

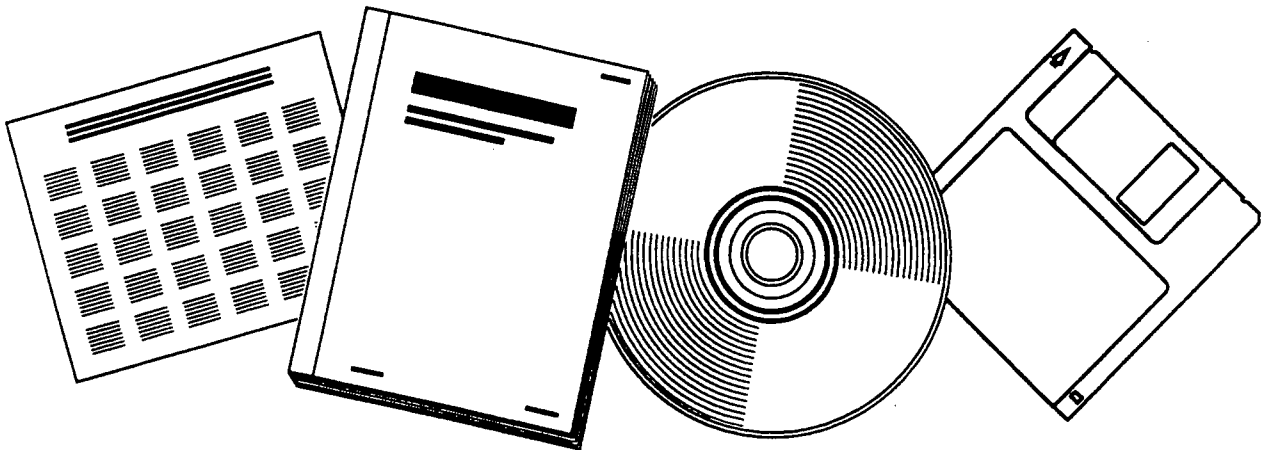


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**CTPP HANDBOOK: AN INSTRUCTIONAL GUIDE
TO THE 1990 CENSUS TRANSPORTATION
PLANNING PACKAGE**

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**U.S. DEPARTMENT OF COMMERCE
National Technical Information Service**



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CTPP

Handbook

An Instructional Guide to the 1990 Census Transportation Planning Package

February 1995



U.S. Department of Transportation
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16. Abstract <p>This handbook is designed for technical staff as an instructional guide to the 1990 Census Transportation Planning Package (CTPP) and its potential uses. The CTPP contains 1990 social and economic data by place of residence, place of work, and journey to work, at various levels of detail and geography. The CTPP is the largest national sample of commuter travel characteristics, and is available for each state and metropolitan area in the U.S.</p> <p>This handbook gives users an overview of the CTPP, and includes discussions of basic Census definitions and CTPP organization into tables and parts. Users are also oriented in: preparing to use the CTPP for analysis; the potential for applying the CTPP to transportation planning; conducting reasonableness checks of the data; using the CTPP in travel demand forecasting; and accessing CTPP tables and technical assistance.</p> <p>Self instructional case studies are also included which make use of simple spreadsheets and provide hands-on experience with concepts and potential uses of the CTPP data.</p>					
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INTRODUCTION

The purpose of this handbook is to provide an instructional guide to the 1990 Census Transportation Planning Package (CTPP) and its potential uses for transportation planners and others involved in Census data analyses. The CTPP is the largest national sample of commuter travel characteristics available, and contains social and economic data for both the Place of Residence and Place of Work. This handbook is designed to complement other efforts by the Census Bureau and the U.S. Department of Transportation to provide training and guidance on the uses of the CTPP. Several other agencies and organizations have supported the development of the CTPP and related products, including the National Association of Regional Councils (NARC), the American Association of State Highway and Transportation Officials (AASHTO) and individual State Departments of Transportation.

A brochure and video have been prepared that are designed primarily for those managers and officials who would like to find out more about the CTPP and its uses. The focus of these products is to indicate the many ways in which CTPP tabulations can be used in transportation planning applications. This handbook differs from the brochure and video in that it is intended to provide a self-instructional guide to planners and technical analysts who use the CTPP. Two case studies (Travel Demand Characteristics by Urban Area Size and Assessing Commuter Bus Service), are contained in this handbook to provide insight into the practical applications of the data.

Organization of the Handbook

This handbook is primarily intended for technical staff members who elect to find out more detailed information about the CTPP and its applications and those who could not attend the three-day workshops sponsored by the Federal Highway Administration (FHWA) and National Highway Institute (NHI) from 1992 to 1994. This handbook summarizes the content and substance of those workshops, including potential CTPP applications.

Chapter 1 of the handbook gives an **Overview** of the 1990 CTPP, with an explanation of key Census terms, and identifies special features that differentiate it from other Census products. **Chapter 2** discusses the CTPP organization and the geographic levels at which the data are summarized. Guidelines are provided about how to prepare for analysis using the CTPP. The chapter contains the two case studies. A series of spreadsheet templates are provided with the case studies to show how the data can be used in various kinds of analyses. **Chapter 3** indicates the types of checks that you will want to make on CTPP tabulations as you review the data, including some considerations to make before using the CTPP for travel demand forecasting and direct analysis. The chapter also briefly introduces the Windows-based TransVU software that has been distributed by the U.S. DOT's Bureau of Transportation Statistics (BTS) and the Census Bureau to extract the information needed from the rather large CTPP tabulations contained on CD-ROM. Finally, the **Appendices** contain additional background information on the available CTPP tables and Census questionnaire.

CHAPTER 1

OVERVIEW OF THE CTPP

What is the CTPP?

The 1990 Census Transportation Planning Package (CTPP) is a collection of summary tables that have been generated from both the 1990 Census short and long forms. The tables contain information about population and household characteristics, worker characteristics and characteristics of the Journey-to-Work (JTW). The tables provided in the CTPP are similar in format and content to those available in other Census products. It should be noted that the CTPP does not contain raw Census information; rather the information provided, as with all other Census products, has been organized into a series of tables. The tables contained in the CTPP cannot be disaggregated; however, they can be combined to conduct a variety of analyses. In fact, the CTPP tables have been designed specifically for transportation planning analysis based on extensive input from transportation professionals representing various agencies from across the country. However, upon reviewing the available tables, you may note that there are numerous applications for the CTPP outside transportation planning.

Census Definitions

Before proceeding, it is important to become familiar with the terminology used in the CTPP and other Census products. The following key terms are used throughout this handbook and in conjunction with the use of Census data; those marked with an asterisk are Census-specific:

- Census Long Form* - Sampled data collected from about one in six households (more in rural areas, less in densely developed urban areas). The long form is the source of some population and economic data, and all Journey-to-Work data. (See Appendix.)
- Census Short Form* - Used in the 100 percent count of all persons. A source of total population, race, sex, age, and some housing data, including type of structure, units in structure and value of home or monthly rent. (See Appendix.)
- Geographic Information System (GIS) - An organized collection of computer hardware, software and geographic data designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced information.

- **Geographic Summary Level*** - The geographic location at which CTPP data are tabulated (e.g., state, county, place or traffic analysis zones/census tracts).
- **Group Quarters*** - Communal housing, such as dormitories, military bases, prisons and nursing homes. Group quarters are distinct from *households* in the CTPP.
- **Home-Based Work Trip (HBW)** - A travel demand forecasting term that refers to the two-way work trip (including *journey-to-work* and *journey-from-work*).
- **Journey-to-Work (JTW)*** - The one-way trip from home to work, or a commuter trip. Also called "worker flows." Collected from the Census long form.
- **Nationwide Personal Transportation Study (NPTS)** - A periodic telephone survey of 20,000 households also conducted in 1990. Includes data about all trips and travel modes used in survey households.
- **Place*** - Defined by the Census Bureau as having a population of 2,500 or more. Also known as a Census-Defined Place (CDP). Cities, towns and villages are all 'places.'
- **Place of Residence*** - The location at which Census respondents said they lived at the time the Census was taken (April 1990). Household and economic characteristics are summarized by residence location. Taken from all Census respondents (short form).
- **Place of Work*** - The location at which Census respondents said they worked. Worker characteristics summarized by work place location. This information is taken from sampled data (long form).
- **Statewide Element*** - The CTPP is divided into two main groupings of the data, based on the level at which the data are geographically summarized. The Statewide Element consists of data summaries for the entire state, county totals for each county within the state and place totals for each place within a county.
- **Summary Tape Files (STF)*** - Data from 1990 Census Long and Short Forms on 9-track computer tape. Summarized by block, block group and zip code. Includes Place of Residence data.

- TIGER*

 - Topologically Integrated Geographic Encoding and Referencing System. Nationwide database containing roads, water boundaries and Census geography (tracts and block groups). Used as a base in many GIS applications.

- Traffic Analysis Zones (TAZ)*

 - Level of geographic detail used in most transportation planning applications to summarize socio-economic characteristics and travel data. TAZs vary in size depending on density and homogeneity of land uses, and are defined by local agencies.

- Travel Shed

 - A term used to describe a relatively distinct geographic area served by a key transportation system component, such as a transit line.

- Trip Chaining

 - A term used to refer to the phenomenon of making intermediate stops as part of a longer trip. For example, stopping at a convenience store or the day care center as part of the trip from home to work. Chained trips were not reported in the 1990 Census, and therefore, are not reflected in the Journey-to-Work data.

- Universe*

 - The unit being measured in the CTPP tables (e.g., Workers 16 years and over). The tables often define the characteristics of the universe by other variables, such as means of transportation to work, age or income. These are called **cross-tabulations**.

- Urban Element*

 - The Urban Element contains a more detailed summary of Census data for urbanized areas (50,000 population or more). Data are summarized at the Census tract or Traffic Analysis Zone (TAZ) level. Totals are also provided for the urbanized area, the Metropolitan Statistical Area (MSA) and special study areas (if defined).

Unique Features of the CTPP

Similarities exist between the CTPP and other Census products, such as STF (Summary Tape File) 3A. Notable differences also exist. First, the CTPP is the only Census product that summarizes tables by Place of Work and by Place of Residence. All other Census products provide information by Place of Residence only. Place of Work tabulations can be extremely helpful in determining where concentrations of workers are located and the characteristics of those workers, as stratified by work place location. For example, the CTPP provides information about the characteristics of people who work within a Central Business District or other major employment areas under analysis. It will also provide characteristics of the work force for towns, cities, counties and states. Because the CTPP provides the only summary of worker characteristics by Place of Work, it will be of use to those outside the transportation planning profession as well.

CTPP TABLE 2-3
WORKERS BY INDUSTRY
Number of Cells = 3*19=57

Import area(s)			TAZ	TAZ	TAZ	TAZ	TAZ
Strat1	Strat2	TOTAL	1	2	3	4	5
Total	Total	87104	41527	31145	11335	561	2536
Agriculture, Forestry, Fisheries	Total	159	21	35	103	0	0
Mining	Total	0	0	0	0	0	0
Construction	Total	4395	1852	1389	897	103	154
Manufacturing, Nondurable	Total	7928	139	5151	2602	0	36
Manufacturing, Durable	Total	9276	209	7726	1341	0	0
Transportation	Total	1981	526	1318	65	0	72
Communication, Utilities	Total	2017	430	1078	53	65	391
Wholesale Trade	Total	2995	962	1659	209	21	144
Retail Trade	Total	8703	6374	1987	34	233	75
Finance, Insurance, Real Estate	Total	9478	9034	364	0	36	44
Business and Repair Service	Total	2738	1267	321	1122	18	10

Exhibit 1-1

Exhibit 1-1 shows how Place of Work data may be summarized. In the example, a study area consisting of five TAZs has been created to identify the characteristics of workers who commute **to** the study area. The CTPP table used here reports the total number of workers in each industry for each of the five TAZs. Understanding the number of workers by industry could help to assess the need for commuter bus service to the area, for example, especially if bus ridership in the area is connected to certain industry segments of the workforce. Other CTPP tables can also be used to examine time of arrival at work and travel time by mode to the five TAZs in the example, and so that further analysis can be conducted.

The CTPP is the only source of JTW information available from the Census Bureau. Detailed information about the commute trip from home to work is provided, allowing the user to obtain such information as the **origin and destination** of each commuting trip, the **travel time** of the trip, the **travel mode** used for the trip and **when the trip began or ended**. This information will be helpful in both travel demand modeling and in assessing the effectiveness of transportation programs designed primarily for commuters. Another distinction of the CTPP from data sources is the summary of information by TAZ. Most Metropolitan Planning Organizations (MPOs) developed Census geography and TAZ equivalencies which were used by the Census Bureau to summarize tables by TAZ as opposed to Census block groups or Census tracts. This will enable those MPOs directly to introduce CTPP information into their land use data files (as used in travel demand forecasting models); most MPOs have indicated that this will be their primary use of the CTPP. However, as will be indicated throughout this handbook, the CTPP has a number of other applications that are of benefit to CTPP users.

Exhibit 1-2 presents a summary of the types of tabulations available in the CTPP. The Place of Residence tabulations report the characteristics of persons, households, and workers by where they live. The Place of Work data summarize information about workers (such as industry, sex, time of arrival at work, etc.) by where they work. The Journey to Work (JTW) data provide travel characteristics about the trip from home to work, including persons per vehicle, travel time in minutes and travel mode used.

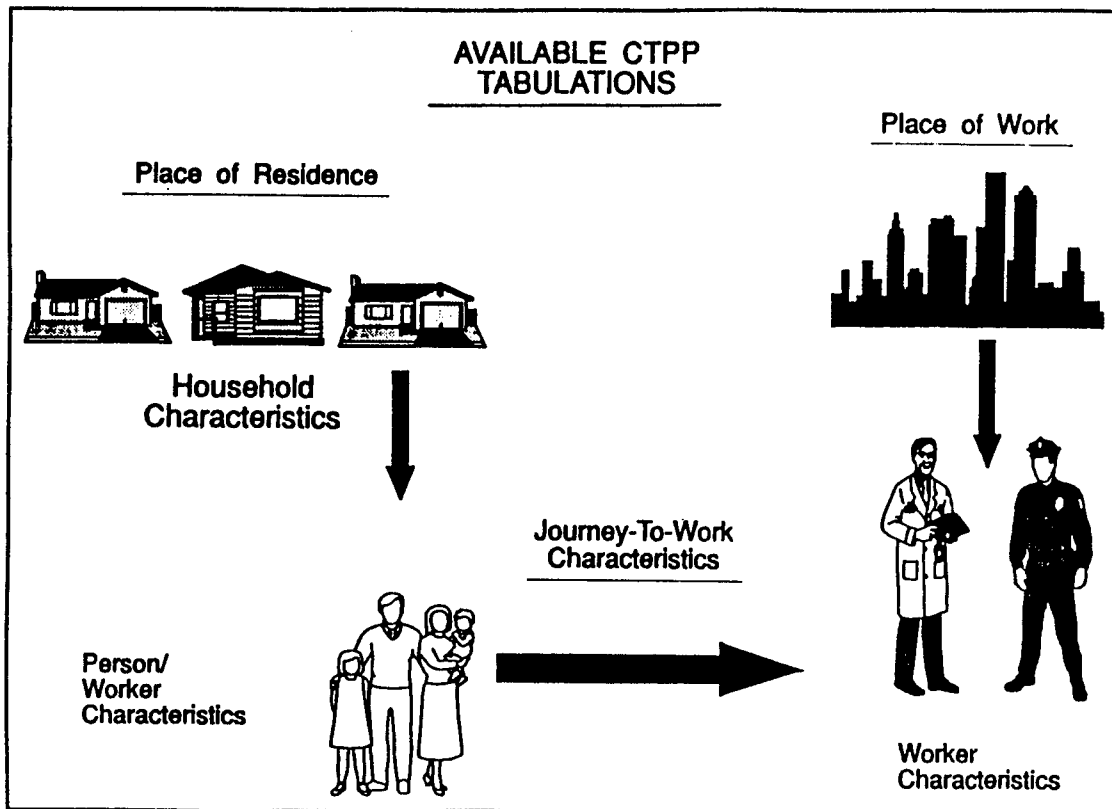


Exhibit 1-2

CHAPTER 2

ORGANIZATION OF THE CTPP

Introduction

The CTPP tables are organized into a series of parts contained within two elements. The *elements* define the geographic summary level. The *parts* define whether the tables are summarizing information by Place of Residence, Place of Work or Journey-to-Work. This chapter describes what is included in each of the two elements, and in the several parts contained within these elements.

CTPP Elements

As noted above, the CTPP is divided into two elements: the Statewide Element and the Urban Element. The *Statewide Element* provides data summaries for all places of 2,500 or more population, the balance of the county (non-incorporated county totals), the county as a whole, and the entirety of the state. Note that "places" are incorporated municipalities or Census-defined places (a listing of all incorporated or Census-defined places is available from the Census Bureau). The 1990 CTPP represents the first time that a Statewide Element has been created, allowing planners to analyze travel across a wide geographic range. In previous years, only an urbanized area package was created. This traditional urbanized area package is what constitutes the *Urban Element* in the 1990 CTPP. The Urban Element provides data summaries for urbanized areas with a population of 50,000 or more, and provides information at the Census tract or the TAZ level.

The Statewide Element is used to identify travel characteristics for cities with different sizes and economies. For example, the Statewide Element makes it relatively easy to identify the mode share for transit work trips as a percentage of total JTW travel within a city because travel characteristics information is reported as a total for the place, the county or the state. The Statewide Element could also be used to identify work trip rates per household for each place. The Urban Element, on the other hand, would be most appropriate when looking at the travel mode share within a corridor that connects an outlying suburb with a major employment center. This is because data contained in the Urban Element are summarized at a finer level of detail (e.g., TAZs).

Statewide Element

Exhibit 2-1 illustrates the summaries that are available in the Statewide Element (i.e., Place of Residence, Place of Work and Journey-to-Work). The exhibit shows that totals are provided by Place (e.g., a city or township) and for the balance of the county, each county overall, and for the state as a whole. The arrows show the JTW flows reported in the Statewide Element. The CTPP provides information on worker travel flows

from (i) Place A to Place B, (ii) County 1 to Place B, (iii) County 1 to County 2, and (iv) Place A to County 2.

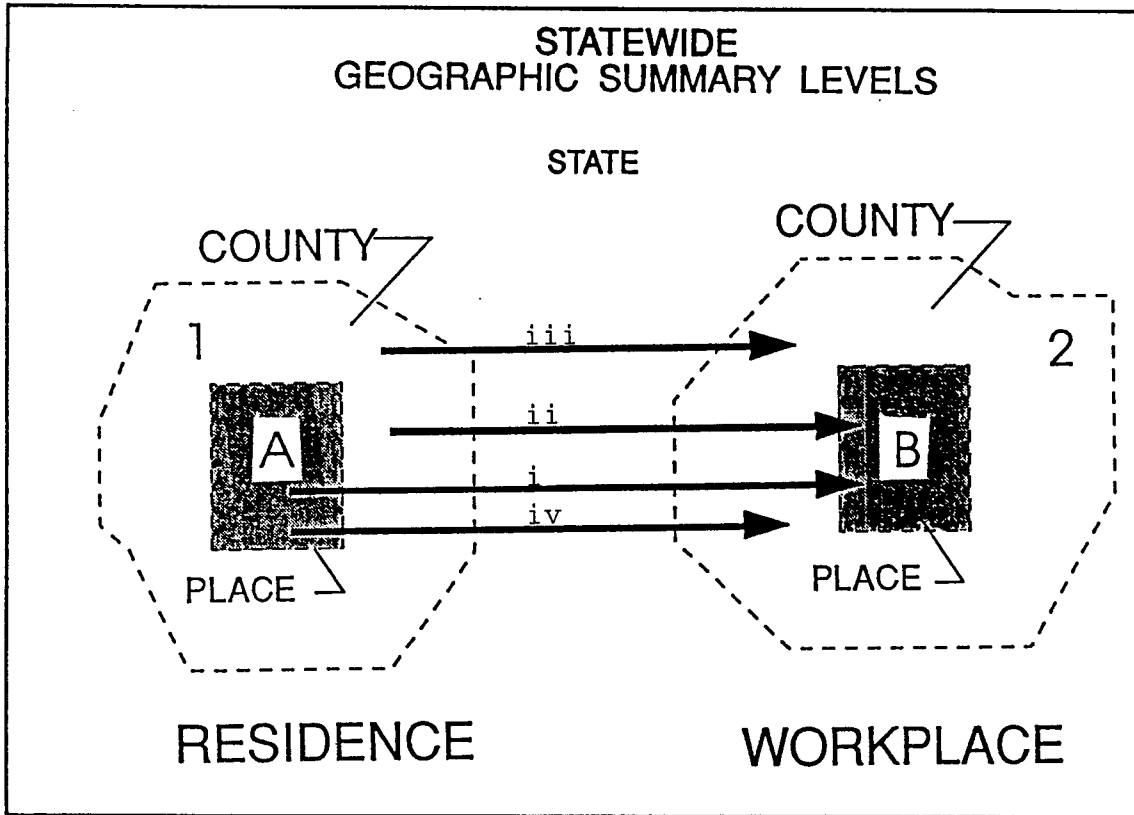


Exhibit 2-1

Of interest in the Statewide Element are the types of JTW tabulations available for all places greater than 2,500 population and all counties within the state. In most states, there are quite a few places of 2,500 or more population. Depending on the number of places and counties within the state, the Statewide Element can provide a high degree of detail for JTW flow characteristics. Even within an urban area, the Statewide Element can provide detailed information about JTW flows for suburb-to-suburb travel and from outlying cities into a major city. The Statewide Element can also be used as a resource to identify population, housing, workplace and JTW **control totals** within an urban area.

Urban Element

The Urban Element provides summaries for Traffic Analysis Zones (or census tracts, for those MPOs that chose not to provide Census geography/TAZ equivalencies), subtotals for the urbanized area defined by the Census Bureau, study area (as defined by the MPO) and for the entire metropolitan statistical area, as defined by the Census Bureau.

Exhibit 2-2 illustrates the types of summaries that are available in the Urban Element of the CTPP. In the exhibit, the urban area crosses a state boundary. The Urban Element of the CTPP addresses this situation by providing detailed JTW characteristics for the entire metropolitan area, despite state lines. In a manner similar to the Statewide Element, residence and workplace summaries are available for individual TAZs, as well as for the urbanized area defined by the Census Bureau, and a total for the entire MSA.

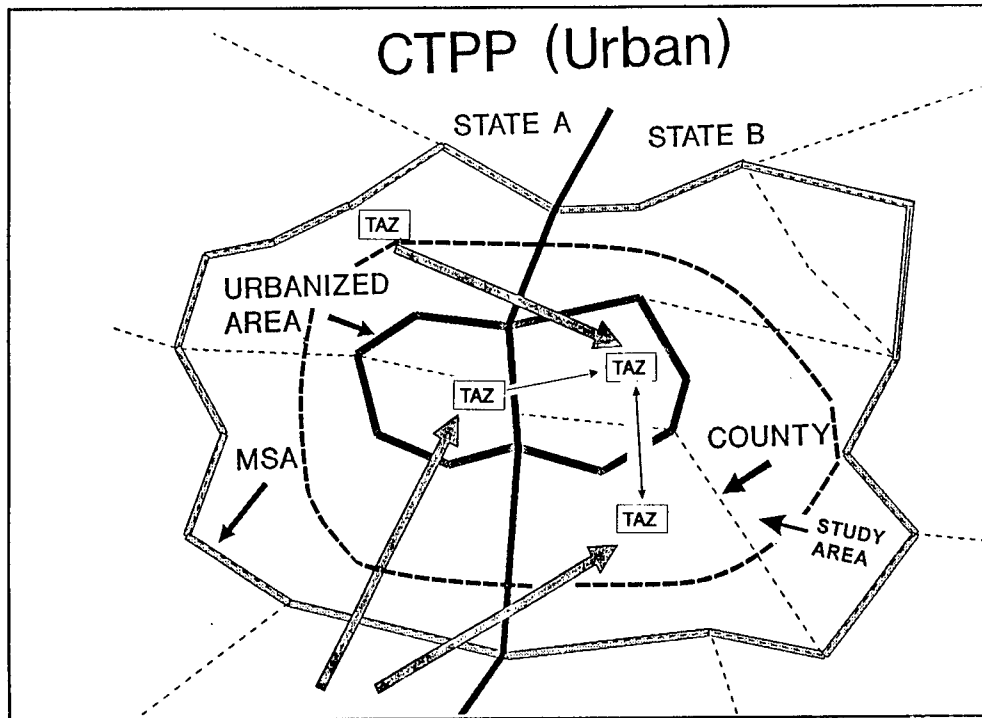


Exhibit 2-2

JTW flow information will be available among all defined TAZs within the MSA and between internal TAZs and external counties and places. It should be emphasized that travel flows are available within the MSA among all defined TAZs, despite the state or county in which each TAZ is located.

CTPP Parts

Each element of the CTPP is divided into several parts. The Statewide Element is divided into Parts A-F, and the Urban Element is divided into Parts 1-8 (note that the Census Bureau did not use "Part 5" in its numbering scheme for the Urban Element). Each part contains a collection of tables that define the population or households by Place of Residence, Place of Work or by the characteristics of the JTJW. For example, **Part A of the Statewide Element** contains tables that describe **population and household** characteristics by Place of Residence. Turn now to Appendix A, which contains a listing

of the CTPP tables in Parts A, B, and C of the Statewide Element. In Appendix A, the outline for **Table A-1** identifies population within a place or county. Similarly, the outline for **Table A-4** identifies household data for a place, county, or state.

Part B in the Statewide Element contains tables that define **workers** by Place of Work. This part would be helpful to identify the characteristics of workers within each place or county. Note that in Part B, some of those workers may actually have their residence in another city or county. When reviewing each part, you will notice that there are tables provided in Part A of the Statewide Element that describe worker characteristics. These tables differ from those available in Part B, in that Part A describes the workers by where they **live** and Part B describes the workers by where they **work**.

Part C of the Statewide Element contains tables that describe the characteristics of the **Journey-to-Work**. For example, the outline for **Table C-1** in Appendix A, which identifies the means of transportation to work, shows how Part C can be used to identify the total number of work trips made by travel mode for each Census-defined place within a particular state.

Turn again to Appendix A and note that **Parts 1, 2 and 3 of the Urban Element** contain the same table variables that are provided in Parts A, B and C of the Statewide Element. The difference between the parts of the two elements is the geographic level of detail at which the data are summarized. The Statewide Element includes summaries by place, balance of county, county and state; Parts 1, 2 and 3 of the Urban Element provide table summaries by TAZ or census tract, urbanized area, study area and MSA.

The remaining parts in the Statewide and Urban Elements are **specialized tabulations** created to provide greater detail for household, place of work and worker flow information. These specialized parts are only available for very large areas to avoid problems caused by confidentiality concerns and large table sizes. For the Statewide Element, specialized tabulations are available only for places and counties with 75,000 or more population. Within the Urban Element, specialized tabulations are available within super districts of 100,000 or more population. The exception in the Urban Element is Part 7, which is a Place of Work summary available by Census Tract. This part is intended primarily for non-transportation users who would like to get Census information by typical Census geography.

CTPP Tables

As noted in the Introduction, the CTPP is a collection of summary tables that cannot be disaggregated. The table structure has been defined by transportation practitioners on the Transportation Research Board's Committee on Data Collection and Information Systems, the Federal Transit Administration, the Federal Highway Administration and the Census Bureau. Two prominent issues defining the selected table designs were

confidentiality and size. The Census Bureau has strict requirements regarding confidentiality that can be violated by either presenting information at a very detailed geographic level, (e.g., blocks) or by providing too much detail about population or household characteristics at larger geographic areas. Furthermore, when three or more cross-tabulations of data are combined, tables become quite large and difficult to manage. Therefore, tables for smaller geographic summary levels such as TAZs include limited amounts of household or population characteristics detail. Several tables can be combined to obtain a complete picture of the geographic area's characteristics, however. The tables for the specialized parts, as mentioned above, were developed to help address this issue.

Most of the information for the CTPP is developed from questions on the Census long form. The long form was completed by about **one in six households** in the country, with a sampling rate that varied by the type of area. Rural areas had up to a one in two sampling rate, while some urban areas had as low as a one in 20 sampling rate. A lower sampling rate is needed in urban areas because of the likelihood of homogeneous socio-economic and travel characteristics in dense communities.

EXAMPLE TABULATION

CTPP Table A-6 or (1-6), Persons by Sex and Age

Cross Tabulation #2 Age (Census Question #5a)		Cross Tabulation #1 Sex (Census Question #3)		
		Total	Male	Female
Total	xx	xx	xx	
Under 16	xx	xx	xx	
16, 17	xx	xx	xx	
18-20	xx	Universe - Persons		
21-24	xx			
25-34	xx	xx	xx	
35-44	xx	xx	xx	
45-54	xx	xx	xx	
55-61	xx	xx	xx	
62-64	xx	xx	xx	
65-75	xx	xx	xx	
75+	xx	xx	xx	

Number of Cells = 3 Sex Categories * 12 Age Categories = 36

Note: Age has been classified into categories

All of the tables provided in the CTPP have the same general structure. As illustrated in **Exhibit 2-3**, each CTPP table is defined by a universe and one or more cross-tabulation variables. In the example, the number of persons is the **universe** and age and sex are the **cross-tabulation** variables used to define persons. All CTPP tables provide universe totals (in this example, it would be total persons) as well as totals for each of the cross-classification categories used (for example, total males or total females).

Exhibit 2-3

The tables then define the population by each of the cross-tabulation categories. In this particular example, if the analyst needed to find out the total number of males between the ages of 21 and 24, it is provided within the table.

Another dimension to all of the tables is the geographic summary level. In Exhibit 2-3, the summary level could be TAZs or counties, depending on whether you are in the Urban Element (Table 1-6) or the Statewide Element (Table A-6). A table that describes the population by sex and age will be available within the CTPP's Urban Element for every TAZ within the urban area. Similarly, for all places and counties, a separate CTPP table is provided in the Statewide Element that defines persons by these same characteristics of sex and age. Finally, the example shows the source of the information. In this example, Question No. 3 on the Census short form provides information about gender. Age categories are developed from responses to Question 5A on the Census short form. To make the connection between CTPP tabulations and the questionnaire used to collect the information, both the Census short and long forms are provided in the Appendix of this handbook.

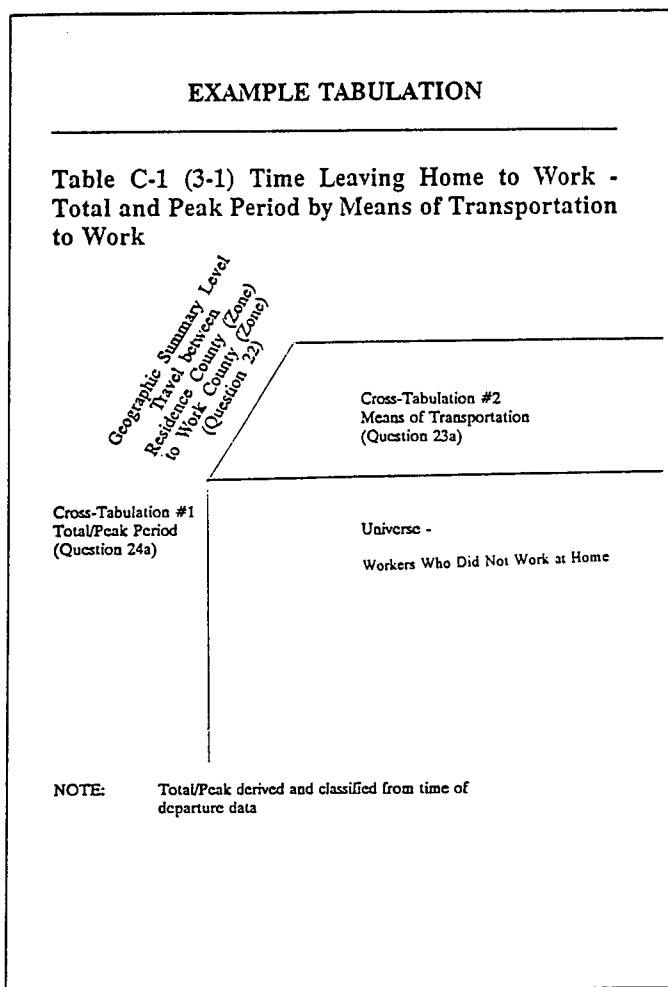


Exhibit 2-4

Exhibit 2-4 provides another example of a CTPP tabulation. For this example, the **universe** is workers who did not work at home (the Census counts workers only 16 years of age or older), with the **cross-tabulation variables** being means of transportation (travel mode) and the time leaving home to go to work (by total and peak period). This table will provide the total number of workers, as well as how many traveled by various means of transportation, including single-occupant automobiles, car-pools and transit. The table will provide the information for the total day and for the Census defined AM peak period (6:30 a.m. to 8:29 a.m.)

Because this particular table reports JTW information, the geographic summary levels, or the third dimension, will differ from either the Place of Residence or the Place of Work summary levels. For example, instead of having one table available for each TAZ within an urban area of 500 TAZs, or 500 tables, a JTW summary table will be provided for every TAZ pair in which commuting trips were made. Thus, there could be 500 destinations for trips that begin in TAZ #1. If there are trips made among all TAZ pairs, there would be a total of 250,000 tables (or 500 squared) available within the CTPP JTW tabulations. This information will reflect trip tables generated by travel demand models. As noted in Chapter 3, a comparison of CTPP and travel demand model estimated trip tables is one of the more important checks to be made during model validation.

As stated previously, a complete listing of the CTPP tables contained in Parts A, B and C and Parts 1, 2 and 3 is provided in the Appendix. It is recommended that you take time to review these tables and how they have been organized with respect to the variables that define the unit of measure (such as workers or households). When reviewing them, note that in nearly all instances the table descriptions begin with the table's **universe**, followed by the **cross-tabulation variables** used to describe the universe. The number of cells in the table appears to the right of the descriptions, and is based on the number of categories in each cross-tabulation. For example, Table C-1, Workers by Time Leaving Home to Go to Work and Means of Transportation, has a total of 38 cells. As previously illustrated in Exhibit 2-4, there are two categories for time leaving home and 19 categories for travel mode that, when combined, total the 38 table cells. The table descriptions also define the summary levels provided in each of the Parts. As shown on page A-24 of the Appendix, there is a total of 2,481 table cells within Part A of the Statewide Element.

Summary

The CTPP has been organized into a **Statewide** and **Urban Element**, with the Statewide Element providing totals for **places**, the **balance of counties** and **totals for counties and the state** as a whole. The Urban Element provides totals for individual **TAZs** or **census tracts**, the **Census-defined urbanized area**, the **MPO-defined study area** and the **MSA** in which the MPO is located. Each element is divided into **parts**, with the primary distinction among the parts being how the data are tabulated, such as by **Place of Residence**, **Place of Work** or **JTW**. The Statewide Element includes **Parts A through F**, and the Urban Element includes **Parts 1 through 8** (Part 5, however, does not exist). Parts A, B and C in the Statewide Element and 1, 2 and 3 in the Urban Element contain the same tables, yet with summaries provided at different geographic levels. It is believed these parts will be the most useful to CTPP users. The remaining parts in either element are **specialized tabulations** that were necessary because of **size** and **confidentiality considerations**. For the Statewide Element, specialized tabulations are available only for places and counties with 75,000 or more population. And within the Urban Element, specialized tabulations are available within super districts of 100,000 or more population. The exception in the Urban Element is Part 7, which is a Place of Work

summary available by Census Tract. This part is intended primarily for non-transportation users who would like to get Census information by typical Census geography.

Detailed specifications for the CTPP parts and tables by Element are provided in Appendix A. Each table is defined by its **universe** (the unit of measurement) and one or more **cross-tabulation variables**. Each of the cross-tabulation variables is defined by discreet categories. Both the Census short form and long form are provided in Appendix B. Most of the information for the CTPP is developed from questions on the Census long form. The long form was completed by about **one in six households** in the country, with a sampling rate that varied by the type of area. Rural areas had up to a one in two sampling rate, whereas urban areas had as low as a one in 20 sampling rate due to the varying likelihood of homogeneity among socio-economic and travel characteristics in different communities.

Preparing for Analysis Using the CTPP

Now that you have been introduced to the CTPP's unique features and how the information is organized, there are several key steps to follow before analysis can take place. You may want to think of these steps as a series of questions that must be answered to know which tables should be used and how the data contained in the tables can be applied. The following questions, once answered, will guide your use of the CTPP:

- What is it that I am trying to measure?
- What is the geographic area that I want to study?
- What do I want to know about the item(s) I am trying to measure?
- What kinds of analysis or manipulations of the data might be needed?
- How has the unit of measure or geographic area changed since 1990?

There may be other questions that you can think of, but answering these questions will get you started on the right path. Turn now to the table summaries shown in the Appendix of this handbook. Pay particular attention to the unit of measure in each table and the ways in which the data contained in each table are cross-tabulated. You will need to become familiar with the available tables before beginning any analysis using CTPP data.

The first thing you need to know is what the unit of measure will be, which is referred to in Census terms as the ***Universe***. For example, if you want to know an area's population, you need to determine if you want to count households or people. If you want to identify trip rates per household, you need to decide if you want to count workers per household or persons per household. Related to this question, you will need to ask yourself if you want the characteristics of workers by where they live, or by where they work. Your answer will determine which CTPP ***Part*** to access.

The second question involves the geographic area of analysis. If you want to summarize travel characteristics at employment centers, you have to determine whether you want this information for a city or county, or for the Central Business District within a city. Depending on how you answer this question, you will use either the ***Statewide or Urban Element*** of the CTPP.

Once you have identified the unit of measure, or universe, you need to think about what you want to know about it. Let's say you are trying to identify the mode of travel used for work trips within a major travel corridor. Workers may be the unit of measure, but there are ***cross-tabulations*** of workers by means of transportation and time leaving home. The results of your analysis will depend on whether you use peak period numbers or total numbers for the time workers leave home to go to work. Similarly, households or persons

are cross-tabulated by a variety of characteristics, including age, sex, employment status, vehicles available, income, etc. Which of these cross-tabs will be helpful to you as you conduct the analysis?

If you decide to conduct an analysis using the CTPP Urban Element, which contains data summaries by census tract or traffic analysis zone, it may be necessary to combine or aggregate areas. In the above corridor analysis example, you will likely have to identify the TAZs in which the employment center is contained, then group them accordingly to summarize the characteristics of workers by their place of work. If you analyze those workers by where they live, then you will need to aggregate place of residence TAZs to perform the analysis.

Other manipulations of the data may be needed, depending on the analysis. Remember that you won't be able to disaggregate CTPP tables, but you can combine them. You can also combine data cross-tabulations, such as age categories, or means of transportation. For example, you may be interested in defining the means of transportation to work for females, ages 16 to 24. You could combine several age categories to conduct this analysis. Also, if you are trying to analyze travel other than the trip from home to work, then you may have to convert the CTPP data (as described briefly in Chapter 3) or use other data sources to enhance the information contained in the CTPP.

Finally, you need to ask yourself if there have been any major physical changes in the area or changes in travel modes since 1990. If a new beltway has been completed, a light rail transit line developed or if a major employer has relocated, the 1990 CTPP will not reflect potential travel and place of work changes. Therefore, you will need to do some preliminary research about the study area before using the CTPP and making quick assumptions from the data. You might consider checking other sources of information to determine if there are reasons that the CTPP data might need to be adjusted, and if so, in what manner. If the study area has remained reasonably constant, then the CTPP can be an excellent source of baseline data for residence, workplace and journey-to-work characteristics.

On the following page, questions are posed to reinforce the steps necessary to prepare for analysis with the CTPP. The example problem of developing a transit plan is used. Answer the questions as best as you can, and then compare your answers with those given on page 20.

Preparing for Analysis Using the CTPP

Questions to be answered:

1. To help develop a transit plan for the urbanized area, your staff director has asked you to summarize the age and economic characteristics of those who are employed in areas not served by public transit. What would you choose as the primary unit of measure, or universe, in the CTPP?
2. What other information would you need to assemble before using the CTPP to assist you in this analysis?
3. What CTPP Element would you use to provide the information to the staff director?
4. What Part would contain information about employees by where they live? In what Part would you find employee characteristics by where they work?
5. What other cross-tabulations might be helpful in this analysis of workers?
6. Now turning to the Appendix, which tables would be most appropriate for this analysis?

Answers appear on the following page.

Preparing for Analysis Using the CTPP

Answers:

1. Workers Age 16 Years and Over
2. Transit system map and route maps to identify areas not served by public transit; a map of traffic analysis zones or census tracts to identify the geographic units of analysis; land use maps or aerial photos to provide detail about land use types and locations within the geographic area.
3. The Urban Element provides the data for this analysis at the TAZ or census tract level. The Statewide Element, with summaries at the place or county level, would not be able to provide enough detailed information on employee workplace locations.
4. Part 1 - Place of Residence in the Urban Element. Part 2 provides Place of Work information.
5. Vehicles Available; Household Income; Mobility Limitation Status; Time of Arrival at Work; Number of Workers in Households; etc.
6. Select tables for the analysis could include **Table 1-10**, Mobility Limitation Status by Employment Status; **Table 1-18**, Number of Workers in Household by Vehicles Available; **Table 1-44**, Mobility Limitation Status by Means of Transportation to Work; **Table 2-10**, Earnings of Workers by Means of Transportation (Place of Work, Urban Element); **Table 2-17**, Vehicles Available by Means of Transportation to Work by Workers in Household; **Table 2-18**, Time of Arrival at Work by Means of Transportation.

CASE STUDIES

INTRODUCTION

The two following case studies are taken from case studies used as part of the FHWA-sponsored Census Transportation Planning Package Applications Workshops (NHI Course No. 15131). They are intended to demonstrate "hands on" application of the CTPP data contained in tables from the Statewide and Urban Elements. The case studies use a series of Lotus spreadsheet templates to illustrate CTPP applications. A diskette is provided that includes all the templates needed for the case studies, plus additional case studies used in the three day workshop.

The templates contain macro commands that automate the steps in the case studies. As you begin working on the case studies, it is important that you follow the instructions appearing in the upper right-hand corner of the screen. Those instructions guide you through the necessary steps, in sequential order. You may exit from the macro commands by typing "Q" or highlighting Quit from the case study menu that appears in the upper left-hand side of the screen. This will allow you to review the spreadsheet templates and calculation formulas. To get back into the macro commands after quitting, press the "Alt" and "C" keys simultaneously. If you get off track from the macro commands, you should exit from the program and re-start the case study. It is relatively easy to retrace your steps. Again, it is very important that, at least initially, you follow the command prompts that appear in the upper right-hand side of the screen.

Although these spreadsheet templates were developed in an earlier version of Lotus 1-2-3, they should be able to work with current Windows-based spreadsheet programs, such as Lotus, Quattro and Excel. If the macro commands do not work in other software programs, you will need to use Lotus 1-2-3 version 2.2 to run the case study templates. **You should create a CTPP directory on your computer's hard drive and copy the files from the diskette to it.** The use of the Lotus environment for these templates does not constitute an endorsement of the software on the part of FHWA or other sponsoring agencies. You may work on the additional case studies, but the steps and answers are not provided in this handbook.

A series of questions follow each step in the case study. The questions are designed to make you think about how the data could be applied. The questions may not always have a right or wrong answer; in several cases, you must use your experience and intuition to determine an appropriate response. Suggested answers are provided at the end of the case studies.

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

OBJECTIVE: This Case Study provides an understanding of how the **Statewide Element** of the CTPP can help define or check parameters used for travel demand modeling. It is Case Study No. 5 on the diskette provided.

MATERIALS PROVIDED:

Lotus Template Files

- CS-5-1A.WK1

- CS-5-1B.WK1

- CS-5-1C.WK1

- CS-5-1D.WK1

OVERVIEW OF CASE STUDY STEPS:

Exhibit CS-A-1 provides a visual case study overview, and on page 25, a narrative introduction is given. You are also asked on that page to prepare for analysis and the case study steps by answering a few questions. On page 26, the steps begin, starting with Step 1 and setting up the problem. Answer the questions for Step 1, then turn the page to answer questions for Step 2, and so on until all questions are answered. Steps 2 through 6 require the use of the spreadsheets listed above. To use the spreadsheets, either select Case Study 5 (as it is named on the diskette) from the Case Study Menu (CS-MENU.WK1) or retrieve file CS-5-1A.WK1 into a blank spreadsheet. Menus and prompts are provided for assistance. You must complete each and every step sequentially. If you miss a step in the spreadsheets, return to the Case Study Main Menu and start over. It is relatively easy to retrace your steps.

***NOTE:** This Case Study uses a conversion factor of 1.81 to convert Census JTW data into Home-based Work (HBW) trips for use in travel demand forecasting models. The details of developing this conversion factor are covered in the CTPP training course (and are included in case study 3 on the diskette provided with this handbook). The conversion factor is close to 2.0 because the JTW trips must be doubled to account for the trip from work to home. However, because of trip chaining, mode shift and other locally-derived factors, it is not accurate simply to double the JTW trips reported in the CTPP. FHWA is in the process of identifying conversion factors for different sized urban areas. Contact CTPP Telephone Assistance or call FHWA to obtain further information about this effort; telephone numbers are included in Chapter 3.*

CASE STUDY OVERVIEW

Travel Demand Characteristics by Urban Area Size

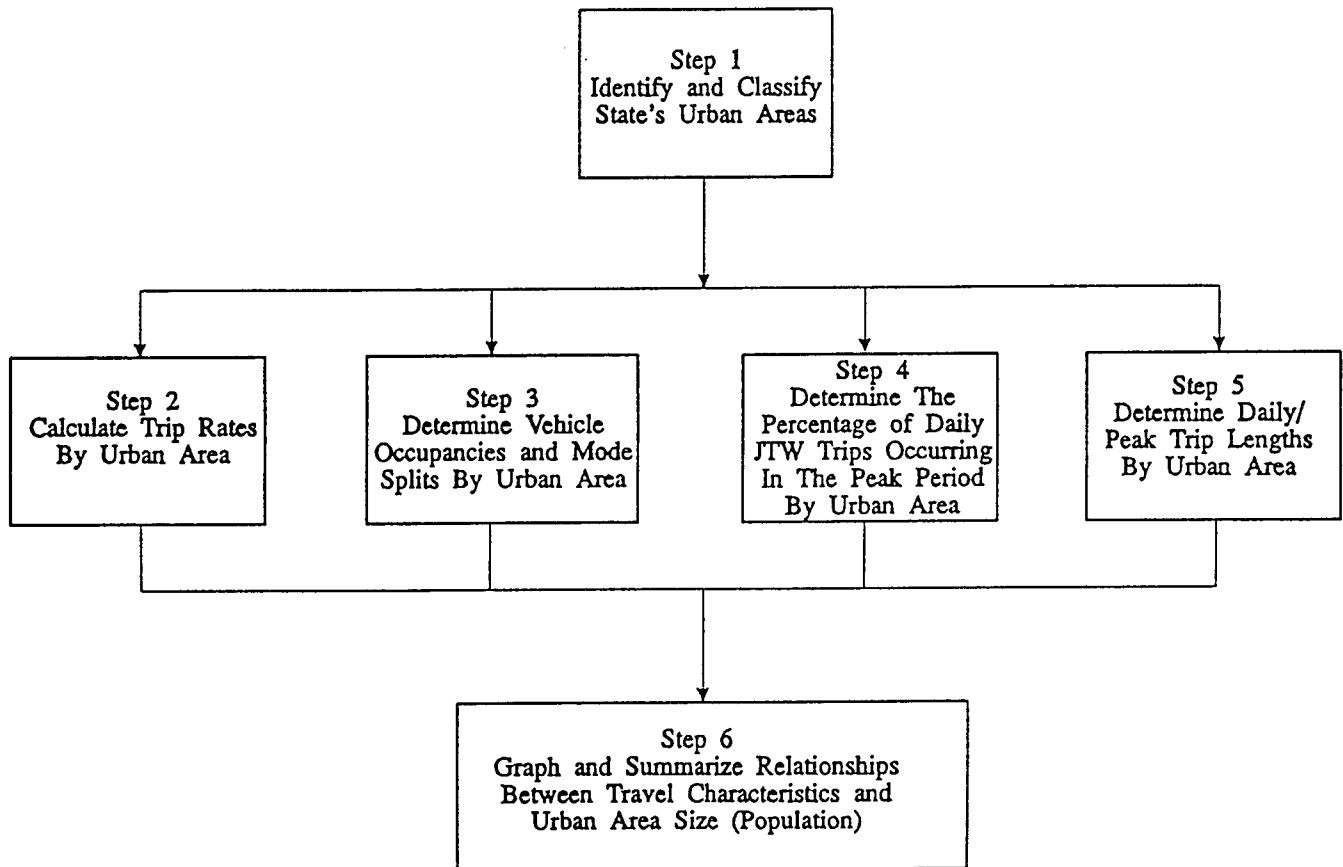


Exhibit CS-A-1

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

INTRODUCTION

Urban areas in the State of States (**Exhibit CS-A-2**) have been growing rapidly. The Department of Transportation has recognized that as cities grow, travel characteristics change. To make sure that traffic forecasts take into account changing travel characteristics, the DOT is attempting to develop reasonable relationships between urban area size (defined by population) and key travel parameters (trip rates, trip lengths, vehicle occupancies, etc.). These relationships will help check the reasonableness of traffic forecasts made for each of the state's urban areas.

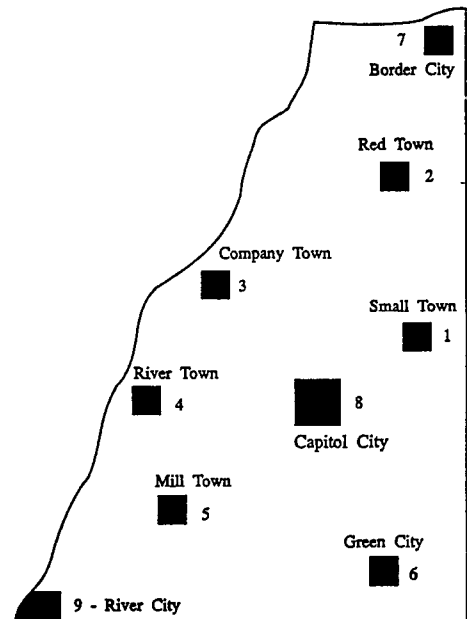


Exhibit CS-A-2

PREPARING FOR ANALYSIS:

In order to use the CTPP in this exercise, you will need to think about how the analysis will be conducted. Remember the questions presented earlier in this handbook that should serve as guidelines for analysis using the CTPP.

1. Based on the case study introduction, what would be the likely unit(s) of measure needed in this analysis?
2. What is the geographic area of analysis needed?
3. What do you want to find out about the urban areas in the State of States?
4. Refer to the Appendix. Given your answers to questions 1-3 above, in what CTPP tables could you find the data needed for this analysis?
5. Are manipulations of the CTPP data necessary? Why or why not?

The following steps are used:

Remember when working in the spreadsheets, the following commands may be helpful:

Exit Macros: Type "Q" or "Quit"
Rejoin Macros: Type ALT and C simultaneously

Step 1: Identify populations in the State of States' urban areas

- 1.1 Identify the total urban area population here (using CTPP Table A-1) for each city in the State of States. (This has been done and is stored in the case study worksheets.)

Step 2: Determine work trips rates by urban areas

- 2.1 Download CTPP Table A-4 to determine total households for each urban area. Then, download CTPP Table C-1 to determine total work trips by urban area. (This has been done and results are stored in file HH-JTW.PRN)
- 2.2 Convert JTW trips to HBW trips. Enter 1.81 (the conversion factor developed based on local data to convert CTPP Journey-to-Work data-see *Note* on pg. 23). The program will automatically multiply the factor by the JTW trips to estimate daily HBW trips.
- 2.3 Divide HBW trips by households. The program will automatically divide total HBW trips by households for each urban area to determine average trip rates.

At the Completion of These Steps, the Screen Should Look Like This:

A1: [W6]								MENU
Step 2.1	Step 2.2	Step 2.3	Review	Step 3	Quit	CS	Menu	
Import HHs and J-T-W trips								
	A	B	C	D	E	F	G	H
1	TRIP RATES BY URBAN AREA SIZE							
2								
3								
4					Total	JTW to	HBW	HBW
5					JTW	HBW	Person	Trips/
6	City	Population	Households	Trips	Factor	Trips	HH	
7	-----							
8	1	50,000	21,739	32,428	1.81	58,695	2.70	
9	2	65,000	29,545	43,787	1.81	79,254	2.68	
10	3	150,000	68,182	98,318	1.81	177,956	2.61	
11	4	225,000	107,143	149,171	1.81	270,000	2.52	
12	5	275,000	125,000	170,235	1.81	308,125	2.47	
13	6	550,000	261,905	322,317	1.81	583,394	2.23	
14	7	675,000	337,500	412,086	1.81	745,876	2.21	
15	8	850,000	472,222	538,098	1.81	973,957	2.06	
16	9	950,000	558,824	611,310	1.81	1,106,471	1.98	
17								
18								
19								
20								
CMD								

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

1. Identify and Classify State's Urban Areas

1.1 Identify Urban Area Population

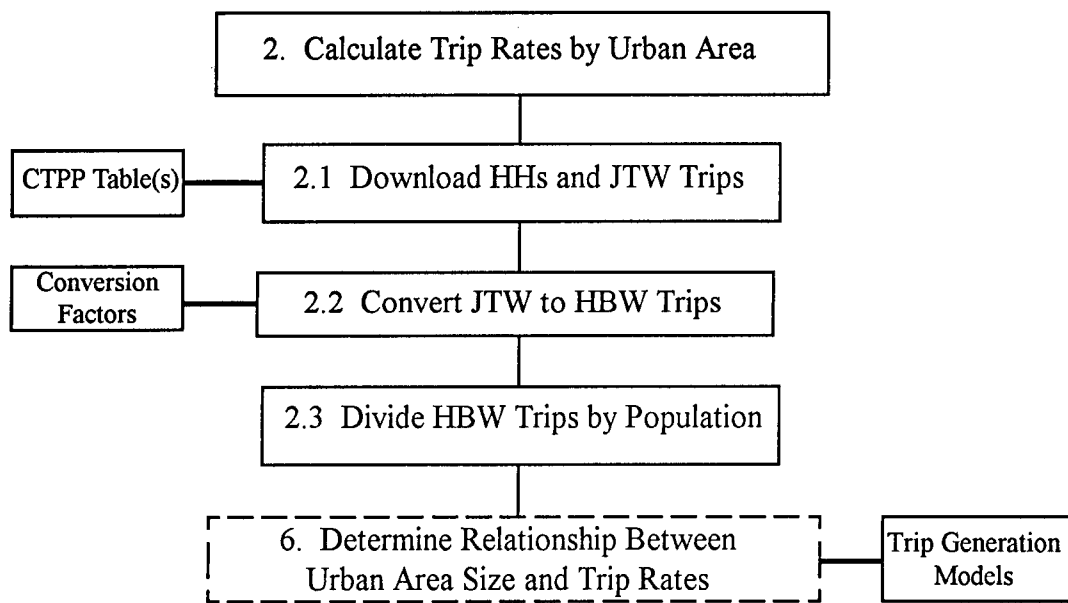
1.2 Classify Urban Areas

Questions to be answered:

- Step 1.1**
1. What other CTPP Tables could you use to find each urban area's population? Remember: (1) What information (universe) are we trying to measure; (2) At what geographic level; and (3) What other variables or characteristics of the universe are needed, if any?

 2. As the population of an urban area increases, how would you expect the following travel characteristics to change, if at all?
 - work trip rates per household
 - work trips lengths (daily/peak period)
 - work trip vehicle occupancies
 - the percentage of work trips made by transit
 - the percentage of peak period trips

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE
TRIP RATES BY URBAN AREA SIZE



Questions to be answered:

- Step 2.1**
1. How are total households (HHs) cross-tabulated in the CTPP? What are the cross-tabulations in the table that contains Journey-to-Work (JTW) trips?
 2. After completing Step 2.1 in the spreadsheet, how many JTW trips are generated in River City?
- Step 2.2**
3. Use the factor of 1.81 to convert JTW to HBW trips. Do you think this factor will vary by urban area size and, if so, how?
 4. After completing Step 2.2, how many HBW trips are generated per day in River City?
- Step 2.3**
5. What city has the highest trip rate? the lowest?
 6. The case study calculates an overall trip rate for each urban area. Would you expect a variation of trip rates by HH characteristics? If so, what characteristics influence trip rates and what CTPP tables would you use to identify trip rates by HH type by urban area size?

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

Step 3 Determine Vehicle Occupancies and Mode Splits by Urban Area

- 3.1 Download CTPP Table C-3, Vehicle Occupancies (this has been done and is stored in file VEH-OCC.PRN)
- 3.2 Download CTPP Table C-1, Workers by Time Leaving Home to Go to Work and Means of Transportation (this has been done and is stored in file JTW-MODE.PRN)
- 3.3 Calculate mode split (non-vehicle work trips) using the following formula:

$$\text{Mode Split} = \text{Non-Vehicle Trips} / \text{Total Trips}$$

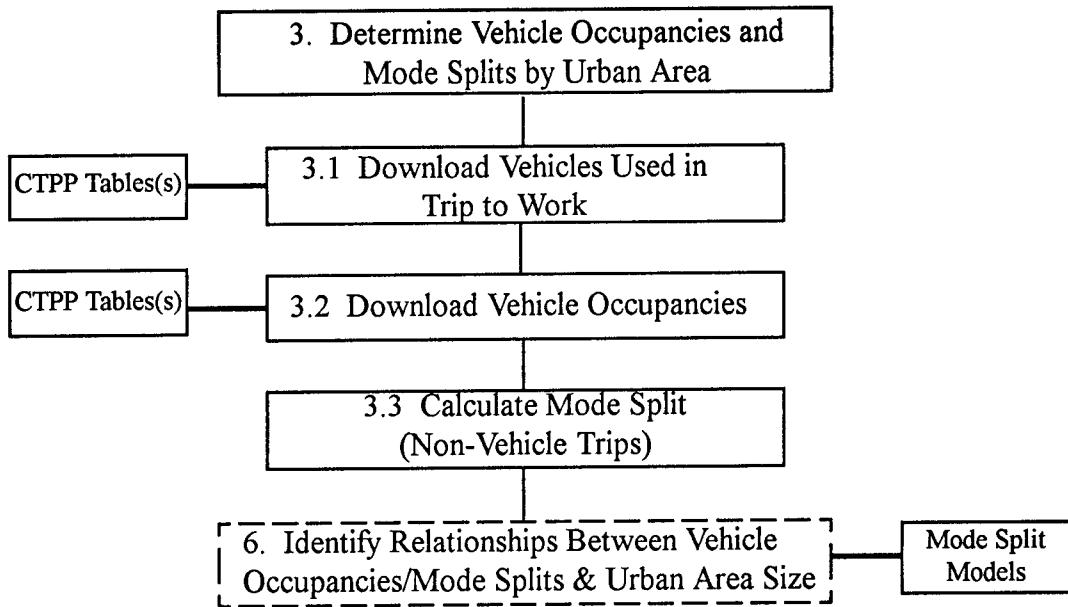
The spreadsheet formula automatically entered in cell E8 is:
+G8/F8

NOTE: *Non-vehicle work trips refers to all modes other than personal automobile (the Census questionnaire asks how many vehicles are available in the household).*

The Screen Should Look Like This:

E8: (P1) +G8/F8 Press Enter to return to menu							
	A	B	C	D	E	F	G
1	VEHICLE OCCUPANCIES AND MODE SPLIT BY URBAN AREA						
2							
3							
4					JTW	Total	Non-
5				Vehicle	Mode	JTW	Vehicle
6	City	Population		Occupancy	Split	Trips	JTW
7	-----						Trips
8	1	50,000		1.25	0.1%	28,465	28
9	2	65,000		1.36	0.1%	39,502	40
10	3	150,000		1.30	0.1%	97,941	98
11	4	225,000		1.27	0.1%	165,746	166
12	5	275,000		1.31	0.3%	194,751	584
13	6	550,000		1.29	0.8%	373,323	2,987
14	7	675,000		1.27	0.9%	466,160	4,195
15	8	850,000		1.26	1.9%	547,882	10,410
16	9	950,000		1.27	2.0%	623,660	12,473
17							
18							
19							
20							
	21-May-92	08:55 AM			CMD		

**CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE
VEHICLE OCCUPANCIES AND MODE SPLIT**



Questions to be answered:

- Step 3.1**
1. What is the universe of the CTPP Table used to determine vehicle occupancies?
 2. After completing Step 3.1, what is the average vehicle occupancy in Capital City?
- Step 3.2**
3. What travel modes in CTPP Table C-1 would you use to determine non-vehicle trips?
 4. How many non-vehicle trips were made in Green City?
- Step 3.3**
5. How did you calculate mode split using Table C-1?
 6. What is the mode split (percentage of non-vehicle trips) in Border City?

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

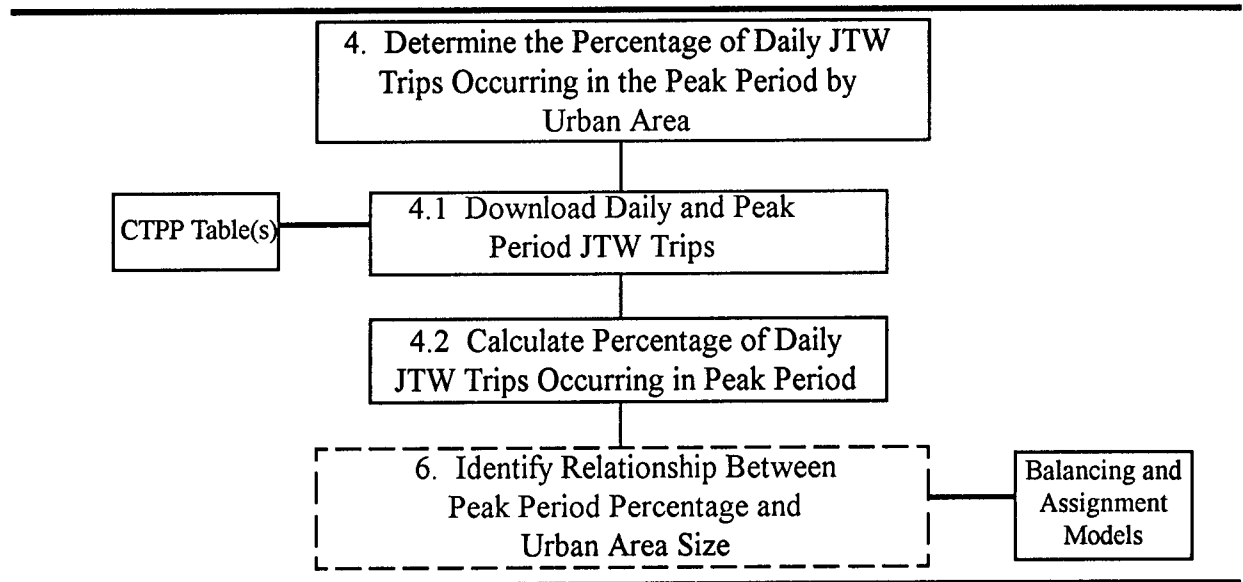
Step 4 Determine Peak-to-Daily Ratios (% Peak)

- 4.1 Download CTPP Table C-1. (This has already been done and stored in file DAILY-PK.PRN)
- 4.2 Calculate peak period-to-daily percentage. Peak period JTW trips are divided into daily HBW trips using the following formula in cell F8:
+E8/D8

The Screen Should Look Like This:

A1: [W7] 'ESTIMATE PEAK						MENU
Step 4.1 Step 4.2 Review Step 5 Quit CS Menu						
Go to Step 4						
	A	B	C	D	E	F
1	ESTIMATE PEAK HOUR PERCENTAGES					G
2						
3						
4						
5						
6			Daily	AM Peak	Peak Period	
7			HBW	Period	to Daily	
8	City	Population	Trips	JTW	Trips	Ratio
9	-----					
10	1	50,000	51,522	18,909	36.7%	
11	2	65,000	71,499	27,313	38.2%	
12	3	150,000	177,273	66,300	37.4%	
13	4	225,000	300,000	114,900	38.3%	
14	5	275,000	352,499	136,417	38.7%	
15	6	550,000	675,715	268,935	39.8%	
16	7	675,000	843,750	329,906	39.1%	
17	8	850,000	991,666	398,650	40.2%	
18	9	950,000	1,128,825	463,947	41.1%	
19						
20						
CMD						

**CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE
PERCENTAGE OF PEAK PERIOD TRIPS**



Questions to be answered:

- Step 4.1**
1. What is the universe of the CTPP Table you used to determine daily and peak JTW trips?
 2. How is the peak period defined in Table C-1?
 3. What tables could you use to determine peak hour JTW trips from the CTPP?
 4. How many peak period JTW trips are generated a day in River City?
- Step 4.2**
5. What city has the highest percentage of peak period trips?

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

Step 5 Determine Average Daily and Peak Hour Travel Times

- 5.1 Download CTPP Table C-7 (C-6 can also be used and may be preferable when the travel time distribution is thought to be extremely skewed or to have outliers). This has already been done and stored in file T-TIMES.PRN.

Step 6 Graph travel characteristics/urban size relationships and determine the statistical strength of relationships

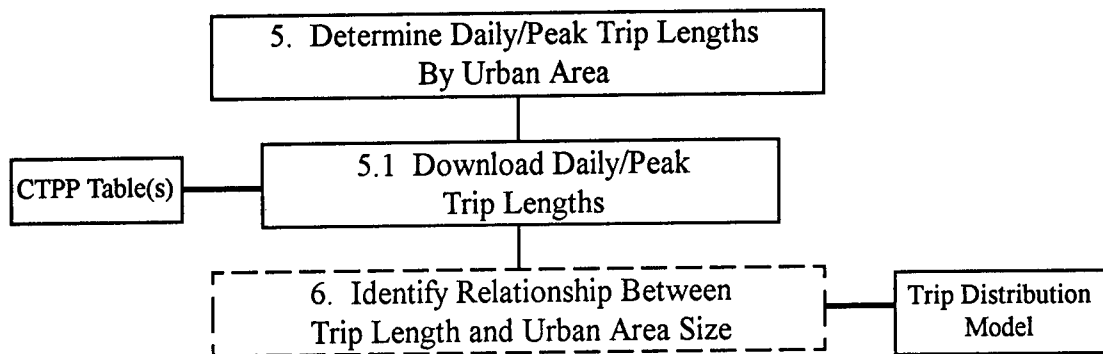
- 6.1 Import trip rates calculated in Step 2.
- 6.2 Import vehicle occupancies and mode splits calculated in Step 3.
- 6.3 Import percentages calculated in Step 4.

The Screen Should Look Like This:

```

A1: [W5] 'Summary of Ur
Step 5.1 Step 6.1 Step 6.2 Step 6.3 Step 6.4 Quit CS-Menu
Import travel times
A      B      C      D      E      F      G      H      I
1  Summary of Urban Area Travel Characteristics
2
3
4      Travel Time
5      (minutes)      HBW
6  City      Pop.      HHs      Daily      Peak      Trips      Vehicle      Mode      Peak to
7  -----      -----      -----      -----      -----      -----      -----      -----      -----
8  1      50,000      21,739      5.4      5.8      2.70      1.25      0.1%      36.7%
9  2      65,000      29,545      5.3      6.0      2.68      1.36      0.1%      38.2%
10 3      150,000      68,182      5.7      6.1      2.61      1.30      0.1%      37.4%
11 4      225,000      107,143      6.3      6.7      2.52      1.27      0.1%      38.3%
12 5      275,000      125,000      6.6      6.9      2.47      1.31      0.3%      38.7%
13 6      550,000      261,905      7.5      8.5      2.23      1.29      0.8%      39.8%
14 7      675,000      337,500      7.4      8.7      2.21      1.27      0.9%      39.1%
15 8      850,000      472,222      10.3     12.6     2.06      1.26      1.9%      40.2%
16 9      950,000      558,824      11.7     13.3     1.98      1.27      2.0%      41.1%
17
18
19
20
                                CMD
    
```

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE
TRIP LENGTH VS. URBAN AREA SIZE



Questions to be answered:

- Step 5**
1. What are the universes of CTPP Tables used to identify travel times? When is it appropriate to use median travel times?
 2. CTPP reports perceived travel times that may differ from actual travel times. How would you expect actual travel times to differ from perceived travel times?
 3. What is the average JTW travel time for River City?

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

6.4 Review relationships

- 6.4.1 Prepare scatterplots of travel characteristics/urban size relationships to "see" relationships for trip rates, travel times, vehicle occupancies, mode splits and peak percentages as shown in Exhibits CS-A-3 through CS-A-7.**
- 6.4.2 Use regression analysis to determine statistical relationships between travel characteristics and urban size. Regression results are shown in Exhibit CS-A-8.**

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

TRIP RATE SCATTERPLOT

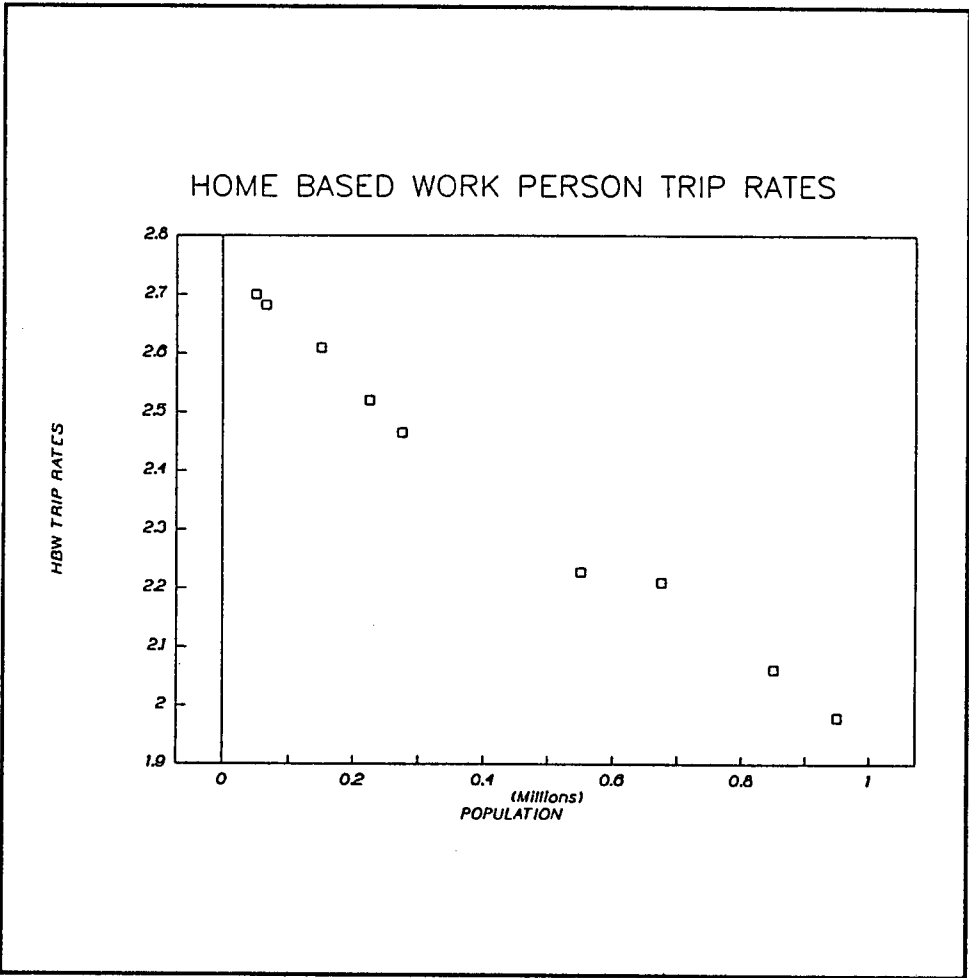


Exhibit CS-A-3

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

TRAVEL TIME SCATTERPLOT

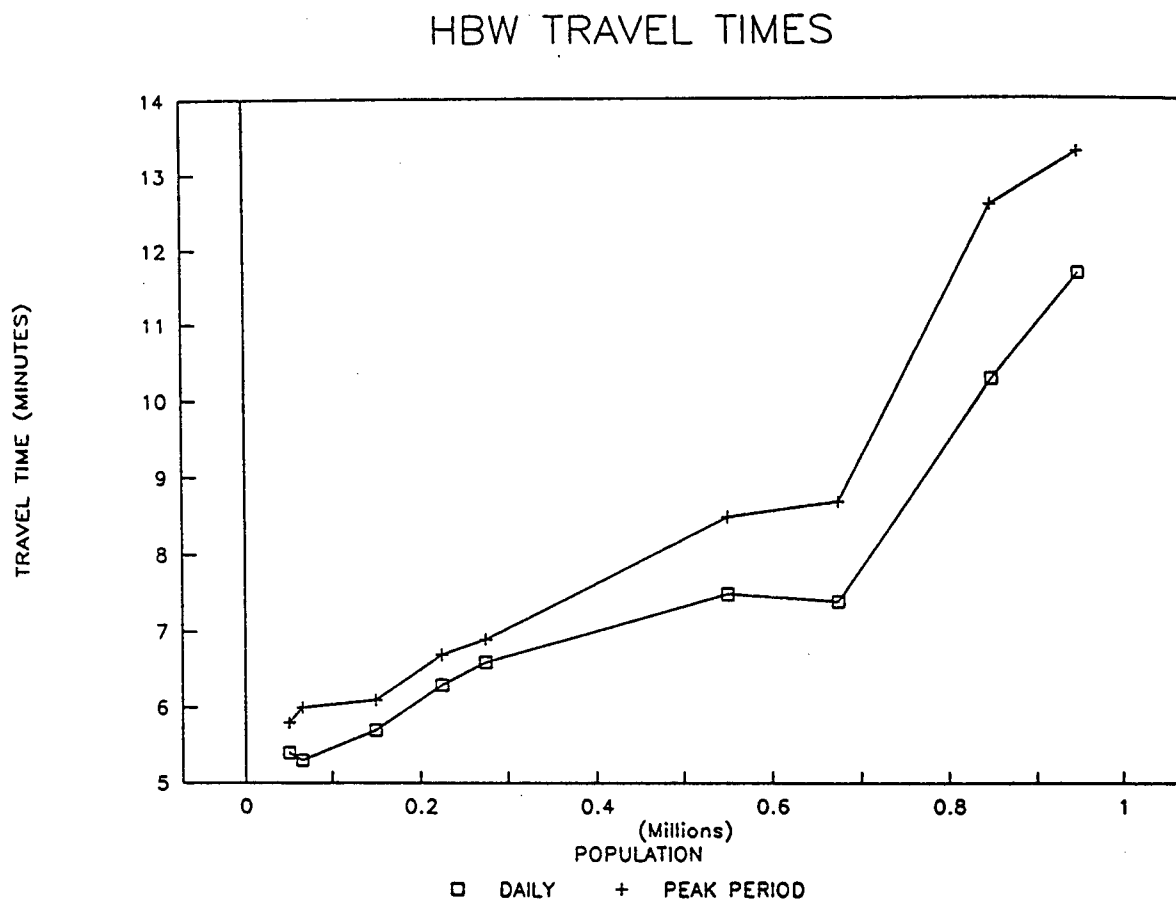


Exhibit CS-A-4

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

VEHICLE OCCUPANCY SCATTERPLOT

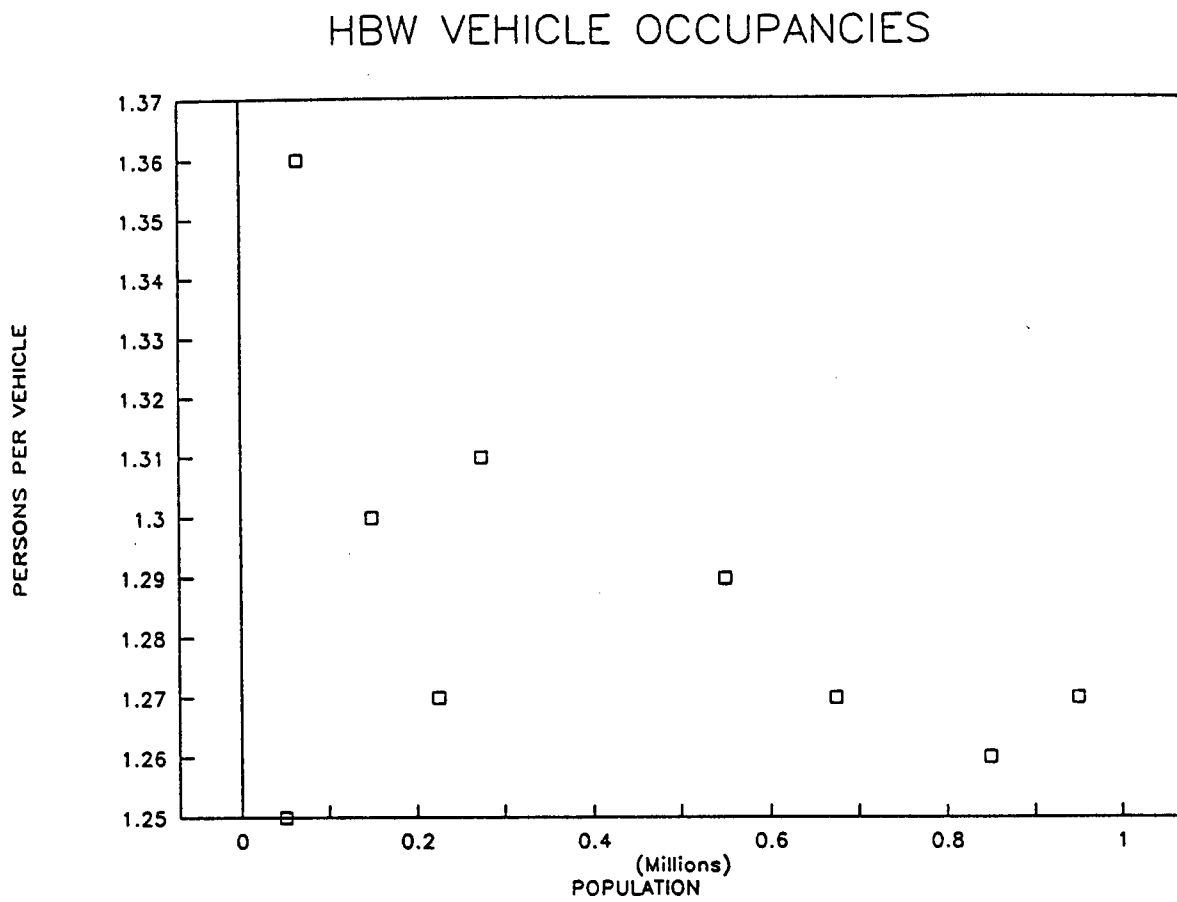


Exhibit CS-A-5

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

TRANSIT SCATTERPLOT

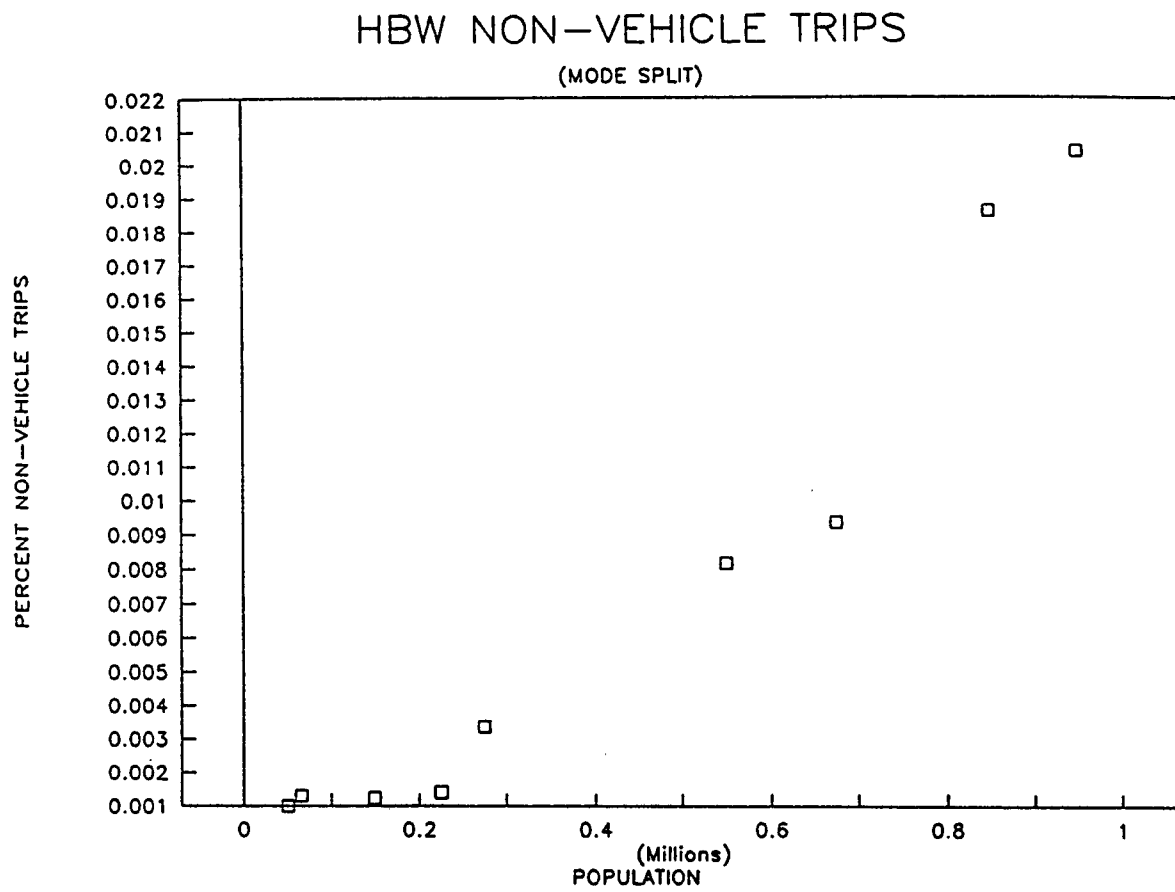


Exhibit CS-A-6

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

PEAK-TO-DAILY SCATTERPLOT

HBW PEAK HOUR-TO-DAILY RATIO

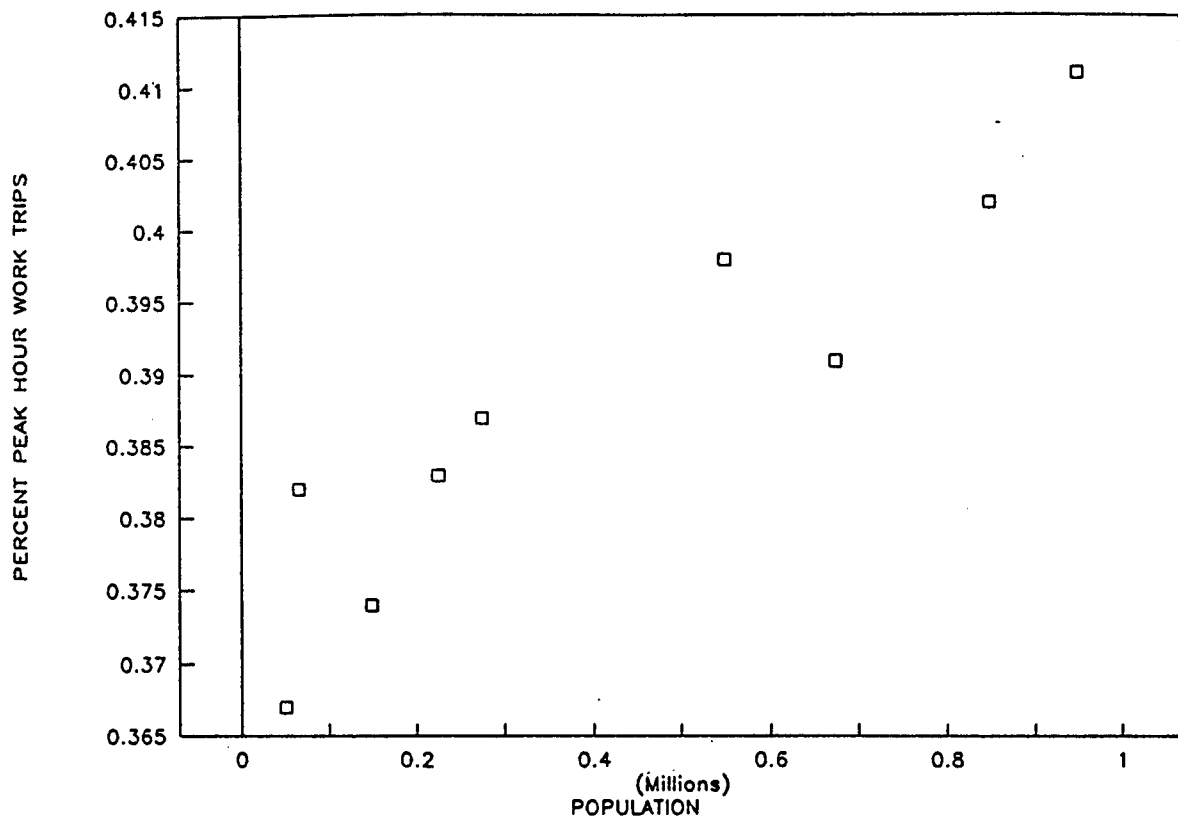


Exhibit CS-A-7

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

REGRESSION RESULTS

HBW Rates Regression Output:

Constant	2.714
Std Err of Y Est	0.030
R Squared	0.988
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	-0.000
Std Err of Coef.	0.0000

HBW Travel Times

Regression Output

Constant	4.7578937442
Std Err of Y Est	0.7723154478
R Squared	0.8957276139
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	0.0000061686
Std Err of Coef.	0.0000007955

HBW Vehicle Occupancies - Regression Output

Constant	1.3046785449
Std Err of Y Est	0.0322392056
R Squared	0.191603929
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	-0.0000000428
Std Err of Coef.	0.0000000332

Mode-Split Regression Output:

Constant	-0.00
Std Err of Y Est	0.002
R Squared	0.924
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	0.0000
Std Err of Coef.	0.0000

HBW Peak to Daily Ratios - Regression Output

Constant	0.3726705556
Std Err of Y Est	0.0056942254
R Squared	0.8517891937
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	0.0000000372
Std Err of Coef.	0.0000000059

Exhibit CS-A-8

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

GRAPH AND SUMMARIZE RELATIONSHIPS

Questions to be answered:

- Step 6.4**
1. What is the general relationship between trip rates and population as illustrated by the scatterplot?
 2. What is the R^2 for trip rates and population?
 3. Does the scatterplot indicate a strong relationship between travel times and population?
 4. What is the R^2 for daily travel times and population?
 5. Does the scatterplot indicate a strong relationship between vehicle occupancies and population?
 6. What is the R^2 for vehicle occupancies and population? Is it lower than expected after reviewing the scatterplot and, if so, why?
 7. Are groupings of the mode split data points evident? What may have caused these groupings?
 8. What is the R^2 for mode split and population?
 9. Is there a strong relationship between peak hour percentages and population? Are groupings evident?
 10. What is the R^2 for peak hour percentages and population?

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

Other Questions:

1. How would you use the relationships found from the data for travel demand forecasting?
2. Could you extrapolate these relationships to urban areas that are larger or smaller than those in the State of States?

**CASE STUDY: ASSESSING COMMUTER BUS SERVICE
(USING THE CTPP DIRECTLY FOR TRANSPORTATION PLANNING
ANALYSIS)**

INTRODUCTION

The city council is concerned about the commuter bus service currently provided to workers in the CBD. They would like to know which routes are effective, those that are not and why the ineffective routes are operating poorly. To provide the information needed, use CTPP tables and the steps presented on the following pages.

Bus ridership among choice riders (those who have access to a personal vehicle) is typically influenced by the following factors:

- comparative bus vs. auto travel times (bus times include time spent waiting for the bus, ride time and, if necessary, time to transfer);
- comparative travel costs (auto operating costs vs. bus fare);
- parking costs; and
- other factors (such as the walk distance to or from bus stops).

Commuter bus fares and downtown parking costs are the same for all commuter routes. Therefore, either travel times or some other factors affect ridership among routes.

Use the CTPP tables to identify those routes with comparatively poor travel times versus auto travel. This information will be used to determine route changes that can be made to improve travel times for identified routes. In addition, travel time/mode share comparisons will indicate whether other factors are influencing mode share. If so, more detailed analysis will be conducted for the identified routes in an attempt to find out what those other factors are.

This case study is CS-4 on the Lotus diskette provided. To begin, select Case Study 4, Situation 2, from the CS-Menu spreadsheet or retrieve file "CS-4-2.WK1" into a blank Lotus 1-2-3 spreadsheet. Use the menus provided in the spreadsheet to step through the case study and answer the case study questions presented on the following pages.

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

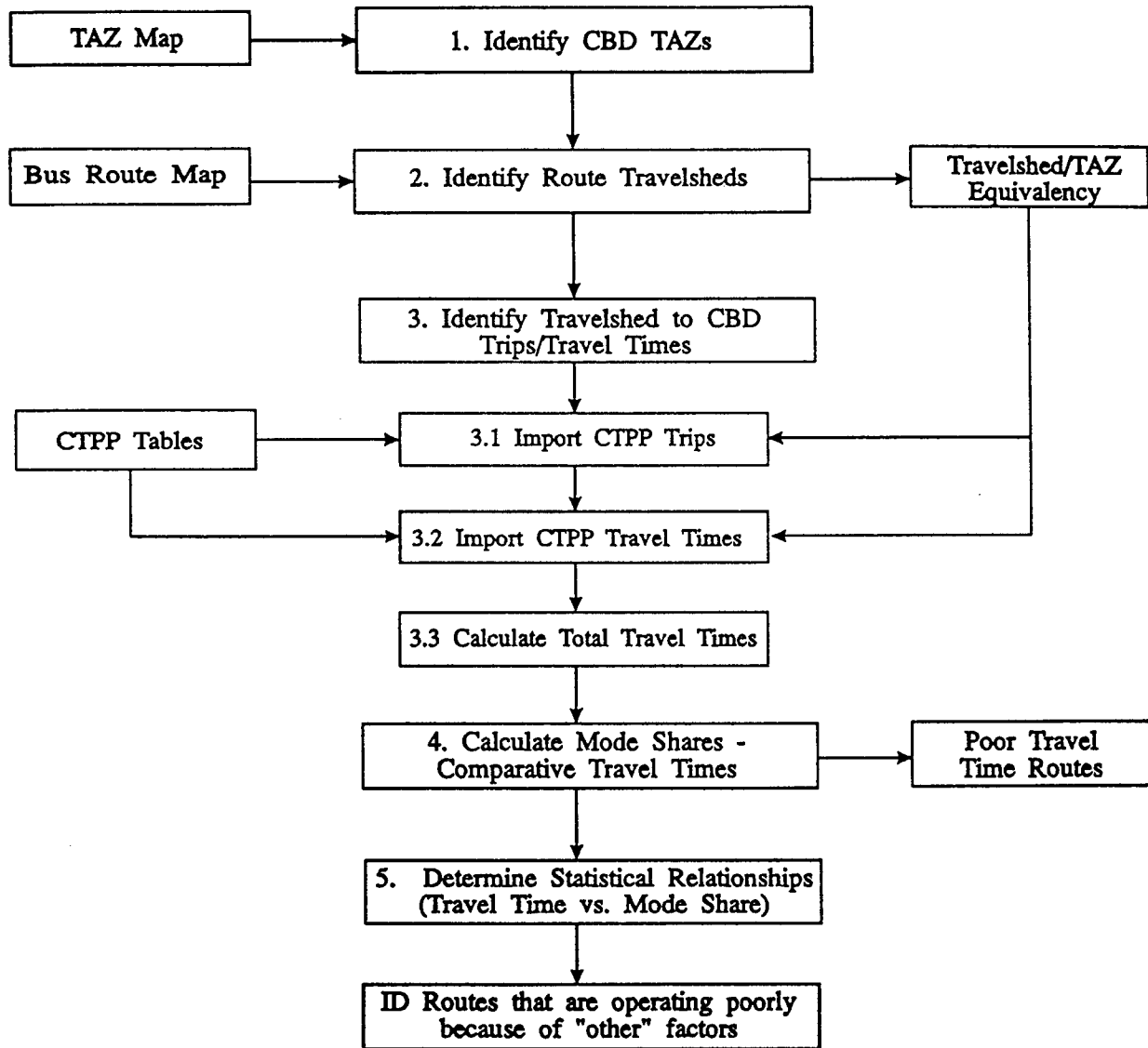


Exhibit CS-B-1

ASSESSING THE EFFECTIVENESS OF COMMUTER BUS SERVICE

PREPARING FOR ANALYSIS:

1. The city council has asked about the effectiveness of commuter bus service. What is the universe in the CTPP that would provide data for this analysis?
2. What would be the most useful geographic summary level for this analysis?
3. What types of information will be needed up front before using the CTPP?
4. What information about commuter bus service would help to find solutions for the city council?
5. Turn now to the Appendix. What CTPP tables would be most helpful in doing this analysis?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

This step has already been done. The CBD Traffic Analysis Zones are shown below:

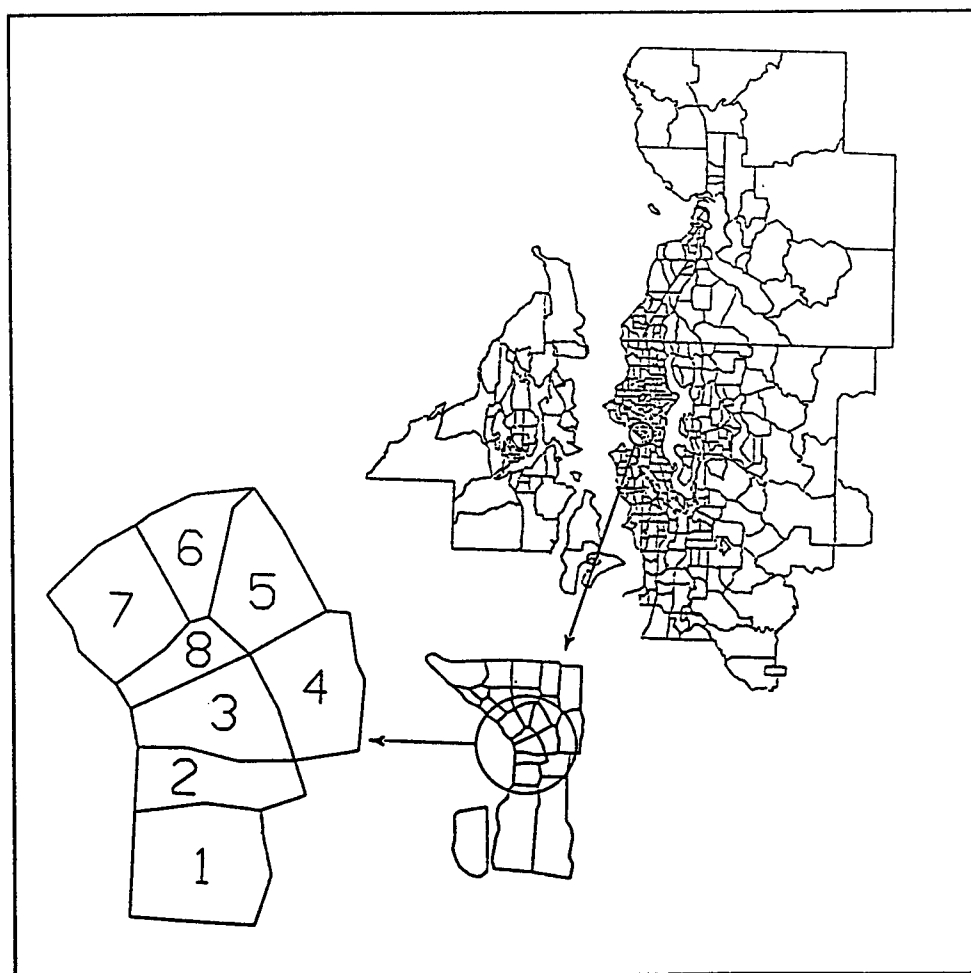
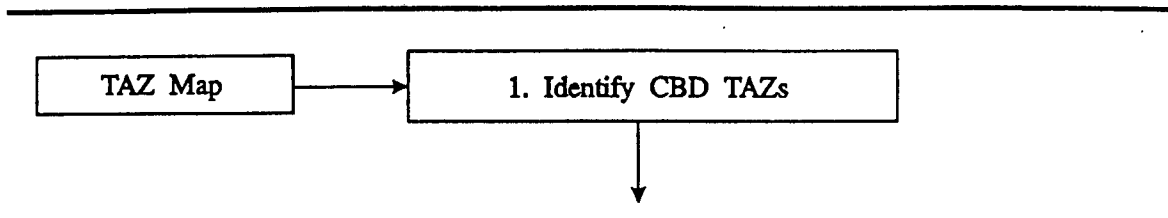
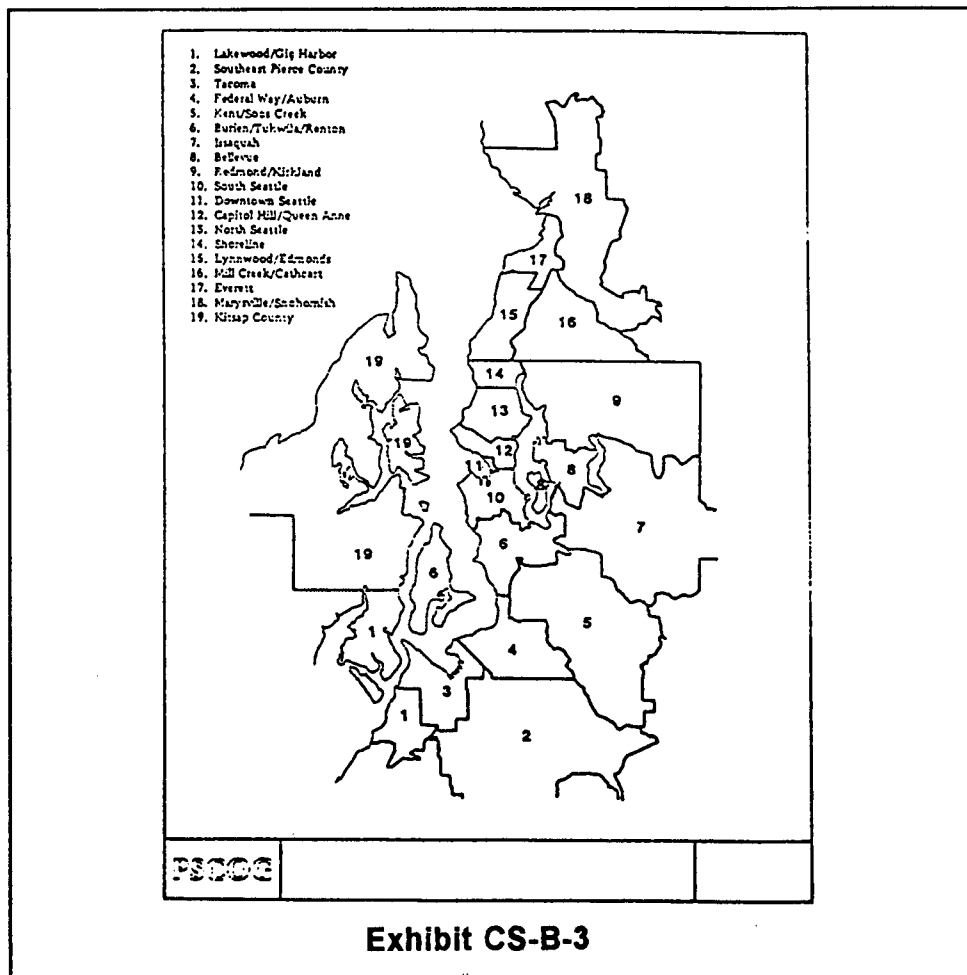
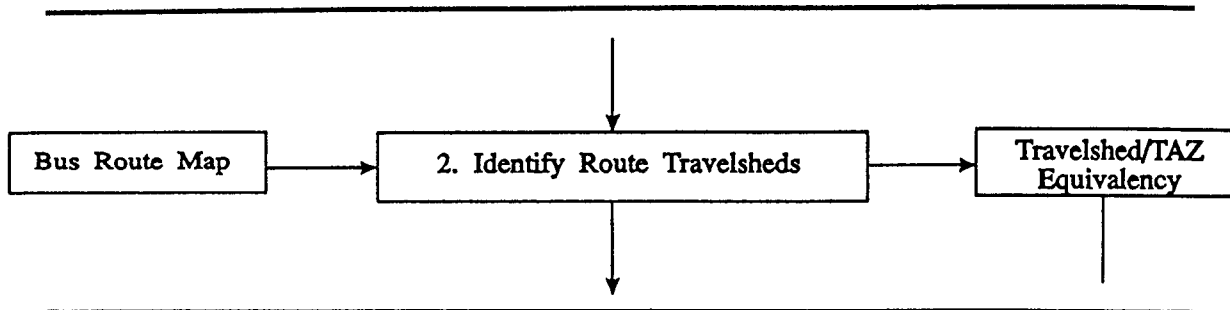


Exhibit CS-B-2

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

This step has already been done. Travel sheds are shown below:



1. How would you identify travel sheds using route maps?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

2.2 Develop travel shed/TAZ equivalency list (Exhibit CS-B-4).

Travelshed/TAZ Equivalencies	
<u>TAZ/CT</u>	<u>Travelshed</u>
1	11
2	11
3	11
4	11
5	11
6	11
7	11
8	11
.	.
.	.
.	.
.	.

Exhibit CS-B-4

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Step 3 Identify J-T-W trips and travel times from each travel shed to the CBD

- 3.1 Download worker flow data from the CTPP. Use the equivalency list (Step 2.2) to aggregate TAZ data to travel shed totals. The Lotus 1-2-3 template is designed to help with this step of the case study.

Downloading and aggregating J-T-W trips to travel shed totals have been done and stored in worksheet file JTW-TRIP.WK1. Select Step 3.1 from the CS-4-2.WK1 menu and respond to prompts. When the menu reappears, the screen should look like this:

A1: [W34] 'CTPP TABLE C-1 or 3-1						MENU
Step 3.1	Step 3.2	Step 3.3	Step 4	Step 5	Step 6	Quit CS Menu
Import JTW-Trip spreadsheet						
	A		B	C	D	E
1	CTPP TABLE C-1 or 3-1					
2	Nonhome Workers by Detailed Means of Transportation by Total/Peak Period					
3	Number of Cells = 20*2=40					
4	Trips to CBD from:					
5	Import area(s) (goto AA1 for Table Summary)					
6			T-Shed	T-Shed	T-Shed	
7	Strat1	Strat2	1	2	3	
8	-----					
9	Total	Total	463	1337	4535	
10	Drive Alone	Total	371	969	3215	
11	2 Worker Vehicle Pool	Total	30	86	291	
12	3 Worker Vehicle Pool	Total	9	38	136	
13	4 Worker Vehicle Pool	Total	5	13	45	
14	5 Worker Vehicle Pool	Total	0	0	0	
15	6 Worker Vehicle Pool	Total	0	0	0	
16	7-9 Worker Vehicle Pool	Total	0	0	0	
17	10+ Worker Vehicle Pool	Total	0	0	0	
18	Bus/trolley bus	Total	48	231	848	
19	Street car/trolley car	Total	0	0	0	
20	Railroad	Total	0	0	0	
		CMD				

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

- 3.2 Download J-T-W travel times between each travel shed and the CBD from the CTPP. When aggregating TAZs into travel sheds, travel time averages are needed rather than totals. The Lotus 1-2-3 templates provide simple averages. You could develop weighted averages by combining travel times with trips.

Downloading and averaging travel times have been done, these are stored in worksheet file JTW-TIME.WK1. Select Step 3.2 from the menu and respond to prompts. When the menu reappears, the screen should look like this:

```

A61: [W34]
Step 3.1 Step 3.2 Step 3.3 Step 4 Step 5 Step 6 Quit CS Menus
Import JTW-Trip spreadsheet
A B C D E
61 CTPP TABLE
62 Mean Travel Time of Nonhome Workers, by Detailed Means of Trans., by Tot
63 Number of Cells = 20*2=40
64
65 Import area(s) (goto AA1 for Table Summary)
66
67 Strat1 Strat2 T-Shed T-Shed T-Shed
68 ----- 1 2 3
69 Total Total 42 39 35
70 Drive Alone Total 39 36 34
71 2 Worker Vehicle Pool Total 39 36 34
72 3 Worker Vehicle Pool Total 39 36 34
73 4 Worker Vehicle Pool Total 39 36 34
74 5 Worker Vehicle Pool Total 39 36 34
75 6 Worker Vehicle Pool Total 39 36 34
76 7-9 Worker Vehicle Pool Total 39 36 34
77 10+ Worker Vehicle Pool Total 39 36 34
78 Bus/trolley bus Total 51 45 40
79 Street car/trolley car Total 0 0 0
80 Railroad Total 0 0 0
          CHD
  
```

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

3.3 Use downloaded JTW trips and travel times to calculate total travel time. Select Step 3.3 from the menu and press **M** to complete Step 3.3 with the help of menus or any other key to complete Step 3.3 without menu help. The following formula calculates total travel time in hours:

$$\text{Trips} * \text{Travel Time} / 60$$

The dividend of 60 converts travel times (reported in minutes) into hours.

After completing Step 3.3, the screen should look like this:

C129: (F1) +TOTAL*C69/60						MENU
Step 3.1	Step 3.2	Step 3.3	Step 4	Step 5	Step 6	Quit CS Menus
Import JTW-Trip spreadsheet						
	A		B	C	D	E
121	TOTAL PERSON HOURS TRAVELED					
122	(Trips * Travel Time / 60)					
123						
124	Travel hours to CBD from:					
125						
126				T-Shed	T-Shed	T-Shed
127	Strat1		Strat2	1	2	3
128	-----					
129	Total		Total	324.1	869.1	2645.4
130	Drive Alone		Total	241.2	581.4	1821.8
131	2 Worker Vehicle Pool		Total	19.5	51.6	164.9
132	3 Worker Vehicle Pool		Total	5.9	22.8	77.1
133	4 Worker Vehicle Pool		Total	3.3	7.8	25.5
134	5 Worker Vehicle Pool		Total	0.0	0.0	0.0
135	6 Worker Vehicle Pool		Total	0.0	0.0	0.0
136	7-9 Worker Vehicle Pool		Total	0.0	0.0	0.0
137	10+ Worker Vehicle Pool		Total	0.0	0.0	0.0
138	Bus/trolley bus		Total	40.8	173.3	565.3
139	Street car/trolley car		Total	0.0	0.0	0.0
140	Railroad		Total	0.0	0.0	0.0
				CMD		

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Questions to be answered:

1. What CTPP table would you download for JTW trips (refer to Appendix)?
2. What is the total number of trips to the CBD? What travel shed generates the most trips?
3. What CTPP table would you download for JTW travel times? When would you use median travel times? Why?
4. What is the average travel time from travel shed 1 to the CBD? How would you calculate a weighted average time?
5. How would you calculate total travel times given number of trips and travel times?
6. What is the total Person Hours Traveled (PHT) to the CBD? What percentage of the PHT is by transit?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Step 4 Calculate mode shares and the comparative speeds between auto and transit. This step is needed for determining the relationship between mode share and travel times. This will identify those travel sheds with comparatively slow service.

Select Step 4 from the menu and press **M** for Menu help with Step 4 or any other key to complete Step 4 without menus. If **M** is pressed for menu help, the following screen and sub-menu should appear:

```
A201: [W34] 'MODPress M for Step 4 menus -- any other key for Step 4 w/out menus

          A          B          C          D          E
201 MODE SHARES AND TRAVEL TIMES
202
203           Trips between CBD and:
204
205           Trvlshd Trvlshd Trvlshd
206                1          2          3
207           -----
208 MODE SHARES
209 Percent Vehicle Trips
210 Percent Transit Trips
211
212 TRAVEL TIMES by MODE
213 Average Vehicle Commuting Time (minutes)
214 Average Transit Commuting Time (minutes)
215 Transit/Vehicle Travel Time Ratio
216
217
218
219
220

                                CMD
```

The following equations are used in Step 4:

- % vehicle trips = sum of all vehicle trips / total trips
- % transit trips = sum of all transit trips / total trips
- Avg. vehicle commute time = sum of vehicle PHT / sum of vehicle trips
- Avg. transit commute time = sum of transit PHT / sum of transit trips
- Vehicle/Transit travel time ratio = avg. vehicle commute time/avg. transit commute time

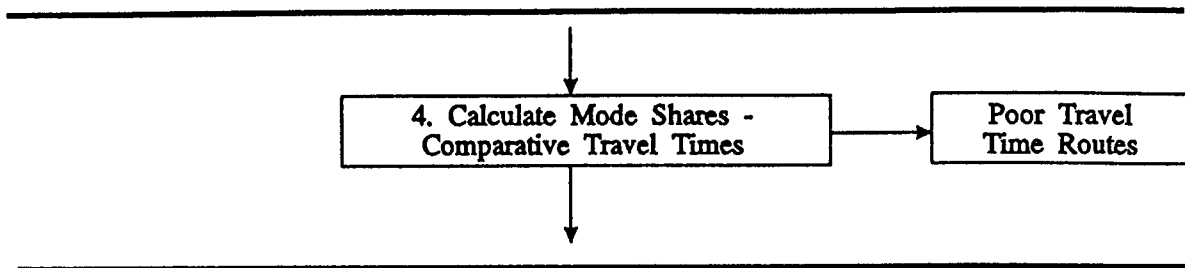
CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Steps 4.1 through 4.6

After responding to all menu prompts (menu help) or entering all Step 4 equations, the screen should look like this:

A201: [W34] 'MODE SHARES AND TRAVEL TIMES						MENU
Step 4.1	Step 4.2	Step 4.3	Step 4.4	Step 4.5	Step 4.6	Menu
Calculate non-transit travel share						
	A		B	C	D	E
201 MODE SHARES AND TRAVEL TIMES						
202						
203	Trips between CBD and:					
204						
205	Trvlshd Trvlshd Trvlshd					
206	1 2 3					
207	-----					
208 MODE SHARES						
209	Percent Vehicle Trips			89.6%	82.7%	81.3%
210	Percent Transit Trips			10.4%	17.3%	18.7%
211						
212 TRAVEL TIMES by MODE						
213	Average Vehicle Commuting Time (minutes)			39.0	36.0	34.0
214	Average Transit Commuting Time (minutes)			51.0	45.0	40.0
215	Transit/Vehicle Travel Time Ratio			1.31	1.25	1.18
216						
217						
218						
219						
220						
CMD						

CASE STUDY: ASSESSING COMMUTER BUS SERVICE



Questions to be answered:

1. Mode shares and travel times are calculated in this step. How did you calculate:
 - % Vehicle Trips?
 - % Transit Trips?
 - Avg. Vehicle Travel Times?
 - Avg. Transit Travel Times?
 - Travel Time Ratio?
2. Routes in what three travel sheds have relatively slow travel times?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Step 5 Using the results from Step 4, determine statistical relationships between travel time ratios and mode shares. Results should indicate those travel sheds where factors other than travel times are causing routes to not attract a reasonable number of riders. Regression analysis will be used to predict mode split (% transit trips) based on the existing relationship between mode split and travel time ratios.

Select Step 5 from the menu. Press **M** to complete Step 5 with menu help, any other key to complete Step 5 without menus. The initial Step 5 screen should look like this:

```
B221: [W9] "T-shPress M for Step 5 menus -- any other key for Step 5 w/out menus
```

	B	C	D	E	F	G	H	I
	T-shed	% Veh.	Ratio	% Transit	% Est.	+	-	
221	1	89.6%	1.31					
222	2	82.7%	1.25					
223	3	81.3%	1.18					
224	4	99.2%	1.36					
225	5	86.2%	1.26					
226	6	80.9%	1.13					
227	7	93.0%	1.13					
228	8	95.9%	1.44					
229	9	93.3%	1.37					
230	10	95.9%	1.33					
231	11	67.1%	1.00					
232	12	82.3%	1.25					
233	13	93.0%	1.33					
234	14	93.0%	1.29					
235	15	97.3%	1.45					
236	16	93.1%	1.32					
237	17	93.1%	1.31					
238	18	93.4%	1.30					
239	19	95.9%	1.45					
240								

CMD

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

- 5.1 The percentage of transit trips is calculated by subtracting the percentage of vehicle trips from one.
- 5.2 The regression relationship between travel time and mode share is based on the following equation:

$$\% \text{ Transit (dependent variable)} = \text{Travel Time Ratio (independent variable)} * X \text{ coefficient} + \text{Constant}$$

The Regression Output from Step 5.2 Should Look Like This:

B241: [W9]									Press Enter for menu
	B	C	D	E	F	G	H	I	
241									
242			Regression Output:						
243	Constant			0.834808					
244	Std Err of Y Est			0.044381					
245	R Squared			0.701229					
246	No. of Observations			19					
247	Degrees of Freedom			17					
248									
249	X Coefficient(s)			-0.56902					
250	Std Err of Coef.			0.090084					
251									
252									
253									
254									
255									
256									
257									
258									
259									
260									
					CMD				

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

5.3 The following formula is used to calculate an estimated percent transit from the regression equation calculated during Step 5.2:

$$\text{Est. \% Transit} = \text{Constant} + X \text{ Coefficient} * \text{Travel Time Ratio}$$

5.4 The confidence interval is a range that would include the true mean 9 out of every 10 times this relationship is tested. We are 90% sure that travel routes falling outside the confidence interval are so because of reasons other than sampling error. The following equation is used to set the upper confidence interval limit:

$$\text{Upper confidence limit} = \% \text{ Est. Transit} + \text{Standard Error of Y Estimate (from regression output)}$$

5.5 The lower confidence interval limit is defined using the following equation:

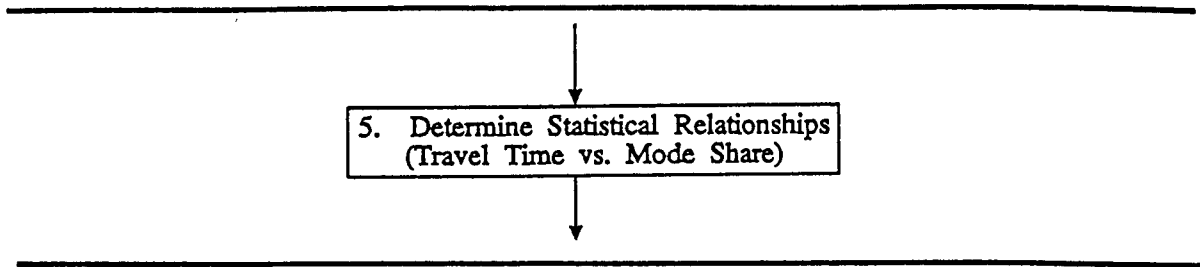
$$\text{Lower confidence limit} = \% \text{ Est. Transit} - \text{Standard Error of Y Estimate}$$

When Finished with Step 5 Regression, the Screen Should Look Like This:

H222: (P1) +F222-\$E\$244								MENU
Step 5.1	Step 5.2	Step 5.3	Step 5.4	Step 5.5	Menu			
Enter formula for calculating % transit								
	B	C	D	E	F	G	H	I
221	T-shed	% Veh.	Ratio	% Transit	% Est.	+	-	
222	1	89.6%	1.31	10.4%	9.1%	13.5%	4.6%	
223	2	82.7%	1.25	17.3%	12.4%	16.8%	7.9%	
224	3	81.3%	1.18	18.7%	16.5%	21.0%	12.1%	
225	4	99.2%	1.36	0.8%	5.9%	10.3%	1.4%	
226	5	86.2%	1.26	13.8%	11.9%	16.3%	7.5%	
227	6	80.9%	1.13	19.1%	19.0%	23.4%	14.6%	
228	7	93.0%	1.13	7.0%	19.2%	23.6%	14.7%	
229	8	95.9%	1.44	4.1%	1.3%	5.7%	-3.2%	
230	9	93.3%	1.37	6.7%	5.7%	10.2%	1.3%	
231	10	95.9%	1.33	4.1%	7.6%	12.0%	3.2%	
232	11	67.1%	1.00	32.9%	26.6%	31.0%	22.1%	
233	12	82.3%	1.25	17.7%	12.4%	16.8%	7.9%	
234	13	93.0%	1.33	7.0%	7.6%	12.0%	3.2%	
235	14	93.0%	1.29	7.0%	10.3%	14.8%	5.9%	
236	15	97.3%	1.45	2.7%	1.1%	5.5%	-3.4%	
237	16	93.1%	1.32	6.9%	8.1%	12.6%	3.7%	
238	17	93.1%	1.31	6.9%	9.0%	13.4%	4.5%	
239	18	93.4%	1.30	6.6%	9.4%	13.8%	4.9%	
240	19	95.9%	1.45	4.1%	1.0%	5.4%	-3.5%	

CMD

CASE STUDY: ASSESSING COMMUTER BUS SERVICE



Questions to be answered:

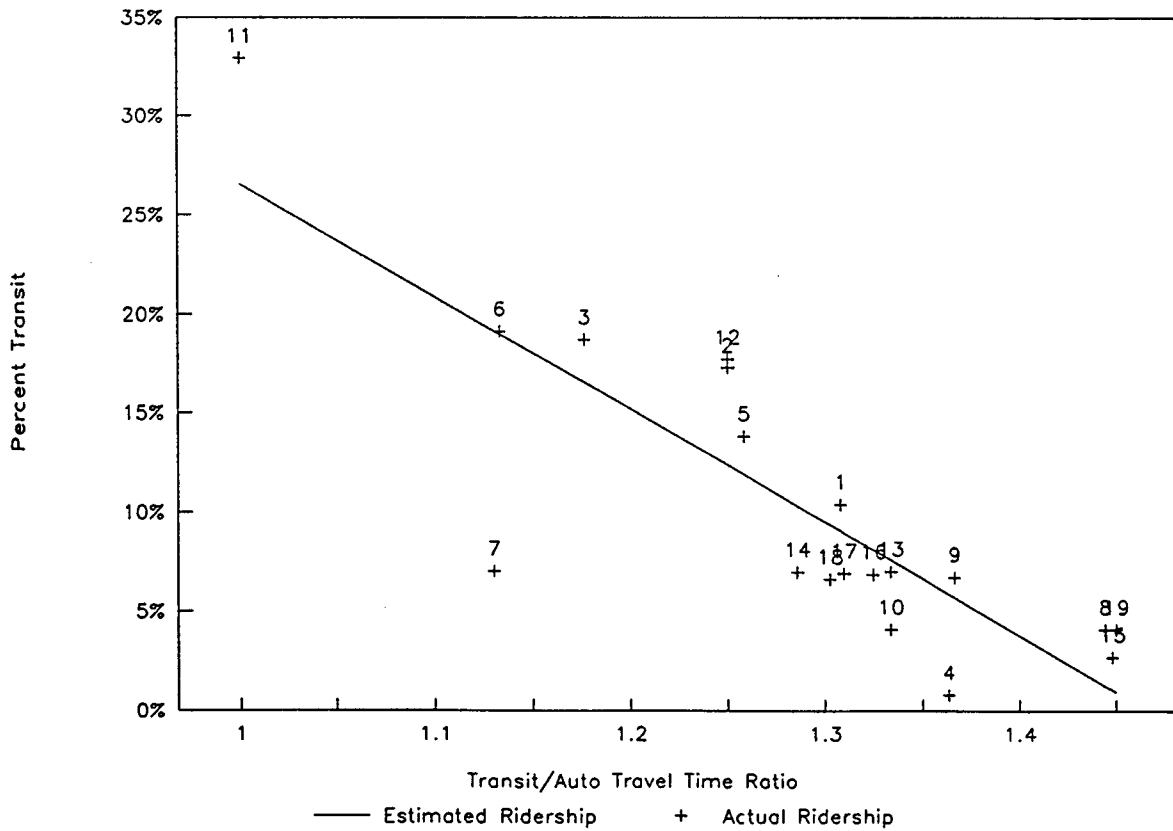
1. Results from Step 4 are transposed in the spreadsheet for regression analysis. Regression analysis will be used to identify routes that operate poorly due to "other" factors. How can regression analysis provide this information?
2. Travel times are to be related to mode shares to determine the strength of the relationship and to estimate what travel times should be given actual travel times. For this regression model, what is the independent variable? What is the dependent variable?
3. What is the R^2 of the travel time and mode share relationship? Is this a strong relationship?
4. An estimate of ridership will be calculated based on regression results and actual travel times. How would you calculate estimated ridership?
5. A confidence interval helps define routes that truly are operating better or worse than expected. How would you calculate the upper and lower limits of the confidence interval?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Step 6 Graph results using an XY-type graph available in Lotus 1-2-3. Select Step 6 from the menu and press **M** for menu help or press any other key to complete Step 6 without the menu.

- 6.1 You will need to sort the data, in ascending order, on the estimated percent transit column. All columns should be included in the sort range.
- 6.2 First graph the estimated versus actual percent transit. The estimated percent transit should appear as a line (no symbols) and the actual percent transit should appear as symbols (no line) with each symbol having a travel shed label.

TRAVEL TIME VS. MODE SHARE



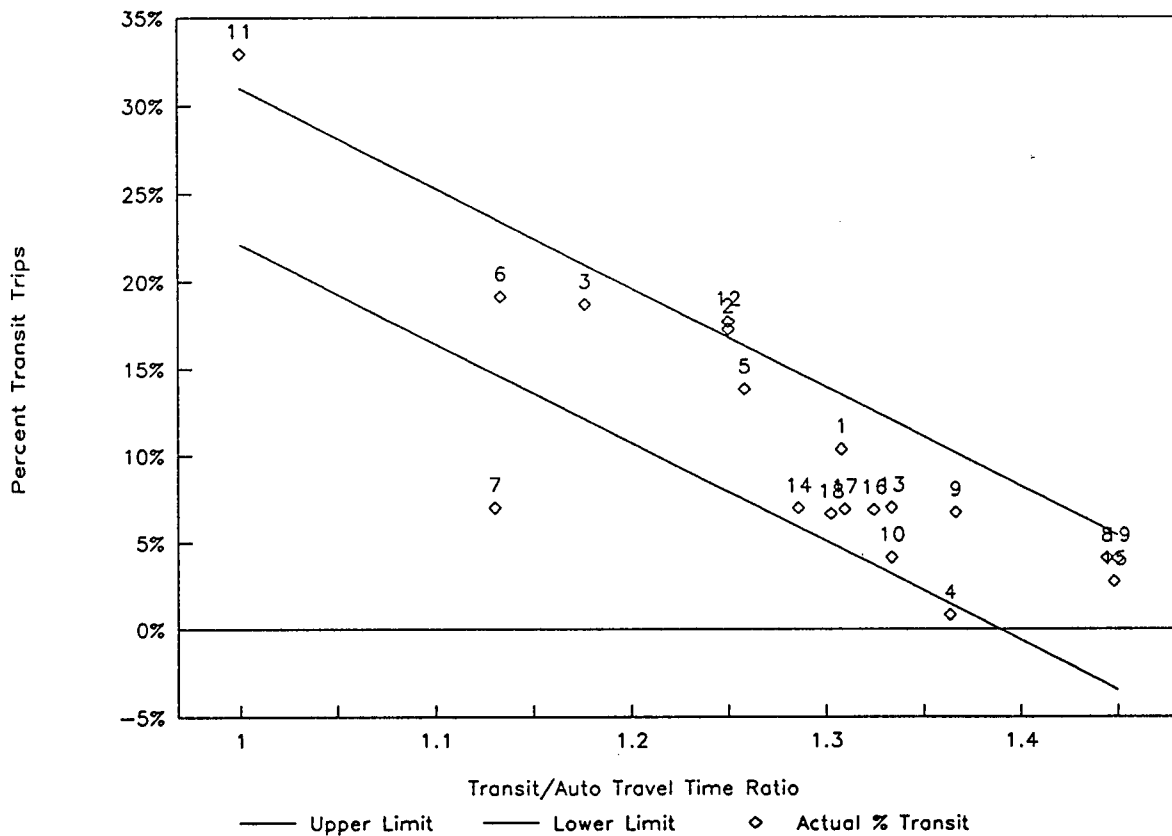
The travel sheds below the line are those with percent transit lower than expected. Those above the line are operating better than expected.

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

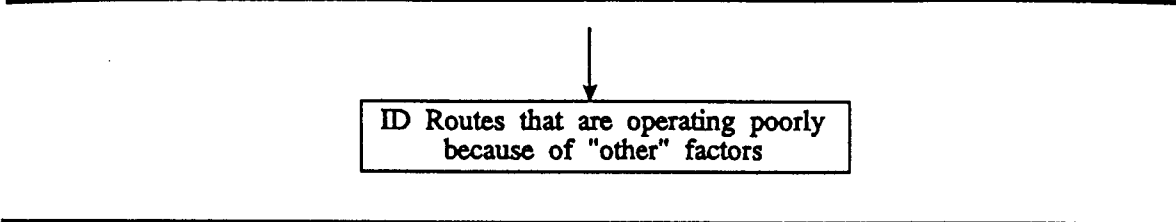
- 6.2 The second graph is similar to the first, except instead of a single estimated percent transit line, the confidence interval is used to evaluate routes. Remember, we are 90% confident that those routes falling outside the confidence interval are so for reasons other than sampling error. Therefore, we are 90% sure that travel sheds 4, 7, and 11 fall outside the confidence interval for reasons other than sampling error.

The Final Graph Should Look Like This:

TRAVEL TIME VS. MODE SHARE



CASE STUDY: ASSESSING COMMUTER BUS SERVICE



ID Routes that are operating poorly
because of "other" factors

Questions to be answered:

1. Given the results from the last graph, which routes are operating much better than expected?
2. Which routes are operating much worse than expected?
3. What other factors would you look for when evaluating the routes that operate worse than expected?

CTPP CASE STUDIES

Answer Sheet

Note: Many answers listed in this section are open to interpretation, and could be different given certain assumptions. These answers are to be used as a general guide.

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

PREPARING FOR ANALYSIS:

1. Persons and Households
2. Place (city or town)
3. Travel characteristics, including mode share (percent who use transit), work trip rates per household, vehicle occupancy, travel times
4. CTPP Table A-1, Total Persons (Place of Residence, Statewide Element - Geographic level is "Place"), Table A-4, Total Households; Table C-1, Time Leaving Home to Go to Work by Means of Transportation; Table C-3, Workers per Vehicle; Table C-7, Mean Travel Time to Work by Means of Transportation.
5. Yes. The CTPP contains only Journey-to-Work trips; most travel forecasting models use Home-Based Work trips, which include the trip from work to home. You will need to calculate work trip rates per household and other data summaries because they are not directly provided in the CTPP.

Step 1.1 1. CTPP tables containing 'persons' as the universe:

- A-1 Total Persons
- A-5 Persons by Origin by Race
- A-6 Persons by Sex by Age

2. Work trip rates per household - decrease
Work trip lengths - increase
Work trip vehicle occupancies - (increase if greater density)
Percentage of work trips made by transit - increase
Percentage of peak period trips - increase (due to peak spreading)

Step 2.1 1. Cross tabulations include: Size of HH, No. of Workers in HH, Means of Transportation, Total/Peak Period, Median/Mean Income, etc.

2. 611,310

Step 2.2 3. Yes. The factor will likely decrease as an urban area's size increases, due to greater trip chaining and the increased potential for shift to transit.

4. 1,106,471

Step 2.3 5. Small town has the highest trip rate (2.70); River City has the lowest (1.98).

6. Yes. Dwelling unit type, automobile ownership, household income. CTPP Tables A-11, A-13, A-14, A-15, A-16, A-17, A-18 (the universe must be 'households')

Step 3.1 1. Workers 16 years and over using a car, truck or van

2. 1.26

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

(Continued)

- Step 3.2 3. Bus/trolley bus, streetcar/trolley car, railroad, subway/elevated, ferry, taxi, motorcycle, bicycle, walked, worked at home, other.
 4. 2,987
- Step 3.3 5. Subtract non-vehicle JTW trips from total JTW trips.
 6. 0.9 percent
- Step 4.1 1. Workers 16 years and over who did not work at home
 2. 6:30 AM to 8:29 AM
 3. A-31, Time Leaving Home to Go to Work; A-57; and B-18, Time of Arrival at Work by Means of Transportation
 4. 463,947
- Step 4.2 5. River City
- Step 5 1. Mean (or median) travel time. Median should be used when outliers (or unusually high or low data points) are likely to skew the results.
 2. Actual travel times tend to be longer than perceived travel times, in part because some Census long form respondents may have identified in vehicle travel times rather than door-to-door travel times.
 3. Daily = 11.7, Peak = 13.3
- Step 6.4 1. Trip rates decrease as population increases.
 2. .988
 3. Yes
 4. .895
 5. No
 6. (a) .191
 (b) Yes. Two outliers tend to diffuse the scatterplot, making the relationship weaker
 7. Yes. There may be "cut off" points in cities of this size for transit service.
 8. .924
 9. Yes
 10. .851
- Other Questions*
1. Compare vehicle occupancy factors, mode split and other travel demand parameters for reasonableness based on population.
 2. In most cases, yes.

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

PREPARING FOR ANALYSIS:

1. Workers 16 years and over who did not work at home
2. Traffic analysis zones (or census tract)
3. Transit route map and a TAZ map to identify the zones that comprise commuter route travel sheds and central business district TAZs.
4. Travel times by means of transportation. Other cross-tabulations that may be helpful would be number of workers per carpool and average vehicle occupancy.
5. CTPP Table 3-1, Time Leaving Home to Go to Work by Means of Transportation (Journey-to-Work, Urban Element - geographic summary level is Traffic Analysis Zones); Table 3-7, Mean Travel Time to Work in Minutes by Means of Transportation.

Step 2 1. Travel sheds include all areas served by a single transit line. The transit system's route maps will indicate which areas are served by a bus route to the CBD. TAZs are then grouped to approximate the travel sheds.

Step 3 1. CTPP Table 3-1, Time Leaving Home to Go to Work - Total and Peak Period - By Means of Transportation to Work
2. Total number of CBD trips = 102,999
 Travel shed 13 generates the most trips (22,987)
3. CTPP Table 3-7, Mean Travel Time to Work (in Minutes) by Means of Transportation by Time Leaving Home to Go to Work - Total/Peak Period.
 Mean travel times should be used. Median travel times should be used when outliers (data not falling within expected ranges) are thought to skew results.
4. 42 minutes; 606 minutes
 Weighted average is calculated by combining travel times with trips
5. Multiply trips time mean travel times
6. 1,040,289
 7.5 percent

Step 4 1. Percent Vehicle Trips = Sum of all non-transit vehicle trips divided by total trips.
 Percent Transit Trips = Sum of all transit trips divided by total trips
 Sum of all non-transit person hour travel times divided by the sum of all non-transit vehicle trips.
 Sum of all transit person hour travel times divided by the sum of all transit trips.
 Travel time ratio is calculated by dividing average transit commuting time by average vehicle commuting time (in minutes).
2. Routes 8, 15 and 19.

CASE STUDY: ASSESSING COMMUTER BUS SERVICE (continued)

- Step 5
1. Regression analysis provides a statistically accurate picture of the data, and identifies whether a relationship is likely to be true based on the variables.
 2. Independent variable = travel time ratio
Dependent variable = mode share
 3. $R^2 = .70$; moderately strong
 4. Use the regression equation parameters multiplied by the travel time ratio to estimate ridership.
 5. Add the estimated transit percentage to the standard error for the upper limit, subtract for the lower limit.

- Step 6
1. Routes 11, 12, 2
 2. Routes 7 and 4
 3. Frequency of bus service, location of stops (walk distance), etc.

CHAPTER 3

CHECKING FOR REASONABLENESS

Introduction

When preparing to use the CTPP tabulations, be aware that you will need to make several checks of the data to assure its reasonableness before using it in an analysis. As with many data collection efforts, there are both sampling and non-sampling errors that could create problems if not detected early and recognized or corrected. This chapter begins with a discussion of how the CTPP should be reviewed to minimize such errors, and identifies some considerations that must be made before using the data for certain applications. The second part of the chapter identifies ways to access CTPP data and where to get help with Census questions and problems.

Types of Errors

Non-Sampling errors are due to mistakes made during data collection or processing at the Census Bureau. These may also be due to a general misinterpretation of questions by respondents. Probably the best-known non-sampling error associated with the 1990 Census was the reported under-counting of the population. The Census Bureau recognized that there would be certain groups that, for various reasons, would not respond to the Census questionnaire. As much as possible, the Census Bureau attempted to make contact with these groups, but problems were still evident. The Census Bureau also made a number of checks of the data once collected to assure the accuracy of the collection and processing effort.

Overall it is important to recognize that because of the enormity of the Census data, it is unlikely that all mistakes were caught and corrected before the data were summarized and tabulated. Furthermore, there may have been problems with how some of the questions were interpreted by respondents. An example would be the travel time estimates that were reported. These may be in error because of the differences between perceptions and reality, and could have been in error because respondents tend to report in-vehicle travel times instead of door-to-door travel times. The Census Bureau extensively pretests the survey forms prior to each Census and makes an attempt to eliminate the potential for misinterpretation. Nevertheless, for some of the more lengthy questions on the long form, misinterpretation could have occurred.

There is also the potential for **sampling errors** associated with long form responses. The long form was distributed to one in six households, on average, around the country. Because the long form was only completed by selected households, there is a probability that the long form sample does not reflect the population at large. This probability is known as sampling error. In Census publications, the standard error associated with each of the long form response tabulations is presented so that data users can estimate the confidence interval for long form estimates.

As an example, the total labor estimate for a place is reported to be 9,948. This estimate is based on occupation and employment questions asked on the Census long

form. Because the labor force questions were not asked of everyone, the results had to be factored to determine the total labor force within the place. This total estimate may or may not be an accurate representation of the true labor force within the place. To determine the probability that the estimated labor force total encompasses the true labor force total within the place, the confidence interval shall be used. (The confidence interval is determined by multiplying the standard error by the desired confidence level then adding and subtracting the results to or from the estimate.)

Thus, if users wanted to be 90 percent sure that the confidence interval (CI) enclosed the true population of a true labor force total, the following equation would be used:

$$179 \times 1.645 = 294; \quad \text{CI: } 9,948 + 294 = 10,242, \quad 9,948 - 294 = 9,654$$

(Where 179 is the standard error and 1.645 is the 90% confidence level factor)

Thus, we can be 90 percent assured that the true labor force in the place (estimated by the Census Bureau in this example as 9,948) is somewhere within that confidence interval.

Weighting

Weighting is used to factor Census long form results to 100 percent estimates. Recall the labor force estimate used in the previous section. That total estimate had to be factored from the one in six sample of the long form. The following steps were used by the Census Bureau to weight long form responses:

- areas were defined for the weighting process and sampling plans determined for each area;
- long form questionnaires were sent randomly to households within the area based on the sampling plan for that area;
- long form responses from the area were assigned an initial weight that is the inverse of the probability of being selected;
- the initial weight was adjusted using a ratio developed from household and person characteristics for that area based on 100 percent count information; and,
- final weights were assigned to each long form response.

The actual weighting process took into account a number of household and person characteristics, at several different levels, in order to make adjustments. CTPP users should note that the weighting and its assumptions can present problems, especially when dealing with Place of Work and JTW information. The possibility of mistakes in "geocoding" (or attaching an address response to a census-defined geography level) may further compound error in the CTPP. Place of Work and JTW tabulations must, therefore,

be checked carefully. For more detailed information about weighting procedures, refer to Appendix C of the STF-3A documentation provided by the Census Bureau.

Reasonableness Checks

Despite the probability of non-sampling errors associated with the Census data, no other data sources exceed the accuracy of the 100 percent short form responses by Place of Residence. In fact, Census Place of Residence information is typically used to check other data sources. The Place of Residence tabulations of long form responses are also very accurate because of the size of the sample. Seldom are local surveys conducted with a sample size larger than the long form sampling rate. As sample sizes increase, the magnitude of the sampling error decreases exponentially. In other words, the probability of selecting a sample that represents the entire population increases as the size of the sample increases. Therefore, it is unlikely that there will be substantial sampling errors associated with long form responses.

Where errors do occur in the CTPP, they will most likely be found in Place of Work and JTW tabulations. Errors here will usually be due to problems with geocoding addresses provided on the long form to Census geography. Such errors could be caused by respondents not providing accurate addresses, or by the inability of Census geocoders to accurately locate addresses. Again, if there are any geocoding errors evident, they will be compounded by the weighting used in adjusting long form responses to represent the total population.

When checking Census data, it is best to begin by conducting a series of internal checks. These checks could include comparing Place of Work totals with Census totals from other Census products. For example, Total Persons tabulated in the CTPP can be compared against total persons tabulated in one of the Census Bureau's other products, such as the STF-3A tables. If the totals in the CTPP and STF-3A tables are equal, then further checks of characteristics can also be made. For example, household sizes reported in the CTPP can be compared with those reported in the STF-3A. These internal checks should occur at the MSA level first, and then checks should be made at smaller geographic levels. If the CTPP tabulations do not equal those results found in the STF-3A at any level, you will then need to step back and try to determine why such differences exist.

Because the CTPP is the only Census product that provides Place of Work and JTW tabulations, you will not be able to make the same types of internal checks with these tabulations. To the extent possible, checks with other employment data sources will need to be made of work place tabulations. Moreover, travel demand data sources, such as travel diaries, etc., should be used to check JTW information.

Use of CTPP Data in Travel Demand Forecasting

Many users of the CTPP will be interested in its travel demand forecasting applications. In addition to using the socio-economic data (such as population by TAZ, dwelling units, household size, employment data and vehicles available) as inputs into the

modeling process, the CTPP JTW data can be used to check model output for reasonableness.

Usual and Average Day Conditions

Before conducting such modeling checks, the user should be cautioned that the Census reports travel in terms of usual day conditions, but that travel demand models typically produce output for average day conditions. Because of the wording of the Census JTW questions (Questions 22-24 in Appendix B), **the CTPP JTW data does not contain information about chained trips, mode shifts, absent workers or the trip from work to home**, these are all part of an "average" day of trip-making. On an average day, people get sick and stay home from work; cars won't start, so travelers shift modes; and people make intermediate stops to run errands. These travel nuances are not captured in the Census questionnaire, which asks only how travel was usually completed last week. In addition, the CTPP only contains information about the mode used for the longest segment of the trip to work (rather than all modes used in the trip to work), and information only for the job at which the respondent worked the most. Thus, second jobs are excluded. Furthermore, the Place of Work coding does not accurately account for those who have no fixed place of work, such as construction workers and some sales people. This suggests that the CTPP data needs to be converted from *usual day* to *average day* conditions.

Information needed to make the conversion from usual to average day conditions is typically taken from travel diary surveys and local data sources. Trip chaining, second jobs and mode shifts come from household travel surveys. Absentee factors and adjustments for those without a fixed workplace may come from local employment data or by checking with local employers. These conversions must take place before comparing CTPP JTW data with model estimated Home-Based Work trips.

The CTPP can be used to check model output at each step in the modeling process.

- Trip generation checks can be made by comparing the CTPP JTW data (after converting the data to average day conditions) with model generated Home-Based Work productions and attractions to identify discrepancies where more detailed analysis must take place.
- Trip distribution checks can be made by comparing Census-reported travel times for the JTW with model-produced work trip travel times and trip lengths, and by making trip table comparisons (as shown in **Exhibit 3-1**).
- Mode split comparisons can also be made by using the CTPP to identify transit dependent riders through tables on automobile availability, income levels, mobility limitation status and age.
- Sensitivity checks can also be made for those choice transit riders by using the CTPP to analyze automobile vs. transit travel times, departure times, worker density and occupation/class of worker. Again, it should be noted

that the CTPP JTW data will need to be converted into daily Home-Based Work data before these checks can be made.

TRIP TABLE CHECKS

GRAVITY MODEL RESULTS

	1	2	3	4	5	6	Total
1	43	465	123	247	187	199	1264
2	465	58	182	344	417	132	1598
3	123	182	63	119	274	150	911
4	247	344	119	77	510	306	1603
5	187	417	274	510	24	215	1627
6	199	132	150	306	215	17	1019
Total	1264	1598	911	1603	1627	1019	8022

CTPP RESULTS

	1	2	3	4	5	6	Total
1	52	410	157	263	201	157	1240
2	412	50	136	367	457	110	1582
3	112	197	68	136	251	103	867
4	210	357	162	100	477	272	1578
5	152	453	251	493	46	163	1558
6	132	101	152	253	187	23	848
Total	1070	1568	926	1612	1619	828	7673

PCT DIFFERENCE

	1	2	3	4	5	6	Total
1	-17	13	-22	-6	-7	27	2
2	13	16	34	-6	-9	20	1
3	10	-8	-7	-13	-9	-46	5
4	18	-4	-27	-23	7	13	2
5	23	-8	9	3	-54	32	4
6	51	31	-1	21	15	-26	20
Total	18	-2	-2	-1	0	23	5

Exhibit 3-1 shows three trip tables; the first two tables (top and center) were created from a travel demand model and the CTPP, while the third (bottom) table summarizes differences between the first two tables. The left column and top row are the Traffic Analysis Zones for the urban area. The third trip table shows the percent difference between the two tables, allowing you to identify potential problem areas where your model and CTPP data do not correspond.

Exhibit 3-1

Using the CTPP Directly for Analysis

The conversions of Census JTW data mentioned above are not needed for all types of analysis. There are a number of cases in which transportation planners can take the data in CTPP tables for direct analysis of existing conditions. In this case, the CTPP provides a "snapshot" of conditions as they were in 1990, and can be used for comparison with other data sources collected more recently.

The reader should note that the **analysis universe** (e.g., the item being measured) must be contained in the CTPP before direct analysis can take place. For example, workers over age 16 is a universe in the CTPP, whereas Vehicle Miles of Travel (VMT) is not in the CTPP and cannot be measured using Census data. The universe for certain tables is shown in Appendix A. Typical universes in the CTPP are Persons, Households and Workers. In addition, the evaluation must be of **existing or near term conditions**. It is not possible to use the CTPP to directly analyze travel modes that do not currently exist in the study area, or to analyze future year estimates of travel conditions. For example, it is possible to analyze existing commuter bus service because commuters are

a universe in the CTPP (workers age 16 and over), the travel mode being measured is one of the cross tabulations in the CTPP JTW tables, and existing bus service (if available) could have been a mode taken in 1990. It would not be possible, however, to use the CTPP to directly analyze travel times to a *proposed* suburban employment center development on a *proposed* light rail line.

Information obtained from the long form and contained in the CTPP can be used to update model parameters, such as automobile occupancies and mode split relationships. Underlying trends (trip lengths, household size, and vehicles available) can also be evaluated. Additionally, CTPP data taken from the short form questionnaire includes total counts of the commuter market and the socio-economic information surrounding these counts; as information for 100% of the population, this data can be very valuable in doing accurate, direct analysis.

Applications for which the CTPP JTW data can be used directly for analysis include such situations as: assessing the impacts of a plant relocation; assessing the potential of car- and van-pool programs; evaluating the effectiveness of commuter bus service; and analyzing tax incentives for commuters to shift modes. Other options are certainly possible as long as the universe is contained in the CTPP and the existing or near term condition is being measured.

Accessing the CTPP

The Federal Bureau of Transportation Statistics (BTS) at the U.S. Department of Transportation has released Statewide Parts A, B and C of the CTPP on CD-ROM. An ASCII data dump of the Urban Element Parts 1, 2 and 3 has also been released to state DOTs on CD-ROM. The CD-ROM itself does not include any software to process or analyze the data. However, you can use any number of programming languages like Basic, C, Fortran or SAS to process the data. CD-ROM versions of the Urban Element Parts 1, 2 and 3, will be released in the future.

Software

The CTPP, even for the smallest of states and urban areas, is a formidable collection of tables that will push most personal computers to their limits. Therefore, special considerations have been made for users who do not have access to a mainframe computer and wish to manipulate CTPP information with personal computers. Because of the number of cross-tabulations associated with each table and the size of the geographic areas of analysis, many tables have well over 100 data cells. Moreover, most spreadsheet, database and statistical software are limited to reading only 250 fields of data, and are not able to import and read the larger CTPP tables. To help users mitigate these issues and make effective use of the CTPP, special software has been created.

BTS is distributing software that will make extracting and formatting the CTPP tables considerably easier. The software, called TransVU-CTPP, has been sent to state Departments of Transportation as part of the Statewide CD-ROM version of the CTPP. TransVU is in the public domain. It is browse and extraction software for use with Microsoft Windows, and is designed to display geographic data and export the data in

common personal computer formats. TransVU displays the available CTPP tables on one side of the screen with maps on the other side, showing state and county boundaries, place names, major roads and other geographic features. Users will be able to query and extract the CTPP data through the map displays. Although TransVU is not mapping software in the manner of a Geographic Information System and other software products, users will be able to create rough thematic maps from the CTPP data.

Exhibit 3-2 shows a screen from TransVU that illustrates how the information is organized. The exhibit shows the counties in the state of Delaware on the right-hand side, and Table A-7, Sex by Employment Status, in spreadsheet format on the left side. The highlighted column shows the total employment, including both sexes, for Kent County. You can use the cursor or mouse to maneuver between data rows and columns. A series of icons for different functions runs across the top of the screen. Once you display the data, you may export the data in the table so that it can be manipulated in a variety of spreadsheet or database software packages.

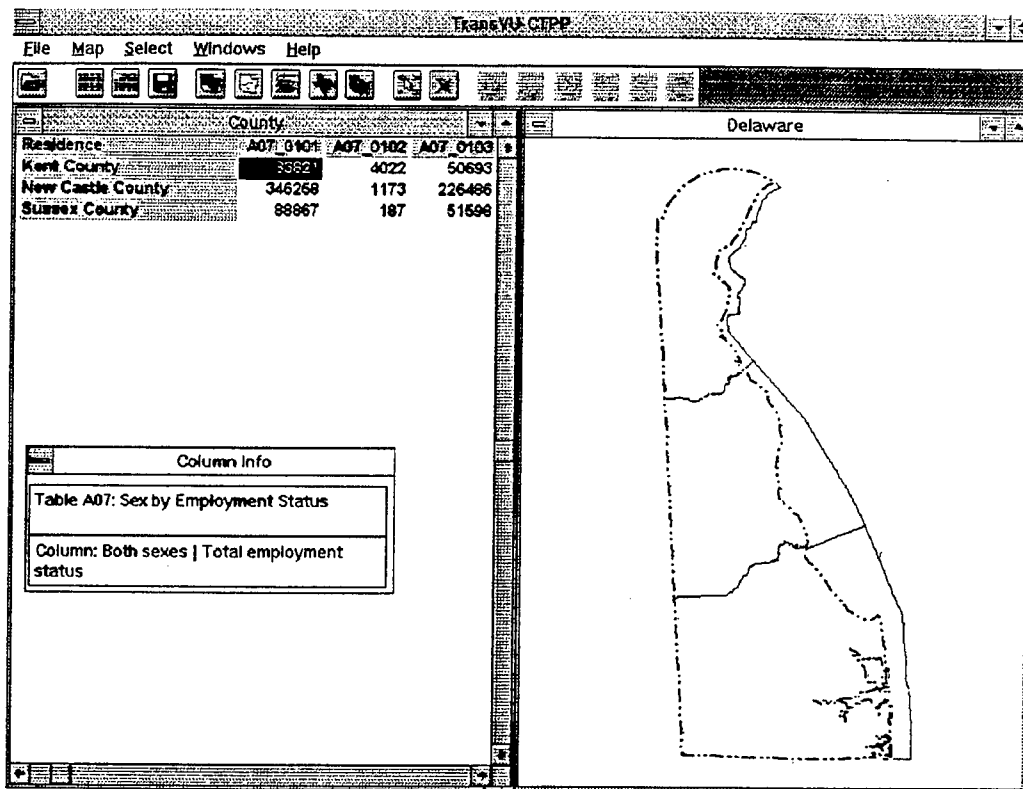


Exhibit 3-2

TransVU runs under Microsoft Windows version 3.1, and includes an install program. Hardware needs for TransVU require, at a minimum, a personal computer running on an Intel 80386 chip or better, 4 MB of RAM, a hard disk and a CD-ROM drive. Performance will depend on how many files the user moves from the CD-ROM to the hard disk with the TransVU install program.

Instructions and a detailed discussion of the applications of TransVU are beyond the scope of this handbook. The software is fairly self-explanatory, with a detailed help feature. However, it is important to note that the software enables you to examine specific

CTPP tables and export the data into spreadsheet format, as well as perform various types of analyses by selecting elements of the data in which you are most interested. For example, TransVU allows you to search for those counties or cities (if any) in which the total number of households with two or more workers and having no vehicles available exceeds 1,000. You can obtain a copy of TransVU by calling the transportation data center for your state or the Bureau of Transportation Statistics at 1-202-366-DATA. An updated version of TransVU for the CTPP Urban Element is under development and will be released in the future.

BTS Technical Assistance

U.S. DOT has contracted with JHK & Associates to provide additional technical assistance for the CTPP Urban Element. The technical assistance available covers transportation planning applications of Urban Element data. You may contact JHK directly at **(407) 422-8813**, to obtain more information about this program.

CTPP Telephone Assistance and Electronic Bulletin Board System

The Census Bureau and U.S. DOT have joined to create an Electronic Bulletin Board System (EBB) to answer questions about CTPP availability and applications, and to serve as a message and file transfer system. Staff are available during normal business hours to field questions and provide information about the CTPP at **(301) 457-2454**. Callers may leave a message after hours.

Those who have access to a computer and modem may call the **Census Bureau EBB at (301) 763-7554**. It provides users with an opportunity to correspond with U.S. DOT and Census Bureau technical staff and others about the applications of the CTPP. The EBB also allows users to upload and download files for use in processing or analyzing Census data. A menu system is provided to navigate through the system into different message and file areas with instructions provided for file transfers. There are also a number of software programs available that allow you to access the CTPP tables. The EBB is an excellent resource for posting questions and answers about the CTPP and other Census products, or software packages that can be purchased to extract CTPP data. Several files are available for downloading from the EBB, including SAS code for CTPP data processing, and a list of MPO and state DOT contacts for distribution of CTPP packages.

For more information about these and other CTPP services, contact the FHWA Planning Support Branch at (202) 366-0182.

APPENDIX A

1990 CENSUS TRANSPORTATION PLANNING PACKAGE

TABLE OUTLINES STATEWIDE ELEMENT PARTS A, B and C and URBAN ELEMENT PARTS 1, 2 AND 3

1990 CTPP TABLE OUTLINES

Statewide Element Part A—Tabulations by Area of Residence

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
A-1.	N/A	TOTAL PERSONS(1) <i>Universe: Persons</i> Total	1
A-2.	N/A	UNWEIGHTED SAMPLE COUNT OF PERSONS(1) <i>Universe: Persons</i> Total	1
A-3.	N/A	PERCENT OF PERSONS IN SAMPLE(1) <i>Universe: Persons</i> Total	1
A-4.	N/A	TOTAL HOUSEHOLDS(1) <i>Universe: Households</i> Total	1
A-5.	I - 4	HISPANIC ORIGIN(3) BY RACE(4) <i>Universe: Persons</i> Total, Hispanic origin: All races White Black Other Not of Hispanic origin: (Repeat RACE) Hispanic origin: (Repeat RACE)	12
A-6.	I - 3	SEX(3) BY AGE(12) <i>Universe: Persons</i> Both sexes: All ages Under 16 years 16 and 17 years 18 to 20 years 21 to 24 years 25 to 34 years 35 to 44 years 45 to 54 years 55 to 61 years	36

62 to 64 years
65 to 74 years
75 years and over
Male:
(Repeat AGE)
Female:
(Repeat AGE)

A-7. N/A SEX(3) BY EMPLOYMENT STATUS(6) 18
Universe: Persons 16 years and over
Both sexes:
Total, employment status
In labor force:
In Armed Forces
Civilian:
Employed:
At work
Not at work
Unemployed
Not in labor force
Male:
(Repeat EMPLOYMENT STATUS)
Female:
(Repeat EMPLOYMENT STATUS)

A-8. I-5 SCHOOL ENROLLMENT(6) BY AGE(8) 48
Universe: Persons 3 years and over
Total, school enrollment:
Persons 3 years and over
3 and 4 years
5 years
6 to 11 years
12 to 17 years
18 to 64 years
65 to 74 years
75 years and over
Enrolled:
In nursery school or kindergarten:
(Repeat AGE)
In grade 1 to 9:
(Repeat AGE)
In grade 10 to 12:
(Repeat AGE)
In college:
(Repeat AGE)
Not enrolled:
(Repeat AGE)

A-9.	N/A	MOBILITY LIMITATION STATUS(3) BY AGE(11) 33 <i>Universe: Persons 16 years and over</i> Total, mobility limitation status: Persons 16 years and over 16 and 17 years 18 to 20 years 21 to 24 years 25 to 34 years 35 to 44 years 45 to 54 years 55 to 61 years 62 to 64 years 65 to 74 years 75 years and over With a mobility limitation: (Repeat AGE) No mobility limitation: (Repeat AGE)	33
A-10.	N/A	MOBILITY LIMITATION STATUS(3) BY EMPLOYMENT STATUS(6) 18 <i>Universe: Persons 16 years and over</i> Total, mobility limitation status: Total, employment status In labor force: In Armed Forces Civilian: Employed: At work Not at work Unemployed Not in labor force With a mobility limitation: (Repeat EMPLOYMENT STATUS) No mobility limitation: (Repeat EMPLOYMENT STATUS)	18
A-11.	I-1	SEX(3) BY AGE(12) FOR PERSONS IN HOUSEHOLDS 36 <i>Universe: Persons in households</i> Both sexes: All ages Under 16 years 16 and 17 years 18 to 20 years 21 to 24 years 25 to 34 years 35 to 44 years 45 to 54 years 55 to 61 years 62 to 64 years	36

65 to 74 years
 75 years and over
 Male:
 (Repeat AGE)
 Female:
 (Repeat AGE)

A-12. I-2 SEX(3) BY AGE(12) FOR PERSONS IN GROUP QUARTERS 36
Universe: Persons in group quarters

Both sexes:
 All ages
 Under 16 years
 16 and 17 years
 18 to 20 years
 21 to 24 years
 25 to 34 years
 35 to 44 years
 45 to 54 years
 55 to 61 years
 62 to 64 years
 65 to 74 years
 75 years and over
 Male:
 (Repeat AGE)
 Female:
 (Repeat AGE)

A-13. N/A HOUSEHOLD SIZE(5) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 30
Universe: Households

All households:
 Total, number of workers in household
 No workers in household
 1 worker in household
 2 workers in household
 3 workers in household
 4 or more workers in household
 1-person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
 2-person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
 3-person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
 4-or-more-person person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)

A-14. N/A NUMBER OF WORKERS IN HOUSEHOLD(6) BY HOUSEHOLD INCOME IN 1989(26)...156
Universe: Households

All households:
 Total, household income
 Less than \$5,000

- \$5,000 to \$9,999
- \$10,000 to \$12,499
- \$12,500 to \$14,999
- \$15,000 to \$17,499
- \$17,500 to \$19,999
- \$20,000 to \$22,499
- \$22,500 to \$24,999
- \$25,000 to \$27,499
- \$27,500 to \$29,999
- \$30,000 to \$32,499
- \$32,500 to \$34,999
- \$35,000 to \$37,499
- \$37,500 to \$39,999
- \$40,000 to \$42,499
- \$42,500 to \$44,999
- \$45,000 to \$47,499
- \$47,500 to \$49,999
- \$50,000 to \$54,999
- \$55,000 to \$59,999
- \$60,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$124,999
- \$125,000 to \$149,999
- \$150,000 or more

- No workers in household:
(Repeat HOUSEHOLD INCOME)
- 1 worker in household:
(Repeat HOUSEHOLD INCOME)
- 2 workers in household:
(Repeat HOUSEHOLD INCOME)
- 3 workers in household:
(Repeat HOUSEHOLD INCOME)
- 4 or more workers in household:
(Repeat HOUSEHOLD INCOME)

A-15. N/A MEDIAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 6
Universe: Households
 Total
 No workers in household
 1 worker in household
 2 workers in household
 3 workers in household
 4 or more workers in household

A-16. N/A MEAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 6
Universe: Households
 Total
 No workers in household

- 1 worker in household
- 2 workers in household
- 3 workers in household
- 4 or more workers in household

A-17. N/A HOUSEHOLD SIZE(5) BY VEHICLES AVAILABLE(9) 45

Universe: Households

All households:

- Total, vehicles available
- No vehicles
- 1 vehicle
- 2 vehicles
- 3 vehicles
- 4 vehicles
- 5 vehicles
- 6 vehicles
- 7 or more vehicles

1 person in household:
 (Repeat VEHICLES AVAILABLE)

2 persons in household:
 (Repeat VEHICLES AVAILABLE)

3 persons in household:
 (Repeat VEHICLES AVAILABLE)

4 or more persons in household:
 (Repeat VEHICLES AVAILABLE)

A-18. N/A NUMBER OF WORKERS IN HOUSEHOLD(6) BY VEHICLES AVAILABLE(9) 54

Universe: Households

All households:

- Total, vehicles available
- No vehicles
- 1 vehicle
- 2 vehicles
- 3 vehicles
- 4 vehicles
- 5 vehicles
- 6 vehicles
- 7 or more vehicles

No workers:
 (Repeat VEHICLES AVAILABLE)

1 worker:
 (Repeat VEHICLES AVAILABLE)

2 workers:
 (Repeat VEHICLES AVAILABLE)

3 workers:
 (Repeat VEHICLES AVAILABLE)

4 or more workers:
 (Repeat VEHICLES AVAILABLE)

A-19. N/A	<p>NUMBER OF PERSONS 16 YEARS AND OVER IN HOUSEHOLD(5) BY VEHICLES AVAILABLE(9) 45</p> <p><i>Universe: Households with at least one person 16 years and over</i></p> <p>All households:</p> <ul style="list-style-type: none"> Total, vehicles available No vehicles 1 vehicle 2 vehicles 3 vehicles 4 vehicles 5 vehicles 6 vehicles 7 or more vehicles <p>1 person 16 and over: (Repeat VEHICLES AVAILABLE)</p> <p>2 persons 16 and over: (Repeat VEHICLES AVAILABLE)</p> <p>3 persons 16 and over: (Repeat VEHICLES AVAILABLE)</p> <p>4 or more persons 16 and over: (Repeat VEHICLES AVAILABLE)</p>	45
A-20. N/A	<p>VEHICLES AVAILABLE(9) BY HOUSEHOLD INCOME IN 1989(26) 234</p> <p><i>Universe: Households</i></p> <p>Total, vehicles available:</p> <ul style="list-style-type: none"> All incomes Less than \$5,000 \$5,000 to \$9,999 \$10,000 to \$12,499 \$12,500 to \$14,999 \$15,000 to \$17,499 \$17,500 to \$19,999 \$20,000 to \$22,499 \$22,500 to \$24,999 \$25,000 to \$27,499 \$27,500 to \$29,999 \$30,000 to \$32,499 \$32,500 to \$34,999 \$35,000 to \$37,499 \$37,500 to \$39,999 \$40,000 to \$42,499 \$42,500 to \$44,999 \$45,000 to \$47,499 \$47,500 to \$49,999 \$50,000 to \$54,999 \$55,000 to \$59,999 \$60,000 to \$74,999 \$75,000 to \$99,999 \$100,000 to \$124,999 	234

\$125,000 to \$149,999
\$150,000 or more
No vehicles:
(Repeat HOUSEHOLD INCOME)
1 vehicle:
(Repeat HOUSEHOLD INCOME)
2 vehicles:
(Repeat HOUSEHOLD INCOME)
3 vehicles:
(Repeat HOUSEHOLD INCOME)
4 vehicles:
(Repeat HOUSEHOLD INCOME)
5 vehicles:
(Repeat HOUSEHOLD INCOME)
6 vehicles:
(Repeat HOUSEHOLD INCOME)
7 or more vehicles:
(Repeat HOUSEHOLD INCOME)

A-21. N/A MEDIAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9) 9
Universe: Households

Total
No vehicles
1 vehicle
2 vehicles
3 vehicles
4 vehicles
5 vehicles
6 vehicles
7 or more vehicles

A-22. N/A MEAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9) 9
Universe: Households

Total
No vehicles
1 vehicle
2 vehicles
3 vehicles
4 vehicles
5 vehicles
6 vehicles
7 or more vehicles

A-23. N/A UNITS IN STRUCTURE(7) BY VEHICLES AVAILABLE(9) 63
Universe: Households

Total, units in structure:
Total, vehicles available
No vehicles
1 vehicle
2 vehicles

Table Table Title

- 3 vehicles
- 4 vehicles
- 5 vehicles
- 6 vehicles
- 7 or more vehicles
- 1 unit, detached:
(Repeat VEHICLES AVAILABLE)
- 1 unit, attached:
(Repeat VEHICLES AVAILABLE)
- 2 to 4 units:
(Repeat VEHICLES AVAILABLE)
- 5 or more units:
(Repeat VEHICLES AVAILABLE)
- Mobile home or trailer:
(Repeat VEHICLES AVAILABLE)
- Other:
(Repeat VEHICLES AVAILABLE)

A-24. 1-25 HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11). . 132

Universe: Workers 16 years and over

Total, Hispanic origin:

All races:

- All means of transportation
- Drove alone
- In 2-person carpool
- In 3-person carpool
- In 4-or-more-person carpool
- Bus or trolley bus
- Streetcar, trolley car, subway, or elevated
- Railroad
- Bicycle or walked
- Taxicab, ferryboat, motorcycle, or other means
- Worked at home

White:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Black:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Other:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Not of Hispanic origin:

(Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

Hispanic origin:

(Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

A-25. 1-6 SEX(3) BY OCCUPATION(15) FOR WORKERS 45

Universe: Workers 16 years and over

Both sexes:

- All occupations
- Executive, administrative, and managerial occupations (000-042)
- Professional specialty occupations (043-202)

Table Table Title

Technicians and related support occupations (203-242)
 Sales occupations (243-302)
 Administrative support occupations, including clerical (303-402)
 Private household occupations (403-412)
 Protective service occupations (413-432)
 Service occupations, except protective and household (433-472)
 Farming, forestry, and fishing occupations (473-502)
 Precision production, craft, and repair occupations (503-702)
 Machine operators, assemblers, and inspectors (703-802)
 Transportation and material moving occupations (803-863)
 Handlers, equipment cleaners, helpers, and laborers (864-902)
 Armed Forces

Male:

(Repeat OCCUPATION)

Female:

(Repeat OCCUPATION)

A-26. 1 - 7 SEX(3) BY INDUSTRY(19) FOR WORKERS 57

Universe: Workers 16 years and over

Both sexes:

All industries
 Agriculture, forestry, and fisheries (000-039)
 Mining (040-059)
 Construction (060-099)
 Manufacturing, nondurable goods (100-229)
 Manufacturing, durable goods (230-399)
 Transportation (400-439)
 Communications and other public utilities (440-499)
 Wholesale trade (500-579)
 Retail trade (580-699)
 Finance, insurance, and real estate (700-720)
 Business and repair services (721-760)
 Personal services (761-799)
 Entertainment and recreation services (800-811)
 Health services (812-840)
 Educational services (842-860)
 Other professional and related services (841, 861-899)
 Public administration (900-939)
 Armed Forces (940-960)

Male:

(Repeat INDUSTRY)

Female:

(Repeat INDUSTRY)

A-27. 1 - 8 SEX(3) BY CLASS OF WORKER(8) FOR WORKERS 24

Universe: Workers 16 years and over

Both sexes:

Total, class of worker
 Private for profit wage and salary workers
 Private not-for-profit wage and salary workers

Local government workers
 State government workers
 Federal government workers
 Self-employed workers
 Unpaid family workers

Male:
 (Repeat CLASS OF WORKER)
 Female:
 (Repeat CLASS OF WORKER)

A-28. N/A SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) FOR WORKERS 18

Universe: Workers 16 years and over

Both sexes:
 Total, number of hours worked last week
 Less than 15 hours
 15 to 20 hours
 21 to 34 hours
 35 to 40 hours
 Over 40 hours

Male:
 (Repeat NUMBER OF HOURS WORKED LAST WEEK)
 Female:
 (Repeat NUMBER OF HOURS WORKED LAST WEEK)

A-29. N/A SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) 33

Universe: Workers 16 years and over

Both sexes:
 All means of transportation
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

Male:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 Female:
 (Repeat MEANS OF TRANSPORTATION TO WORK)

A-30. I-18 MEANS OF TRANSPORTATION TO WORK(20) 20

Universe: Workers 16 years and over

Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool

In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means
 Worked at home

A-31. N/A	TIME LEAVING HOME TO GO TO WORK(39) 39 <i>Universe: Workers 16 years and over who did not work at home</i> Total 5:00 a.m. to 5:14 a.m. 5:15 a.m. to 5:29 a.m. 5:30 a.m. to 5:44 a.m. 5:45 a.m. to 5:59 a.m. 6:00 a.m. to 6:14 a.m. 6:15 a.m. to 6:29 a.m. 6:30 a.m. to 6:44 a.m. 6:45 a.m. to 6:59 a.m. 7:00 a.m. to 7:14 a.m. 7:15 a.m. to 7:29 a.m. 7:30 a.m. to 7:44 a.m. 7:45 a.m. to 7:59 a.m. 8:00 a.m. to 8:14 a.m. 8:15 a.m. to 8:29 a.m. 8:30 a.m. to 8:44 a.m. 8:45 a.m. to 8:59 a.m. 9:00 a.m. to 9:14 a.m. 9:15 a.m. to 9:29 a.m. 9:30 a.m. to 9:44 a.m. 9:45 a.m. to 9:59 a.m. 10:00 a.m. to 10:14 a.m. 10:15 a.m. to 10:29 a.m. 10:30 a.m. to 10:44 a.m. 10:45 a.m. to 10:59 a.m. 11:00 a.m. to 11:59 a.m. 12:00 p.m. to 12:59 p.m. 1:00 p.m. to 1:59 p.m. 2:00 p.m. to 2:59 p.m. 3:00 p.m. to 3:59 p.m. 4:00 p.m. to 4:59 p.m. 5:00 p.m. to 5:59 p.m.
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6:00 p.m. to 6:59 p.m.
 7:00 p.m. to 7:59 p.m.
 8:00 p.m. to 8:59 p.m.
 9:00 p.m. to 9:59 p.m.
 10:00 p.m. to 10:59 p.m.
 11:00 p.m. to 11:59 p.m.
 12:00 a.m. to 4:59 a.m.

A-32. N/A NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION TO WORK(11) 66

Universe: Workers 16 years and over

Total, number of hours worked last week:

- All means of transportation
- Drove alone
- In 2-person carpool
- In 3-person carpool
- In 4-or-more-person carpool
- Bus or trolley bus
- Streetcar, trolley car, subway, or elevated
- Railroad
- Bicycle or walked
- Taxicab, ferryboat, motorcycle, or other means
- Worked at home

Less than 15 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

15 to 20 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

21 to 34 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

35 to 40 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Over 40 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

A-33. 1-23 EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11)132

Universe: Workers 16 years and over

With earnings:

- All means of transportation
- Drove alone
- In 2-person carpool
- In 3-person carpool
- In 4-or-more-person carpool
- Bus or trolley bus
- Streetcar, trolley car, subway, or elevated
- Railroad
- Bicycle or walked
- Taxicab, ferryboat, motorcycle, or other means
- Worked at home

Less than \$5,000 or loss:

(Repeat MEANS OF TRANSPORTATION)

\$5,000 to \$9,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$10,000 to \$14,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$15,000 to \$19,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$20,000 to \$24,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$25,000 to \$29,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$30,000 to \$34,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$35,000 to \$49,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$50,000 to \$74,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$75,000 or more:
 (Repeat MEANS OF TRANSPORTATION)
 No earnings:
 (Repeat MEANS OF TRANSPORTATION)

A-34. 1-23 MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

A-35. 1-23 MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

A-36. N/A TIME LEAVING HOME TO GO TO WORK(7) BY MEANS OF TRANSPORTATION(10) . . . 7 0
Universe: Workers 16 years and over who did not work at home
 Total, time leaving home to go to work:
 All workers who did not work at home
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 5:30 a.m. to 6:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 6:30 a.m. to 7:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 7:30 a.m. to 8:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 8:30 a.m. to 9:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 9:30 a.m. to 10:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 10:30 a.m. to 5:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)

A-37. N/A MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16) 16 0
Universe: Workers 16 years and over who did not work at home
 Workers who did not work at home:
 All travel times
 Less than 5 minutes
 5 to 9 minutes
 10 to 14 minutes
 15 to 19 minutes
 20 to 24 minutes
 25 to 29 minutes
 30 to 34 minutes
 35 to 39 minutes
 40 to 44 minutes
 45 to 49 minutes
 50 to 54 minutes
 55 to 59 minutes
 60 to 74 minutes
 75 to 89 minutes
 90 minutes or more
 Drove alone:
 (Repeat TRAVEL TIME TO WORK)
 In 2-person carpool:
 (Repeat TRAVEL TIME TO WORK)

Table	Table	Title	Total number of data cells
		In 3-person carpool: (Repeat TRAVEL TIME TO WORK)	
		In 4-or-more-person carpool: (Repeat TRAVEL TIME TO WORK)	
		Bus or trolley bus: (Repeat TRAVEL TIME TO WORK)	
		Streetcar, trolley car, subway, or elevated: (Repeat TRAVEL TIME TO WORK)	
		Railroad: (Repeat TRAVEL TIME TO WORK)	
		Bicycle or walked: (Repeat TRAVEL TIME TO WORK)	
		Taxicab, ferryboat, motorcycle, or other means: (Repeat TRAVEL TIME TO WORK)	
A-38.	N/A	MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(10)	10
		<i>Universe: Workers 16 years and over who did not work at home</i>	
		Total	
		Drove alone	
		In 2-person carpool	
		In 3-person carpool	
		In 4-or-more-person carpool	
		Bus or trolley bus	
		Streetcar, trolley car, subway, or elevated	
		Railroad	
		Bicycle or walked	
		Taxicab, ferryboat, motorcycle, or other means	
A-39.	N/A	MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(10)	10
		<i>Universe: Workers 16 years and over who did not work at home</i>	
		Total	
		Drove alone	
		In 2-person carpool	
		In 3-person carpool	
		In 4-or-more-person carpool	
		Bus or trolley bus	
		Streetcar, trolley car, subway, or elevated	
		Railroad	
		Bicycle or walked	
		Taxicab, ferryboat, motorcycle, or other means	
A-40.	N/A	AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1)	1
		<i>Universe: Workers 16 years and over using a car, truck, or van</i>	
		Total	
A-41.	I-21	WORKERS PER VEHICLE(1)	1
		<i>Universe: Workers 16 years and over using a car, truck, or van</i>	
		Total	

A-42.	N/A	AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1
A-43.	I-22	WORKERS PER CARPOOL(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1
A-44.	N/A	MOBILITY LIMITATION STATUS(3) BY MEANS OF TRANSPORTATION TO WORK(11). . <i>Universe: Workers 16 years and over</i> Total, mobility limitation status: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home With a mobility limitation: (Repeat MEANS OF TRANSPORTATION) No mobility limitation: (Repeat MEANS OF TRANSPORTATION)	33
A-45.	I-24	HOUSEHOLD INCOME IN 1989(26) BY MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN HOUSEHOLDS <i>Universe: Workers 16 years and over in households</i> Total, household income for workers in households: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home Less than \$5,000: (Repeat MEANS OF TRANSPORTATION) \$5,000 to \$9,999: (Repeat MEANS OF TRANSPORTATION) \$10,000 to \$12,499: (Repeat MEANS OF TRANSPORTATION)	286

\$12,500 to \$14,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$15,000 to \$17,499:
 (Repeat MEANS OF TRANSPORTATION)
 \$17,500 to \$19,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$20,000 to \$22,499:
 (Repeat MEANS OF TRANSPORTATION)
 \$22,500 to \$24,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$25,000 to \$27,499:
 (Repeat MEANS OF TRANSPORTATION)
 \$27,500 to \$29,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$30,000 to \$32,499:
 (Repeat MEANS OF TRANSPORTATION)
 \$32,500 to \$34,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$35,000 to \$37,499:
 (Repeat MEANS OF TRANSPORTATION)
 \$37,500 to \$39,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$40,000 to \$42,499:
 (Repeat MEANS OF TRANSPORTATION)
 \$42,500 to \$44,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$45,000 to \$47,499:
 (Repeat MEANS OF TRANSPORTATION)
 \$47,500 to \$49,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$50,000 to \$54,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$55,000 to \$59,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$60,000 to \$74,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$75,000 to \$99,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$100,000 to \$124,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$125,000 to \$149,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$150,000 or more:
 (Repeat MEANS OF TRANSPORTATION)

A-46. I-24 MEDIAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11)
 FOR WORKERS IN HOUSEHOLDS 11
Universe: Workers 16 years and over in households
 Total
 Drove alone

In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

A-47. I-24 MEAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11)
 FOR WORKERS IN HOUSEHOLDS 11

Universe: Workers 16 years and over in households

Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

A-48. I-27 VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR
 WORKERS IN HOUSEHOLDS 66

Universe: Workers 16 years and over in households

Total, vehicles available:
 All means of transportation
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

No vehicles:
 (Repeat MEANS OF TRANSPORTATION)

1 vehicle:
 (Repeat MEANS OF TRANSPORTATION)

2 vehicles:
 (Repeat MEANS OF TRANSPORTATION)

3 vehicles:
 (Repeat MEANS OF TRANSPORTATION)

4 or more vehicles:
 (Repeat MEANS OF TRANSPORTATION)

A-49. N/A	<p>PERSONS IN HOUSEHOLD(5) BY WORKERS IN HOUSEHOLD(5) FOR WORKERS 2 5</p> <p><i>Universe: Workers 16 years and over in households</i></p> <p>Total, persons in household:</p> <p style="padding-left: 20px;">All workers in households</p> <p style="padding-left: 40px;">Workers in 1-worker household</p> <p style="padding-left: 40px;">Workers in 2-worker household</p> <p style="padding-left: 40px;">Workers in 3-worker household</p> <p style="padding-left: 40px;">Workers in 4-or-more-worker household</p> <p>1 person in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p> <p>2 persons in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p> <p>3 persons in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p> <p>4 or more persons in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p>	2 5
A-50. N/A	<p>WORKERS IN GROUP QUARTERS(1) 1</p> <p><i>Universe: Workers 16 years and over in group quarters</i></p> <p>Total</p>	1
A-51. N/A	<p>MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN GROUP QUARTERS . . 1 1</p> <p><i>Universe: Workers 16 years and over in group quarters</i></p> <p>Total</p> <p style="padding-left: 20px;">Drove alone</p> <p style="padding-left: 20px;">In 2-person carpool</p> <p style="padding-left: 20px;">In 3-person carpool</p> <p style="padding-left: 20px;">In 4-or-more-person carpool</p> <p style="padding-left: 20px;">Bus or trolley bus</p> <p style="padding-left: 20px;">Streetcar, trolley car, subway, or elevated</p> <p style="padding-left: 20px;">Railroad</p> <p style="padding-left: 20px;">Bicycle or walked</p> <p style="padding-left: 20px;">Taxicab, ferryboat, motorcycle, or other means</p> <p style="padding-left: 20px;">Worked at home</p>	1 1
A-52. N/A	<p>MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF</p> <p>TRANSPORTATION(19) 1 9</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total</p> <p style="padding-left: 20px;">Drove alone</p> <p style="padding-left: 20px;">In 2-person carpool</p> <p style="padding-left: 20px;">In 3-person carpool</p> <p style="padding-left: 20px;">In 4-person carpool</p> <p style="padding-left: 20px;">In 5-person carpool</p> <p style="padding-left: 20px;">In 6-person carpool</p> <p style="padding-left: 20px;">In 7-to-9-person carpool</p> <p style="padding-left: 20px;">In 10-or-more-person carpool</p> <p style="padding-left: 20px;">Bus or trolley bus</p> <p style="padding-left: 20px;">Streetcar or trolley car</p>	1 9

Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

A-53. N/A MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) 19

Universe: Workers 16 years and over who did not work at home

Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

A-54. N/A STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) 19

Universe: Workers 16 years and over who did not work at home

Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab

Motorcycle
 Bicycle
 Walked
 Other means

A-55. N/A MEDIAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10)
 BY TIME LEAVING HOME TO GO TO WORK(7) 70

Universe: Workers 16 years and over who did not work at home

All workers who did not work at home:

All departure times

5:30 a.m. to 6:29 a.m.

6:30 a.m. to 7:29 a.m.

7:30 a.m. to 8:29 a.m.

8:30 a.m. to 9:29 a.m.

9:30 a.m. to 10:29 a.m.

10:30 a.m. to 5:29 a.m.

Drove alone:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 2-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 3-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 4-or-more-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Bus or trolley bus:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Streetcar, trolley car, subway, or elevated:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Railroad:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Bicycle or walked:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Taxicab, ferryboat, motorcycle, or other means:

(Repeat TIME LEAVING HOME TO GO TO WORK)

A-56. N/A MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY
 TIME LEAVING HOME TO GO TO WORK(7) 70

Universe: Workers 16 years and over who did not work at home

All workers who did not work at home:

All departure times

5:30 a.m. to 6:29 a.m.

6:30 a.m. to 7:29 a.m.

7:30 a.m. to 8:29 a.m.

8:30 a.m. to 9:29 a.m.

9:30 a.m. to 10:29 a.m.

10:30 a.m. to 5:29 a.m.

Drove alone:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 2-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 3-person carpool:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 In 4-or-more-person carpool:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Bus or trolley bus:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Streetcar, trolley car, subway, or elevated:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Railroad:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Bicycle or walked:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME LEAVING HOME TO GO TO WORK)

A-57. N/A

STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(10) BY TIME LEAVING HOME TO GO TO WORK(7) 70

Universe: Workers 16 years and over who did not work at home

All workers who did not work at home:

- All departure times
- 5:30 a.m. to 6:29 a.m.
- 6:30 a.m. to 7:29 a.m.
- 7:30 a.m. to 8:29 a.m.
- 8:30 a.m. to 9:29 a.m.
- 9:30 a.m. to 10:29 a.m.
- 10:30 a.m. to 5:29 a.m.

Drove alone:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 In 2-person carpool:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 In 3-person carpool:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 In 4-or-more-person carpool:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Bus or trolley bus:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Streetcar, trolley car, subway, or elevated:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Railroad:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Bicycle or walked:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME LEAVING HOME TO GO TO WORK)

1990 Table	1980 Table	Title	Total number of data cells
A-58.	N/A	TOTAL HOUSING UNITS(1) <i>Universe: Housing units</i> Total	1
A-59.	N/A	UNWEIGHTED SAMPLE COUNT OF HOUSING UNITS(1) <i>Universe: Housing units</i> Total	1
A-60.	N/A	PERCENT OF HOUSING UNITS IN SAMPLE(1) <i>Universe: Housing units</i> Total	1
A-61.	N/A	VACANCY STATUS(5) <i>Universe: Vacant housing units</i> Total For rent For sale only For seasonal, recreational, or occasional use All other vacants	5
A-62.	I-13	OCCUPANCY STATUS(3) BY UNITS IN STRUCTURE(7) <i>Universe: Housing units</i> Total, occupancy status: Total, units in structure 1 unit, detached 1 unit, attached 2 to 4 units 5 or more units Mobile home or trailer Other Occupied: (Repeat UNITS IN STRUCTURE) Vacant: (Repeat UNITS IN STRUCTURE)	21
A-63.	N/A	AGGREGATE VEHICLES AVAILABLE(1) <i>Universe: Occupied housing units</i> Total	1

TOTAL NUMBER OF DATA CELLS IN PART A: 2,481

PART A RECORD SELECTION CRITERIA: All persons, households, and workers who live in the State, and all housing units located in the State.

1990 CTPP TABLE OUTLINES

Statewide Element Part B—Tabulations by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
B-1.	III-7	HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11)132 <i>Universe: Workers 16 years and over</i> Total, Hispanic origin: All races: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home White: (Repeat MEANS OF TRANSPORTATION TO WORK) Black: (Repeat MEANS OF TRANSPORTATION TO WORK) Other: (Repeat MEANS OF TRANSPORTATION TO WORK) Not of Hispanic origin: (Repeat RACE By MEANS OF TRANSPORTATION TO WORK) Hispanic origin: (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)	132
B-2.	III-1	SEX(3) BY OCCUPATION(15) OF WORKERS 45 <i>Universe: Workers 16 years and over</i> Both sexes: All occupations Executive, administrative, and managerial occupations (000-042) Professional specialty occupations (043-202) Technicians and related support occupations (203-242) Sales occupations (243-302) Administrative support occupations, including clerical (303-402) Private household occupations (403-412) Protective service occupations (413-432) Service occupations, except protective and household (433-472) Farming, forestry, and fishing occupations (473-502)	45

Precision production, craft, and repair occupations (503-702)
 Machine operators, assemblers, and inspectors (703-802)
 Transportation and material moving occupations (803-863)
 Handlers, equipment cleaners, helpers, and laborers (864-902)
 Armed Forces

Male:
 (Repeat OCCUPATION)

Female:
 (Repeat OCCUPATION)

B-3. III-2 SEX(3) BY INDUSTRY(19) OF WORKERS 57

Universe: Workers 16 years and over

Both sexes:

All industries
 Agriculture, forestry, and fisheries (000-039)
 Mining (040-059)
 Construction (060-099)
 Manufacturing, nondurable goods (100-229)
 Manufacturing, durable goods (230-399)
 Transportation (400-439)
 Communications and other public utilities (440-499)
 Wholesale trade (500-579)
 Retail trade (580-699)
 Finance, insurance, and real estate (700-720)
 Business and repair services (721-760)
 Personal services (761-799)
 Entertainment and recreation services (800-811)
 Health services (812-840)
 Educational services (842-860)
 Other professional and related services (841, 861-899)
 Public administration (900-939)
 Armed Forces (940-960)

Male:
 (Repeat INDUSTRY)

Female:
 (Repeat INDUSTRY)

B-4. III-3 SEX(3) BY CLASS OF WORKER(8) OF WORKERS 24

Universe: Workers 16 years and over

Both sexes:

Total, class of worker
 Private for profit wage and salary workers
 Private not-for-profit wage and salary workers
 Local government workers
 State government workers
 Federal government workers
 Self-employed workers
 Unpaid family workers

Male:
 (Repeat CLASS OF WORKER)

Female:
(Repeat CLASS OF WORKER)

B-5. N/A SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) OF WORKERS 18
Universe: Workers 16 years and over

Both sexes:
Total, number of hours worked last week
Less than 15 hours
15 to 20 hours
21 to 34 hours
35 to 40 hours
Over 40 hours

Male:
(Repeat NUMBER OF HOURS WORKED LAST WEEK)

Female:
(Repeat NUMBER OF HOURS WORKED LAST WEEK)

B-6. III-8 SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) 33
Universe: Workers 16 years and over

Both sexes:
All means of transportation
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

Male:
(Repeat MEANS OF TRANSPORTATION TO WORK)

Female:
(Repeat MEANS OF TRANSPORTATION TO WORK)

B-7. III-5 MEANS OF TRANSPORTATION TO WORK(20) 20
Universe: Workers 16 years and over

Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated

Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means
 Worked at home

B-8. N/A TIME OF ARRIVAL AT WORK OF WORKERS(39) 39
Universe: Workers 16 years and over who did not work at home
 Total
 5:00 a.m. to 5:14 a.m.
 5:15 a.m. to 5:29 a.m.
 5:30 a.m. to 5:44 a.m.
 5:45 a.m. to 5:59 a.m.
 6:00 a.m. to 6:14 a.m.
 6:15 a.m. to 6:29 a.m.
 6:30 a.m. to 6:44 a.m.
 6:45 a.m. to 6:59 a.m.
 7:00 a.m. to 7:14 a.m.
 7:15 a.m. to 7:29 a.m.
 7:30 a.m. to 7:44 a.m.
 7:45 a.m. to 7:59 a.m.
 8:00 a.m. to 8:14 a.m.
 8:15 a.m. to 8:29 a.m.
 8:30 a.m. to 8:44 a.m.
 8:45 a.m. to 8:59 a.m.
 9:00 a.m. to 9:14 a.m.
 9:15 a.m. to 9:29 a.m.
 9:30 a.m. to 9:44 a.m.
 9:45 a.m. to 9:59 a.m.
 10:00 a.m. to 10:14 a.m.
 10:15 a.m. to 10:29 a.m.
 10:30 a.m. to 10:44 a.m.
 10:45 a.m. to 10:59 a.m.
 11:00 a.m. to 11:59 a.m.
 12:00 p.m. to 12:59 p.m.
 1:00 p.m. to 1:59 p.m.
 2:00 p.m. to 2:59 p.m.
 3:00 p.m. to 3:59 p.m.
 4:00 p.m. to 4:59 p.m.
 5:00 p.m. to 5:59 p.m.
 6:00 p.m. to 6:59 p.m.
 7:00 p.m. to 7:59 p.m.
 8:00 p.m. to 8:59 p.m.
 9:00 p.m. to 9:59 p.m.
 10:00 p.m. to 10:59 p.m.
 11:00 p.m. to 11:59 p.m.
 12:00 a.m. to 4:59 a.m.

Table Table Title

B-9. N/A NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION TO WORK(11) 66
Universe: Workers 16 years and over
 Total, number of hours worked last week:
 All means of transportation
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home
 Less than 15 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 15 to 20 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 21 to 34 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 35 to 40 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 Over 40 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)

B-10. III-4 EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11)132
Universe: Workers 16 years and over
 With earnings:
 All means of transportation
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home
 Less than \$5,000 or loss:
 (Repeat MEANS OF TRANSPORTATION)
 \$5,000 to \$9,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$10,000 to \$14,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$15,000 to \$19,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$20,000 to \$24,999:

(Repeat MEANS OF TRANSPORTATION)
 \$25,000 to \$29,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$30,000 to \$34,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$35,000 to \$49,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$50,000 to \$74,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$75,000 or more:
 (Repeat MEANS OF TRANSPORTATION)
 No earnings:
 (Repeat MEANS OF TRANSPORTATION)

B-11. III-4	MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 1 1 <i>Universe: Workers 16 years and over with earnings</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home	1 1
B-12. III-4	MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 1 1 <i>Universe: Workers 16 years and over with earnings</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home	1 1
B-13. III-10	AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) 1 <i>Universe: Workers 16 years and over using a car, truck, or van</i> Total	1
B-14. III-11	WORKERS PER VEHICLE(1) 1 <i>Universe: Workers 16 years and over using a car, truck, or van</i> Total	1

1990 Table	1980 Table	Title	Total number of data cells
B-15.	N/A	AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1
B-16.	III-12	WORKERS PER CARPOOL(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1
B-17.	III-14	VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN HOUSEHOLDS <i>Universe: Workers 16 years and over in households</i> Total, vehicles available: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home No vehicles: (Repeat MEANS OF TRANSPORTATION) 1 vehicle: (Repeat MEANS OF TRANSPORTATION) 2 vehicles: (Repeat MEANS OF TRANSPORTATION) 3 vehicles: (Repeat MEANS OF TRANSPORTATION) 4 or more vehicles: (Repeat MEANS OF TRANSPORTATION)	66
B-18.	N/A	TIME OF ARRIVAL AT WORK(7) BY MEANS OF TRANSPORTATION(10) <i>Universe: Workers 16 years and over who did not work at home</i> Total, time of arrival at work: All workers who did not work at home Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means 5:30 a.m. to 6:29 a.m.: (Repeat MEANS OF TRANSPORTATION) 6:30 a.m. to 7:29 a.m.:	70

(Repeat MEANS OF TRANSPORTATION)
 7:30 a.m. to 8:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 8:30 a.m. to 9:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 9:30 a.m. to 10:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 10:30 a.m. to 5:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)

B-19. N/A MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16)160

Universe: Workers 16 years and over who did not work at home

Workers who did not work at home:

- All travel times
- Less than 5 minutes
- 5 to 9 minutes
- 10 to 14 minutes
- 15 to 19 minutes
- 20 to 24 minutes
- 25 to 29 minutes
- 30 to 34 minutes
- 35 to 39 minutes
- 40 to 44 minutes
- 45 to 49 minutes
- 50 to 54 minutes
- 55 to 59 minutes
- 60 to 74 minutes
- 75 to 89 minutes
- 90 minutes or more

Drove alone:

(Repeat TRAVEL TIME TO WORK)

In 2-person carpool:

(Repeat TRAVEL TIME TO WORK)

In 3-person carpool:

(Repeat TRAVEL TIME TO WORK)

In 4-or-more-person carpool:

(Repeat TRAVEL TIME TO WORK)

Bus or trolley bus:

(Repeat TRAVEL TIME TO WORK)

Streetcar, trolley car, subway, or elevated:

(Repeat TRAVEL TIME TO WORK)

Railroad:

(Repeat TRAVEL TIME TO WORK)

Bicycle or walked:

(Repeat TRAVEL TIME TO WORK)

Taxicab, ferryboat, motorcycle, or other means:

(Repeat TRAVEL TIME TO WORK)

B-20. N/A	<p>MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) 10</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total</p> <p>Drove alone</p> <p>In 2-person carpool</p> <p>In 3-person carpool</p> <p>In 4-or-more-person carpool</p> <p>Bus or trolley bus</p> <p>Streetcar, trolley car, subway, or elevated</p> <p>Railroad</p> <p>Bicycle or walked</p> <p>Taxicab, ferryboat, motorcycle, or other means</p>	10
B-21. N/A	<p>MEAN TRAVEL TIME TO WORK (IN MINUTES)(1) BY MEANS OF TRANSPORTATION(10) 10</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total</p> <p>Drove alone</p> <p>In 2-person carpool</p> <p>In 3-person carpool</p> <p>In 4-or-more-person carpool</p> <p>Bus or trolley bus</p> <p>Streetcar, trolley car, subway, or elevated</p> <p>Railroad</p> <p>Bicycle or walked</p> <p>Taxicab, ferryboat, motorcycle, or other means</p>	10
B-22. N/A	<p>MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) 19</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total</p> <p>Drove alone</p> <p>In 2-person carpool</p> <p>In 3-person carpool</p> <p>In 4-person carpool</p> <p>In 5-person carpool</p> <p>In 6-person carpool</p> <p>In 7-to-9-person carpool</p> <p>In 10-or-more-person carpool</p> <p>Bus or trolley bus</p> <p>Streetcar or trolley car</p> <p>Subway or elevated</p> <p>Railroad</p> <p>Ferryboat</p> <p>Taxicab</p> <p>Motorcycle</p> <p>Bicycle</p> <p>Walked</p> <p>Other means</p>	19

B-23. N/A MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

B-24. N/A STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

B-25. N/A **MEDIAN TRAVEL TIME(1) IN MINUTES BY MEANS OF TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7)** 70
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
 All arrival times
 5:30 a.m. to 6:29 a.m.
 6:30 a.m. to 7:29 a.m.
 7:30 a.m. to 8:29 a.m.
 8:30 a.m. to 9:29 a.m.
 9:30 a.m. to 10:29 a.m.
 10:30 a.m. to 5:29 a.m.
Drove alone:
 (Repeat TIME OF ARRIVAL AT WORK)
In 2-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
Bus or trolley bus:
 (Repeat TIME OF ARRIVAL AT WORK)
Streetcar, trolley car, subway, or elevated:
 (Repeat TIME OF ARRIVAL AT WORK)
Railroad:
 (Repeat TIME OF ARRIVAL AT WORK)
Bicycle or walked:
 (Repeat TIME OF ARRIVAL AT WORK)
Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME OF ARRIVAL AT WORK)

B-26. N/A **MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7)** 70
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
 All arrival times
 5:30 a.m. to 6:29 a.m.
 6:30 a.m. to 7:29 a.m.
 7:30 a.m. to 8:29 a.m.
 8:30 a.m. to 9:29 a.m.
 9:30 a.m. to 10:29 a.m.
 10:30 a.m. to 5:29 a.m.
Drove alone:
 (Repeat TIME OF ARRIVAL AT WORK)
In 2-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)

Bus or trolley bus:
 (Repeat TIME OF ARRIVAL AT WORK)
 Streetcar, trolley car, subway, or elevated:
 (Repeat TIME OF ARRIVAL AT WORK)
 Railroad:
 (Repeat TIME OF ARRIVAL AT WORK)
 Bicycle or walked:
 (Repeat TIME OF ARRIVAL AT WORK)
 Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME OF ARRIVAL AT WORK)

B-27. N/A STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7) 70

Universe: Workers 16 years and over who did not work at home

Workers who did not work at home:

- All arrival times
- 5:30 a.m. to 6:29 a.m.
- 6:30 a.m. to 7:29 a.m.
- 7:30 a.m. to 8:29 a.m.
- 8:30 a.m. to 9:29 a.m.
- 9:30 a.m. to 10:29 a.m.
- 10:30 a.m. to 5:29 a.m.

Drove alone:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 2-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 3-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 4-or-more-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 Bus or trolley bus:
 (Repeat TIME OF ARRIVAL AT WORK)
 Streetcar, trolley car, subway, or elevated:
 (Repeat TIME OF ARRIVAL AT WORK)
 Railroad:
 (Repeat TIME OF ARRIVAL AT WORK)
 Bicycle or walked:
 (Repeat TIME OF ARRIVAL AT WORK)
 Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME OF ARRIVAL AT WORK)

TOTAL NUMBER OF DATA CELLS IN PART B: 1,175

PART B RECORD SELECTION CRITERIA: All workers who work in the State, regardless of where they live.

1990 CTPP TABLE OUTLINES

Statewide Element Part C—Tabulations of Area of Residence by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
C-1.	IV-1	TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) BY MEANS OF TRANSPORTATION TO WORK(19)	38
		<i>Universe: Workers 16 years and over who did not work at home</i> Total, time leaving home to go to work: Workers who did not work at home Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool In 7-to-9-person carpool In 10-or-more-person carpool Bus or trolley bus Streetcar or trolley car Subway or elevated Railroad Ferryboat Taxicab Motorcycle Bicycle Walked Other means Peak period (6:30 a.m. to 8:29 a.m.): (Repeat MEANS OF TRANSPORTATION)	
C-2.	IV-3	AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2)	2
		<i>Universe: Workers 16 years and over using a car, truck, or van</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	
C-3.	IV-3	WORKERS PER VEHICLE(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2)	2
		<i>Universe: Workers 16 years and over using a car, truck, or van</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	

1990 Table	1980 Table	Title	Total number of data cells
C-4.	N/A	AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) <i>Universe: Workers 16 years and over in a carpool</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	2
C-5.	IV-3	WORKERS PER CARPOOL(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) <i>Universe: Workers 16 years and over in a carpool</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	2
C-6.	N/A	MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) <i>Universe: Workers 16 years and over who did not work at home</i> Total, time leaving home to go to work: Workers who did not work at home Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool In 7-to-9-person carpool In 10-or-more-person carpool Bus or trolley bus Streetcar or trolley car Subway or elevated Railroad Ferryboat Taxicab Motorcycle Bicycle Walked Other means Peak period (6:30 a.m. to 8:29 a.m.): (Repeat MEANS OF TRANSPORTATION)	38
C-7.	IV-2	MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) <i>Universe: Workers 16 years and over who did not work at home</i> Total, time leaving home to go to work: Workers who did not work at home Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool	38

In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means
 Peak period (6:30 a.m. to 8:29 a.m.):
 (Repeat MEANS OF TRANSPORTATION)

TOTAL NUMBER OF DATA CELLS IN PART C: 122

PART C RECORD SELECTION CRITERIA: All workers who live in the State regardless of where they work, and all workers who work in the State regardless of where they live.

1990 CTPP TABLE OUTLINES

Urban Element Part 1--Tabulations by Area of Residence

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
1-1.	N/A	TOTAL PERSONS(1) <i>Universe: Persons</i> Total	1
1-2.	N/A	UNWEIGHTED SAMPLE COUNT OF PERSONS(1) <i>Universe: Persons</i> Total	1
1-3.	N/A	PERCENT OF PERSONS IN SAMPLE(1) <i>Universe: Persons</i> Total	1
1-4.	N/A	TOTAL HOUSEHOLDS(1) <i>Universe: Households</i> Total	1
1-5.	I-4	HISPANIC ORIGIN(3) BY RACE(4) <i>Universe: Persons</i> Total, Hispanic origin: All races White Black Other Not of Hispanic origin: (Repeat RACE) Hispanic origin: (Repeat RACE)	12
1-6.	I-3	SEX(3) BY AGE(12) <i>Universe: Persons</i> Both sexes: All ages Under 16 years 16 and 17 years 18 to 20 years 21 to 24 years 25 to 34 years	36

35 to 44 years
 45 to 54 years
 55 to 61 years
 62 to 64 years
 65 to 74 years
 75 years and over
 Male:
 (Repeat AGE)
 Female:
 (Repeat AGE)

1-7. N/A SEX(3) BY EMPLOYMENT STATUS(6) 18
Universe: Persons 16 years and over
 Both sexes:
 Total, employment status
 In labor force:
 In Armed Forces
 Civilian:
 Employed:
 At work
 Not at work
 Unemployed
 Not in labor force
 Male:
 (Repeat EMPLOYMENT STATUS)
 Female:
 (Repeat EMPLOYMENT STATUS)

1-8. 1-5 SCHOOL ENROLLMENT(6) BY AGE(8) 48
Universe: Persons 3 years and over
 Total, school enrollment:
 Persons 3 years and over
 3 and 4 years
 5 years
 6 to 11 years
 12 to 17 years
 18 to 64 years
 65 to 74 years
 75 years and over
 Enrolled:
 In nursery school or kindergarten:
 (Repeat AGE)
 In grade 1 to 9:
 (Repeat AGE)
 In grade 10 to 12:
 (Repeat AGE)
 In college:
 (Repeat AGE)
 Not enrolled:
 (Repeat AGE)

1-9. N/A MOBILITY LIMITATION STATUS(3) BY AGE(11) 33
Universe: Persons 16 years and over
 Total, mobility limitation status:
 Persons 16 years and over
 16 and 17 years
 18 to 20 years
 21 to 24 years
 25 to 34 years
 35 to 44 years
 45 to 54 years
 55 to 61 years
 62 to 64 years
 65 to 74 years
 75 years and over
 With a mobility limitation:
 (Repeat AGE)
 No mobility limitation:
 (Repeat AGE)

1-10. N/A MOBILITY LIMITATION STATUS(3) BY EMPLOYMENT STATUS(6) 18
Universe: Persons 16 years and over
 Total, mobility limitation status:
 Total, employment status
 In labor force:
 In Armed Forces
 Civilian:
 Employed:
 At work
 Not at work
 Unemployed
 Not in labor force
 With a mobility limitation:
 (Repeat EMPLOYMENT STATUS)
 No mobility limitation:
 (Repeat EMPLOYMENT STATUS)

1-11. 1-1 SEX(3) BY AGE(12) FOR PERSONS IN HOUSEHOLDS 36
Universe: Persons in households
 Both sexes:
 All ages
 Under 16 years
 16 and 17 years
 18 to 20 years
 21 to 24 years
 25 to 34 years
 35 to 44 years
 45 to 54 years
 55 to 61 years
 62 to 64 years

65 to 74 years
 75 years and over
 Male:
 (Repeat AGE)
 Female:
 (Repeat AGE)

1-12. 1-2 SEX(3) BY AGE(12) FOR PERSONS IN GROUP QUARTERS 36
Universe: Persons in group quarters

Both sexes:
 All ages
 Under 16 years
 16 and 17 years
 18 to 20 years
 21 to 24 years
 25 to 34 years
 35 to 44 years
 45 to 54 years
 55 to 61 years
 62 to 64 years
 65 to 74 years
 75 years and over
 Male:
 (Repeat AGE)
 Female:
 (Repeat AGE)

1-13. N/A HOUSEHOLD SIZE(5) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 30
Universe: Households

All households:
 Total, number of workers in household
 No workers in household
 1 worker in household
 2 workers in household
 3 workers in household
 4 or more workers in household
 1-person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
 2-person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
 3-person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
 4-or-more-person households:
 (Repeat NUMBER OF WORKERS IN HOUSEHOLD)

1-14. N/A NUMBER OF WORKERS IN HOUSEHOLD(6) BY HOUSEHOLD INCOME IN 1989(26) ..156
Universe: Households

All households:
 Total, household income
 Less than \$5,000

- \$5,000 to \$9,999
- \$10,000 to \$12,499
- \$12,500 to \$14,999
- \$15,000 to \$17,499
- \$17,500 to \$19,999
- \$20,000 to \$22,499
- \$22,500 to \$24,999
- \$25,000 to \$27,499
- \$27,500 to \$29,999
- \$30,000 to \$32,499
- \$32,500 to \$34,999
- \$35,000 to \$37,499
- \$37,500 to \$39,999
- \$40,000 to \$42,499
- \$42,500 to \$44,999
- \$45,000 to \$47,499
- \$47,500 to \$49,999
- \$50,000 to \$54,999
- \$55,000 to \$59,999
- \$60,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$124,999
- \$125,000 to \$149,999
- \$150,000 or more

- No workers in household:
 (Repeat HOUSEHOLD INCOME)
- 1 worker in household:
 (Repeat HOUSEHOLD INCOME)
- 2 workers in household:
 (Repeat HOUSEHOLD INCOME)
- 3 workers in household:
 (Repeat HOUSEHOLD INCOME)
- 4 or more workers in household:
 (Repeat HOUSEHOLD INCOME)

1-15. N/A MEDIAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 6
Universe: Households
 Total
 No workers in household
 1 worker in household
 2 workers in household
 3 workers in household
 4 or more workers in household

1-16. N/A MEAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 6
Universe: Households
 Total
 No workers in household

Table	Table	Title	Total number of data cells
		1 worker in household	
		2 workers in household	
		3 workers in household	
		4 or more workers in household	
1-17.	N/A	HOUSEHOLD SIZE(5) BY VEHICLES AVAILABLE(9)	4 5
		<i>Universe: Households</i>	
		All households:	
		Total, vehicles available	
		No vehicles	
		1 vehicle	
		2 vehicles	
		3 vehicles	
		4 vehicles	
		5 vehicles	
		6 vehicles	
		7 or more vehicles	
		1 person in household:	
		(Repeat VEHICLES AVAILABLE)	
		2 persons in household:	
		(Repeat VEHICLES AVAILABLE)	
		3 persons in household:	
		(Repeat VEHICLES AVAILABLE)	
		4 or more persons in household:	
		(Repeat VEHICLES AVAILABLE)	
1-18.	N/A	NUMBER OF WORKERS IN HOUSEHOLD(6) BY VEHICLES AVAILABLE(9)	5 4
		<i>Universe: Households</i>	
		All households:	
		Total, vehicles available	
		No vehicles	
		1 vehicle	
		2 vehicles	
		3 vehicles	
		4 vehicles	
		5 vehicles	
		6 vehicles	
		7 or more vehicles	
		No workers:	
		(Repeat VEHICLES AVAILABLE)	
		1 worker:	
		(Repeat VEHICLES AVAILABLE)	
		2 workers:	
		(Repeat VEHICLES AVAILABLE)	
		3 workers:	
		(Repeat VEHICLES AVAILABLE)	
		4 or more workers:	
		(Repeat VEHICLES AVAILABLE)	

1-19. N/A NUMBER OF PERSONS 16 YEARS AND OVER IN HOUSEHOLD(5) BY VEHICLES AVAILABLE(9) 45

Universe: Households with at least one person 16 years and over

All households:

- Total, vehicles available
- No vehicles
- 1 vehicle
- 2 vehicles
- 3 vehicles
- 4 vehicles
- 5 vehicles
- 6 vehicles
- 7 or more vehicles
- 1 person 16 and over:
(Repeat VEHICLES AVAILABLE)
- 2 persons 16 and over:
(Repeat VEHICLES AVAILABLE)
- 3 persons 16 and over:
(Repeat VEHICLES AVAILABLE)
- 4 or more persons 16 and over:
(Repeat VEHICLES AVAILABLE)

1-20. N/A VEHICLES AVAILABLE(9) BY HOUSEHOLD INCOME IN 1989(26) 234

Universe: Households

Total, vehicles available:

- All incomes
- Less than \$5,000
- \$5,000 to \$9,999
- \$10,000 to \$12,499
- \$12,500 to \$14,999
- \$15,000 to \$17,499
- \$17,500 to \$19,999
- \$20,000 to \$22,499
- \$22,500 to \$24,999
- \$25,000 to \$27,499
- \$27,500 to \$29,999
- \$30,000 to \$32,499
- \$32,500 to \$34,999
- \$35,000 to \$37,499
- \$37,500 to \$39,999
- \$40,000 to \$42,499
- \$42,500 to \$44,999
- \$45,000 to \$47,499
- \$47,500 to \$49,999
- \$50,000 to \$54,999
- \$55,000 to \$59,999
- \$60,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$124,999
- \$125,000 to \$149,999

\$150,000 or more
 No vehicles:
 (Repeat HOUSEHOLD INCOME)
 1 vehicle:
 (Repeat HOUSEHOLD INCOME)
 2 vehicles:
 (Repeat HOUSEHOLD INCOME)
 3 vehicles:
 (Repeat HOUSEHOLD INCOME)
 4 vehicles:
 (Repeat HOUSEHOLD INCOME)
 5 vehicles:
 (Repeat HOUSEHOLD INCOME)
 6 vehicles:
 (Repeat HOUSEHOLD INCOME)
 7 or more vehicles:
 (Repeat HOUSEHOLD INCOME)

1-21. N/A	MEDIAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9) <i>Universe: Households</i> Total No vehicles 1 vehicle 2 vehicles 3 vehicles 4 vehicles 5 vehicles 6 vehicles 7 or more vehicles	9
1-22. N/A	MEAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9) <i>Universe: Households</i> Total No vehicles 1 vehicle 2 vehicles 3 vehicles 4 vehicles 5 vehicles 6 vehicles 7 or more vehicles	9
1-23. N/A	UNITS IN STRUCTURE(7) BY VEHICLES AVAILABLE(9) <i>Universe: Households</i> Total, units in structure: Total, vehicles available No vehicles 1 vehicle 2 vehicles 3 vehicles	63

- 4 vehicles
- 5 vehicles
- 6 vehicles
- 7 or more vehicles
- 1 unit, detached:
 (Repeat VEHICLES AVAILABLE)
- 1 unit, attached:
 (Repeat VEHICLES AVAILABLE)
- 2 to 4 units:
 (Repeat VEHICLES AVAILABLE)
- 5 or more units:
 (Repeat VEHICLES AVAILABLE)
- Mobile home or trailer:
 (Repeat VEHICLES AVAILABLE)
- Other:
 (Repeat VEHICLES AVAILABLE)

1-24. 1-25 HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11). . 132

Universe: Workers 16 years and over

Total, Hispanic origin:

All races:

- All means of transportation
- Drove alone
- In 2-person carpool
- In 3-person carpool
- In 4-or-more-person carpool
- Bus or trolley bus
- Streetcar, trolley car, subway, or elevated
- Railroad
- Bicycle or walked
- Taxicab, ferryboat, motorcycle, or other means
- Worked at home

White:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Black:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Other:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Not of Hispanic origin:

(Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

Hispanic origin:

(Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

1-25. 1-6 SEX(3) BY OCCUPATION(15) FOR WORKERS 45

Universe: Workers 16 years and over

Both sexes:

- All occupations
- Executive, administrative, and managerial occupations (000-042)
- Professional specialty occupations (043-202)
- Technicians and related support occupations (203-242)

Sales occupations (243-302)
 Administrative support occupations, including clerical (303-402)
 Private household occupations (403-412)
 Protective service occupations (413-432)
 Service occupations, except protective and household (433-472)
 Farming, forestry, and fishing occupations (473-502)
 Precision production, craft, and repair occupations (503-702)
 Machine operators, assemblers, and inspectors (703-802)
 Transportation and material moving occupations (803-863)
 Handlers, equipment cleaners, helpers, and laborers (864-902)
 Armed Forces

Male:

(Repeat OCCUPATION)

Female:

(Repeat OCCUPATION)

1-26. I-7

SEX(3) BY INDUSTRY(19) FOR WORKERS 57

Universe: Workers 16 years and over

Both sexes:

All industries
 Agriculture, forestry, and fisheries (000-039)
 Mining (040-059)
 Construction (060-099)
 Manufacturing, nondurable goods (100-229)
 Manufacturing, durable goods (230-399)
 Transportation (400-439)
 Communications and other public utilities (440-499)
 Wholesale trade (500-579)
 Retail trade (580-699)
 Finance, insurance, and real estate (700-720)
 Business and repair services (721-760)
 Personal services (761-799)
 Entertainment and recreation services (800-811)
 Health services (812-840)
 Educational services (842-860)
 Other professional and related services (841, 861-899)
 Public administration (900-939)
 Armed Forces (940-960)

Male:

(Repeat INDUSTRY)

Female:

(Repeat INDUSTRY)

1-27. I-8

SEX(3) BY CLASS OF WORKER(8) FOR WORKERS 24

Universe: Workers 16 years and over

Both sexes:

Total, class of worker
 Private for profit wage and salary workers
 Private not-for-profit wage and salary workers
 Local government workers

State government workers
 Federal government workers
 Self-employed workers
 Unpaid family workers
 Male:
 (Repeat CLASS OF WORKER)
 Female:
 (Repeat CLASS OF WORKER)

1-28. N/A SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) FOR WORKERS 18

Universe: Workers 16 years and over

Both sexes:

Total, number of hours worked last week
 Less than 15 hours
 15 to 20 hours
 21 to 34 hours
 35 to 40 hours
 Over 40 hours

Male:
 (Repeat NUMBER OF HOURS WORKED LAST WEEK)
 Female:
 (Repeat NUMBER OF HOURS WORKED LAST WEEK)

1-29. N/A SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) 33

Universe: Workers 16 years and over

Both sexes:

All means of transportation
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

Male:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 Female:
 (Repeat MEANS OF TRANSPORTATION TO WORK)

1-30. 1-18 MEANS OF TRANSPORTATION TO WORK(20) 20

Universe: Workers 16 years and over

Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool

Table Table Title

- In 6-person carpool
- In 7-to-9-person carpool
- In 10-or-more-person carpool
- Bus or trolley bus
- Streetcar or trolley car
- Subway or elevated
- Railroad
- Ferryboat
- Taxicab
- Motorcycle
- Bicycle
- Walked
- Other means
- Worked at home

1-31. N/A

TIME LEAVING HOME TO GO TO WORK(39) 39

Universe: Workers 16 years and over who did not work at home

Total

- 5:00 a.m. to 5:14 a.m.
- 5:15 a.m. to 5:29 a.m.
- 5:30 a.m. to 5:44 a.m.
- 5:45 a.m. to 5:59 a.m.
- 6:00 a.m. to 6:14 a.m.
- 6:15 a.m. to 6:29 a.m.
- 6:30 a.m. to 6:44 a.m.
- 6:45 a.m. to 6:59 a.m.
- 7:00 a.m. to 7:14 a.m.
- 7:15 a.m. to 7:29 a.m.
- 7:30 a.m. to 7:44 a.m.
- 7:45 a.m. to 7:59 a.m.
- 8:00 a.m. to 8:14 a.m.
- 8:15 a.m. to 8:29 a.m.
- 8:30 a.m. to 8:44 a.m.
- 8:45 a.m. to 8:59 a.m.
- 9:00 a.m. to 9:14 a.m.
- 9:15 a.m. to 9:29 a.m.
- 9:30 a.m. to 9:44 a.m.
- 9:45 a.m. to 9:59 a.m.
- 10:00 a.m. to 10:14 a.m.
- 10:15 a.m. to 10:29 a.m.
- 10:30 a.m. to 10:44 a.m.
- 10:45 a.m. to 10:59 a.m.
- 11:00 a.m. to 11:59 a.m.
- 12:00 p.m. to 12:59 p.m.
- 1:00 p.m. to 1:59 p.m.
- 2:00 p.m. to 2:59 p.m.
- 3:00 p.m. to 3:59 p.m.
- 4:00 p.m. to 4:59 p.m.
- 5:00 p.m. to 5:59 p.m.
- 6:00 p.m. to 6:59 p.m.

7:00 p.m. to 7:59 p.m.
 8:00 p.m. to 8:59 p.m.
 9:00 p.m. to 9:59 p.m.
 10:00 p.m. to 10:59 p.m.
 11:00 p.m. to 11:59 p.m.
 12:00 a.m. to 4:59 a.m.

1-32. N/A NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION TO WORK(11) 66

Universe: Workers 16 years and over

Total, number of hours worked last week:

All means of transportation

Drove alone

In 2-person carpool

In 3-person carpool

In 4-or-more-person carpool

Bus or trolley bus

Streetcar, trolley car, subway, or elevated

Railroad

Bicycle or walked

Taxicab, ferryboat, motorcycle, or other means

Worked at home

Less than 15 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

15 to 20 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

21 to 34 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

35 to 40 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Over 40 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

1-33. I-23 EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11)132

Universe: Workers 16 years and over

With earnings:

All means of transportation

Drove alone

In 2-person carpool

In 3-person carpool

In 4-or-more-person carpool

Bus or trolley bus

Streetcar, trolley car, subway, or elevated

Railroad

Bicycle or walked

Taxicab, ferryboat, motorcycle, or other means

Worked at home

Less than \$5,000 or loss:

(Repeat MEANS OF TRANSPORTATION)

\$5,000 to \$9,999:

(Repeat MEANS OF TRANSPORTATION)
 \$10,000 to \$14,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$15,000 to \$19,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$20,000 to \$24,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$25,000 to \$29,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$30,000 to \$34,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$35,000 to \$49,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$50,000 to \$74,999:
 (Repeat MEANS OF TRANSPORTATION)
 \$75,000 or more:
 (Repeat MEANS OF TRANSPORTATION)

No earnings:
 (Repeat MEANS OF TRANSPORTATION)

1-34. 1-23 MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11

Universe: Workers 16 years and over with earnings

Total

Drove alone

In 2-person carpool

In 3-person carpool

In 4-or-more-person carpool

Bus or trolley bus

Streetcar, trolley car, subway, or elevated

Railroad

Bicycle or walked

Taxicab, ferryboat, motorcycle, or other means

Worked at home

1-35. 1-23 MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11

Universe: Workers 16 years and over with earnings

Total

Drove alone

In 2-person carpool

In 3-person carpool

In 4-or-more-person carpool

Bus or trolley bus

Streetcar, trolley car, subway, or elevated

Railroad

Bicycle or walked

Taxicab, ferryboat, motorcycle, or other means

Worked at home

1990 Table	1980 Table	Title	Total number of data cells
1-36.	N/A	<p>TIME LEAVING HOME TO GO TO WORK(7) BY MEANS OF TRANSPORTATION(10) . . . 7 0</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total, time leaving home to go to work:</p> <p> All workers who did not work at home</p> <p> Drove alone</p> <p> In 2-person carpool</p> <p> In 3-person carpool</p> <p> In 4-or-more-person carpool</p> <p> Bus or trolley bus</p> <p> Streetcar, trolley car, subway, or elevated Railroad</p> <p> Bicycle or walked</p> <p> Taxicab, ferryboat, motorcycle, or other means</p> <p>5:30 a.m. to 6:29 a.m.: (Repeat MEANS OF TRANSPORTATION)</p> <p>6:30 a.m. to 7:29 a.m.: (Repeat MEANS OF TRANSPORTATION)</p> <p>7:30 a.m. to 8:29 a.m.: (Repeat MEANS OF TRANSPORTATION)</p> <p>8:30 a.m. to 9:29 a.m.: (Repeat MEANS OF TRANSPORTATION)</p> <p>9:30 a.m. to 10:29 a.m.: (Repeat MEANS OF TRANSPORTATION)</p> <p>10:30 a.m. to 5:29 a.m.: (Repeat MEANS OF TRANSPORTATION)</p>	
1-37.	N/A	<p>MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16) 1 6 0</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Workers who did not work at home:</p> <p> All travel times</p> <p> Less than 5 minutes</p> <p> 5 to 9 minutes</p> <p> 10 to 14 minutes</p> <p> 15 to 19 minutes</p> <p> 20 to 24 minutes</p> <p> 25 to 29 minutes</p> <p> 30 to 34 minutes</p> <p> 35 to 39 minutes</p> <p> 40 to 44 minutes</p> <p> 45 to 49 minutes</p> <p> 50 to 54 minutes</p> <p> 55 to 59 minutes</p> <p> 60 to 74 minutes</p> <p> 75 to 89 minutes</p> <p> 90 minutes or more</p> <p>Drove alone: (Repeat TRAVEL TIME TO WORK)</p> <p>In 2-person carpool: (Repeat TRAVEL TIME TO WORK)</p> <p>In 3-person carpool:</p>	

(Repeat TRAVEL TIME TO WORK)
In 4-or-more-person carpool:
(Repeat TRAVEL TIME TO WORK)
Bus or trolley bus:
(Repeat TRAVEL TIME TO WORK)
Streetcar, trolley car, subway, or elevated:
(Repeat TRAVEL TIME TO WORK)
Railroad:
(Repeat TRAVEL TIME TO WORK)
Bicycle or walked:
(Repeat TRAVEL TIME TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
(Repeat TRAVEL TIME TO WORK)

1-38. N/A	<p>MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) 1 0</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total</p> <p>Drove alone</p> <p>In 2-person carpool</p> <p>In 3-person carpool</p> <p>In 4-or-more-person carpool</p> <p>Bus or trolley bus</p> <p>Streetcar, trolley car, subway, or elevated</p> <p>Railroad</p> <p>Bicycle or walked</p> <p>Taxicab, ferryboat, motorcycle, or other means</p>	1 0
1-39. N/A	<p>MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) 1 0</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total</p> <p>Drove alone</p> <p>In 2-person carpool</p> <p>In 3-person carpool</p> <p>In 4-or-more-person carpool</p> <p>Bus or trolley bus</p> <p>Streetcar, trolley car, subway, or elevated</p> <p>Railroad</p> <p>Bicycle or walked</p> <p>Taxicab, ferryboat, motorcycle, or other means</p>	1 0
1-40. N/A	<p>AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) 1</p> <p><i>Universe: Workers 16 years and over using a car, truck, or van</i></p> <p>Total</p>	1
1-41. 1-21	<p>WORKERS PER VEHICLE(1) 1</p> <p><i>Universe: Workers 16 years and over using a car, truck, or van</i></p> <p>Total</p>	1

1990 Table	1980 Table	Title	Total number of data cells
1-42.	N/A	AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1
1-43.	I-22	WORKERS PER CARPOOL(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1
1-44.	N/A	MOBILITY LIMITATION STATUS(3) BY MEANS OF TRANSPORTATION TO WORK(11). . <i>Universe: Workers 16 years and over</i> Total, mobility limitation status: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home With a mobility limitation: (Repeat MEANS OF TRANSPORTATION) No mobility limitation: (Repeat MEANS OF TRANSPORTATION)	33
1-45.	I-24	HOUSEHOLD INCOME IN 1989(26) BY MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN HOUSEHOLDS <i>Universe: Workers 16 years and over in households</i> Total, household income for workers in households: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home Less than \$5,000: (Repeat MEANS OF TRANSPORTATION) \$5,000 to \$9,999: (Repeat MEANS OF TRANSPORTATION) \$10,000 to \$12,499: (Repeat MEANS OF TRANSPORTATION) \$12,500 to \$14,999: (Repeat MEANS OF TRANSPORTATION)	286

\$15,000 to \$17,499:
(Repeat MEANS OF TRANSPORTATION)
\$17,500 to \$19,999:
(Repeat MEANS OF TRANSPORTATION)
\$20,000 to \$22,499:
(Repeat MEANS OF TRANSPORTATION)
\$22,500 to \$24,999:
(Repeat MEANS OF TRANSPORTATION)
\$25,000 to \$27,499:
(Repeat MEANS OF TRANSPORTATION)
\$27,500 to \$29,999:
(Repeat MEANS OF TRANSPORTATION)
\$30,000 to \$32,499:
(Repeat MEANS OF TRANSPORTATION)
\$32,500 to \$34,999:
(Repeat MEANS OF TRANSPORTATION)
\$35,000 to \$37,499:
(Repeat MEANS OF TRANSPORTATION)
\$37,500 to \$39,999:
(Repeat MEANS OF TRANSPORTATION)
\$40,000 to \$42,499:
(Repeat MEANS OF TRANSPORTATION)
\$42,500 to \$44,999:
(Repeat MEANS OF TRANSPORTATION)
\$45,000 to \$47,499:
(Repeat MEANS OF TRANSPORTATION)
\$47,500 to \$49,999:
(Repeat MEANS OF TRANSPORTATION)
\$50,000 to \$54,999:
(Repeat MEANS OF TRANSPORTATION)
\$55,000 to \$59,999:
(Repeat MEANS OF TRANSPORTATION)
\$60,000 to \$74,999:
(Repeat MEANS OF TRANSPORTATION)
\$75,000 to \$99,999:
(Repeat MEANS OF TRANSPORTATION)
\$100,000 to \$124,999:
(Repeat MEANS OF TRANSPORTATION)
\$125,000 to \$149,999:
(Repeat MEANS OF TRANSPORTATION)
\$150,000 or more:
(Repeat MEANS OF TRANSPORTATION)

1-46.1-24 MEDIAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11)
FOR WORKERS IN HOUSEHOLDS 11
Universe: Workers 16 years and over in households
Total
Drove alone
In 2-person carpool
In 3-person carpool

In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

1-47. I-24 MEAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11)
FOR WORKERS IN HOUSEHOLDS 11

Universe: Workers 16 years and over in households

Total

Drove alone

In 2-person carpool

In 3-person carpool

In 4-or-more-person carpool

Bus or trolley bus

Streetcar, trolley car, subway, or elevated

Railroad

Bicycle or walked

Taxicab, ferryboat, motorcycle, or other means

Worked at home

1-48. I-27 VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR
WORKERS IN HOUSEHOLDS 66

Universe: Workers 16 years and over in households

Total, vehicles available:

All means of transportation

Drove alone

In 2-person carpool

In 3-person carpool

In 4-or-more-person carpool

Bus or trolley bus

Streetcar, trolley car, subway, or elevated

Railroad

Bicycle or walked

Taxicab, ferryboat, motorcycle, or other means

Worked at home

No vehicles:

(Repeat MEANS OF TRANSPORTATION)

1 vehicle:

(Repeat MEANS OF TRANSPORTATION)

2 vehicles:

(Repeat MEANS OF TRANSPORTATION)

3 vehicles:

(Repeat MEANS OF TRANSPORTATION)

4 or more vehicles:

(Repeat MEANS OF TRANSPORTATION)

Table	Table	Title	
1-49.	N/A	<p>PERSONS IN HOUSEHOLD(5) BY WORKERS IN HOUSEHOLD(5) FOR WORKERS 2 5</p> <p><i>Universe: Workers 16 years and over in households</i></p> <p>Total, persons in household:</p> <p style="padding-left: 20px;">All workers in households</p> <p style="padding-left: 20px;">Workers in 1-worker household</p> <p style="padding-left: 20px;">Workers in 2-worker household</p> <p style="padding-left: 20px;">Workers in 3-worker household</p> <p style="padding-left: 20px;">Workers in 4-or-more-worker household</p> <p>1 person in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p> <p>2 persons in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p> <p>3 persons in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p> <p>4 or more persons in household:</p> <p style="padding-left: 20px;">(Repeat WORKERS IN HOUSEHOLD)</p>	
1-50.	N/A	<p>WORKERS IN GROUP QUARTERS(1) 1</p> <p><i>Universe: Workers 16 years and over in group quarters</i></p> <p>Total</p>	
1-51.	N/A	<p>MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN GROUP QUARTERS . . 1 1</p> <p><i>Universe: Workers 16 years and over in group quarters</i></p> <p>Total</p> <p style="padding-left: 20px;">Drove alone</p> <p style="padding-left: 20px;">In 2-person carpool</p> <p style="padding-left: 20px;">In 3-person carpool</p> <p style="padding-left: 20px;">In 4-or-more-person carpool</p> <p style="padding-left: 20px;">Bus or trolley bus</p> <p style="padding-left: 20px;">Streetcar, trolley car, subway, or elevated</p> <p style="padding-left: 20px;">Railroad</p> <p style="padding-left: 20px;">Bicycle or walked</p> <p style="padding-left: 20px;">Taxicab, ferryboat, motorcycle, or other means</p> <p style="padding-left: 20px;">Worked at home</p>	
1-52.	N/A	<p>MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF</p> <p>TRANSPORTATION(19) 1 9</p> <p><i>Universe: Workers 16 years and over who did not work at home</i></p> <p>Total</p> <p style="padding-left: 20px;">Drove alone</p> <p style="padding-left: 20px;">In 2-person carpool</p> <p style="padding-left: 20px;">In 3-person carpool</p> <p style="padding-left: 20px;">In 4-person carpool</p> <p style="padding-left: 20px;">In 5-person carpool</p> <p style="padding-left: 20px;">In 6-person carpool</p> <p style="padding-left: 20px;">In 7-to-9-person carpool</p> <p style="padding-left: 20px;">In 10-or-more-person carpool</p> <p style="padding-left: 20px;">Bus or trolley bus</p> <p style="padding-left: 20px;">Streetcar or trolley car</p> <p style="padding-left: 20px;">Subway or elevated</p>	

Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

1-53. N/A MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

1-54. N/A STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle

Bicycle
 Walked
 Other means

1-55. N/A MEDIAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10)
 BY TIME LEAVING HOME TO GO TO WORK(7) 70

Universe: Workers 16 years and over who did not work at home

All workers who did not work at home:

All departure times

5:30 a.m. to 6:29 a.m.

6:30 a.m. to 7:29 a.m.

7:30 a.m. to 8:29 a.m.

8:30 a.m. to 9:29 a.m.

9:30 a.m. to 10:29 a.m.

10:30 a.m. to 5:29 a.m.

Drove alone:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 2-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 3-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 4-or-more-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Bus or trolley bus:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Streetcar, trolley car, subway, or elevated:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Railroad:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Bicycle or walked:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Taxicab, ferryboat, motorcycle, or other means:

(Repeat TIME LEAVING HOME TO GO TO WORK)

1-56. N/A MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY
 TIME LEAVING HOME TO GO TO WORK(7) 70

Universe: Workers 16 years and over who did not work at home

All workers who did not work at home:

All departure times

5:30 a.m. to 6:29 a.m.

6:30 a.m. to 7:29 a.m.

7:30 a.m. to 8:29 a.m.

8:30 a.m. to 9:29 a.m.

9:30 a.m. to 10:29 a.m.

10:30 a.m. to 5:29 a.m.

Drove alone:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 2-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 3-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)
 In 4-or-more-person carpool:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Bus or trolley bus:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Streetcar, trolley car, subway, or elevated:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Railroad:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Bicycle or walked:
 (Repeat TIME LEAVING HOME TO GO TO WORK)
 Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME LEAVING HOME TO GO TO WORK)

1-57. N/A

STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(10) BY TIME LEAVING HOME TO GO TO WORK(7) 7 0
Universe: Workers 16 years and over who did not work at home

All workers who did not work at home:

- All departure times
- 5:30 a.m. to 6:29 a.m.
- 6:30 a.m. to 7:29 a.m.
- 7:30 a.m. to 8:29 a.m.
- 8:30 a.m. to 9:29 a.m.
- 9:30 a.m. to 10:29 a.m.
- 10:30 a.m. to 5:29 a.m.

Drove alone:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 2-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 3-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

In 4-or-more-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Bus or trolley bus:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Streetcar, trolley car, subway, or elevated:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Railroad:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Bicycle or walked:

(Repeat TIME LEAVING HOME TO GO TO WORK)

Taxicab, ferryboat, motorcycle, or other means:

(Repeat TIME LEAVING HOME TO GO TO WORK)

1-58. N/A	TOTAL HOUSING UNITS(1)	1
	<i>Universe: Housing units</i>	
	Total	
1-59. N/A	UNWEIGHTED SAMPLE COUNT OF HOUSING UNITS(1)	1
	<i>Universe: Housing units</i>	
	Total	
1-60. N/A	PERCENT OF HOUSING UNITS IN SAMPLE(1)	1
	<i>Universe: Housing units</i>	
	Total	
1-61. N/A	VACANCY STATUS(5)	5
	<i>Universe: Vacant housing units</i>	
	Total	
	For rent	
	For sale only	
	For seasonal, recreational, or occasional use	
	All other vacants	
1-62. 1-13	OCCUPANCY STATUS(3) BY UNITS IN STRUCTURE(7)	21
	<i>Universe: Housing units</i>	
	Total, occupancy status:	
	Total, units in structure	
	1 unit, detached	
	1 unit, attached	
	2 to 4 units	
	5 or more units	
	Mobile home or trailer	
	Other	
	Occupied:	
	(Repeat UNITS IN STRUCTURE)	
	Vacant:	
	(Repeat UNITS IN STRUCTURE)	
1-63. N/A	AGGREGATE VEHICLES AVAILABLE(1)	1
	<i>Universe: Occupied housing units</i>	
	Total	

TOTAL NUMBER OF DATA CELLS IN PART 1: 2,481

PART 1 RECORD SELECTION CRITERIA: All persons, households, and workers who live in the CTPP region, and all housing units located in the CTPP region.

1990 CTPP TABLE OUTLINES

Urban Element Part 2--Tabulations by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
2-1.	III-7	HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11) <i>Universe: Workers 16 years and over</i> Total, Hispanic origin: All races: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home White: (Repeat MEANS OF TRANSPORTATION TO WORK) Black: (Repeat MEANS OF TRANSPORTATION TO WORK) Other: (Repeat MEANS OF TRANSPORTATION TO WORK) Not of Hispanic origin: (Repeat RACE By MEANS OF TRANSPORTATION TO WORK) Hispanic origin: (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)	132
2-2.	III-1	SEX(3) BY OCCUPATION(15) OF WORKERS <i>Universe: Workers 16 years and over</i> Both sexes: All occupations Executive, administrative, and managerial occupations (000-042) Professional specialty occupations (043-202) Technicians and related support occupations (203-242) Sales occupations (243-302)	45

Administrative support occupations, including clerical (303-402)
 Private household occupations (403-412)
 Protective service occupations (413-432)
 Service occupations, except protective and household (433-472)
 Farming, forestry, and fishing occupations (473-502)
 Precision production, craft, and repair occupations (503-702)
 Machine operators, assemblers, and inspectors (703-802)
 Transportation and material moving occupations (803-863)
 Handlers, equipment cleaners, helpers, and laborers (864-902)
 Armed Forces

Male:

(Repeat OCCUPATION)

Female:

(Repeat OCCUPATION)

2-3. III-2 SEX(3) BY INDUSTRY(19) OF WORKERS 57

Universe: Workers 16 years and over

Both sexes:

All industries
 Agriculture, forestry, and fisheries (000-039)
 Mining (040-059)
 Construction (060-099)
 Manufacturing, nondurable goods (100-229)
 Manufacturing, durable goods (230-399)
 Transportation (400-439)
 Communications and other public utilities (440-499)
 Wholesale trade (500-579)
 Retail trade (580-699)
 Finance, insurance, and real estate (700-720)
 Business and repair services (721-760)
 Personal services (761-799)
 Entertainment and recreation services (800-811)
 Health services (812-840)
 Educational services (842-860)
 Other professional and related services (841, 861-899)
 Public administration (900-939)
 Armed Forces (940-960)

Male:

(Repeat INDUSTRY)

Female:

(Repeat INDUSTRY)

1990 Table	1980 Table	Title	Total number of data cells
2-4.	III-3	SEX(3) BY CLASS OF WORKER(8) OF WORKERS <i>Universe: Workers 16 years and over</i> Both sexes: Total, class of worker Private for profit wage and salary workers Private not-for-profit wage and salary workers Local government workers State government workers Federal government workers Self-employed workers Unpaid family workers Male: (Repeat CLASS OF WORKER) Female: (Repeat CLASS OF WORKER)	24
2-5.	N/A	SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) OF WORKERS <i>Universe: Workers 16 years and over</i> Both sexes: Total, number of hours worked last week Less than 15 hours 15 to 20 hours 21 to 34 hours 35 to 40 hours Over 40 hours Male: (Repeat NUMBER OF HOURS WORKED LAST WEEK) Female: (Repeat NUMBER OF HOURS WORKED LAST WEEK)	18
2-6.	III-8	SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) <i>Universe: Workers 16 years and over</i> Both sexes: All means of transportation Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home	33

Male:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 Female:
 (Repeat MEANS OF TRANSPORTATION TO WORK)

2-7.	III-5	MEANS OF TRANSPORTATION TO WORK(20) 20 <i>Universe: Workers 16 years and over</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool In 7-to-9-person carpool In 10-or-more-person carpool Bus or trolley bus Streetcar or trolley car Subway or elevated Railroad Ferryboat Taxicab Motorcycle Bicycle Walked Other means Worked at home	20
2-8.	N/A	TIME OF ARRIVAL AT WORK OF WORKERS(39) 39 <i>Universe: Workers 16 years and over who did not work at home</i> Total 5:00 a.m. to 5:14 a.m. 5:15 a.m. to 5:29 a.m. 5:30 a.m. to 5:44 a.m. 5:45 a.m. to 5:59 a.m. 6:00 a.m. to 6:14 a.m. 6:15 a.m. to 6:29 a.m. 6:30 a.m. to 6:44 a.m. 6:45 a.m. to 6:59 a.m. 7:00 a.m. to 7:14 a.m. 7:15 a.m. to 7:29 a.m. 7:30 a.m. to 7:44 a.m. 7:45 a.m. to 7:59 a.m. 8:00 a.m. to 8:14 a.m.	39

- 8:15 a.m. to 8:29 a.m.
- 8:30 a.m. to 8:44 a.m.
- 8:45 a.m. to 8:59 a.m.
- 9:00 a.m. to 9:14 a.m.
- 9:15 a.m. to 9:29 a.m.
- 9:30 a.m. to 9:44 a.m.
- 9:45 a.m. to 9:59 a.m.
- 10:00 a.m. to 10:14 a.m.
- 10:15 a.m. to 10:29 a.m.
- 10:30 a.m. to 10:44 a.m.
- 10:45 a.m. to 10:59 a.m.
- 11:00 a.m. to 11:59 a.m.
- 12:00 p.m. to 12:59 p.m.
- 1:00 p.m. to 1:59 p.m.
- 2:00 p.m. to 2:59 p.m.
- 3:00 p.m. to 3:59 p.m.
- 4:00 p.m. to 4:59 p.m.
- 5:00 p.m. to 5:59 p.m.
- 6:00 p.m. to 6:59 p.m.
- 7:00 p.m. to 7:59 p.m.
- 8:00 p.m. to 8:59 p.m.
- 9:00 p.m. to 9:59 p.m.
- 10:00 p.m. to 10:59 p.m.
- 11:00 p.m. to 11:59 p.m.
- 12:00 a.m. to 4:59 a.m.

2-9. N/A NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION TO WORK(11) 66

Universe: Workers 16 years and over

Total, number of hours worked last week:

- All means of transportation
- Drove alone
- In 2-person carpool
- In 3-person carpool
- In 4-or-more-person carpool
- Bus or trolley bus
- Streetcar, trolley car, subway, or elevated
- Railroad
- Bicycle or walked
- Taxicab, ferryboat, motorcycle, or other means
- Worked at home

Less than 15 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)

15 to 20 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)
 21 to 34 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 35 to 40 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
 Over 40 hours:
 (Repeat MEANS OF TRANSPORTATION TO WORK)

2-10. III-4 EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11)132

Universe: Workers 16 years and over

With earnings:

All means of transportation
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-or-more-person carpool
 Bus or trolley bus
 Streetcar, trolley car, subway, or elevated
 Railroad
 Bicycle or walked
 Taxicab, ferryboat, motorcycle, or other means
 Worked at home

Less than \$5,000 or loss:

(Repeat MEANS OF TRANSPORTATION)

\$5,000 to \$9,999:

(Repeat MEANS OF TRANSPORTATION)

\$10,000 to \$14,999:

(Repeat MEANS OF TRANSPORTATION)

\$15,000 to \$19,999:

(Repeat MEANS OF TRANSPORTATION)

\$20,000 to \$24,999:

(Repeat MEANS OF TRANSPORTATION)

\$25,000 to \$29,999:

(Repeat MEANS OF TRANSPORTATION)

\$30,000 to \$34,999:

(Repeat MEANS OF TRANSPORTATION)

\$35,000 to \$49,999:

(Repeat MEANS OF TRANSPORTATION)

\$50,000 to \$74,999:

(Repeat MEANS OF TRANSPORTATION)

\$75,000 or more:

(Repeat MEANS OF TRANSPORTATION)

No earnings:

(Repeat MEANS OF TRANSPORTATION)

1990 Table	1980 Table	Title	Total number of data cells
2-11.	III-4	MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) <i>Universe: Workers 16 years and over with earnings</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home	1 1
2-12.	III-4	MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) <i>Universe: Workers 16 years and over with earnings</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means Worked at home	1 1
2-13.	III-10	AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) <i>Universe: Workers 16 years and over using a car, truck, or van</i> Total	1
2-14.	III-11	WORKERS PER VEHICLE(1) <i>Universe: Workers 16 years and over using a car, truck, or van</i> Total	1
2-15.	N/A	AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1
2-16.	III-12	WORKERS PER CARPOOL(1) <i>Universe: Workers 16 years and over in a carpool</i> Total	1

2-17. III-14 VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN HOUSEHOLDS 66

Universe: Workers 16 years and over in households

Total, vehicles available:

- All means of transportation
- Drove alone
- In 2-person carpool
- In 3-person carpool
- In 4-or-more-person carpool
- Bus or trolley bus
- Streetcar, trolley car, subway, or elevated Railroad
- Bicycle or walked
- Taxicab, ferryboat, motorcycle, or other means
- Worked at home

No vehicles:

(Repeat MEANS OF TRANSPORTATION)

1 vehicle:

(Repeat MEANS OF TRANSPORTATION)

2 vehicles:

(Repeat MEANS OF TRANSPORTATION)

3 vehicles:

(Repeat MEANS OF TRANSPORTATION)

4 or more vehicles:

(Repeat MEANS OF TRANSPORTATION)

2-18. N/A TIME OF ARRIVAL AT WORK(7) BY MEANS OF TRANSPORTATION(10) 70

Universe: Workers 16 years and over who did not work at home

Total, time of arrival at work:

- All workers who did not work at home
- Drove alone
- In 2-person carpool
- In 3-person carpool
- In 4-or-more-person carpool
- Bus or trolley bus
- Streetcar, trolley car, subway, or elevated Railroad
- Bicycle or walked
- Taxicab, ferryboat, motorcycle, or other means

5:30 a.m. to 6:29 a.m.:

(Repeat MEANS OF TRANSPORTATION)

6:30 a.m. to 7:29 a.m.:

(Repeat MEANS OF TRANSPORTATION)

7:30 a.m. to 8:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 8:30 a.m. to 9:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 9:30 a.m. to 10:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)
 10:30 a.m. to 5:29 a.m.:
 (Repeat MEANS OF TRANSPORTATION)

2-19. N/A MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16) 160
Universe: Workers 16 years and over who did not work at home

Workers who did not work at home:

- All travel times
- Less than 5 minutes
- 5 to 9 minutes
- 10 to 14 minutes
- 15 to 19 minutes
- 20 to 24 minutes
- 25 to 29 minutes
- 30 to 34 minutes
- 35 to 39 minutes
- 40 to 44 minutes
- 45 to 49 minutes
- 50 to 54 minutes
- 55 to 59 minutes
- 60 to 74 minutes
- 75 to 89 minutes
- 90 minutes or more

Drove alone:
 (Repeat TRAVEL TIME TO WORK)

In 2-person carpool:
 (Repeat TRAVEL TIME TO WORK)

In 3-person carpool:
 (Repeat TRAVEL TIME TO WORK)

In 4-or-more-person carpool:
 (Repeat TRAVEL TIME TO WORK)

Bus or trolley bus:
 (Repeat TRAVEL TIME TO WORK)

Streetcar, trolley car, subway, or elevated:
 (Repeat TRAVEL TIME TO WORK)

Railroad:
 (Repeat TRAVEL TIME TO WORK)

Bicycle or walked:
 (Repeat TRAVEL TIME TO WORK)

Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TRAVEL TIME TO WORK)

2-20. N/A	MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) 10 <i>Universe: Workers 16 years and over who did not work at home</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means
2-21. N/A	MEAN TRAVEL TIME TO WORK (IN MINUTES)(1) BY MEANS OF TRANSPORTATION(10) 10 <i>Universe: Workers 16 years and over who did not work at home</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-or-more-person carpool Bus or trolley bus Streetcar, trolley car, subway, or elevated Railroad Bicycle or walked Taxicab, ferryboat, motorcycle, or other means
2-22. N/A	MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) 19 <i>Universe: Workers 16 years and over who did not work at home</i> Total Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool In 7-to-9-person carpool In 10-or-more-person carpool Bus or trolley bus

Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

2-23. N/A MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool
 In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

2-24. N/A STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
 TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
 Total
 Drove alone
 In 2-person carpool
 In 3-person carpool
 In 4-person carpool
 In 5-person carpool
 In 6-person carpool
 In 7-to-9-person carpool

In 10-or-more-person carpool
 Bus or trolley bus
 Streetcar or trolley car
 Subway or elevated
 Railroad
 Ferryboat
 Taxicab
 Motorcycle
 Bicycle
 Walked
 Other means

2-25. N/A

MEDIAN TRAVEL TIME(1) IN MINUTES BY MEANS OF TRANSPORTATION(10)
 BY TIME OF ARRIVAL AT WORK(7) 7 0
Universe: Workers 16 years and over who did not work at home
 Workers who did not work at home:
 All arrival times
 5:30 a.m. to 6:29 a.m.
 6:30 a.m. to 7:29 a.m.
 7:30 a.m. to 8:29 a.m.
 8:30 a.m. to 9:29 a.m.
 9:30 a.m. to 10:29 a.m.
 10:30 a.m. to 5:29 a.m.
 Drove alone:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 2-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 3-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 4-or-more-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 Bus or trolley bus:
 (Repeat TIME OF ARRIVAL AT WORK)
 Streetcar, trolley car, subway, or elevated:
 (Repeat TIME OF ARRIVAL AT WORK)
 Railroad:
 (Repeat TIME OF ARRIVAL AT WORK)
 Bicycle or walked:
 (Repeat TIME OF ARRIVAL AT WORK)
 Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME OF ARRIVAL AT WORK)

Table Table Title

2-26. N/A MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7) 70
Universe: Workers 16 years and over who did not work at home
 Workers who did not work at home:
 All arrival times
 5:30 a.m. to 6:29 a.m.
 6:30 a.m. to 7:29 a.m.
 7:30 a.m. to 8:29 a.m.
 8:30 a.m. to 9:29 a.m.
 9:30 a.m. to 10:29 a.m.
 10:30 a.m. to 5:29 a.m.
 Drove alone:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 2-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 3-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 4-or-more-person carpool:
 (Repeat TIME OF ARRIVAL AT WORK)
 Bus or trolley bus:
 (Repeat TIME OF ARRIVAL AT WORK)
 Streetcar, trolley car, subway, or elevated:
 (Repeat TIME OF ARRIVAL AT WORK)
 Railroad:
 (Repeat TIME OF ARRIVAL AT WORK)
 Bicycle or walked:
 (Repeat TIME OF ARRIVAL AT WORK)
 Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TIME OF ARRIVAL AT WORK)

2-27. N/A STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7) 70
Universe: Workers 16 years and over who did not work at home
 Workers who did not work at home:
 All arrival times
 5:30 a.m. to 6:29 a.m.
 6:30 a.m. to 7:29 a.m.
 7:30 a.m. to 8:29 a.m.
 8:30 a.m. to 9:29 a.m.
 9:30 a.m. to 10:29 a.m.
 10:30 a.m. to 5:29 a.m.
 Drove alone:
 (Repeat TIME OF ARRIVAL AT WORK)
 In 2-person carpool:

(Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
(Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
(Repeat TIME OF ARRIVAL AT WORK)
Bus or trolley bus:
(Repeat TIME OF ARRIVAL AT WORK)
Streetcar, trolley car, subway, or elevated:
(Repeat TIME OF ARRIVAL AT WORK)
Railroad:
(Repeat TIME OF ARRIVAL AT WORK)
Bicycle or walked:
(Repeat TIME OF ARRIVAL AT WORK)
Taxicab, ferryboat, motorcycle, or other means:
(Repeat TIME OF ARRIVAL AT WORK)

TOTAL NUMBER OF DATA CELLS IN PART 2: 1,175

**PART 2 RECORD SELECTION CRITERIA: All workers who work in the CTPP region,
regardless of where they live.**

1990 CTPP TABLE OUTLINES

Urban Element

Part 3—Tabulations of Area of Residence by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
3-1.	IV-1	TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) BY MEANS OF TRANSPORTATION TO WORK(19) <i>Universe: Workers 16 years and over who did not work at home</i> Total, time leaving home to go to work: Workers who did not work at home Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool In 7-to-9-person carpool In 10-or-more-person carpool Bus or trolley bus Streetcar or trolley car Subway or elevated Railroad Ferryboat Taxicab Motorcycle Bicycle Walked Other means Peak period (6:30 a.m. to 8:29 a.m.): (Repeat MEANS OF TRANSPORTATION)	38
3-2.	IV-3	AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) <i>Universe: Workers 16 years and over using a car, truck, or van</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	2
3-3.	IV-3	WORKERS PER VEHICLE(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) <i>Universe: Workers 16 years and over using a car, truck, or van</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	2

3-4.	N/A	AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 2 <i>Universe: Workers 16 years and over in a carpool</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	2
3-5.	IV-3	WORKERS PER CARPOOL(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 2 <i>Universe: Workers 16 years and over in a carpool</i> Total, time leaving home to go to work Peak period (6:30 a.m. to 8:29 a.m.)	2
3-6.	N/A	MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 38 <i>Universe: Workers 16 years and over who did not work at home</i> Total, time leaving home to go to work: Workers who did not work at home Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool In 7-to-9-person carpool In 10-or-more-person carpool Bus or trolley bus Streetcar or trolley car Subway or elevated Railroad Ferryboat Taxicab Motorcycle Bicycle Walked Other means Peak period (6:30 a.m. to 8:29 a.m.): (Repeat MEANS OF TRANSPORTATION)	38
3-7.	IV-2	MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 38 <i>Universe: Workers 16 years and over who did not work at home</i> Total, time leaving home to go to work: Workers who did not work at home Drove alone In 2-person carpool In 3-person carpool In 4-person carpool In 5-person carpool In 6-person carpool	38

In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means
Peak period (6:30 a.m. to 8:29 a.m.):
(Repeat MEANS OF TRANSPORTATION)

TOTAL NUMBER OF DATA CELLS IN PART 3: 122

PART 3 RECORD SELECTION CRITERIA: All workers who live in the CTPP region regardless of where they work, and all workers who work in the CTPP region regardless of where they live.

APPENDIX B

1990 CENSUS QUESTIONNAIRE

APPENDIX B

This booklet shows the content of the two main questionnaires being used in the 1990 U.S. Census. See the explanatory notes on page 2.

CENSUS '90



OFFICIAL 1990 U.S. CENSUS FORM

Thank you for taking time to complete and return this census questionnaire. It's important to you, your community, and the Nation.

The law requires answers but guarantees privacy.

By law (Title 13, U.S. Code), you're required to answer the census questions to the best of your knowledge. However, the same law guarantees that your census form remains confidential. For 72 years—or until the year 2062—only Census Bureau employees can see your form. No one else—no other government body, no police department, no court system or welfare agency—is permitted to see this confidential information under any circumstances.

How to get started—and get help.

Start by listing on the next page the names of all the people who live in your home. Please answer all questions with a black lead pencil. You'll find detailed instructions for answering the census in the enclosed guide. If you need additional help, call the toll-free telephone number to the left, near your address.

Please answer and return your form promptly.

Complete your form and return it by April 1, 1990 in the postage-paid envelope provided. Avoid the inconvenience of having a census taker visit your home.

Again, thank you for answering the 1990 Census.
Remember: Return the completed form by April 1, 1990.

Para personas de habla hispana -
(For Spanish-speaking persons)

Si usted desea un cuestionario del censo en español, llame sin cargo alguno al siguiente número: **1-800-XXXXXXX**
(o sea 1-800-XXX-XXXX)

U.S. Department of Commerce
BUREAU OF THE CENSUS
FORM D-61

OMB No. 0607-0628
Approval Expires 07/31/91

Make sure that before you seal the envelope the address of the U.S. Census Office shows through the window.

- **Need help —**
See the enclosed instruction guide or call 1-800-XXX-XXXX

- **This is your official census questionnaire**
- **Please fill it out and mail it back by Census Day, April 1, 1990**

INFORMATIONAL COPY

If wrong apartment identification, please write the correct number or location above.

The 1990 census must count every person at his or her "usual residence." This means the place where the person lives and sleeps most of the time.

1a. List on the numbered lines below the name of each person living here on Sunday, April 1, including all persons staying here who have no other home. If EVERYONE at this address is staying here temporarily and usually lives somewhere else, follow the instructions given in question 1b below.

Include

- Everyone who usually lives here such as family members, housemates and roommates, foster children, roomers, boarders, and live-in employees
- Persons who are temporarily away on a business trip, on vacation, or in a general hospital
- College students who stay here while attending college
- Persons in the Armed Forces who live here
- Newborn babies still in the hospital
- Children in boarding schools below the college level
- Persons who stay here most of the week while working even if they have a home somewhere else
- Persons with no other home who are staying here on April 1

Do NOT include

- Persons who usually live somewhere else
- Persons who are away in an institution such as a prison, mental hospital, or a nursing home
- College students who live somewhere else while attending college
- Persons in the Armed Forces who live somewhere else
- Persons who stay somewhere else most of the week while working

Print last name, first name, and middle initial for each person. Begin on line 1 with the household member (or one of the household members) in whose name this house or apartment is owned, being bought, or rented. If there is no such person, start on line 1 with any adult household member.

LAST	FIRST	INITIAL	LAST	FIRST	INITIAL
1			7		
2			8		
3			9		
4			10		
5			11		
6			12		

1b. If EVERYONE is staying here only temporarily and usually lives somewhere else, list the name of each person on the numbered lines above, fill this circle and print their usual address below. DO NOT PRINT THE ADDRESS LISTED ON THE FRONT COVER.

House number	Street or road/Rural route and box number	Apartment number
City	State	ZIP Code
County or foreign country	Names of nearest intersecting streets or roads	

NOW PLEASE OPEN THE FLAP TO PAGE 2 AND ANSWER ALL QUESTIONS FOR THE FIRST 7 PEOPLE LISTED. USE A BLACK LEAD PENCIL ONLY.

Reproduced from
best available copy.

QUESTIONS ASKED OF ALL PERSONS

PLEASE ALSO ANSWER HOUSING QUESTIONS ON PAGE 3

	PERSON 1	PERSON 2	PERSON 3	PERSON 4	PERSON 5	PERSON 6	
<p>Please fill out columns a through e for each person listed in Question 1 on page 1.</p> <p>If in this person's related to PERSON 1?</p> <p>Fill ONE circle for each person.</p> <p>Other relative of person in column 1. All circles and print next relationship, such as mother-in-law, grandchild, son-in-law, niece, cousin, and so on.</p> <p>Fill ONE circle for each person.</p> <p>Fill ONE circle for the race that the person considers himself/herself to be.</p> <p>If Indian (American), print the name of the ancestry or principal tribe.</p> <p>If Other Asian or Pacific Islander (API), print one group, for example: Filipino, Javan, Laotian, Thai, Tongan, Vietnamese, Cambodian, and so on.</p> <p>If Other races, print race.</p> <p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p> <p>Other races, print race.</p> <p>Marital status. Fill ONE circle for each person.</p> <p>In this person of Spanish/Hispanic origin? Fill ONE circle for each person.</p> <p>If Yes, other Spanish/Hispanic, print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spanish, and so on.</p> <p>FOR CENSUS USE ONLY</p>	<p>START in this column with the household member for each of the persons in whose name the home is rented, being bought, or rented. If there is no such person, start in this column with any adult household member.</p> <p>Fill ONE circle for each person.</p> <p>White Black or Negro Indian (American) (Print the name of the ancestry or principal tribe.) Ethnic Asian Asian or Pacific Islander (API) Japanese Filipino Hawaiian Korean Vietnamese Other (Print race)</p>	<p>White Black or Negro Indian (American) (Print the name of the ancestry or principal tribe.) Ethnic Asian Asian or Pacific Islander (API) Japanese Filipino Hawaiian Korean Vietnamese Other (Print race)</p>	<p>White Black or Negro Indian (American) (Print the name of the ancestry or principal tribe.) Ethnic Asian Asian or Pacific Islander (API) Japanese Filipino Hawaiian Korean Vietnamese Other (Print race)</p>	<p>White Black or Negro Indian (American) (Print the name of the ancestry or principal tribe.) Ethnic Asian Asian or Pacific Islander (API) Japanese Filipino Hawaiian Korean Vietnamese Other (Print race)</p>	<p>White Black or Negro Indian (American) (Print the name of the ancestry or principal tribe.) Ethnic Asian Asian or Pacific Islander (API) Japanese Filipino Hawaiian Korean Vietnamese Other (Print race)</p>	<p>White Black or Negro Indian (American) (Print the name of the ancestry or principal tribe.) Ethnic Asian Asian or Pacific Islander (API) Japanese Filipino Hawaiian Korean Vietnamese Other (Print race)</p>	
	<p>RELATIVE of Person 1: <input type="checkbox"/> Husband/wife <input type="checkbox"/> Natural born or adopted son/daughter <input type="checkbox"/> Stepson/stepdaughter <input type="checkbox"/> Roomer, boarder, or former child partner <input type="checkbox"/> Unmarried partner <input type="checkbox"/> Housemate, roommate <input type="checkbox"/> Other nonrelative <input type="checkbox"/> Male <input type="checkbox"/> Female</p>	<p>RELATIVE of Person 1: <input type="checkbox"/> Brother/sister <input type="checkbox"/> Father/mother <input type="checkbox"/> Grandchild <input type="checkbox"/> Other relative <input type="checkbox"/> Unmarried partner <input type="checkbox"/> Other nonrelative <input type="checkbox"/> Male <input type="checkbox"/> Female</p>	<p>RELATIVE of Person 1: <input type="checkbox"/> Husband/wife <input type="checkbox"/> Natural born or adopted son/daughter <input type="checkbox"/> Stepson/stepdaughter <input type="checkbox"/> Roomer, boarder, or former child partner <input type="checkbox"/> Unmarried partner <input type="checkbox"/> Housemate, roommate <input type="checkbox"/> Other nonrelative <input type="checkbox"/> Male <input type="checkbox"/> Female</p>	<p>RELATIVE of Person 1: <input type="checkbox"/> Husband/wife <input type="checkbox"/> Natural born or adopted son/daughter <input type="checkbox"/> Stepson/stepdaughter <input type="checkbox"/> Roomer, boarder, or former child partner <input type="checkbox"/> Unmarried partner <input type="checkbox"/> Housemate, roommate <input type="checkbox"/> Other nonrelative <input type="checkbox"/> Male <input type="checkbox"/> Female</p>	<p>RELATIVE of Person 1: <input type="checkbox"/> Husband/wife <input type="checkbox"/> Natural born or adopted son/daughter <input type="checkbox"/> Stepson/stepdaughter <input type="checkbox"/> Roomer, boarder, or former child partner <input type="checkbox"/> Unmarried partner <input type="checkbox"/> Housemate, roommate <input type="checkbox"/> Other nonrelative <input type="checkbox"/> Male <input type="checkbox"/> Female</p>	<p>RELATIVE of Person 1: <input type="checkbox"/> Husband/wife <input type="checkbox"/> Natural born or adopted son/daughter <input type="checkbox"/> Stepson/stepdaughter <input type="checkbox"/> Roomer, boarder, or former child partner <input type="checkbox"/> Unmarried partner <input type="checkbox"/> Housemate, roommate <input type="checkbox"/> Other nonrelative <input type="checkbox"/> Male <input type="checkbox"/> Female</p>	
	<p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p>	<p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p>	<p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p>	<p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p>	<p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p>	<p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p>	<p>Age and year of birth. Fill in the matching circle below each box.</p> <p>Print each person's age at last birthday. Fill in the matching circle below each box.</p> <p>Print each person's year of birth and fill the matching circle below each box.</p>
	<p>Marital status. Fill ONE circle for each person.</p> <p>Separated Never married</p>	<p>Marital status. Fill ONE circle for each person.</p> <p>Separated Never married</p>	<p>Marital status. Fill ONE circle for each person.</p> <p>Separated Never married</p>	<p>Marital status. Fill ONE circle for each person.</p> <p>Separated Never married</p>	<p>Marital status. Fill ONE circle for each person.</p> <p>Separated Never married</p>	<p>Marital status. Fill ONE circle for each person.</p> <p>Separated Never married</p>	
	<p>In this person of Spanish/Hispanic origin? Fill ONE circle for each person.</p> <p>Yes, other Spanish/Hispanic, print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spanish, and so on.</p>	<p>In this person of Spanish/Hispanic origin? Fill ONE circle for each person.</p> <p>Yes, other Spanish/Hispanic, print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spanish, and so on.</p>	<p>In this person of Spanish/Hispanic origin? Fill ONE circle for each person.</p> <p>Yes, other Spanish/Hispanic, print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spanish, and so on.</p>	<p>In this person of Spanish/Hispanic origin? Fill ONE circle for each person.</p> <p>Yes, other Spanish/Hispanic, print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spanish, and so on.</p>	<p>In this person of Spanish/Hispanic origin? Fill ONE circle for each person.</p> <p>Yes, other Spanish/Hispanic, print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spanish, and so on.</p>	<p>In this person of Spanish/Hispanic origin? Fill ONE circle for each person.</p> <p>Yes, other Spanish/Hispanic, print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spanish, and so on.</p>	

EXPLANATORY NOTES

This booklet shows the content of the two 1990 census questionnaires being delivered by mail. The content of these forms was determined after review of the 1980 census experience, extensive consultation with many government and private users of census data, and a series of experimental censuses and surveys in which various alternatives were tested.

Two principal types of data-collection forms (a 100-percent questionnaire for short form) and a sample questionnaire for long form) are being used in the 1990 census. Each household receives one of the two questionnaires.

Short form: This questionnaire contains 7 population questions and 7 housing questions shown on pages 1-3 of this booklet. On average, about 5 in every 6 households will receive the short form. For the average household, this form will take an estimated 14 minutes to complete.

Long form: This questionnaire has all of the short form questions plus housing questions 4 through 8, shown on pages 4 and 5, and population questions 8 through 33, shown on pages 6 and 7. The population questions are repeated for each member of the household but these pages were not reproduced in this booklet. A statistical sample of approximately 1 in every 8 households will receive the long form. For the average household, this form will take an estimated 43 minutes to complete.

An instruction guide accompanies each questionnaire to help the respondents complete the forms. A printed and audio tape is provided for returning the questionnaire. For additional information about the 1990 U.S. Census, please write the Director, Bureau of the Census, Washington, DC 20233.

QUESTIONS ASKED OF ALL HOUSEHOLDS

NOW PLEASE ANSWER QUESTIONS H1a-H26 FOR YOUR HOUSEHOLD

PERSON 7

Last name _____
 First name _____ Middle initial _____

If a **RELATIVE** of Person 1:

Husband/wife Brother/sister
 Natural-born or adopted son/daughter Father/mother or Grandchild
 Stepson/stepdaughter Other relative

If **NOT RELATED** to Person 1:

Roomer, boarder, or foster child Unmarried partner
 Housemate, roommate Other nonrelative

Male Female

White
 Black or Negro
 Indian (Amer.) (Print the name of the enrolled or principal tribe.)

Eskimo
 Aleut Asian or Pacific Islander (API)

Chinese Japanese
 Filipino Asian Indian
 Hawaiian Samoan
 Korean Guamanian
 Vietnamese Other API

Other race (Print race)

a. Age b. Year of birth

0	0	0	0	0	1	8	0	0	0	0
1	0	1	0	1	9	0	1	0	1	0
2	0	2	0	2	0	2	0	2	0	2
3	0	3	0	3	0	3	0	3	0	3
4	0	4	0	4	0	4	0	4	0	4
5	0	5	0	5	0	5	0	5	0	5
6	0	6	0	6	0	6	0	6	0	6
7	0	7	0	7	0	7	0	7	0	7
8	0	8	0	8	0	8	0	8	0	8
9	0	9	0	9	0	9	0	9	0	9

Now married Separated
 Widowed Never married
 Divorced

No (not Spanish/Hispanic)
 Yes, Mexican, Mexican-Am., Chicano
 Yes, Puerto Rican
 Yes, Cuban
 Yes, other Spanish/Hispanic (Print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.)

H1a. Did you leave anyone out of your list of persons for Question 1a on page 1 because you were not sure if the person should be listed — for example, someone temporarily away on a business trip or vacation, a newborn baby still in the hospital, or a person who stays here once in a while and has no other home?

Yes, please print the name(s) and reason(s).

No

b. Did you include anyone in your list of persons for Question 1a on page 1 even though you were not sure that the person should be listed — for example, a visitor who is staying here temporarily or a person who usually lives somewhere else?

Yes, please print the name(s) and reason(s).

No

H2. Which best describes this building? Include all apartments, flats, etc., even if vacant.

A mobile home or trailer
 A one-family house detached from any other house
 A one-family house attached to one or more houses
 A building with 2 apartments
 A building with 3 or 4 apartments
 A building with 5 to 9 apartments
 A building with 10 to 19 apartments
 A building with 20 to 49 apartments
 A building with 50 or more apartments
 Other

H3. How many rooms do you have in this house or apartment? Do NOT count bathrooms, porches, balconies, foyers, halls, or half-rooms.

1 room 4 rooms 7 rooms
 2 rooms 5 rooms 8 rooms
 3 rooms 6 rooms 9 or more rooms

H4. Is this house or apartment —

Owned by you or someone in this household with a mortgage or loan?
 Owned by you or someone in this household free and clear (without a mortgage)?
 Rented for cash rent?
 Occupied without payment of cash rent?

If this is a **ONE-FAMILY HOUSE** —

H5a. Is this house on ten or more acres?

Yes No

b. Is there a business (such as a store or barber shop) or a medical office on this property?

Yes No

Answer only if you or someone in this household **OWNS** OR IS **BUYING** this house or apartment —

H6. What is the value of this property; that is, how much do you think this house and lot or condominium unit would sell for if it were for sale?

<input type="radio"/> Less than \$10,000	<input type="radio"/> \$70,000 to \$74,999
<input type="radio"/> \$10,000 to \$14,999	<input type="radio"/> \$75,000 to \$79,999
<input type="radio"/> \$15,000 to \$19,999	<input type="radio"/> \$80,000 to \$89,999
<input type="radio"/> \$20,000 to \$24,999	<input type="radio"/> \$90,000 to \$99,999
<input type="radio"/> \$25,000 to \$29,999	<input type="radio"/> \$100,000 to \$124,999
<input type="radio"/> \$30,000 to \$34,999	<input type="radio"/> \$125,000 to \$149,999
<input type="radio"/> \$35,000 to \$39,999	<input type="radio"/> \$150,000 to \$174,999
<input type="radio"/> \$40,000 to \$44,999	<input type="radio"/> \$175,000 to \$199,999
<input type="radio"/> \$45,000 to \$49,999	<input type="radio"/> \$200,000 to \$249,999
<input type="radio"/> \$50,000 to \$54,999	<input type="radio"/> \$250,000 to \$299,999
<input type="radio"/> \$55,000 to \$59,999	<input type="radio"/> \$300,000 to \$399,999
<input type="radio"/> \$60,000 to \$64,999	<input type="radio"/> \$400,000 to \$499,999
<input type="radio"/> \$65,000 to \$69,999	<input type="radio"/> \$500,000 or more

Answer only if you **PAY RENT** for this house or apartment —

H7a. What is the monthly rent?

<input type="radio"/> Less than \$80	<input type="radio"/> \$375 to \$399
<input type="radio"/> \$80 to \$99	<input type="radio"/> \$400 to \$424
<input type="radio"/> \$100 to \$124	<input type="radio"/> \$425 to \$449
<input type="radio"/> \$125 to \$149	<input type="radio"/> \$450 to \$474
<input type="radio"/> \$150 to \$174	<input type="radio"/> \$475 to \$499
<input type="radio"/> \$175 to \$199	<input type="radio"/> \$500 to \$524
<input type="radio"/> \$200 to \$224	<input type="radio"/> \$525 to \$549
<input type="radio"/> \$225 to \$249	<input type="radio"/> \$550 to \$599
<input type="radio"/> \$250 to \$274	<input type="radio"/> \$600 to \$649
<input type="radio"/> \$275 to \$299	<input type="radio"/> \$650 to \$699
<input type="radio"/> \$300 to \$324	<input type="radio"/> \$700 to \$749
<input type="radio"/> \$325 to \$349	<input type="radio"/> \$750 to \$999
<input type="radio"/> \$350 to \$374	<input type="radio"/> \$1,000 or more

b. Does the monthly rent include any meals?

Yes No

FOR CENSUS USE

A. Total persons	B. Type of unit Occupied Vacant	D. Months vacant	G. DO	ID
0	<input type="radio"/> First form <input type="radio"/> Regular	<input type="radio"/> Less than 1	<input type="radio"/> 1	<input type="radio"/> 1
1	<input type="radio"/> Cont'n <input type="radio"/> Usual home elsewhere	<input type="radio"/> 1 up to 2	<input type="radio"/> 2	<input type="radio"/> 2
2	C1. Vacancy status	<input type="radio"/> 2 up to 6	<input type="radio"/> 3	<input type="radio"/> 3
3	<input type="radio"/> For rent <input type="radio"/> For seas/rec/occ	<input type="radio"/> 6 up to 12	<input type="radio"/> 4	<input type="radio"/> 4
4	<input type="radio"/> For sale only <input type="radio"/> For migrant workers	<input type="radio"/> 12 up to 24	<input type="radio"/> 5	<input type="radio"/> 5
5	<input type="radio"/> Rented or sold, not occupied <input type="radio"/> Other vacant	<input type="radio"/> 24 or more	<input type="radio"/> 6	<input type="radio"/> 6
6	C2. Is this unit boarded up?	F. Cov.	<input type="radio"/> 7	<input type="radio"/> 7
7	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> 1b <input type="radio"/> 1a <input type="radio"/> 7 <input type="radio"/> H1	<input type="radio"/> 8	<input type="radio"/> 8
8			<input type="radio"/> 9	<input type="radio"/> 9
9			<input type="radio"/> 0	<input type="radio"/> 0

QUESTIONS ASKED OF A SAMPLE OF HOUSEHOLDS

PLEASE ALSO ANSWER TH

<p>H8. When did the person listed in column 1 on page 2 move into this house or apartment?</p> <ul style="list-style-type: none"> <input type="radio"/> 1989 or 1990 <input type="radio"/> 1985 to 1988 <input type="radio"/> 1980 to 1984 <input type="radio"/> 1970 to 1979 <input type="radio"/> 1960 to 1969 <input type="radio"/> 1959 or earlier 	<p>H14. Which FUEL is used MOST for heating this house or apartment?</p> <ul style="list-style-type: none"> <input type="radio"/> Gas: from underground pipes serving the neighborhood <input type="radio"/> Gas: bottled, tank, or LP <input type="radio"/> Electricity <input type="radio"/> Fuel oil, kerosene, etc. <input type="radio"/> Coal or coke <input type="radio"/> Wood <input type="radio"/> Solar energy <input type="radio"/> Other fuel <input type="radio"/> No fuel used 	<p>H20. What are the yearly costs of utilities and fuels for this house or apartment? If you have lived here less than 1 year, estimate the yearly cost.</p> <p>a. Electricity</p> <p style="text-align: center;">\$.00 Yearly cost — Dollars</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <input type="radio"/> Included in rent or in condominium fee <input type="radio"/> No charge or electricity not used
<p>H9. How many bedrooms do you have; that is, how many bedrooms would you list if this house or apartment were on the market for sale or rent?</p> <ul style="list-style-type: none"> <input type="radio"/> No bedroom <input type="radio"/> 1 bedroom <input type="radio"/> 2 bedrooms <input type="radio"/> 3 bedrooms <input type="radio"/> 4 bedrooms <input type="radio"/> 5 or more bedrooms 	<p>H15. Do you get water from —</p> <ul style="list-style-type: none"> <input type="radio"/> A public system such as a city water department, or private company? <input type="radio"/> An individual drilled well? <input type="radio"/> An individual dug well? <input type="radio"/> Some other source such as a spring, creek, river, cistern, etc.? 	<p>b. Gas</p> <p style="text-align: center;">\$.00 Yearly cost — Dollars</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <input type="radio"/> Included in rent or in condominium fee <input type="radio"/> No charge or gas not used
<p>H10. Do you have COMPLETE plumbing facilities in this house or apartment; that is, 1) hot and cold piped water, 2) a flush toilet, and 3) a bathtub or shower?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes, have all three facilities <input type="radio"/> No 	<p>H16. Is this building connected to a public sewer?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes, connected to public sewer <input type="radio"/> No, connected to septic tank or cesspool <input type="radio"/> No, use other means 	<p>c. Water</p> <p style="text-align: center;">\$.00 Yearly cost — Dollars</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <input type="radio"/> Included in rent or in condominium fee <input type="radio"/> No charge
<p>H11. Do you have COMPLETE kitchen facilities; that is, 1) a sink with piped water, 2) a range or cookstove, and 3) a refrigerator?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No 	<p>H17. About when was this building first built?</p> <ul style="list-style-type: none"> <input type="radio"/> 1989 or 1990 <input type="radio"/> 1985 to 1988 <input type="radio"/> 1980 to 1984 <input type="radio"/> 1970 to 1979 <input type="radio"/> 1960 to 1969 <input type="radio"/> 1950 to 1959 <input type="radio"/> 1940 to 1949 <input type="radio"/> 1939 or earlier <input type="radio"/> Don't know 	<p>d. Oil, coal, kerosene, wood, etc.</p> <p style="text-align: center;">\$.00 Yearly cost — Dollars</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <input type="radio"/> Included in rent or in condominium fee <input type="radio"/> No charge or these fuels not used
<p>H12. Do you have a telephone in this house or apartment?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No 	<p>H18. Is this house or apartment part of a condominium?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No 	
<p>H13. How many automobiles, vans, and trucks of one-ton capacity or less are kept at home for use by members of your household?</p> <ul style="list-style-type: none"> <input type="radio"/> None <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 or more 	<p style="text-align: center;"><i>If you live in an apartment building, skip to H20.</i></p> <p>H19a. Is this house on less than 1 acre?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes — Skip to H20 <input type="radio"/> No <p>b. In 1989, what were the actual sales of all agricultural products from this property?</p> <ul style="list-style-type: none"> <input type="radio"/> None <input type="radio"/> \$1 to \$999 <input type="radio"/> \$1,000 to \$2,499 <input type="radio"/> \$2,500 to \$4,999 <input type="radio"/> \$5,000 to \$9,999 <input type="radio"/> \$10,000 or more 	

The sample questionnaire contains housing questions H8 to H26 shown here on pages 4 and 5.

9
8
7
6
5
4
3
2
1
0
9
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7
6
5
4
3
2
1
0

QUESTIONS ASKED OF A SAMPLE OF HOUSEHOLDS

QUESTIONS FOR YOUR HOUSEHOLD

INSTRUCTION:

Answer questions H21 TO H26, if this is a one-family house, a condominium, or a mobile home that someone in this household OWNS OR IS BUYING; otherwise, go to page 6.

H21. What were the real estate taxes on THIS property last year?

\$.00
Yearly amount — Dollars

OR

None

H22. What was the annual payment for fire, hazard, and flood insurance on THIS property?

\$.00
Yearly amount — Dollars

OR

None

H23a. Do you have a mortgage, deed of trust, contract to purchase, or similar debt on THIS property?

- Yes, mortgage, deed of trust, or similar debt
 - Yes, contract to purchase
 - No — Skip to H24a
- } Go to H23b

b. How much is your regular monthly mortgage payment on THIS property? Include payment only on first mortgage or contract to purchase.

\$.00
Monthly amount — Dollars

OR

No regular payment required — Skip to H24a

c. Does your regular monthly mortgage payment include payments for real estate taxes on THIS property?

- Yes, taxes included in payment
- No, taxes paid separately or taxes not required

d. Does your regular monthly mortgage payment include payments for fire, hazard, or flood insurance on THIS property?

- Yes, insurance included in payment
- No, insurance paid separately or no insurance

H24a. Do you have a second or junior mortgage or a home equity loan on THIS property?

- Yes
- No — Skip to H25

b. How much is your regular monthly payment on all second or junior mortgages and all home equity loans?

\$.00
Monthly amount — Dollars

OR

No regular payment required

Answer ONLY if this is a CONDOMINIUM —

H25. What is the monthly condominium fee?

\$.00
Monthly amount — Dollars

Answer ONLY if this is a MOBILE HOME —

H26. What was the total cost for personal property taxes, site rent, registration fees, and license fees on this mobile home and its site last year? Exclude real estate taxes.

\$.00
Yearly amount — Dollars

Please turn to page 6. →

9
8
7
6
5
4
3
2
1
0

QUESTIONS ASKED OF A SAMPLE OF HOUSEHOLDS

23a. How did this person usually get to work LAST WEEK? If this person usually used more than one method of transportation during the trip, fill the circle of the one used for most of the distance.

Car, truck, or van Motorcycle
 Bus or trolley bus Bicycle
 Streetcar or trolley car Walked
 Subway or elevated Worked at home
 Railroad Ferryboat Other method
 Taxicab Skip to 28

If "car, truck, or van" is marked in 23a, go to 23b. Otherwise, skip to 24a.

b. How many people, including this person, usually rode to work in the car, truck, or van LAST WEEK?

Drove alone 5 people
 2 people 6 people
 3 people 7 to 9 people
 4 people 10 or more people

24a. What time did this person usually leave home to go to work LAST WEEK?

a.m.
 p.m.

b. How many minutes did it usually take this person to get from home to work LAST WEEK?

Minutes — Skip to 28

25. Was this person TEMPORARILY absent or on layoff from a job or business LAST WEEK?

Yes, on layoff
 Yes, on vacation, temporary illness, labor dispute, etc.
 No

26a. Has this person been looking for work during the last 4 weeks?

Yes
 No — Skip to 27

b. Could this person have taken a job LAST WEEK if one had been offered?

No, already has a job
 No, temporarily ill
 No, other reasons (in school, etc.)
 Yes, could have taken a job

27. When did this person last work, even for a few days?

1990 1980 to 1984
 1989 1979 or earlier
 1988 Never worked
 1985 to 1987

Go to 28 Skip to 32

28-30. CURRENT OR MOST RECENT JOB ACTIVITY. Describe clearly this person's chief job activity or business last week. If this person had more than one job, describe the one at which this person worked the most hours. If this person had no job or business last week, give information for his/her last job or business since 1985.

28. Industry or Employer

a. For whom did this person work? If now on active duty in the Armed Forces, fill this circle and print the branch of the Armed Forces.

(Name of company, business, or other employer)

b. What kind of business or industry was this? Describe the activity at location where employed.

(For example: hospital, newspaper publishing, mail order house, auto engine manufacturing, retail bakery)

c. Is this mainly — Fill ONE circle

Manufacturing Other (agriculture, construction, service, government, etc.)
 Wholesale trade
 Retail trade

29. Occupation

a. What kind of work was this person doing?

(For example: registered nurse, personnel manager, supervisor of order department, gasoline engine assembler, cake icer)

b. What were this person's most important activities or duties?

(For example: patient care, directing hiring policies, supervising order clerks, assembling engines, icing cakes)

30. Was this person — Fill ONE circle

Employee of a PRIVATE FOR PROFIT company or business or of an individual, for wages, salary, or commissions
 Employee of a PRIVATE NOT-FOR-PROFIT, tax-exempt, or charitable organization
 Local GOVERNMENT employee (city, county, etc.)
 State GOVERNMENT employee
 Federal GOVERNMENT employee
 SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm
 SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm
 Working WITHOUT PAY in family business or farm

31a. Last year (1989), did this person work, even for a few days, at a paid job or in a business or farm?

Yes
 No — Skip to 32

b. How many weeks did this person work in 1989? Count paid vacation, paid sick leave, and military service.

Weeks

c. During the weeks WORKED in 1989, how many hours did this person usually work each week?

Hours

32. INCOME IN 1989 — Fill the "Yes" circle below for each income source received during 1989. Otherwise, fill the "No" circle. If "Yes," enter the total amount received during 1989. For income received jointly, see instruction guide. If exact amount is not known, please give best estimate. If net income was a loss, write "Loss" above the dollar amount.

a. Wages, salary, commissions, bonuses, or tips from all jobs — Report amount before deductions for taxes, bonds, dues, or other items.

Yes
 No \$.00
 Annual amount — Dollars

b. Self-employment income from own nonfarm business, including proprietorship and partnership — Report NET income after business expenses.

Yes
 No \$.00
 Annual amount — Dollars

c. Farm self-employment income — Report NET income after operating expenses. Include earnings as a tenant farmer or sharecropper.

Yes
 No \$.00
 Annual amount — Dollars

d. Interest, dividends, net rental income or royalty income, or income from estates and trusts — Report even small amounts credited to an account.

Yes
 No \$.00
 Annual amount — Dollars

e. Social Security or Railroad Retirement

Yes
 No \$.00
 Annual amount — Dollars

f. Supplemental Security Income (SSI), Aid to Families with Dependent Children (AFDC), or other public assistance or public welfare payments.

Yes
 No \$.00
 Annual amount — Dollars

g. Retirement, survivor, or disability pensions — Do NOT include Social Security.

Yes
 No \$.00
 Annual amount — Dollars

h. Any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony — Do NOT include lump-sum payments such as money from an inheritance or the sale of a home.

Yes
 No \$.00
 Annual amount — Dollars

33. What was this person's total income in 1989? Add entries in questions 32a through 32h; subtract any losses. If total amount was a loss, write "Loss" above amount.

None OR \$.00
 Annual amount — Dollars

Please turn to the next page and answer questions for Person 2 on page 2. If this is the last person listed in question 1a on page 1, go to the back of the form.

Please make sure you have . . .

- 1. FILLED** this form completely.
- 2. ANSWERED** Question 1a on page 1.
- 3. ANSWERED** Questions 2 through 7 for each person you listed in Question 1a.
- 4. ANSWERED** Questions H1a through H26 on pages 3, 4, and 5.
- 5. ANSWERED** the questions on pages 6 through 19 for each person you listed in Question 1a.

Also . . .

- 6. PRINT** here the name of a household member who filled the form, the date the form was completed, and the telephone number at which a person in this household can be called.

Name		Date	
Telephone number →	Area code	Number	<input type="radio"/> Day <input type="radio"/> Night

Then . . .

- 7. FOLD** the form the way it was sent to you.
- 8. MAIL** it back by April 1, or as close to that date as possible, in the envelope provided; no stamp is needed. When you insert your completed questionnaire, please make sure that the address of the U.S. Census Office can be seen through the window on the front of the envelope.

NOTE — If you have listed more than 7 persons in Question 1a, please make sure that you have filled the form for the first 7 people. Then mail back this form. A census taker will call to obtain the information for the other people.

Thank you very much.

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