

1001 - Light duty gasoline vehicle
1020 - Light duty gasoline truck 1
1040 - Light duty gasoline truck 2
1060 - Light duty gasoline truck total
1070 - Heavy duty gasoline vehicle
0001 - Light duty diesel vehicle
0060 - Light duty diesel truck
0070 - Heavy duty diesel vehicle

where:	STATE	=	2-digit Federal Information Processing Standard (FIPS) code
	COUNTY	=	3-digit FIPS code
	YEAR	=	4-digit year
	ROAD TYPE	=	2-digit road type code
	VEHICLE TYPE	=	4-digit vehicle type code
	FACTOR	=	Growth Factor (e.g., .1, 1.1, 1.12, 1.123, etc.)

NOTE: When creating this file, at least one space must exist between each field. Since the system is capable of handling floating decimal points, the growth factor character length and position of the decimal is flexible. In addition, do not use the following file names when creating the VMT file: VMT_OUT.DAT or VMT_OUT.SCC. These file names are created by the system when processing either the EGAS default VMT data or when processing user supplied VMT data. Using these file names could cause a loss of data or could cause the system to crash.

APPENDIX C
E-GAS OUTPUT FILES

STANDARD E-GAS OUTPUT	FILENAME.EXTENSION
Commercial Fuel Combustion File	COMM FUEL.SCC
Electric Utility Fuel Combustion File	ELECTRIC.SCC
Industrial Fuel Combustion File	IND FUEL.SCC
Miscellaneous Point and Area Source Processes File	OTHER.SCC
Point Source and Area Source Processes (Manufacturing) File	PHY.SCC
Residential Fuel Combustion File	RES FUEL.SCC
Mobil Source (VMT) File	VMT OUT.SCC

EPS OUTPUT	FILENAME.EXTENSION
Point Source File	PROJECT.PTS
Area/Mobile Source File	PROJECT.AMS

2-DIGIT SIC OUTPUT	FILENAME.EXTENSION
Commercial Fuel Combustion File	COM FUEL.SIC
Electric Utility Fuel Combustion File	ELECTRIC.SIC
Industrial Fuel Combustion File	IND FUEL.SIC
Point Source and Area Source Processes (Manufacturing) File	PHY.SIC

APPENDIX D

BEA MODULE MESSAGE AND OUTPUT FILES

BEA MODULE MESSAGE

The utility you have selected to use to develop growth factors for your geographic area is the BEAFAC program from the Urban Airshed Model(UAM)/Regional Oxidant Model (ROM) Emissions Preprocessor System (EPS). This program is a linear interpolation of the projected data points provided by the Bureau of Economic Analysis (BEA). The BEAFAC program does not allow any user options (e.g., selection of a national macroeconomic forecast).

This utility does not input/output any of its economic data to or through the REMI models or any part of the main E-GAS model. There are in fact no economic modeling interactions between this utility and the rest of E-GAS.

Currently, the data provided by the BEA is from their projections released in August 1990 and the latest historical year included in the forecast is 1988.

The following assumptions are made within this utility:

1. Basis for the linear interpolation is earnings growth by 2-digit SIC by State.
2. Projections have been developed for the years 1990 - 2015.
3. Geographic detail is at the State-level only.
4. As a convenience to the user, these State-level projections are crosswalked to all counties within a State. However, growth is uniform across the State due to the level of detail that is available from BEA.
5. The growth from these 2-digit SICs are crosswalked to SCCs based on the crosswalk developed for the main E-GAS model.
6. The same growth factors used for the manufacturing SCCs are used for the associated fossil fuel SCCs. That is to say, as the growth in SIC 29 goes, so goes the growth in its associated fossil fuel consumption.

This utility does not use any input/output from the main E-GAS fossil fuel models, HOMES, CSEMS, INRAD, and EUMOD.

The VMT module cannot be accessed within this BEA utility. You must run the main E-GAS model to obtain VMT growth factors.

Two output options are available. These are ASCII text files -- a standard SCC output similar to the Standard E-GAS output and an SIC output. An EPS output option is not provided within this utility. Both the SCC and SIC output use the same file naming convention (see the table below).

BEA OUTPUT FILES

BEA OUTPUT	FILENAME.EXTENSION
Commercial Fuel Combustion File	COMM FUEL.BEA
Electric Utility Fuel Combustion File	ELECTRIC.BEA
Industrial Fuel Combustion File	IND FUEL.BEA
Miscellaneous Point and Area Source Processes File	OTHER.BEA
Point Source and Area Source Processes (Manufacturing) File	PHY.BEA
Residential Fuel Combustion File	RES FUEL.BEA

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. EPA-600/R-95-132b		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Economic Growth Analysis System: User's Guide, Version 3.0				5. REPORT DATE August 1995	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) Terri Young				8. PERFORMING ORGANIZATION REPORT NO. CH-95-51	
9. PERFORMING ORGANIZATION NAME AND ADDRESS TRC Environmental Corporation 6340 Quadrangle Drive, Suite 100 Chapel Hill, North Carolina 27514				10. PROGRAM ELEMENT NO.	
				11. CONTRACT/GRANT NO. 68-D2-0181, Task 2/019	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Air Pollution Prevention and Control Division Research Triangle Park, NC 27711				13. TYPE OF REPORT AND PERIOD COVERED Task Final; 10/94 - 6/95	
				14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES APPCD project officer is E. Sue Kimbrough, Mail Drop 62, 919/541-2612. This volume cancels and supersedes EPA-600/R-94-139b. The full report consists of two volumes and 39 related disks.					
16. ABSTRACT The two-volume report describes the development of, and provides information needed to operate, the Economic Growth Analysis System (E-GAS) Version 3.0 model. The model will be used to project emissions inventories of volatile organic compounds (VOCs), oxides of nitrogen (NOx), and carbon monoxide (CO) for ozone nonattainment areas and Regional Oxidation Model (ROM) modeling regions. The report details the design and development of E-GAS and includes detailed descriptions of the workings of the E-GAS computer modeling software components and external software. The system is an economic and activity forecast model that translates the user's assumptions regarding regional economic policies and resource prices into Source Classification Code (SCC) level growth factors. The report provides E-GAS users with sufficient background information to understand the model's construction, as well as the procedures and syntax necessary to operate the system. The organization of the user's guide is determined by the process used in operating the system, providing images of sample screens as well as text.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
Pollution	Inventories	Pollution Control		13B	15E
Economics	Nitrogen Oxides	Stationary Sources		05C	07B
Growth	Carbon Monoxide	Volatile Organic Compounds (VOCs)		06P, 06C	
Analyzing	Ozone			14B	
Mathematical Models	Volatility			12A	20M
Emission	Organic Compounds			14G	07C
18. DISTRIBUTION STATEMENT Release to Public		19. SECURITY CLASS (This Report) Unclassified		21. NO. OF PAGES 89	
		20. SECURITY CLASS (This page) Unclassified		22. PRICE	