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of Transportation

Transportation Planners' Guide to Using The 1980 Census

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16. Abstract <p>This document describes data available from the 1980 decennial Census which is of value to the transportation planner. An important part of the document is related to uses of Census data for analytical and model purposes.</p> <p>Chapter One serves as a summary of the information contained in Chapters Two through Six and provides information for the Executive who is considering the Census data and its uses for planning.</p> <p>Chapter Two describes information available and reporting mechanisms used by the Census Bureau in their normal decennial data distribution.</p> <p>Chapter Three presents the content of a special Urban Transportation Planning Package which brings together, in one tape release for each metropolitan area, those data items most useful to transportation planners. This tape is not a normal Census Bureau release and must be purchased. The most important features of this package include data available on a tract or zone basis and the trip information available for the journey-to-work.</p> <p>Chapter Four describes some data collection efforts which may be considered by the planner to supplement the Census data.</p> <p>Chapters Five and Six present uses of the Census data for analysis and model-related purposes, respectively. Uses covered include assessing the current situation, evaluating trends, transit planning, accessibility analysis, locating park-and-ride lots, land use and arterial spacing considerations, providing input to planning models as well as model calibration and development.</p>					
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TRANSPORTATION PLANNERS' GUIDE
TO USING THE 1980 CENSUS

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U.S. DEPARTMENT OF TRANSPORTATION
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PREFACE

This report was prepared to assist the transportation planner in the use of the 1980 decennial Census data. It provides a basic source of reference related to data items available, forms of distribution, information on a tape file developed specifically for planning purposes, and examples of the many uses of the Census data in transportation planning.

The report was prepared by the COMSIS Corporation for the Urban Planning and Transportation Management Division of the Federal Highway Administration, U.S. Department of Transportation. The project was accomplished under a contract to provide planner aids to assist MPO and State officials in utilizing techniques, methodologies and data.

The principal author of this report was Arthur B. Sosslau. The Federal Highway Administration contracting officers technical representative was William A. Martin. Other personnel who contributed significantly to the report included James J. McDonnell and Carlos G. Rodriguez of the Federal Highway Administration and Thomas J. Hillegass of the Urban Mass Transportation Administration. Special thanks go to Phillip N. Fulton and Marshall L. Turner, Jr. of the Bureau of the Census and to Ralph Hoar who did a notable job in editing the material.

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CHAPTER ONE

INTRODUCTION AND EXECUTIVE SUMMARY

For two decades the decennial Census has proven to be a valuable source of data upon which to base transportation planning. Data from the 1980 Census will prove significantly more so for a combination of reasons:

- o Most urban area planning agencies have had to forego large-scale data collection since the 1960's because of rising costs and diminishing local resources. As a result, these agencies have been forced to rely heavily on out-of-date information.
- o Concurrent with the decline in local large-scale data gathering, planning agencies have faced increasing pressures from decision-makers to base their analyses and recommendations on up-to-date information.
- o Improvements during the past decade, both in data-based modeling and in the transferability of parameters between areas, has greatly reduced the need for locally conducted surveys, such as home-interview origin-destination studies.
- o Perhaps most significantly, improvements both in the level of detail sought in the 1980 Census questionnaire and in geographic coding of the data obtained now afford transportation planners a data base which, when appropriately used, can fill most of the void left by the slow-down in local information gathering.

A more obvious bonus for planners is that the 1980 Census data are far more current than the most recent statistics collected locally by most of the nation's area transportation planning agencies.

Many Census questions closely parallel those traditionally asked in local surveys by transportation planners. However, some discrepancies do exist. This guide identifies these discrepancies and describes procedures that can be used to adjust for them.

Uses For Census Data

The 1980 Census provides both socio-demographic and journey-to-work information, data that are essential to analysis of current conditions, trend evaluation and accurate forecasting of such travel characteristics as vehicle availability. Residential population and housing statistics and employment information can

all be used in determining trip-generation patterns and their rates of growth or decline. Additionally, Census information now is also available on the duration of journeys to work, major work-trip movements, modes of travel used, carpool usage, etc. Such information can assist planners to develop insights into shifts during recent years, both in travel generating characteristics in residential and employment zones and in the patterns of travel between those zones (Chapters Five and Six). Other uses that can be made of 1980 Census data include:

- o Analysis of accessibility to transportation by population segment;
- o Development and/or review of basic relationships such as car availability as related to income and household size;
- o Evaluation of transit service, for example, by use of successive overlays;
- o Analysis of parking demand as reflected in work-trip destinations;
- o Analysis and forecasts of land-use trends;
- o Evaluation of regional growth models against 1980 field conditions;
- o Evaluation of corridor service using reserved lanes for high occupancy vehicles (HOV's) and of bus route studies in CBD's; and
- o Improvement of multimodal travel services for work trips and selected link analysis for highway analysis.

Census information will be available in three formats: files, microfiche and printed reports (Chapter Two). However, fewer reports will be printed than was the case in 1970 because of budgetary considerations.

History of Census Use

Two decades ago it was recognized that the decennial Census was a valuable source of data for transportation planning. It included many of the variables traditionally employed in transportation studies, and Census questions regarding the journey to work were similar to those planners used in origin-destination surveys. However, a shortcoming was that place-of-work data in the 1960 Census were coded only to place and/or county--not to smaller geographic units as needed by planners. Yet another deficiency was that, for the generally available Census variables, such as population and housing units, tract definitions usually were not compatible with planners' traffic analysis zones.

With the 1970 Census, development of the geographic base file/dual independent map encoding (GBF/Dime) capability overcame some of the difficulties by allowing residence and work addresses to be coded by block. Block data could then be selected out and accumulated for such geographic units as traffic analysis zones identified by a planning agency. Also in 1970, the Federal Highway Administration (FHWA) funded development of special summary tabulations--the first Urban Transportation Planning Package (UTPP).

New Data for 1980

The 1980 Census has moved a step further. Its expanded questionnaire has collected more detailed information on the journey to work and other transportation-related items (Chapter Two). One new question asked the time usually required for the trip from home to work. Others asked about car occupancy and carpooling. Trucks, vans, bicycles and motorcycles each became a separate category in questions about the means of transportation used in travel to work.

Figure 1 on page 7 presents the 1980 Census data items and identifies those that are new or changed since the 1970 Census.

Geographic Coding Accuracy

Among the most significant improvements made in the 1980 Census were those made in the effort to code places of employment. Improvements were made in the questionnaire, in the coding operation itself, and in the development of an allocation procedure for uncodable addresses.

In the questionnaire, each respondent was asked to provide the name of the building, shopping center, or other physical location of employment if the street address was not known. This was supplemented by development of resource guides capable of detailed geographical coding of employer names, building names, shopping centers, etc.

Other improvements were the use of follow-ups to obtain better reporting of addresses, the use of updated and accurate geographic base files covering most of the urbanized sections of Standard Metropolitan Statistical Areas (SMSA's) that joined the Bureau of the Census GBF/Dime program, and coding in three Census centers rather than in one. Also, a contact person was designated in each urban area to assist in coding work places whenever at least 50 persons reported a work place not in the coding guide.

Regardless of the accuracy of coding guides and other procedures, addresses always remain that cannot be coded. To assign these addresses as reasonably as possible, the Bureau of the

Census developed an allocation procedure (for UTPP data only) using information available from responses to the questionnaire. It should be noted, however, that experience to date indicates about 85 percent of all addresses eligible for small area coding are codable to tracts and blocks without such allocation.

The long-form Census questionnaire, which contained the work-travel questions, was sent to one of every six households in SMSA'S, but only about one-half of these were coded for work addresses (a sample of about 8 percent) because of budgetary constraints.

The Special Urban Transportation Planning Package (UTPP)

Work-place information at the tract and block group (zone) level--the detail desired by transportation planners--will not be available from any regular Census source. Instead, it is being included in a special Urban Transportation Planning Package (UTPP) along with journey-to-work and other information useful to planning agencies (Chapter Three). It can be purchased only on request to the Bureau of the Census (pages 29-32). The package consists of six parts.

- o Part I contains counts by residence area (Census tract or zone) of such variables as persons, workers, households, vehicles available, vehicle occupancy, types of ride-sharing, modes of travel, and traveltime by mode.
- o Part II contains counts of households and workers in aggregate areas such as Central Business District (CBD), Central City, County, SMSA, and transportation study areas. It also includes cross-classification of data, such as households classified by autos available, income, and household size.
- o Part III contains data similar to Part I, but for workers by place of work.
- o Part IV contains data on workers' travel between residence and place of work.
- o Part V contains tabulations by groups of blocks at the work-trip end.
- o Part VI contains journey-to-work information by county of residence to county of work, including up to 20 surrounding counties with a large number of journey-to-work trips.

UTPP Availability and Cost

The Bureau of the Census expects this special package to be available from late 1982 until late 1983 at a cost of about \$10 per 1,000 population for the standard package, in which data will be coded by Census tract. The UTPP information can also be coded to a zone system as defined by the local agency and submitted to the Bureau. This will cost an additional \$2-\$3 per 1,000 population. Actual costs for a given area can be obtained from the Bureau of the Census upon request to the address on page 32 of this report.

The UTPP is also a valuable resource for nontransportation agencies in urban areas, especially those interested in employment data. Inasmuch as such work-place data will not be available in Census sources other than the UTPP, an opportunity is afforded for cost-sharing between agencies. Examples of potential Census uses by nontransportation agencies are listed in Figure 7 (pages 52-54).

CHAPTER TWO

INFORMATION AVAILABLE

Much 1980 Census information that is useful to the transportation planner is being made available through the normal release of Census data in printed reports, tape files, and microfiche. Such information is obtainable at many levels of geographic detail, the most useful of which to transportation planners are the Census tract and block levels. This chapter summarizes the information available in normal Census releases to facilitate judgments as to the best sources for the information required by each planning agency.

The special Urban Transportation Planning Package (UTPP) described in Chapter Three is, of course, the best source for most planning purposes. This one data source, not a normal Census product, is one offered only on special request. It assembles Census information that will satisfy most needs at a geographic level of detail--the zone--most useful to planners.

The information in this chapter is current as of the date on the cover. However, the Bureau of the Census from time to time makes adjustments in dates of release, exact form and contents of tapes and reports, etc. When ready to utilize Census information, the user is advised to refer to the **1980 Census User's Guide** as well as to documentations for computer tape files. For information on this Guide contact:

Mr. Gary Young
Data User Services Division
Data Access and Use Staff
Bureau of the Census
Washington, D. C. 20233
(301) 763-1584

Major Types of Information

Information from the 1980 Census is derived either from questions asked of the entire population or from questions asked of a representative sample of the population. The complete count questionnaire was to be answered by all households. The supplementary questions of the long-form questionnaire were to be answered by only a sampling of households--about one in five nationally.

Figure 1 lists the items on which data were collected in the 1980 Census. Asterisks indicate those that were new items in 1980 and that were changed since the 1970 Census. The nature of these changes are discussed later in this chapter.

1980 Census Data

100-percent population items

*Household relationship
Sex
Race
Age
Marital status
*Spanish/Hispanic origin or descent

100-percent housing items

Number of housing units at address
*Complete plumbing facilities
Number of rooms in unit
Tenure (whether the unit is owned or rented)
*Condominium identification
Value of home (for owner-occupied units and condominiums)
Rent (for renter-occupied units)
Vacant for rent, for sale, etc.; and period of vacancy

Sample population items

School enrollment
Educational attainment
State or foreign country of birth
Citizenship and year of immigration
**Current language and English proficiency
**Ancestry
Place of residence 5 years ago

Activity 5 years ago
Veteran status and period of service

*Presence of disability or handicap
Children ever born
Marital history
Employment status last week
Hours worked last week
Place of work
**Travel time to work
*Means of transportation to work
**Persons in carpool
Year last worked
Industry
Occupation
Class of worker
*Work in 1979 and weeks looking for work in 1979
*Amount of income by source in 1979
**Total income in 1979

Sample housing items

Number of units in structure
Stories in building and presence of elevator
Year unit built
*Year moved into this house
Source of water

Sewage disposal
Heating equipment
Fuels used for house heating, water heating, and cooking
*Costs of utilities and fuels
Complete kitchen facilities
Number of bedrooms and bathrooms
Telephone
Air-conditioning
Number of automobiles
**Number of light trucks and vans
**Homeowner shelter costs for mortgage, real estate taxes, and hazard insurance

Derived items (illustrative examples)

Families
Family type, size, and income
Poverty status
Population density
Persons per room ("over-crowding")
Household size
Institutions and other group quarters
Gross rent
Farm residence

*Changed relative to 1970
**New items

FIGURE 1

1980 CENSUS DATA ITEMS

Source: "Census '80--Introduction to Products and Services,"
U.S. Department of Commerce, Bureau of the Census.

Census data were developed for various political and statistical areas, as listed below.

Political Areas:

- o United States
- o States
- o Congressional Districts
- o Counties
- o Minor Civil Divisions - legal subdivisions of counties, called townships in most states.
- o Incorporated Places - cities, villages, etc.

Statistical Areas:

- o Census Regions and Divisions - The 50 States have been divided into four regions, each containing two or three divisions.
- o Standard Consolidated Statistical Area (SCSA) - A large concentration of metropolitan population composed of two or more contiguous SMSA's which together meet criteria of population size, urban character, social and economic integration, and/or contiguity of urbanized areas. Each SCSA must include at least one SMSA with a population of one million or more.
- o Standard Metropolitan Statistical Area (SMSA) - Usually consists of a central city with a population exceeding 50,000, the county(ies) in which it is located, and other contiguous counties that are metropolitan in character and are socially and economically integrated with the central city.
- o Urbanized Areas - Defined by population density, each includes a central city and the surrounding closely settled urban fringe (suburbs) which together have a population of 50,000 or more.
- o Urban/Rural - All persons living in urbanized areas and in places of 2,500 or more constitute the "urban" population; all others constitute the "rural" population.
- o Census County Divisions - Statistical subdivisions of a county defined for those States where minor civil divisions are not appropriate for the publication of statistics.
- o Census Designated Places - Residential concentrations whose populations consider themselves

belonging to geographically defined "places," although the "places" are not legally incorporated.

- o Census Tracts - Statistical subdivisions of an SMSA with an average population of 4,000.
- o Enumeration Districts - Census collection areas used as tabulation areas where block statistics are not collected.
- o Block Groups - Census tabulation areas intermediate between Census tracts and blocks.
- o Blocks - The smallest Census geographic areas, used as basic tabulation units in urbanized areas and incorporated places with a population of 10,000 or more.

Reporting Format

Census data are made available in printed reports, on computer tapes, and on microfiche. Data in 1980 Census reports will be similar in kind and quantity to the data contained in reports from the 1970 Census.

Printed reports are the most convenient and readily available source for those who do not require information in great detail for a large number of areas. For those who require Census statistics in greater detail or who wish to manipulate or process Census data, computer tape files are the most used Census product.

Five series of Summary Tape Files (STF's) are being produced. These will contain cross-tabulations of data summarized to a hierarchy of geographic areas. The Bureau of the Census will also produce Public-Use Microdata Sample (PUS) tape files containing small samples (1 and 5 percent) of unidentified household records for large geographic areas. Each household sample record will contain all Census data collected about each person in the household plus the housing units' characteristics. Identifying information such as names, addresses, and other details of location will not be included.

In addition to printed reports and tape files, certain Census information will be available on microfiche. The latest information available from the Bureau of the Census regarding form and availability is summarized in Table 1.

Summary Tape Files

The five basic STF's differ from each other in the level of geography being reported, in the level of detail at which the

TABLE 1

PROVISIONAL SCHEDULE FOR RELEASE OF
MAJOR CENSUS DATA PRODUCTS AS OF SEPTEMBER 1982

<u>PRODUCT</u>	<u>DESCRIPTION</u>	<u>TENTATIVE RELEASE DATES</u>
PHC80-1*	Block Statistics (with printed maps)	10/81-9/82
PHC80-2	Census Traacts	Late 82-Mid 83
PHC80-3	Summary Characteristics for Governmental Units	8/82-Late 82
PC80-1-A	Number of Inhabitants	10/81-7/82
PC80-1-B	General Population Characteristics	3/82-Fall 82
PC80-1-C	General Social and Economic Characteristics	Late 82-Spring 83
PC80-1-D*	Detailed Population Characteristics	Mid-Late 1983
HC80-1-A	General Housing Characteristics	4/82-Fall 82
HC80-1-B	Detailed Housing Characteristics	Late 82-Spring 83
HC80-2*	Metropolitan Housing Characteristics	Mid-Late 1983

SUMMARY TAPE FILES:

Public Law 94-171 Population Counts File	2/81-3/81
STF 1A and MARF 1**	9/81-3/82
STF 2	2/82-7/82
STF 3	Spring 82-7/82
STF 4	Late 82-Early 83
STF 5	Mid-Late 83
Public-Use Microdata Samples	Fall 1982

*Currently scheduled for release on microfiche only.

**MARF: Master Area Reference File.

information is reported, and in whether they represent 100 percent data or estimates based on sampling. STF's 1 and 2 provide data based on questions asked of all persons and for all housing units. STF's 3, 4, and 5 are estimates based on the responses of a sample of the population and housing units but contain more extensive housing and population information than do STF's 1 and 2. In 1980, the sample rate was 1 in 2 in governmental units with less than 2,500 inhabitants and 1 in 6 elsewhere. This resulted in a national sampling rate of approximately 1 in 5. The Bureau's 1977 population estimates were used to determine the sampling rate in each area.

The maximum possible geographic detail available from the Census is contained in STF 1: data for individual blocks in block-numbered areas and for enumeration districts outside of block-numbered areas. The smallest units of geography for which data are provided in STF 2 are the Census tract or minor civil division/Census county division (MCD/CCD) and places of 1,000 or more inhabitants in nontraced areas. The smallest for data in STF 3 are the block group or enumeration district and places of 2,500 or more inhabitants in nontraced areas. The smallest for data in STF 4 are the Census tract or MCD/CCD and places of 2,500 population in nontraced areas. The smallest geographic units reflected in STF 5 are SMSA's, central cities, places of 50,000 or more inhabitants, and counties of 50,000 or more inhabitants. (Table 2 profiles the geographic levels at which data are to be reported in each STF.)

The subject matter on STF 1 is listed in Appendix A. In summary, STF 1 contains more detailed geography but less subject matter detail than does STF 2. Similarly, STF 3 contains more detailed geography but less subject matter detail than STF 4. STF's 1 and 2 contain complete-count data, and STF's 3 and 4 contain estimates based on sampling. Finally, STF 5 contains sample-based estimates aggregated to larger geographic units than is the case with the other files but presents the information in the greatest subject matter detail.

The STF 1 file includes 321 cells of complete-count population and housing data. This corresponds to the 1970 Census First and Third Count files. Data are summarized for the United States, regions, divisions, States, SCSA's, SMSA's, urbanized areas, congressional districts, counties, county subdivisions, places, Census tracts, enumeration districts in unblocked areas, and blocks and block groups in blocked areas. This file includes the data in the PHC80-1, PHC80-3 and PC80-1-A reports. (See pages 15-16 for a description of these reports and Appendix A for STF 1 table outlines.)

The STF 2 file contains 2,292 cells of detailed complete-count population and housing data, of which 962 are repeated for race and/or Spanish-origin groups in the tabulation area. Data are summarized for the United States, regions, divisions, States, SCSA's, urbanized areas, counties, county subdivisions, places of

TABLE 2

OVERVIEW OF PLANNED SUMMARY LEVELS
FOR 1980 CENSUS SUMMARY TAPE FILES

SUMMARY AREA ^{1/ 2/}	STF 1			STF 2			STF 3 ^{3/}		STF 4			STF 5	Summary Level Codes ^{4/}
	100 percent			100 percent			sample		sample			sample	
	A	B	C	A	B	C	A	C	A	B	C		
United States			*			*		*			*	*	01
Region			*			*		*			*	*	02
Division			*			*		*			*	*	03
State	*	*	*		*	*	*	*		*	*	*	04
SCSA			*			*		*			*		05
SCSA within State			*		*	*		*		*	*		06
SMSA			*			*		*			*	*	07
SMSA within State		*	*	*	*	*		*	*	*	*	*	08
Urbanized Area			*			*		*			*		09
Urbanized Area within State			*		*	*		*		*	*		10
County within State	*		*		*	*	*	*		*	*		11
MCD (CCD) within County within State	*				*		*			*			12
ED or BG within Tract (BNA) within Place within MCD (CCD) within County within State	*						*						13, 14 15, & 16
County within SMSA within State		*		*					*				17
ED or Block within Tract (BNA) within Place within MCD (CCD) within County within SMSA within State		*											18, 19, 20 21, & 22
Tract (BNA) within Place within County within SMSA within State		*		*					*				23 & 24
ED or Block within Tract (BNA) within Place within County within SMSA within State		*											25 & 26
Place within State	*		*		*	*	*	*		*	*	*	27
MCD (CCD) within State			*		*	*	*	*					28
Indian Reservation and Alaskan Native Village..						*					*		29
Indian Reservation and Alaskan Native Village for County within State					*	*				*	*		30 & 31
Tract (BNA) within County within SMSA within State				*					*				32
Congressional Districts within State.....	*		*				*	*					33
Zip Code (5 digit) ^{3/}													

Source: Summary Tape File Technical Documentation, U.S. Department of Commerce, Bureau of the Census.

FOOTNOTES TO TABLE 2

- 1/ In addition to summary areas presented on the Summary Tape Files, geographic area codes are included for areas such as Ward, State Economic Subregion, District Office Code, Indian Subreservation, and Standard Federal Administrative Region.
- 2/ Population size cutoffs for the presentation of place-level data in the STF's are as follows:

STF 1A	all places	STF 3A	all places
STF 1B	all places		
STF 1C	10,000 or more	STF 3C	10,000 or more
STF 2A	10,000 or more	STF 4A	10,000 or more
STF 2B	1,000 or more	STF 4B	2,500 or more
STF 2C	20,000 or more	STF 4C	10,000 or more
		STF 5	50,000 or more

- 3/ STF 3B, which was planned to provide 5-digit ZIP Code tabulations, has been cancelled. However, private groups are currently discussing the possibility of funding Census Bureau tabulation of these data. The geographic structure of such a file will be decided at a later date.
- 4/ Multiple summary level codes for a Summary Area indicate a series of very similar summary levels that are presented in identical STF files. A specific listing is shown below of summary levels that are grouped together from the chart. (A slash mark "/" will be used to indicate "within.")

Grouping 13, 14, 15, and 16:

13. Place/MCD (CCD)/County/State
14. Tract (BNA)/Place/MCD (CCD)/County/State
15. BG/Tract (BNA)/Place/MCD (CCD)/County/State
16. ED/Tract (BNA)/Place/MCD (CCD)/County/State

Grouping 18, 19, 20, 21, and 22:

18. MCD (CCD)/County/SMSA/State
19. Place/MCD (CCD)/County/SMSA/State
20. Tract (BNA)/Place/MCD (CCD)/County/SMSA/State
21. Block/Tract (BNA)/Place/MCD (CCD)/County/SMSA/State
22. ED/Tract (BNA)/Place/MCD (CCD)/County/SMSA/State

Grouping 23 and 24:

23. Place/County/SMSA/State
24. Tract (BNA)/Place/County/SMSA/State

Grouping 25 and 26:

25. Block/Tract (BNA)/Place/County/SMSA/State
26. ED/Tract (BNA)/Place/County/SMSA/State

Grouping 30 and 31:

30. Indian Reservations and Alaskan Native Villages by State
31. Indian Reservations and Alaskan Native Villages by County within State

1,000 or more inhabitants, Census tracts, American Indian reservations, and Alaska native villages. This file includes the data in the PHC80-2, PC80-1-B, and HC80-1-A reports.

The STF 3 file contains 1,126 cells of population and housing data estimated from the sample counts in the same areas as in STF 1, excluding blocks. This file includes the data in the PHC80-3 reports. The Bureau of the Census is also exploring the possibility of producing STF 3 data for 5-digit ZIP Code areas on a cost-reimbursable, special-tabulation basis.

The STF 4 file is the geographic counterpart of STF 2, but contains approximately three times the number of cells of data. STF 4 provides detailed population and housing data estimated from the sample, some of which are repeated for race, Spanish-origin, and ancestry groups. Data are summarized for areas similar to those in STF 2, except that data for places are limited to those with 2,500 or more inhabitants. This file includes the data in the PHC80-2, PC80-1-C, and HC80-1-B reports. The STF 5 file contains over 100,000 cells of population and housing data estimated from the sample count and provides highly detailed tabulations and cross-classifications for States, SMSA's, and counties and cities of 50,000 or more inhabitants. Most subjects are classified by race and Spanish origin. This file includes data in the PC80-1-D and HC80-2 reports.

Several additional summary tape files do not use the STF designation. These include:

- o The P.L. 94-171 files, released in February and March of 1981 and designed principally for use in legislative redistricting. More recently, the Bureau of the Census released "household" and "persons in household" counts on tape for tracts and minor civil divisions. Neither of these files reflect the geographic refinements made for STF 1 and future data files.
- o The Master Area Reference File (MARF), another summary of total population and a dozen other basic statistics coded for the standard geographic codes. The MARF was issued State-by-State, but a consolidated national version can also be obtained.
- o The Census/EEO Special File, designed to meet data needs for planning affirmative action for equal employment opportunity. This file tabulates detailed occupation by race and Spanish origin, and by sex in one tally and education by age, by race and Spanish origin, and by sex in another. The data are being summarized for all counties and for places of 50,000 or more inhabitants.

Printed Reports--Volume 1 Series

Republication of bound volumes, one for population (PC80) and one for housing (HC80), in clothbound editions has been discontinued because of budgetary pressures. Instead, most of the basic population and housing series will be issued as separate paperback chapters. (PHC80-1, "Block Statistics," will be available only on microfiche.) The printed series contains data for basic political and larger statistical geographic areas:

- o PC80-1-A, "Number of Inhabitants," contains total population counts and is the best printed report for studying historic population counts for the hierarchy of Census geography. This report is derived from STF 1A.
- o PC80-1-B, "General Population Characteristics," and HC80-1-A, "General Housing Characteristics," are matched reports containing complete-count characteristics for States, SMSA's, counties, county subdivisions, places of 1,000 or more, etc.
- o Similarly, PC80-1-C, "General Social and Economic Characteristics," and HC80-1-B, "Detailed Housing Characteristics," contain estimates based on samplings for the same areas as in the previous reports, excepting most county subdivisions and all places with less than 2,500 population.

Compared to 1970 reports, these five population and housing reports have been designed with:

- o more commonality in structure,
- o more data distributed by race and Spanish origin,
- o more data for counties, and
- o more data for towns and townships in five States--Michigan, New Jersey, New York, Pennsylvania, and Wisconsin--treating them the same as the six New England States.

Printed Reports--PHC Series

The combined population and housing (PHC80) series includes several reports with data for small areas or special areas not included in the regular PC and HC series.

Census Tracts reports (series PHC80-2) will be available in print. Most of the tables in these reports are derived from STF 4. Tract outline maps will be available in time for publication of the tract reports--in late 1982 and early 1983.

The PHC80-3 series, "Summary Characteristics for Governmental Units and Standard Metropolitan Statistical Areas," is a new Census product. It contains about 75 basic data items and is meant to alleviate the effects of omitting small places and minor civil divisions from printed population and housing report tables. It is also the first report to publish sampling data for counties and places. The complete-count section of this report is produced from STF 1A.

Appendix B contains details on final reports from the 1980 Census and their anticipated release dates.

Microfiche

All 1980 Census publications were originally intended to be made available both in print and on microfiche, as was done with the 1970 Census. However, for reasons of economy, the Bureau of the Census no longer plans to make microfiche available as backup to its publications. Each of the following series will be disseminated either in print or on microfiche, not both:

PHC80-1	Block Statistics
PC80-1-D	Detailed Population Characteristics
HC80-2	Metropolitan Housing Characteristics

The original program also planned to make significant amounts of Summary Tape File data available on microfiche. Again for reasons of economy, the only STF data to be duplicated on microfiche are in the already available P.L. 94-171, the forthcoming microfiche of all STF 1A data, and selected information from the Master Area Reference File.

The STF 1A microfiche will be the one most valuable to planners. It will have a broad range of complete-count characteristics and will include summaries for every block group or enumeration district, Census tract, minor civil division or Census county division, county, and place, with no population minimum. In some respects STF 1A is even more detailed than the complete-count tables in tract reports. For example, STF 1A microfiche will include 26 age categories by sex, compared to 17 categories in the tract reports.

Special Tabulations

Inevitably some specialized needs are not met by the standard products of the Bureau of the Census, despite the vast amount of data it makes available in print and on computer tape and

microfiche. To meet these needs, the Bureau is willing to prepare special tabulations on a cost-reimbursement basis, insofar as it can do so without delaying production of its regular data products. It should be noted, however, that even at-cost purchase of special tabulations is much more expensive than purchase of existing public-use data sources.

The Bureau normally will not do special displays or recomputations of data already available for purchase on its summary tapes. It assumes instead that State Data Centers or private organizations can do the work. The Bureau concentrates its resources on those special tabulations that require access to its confidential files.

Public-Use Microdata Samples (PUS)

The Bureau of the Census will also release some unaggregated records on households with information on the characteristics of each unit and the people in it. These records have been edited to exclude information that might be used to identify the persons or households.

Such public-use microdata samples (PUS) may be thought to make do-it-yourself special tabulations possible, but this fails to take into account serious limitations necessary to protect confidentiality. No names, addresses, or other geographic identifications will be published and only small samples of the population will be included.

Three mutually exclusive samples will be available. One includes 5 percent of all housing units; each of the other two includes only 1 percent. Detail will necessarily be limited on residence, type of group quarters, high incomes, etc.

The limitation on geography will be less stringent than was the case in past Census reporting because the Bureau has reduced its minimum-population criterion from 250,000 to 100,000 in each identifiable area. The Bureau will work with State Data Centers to identify areas that have local relevance. States and most large SMSA's will be identifiable on one or more of the files.

As in previous censuses, public-use microdata files will contain all details recorded in the Census for most items. For example, more than 500 categories of occupation will be included. Also, as with the 1960 and 1970 microdata samples, the Bureau will continue to employ a hierarchical file structure, with personal records following their corresponding household records.

Disclosure and Suppression

To maintain the confidentiality promised respondents and required by law, the Bureau suppresses tabulations of characteristics of very small groups of people or housing units. The

rules for suppression differ for the complete-count and sample data.

As an example of suppression criteria, on the record for an enumeration district with a population of 1 to 14 persons, population characteristics such as age and relationship are suppressed. Only counts for total population and the number of persons within specific racial or Spanish-origin groups are published. However, when the geographic area being summarized has 15 or more persons, population characteristics will not be suppressed except, possibly, when tables are cross-classified by race or Spanish origin.

Each Census product's rules for data suppression can be found in the "Technical Documentation" for Summary Tape Files and in the printed reports.

CHAPTER THREE

URBAN TRANSPORTATION PLANNING PACKAGE (UTPP)

A special data tape, the Urban Transportation Planning Package (UTPP), has been developed to help metropolitan planning organizations (MPO's) and other planning agencies effectively use Census material. This will be the only source from which place-of-work information by traffic zones can be obtained. The special package can be purchased only on request to the U.S. Bureau of the Census.

Development of the UTPP program was funded by the U.S. Department of Transportation. Specifications for the UTPP were prepared by an ad hoc committee of experienced transportation planners representing the Transportation Research Board's Committee on Transportation Systems and Data Requirements. The committee consisted of transportation professionals from the U.S. government, metropolitan planning organizations, and consultants. Their preliminary design was distributed to selected MPO's and state transportation agencies for review and comment. Modifications were then incorporated, followed by successive reviews and modifications. The package attempts to provide the data that are most useful to all planning agencies.

Description of the UTPP

The UTPP consists of six parts, 82 summaries and 13,391 data items. (See Appendix C for details of each "tabulation" or data summary.)

Parts I and II provide residential information, Parts III and V provide employment-end information, and Parts IV and VI provide information on trips between residence and work.

Table 3 summarizes the information contained in the UTPP. Most of it is about workers and their travel. The balance is about households, vehicles, and persons. "Vehicles" include automobiles, trucks, and vans available to a household. In Table 3, "mode" is synonymous with means of transportation and usually consists of:

Car--drive alone	Subway or elevated
Car--carpool	Taxicab
Truck or van--drive alone	Motorcycle
Truck or van--carpool	Bicycle
Bus or streetcar	Walked only
Railroad	Other means

In some tables (I-20, III-10, IV-3, V-5, VI-8) the number of vehicles used in travel to work has been calculated from the number of workers who drive alone and the number who travel in

TABLE 3

SUMMARY OF INFORMATION IN URBAN TRANSPORTATION PLANNING PACKAGE *

PART	BASIC SUMMARY LEVEL	SUBTOTALS PROVIDED	NUMBER OF WORKERS	NUMBER OF HOUSEHOLDS	VEHICLES/CARPOOL	OTHERS
I RESIDENCE END	Tract or Block Group (User supplies block zone equivalence)	CBD Central City Urbanized or Study Area County SMSA	Sex & Occupation Sex & Industry Sex & Class of Worker Not working at home by mean travel time, mode & carpooling Using car, truck, van by carpool type & vehicle occup. Mode & Earnings in household by mode & household income Mode, Race & Spanish origin Mode, Sex, Age Mode & Vehicle available Place of work not reported by mode With public trans. disability by mode and carpooling	Size of household Number of Workers in household Household Income Number Autos available Number Trucks or Vans available Total Vehicles available	Number vehicles used in travel to work Persons/Vehicle Persons/Carpool	In household by sex & age In group quarters by sex & age All persons by sex & age All persons by race and Spanish origin 3 years & older enrolled in school Number years around housing units by duration of vacancy Number years around housing units by duration of vacancy Non-institutional population 16 or older by type of disability & age
II RESIDENCE END	Large Areas CBD (optional) Central City Area (Urbanized or study) County SMSA		Race, Spanish origin, earnings by mode, carpooling Mode, carpooling, class of work Age, earnings, mode & carpooling Not working at home by travel time & mode By household income, household size, mode & carpooling Household income, number vehicles available mode & carpooling Sex, number workers/household, number vehicles, mode & carpooling Role & Spanish origin, household income & vehicles available Who use car, truck or van by vehicle occ., household income & vehicles available Who use car, truck or van by sex, carpool type & vehicle occ.	Type structure, household income, & household size Autos available, household income & household size Number trucks or vans available, household income, & household size Number vehicles available, household income & household size Type structure, number autos available Type structure, number vehicles available		
III WORKER END	Tract or Zone (With user supplied block-tract equiv.)	CBD Central City Area (Urbanized or study) County SMSA	Sex & Occupation Sex & Industry Sex & Class of worker Mode & Earnings Mode & Carpooling Not working at home mean travel time & standard service mode & carpooling Mode, Race, Spanish origin Mode & Sex Using car, truck or van by carpool type & vehicle occ. In household by workers per household, mode & household income In household by mode & vehicles available		Number vehicles used in travel to work Persons/Vehicle Persons/Carpool	
IV RESIDENCE TO WORKER END	Tract or Zone (With user supplied block-tract equiv.)	CBD Central City Area (Urbanized or study) County SMSA Within community Outside community	Total workers Workers by mode Workers (not working at home) By mean travel time & mode		Number vehicles used in travel to work Persons/Vehicle Persons/Carpool	
V WORKER END	Block Group	Tract or Zone (With user supplied block-zone equiv.)	Sex & Occupation Sex & Industry Sex & Class of worker Mode		Number vehicles used in travel to work Persons/Vehicle Persons/Carpool	
VI COUNTY RESIDENCE TO COUNTY OF WORK	Counties		Sex & Occupation Sex & Industry Sex & Class of worker Mode & Earnings Mode, Race, Spanish origin Mode & Sex Using vehicle by carpool type Mode all vehicles available Mode & household income		Number vehicles used in travel to work Persons/Vehicle Persons/Carpool	

20

*See appropriate Part, I-VI, in Appendix for actual table layout.

carpools, which range from two-person pools to those of seven or more persons. In this latter category (workers in carpools of seven or more persons) 0.1428 was the factor used to convert the number of workers to the number of vehicles used. Persons-per-carpool is calculated by dividing the number of workers who share driving, drive others only, or ride as a passenger only by the number of carpool vehicles used in travel to work (total vehicles minus vehicles of workers who drive alone).

Since geographic coding was done at the block level, the UTPP can be ordered coded either to Census tracts or to a zone system defined to the Bureau by the requesting agency. As shown in Tables 4 through 9, subtotals are also developed for such geographic units as the CBD, central city, etc.

Part I provides 29 tabulations of data by tract or zone of residence. Subtotals are provided for the CBD, central city, entire area, county, and SMSA. The information in these tabulations is listed in Table 4.

Part II provides 19 tables of residence data for larger areas (CBD, central city, entire area, county, and SMSA) and is most useful for examining cross-classification relationships. Two examples: households are classified by vehicles available, income, and household size, and the number of workers are classified by household income, by size of household and by means of transportation and carpooling to work (Table 5).

Part III provides 14 tabulations of data similar to Part I except that they are summarized by tract or zone for place of work instead of residence. Subtotals on all tabulations are provided by CBD, central city, entire area, county, and SMSA (Table 6).

Part IV provides three tabulations of information on journeys between residence and place of work. Residence and place of work can each be identified either by Census tract or planning zone. In addition to the trip tables by means of transportation for the journey to work distributed by tract or zone, summary trip tables will be provided for the CBD, central city, entire area, county, SMSA, within commutershed, and outside commutershed (Table 7).

Part V provides seven tabulations of place-of-work data at the block group level. Subtotals are provided by Census tract or by a locally defined zone system upon request. The information includes the number of workers by occupation and sex and by major industry and sex, the number of private vehicles used, persons per vehicle, and persons per carpool (Table 8). Such numerical information is useful in proportioning other data available only by tract or zone to the smaller geography of block groups.

Part VI provides 10 tables of journey-to-work information on travel between counties. This summarized information, when compared to 1970 Census data for example, is useful in the study of

TABLE 4

PART I - TABULATIONS BY CENSUS TRACT OR BLOCK GROUP (OR ZONE-SPECIAL ORDER)
OF RESIDENCE

Subtotals By:

- (a) CBD
- (b) Central City
- (c) Area (Urbanized or Study)
- (d) Minor Civil Division (9 N.E. States only)
- (e) County
- (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS*</u>
I-1.	Number of persons in households by sex and age	51
I-2.	Number of persons in group quarters by sex and age	51
I-3.	All persons by sex and age	51
I-4.	All persons by race and Spanish origin	8
I-5.	Number of persons 3 years old and over enrolled in school	6
I-6.	Number of workers by sex and occupation	36
I-7.	Number of workers by sex and industry	48
I-8.	Number of workers by sex and class of worker	15
I-9.	Number of households by size of household	10
I-10.	Number of households by number of workers in household	9
I-11.	Number of households by household income	12
I-12.	Number of vacant year-round housing units by duration of vacancy	7
I-13.	Number of year-round housing units by type of structure	10
I-14.	Number of households by number of automobiles available	5
I-15.	Number of households by number of trucks or vans available	5
I-16.	Number of households by number of vehicles (cars, trucks, or vans) available	5
I-17.	All workers not working at home by mean travel time, means of transportation, and carpooling	26
I-18.	All workers by means of transportation and carpooling	14
I-19.	All workers using a car, truck, or van, by carpool type and vehicle occupancy	40

* Number of items for each geographic area.

Table 4 (Continued)

PART I - (Continued)

I-20.	Number of vehicles (cars, trucks, or vans) used in travel to work	1
I-21.	Number of persons per vehicle	1
I-22.	Number of persons per carpool	1
I-23.	Number of workers by means of transportation and earnings	75
I-24.	Number of workers in households by means of transportation and household income	60
I-25.	Number of workers by means of transportation, race, and Spanish origin	40
I-26.	Number of workers by means of transportation, sex, and age	105
I-27.	Number of workers in households by means of transportation and number of vehicles (cars, trucks, or vans) available	25
I-28.	Noninstitutional population 16 years old and over with a disability by type of disability and age	42
I-29.	All workers with a public transportation disability by means of transportation and carpooling	14
	TOTAL	773

TABLE 5

PART II - TABULATIONS BY LARGE GEOGRAPHIC AREAS OF RESIDENCE

Tabulations By:
 (a) CBD (optional)
 (b) Central City
 (c) Area (Urbanized or Study)
 (d) Minor Civil Division (9 N.E. States only)
 (e) County
 (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS*</u>
II-1.	Number of workers by race, Spanish origin, earnings, means of transportation, and carpooling	1,680
II-2.	Number of workers by means of transportation, carpooling, and class of worker	70
II-3.	Number of workers by age, earnings, means of transportation, and carpooling	1,470
II-4.	Number of workers not working at home by travel time and means of transportation	470
II-5.	Number of workers in households by household income, size of household, means of transportation, and carpooling	1,344
II-6.	Number of workers in households by household income, number of vehicles (cars, trucks, or vans) available, means of transportation, and carpooling	840
II-7.	Number of workers in households by sex, number of workers per household, number of vehicles (cars, trucks, or vans) available, means of transportation, and carpooling	1,050
II-8.	Number of workers in households by race and Spanish origin, household income, and number of vehicles (cars, trucks, or vans) available	480
II-9.	Number of workers in households who use a car, truck, or van, by vehicle occupancy, household income, and size of household	768
II-10.	Number of workers in households who use a car, truck, or van by vehicle occupancy, size of household, and number of vehicles (cars, trucks, or vans) available	320
II-11.	Number of workers in households who use a car, truck, or van by vehicle occupancy, household income, and number of vehicles (cars, trucks, or vans) available	480
II-12.	Number of workers who use a car, truck, or van by sex, carpool type, and vehicle occupancy	120

*Number of items for each geographic area.

TABLE 5 (Continued)

PART II - (Continued)

II-13.	Number of households by type of structure, household income, and size of household	960
II-14.	Number of households by number of automobiles available, household income, and size of household	480
II-15.	Number of households by number of trucks or vans available, household income, and size of household	480
II-16.	Number of households by number of vehicles (cars, trucks, or vans) available, household income, and size of household	480
II-17.	Number of households by type of structure and number of automobiles available	50
II-18.	Number of households by type of structure and number of trucks or vans available	50
II-19.	Number of households by type of structure and number of vehicles (cars, trucks, or vans) available	50
	TOTAL	11,642

TABLE 6

PART III - TABULATIONS BY CENSUS TRACT (OR ZONE-SPECIAL ORDER)
OF WORK

Subtotals By:

- (a) CBD
- (b) Central City
- (c) Area (Study)
- (d) Minor Civil Division (9 N.E. States only)
- (e) County
- (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS*</u>
III-1.	Number of workers by sex and occupation	36
III-2.	Number of workers by sex and industry	48
III-3.	Number of workers by sex and class of worker	15
III-4.	Number of workers by means of transportation and earnings	75
III-5.	Number of workers by means of transportation and carpooling	14
III-6.	Number of workers not working at home by mean (average) travel time and standard deviation, means of transportation, and carpooling	26
III-7.	Number of workers by means of transportation, race, and Spanish origin	40
III-8.	Number of workers by means of transportation and sex	15
III-9.	Number of workers using a car, truck, or van by carpool type and vehicle occupancy	40
III-10.	Number of vehicles (cars, trucks, or vans) used in travel to work	1
III-11.	Number of persons per vehicle	1
III-12.	Number of persons per carpool	1
III-13.	Number of workers in households by number of workers per household, means of transportation, and household income	180
III-14.	Number of workers in households by means of transportation and number of vehicles (cars, trucks, or vans) available	25
TOTAL		517

*Number of items for each geographic area.

TABLE 7

PART IV - TABULATIONS BY CENSUS TRACT OF RESIDENCE TO CENSUS TRACT OF WORK
(OR ZONE OF RESIDENCE TO ZONE OF WORK-SPECIAL ORDER)

Subtotals By:

- (a) CBD
- (b) Central City
- (c) Area (Urbanized (Residence Only) or Study)
- (d) Minor Civil Division (9 N.E. States only)
- (e) County
- (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS*</u>
IV-1.	Number of workers by means of transportation	14
IV-2	Number of workers not working at home by mean (average) travel time and means of transportation	13
IV-3.	Number of vehicles (cars, trucks, or vans) used in travel to work, number of persons per vehicle, and number of persons per carpool	3
	TOTAL	30

*Number of items for each geographic area.

6/10/82

TABLE 8

PART V - TABULATIONS BY BLOCK GROUP OF WORK (SUB-TOTALS TO CENSUS TRACT OF WORK (OR ZONE OF WORK-SPECIAL ORDER))

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS *</u>
V-1.	Number of workers by sex and occupation	36
V-2.	Number of workers by sex and industry	48
V-3.	Number of workers by sex and class of worker	15
V-4.	Number of workers by means of transportation	5
V-5.	Number of vehicles (cars, trucks, or vans) used in travel to work	1
V-6.	Number of persons per vehicle	1
V-7.	Number of persons per carpool	1
	TOTAL	107

*Number of items for each geographic area.

transportation and land-use trends. For each county within an SMSA, data are given for up to 20 counties that account for a large number of journey-to-work trips (Table 9).

Availability and Cost

The special Urban Transportation Planning Package (UTPP) is expected to be available from late 1982 through 1983 for 277 SMSA's coded to place of work. The package must be ordered by special request to the Bureau of the Census. Requests generally will be filled in the order received from those areas for which data are available. The reporting unit requested can be the Census tract or any other combination of blocks. The cost of the UTPP to any given SMSA will be supplied by the Bureau of the Census on request. Table 10 lists cost estimates for ten SMSA population sizes based on the Bureau's guidelines:

- o \$10/1,000 Population: on tract basis
- o \$12-\$13/1,000 Population: on traffic analysis zone basis (or other geographic combination of blocks)

Agencies of urbanized areas outside SMSA's or inside new 1980 SMSA's will not be able to obtain the complete UTPP for their jurisdictions, but will be able to obtain a modified version of the package as described in Appendix H. This modified package, like the complete UTPP, will contain data not available from summary tape files or Census publications. Appendix I lists those areas that did not participate in the Census GBF/Dime Program in 1978 and consequently did not have work addresses coded.

The final form in which the UTPP will be sold by the Bureau of the Census has not yet been determined. However, three options have been decided upon as to the tape contents that will be made available:

- o Full UTPP tabulations on tape without format, with a print program and only Part II on a computer printout.
- o Full UTPP tabulations on tape without format, with a print program and all six parts on a computer printout.
- o Full UTPP tabulations on tape without format, with a print program and all six parts furnished on microfiche.

TABLE 9

PART VI - TABULATIONS BY COUNTY OF RESIDENCE TO COUNTY OF WORK (INCLUDES
20 EXTERNAL COUNTIES WITH A LARGE NUMBER OF JOURNEY-TO-WORK TRIPS)

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS *</u>
VI-1.	Number of workers by sex and occupation	36
VI-2.	Number of workers by sex and industry	48
VI-3.	Number of workers by sex and class of worker	15
VI-4.	Number of workers by means of transportation and earnings	75
VI-5.	Number of workers by means of transportation, race, and Spanish origin	40
VI-6.	Number of workers by means of transportation and sex	15
VI-7.	Number of workers using a car, truck, or van, by carpool type	5
VI-8.	Number of vehicles (cars, trucks, or vans) used in travel to work, number of persons per vehicle, and number of persons per carpool	3
VI-9.	Number of workers in households by means of transportation and number of vehicles (cars, trucks, or vans) available	25
VI-10.	Number of workers in households by means of transportation and household income	60
TOTAL		322

*Number of items for each geographic area.

6/10/82

TABLE 10
ESTIMATED COST OF UTPP*

<u>Population of SMSA</u>	<u>Cost of UTPP (\$)</u>	
	<u>Tract</u>	<u>Zone</u>
50,000	2,500**	3,400**
100,000	2,500**	3,400**
200,000	2,500**	3,400**
300,000	3,000	3,750
400,000	4,000	5,000
500,000	5,000	6,250
750,000	7,500	9,375
1,000,000	10,000	12,500
2,000,000	20,000	25,000
3,000,000	30,000	37,500

*Detailed estimate must be obtained from the Bureau of the Census upon request. The above is based on the most current information where:

Tract Level Cost = \$10/1,000 population

Zone Level Cost = \$12-\$13/1,000 population

The above Tract and Zone Level Costs per 1,000 population are averages and generally the cost in larger areas will be less than the average and in smaller areas the cost will be greater than the average.

**Approximate minimum charge for an order.

Tables on microfiche may also be purchased at additional cost. All requests for price estimates should be addressed to:

Mr. Philip Fulton, Chief
Journey-to-Work and Migration
Statistics Branch
Population Division
U.S. Bureau of the Census
Washington, D.C. 20233
(301) 763-3850

Source of the UTPP

The UTPP journey-to-work information was collected from responses to the long-form Census questionnaire intended to be completed by one in every six households and returned on Census Day, Tuesday, April 1, 1980. However, because of budget constraints, only half of these were coded for place of work, resulting in a sampling of one household in 12 or about 8.3 percent of all households.

Geographic coding was made as complete and accurate as feasible, including use of improved coding guides. Also, information was requested as a substitute for valid work addresses whenever a street address could not be specified. If the street address was not known, the respondent was asked to enter the building name, shopping center, or other physical location description. Three Census Bureau offices were established to do the geographic coding of work places. As a result of this decentralization, personnel in these offices could more efficiently contact local agencies for help in coding addresses which could not be coded from available information.

For the UTPP only, workers whose place of work was not reported or whose work place could not be coded to the finest geographic detail for which it was eligible were allocated to a tract or block based on the best available information. As a result, all residents in a given SMSA who worked within that area were assigned to a tract (or traffic zone) and block of work. The multistage allocation procedure developed for the UTPP utilizes individual Census data records. In brief, workers whose places of work were not reported were assigned a place and county of work based on the distribution of work-place responses of other workers who resided within the same Census tract and who had similar characteristics (e.g., means of transportation, traveltime to work, type of employment). Workers coded or allocated only to place or county of work were then assigned to a tract of work based on the distribution of similar workers among tracts within that place or county. Finally, workers coded or allocated to a tract but not to a block were allocated to a block of work based on the distribution of similar workers among blocks within that tract.

Only in the UTPP can the cross-classified data of Part II be found. It is not available from other Census sources. Appendix J compares the UTPP data and data available from other Census sources.

Zone Versus Tract Data

The UTPP can be ordered either with the Census tract as the basic reporting unit or with some other aggregate unit of block geography such as a traffic zone. Requests for zone representation must be accompanied by a Census-geography-to-zone conversion table. Upon requesting the UTPP by zone, the Bureau of the Census will supply a list of Census geographic codes and maps if needed. A zone number must then be assigned to each Census geographic unit and the list returned to Census. If both tract and zone UTPP's are desired, they may be ordered. If zone and tract boundaries coincide there will be little, if any, additional cost for obtaining both. If they do not coincide, additional costs will be incurred.

The advantage in obtaining the UTPP by traffic analysis zones is that the information will be available for zone-based transportation planning without further manipulation. It should be noted, however, that the data will not be geographically compatible with Census data available from standard Bureau releases (reports, STF's, etc.) in which the basic reporting unit is the Census tract.

A cost differential also exists: reporting by tract will cost about \$10 per 1,000 population; by zone between \$12 and \$13 per 1,000. As an example, for an area with 750,000 population the cost difference will be about \$1,900. However, should zone data be needed, the cost increment is small compared to the costs of converting purchased tract data to zones. If both tract and zone data are purchased, they can be used in comprehensive planning as well as for traffic analysis.

Definitions

Journey-to-work questions asked in the Census differ in some respects from those usually asked by planners in travel surveys. Figure 2 lists the questions related to work trips and vehicle ownership as asked in 1980 and, for purposes of comparison, in 1970. (Appendix D gives detailed definitions and explanations relevant to journey-to-work questions.) Several points should be kept in mind when considering the use of Census data about work trips.

- o The address where the individual worked most often was recorded in the Census questionnaire. When a worker held two jobs, the second job location normally was not entered.

1970

Did this person work at any time *last week*?
How many hours did he work *last week* (all jobs)?
Where did he work *last week*? (If he worked in
more than one place, print where he worked most.)

- a) address (number and street name)
 - b) name of city, town, village, etc.
 - c) inside the limits of this city, town, village, etc.
 - d) county
 - e) state
 - f) zip code
- How did he get to work *last week*? (Chief means used on
the last day worked at the address given)

Driver, Private Auto
Passenger, Private Auto
Bus or Streetcar
Subway or Elevated
Railroad
Taxicab
Walked Only
Worked at Home
Other Means

How many passenger automobiles are owned or regularly
used by members of your household?

- None
- 1 Automobile
- 2 Automobiles
- 3 Or More Automobiles
- Not Included

Not Included

Not Included

Not Included

1980

Did this person work at any time *last week*?
How many hours did this person work *last week* (at all jobs)?
At what location did this person work *last week*?

- (If this person worked at more than one location, print
where he or she worked most. *Last week.*)
- a) address (number and street) If street address is not known
enter the building name, shopping center, or other
physical location description.
 - b) name of city, town, village, borough, etc.
 - c) Is the place of work inside the incorporated (legal) limits
of that city, town, village, borough, etc.?
 - d) county
 - e) state
 - f) zip code
- How did this person usually get to work *last week*? (If this person
used more than one method,
give the one usually used for most of the
distance.)

Car
Truck
Van
Bus or Streetcar
Railroad
Subway or Elevated
Taxicab
Motorcycle*
Bicycle*
Walked Only
Worked at Home
Other—Specify

How many automobiles are kept at home for use by members
of your household?

- None
- 1 Automobile
- 2 Automobiles
- 3 Or More Automobiles

How many vans or trucks of one-ton capacity or less are kept
at home for use by members of your household?

- None
- 1 Van or Truck
- 2 Vans or Trucks
- 3 Or More Vans or Trucks

When going to work *last week*, did this person usually:

- Drive alone
- Share driving
- Drive others only
- Ride as passenger only

How many people, including this person, usually rode to work
in the car, truck, or van *last week*?

Last week, how long did it usually take
this person to get from home to work (one way) in minutes?

FIGURE 2

JOURNEY-TO-WORK QUESTIONS

- o Some workers go to different work locations on any given day. If such workers reported to a central location, this location was to be entered as the work place. If no central location was reported to and the worker went to various work locations, then the smallest geographic area common to the starting places (for example, Westchester County, New York) was entered.
- o The questions assumed direct trips from residence to work place and did not request information about indirect work trips.
- o The Census asked about work "at any time last week." Thus, "typical" (usual) workday information was received rather than "average" workday information. The difference between an "average day" and a "typical day" is significant in transportation planning inasmuch as on an average day some 10-20 percent of all workers may not commute from home to work for one reason or another.
- o Time-of-day travel information was not obtained in the Census. An understanding of local work schedules is important in estimating peak-hour traffic volumes. (See Chapter Six for a discussion of procedures for converting Census data into estimates of peak-hour travel.)
- o The difference between 1970 and 1980 in the wording of questions about mode of travel should also be noted.

The 1980 Census asked how the person "usually" got to work the previous week. This probably results in mode estimates that are low for transit and high for the automobile as compared to the wording of questions customarily asked in transportation studies.

- o Similarly, questioning about "usual" carpool size probably results in overestimation of carpool size. Carpools are "usually" formed of a given number of passengers. However, on any given day a carpool member might not work, might be out of town, etc., resulting in a number of passengers lower than that reported for the "usual" case.
- o The Census asked where the respondent was employed "last week." It did not ask, as travel surveys do, whether a trip to work was made "yesterday."
- o Journey-to-work questions were asked both of full- and part-time workers indiscriminately and only the combined responses are reported by the Bureau of the Census.

The following section and remaining chapters will discuss further the importance of these factors and how they may be managed practically.

Journey-to-Work Adjustments¹

The Washington Metropolitan Area Council of Governments compared Census journey-to-work data with those of the Metropolitan Planning Organization. The Census source in this case was the 1977 Annual Housing Survey and a supplementary journey-to-work survey conducted by the Bureau of the Census for the U.S. Department of Housing and Urban Development. The journey-to-work supplement was similar in form to the 1980 Census.

The Census asked where the respondent was employed "last week." It did not ask, as travel surveys usually do, whether a trip to work was made "yesterday." In Washington, D.C., it was found that a factor of 0.85 was required to adjust the Census "usual day" data to travel demands on a specific day as sought by transportation planners.

Public transit trips tended to be under-reported in the Census data because only the "usual" mode was requested. A Washington, D.C., survey of transit riders showed that only 89 percent of bus riders and 76 percent of rail riders used public transit four or more days per week. For both forms of transit combined, 85 percent were regular users.

Comparisons were also made of person work-trips and transit work-trips. For the Washington region, Census data were a little more than 6 percent low for total trips and a little more than 5 percent low for transit trips.

Overall employment data were also compared. The Census does not count second jobs and, except in areas where commutershed information is available, the failure to count work trips into the region from counties outside the SMSA results in under-reporting the volume of travel demands. Such under-reporting results even if commutershed reporting is provided, because not all areas external to an SMSA are considered. In Washington, D.C., the Census reported 1.2 million jobs, as compared to local agency estimates of 1.5 million jobs, a Census under-reporting of about 20 percent. Chapter Four discusses supplemental data collection efforts that can assist in adjusting Census data to meet traditional transportation planning objectives.

¹Much of this information is derived from "Comparisons of Census Journey to Work Findings with Metropolitan Planning Organization Data," by George V. Wickstrom, an unpublished report presented at the 60th Annual Meeting of the Transportation Research Board, January 1981.

Commutersheds

An option available in the UTPP is inclusion of special commutershed data for contiguous SMSA's that make up a larger planning region. The commutershed of an SMSA includes all territory in which its workers reside and from which they travel to work. In a given pair of SMSA's, the "sending" SMSA from which a significant number of commuters travel to the other is considered part of the commutershed of the "receiving" SMSA. In regions where significant rates of commuting occur in both directions, each SMSA is considered within the commutershed of the other. Similarly, if an SMSA sends a significant number of commuters to more than one other SMSA, it is considered part of the commutershed of each receiving area.

In coding responses to the 1980 Census question on place of work, the usual procedure was to code inter-metropolitan commuters only to place and/or county of work. However, residents of SMSA's designated as within the commutershed of an adjoining SMSA were coded to the Census tract and block level if they commuted into that adjacent SMSA. This now allows the option of including these inter-metropolitan commuters in tabulations by Census tract of work (Part III) and in tabulations of Census tract of residence by Census tract of work (Part IV).

Analysis of 1970 data on commutation between contiguous SMSA's, between all areas within multi-SMSA's, and between all areas within multi-SMSA transportation planning regions led to development of the following criteria for commutershed designation.

- o For an SMSA that is not part of a multi-SMSA transportation planning region:
 - If the SMSA receives 10,000 or more commuters from a contiguous SMSA, the sending SMSA is designated within the commutershed of the receiving SMSA.
 - If 20 percent or more of the workers in the SMSA commute from outside the area, any contiguous SMSA which accounts for 5 percent or more of the SMSA's workers is included within the SMSA's commutershed.
- o For an SMSA that is part of a multi-SMSA transportation planning region that is also a Standard Consolidated Statistical Area (SCSA) or part of one, if the SMSA receives 3,000 or more commuters from another SMSA in the study region (whether contiguous or not) the sending SMSA is designated part of the commutershed of the receiving SMSA.
- o For an SMSA that is part of a multi-SMSA transportation planning region and the region is not an SCSA or part of one, the SMSA is included in the commutershed of

each other SMSA in that study region. (Such regions never consist of more than two SMSA's and are few in number.)

Appendix E lists commutersheds and the criteria used in determining their status. Inclusion of commutershed data in the UTPP is by special request only and at additional cost. (See address, page 32.)

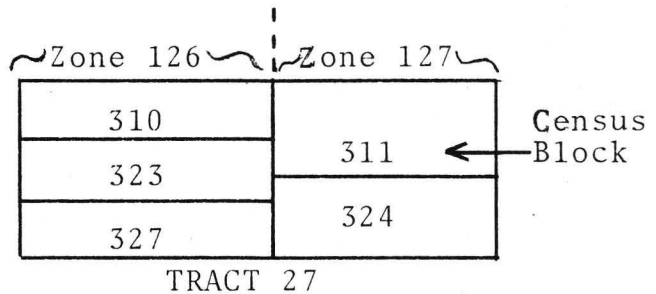
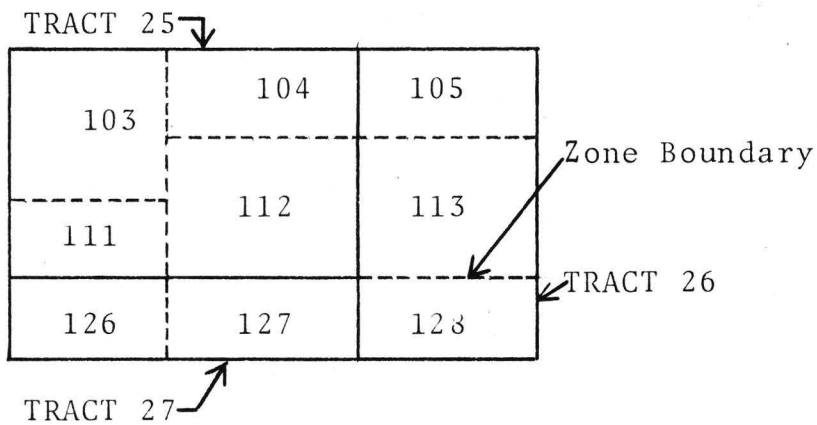
Zonal Allocation Procedures (ZAP)

An effort was made to incorporate within the UTPP all Census data items useful in transportation planning, but agencies differ as to the specific items of information they use for planning purposes. Some may not find a desired item of information in the UTPP which is available in other Census material. This may result in some data being available by zone and other data by tract. Similarly, some agencies may not elect to obtain the UTPP by zone and will want to convert tract data contained in Census tapes and publications to their traffic planning zones.

Zonal allocation from tracts obviously results in an "estimate" of zonal information, not a true count. Regardless how they are accomplished, the results will not be as correct as zonal data obtained directly by accumulating block information. However, because such conversions may be found necessary, examples of zonal allocation procedures are described here.

Block-level data is needed to convert Census tract information to zones. The Bureau of the Census publishes 100 percent block-level counts of population and year-round housing units plus a few related items of information. Also, Part V of the UTPP provides worker counts by block group at the place of employment. In such counts blocks are not grouped across tract boundaries; thus, the data also meet the needs for tract-zone conversion.

The first step is to convert residence-end data from tracts to zones. For the simplest case, in which tract and zone boundaries coincide, the tract-to-zone conversion is straightforward. In the example depicted in Figure 3, vehicles available and percent of trips by public transit are desired by zone. The number of housing units in each zone is determined by accumulating the available block data. The percent of housing units in each zone within a tract is then calculated and the count of vehicles available within the tract is proportioned among the zones. In determining the percentage of transportation mode choice, the overall tract percentage is used for each of the zones within the tract.



INFORMATION AVAILABLE IN CENSUS SOURCES

TRACT	ZONE	BLOCK	POPULATION	VEHICLES AVAIL.	% PUB. TRANS.
27			955	500	6%
	126				
		310	214		
		323	326		
		327	75		
			<u>615</u>		
	127				
		311	112		
		324	228		
			<u>340</u>		

CALCULATIONS OF ZONE ESTIMATES

Vehicles Available - Zone 126:	$500/955 \times 615$	=	322
Vehicles Available - Zone 127:	$500/955 \times 340$	=	178
% Public Transit Zones 126 & 127		=	6%

FIGURE 3

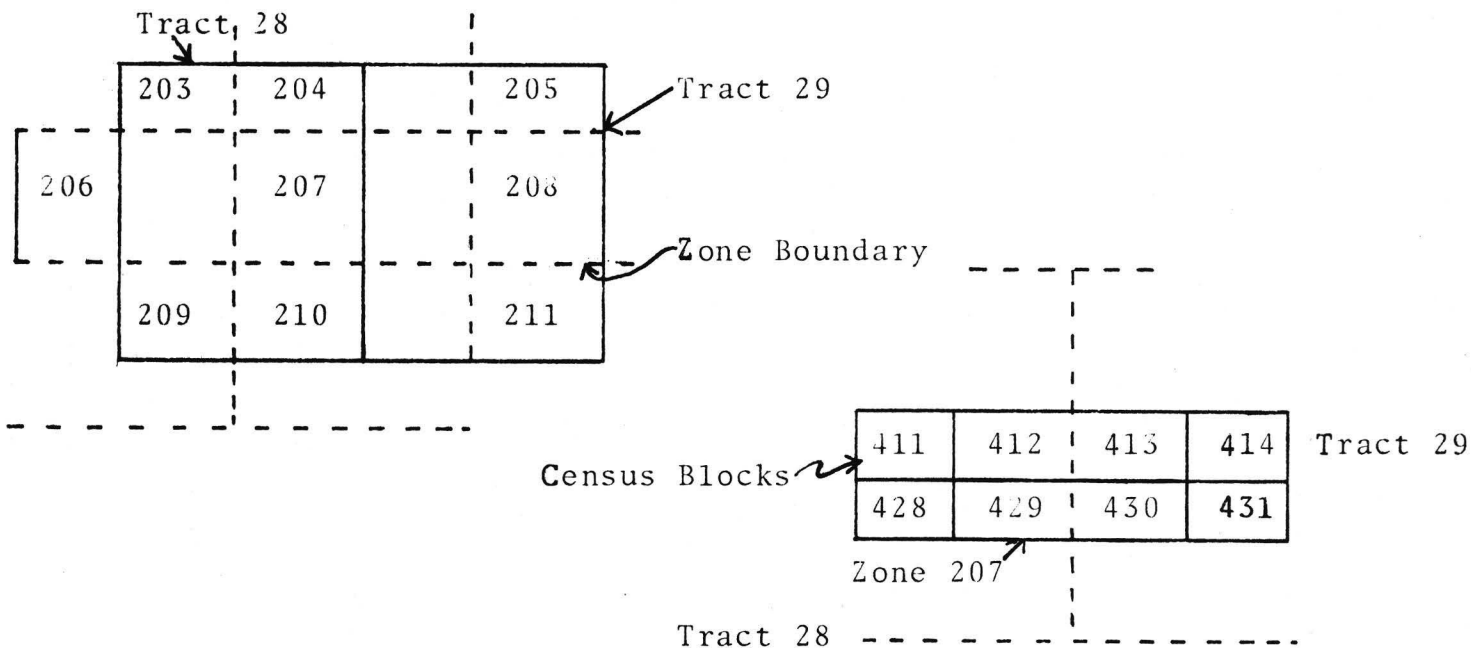
EXAMPLE OF TRACT-ZONE ALLOCATION WHERE BOUNDARIES COINCIDE

If tract and zone boundaries do not coincide the conversion is more complicated. The amount of work required and the potential for error are commensurately greater than for those cases in which boundaries do coincide.

Figure 4 depicts a case in which a zone lies within two Census tracts. Block statistics on housing units and/or population are accumulated for that portion of the zone located in each tract. In this case the population of zone 207 is composed of 410 of the 1,000 persons residing in Tract 28 and 740 of the 2,000 in Tract 29. The number of vehicles available in each of the two tracts is then proportionately reduced and allocated to the zone and the two estimates are summed to produce the zone estimate. To estimate the rate of mass transit usage in the zone, the value for each tract is applied to that portion of the zone's population within the tract and the two transit-using populations are summed. This sum is then divided by the number of households or by the population of the zone to obtain the percent of transit usage.

The second step is to make similar allocations at the employment end of the journey-to-work using block-group estimates of employment from the UTPP. Where zone-tract and block-group boundaries do not coincide, some estimates by block may have to be made.

Converting trip tables from tract to zone is a computer processing exercise, the cost of which in most cases will be more than the added expense of ordering zone-level data from the Bureau of the Census. For a small additional cost both tract and zone data may be purchased. The Bureau of the Census should be contacted for a cost estimate (see page 32). The cost of applying any zonal allocation procedure is probably greater than asking the Bureau to run the package in as many different area configurations as are needed.



INFORMATION AVAILABLE IN CENSUS SOURCES

<u>TRACT</u>	<u>ZONE</u>	<u>BLOCK</u>	<u>POPULATION</u>	<u>VEHICLES AVAIL.</u>	<u>% PUBLIC TRANS.</u>
28	207		1,000	400	8
		411	85		
		412	125		
		428	150		
		429	50		
			<u>410</u>		
29	207		2,000	1,100	5
		413	200		
		414	160		
		430	150		
		431	230		
			<u>740</u>		

CALCULATIONS OF ZONE ESTIMATES

Vehicles Available - Zone 207 in Tract 28: $400/1000 \times 410 = 164$
 Vehicles Available - Zone 207 in Tract 29: $1100/2000 \times 740 = 407$
 Vehicles Available - Zone 207 = 571

% Public Transit - Zone 207:
 $(8\% \times 410 + 5\% \times 740)/(410 + 740) = 6.1\%$

FIGURE 4

EXAMPLE OF TRACT-ZONE ALLOCATION WHERE BOUNDARIES DO NOT COINCIDE

CHAPTER FOUR

SUPPLEMENTING CENSUS DATA

To make the best possible use of Census data, planning agencies will want to supplement, update, and otherwise prepare for data collection and/or adjustment of Census information. Such data collection would be most useful if it had been done in 1980, but current data can also increase significantly the usefulness of the Census. While the data from the Census are considerable, gaps exist. Nonwork travel, for example, was not part of the 1980 Census, and Chapter Three has already described some of the differences between Census reporting of work trips and the usual criteria used by transportation planners.

Supplementing Commuting Data²

As described in Chapter Three, the difference between an "average" day and a "typical" (usual) day is significant to the transportation planner because on an average day 10-20 percent of workers may not commute from home to work. Although work-trip generation rates probably have not changed significantly over time, it would be useful to verify these rates locally, perhaps through small-sample surveys.

Knowledge of work schedules is critical in developing estimates of peak-hour travel demands. Although work trips are a minority of daily travel, they represent most peak-hour travel, especially in the morning. In some areas staggered work hours, "flexitime," the 4-day work-week, and promotion of carpooling and special carpool lanes on highways are elements that did not exist at the time most local travel surveys were conducted. Such factors may be reducing the percentage of vehicles used for commuting during peak hours. Planners in areas where these factors are prevalent may find it useful to examine for their effects by a sampling survey of commuters.

Also as noted previously, the Census did not obtain journey-to-work information on second jobs. Although in most areas only about 5 percent of all workers hold more than one job, such part-time jobs may account for a much larger percentage of total employment and work-trip generation in certain business areas.

In some larger urbanized areas, especially those with extensive transit systems, the Census data on transit usage may not be satisfactory. The Census asked only for one mode of travel--the one used for most of the trip. Planners may require more

²Much of this information is derived from "Preparation for the 1980 Census," Institute of Transportation Engineers Committee 6A-12, ITE Journal, March 1979.

detail on trips in which a combination of modes (auto, bus, rail, etc.) is used. This information can be obtained either through surveys of workers or on-board transit surveys.

Nonwork Travel Data

Less is known about nonwork travel than about work travel. Most origin-destination surveys in the past resulted in significant under-reporting of nonwork travel. In some areas a small survey of auto use to measure the total of nonwork travel might be advisable.

An important component of nonwork travel for transportation planners is nonwork transit travel. Because this is usually a small percentage of nonwork trips, the data can best be obtained through on-board transit surveys.

Summary of Supplemental Data Collection

The data needed to supplement the 1980 Census will vary from one area to another. A rapidly growing area of moderate size with a high level of transportation planning resources and many problems to solve will certainly have different requirements than a smaller area with low growth and few major problems. Because of these differences, each jurisdiction should judge for itself which of the surveys and inventories discussed below are appropriate. Supplemental data should be obtained only where absolutely necessary. In Chapter Six some methods are described for using Census-generated data to estimate total work trips, total daily trips, and peak-hour travel. These methods should be considered before mounting any local data collection effort. The one collection effort that will prove valuable in most areas is traffic counting. Such a program is needed to verify the results of any model based on Census information.

In addition to the surveys and inventories recommended, the following list includes two items beyond the scope of Census data: a truck survey and an external travel survey.

Employee Survey: An effective means of collecting commuter information not gathered in the Census, such as trip rates and peak-hour factors, a survey of employees can also be used to check the accuracy of employment reporting by the Census and to develop factors for converting the Census journey-to-work definitions to those used in planning.

Auto-Use Survey:³ To supplement Census data on travel-to-work, a survey of auto trips can measure the total number of

³See "Transportation Planning for Your Community - System Planning Manual," U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., 1980.

trips by purpose, trip length, and vehicle miles traveled (VMT). This would provide nonwork trip information without having to code for origins and destinations. Odometer readings and time-of-day records could be used to estimate trip lengths and trips by purpose. The sample frame could be either vehicle registration files or housing units. In the latter case, the number of vehicles in the household should be obtained in the interview.

Peak-Hour (and Daily) Traffic Counts: These data are needed to evaluate the procedures for system-use estimation procedures that are based on Census and other data. Field traffic counts allow vehicle-mile checks for an entire area or subarea, such as the CBD and link-by-link comparisons of assigned volumes with ground counts at screenlines, cutlines and the cordon.

On-Board Transit Survey: To supplement and verify transit information obtained from the Census, an on-board survey can sample all transit trips, both work and nonwork. Such a survey should be considered only in areas where the level of transit travel is considered significant.

External Cordon-Line Survey: The 1980 Census provides socio-economic data and journey-to-work data for zones inside the urbanized area, but it may be advisable to supplement this with interviews of persons using vehicular traffic into and out of the area. Such a survey would also count vehicular movements between the urban and exurban areas.

Truck Survey: The Census does not provide data on truck trips. Where such travel is significant, a truck survey should be considered.

Updating 1980 Census Data

The 1980 Census data are no longer current. Consequently, for some types of studies transportation planners should consider methods of updating the 1980 information to the current year. This is particularly true when the intent of a study is to design a plan for immediate action. One approach is to use interim certificates of occupancy, accumulate housing units by traffic analysis zone, and add these to the Census figures for 1980. This results in a current estimate of occupied housing units. Estimates of population, vehicles available, workers, etc., can be made by applying rates of population per household, vehicles per household, etc., based on zonal rates available from the 1980 Census and adjusted by current knowledge regarding local shifts that may be occurring in those rates. The Census Bureau's periodic estimates of changes in the national rate of persons-per-household can be used as an indicator of local change. Records of auto registration may be examined to calculate the change in vehicles per household. For population estimates, the formula is:

(1980 Census Pop.) + (1980 to Current Year Certificates of
Occupancy) x Persons/Dwelling Unit = Current Year Population

Some methods of allocating population, dwelling units, auto-
mobiles, and employment to zones are summarized in Figure 5.

FIGURE 5

PROCEDURES FOR ALLOCATING DATA BY TRAFFIC ANALYSIS ZONE (TAZ)*

PROCEDURES FOR ALLOCATING DWELLING UNITS BY TAZ

- o Obtain electric meter connections, then either manually or by using DIME file, locate by address.
- o Obtain current aerial photos, count and plot.
- o Take tax appraiser rolls and create file with TAZ locations attached.
- o Use 1980 Census housing data as base, apportion by TAZ, then add all new building permits (certificates of occupancy) by TAZ to determine current numbers of houses.

PROCEDURES FOR ALLOCATING POPULATION BY TAZ

- o 1980 Census tract data allocated by TAZ by disaggregation plus all interim year certificates of occupancy or building permits by TAZ multiplied by a persons/dwelling unit factor(s) obtained from 1980 Census figures yields current population in TAZ.
- o Same as above except vacancy factor generally from postal survey is also included in calculation.
- o Take current electric meter connections by address, manually match to TAZ, multiply by persons/dwelling unit factor*(derived from: (1) survey updates, (2) Census, (3) other area figures) yields current population in TAZ.

*This could be county wide or TAZ specific.

- o Take 1980 Census tract population and electric meter connections, perform linear regression using current meter connections for current population in TAZ.
- o Take 1980 Census tract/zone data and estimates from recent aerials, count total number of houses, compare with above housing estimates, then factor error across total county.

FIGURE 5 (Continued)

PROCEDURES FOR ALLOCATING AUTOMOBILES BY TAZ

- o Subjectively determine economic status of area, then apply factor based on household type to estimate number of autos in TAZ.
- o Based on 1980 Census auto data related to household data, DMV auto registrations are apportioned to TAZ's.
- o Obtain ownership address information from county licensing bureau and vehicle inspection agency, then match by address.
- o Conduct telephone survey and apply results on number of autos/dwelling unit type (single family, multi-family, mobile).

PROCEDURES FOR ALLOCATING EMPLOYMENT BY TAZ

- o Obtain Department of Labor and/or Commerce tape of employers' addresses and number of employees by SIC type and match to TAZ by address.
- o Using 1977 survey data, utilize land use allocation method to apportion types of employment by TAZ.

*NOTE: Where appropriate, consideration should be given to reduction in housing and population due to demolition.

CHAPTER FIVE

USES OF CENSUS DATA FOR ANALYSIS PURPOSES

Transportation planning agencies were surveyed in 1972 to determine the data items most frequently used from the 1970 Census. Figure 6 summarizes the results of that survey as published in a report prepared for the Federal Highway Administration.⁴

The range of socio-economic information contained in the Census can readily be seen from the lists in Figure 6. This wealth of data, packaged in the UTPP and not generally available from any other Census product, affords transportation and other urban planners a unique opportunity to relate social, demographic, and economic factors to transportation patterns and trends and thereby to gain insights that are essential to understand current year conditions, to evaluate trends, and to construct models for developing future transportation strategies.

For purposes of this report, transportation planning uses of Census data are divided into two categories: nonmodel and model. This chapter describes the uses of Census data in studying and evaluating current conditions (nonmodel). Chapter Six will discuss applications of the data in travel demand modeling.

Transportation Planning Uses

At least three major categories of uses of Census data apply to nonmodel transportation planning and analysis:

- o Establishment of a Data Base
- o Data Summary and Reporting
- o Travel-Related Analysis

Following are examples of such uses:

ESTABLISHMENT OF A DATA BASE

- o Establishment of a current data base of the socio-economic variables used in transportation planning at the resident end.

⁴"The Census and Transportation and Planning; Survey of Evaluations and Recommendations as to the Usefulness of the 1970 Census Data in Urban Transportation Planning," Robert C. Stuart and Michael R. Hauck, U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., March 1976.

- | | |
|---|--|
| <p>1. <i>Census Items Most Frequently Used</i>
 Population & Household Data by block, tract,
 enumeration, district, etc.
 Age and Sex
 Race
 Income
 Auto Ownership
 Occupation Industry & Class of Worker
 Place of Work
 Mode of Journey-to-Work
 Spanish Origin
 Number of Units at Address
 Value
 Contract Rent</p> | <p>2. <i>Items Frequently Used</i>
 Vacancy Status
 Employment Status
 Hours Worked Last Week
 Place of Residence 5 Years Ago
 Tenure
 Second Home
 Disability Presence & Duration</p> |
| <p>3. <i>Items Occasionally Used</i>
 Marital Status
 State or Country of Birth
 Years of School Completed
 Number of Children Ever Born
 Weeks Worked Last Year
 Last Year in Which Worked
 Country of Birth of Parents
 Mother Tongue
 School or College Enrollment
 Veteran Status
 Access to Unit
 Kitchen Facilities
 Rooms
 Flush Toilet
 Bathroom or Shower
 Basement
 Months Vacant
 Heating
 Components of Gross Rent
 Year Structure Built
 Number of Units in Structure/or Trailer
 Farm Residence
 Water Source
 Sewerage Disposal
 Bathrooms
 Number of Stories/Elevator
 Fuel
 Bedrooms
 Air Conditioning</p> | <p>4. <i>Items Seldom or Not Used</i>
 Citizenship
 Year of Immigration
 Marital History
 Vocational Training
 Occupation-Industry 5 Years Ago
 Commercial Establishment on Property
 Clothes Washing Machine
 Clothes Dryer
 Dishwasher
 Home Food Freezer
 Television
 Radio</p> |

FIGURE 6
 USE OF 1970 CENSUS DATA ITEMS

Source: "Preparation for the 1980 Census," ITE Journal,
 March 1979.

- o Establishment of a current data base of employment characteristics at the employment end.
- o Establishment of a current data base of journey-to-work trip information on a residence-to-work-place basis.

DATA SUMMARY AND REPORTING

- o Evaluation of trends in characteristics at the residence end and work end in population, housing, and employment characteristics by comparing 1960, 1970, and 1980 Census data.
- o Summary, reporting, and analysis of 1980 conditions for journey-to-work trip lengths, major trip movements (distribution), mode use, carpooling, travel times, etc.
- o Evaluation of changes in journey-to-work travel such as distribution of trips within the region, changes in mode of travel, vehicle use, etc., by comparing 1970 and 1980 Census data.

TRAVEL-RELATED ANALYSIS

- o Analysis of accessibility to community services of segments of the population to assess transportation needs of special users. A PLANPAC program, "SAACCESS", is a convenient tool to accomplish this (see page 57).
- o Mapping of population-related characteristics which support transit use (items such as car ownership, income, population within one-quarter mile of transit service, etc.), by applying the successive overlay technique (see page 55).
- o Utilization of journey-to-work information to indicate parking demand by destination area and area of residence for work travel.
- o Impact analyses of transportation ranging from characterization of the social and economic structure of the areas through which a new system will pass to analysis of the impacts on particular groups in the population.
- o Specialized analysis of population segments to develop targeting programs to encourage and enhance carpooling, vanpooling, transit and bicycle use, etc.

Establishment of a Data Base

Among the the most valuable applications of Census data is the building of a data base upon which present conditions of population, employment, and work trips can be evaluated. Such

evaluation is the first step in determining how a region is developing, what changes are occurring that may affect its transportation system, and where travel-related problems might arise. The data base also is used in most technical activities, such as evaluating changes over time and accomplishing analyses of parking demand, accessibility, and ride-share planning. These are "now" activities that usually do not require models and other forecasting methods. The information required is available directly from Census products.

Socio-economic data used in transportation planning at the residence end include counts of population, housing units, vehicles available, income, and school enrollment. These variables are available at the Census tract and/or zone level from Part I of the UTPP. The data can also be used to examine relationships among variables, such as the number of vehicles available by household, income, and household size. This is available from Part II of the UTPP.

Employment-end information includes counts of total workers, of workers by mode of travel, of workers by sex and occupation, and of persons per vehicle and persons per carpool. This information is available from Parts III and V of the UTPP. As an example of use in transportation planning, such data can be compared with previous counts to assess shifts in nonresidential growth and changes in an area's employment makeup (e.g., shifts from industrial to service economy).

Residence-to-work trip information is available from Part IV of the UTPP at the Census tract or zone level and in Part VI at the inter-county level. These data are important in developing an understanding of the geographic distribution of travel, the selection of travel modes, travel durations by mode, and the extent of and potential for ride-sharing.

Nontransportation Planning Use

Census data also are a valuable resource for a number of agencies other than those directly involved in transportation planning, thereby offering the possibility of cost-sharing in the purchase of the UTPP. Of special interest is worker information coded to zone or tract at the work place which is not available from other Census sources. Potential uses by nontransportation agencies are listed in Figure 7.

Detailed Descriptions of Selected Uses

Several applications of Census data involve analysis and presentation of the data and do not require forecasting or reliance on modeling procedures. One example is accessibility analysis for various segments of the population. Another is the use of Census data to help determine park-and-ride lot locations.

DEVELOPMENT PLANNING

- o Developing community profile for Overall Economic Development programs
- o Analysis of labor force composition and trends
- o Analysis of population/employment distribution pattern
- o Retail location and marketing studies

EDUCATIONAL PLANNING

- o Analysis of future school enrollments by grade
- o Redistricting of schools
- o Analysis of special educational needs by small areas
- o Assessment of bilingual education needs

HOUSING

- o Assessment of housing improvement needs
- o Analyses of real estate trends and tax revenue forecasting
- o Targeting of building code inspections
- o Analysis of displacement and other problems occasioned by condominium conversion

HEALTH CARE

- o General health care planning
- o Analysis of special health program needs as related to socio-economic factors
- o Analysis of public health factors
- o Identification of areas not adequately served by physicians
- o Identification of areas most in need of improved ambulance service

FIGURE 7

EXAMPLES OF CENSUS DATA USES FOR
OTHER THAN TRANSPORTATION PLANNING ACTIVITIES

FIGURE 7 (Continued)

ENERGY CONSERVATION PLANNING

- o Identification of target areas for energy conservation assistance in the building sector
- o Analysis of local problems and opportunities for energy conservation in space heating, water heating and cooking
- o Identification of key corridors for bicycle facility development

LAND-USE PLANNING

- o Analysis of socio-economic, demographic, housing, employment, and transportation trends

FIRE PROTECTION AND DISASTER PLANNING

- o Analysis of fire and disaster risks by subareas
- o Insurance-cost analysis for residences by small areas

PUBLIC WORKS

- o Evaluation of projects requiring displacement or relocation of residents
- o Improved record-keeping of street inventory data using Census GBF/Dime capabilities
- o Assessment of utility needs
- o Estimation of right-of-way acquisition costs
- o Preparation of Environmental Impact Statements

SOCIAL SERVICE PROGRAMS

- o Analysis of service area boundaries and facility locations
- o Analysis of client group needs and resources
- o Assessment of day care center requirements
- o Assessment of playground requirements

FIGURE 7. (Continued)

- o Preparation of funding applications for programs
- o Forecasts of future tax revenues

LOCAL GOVERNMENT ADMINISTRATION

- o Forecasts of future demand for services
- o Identification of target areas and groups to increase voter registration

OTHER

- o Assessment of labor market conditions and workers by type activity

SOURCE: "Census Computer Programs: An Introduction to Management," Public Technology, Inc., May 1981.

Transit Planning Through Successive Overlays

Transit properties generally have not utilized data sources such as the Census in planning route extensions or cutbacks and service increases or decreases. In the current economic and political climate the need for such data-based planning has grown.

The successive overlays technique geographically plots selected transit-related variables such as car ownership, income, percentages of elderly and/or young populations, etc., on individual transparent map sheets which can be overlaid one upon the other with a street system as the base.⁵ In this way potential areas of high transit patronage are identified for use in evaluating current transit travel (also available for journey-to-work Census data). Another variable of interest that was not available in previous Census data is the population of handicapped persons.

In one urban area this technique was used effectively to measure the propensity for transit usage in terms of the following variables:

- o Passenger Cars per Dwelling Unit: Considered that less than one vehicle/dwelling unit = high transit use propensity; 1-2 vehicles = medium propensity; and more than 2 vehicles = low propensity
- o Average Income: \$0-4,000 = high propensity; \$4,000-\$10,000 = medium propensity; above \$10,000 = low propensity. (NOTE: These incomes were for 1970.)
- o Females Aged 16-24: 0.5-1.2 females per acre = high propensity; 0.3-0.5 = medium propensity; 0-0.3 = low propensity.
- o Persons Aged 62 or Over: 2.0-2.82 per acre = high propensity; 1.0-2.0 = medium propensity; less than 1.0 = low propensity.
- o Dwelling Units per Acre: 4.0-6.9 = high propensity; 1.0-4.0 = medium propensity; 0-1.0 = low propensity.

These items were plotted individually and an overlay of all items was made, as shown in Figure 8. The results defined an area in which a postal card home survey of potential transit riders was then made. As a result of using the overlay technique the survey cost was reduced by targeting the limited area in which the survey was most likely to produce significant results.

⁵"Successive Overlays - A Small City Transit Surveying Process," Traffic Engineering, Corradino, Coomer and Upshaw, December 1974.



Figure 2. Passenger Cars per Dwelling Unit.



Figure 5. Persons Age 62 or over.



Figure 3. Average Income.



Figure 6. Dwelling Units per Acre.



Figure 4. Females Age 16-24 per Acre.



Figure 7. Composite Overlay of Indices.

FIGURE 8

SAMPLE PLOTS FOR SUCCESSIVE OVERLAY TECHNIQUE

Source: Traffic Engineering, December 1974.

Accessibility and Special Population Segment Analysis⁶

Many community services are keyed to special segments of the population--the elderly, the poor, ethnic and racial groups, etc. Other services, although keyed to the general population, may have limited interest to all but target populations--such as programs to encourage carpooling, vanpooling, and bus use.

Census data allow stratification and geographic plotting of the population by key variables such as sex, income, and car availability. Accessibility measures may also be developed linking targeted segments of the population to community services such as hospitals, schools, and employment areas. Measures of accessibility by transit and automobile can thus be developed by combining population stratifications from Census data with local transportation networks.

Accessibility is also used by planning agencies to measure the social impact of community services upon segments of the population. Such measurements are then used to evaluate alternative proposals for transportation improvements. In fact, accessibility has been used to measure progress toward several goals--land use development objectives, social objectives, and system performance objectives.

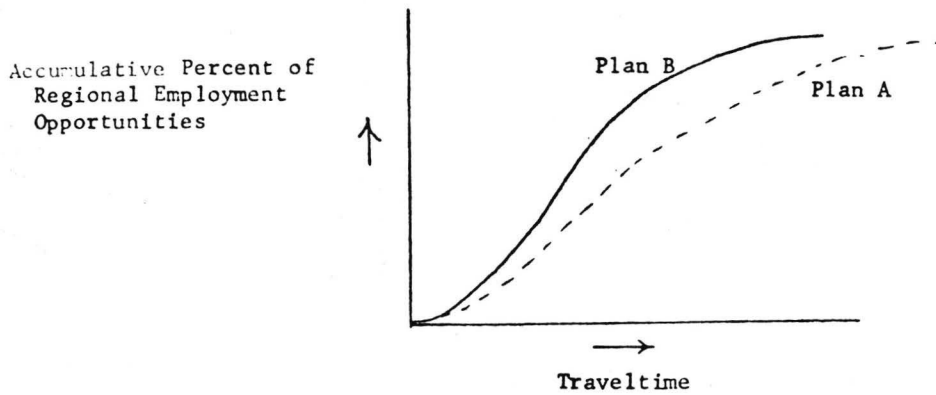
Charts and graphs are commonly used to display accessibility measurements. Figure 9 illustrates a graphic technique that compares accessibility of employment opportunities to population subgroups of differing geographical and income stratifications under two alternative plans. Accessibility is measured during the peak hours for the automobile mode. Similar figures could be developed from Census data for other groups, other modes, other activities, and for a wide variety of combinations.

Figure 10 uses an isochronal map to display the accessibility of the low-income group to employment using the same data as was used for Figure 9. The isochronal map adds a dimension missing from Figure 9 by illustrating that although Plan B provides a higher level of accessibility overall, certain areas are more accessible under Plan A.

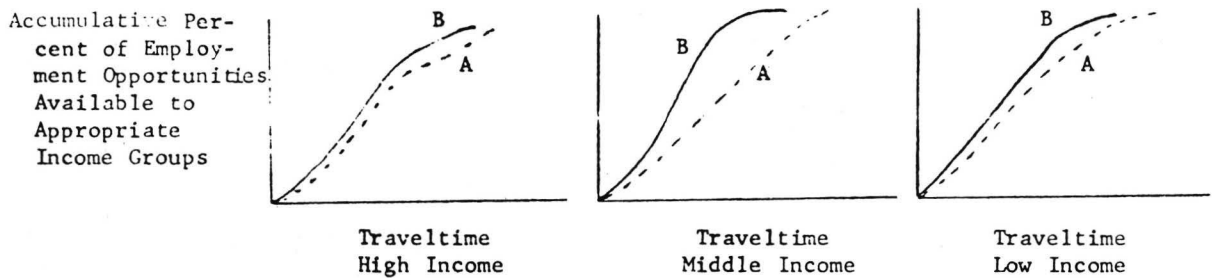
A third type of display of accessibility measurement is illustrated in Figure 11. Accumulated percentages of total population are plotted across travel times to major medical facilities separately for travel by transit and by automobile. Census data can be used to further distribute these variables by sex, income, auto availability, etc.

⁶Much of this material is derived from the report, "Special Area Analysis," U.S. Department of Transportation, August 1973. Available from FHWA Urban Planning and Transportation Management Division, Washington, D.C.

Regional Accessibility to Employment



Accessibility to Employment by Groups Stratified by Income



Accessibility to Employment by Groups Stratified by Geography

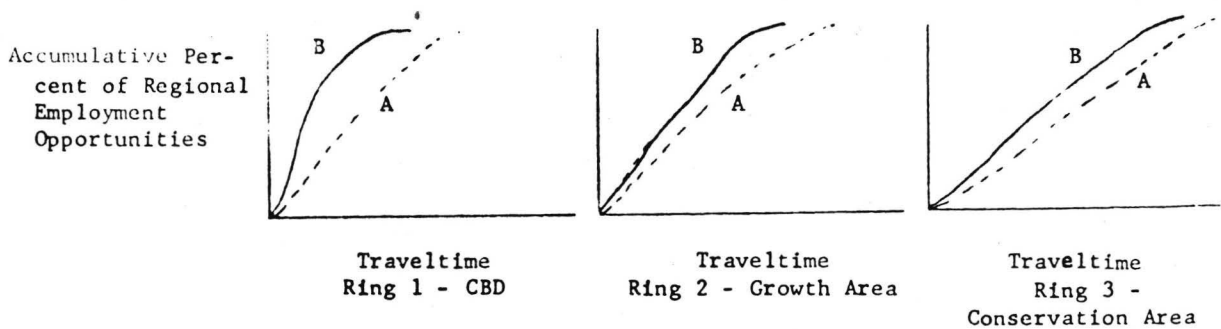
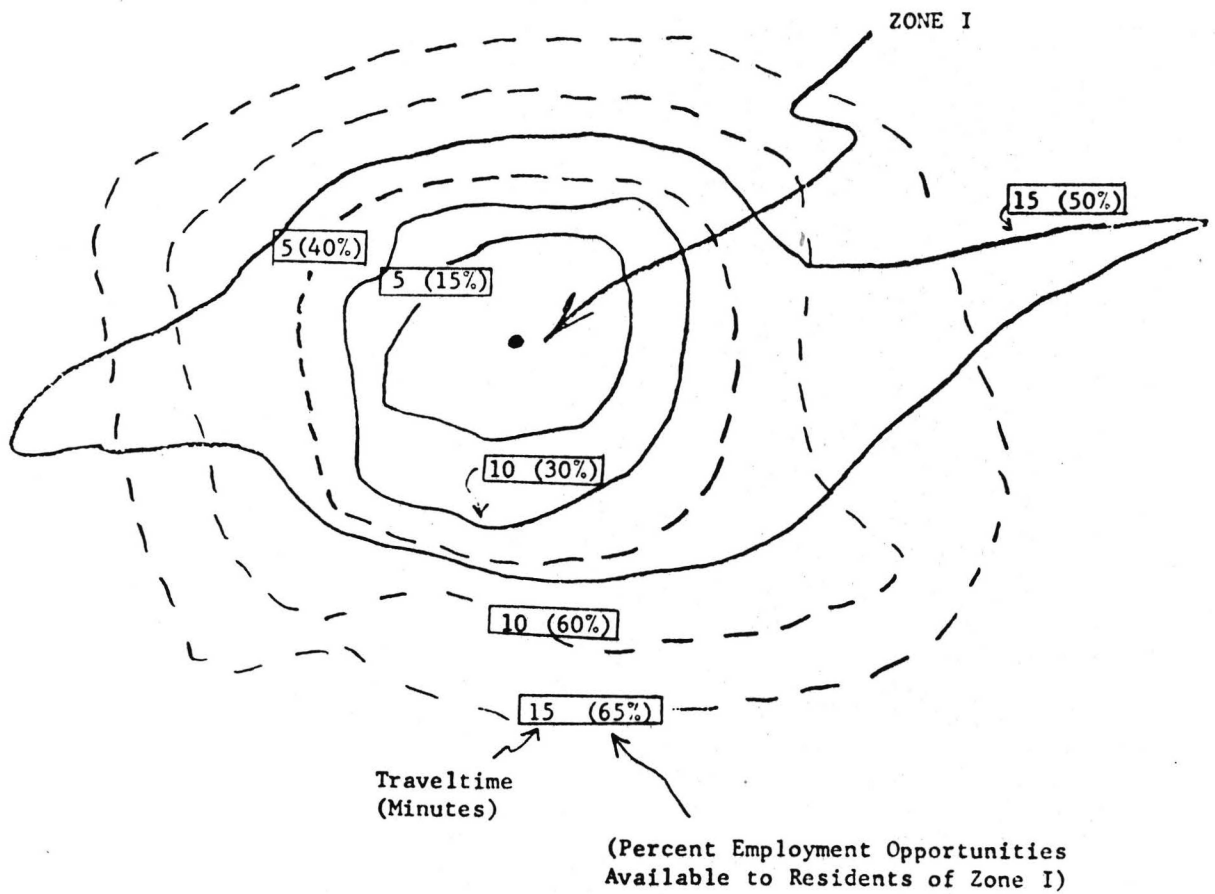


FIGURE 9

ACCESSIBILITY TO EMPLOYMENT BY
AUTOMOBILE DURING PEAK HOURS

Source: Special Area Analysis, U.S. Department of Transportation, August 1973.



Accessibility Stratifications

Low Income Group (Zone I)

Peak Hour

Highway

———— Plan A
 - - - - - Plan B

FIGURE 10

ACCESSIBILITY FOR LOW INCOME GROUP (Zone I)
 TO EMPLOYMENT OPPORTUNITIES VIA HIGHWAY DURING PEAK HOURS

Source: Special Area Analysis, U.S. Department of Transportation, August 1973.

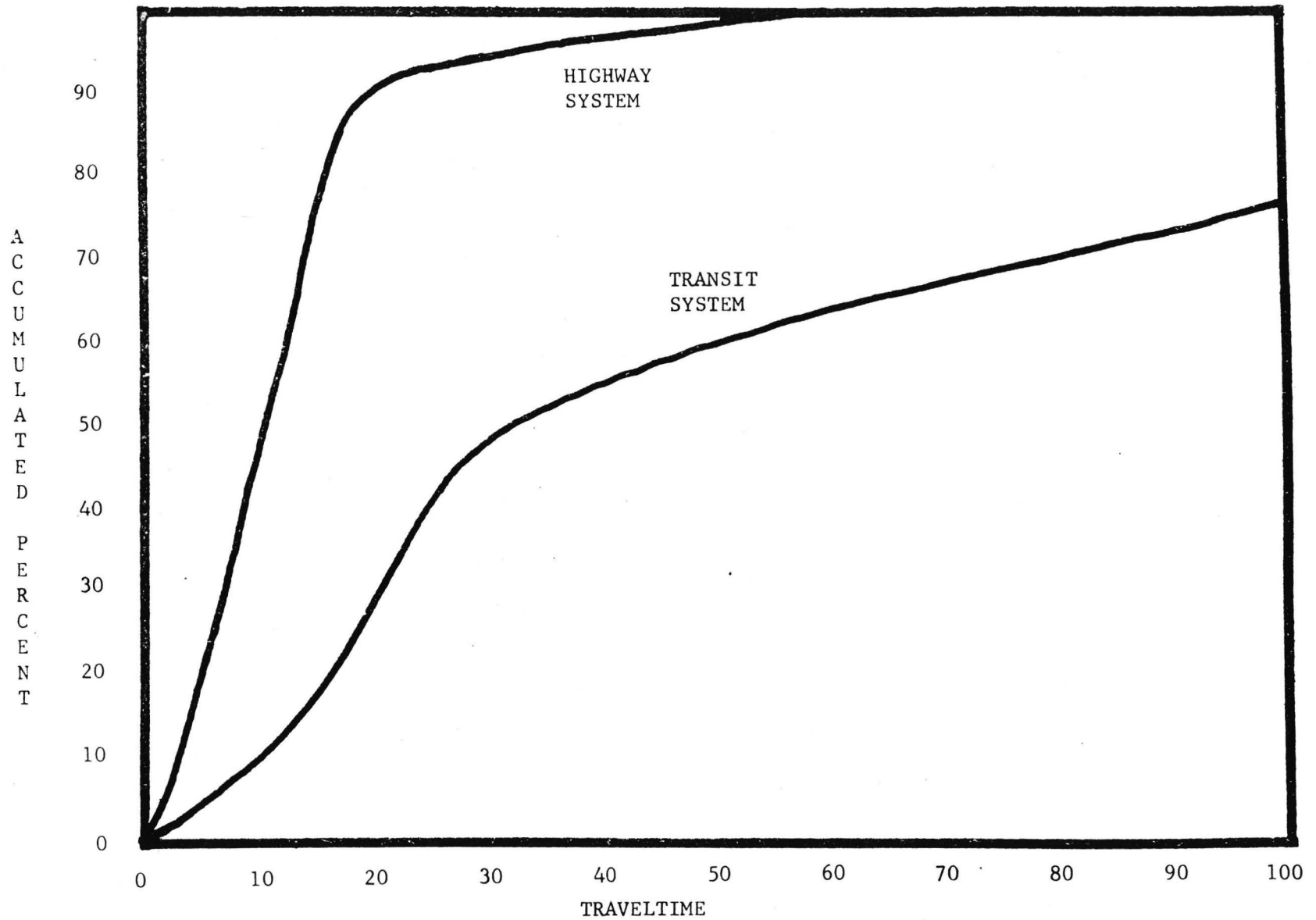


FIGURE 11

PLOT OF ACCUMULATED PERCENT TOTAL POPULATION VERSUS TRAVELTIME FOR MAJOR MEDICAL FACILITIES

Source: Special Area Analysis, U.S. Department of Transportation, August 1973.

Computer software is available for accessibility analysis. It produces a combination of graphic and tabular reports to display accessibility by a highway and/or transit system. The program is called SAACCESS (Special Area Accessibility Model) and is part of the PLANPAC system of programs. A standard set of reports is produced for each facility or group of facilities using SAACCESS. These include:

- o a plot of cumulative percentages of the population versus traveltime,
- o a histogram of percent of the population versus traveltime,
- o a tabulation of actual population with the percentage of population and the accumulated percentage of population accessible at each traveltime increment, and
- o A listing for each zone of the closest facility among a number of major community facilities and its traveltime.

Locating Park-and-Ride Lots

Census data on work trips by mode can be assigned to the highway and/or transit network of an area for graphic display or they can be displayed as in the examples in Figures 9-11. These offer good visual summaries of conditions as they existed in 1980, and the successive overlay procedure can indicate those areas that have the potential for increased ride-sharing or transit patronage. However, these types of analysis and display do not reveal the potential transportation savings that would result from provision of park-and-ride lots.

Selection of potential park-and-ride sites for further study can best be achieved by assigning journey-to-work vehicle trips to a transportation network and examining the link volumes that result. Destination areas with large numbers of workers are then selected and trips from all origins to the selected destinations are assigned. (The selected destinations can be combinations of downtown zones that comprise areas of approximately one square mile each, but destinations outside the CBD that have large concentrations of employment should also be examined as sources of park-and-ride usage.)

Difficulty arises in that traffic assignment programs traditionally assign trips from a single origin to all destinations. The reverse, assigning trips from all origins to a selected destination, would prove costly. To overcome this, the journey-to-work trip table derived from the Census can be transposed so that the work place appears as the trip origin and the residence appears as the destination. Concentrations of these trips on individual links of the network indicate potential locations for park-and-ride lots.

The UTPS (Urban Transportation Planning System) programs of interest are UMATRIX and UROAD. UMATRIX is used to transpose the trip table. UROAD assigns trips from selected origins to all destinations.

Bus-Routing and Circulation Analysis

Journey-to-work trip tables contained in Part IV of the UTPP provide information useful for analysis and evaluation of bus routings and circulation.

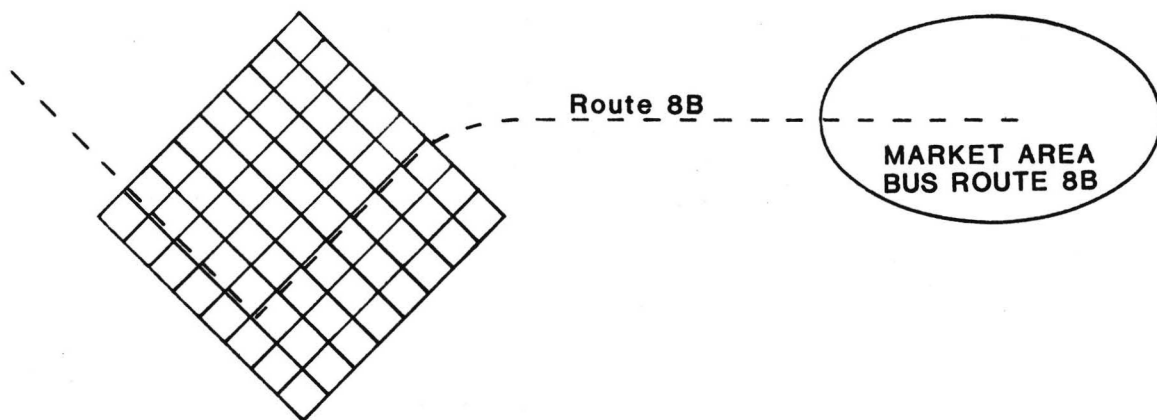
Figure 12(a) shows an example of what might be a current CBD routing of a bus from an outlying market area. The information in Part IV of the UTPP allows identification of transit trips from the market area to each zone within the central area. CBD zones with high proportions of journey-to-work destinations from the market area are then identified. Generally they are zones with an aggregate of 70 percent of all CBD destinations from the market area. Depending upon local conditions, those zones might be selected which have at least a given percentage of total destinations (15 percent in the example shown in Figure 12). Using block-group information at the work place from Part V of the UTPP, zonal destinations can be further subdivided for a more detailed geographical display, as in Figure 12(b). The existing bus route can then be matched to these destinations to determine how present service might be improved, as in Figure 12(c).

Similar analysis can be done to determine optimum bus routing to a location outside a central area, such as a major industrial park or other area of high employment. Such a case is represented by Figure 13. Part (a) of the figure displays a bus route through the CBD into an outlying area. Transit work-trip destinations (from Part IV of the UTPP) in the area outside the central area are plotted by zone. This is done for the origin market area for each route to be examined. The existing routing is then compared to the distribution of destinations to determine if route changes are advisable. For this type of analysis, zones are generally appropriate areas of aggregation although in some instances subdivision of destinations by block groups as described for Figure 12 might also be appropriate.

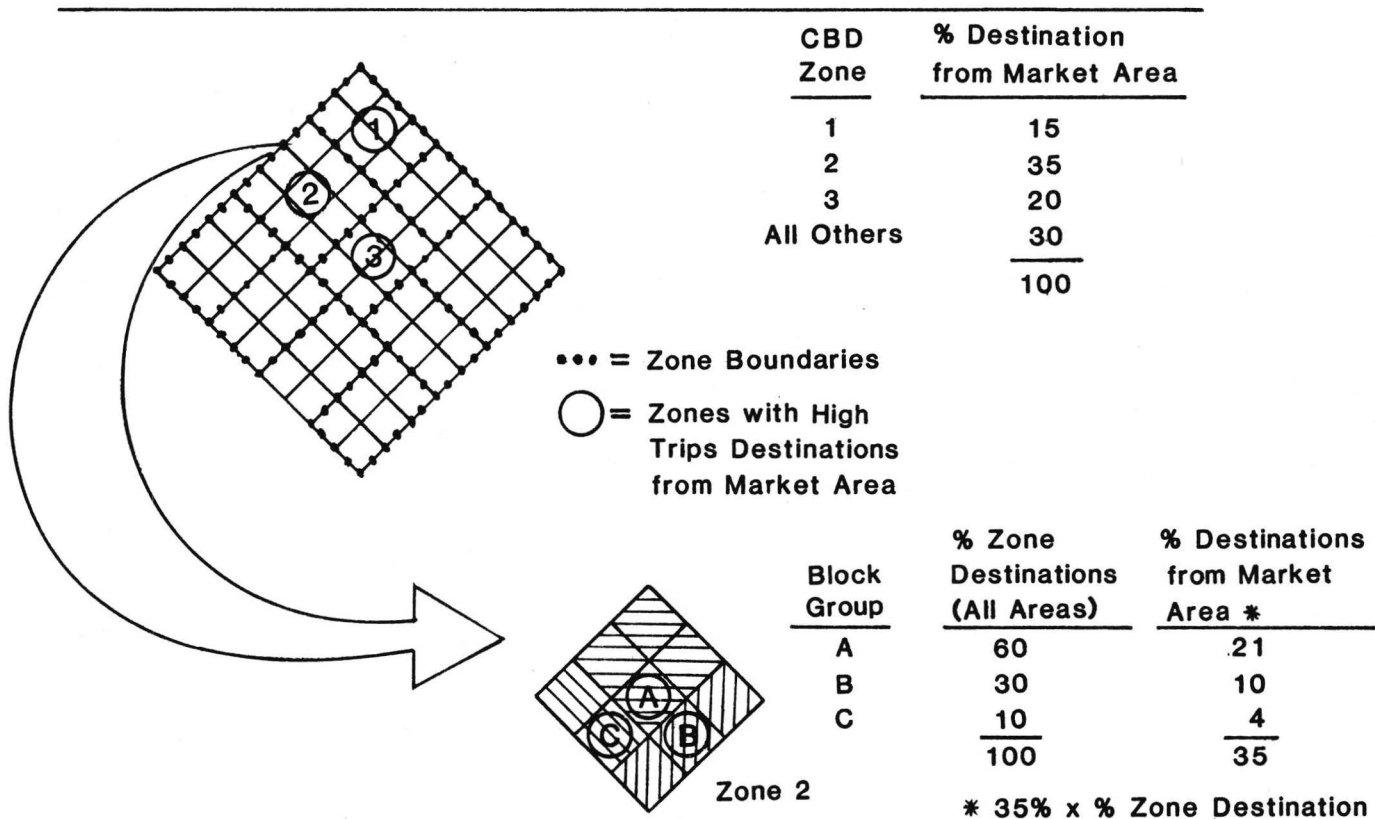
The transit system might already serve the destination concentrations thus plotted by use of transfers in the downtown area, but more direct through-routing is generally more desirable, as shown in Figure 13(b), and likely to attract heavier patronage.

HOV-Lane Evaluation

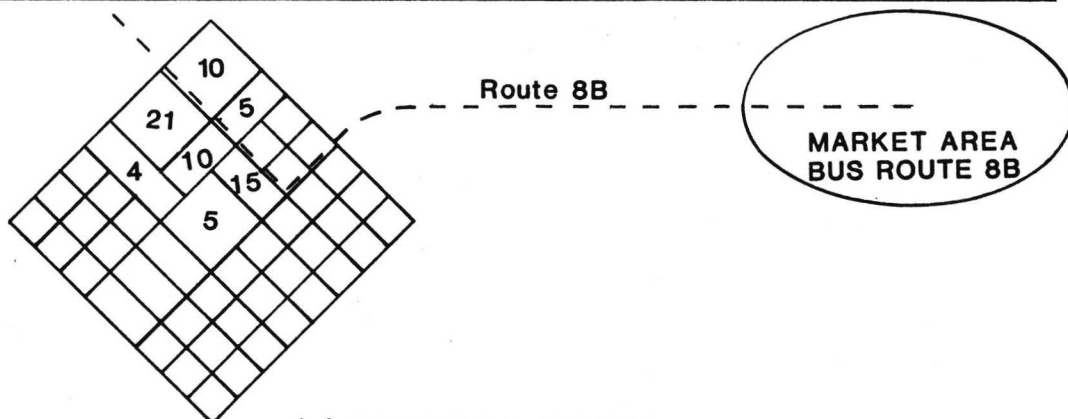
Use of high occupancy vehicles (HOV's) is often encouraged by reserving a special highway lane which provides better service than is available to other traffic. In designing an HOV lane,



(a) EXISTING BUS ROUTING

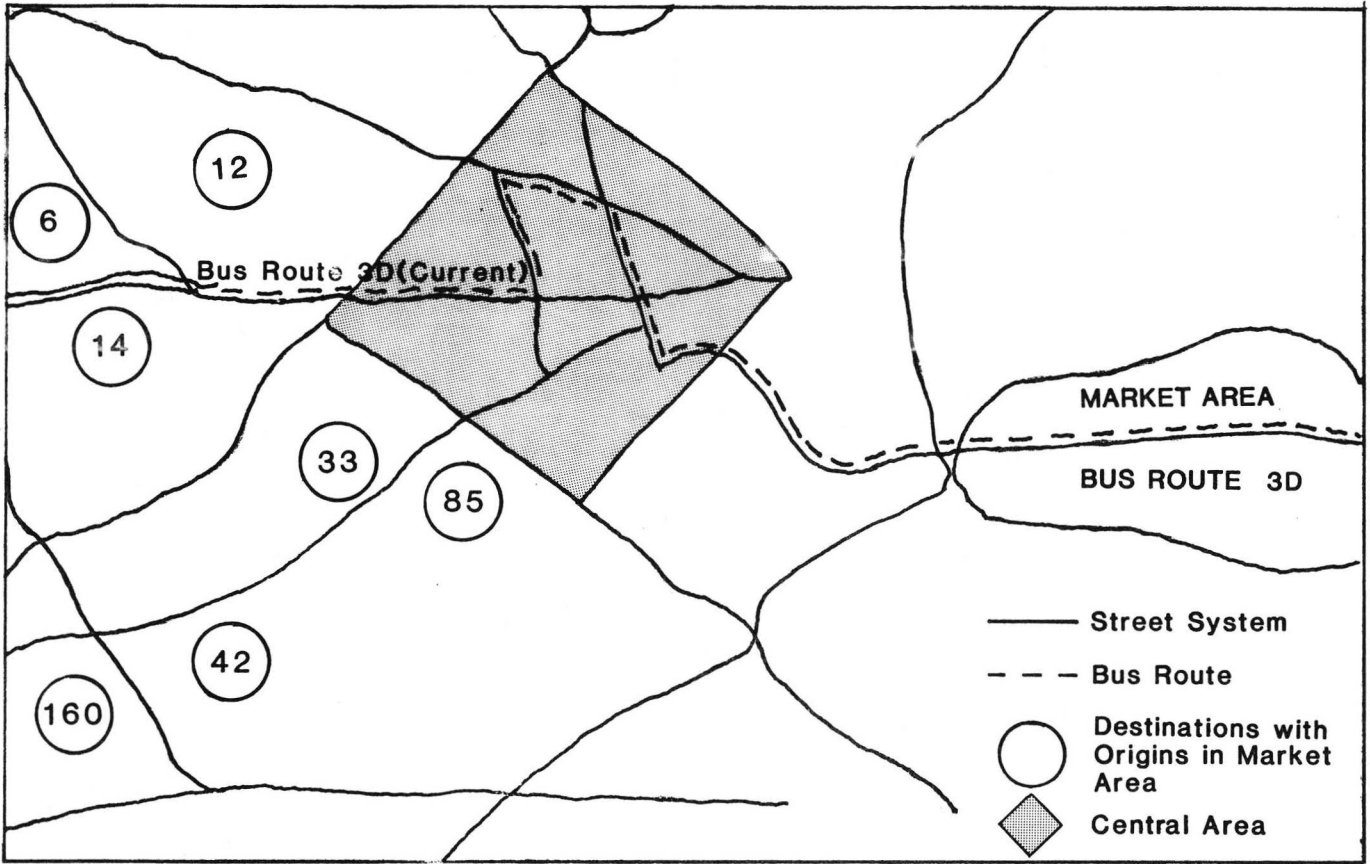


(b) ANALYSIS OF ZONAL DESTINATIONS

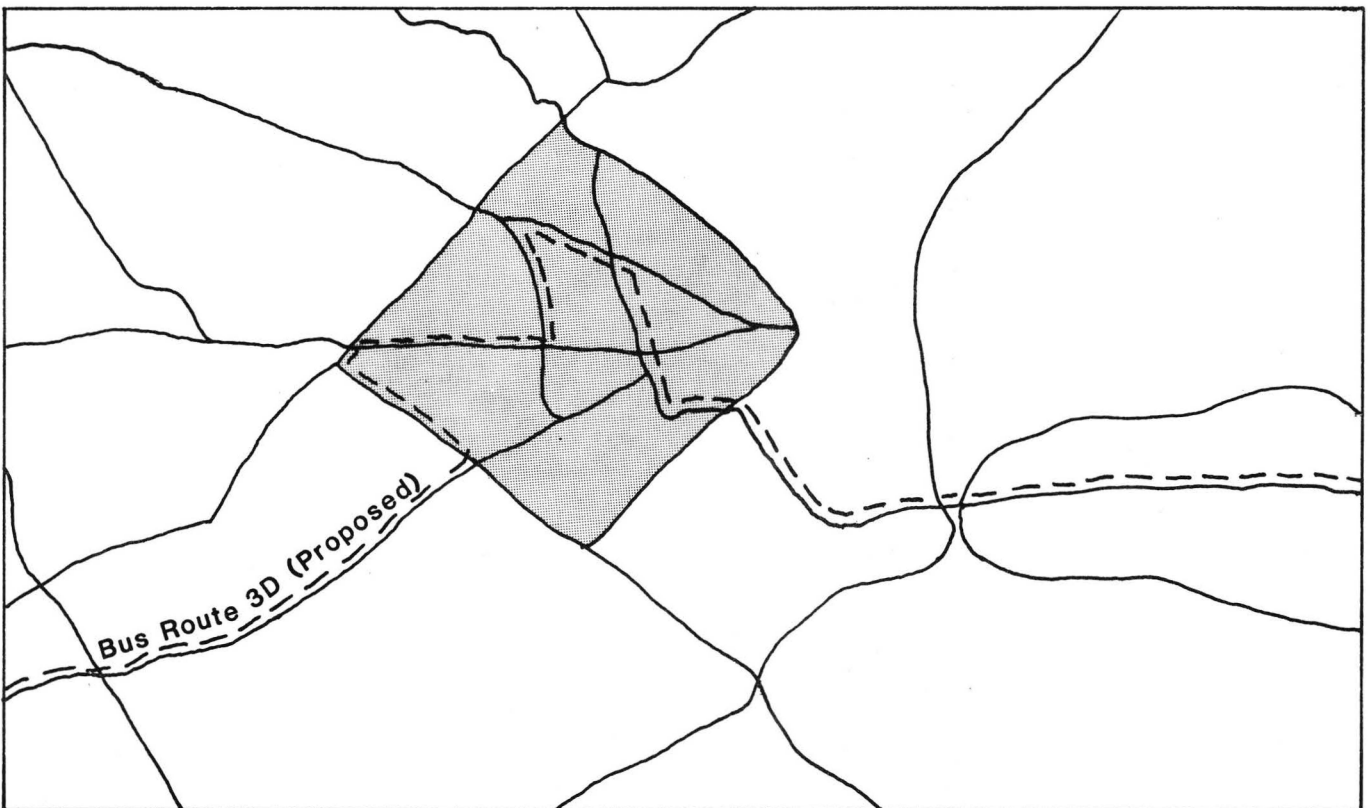


(c) NEW BUS ROUTING

FIGURE 12 DOWNTOWN BUS CIRCULATION ANALYSIS



(a) Current Bus Route and Suburban Destinations



(b) Proposed Bus Route

one problem often encountered is in determining where on the facility the special lane should start. Low traffic volume on the special lane might result if it is not placed at the proper location.

Journey-to-work information from the Census is most useful in making this decision. The trip table in Part IV of the UTPP can indicate those residence-to-work movements that are most likely to use the roadway being considered for an HOV lane. The trips selected for examination should be those with more than one person per vehicle. These vehicle trips would be accumulated along the facility through a manual assignment based upon visual inspection of the best route. The accumulated volumes suggest where the HOV lane should start. Figure 14 illustrates how the volume might be posted.

It should be noted that this procedure identifies existing carpools only and fails to acknowledge the potential carpool market. The institution of an HOV lane itself is likely to encourage a shift to carpooling, and this should also be addressed before reaching a final decision as to where the HOV lane will start or end.

Land Use and Arterial Spacing

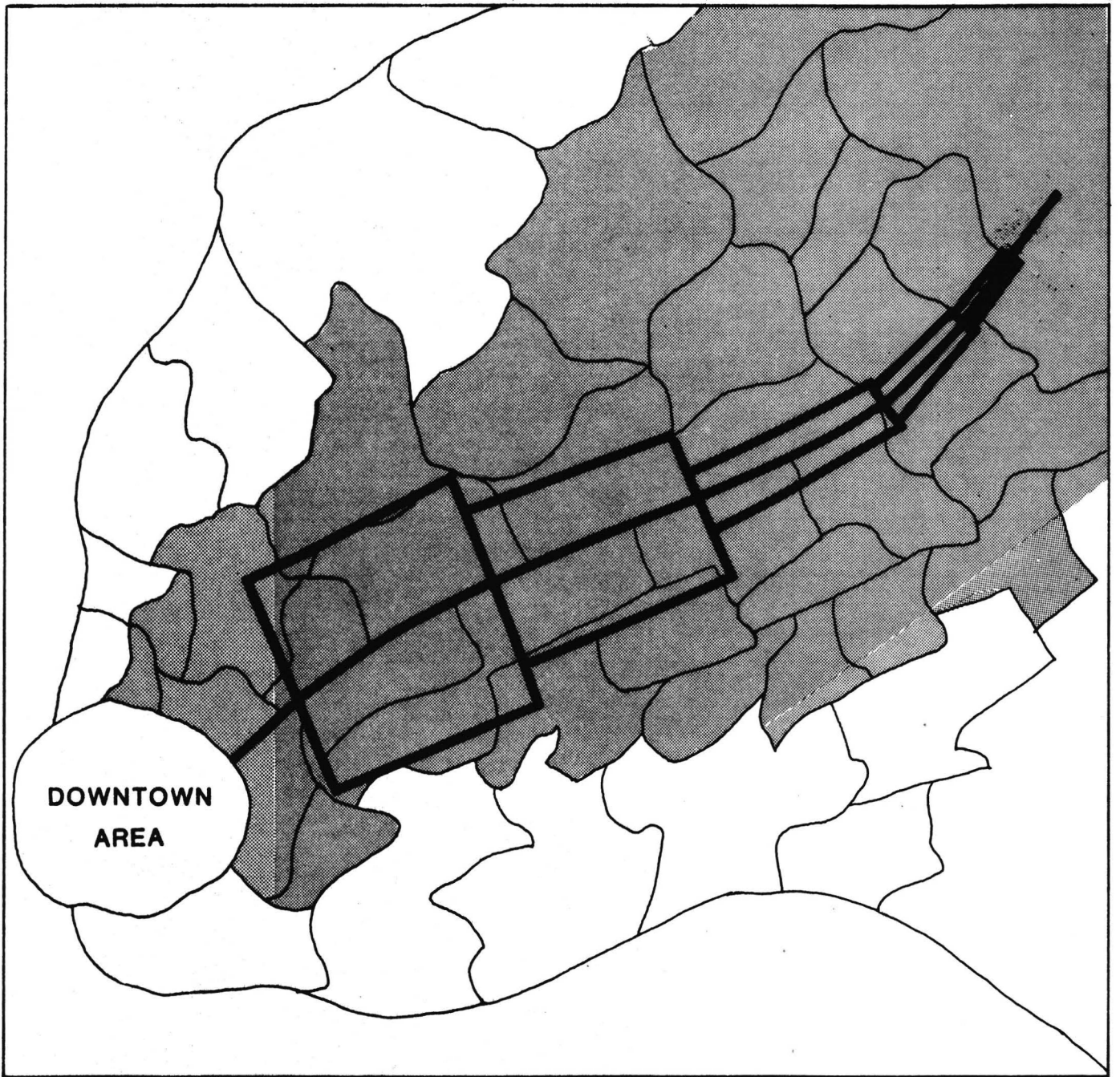
A technique developed by Gruen Associates has proven useful in evaluating the impact of a proposed traffic generator (shopping center, industrial park, airport, etc.) on the highway system surrounding the development.⁷ The procedure can also be used to estimate arterial requirements in developing suburban sections of metropolitan regions where growth potentials offer a broad range of planning opportunities.

Figure 15 shows the first step, an initial approximation of average traffic volumes adjusted by factors based upon:

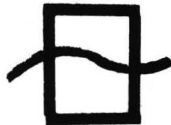
- o Density and project size
- o Level of service
- o Auto ownership
- o Transit utilization
- o Project and nonresidential/residential mix
- o Freeway diversion

The average number of lanes and the spacing required are derived from an estimate of gross subregional density in residents per square mile: population data from the Census divided by the area measured from a map. Many of the adjustment

⁷"Land Use and Arterial Spacing in Suburban Areas," U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., May 1977.



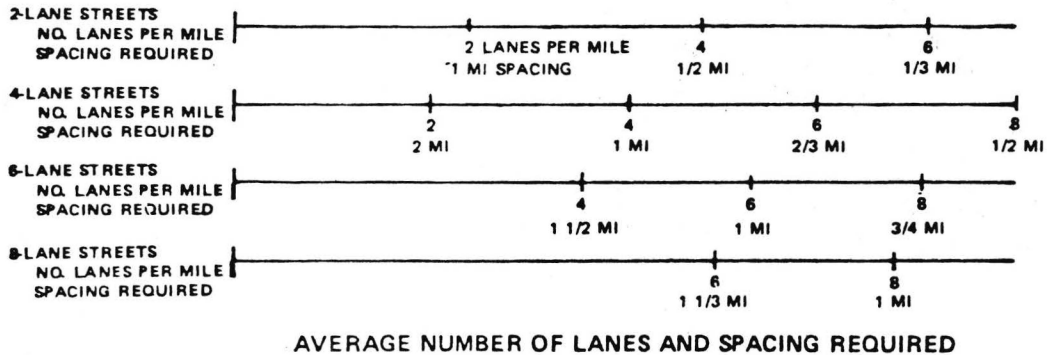
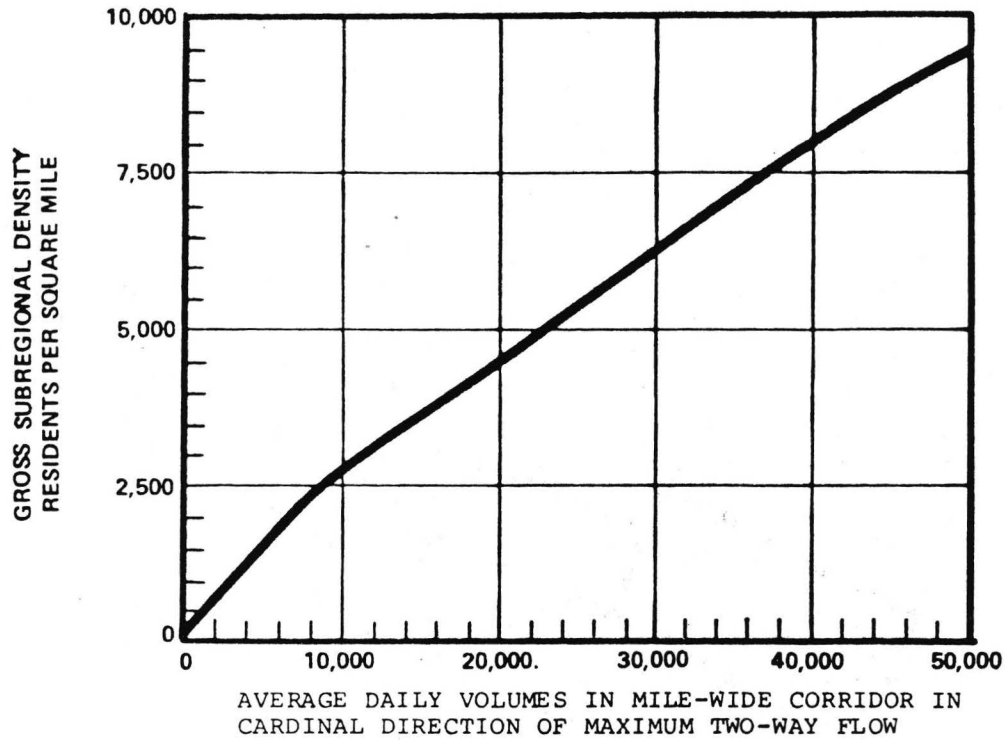
**ZONE IN AREA
USING FACILITY**



**VOLUME OF MULTI-OCCUPANT
VEHICLES IN JOURNEY-TO-WORK**

FIGURE 14

HOV LANE VEHICLE ACCUMULATION



NOTES
 ASSUMES:
 UNIFORM DENSITY PATTERN OF RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT
 SOME DELAYS AT PEAK PERIOD (LEVEL OF SERVICE "C") AND KD FACTOR OF 5.2%
 TRANSIT USE: 3.5% OF ALL PERSON TRIPS OR 7.0% OF PEAK HOUR TRIPS
 AUTO OWNERSHIP: 1.3 AUTOS DWELLING UNIT
 MEDIAN HOUSEHOLD INCOME \$7,000
 UNIFORM GRID PATTERN OF STREETS (NO FREEWAYS)
 DIRECTIONAL BALANCE OF TRAVEL WITHIN LARGE URBAN REGION

FIGURE 15

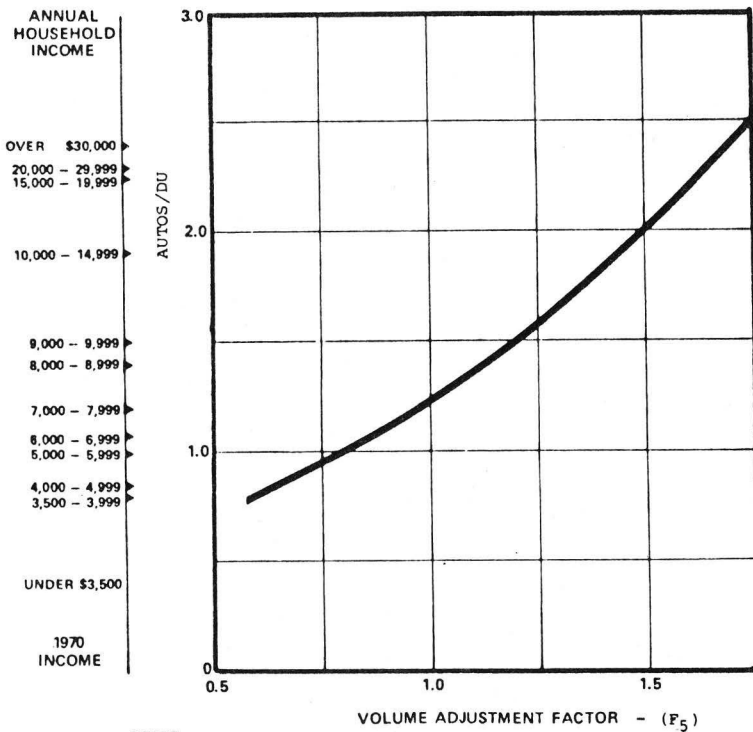
CHART FOR SUBREGIONAL DENSITY
 VS.
 AVERAGE VOLUMES AND LANE REQUIREMENTS FOR ARTERIALS

factors (for auto ownership, household income, transit utilization, nonresidential/residential mix) can also be obtained from Census data (i.e., UTPP Part I for residential; UTPP Part III for work place). The pertinent adjustment curves are shown in Figure 16. Those interested in using this technique should refer to the Federal Highway Administration report (see footnote, page 65).

Selected-Link Analysis

In many locations traffic problems arise from the interactions of major movements through a section of highway or arterial roadway. Selected-link analysis is a useful tool for identifying these major interactions and can be performed using origin-destination data available from Part IV of the UTPP.

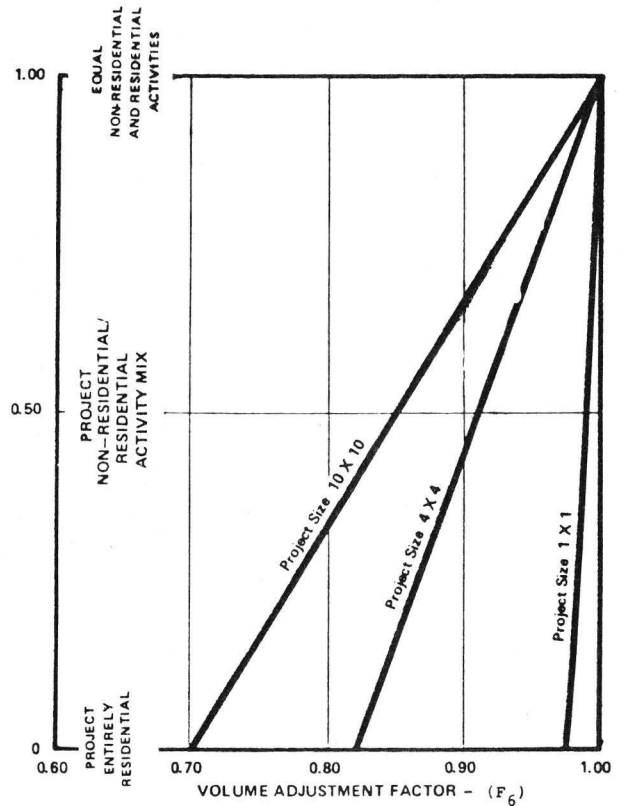
Although many selected-link applications are accomplished with computer programs available in PLANPAC and UTPS, evaluations of a small number of locations can also be done manually with a map and the journey-to-work trip information from the UTPP. This can be accomplished by determining from Census data the origins and destinations of those trip movements that use the section of roadway being examined. The trips are then assigned to the section and accumulated in a fashion that allows evaluation of major movements.



NOTES:
 Use autos/DU as the primary parameter for volume adjustments.
 Use income scale for approximation only if autos/DU data not available.
 Income scale is non-linear.
 See Figure 106 note concerning combined use of Figures 106 and 107.

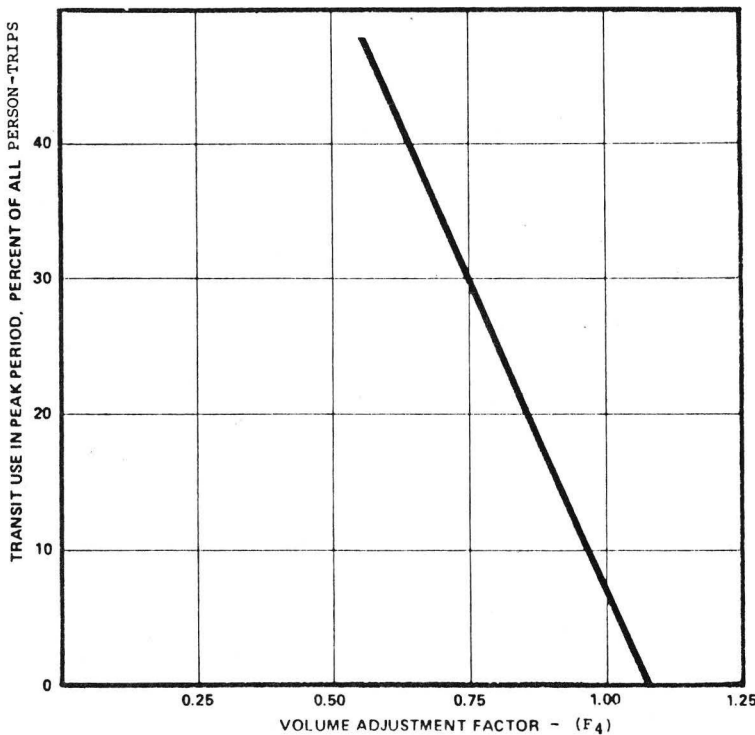
adjustment factor, F_5 , for auto ownership and household

income



NOTES:
 Assumes uniform density pattern of residential development and project containing residential plus nonresidential development.
 Assumes uniform grid pattern of streets (no freeways).
 Assumes directional balance of travel in large urban region.
 Project nonresidential/residential activity mix is defined as the number of jobs provided within project, divided by labor force within project.
 For predominantly nonresidential projects (i.e., activity mix greater than 1), use of trip generation tables in Chapter 2 are recommended instead of Figure 108.

adjustment factor, F_6 , for project nonresidential/residential activity mix (1).



NOTES:
 Assumes peak-period transit use of 7% for base condition.
 Peak-period transit use of 7% is equivalent to 3.5% of all daily person-trips.
 If any adjustment factor of under 0.85 is obtained from above, do not apply an adjustment factor from Figure 107 unless factors are determined to be independent.

adjustment factor, F_4 , for transit utilization (1).

FIGURE 16

ADJUSTMENT FACTORS FOR LAND USE--
 ARTERIAL SPACING PROCEDURE

CHAPTER SIX

MODEL-RELATED USES OF CENSUS DATA

The Urban Transportation Planning Package contains data essential to the application, calibration, and development of planning models used to analyze and evaluate complex transportation systems both in large urbanized areas and in smaller areas that have fast-growth opportunities. The availability every 10 years of fresh Census data on the location and characteristics of both population and employment is of critical importance. Without it travel demand models would become obsolete and consequently useless tools in the transportation planning process.

This chapter discusses model-related uses of Census data, Census processing, analysis software, and procedures, as well as factors which can be used to convert daily work-trip totals to levels of travel during peak hours.

Transportation Planning Uses

Following are uses to which Census data can be put in the application, calibration, and development of urban transportation planning models.

APPLICATION

- o Current socio-economic data can be used as input to determine current trip generation with existing models (i.e., population, dwelling units, income, vehicles available, employees, etc.).
- o Census data can serve as a 1980 benchmark against which updated long- and short-range land-use and socio-economic data may be checked.
- o Information from responses to journey-to-work Census questions can be used as a secondary source for checking the validity of trip-length frequency distributions, trip ends and work-trip tables.
- o The Census supplies basic information required for some regional growth models.

CALIBRATION AND DEVELOPMENT

- o New trip-generation models can be developed using the basic relationships for work trips and secondary relationships for other purposes (e.g., car availability as related to income and household size) derived from Census data.

- o Recalibration or checking of work-trip distribution calibration factors (e.g., gravity model "F" and "K" factors) can be done with journey-to-work trip tables derived from the Census.
- o Work-trip mode-choice models, either of the direct demand type or logit formulation, can be developed or recalibrated based on Census data.
- o Existing work-purpose-related travel models can be verified or calibrated through accumulations of journey-to-work trips by mode across corridors, cutlines, and cordons around areas such as the CBD.
- o Factors and procedures can be developed to convert the journey-to-work Census information to peak-hour work travel, which in turn can be converted to all-purpose travel and to all-purpose peak-hour travel.
- o Land-use forecasting procedures can also be developed or calibrated. Data from current and previous censuses enable both the development of many types of urban activity models (e.g., empiric model) and validation of previously calibrated models.

Checking Census Data

Before using the sample-based Census estimates of employment by work place (Part III of UTPP) they should be checked for reasonableness against local conditions and/or rules of thumb. For example, a labor force participation rate can be developed by comparing Census data to the reasonable rate of 0.40 to 0.45 workers per population. Chapter Three of this report ("Source of UTPP" Section, page 32) and Chapter Four should also be reviewed for Census definitions and the possible need for adjustments.

A review of employment data may result in the need to apply one or more factors to Census employment estimates to arrive at actual employment levels. The resulting adjusted employment can then be used as input in the trip-attraction procedure to be described below. Likewise, zonal data from the Census to be used as input to the trip-production procedure to be described should also be reviewed and factored, if needed, although this generally will not be necessary.

Census Data in Model Applications

This section focuses on a simplified application of the traditional four-step approach to using Census data in model applications, as illustrated by the flow chart in Figure 17. The

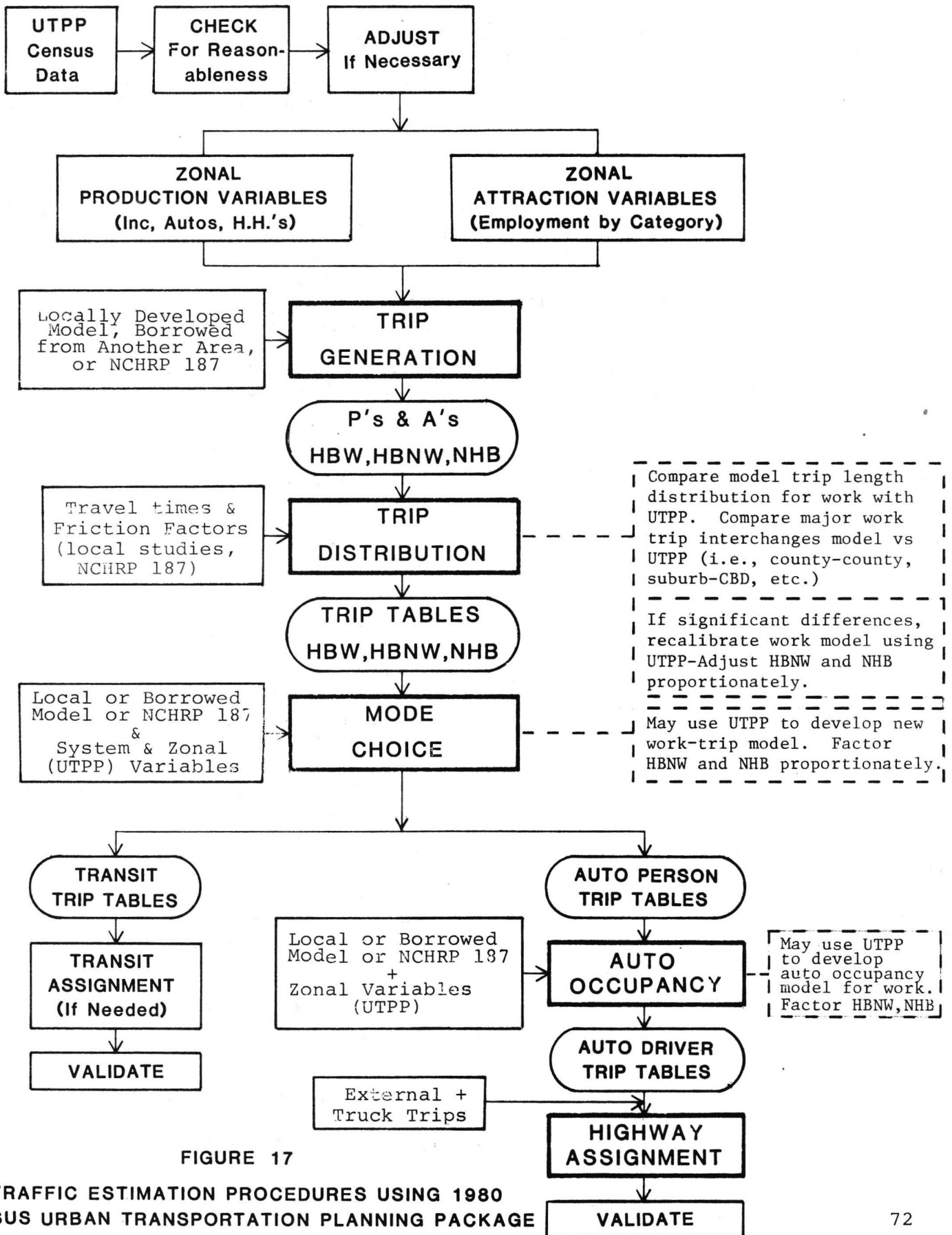


FIGURE 17

procedure uses Census data as input to available models to validate those models against 1980 ground conditions and to modify the procedure as appropriate. Available models include those borrowed from other areas and those contained in NCHRP Report 187.⁸ Modification of models and/or model development thus is possible utilizing Census data for work travel as well as data for certain relationships such as auto occupancy and ownership.

Trip Generation

Most trip-generation procedures use such statistical bases as auto ownership and/or income and the number of households and/or population. The Census contains these variables and others used in procedures employed by most planning agencies. For trip-attraction estimates, employment by industry is most often used. These data are also available from the Census.

A 1973 FHWA report has suggested a procedure for developing a trip-generation model of the cross-classification type that relates trip volumes to auto ownership, income, and households.⁹ The purpose here is to update this procedure to conform with trip-generation information contained in NCHRP Report 187. Where a local model is available, it should be considered first.

The procedure is illustrated in Figure 18. The relationship of the percent of households by income and by cars available (Figure 18-A) is derived from Census data contained in Table II-14 of the UTPP.

Analysis of previous origin-destination data can establish person-trips per dwelling unit by income level and by auto ownership (Figure 18-B). These data can be collected in a local survey or, if not available, from the NCHRP Report 187 (Table 11 in this report) under the heading, "Average Daily Person-Trips per HH by No. of Autos/HH."

Figure 18-C displays percentages of trips by income and trip-purpose. Again, these can be gleaned from local data or from Table 11, under the heading, "% Average Daily Person-Trips by Purpose."

Care should be taken in using Report 187 tables. First, they are merely national averages for four area-population groups. Secondly, they are based on 1970 data and require

⁸"Quick Response Urban Travel Estimation Techniques and Transferable Parameters," Transportation Research Board, Washington, D.C., 1978, NCHRP Report 187, .

⁹"Updating an Urban Transportation Study Using the 1970 Census Data," Highway Planning Technical Report, U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., 1973.

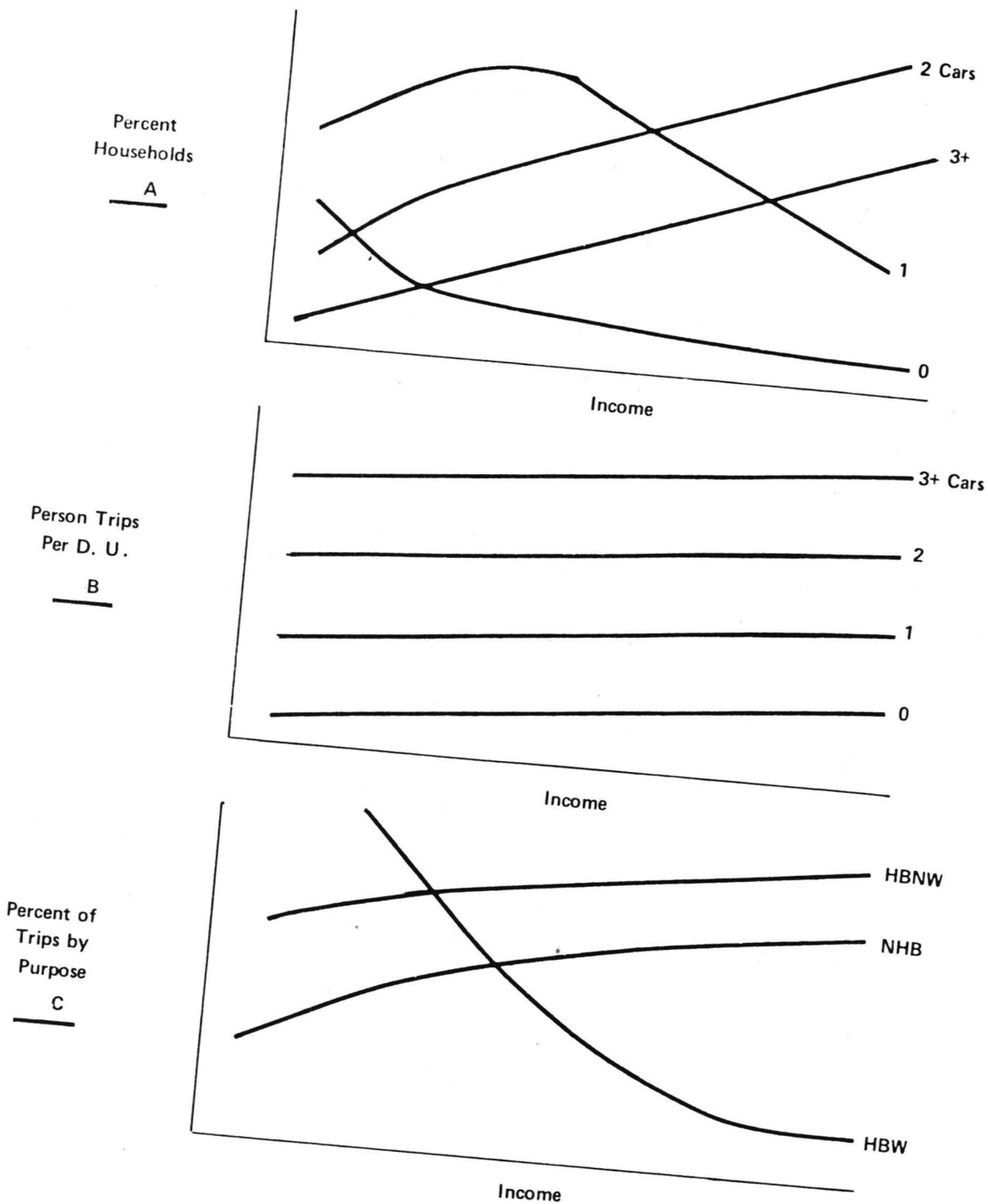


FIGURE 18
CROSS-CLASSIFICATION TRIP GENERATION ANALYSIS

Source: "Updating An Urban Transportation Study Using the 1970 Census Data," 1973.

updating. Availability of 1980 Census data will facilitate such updating of certain items in the Table: 1980 income levels can be used rather than the 1970 incomes shown; the "% HH by Autos Owned" can be updated using Table II-14 of the UTPP; and, using this updated distribution of "% HH by Autos Owned" from the 1980 Census, Column 2 of Table 11 can also be recalculated. The equation to be used:

$$\begin{aligned} \text{Average Autos per HH} = & (1 \times \% \text{ HH with 1 Auto} + \\ & 2 \times \% \text{ HH with 2 Autos} + \\ & 3.3 \times \% \text{ HH with 3+ Autos}) / 100 \end{aligned}$$

(3.3 is an estimate of average autos per household for households with three or more autos.)

These changes should be made only if it appears that the distribution of "% HH by Autos Owned" for a given urban area is significantly different from that shown in Table 11.

For trip-attraction factors many planners consider other characteristics as well as employment. The UTPS (Urban Transportation Planning System) default-attraction procedure and the one included in NCHRP Report 187--Table 3--both use total employment for home-based work (HBW) trip attraction and retail employment, non-retail employment, and dwelling units for both home-based nonwork (HBNW) attractions and all non-home-based (NHB) attractions. These data are available by zone in Parts I and III of the UTPP.

The results of applying the trip-generation model can then be used as input to a trip-distribution model, which in turn can be assigned to the transportation network. If ground counts are not closely matched, the trip-generation rates might require adjustment.

Regardless of the trip-generation procedure used, the independent variables are probably available from the Census UTPP and the models can be applied either to the Census year data or to Census data updated to the current year.

Trip Distribution

For trip distribution, zone-to-zone travel times from the local area network would be used with previously developed friction factors for the area. Where locally developed friction factors are not available, they may be borrowed from another area or the values in NCHRP Report 187 may be used. For work trips, the journey-to-work information in Part IV of the UTPP can be used to develop a trip-length frequency distribution. If this distribution is significantly different from that obtained by

TABLE 11

DETAILED TRIP-GENERATION CHARACTERISTICS

URBANIZED AREA POPULATION: 50,000-100,000

Income Range 1970 \$ (000's)	Avg Autos Per HH ^d	Average Daily Person Trips Per HH ^e	% HH by Autos Owned ^b				Average Daily Person Trips Per HH by No. of Autos/HH ^c				% Average Daily Person Trips by Purpose ^f		
			0	1	2	3+	0	1	2	3+	HBW	HBNW	NHB
0-3	0.56	4.5	53	39	7	1	2.0	6.5	11.5	12.5	21	57	22
3-4	0.81	6.8	32	58	10	1	2.2	8.0	13.0	15.0	21	57	22
4-5	0.88	8.4	26	61	12	1	2.6	9.5	14.5	16.5	21	57	22
5-6	0.99	10.2	20	62	17	1	3.0	11.0	15.5	18.0	18	59	23
6-7	1.07	11.9	15	64	20	1	3.0	12.5	16.5	19.5	18	59	23
7-8	1.17	13.2	11	64	23	2	3.5	13.3	17.0	21.5	16	61	23
8-9	1.25	14.4	8	62	28	2	4.8	14.0	17.5	22.5	16	61	23
9-10	1.31	15.1	6	60	32	2	5.5	14.3	17.5	24.0	16	61	23
10-12.5	1.47	16.4	3	49	44	3	6.2	15.0	18.5	25.5	15	62	23
12.5-15	1.69	17.7	2	38	52	8	6.1	15.0	19.0	25.5	14	62	24
15-20	1.85	18.0	2	28	57	13	6.0	13.5	19.5	23.0	13	62	25
20-25	2.03	19.0	1	21	58	20	6.0	13.0	20.0	23.0	13	62	25
25+	2.07	19.2	1	19	59	21	6.0	12.5	20.0	23.0	13	62	25
Weighted Average	1.55	14.1	12	47	35	6	4.6	12.6	17.2	21.4	16	61	23

URBANIZED AREA POPULATION: 100,000-250,000

Income Range 1970 \$ (000's)	Avg Autos Per HH ^d	Average Daily Person Trips Per HH ^e	% HH by Autos Owned ^b				Average Daily Person Trips Per HH by No. of Autos/HH ^c				% Average Daily Person Trips by Purpose ^f		
			0	1	2	3+	0	1	2	3+	HBW	HBNW	NHB
0-3	0.49	4.0	57	37	6	0	1.0	7.5	10.5	13.8	20	63	17
3-4	0.72	6.8	36	56	8	0	1.7	9.2	13.3	16.4	22	60	18
4-5	0.81	8.4	29	61	10	0	2.5	10.2	14.5	17.6	22	58	20
5-6	0.94	10.2	21	65	13	1	3.5	11.4	14.5	19.0	22	58	20
6-7	1.01	11.7	17	66	16	1	4.5	12.5	15.6	20.5	20	58	22
7-8	1.14	13.6	12	65	21	2	5.4	13.8	17.0	22.2	20	57	23
8-9	1.25	15.3	9	61	28	2	5.8	15.0	17.5	23.0	20	57	23
9-10	1.34	16.2	6	58	33	3	6.3	15.8	18.0	23.5	19	57	24
10-12.5	1.50	17.3	4	50	40	6	6.8	16.0	19.0	24.5	19	57	24
12.5-15	1.65	18.7	2	40	51	7	7.0	16.0	20.4	25.0	19	56	25
15-20	1.85	19.6	2	28	57	13	7.2	15.0	21.0	25.5	18	56	26
20-25	2.01	20.4	1	20	61	18	7.5	15.0	21.0	25.5	18	55	27
25+	2.07	20.6	1	19	59	21	7.5	15.0	21.0	25.2	18	55	27
Wt. Avg.	1.55	14.5	14	48	33	6	5.4	13.7	18.4	22.4	20	57	23

Source: NCHRP Report 187.

applying the distribution model, the model should be recalibrated. Prior to recalibration, the Census-derived frequency distribution of work-trip lengths should be smoothed out, as is usually done for calibration. For home-based nonwork trips and non-home-based trips, the change in the frequency distribution of trip lengths exhibited by the Census data for work trips should be applied proportionately.

Another check is to compare the distribution of work trips from the Census with that from the model, both perhaps summarized to larger area levels -- county-to-county in large urbanized areas, superdistrict-to-superdistrict in medium and smaller areas.

The journey-to-work information in the Census also includes data needed to develop updated "F" and "K" factors for the Gravity Model. For many agencies the 1980 Census is the source of the most recent such travel information available for this recalibration. AGM (Gravity Model Program) is the UTPS program used in calibrating or applying the Gravity Model. The program's input would be the journey-to-work trip table.

Mode Choice

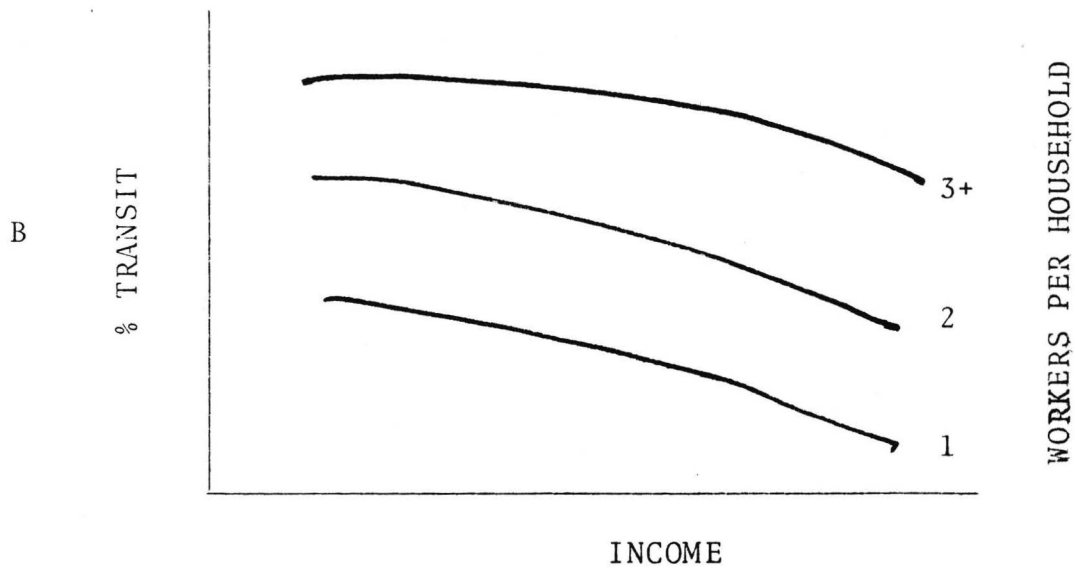
The next step described in Figure 17 is development of a procedure to estimate mode choice. In all but large urbanized areas, simple estimation of the choice of travel mode is often appropriate. In such cases direct generation of transit trips is often also desirable.

Mode choice at the residence end is usually related to income, household size, and vehicle availability--data on all of which are contained in the Census. Characteristics peculiar to local systems can be factored in by determining the availability or nonavailability of transit service in a given zone or by a computer-generated accessibility measure. The same type of analysis of mode choice at the work place can also be accomplished as data on certain worker characteristics, such as the number of workers by income, sex, and industry, are available from the Census. It should be noted, however, that estimates of mode choice made from Census data are for work trips only, although these are the ones of greatest concern in most areas.

Several tabulations in the UTPP will be useful in developing estimates of mode choice. Those in Part II will be of greatest value. For example, UTPP Table II-6 summarizes the number of workers by vehicles available, by income, and by mode. This may be displayed in the form shown in Figure 19-A. Another useful relationship is that of transit usage to income and workers per household, as displayed in Figure 19-B. Such relationships might be developed separately for central city residents and for those in the remainder of the urban area.



NOTE: From UTPP Table II-6



NOTE: From UTPP Table II-5

FIGURE 19
 POTENTIALLY USEFUL RELATIONSHIPS FOR TRANSIT ESTIMATES
 RESIDENT END

UTPP Table III-8 is probably the most useful in developing a destination-end mode-choice relationship. One approach is to correlate the work place (e.g., CBD, central city, remainder of area) with the sex of the worker and whether or not the Census tract or zone of work is served by public transit. This last item will have to be added to Census data from local sources. In this way a table patterned on the one in Figure 20 can be developed using averages derived from Census data.

The UTPP package can also be used to calibrate aggregate mode-choice models using data of observed work trips by mode among zones in an urban area. The models are aggregate in that the dependent variables could include traveltimes and costs by each mode between zones in each pair, and the socio-demographic characteristics of the zones such as income or auto availability. A logit model structure can be used to calibrate these aggregate models of work-trip mode choices and any of several UTPS programs can be used to develop the necessary data to calibrate the models. Such models usually are not required in smaller urban areas.

Data available in origin-destination format from the UTPP include total trips by mode, perceived traveltime by mode, number of workers, number of vehicles, and number of persons per car-pool. Additional information is needed to develop a model, including network traveltimes by mode, travel costs by mode, and socio-demographic variables from each end of the trip. Some of these data will be available from other sections of the UTPP but others must be obtained from local transportation sources. The UTPS program that can most readily assemble this information into a calibration file is UMODEL, which permits melding of Census data in EBCDIC format with network impedance data in UTPS matrix format and will optionally produce a calibration file in the format required by the UTPS logit model calibration program ULOGIT. Figure 21 displays a simplified flow chart of this process of mode-choice model calibration showing required datasets and programs.

Auto Occupancy

If a locally developed auto occupancy procedure is available it should be considered first. If not, alternatives are procedures borrowed from another area, factors provided in NCHRP Report 187 (see Table 3), and relationships available from the UTPP. Relationships for the residence end are contained in UTPP Tables II-9 through II-12. Table IV-3 has occupancy data on an origin-destination basis by zone and/or tract. Table V-6 provides persons-per-vehicle by destination area. Such zone-level data can be used to develop relationships between occupancy and other characteristics not included in Part II tables, if desired.

The Census material provides occupancy only for work travel. The relationship between non-home-based and home-based nonwork vehicle occupancy can be developed by evaluating the relationship

<u>TRANSIT*</u> <u>AVAILABILITY</u>	<u>SEX</u>	<u>AREA TYPE</u>	<u>% TRANSIT</u>
Y	M	CBD	X.X
		Central City	X.X
		Suburbs	X.X
	F	CBD	X.X
		Central City	X.X
		Suburbs	X.X
N	M	CBD	X.X
		Central City	X.X
		Suburbs	X.X
	F	CBD	X.X
		Central City	X.X
		Suburbs	X.X

FIGURE 20
POTENTIALLY USEFUL RELATIONSHIPS FOR TRANSIT ESTIMATES--
WORK END

*NOTE: Employment Density might be used as a replacement variable.

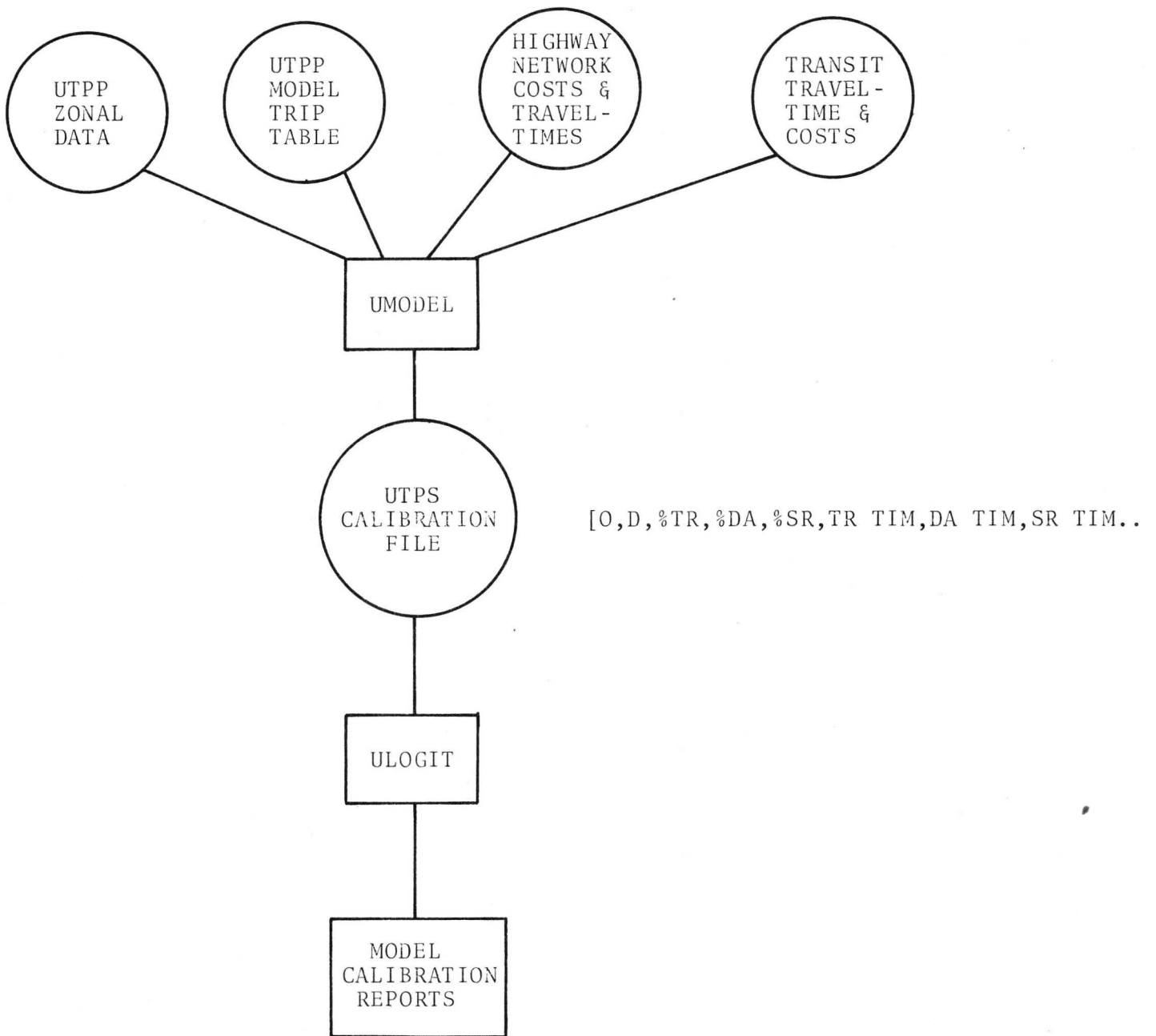


FIGURE 21
 PROCESS FOR CALIBRATING WORK MODE CHOICE MODEL
 FROM UTPP AND NETWORK DATA

of these to work-trip occupancy from an old local survey, from other urban areas, or from data in NCHRP Report 187, and by proportionately adjusting the work-occupancy model developed from Census data.

Other Considerations

Forecasting of truck travel and external travel may also be desired. Again, local data and/or procedures may be available and should be considered first. NCHRP Report 187 contains a table (see Table 13 of this report and the discussion under Trip Factors which follows this section) for converting internal auto-driver trips to total vehicle trips, including truck trips and external trips.

The results of applying this procedure should be validated against known local conditions. Assignment results are normally checked against ground counts and detailed information about such checking has been reported in several publications. A good summary is provided in the System Planning Manual of the "Transportation Planning for Your Community" series.¹⁰

Journey-to-Work Data Conversions

Transportation agencies traditionally have forecast travel demand in terms of total daily travel using models and techniques based on total daily trips. Others use peak-hour models, recognizing that peak-hour volumes are needed for many analyses and network designs. Because journey-to-work constitutes only one trip purpose, Census journey-to-work counts must be converted to these counts of total daily trips or total peak-hour trips.

Less error is introduced in converting Census work trips to peak-hour trips than is the case with conversions to total daily trips because work trips constitute 70-80 percent of all peak-hour trips. However, some research indicates that 92 percent of the variation in the results of origin-destination trips assigned to a network can be explained by daily work-trip link volumes.¹¹ Also, considerable data are available on peak-hour factors by type of facility, area of city, and orientation of facility.¹²

¹⁰ "Transportation Planning for Your Community, System Planning," U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., 1980, pp. 45-48.

¹¹ "Primary Work Trips as Estimators of Urban Travel Patterns," Carl S. Ambrister, Thesis for masters in Civil Engineering, University of Texas, Austin, Texas, May 1970.

¹² "An Analysis of Urban Area Travel by Time of Day," Peat, Marwick, Mitchell & Co., prepared for U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., January 1972.

Trip Factors

The NCHRP Report 187 contains tables for converting trips among various subgroupings, such as peak-hour, total day and work trips, and for estimating total vehicle travel from internal residence travel. A separate table presents data for each range of urban area population (Chapter VI of the report). Table 12 presents this information for urban areas with populations of 250,000-750,000. Using this table, for example, total travel can be estimated from work travel by applying a factor of 5.515. If peak-hour travel were to be estimated from total work travel, a factor of 0.554 should be used, etc.

The factors in the table are averages for many areas within the population range. They also are averages for the entire region and can be expected to vary from zone to zone. Where local data are available, they should be used to develop either an area-wide factor or a factor for each zone within the area.

An example of another useful table in NCHRP Report 187 is shown as Table 13 of this report, also for urban areas with populations of 250,000-750,000. Its factors convert estimates of total "internal" auto-driver trips (made by applying factors such as those in Table 12 to Census journey-to-work data) to estimates of total vehicle trips. For example, total daily trips--including external trips, truck trips, etc.--are 1.5 times the number of internal auto trips alone.

The factors listed in Table 13 are for conversions by hour of day. For instance, total trips for the peak hour 7-8 A.M. can be calculated at 1.3 times the internal auto driver trips in that time period.

It is useful to examine how some trip factoring can be accomplished using available software. The discussion that follows assumes local origin-destination data are used rather than values from NCHRP Report 187.

In the first method (Figure 22), factors for converting work-trip ends to peak-hour trip ends are developed by zone for both origins and destinations. Inputs to this factor development are base-year origin-destination output from UTPS Program MBUILD. This program can split off peak-hour trips from the total daily origin-destination work-trip file using the starting time of each trip.

The trip-end factors thus developed can be applied to the Census work-trip table using the UTPS Program UMCON to obtain a 1980 peak-hour trip table. To judge the adequacy of this trip table, the trips should be assigned to a 1980 network and compared to 1980 peak-hour ground counts. Forecasts of work-trip ends can be made using existing or updated trip-generation models, or new models developed from Census data. Application of

TABLE 12

CONVERSION FACTORS FOR CRITICAL PERIODS OF INTERNAL PERSON - TRAVEL: * URBANIZED AREA POPULATION, 250,000-750,000 ^b

H A V E	NEED		Total Travel	Total Work Travel	Comb. Pk.Pd. Total Travel	Pk.Hr. Total Travel	Comb. Pk.Pd. Work Travel	A.M. Pk.Pd. Work Travel	P.M. Pk.Pd. Work Travel	Pk.Hr. Work Travel
	→	↓								
Total Travel			0.181	0.322	0.101	0.103	0.057	0.049	0.038	
Total Work Travel	5.515		1.778	0.554	0.572	0.316	0.271	0.211		
Comb. Pk.Pd. Total Travel	3.101	0.562	0.312	0.322	0.178	0.152	0.118			
Pk.Hr. Total Travel	9.947	1.804	3.208	1.032	0.570	0.489	0.380			
Comb. Pk.Pd. Work Travel	9.675	1.748	3.110	0.969	0.553	0.473	0.368			
A.M. Pk.Pd. Work Travel	17.450	3.164	5.627	1.755	1.810	0.857	0.666			
P.M. Pk.Pd. Work Travel	20.361	3.693	6.566	2.047	2.111	1.166	0.777			
Pk.Hr. Work Travel	26.193	4.749	8.447	2.633	2.717	1.501	1.286			

a. "Work Travel" refers to HBW trips. "Total Travel" is (HBW + HBNW + NHB) trips. See text for definitions of travel for the various time periods.

b. source: Computed from travel data contained in Reference (36), Chapter 2 and Chapter 5.

Source: *Quick Response Urban Travel Estimation Techniques and Transferable Parameters--User's Guide*, NCHRP Report 187.

TABLE 13

HOURLY DISTRIBUTION OF INTERNAL AUTO-DRIVER
AND TOTAL VEHICLE TRAVEL: URBANIZED AREA
POPULATION, 250,000-750,000

Hour	Percent Internal Auto Drivers	Percent Total Vehicles (INT + EXT)	Ratio Of Total Vehicles To INT Auto Drivers
24-1	0.9	0.9	1.45
1-2	0.4	0.5	1.80
2-3	0.3	0.4	2.07
3-4	0.1	0.3	2.88
4-5	0.2	0.4	2.57
5-6	0.8	1.0	1.87
6-7	4.4	4.3	1.49
7-8	10.0	8.6	1.30
8-7	6.2	6.4	1.53
9-10	3.8	4.8	1.88
10-11	4.1	5.0	1.82
11-12	4.4	5.0	1.73
12-13	4.7	5.1	1.63
13-14	4.7	5.3	1.69
14-15	5.2	5.7	1.64
15-16	7.3	7.3	1.50
16-17	9.5	9.1	1.44
17-18	10.4	9.4	1.35
18-19	6.3	5.9	1.40
19-20	5.2	4.7	1.33
20-21	3.8	3.4	1.35
21-22	3.4	3.1	1.33
22-23	2.3	2.0	1.29
23-24	1.6	1.4	1.35
	100.0	100.0	1.50 ^b

a. Source: Reference (36) and nine urbanized area studies.
b. Represents weighted average for determining ADT total VMT from
total internal auto driver travel.

Source: *Quick Response Urban Travel Estimation
Techniques and Transferable Parameters--
User's Guide*, NCHRP Report 187.

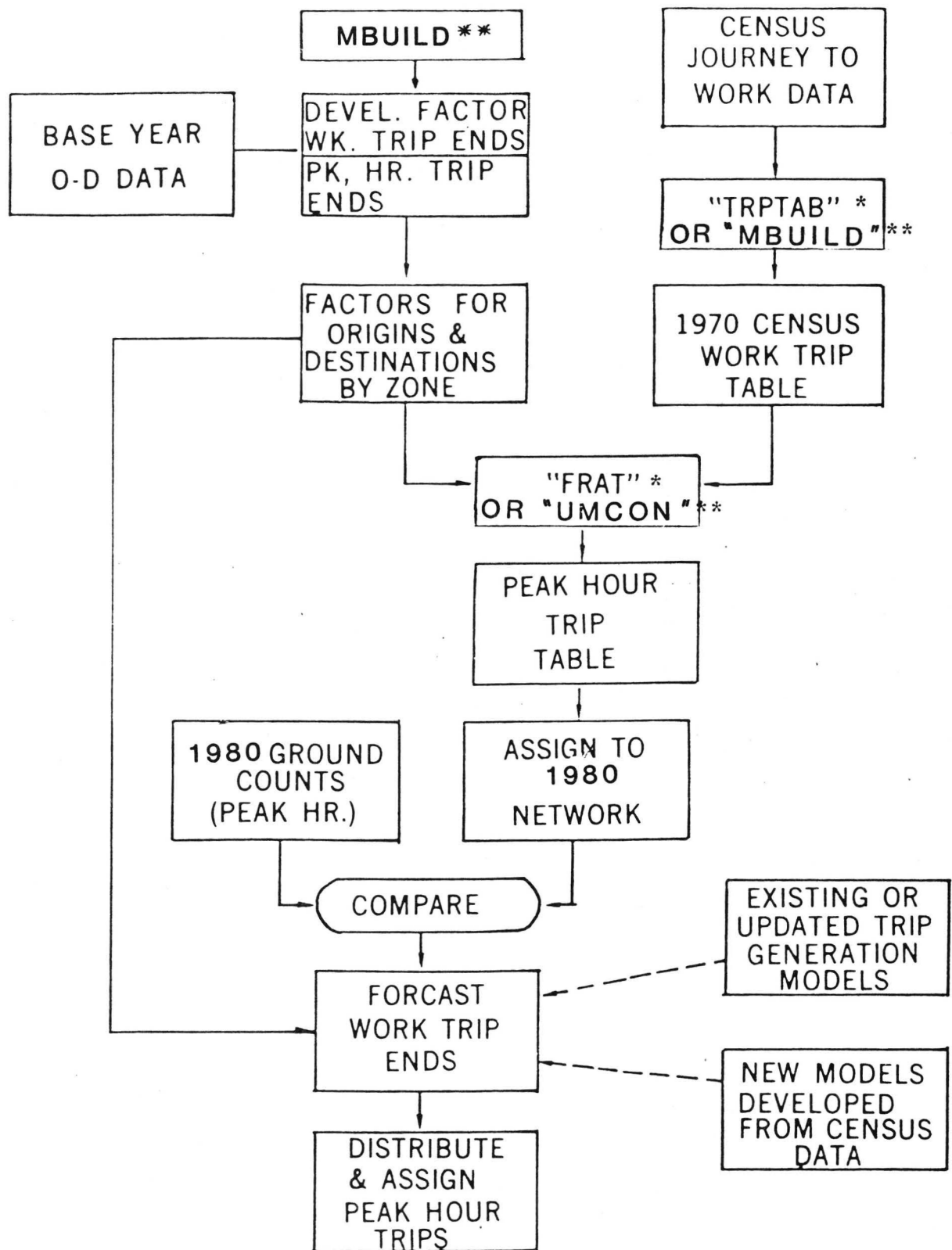


FIGURE 22
PEAK HOUR MODEL—TRIP ENDS

*PLANPAC Program.

**UTPS Program.

Source: *Updating an Urban Transportation Study Using the 1970 Census Data*, Federal Highway Administration, 1973.

the previously developed factors results in a forecast of peak-hour trip ends which can then be distributed and assigned to a future transportation network. This technique assumes that models have been provided that are capable of distributing and assigning peak-hour trips rather than the more traditional total daily trips. A similar approach bases trip-end conversion factors on the relationship between work trips and total daily trips.

In an ADT (average daily traffic) model, socio-economic data from the Census are applied to existing or updated trip-generation models to obtain 1980 trip ends by zone for all trip purposes (Figure 23). Census journey-to-work trip ends by zone are applied to the previously developed trip ends to arrive at conversion factors. These might be developed for the entire study area or for smaller geographic units, depending on the level of aggregation of the data from which the factors were developed.

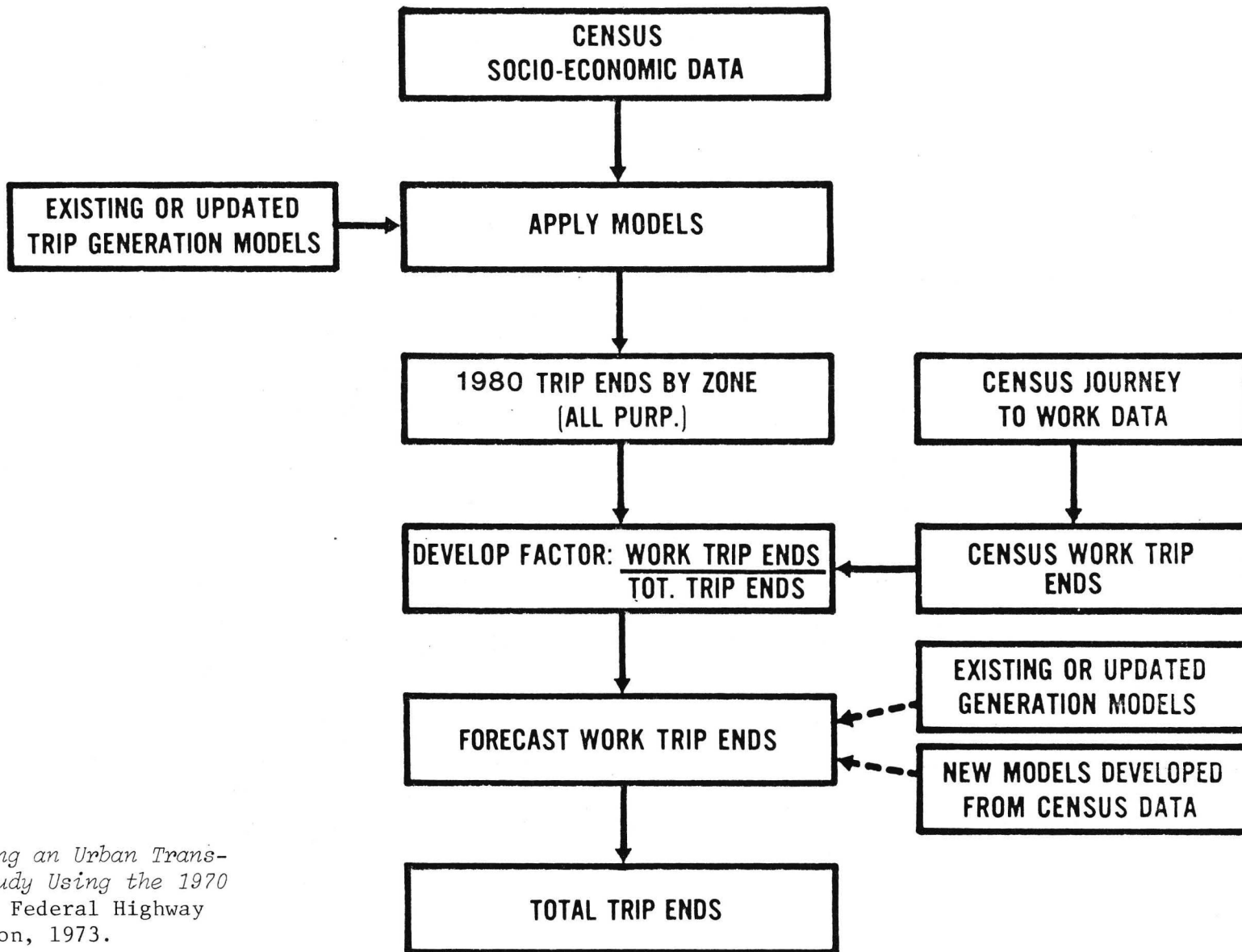
Work-trip ends can be forecast by using existing or updated trip-generation procedures already discussed (page 73). The work-to-total trip-end factors can then be applied to obtain total future trip ends. The remainder of the forecasting process involves application of traditional estimating techniques.

The Washington, D.C., Transportation Planning Board has developed peak-hour trip relationships based on employment density and trip length.¹³ The Board reasoned that as employment at the destination of the trip increases, the ratio of peak-hour to work trips decreases (i.e., work trips become a larger part of total peak-hour trips). However, consideration should be given to the type of land use as an indicator which may perform better than employees-per-acre. Similarly, the Board reasoned that the longer the trips, the greater will be the percentage of total peak-hour trips that will be trips to/from work. These two relationships are illustrated in Figure 24. Application of the concept involves combining both relationships, as shown at the bottom of the figure. A matrix of zone-to-zone work trips can also be factored using ratios based on employment at the destination and traveltime (skim tree) between the zones.

Gravity Model Calibration/Development

Journey-to-work Census data are useful in checking local work-trip distribution models, adjusting or recalibrating those models, or developing new ones. As obtained from the Census, the data can be used to develop a trip-length frequency distribution which can then be compared to distributions developed by applying the local model. Correspondence between the two indicates that the local model remains reliable.

¹³"Estimating Peak Automobile Travel," W. Mann, Technical Note No. 4, Transportation Planning Board, Metropolitan Washington Council of Governments, Washington, D.C., Summer 1972.



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Source: *Updating an Urban Transportation Study Using the 1970 Census Data*, Federal Highway Administration, 1973.

FIGURE 23

WORK TRIP MODEL-TRIP ENDS

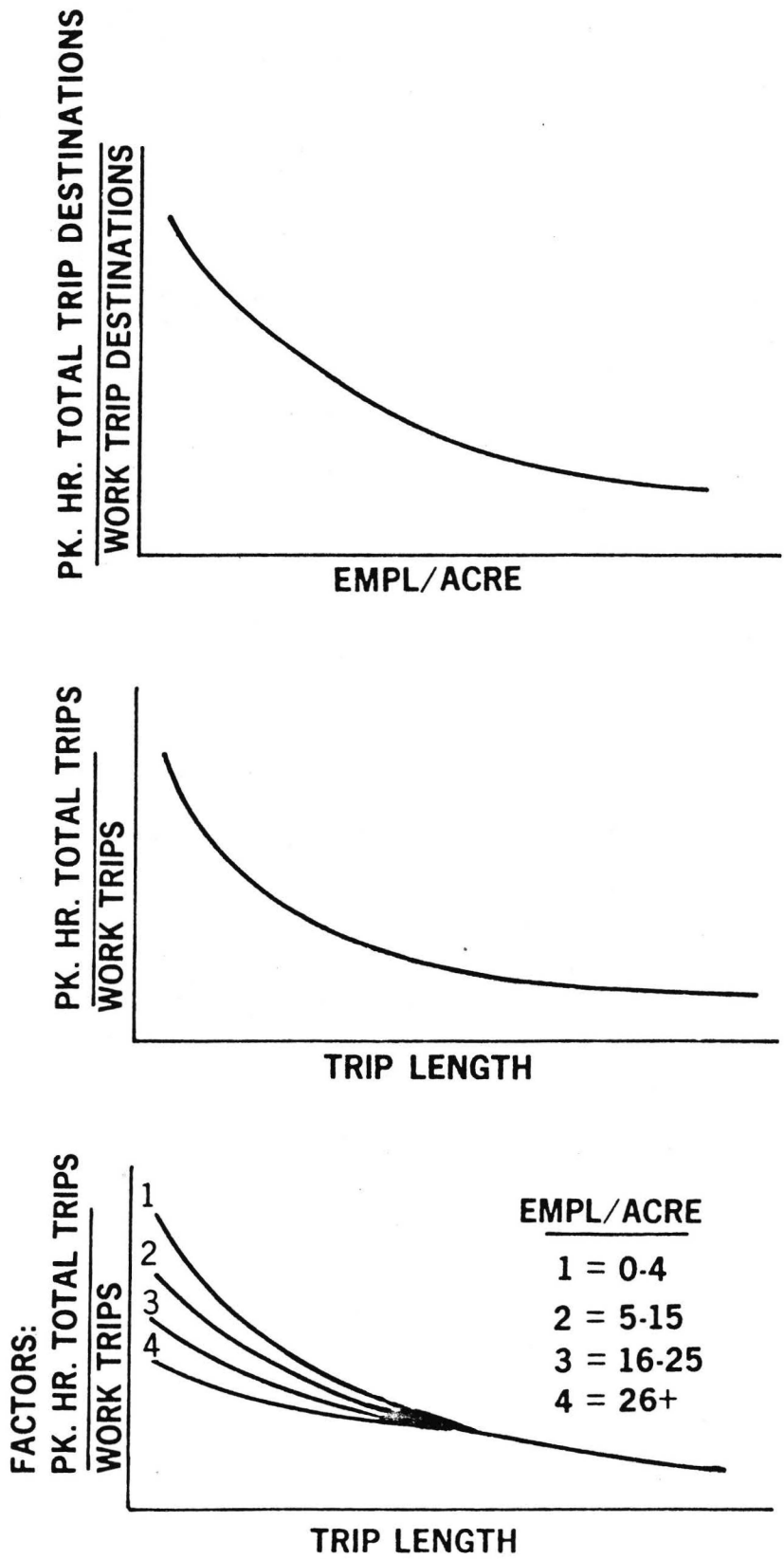


FIGURE 24

PEAK FACTORS RELATED TO EMPLOYMENT DENSITY AND TRIP LENGTH

Source: *Updating an Urban Transportation Study Using the 1970 Census Data*, Federal Highway Administration, 1973.

Trip-Volume Factors

Surveys of peak-hour travel by type of roadway have resulted in distributions of percentages of average daily peak-hour traffic by functional class of roadway, by type of area (CBD, suburb, etc.) and by roadway orientation (radial, circumferential, etc.).¹⁴ Using peak-hour assigned volumes, as might be developed using the procedure illustrated in Figure 22, factors can be applied to obtain ADT.

NCHRP Report 187 contains tables of hourly factors by facility type, area type, and trip orientation by population size group. Table 14 is an example for arterials in urbanized areas with populations of 250,000-750,000. If the default values are used, the journey-to-work trip table derived from Census data, adjusted for such definition discrepancies as "average" day versus "usual" day (Chapter Three), can be converted to total peak-hour volume using the factors in Table 12. This peak-hour table is then assigned to the transportation network and factors listed in Table 13 are applied to obtain total daily travel. As noted earlier, these default values are national averages and local data should be used where available.

Regardless of the procedure used, a good ground count program can supply the information needed to check results and calibrate or adjust them as needed.

Census Processing and Analysis Products

Software programs useful for handling 1980 Census data are available from the Bureau of the Census, the Federal Highway Administration, and the Urban Mass Transportation Administration. The functions to be accomplished with these programs include development of formats for tabulations, geographic plotting, statistical analysis, geographic coding, data-base management, and development of trip tables and other input for transportation models.

Format

As previously noted, the special Urban Transportation Planning Package (UTPP) will supply a series of data items which constitute the tabulations described in Appendix C. These items will be supplied without format design. Three options will be available in purchasing the UTPP from the Bureau of the Census, as listed on page 29.

¹⁴"An Analysis of Urban Area Travel by Time of Day," Peat, Marwick, Mitchell & Co., prepared for U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., January 1972.

TABLE 14

HOURLY DISTRIBUTION OF TOTAL TRAVEL ON ARTERIALS: URBANIZED
AREA POPULATION, 250,000-750,000

H O U R	DISTRIBUTION & ORIENTATION BY SUBREGION										H O U R
	CBD		Central City				Suburb				
	All Orientations		Radial		X-Town		Radial		X-Town		
	% ADT	DIR SPLT ^b	% ADT	DIR SPLT ^b	% ADT	DIR SPLT ^b	% ADT	DIR SPLT ^b	% ADT	DIR SPLT ^b	
24-1	1.0	50	1.5	40	1.5	40	1.5	32	1.5	50	24
1-2	1.0	50	0.5	44	0.5	44	1.3	34	0.5	56	1
2-3	0.5	50	0.5	42	0.5	48	1.0	34	0.0	50	2
3-4	0.5	52	0.5	48	0.5	42	0.5	44	0.5	52	3
4-5	0.5	54	0.5	56	0.5	54	1.0	52	1.0	64	4
5-6	2.0	58	2.0	54	1.0	64	2.5	70	2.0	72	5
6-7	5.0	60	5.0	68	4.5	68	6.0	72	6.0	82	6
7-8	7.0	64	7.0	70	6.5	74	5.5	68	6.5	68	7
8-9	6.5	64	5.5	64	5.5	54	4.5	60	4.5	60	8
9-10	5.0	58	4.5	58	4.5	54	5.0	56	4.0	58	9
10-11	5.5	54	5.0	52	4.5	54	5.0	54	4.0	54	10
11-12	5.5	52	5.0	52	5.0	48	5.0	50	4.5	54	11
12-13	5.5	52	5.0	50	5.5	50	5.0	50	5.0	48	12
13-14	5.5	52	5.0	50	5.5	52	5.5	52	5.0	50	13
14-15	6.0	52	6.0	52	6.0	56	6.0	54	6.0	52	14
15-16	8.0	50	7.5	42	7.0	52	6.5	46	7.0	44	15
16-17	9.0	44	8.0	38	8.5	36	8.5	42	8.0	36	16
17-18	6.5	42	8.0	38	7.5	42	7.5	38	8.5	36	17
18-19	4.5	50	6.0	48	6.0	50	6.0	48	6.5	48	18
19-20	4.0	52	5.0	50	5.5	54	4.5	50	5.5	54	19
20-21	3.5	48	4.0	44	4.5	52	4.0	46	4.5	50	20
21-22	3.0	46	3.5	42	4.0	48	3.5	46	4.0	38	21
22-23	2.5	50	2.5	46	3.0	52	2.5	46	3.0	30	22
23-24	2.0	52	2.0	42	2.0	46	2.0	46	2.0	32	23
	100.0		100.0		100.0		100.0		100.0		

a. Source: Reference (36) and nine urbanized area studies.
b. % in a.m. peak direction.

Source: NCHRP Report 187.

Census Data Accessibility With UTPS

Access to two types of Census data can be made directly with UTPS: geographic trip-end data associated with traffic analysis zones (or Census tracts) and trip interchange data, both available from UTPP tabulations.

Geographic trip-end data tabulations are those associated with a zone or tract that can be related to travel, such as number of households, average household income, the distribution of households by number of vehicles in the household, etc. Travel forecasting and analysis models within UTPS can be used with these data in a variety of studies but these data must first be converted to formats which can be read by UTPS programs. The UTPS program UMODEL can be instructed to read EBCDIC data in format from the Census UTPP tape and to convert tabulations to UTPS Z-file format.

The Z-file format is the structure used by UTPS to store zonal or geographic trip-end type data. It constructs sets of LAV's (List of Attribute Values) which contain the data for each zonal attribute. For example, an LAV can be constructed of zonal population, the contents of which would be the population of each zone in the study area. Once the Z-file and associated LAV's have been constructed by UMODEL from UTPP tabulations they can be used by other UTPS programs, such as UMATRIX, to perform manipulations and transgenerations on the LAV's and to apply models using a "powerful" command language.

Trip-interchange data in the UTPP includes origin-destination person-trip tables by mode for work trips, perceived travel-time by mode, number of vehicles, average vehicle occupancy, and average carpool size for each origin-destination pair. These EBCDIC zonal interchange data files on the UTPP tape also must be converted to UTPS format to be made accessible to appropriate programs. The UTPS program most suited for this is MBUILD, designed to build UTPS J-files. This format includes origin zone, destination zone, and zonal interchange values. Use of these programs will be demonstrated by a case study application using Census data (see Summary following this chapter).

Bureau of the Census Software

The Bureau of the Census has also developed software packages useful in manipulating and analyzing standard Census products. These software systems are not necessarily appropriate for use with the UTPP, however. Appendix F summarizes the various Census programs to assist in determining their usefulness for specific objectives.

The Data User Services Division of the Bureau of the Census provides varying degrees of support for the computer programs it distributes. For information about computer programs and support services supplied by the Bureau contact:

Mr. Lawrence Finnegan, Chief
Systems and Programming Branch
Data User Services Division
Bureau of the Census
Washington, D. C. 20233
(301)763-5242

Other Software

Several other computer software programs are available for building tables, plotting output, and performing statistical analyses. Many of these can be used to handle Census data.

A program of particular interest is FLOWMAP, "An Interactive Graphic Mapping Program for Displaying Origin-Destination Patterns in Space and Time."¹⁵ FLOWMAP allows the interactive designing of flow maps at a graphics terminal using origin-destination data. Options allow changes in maps to be made quickly and comprehensively. The program currently runs on the CDC CYBER 170/750 at the University of Washington and is available to outside users on G. E. Telnet.

The program can produce six types of maps of journey-to-work flows derived from Census data:

- o Interzone flows displayed as variable width arrows (Figure 25),
- o Net flows showing the difference between incoming and outgoing flows,
- o Interzonal flow displayed as graduated circles,
- o Origin pie charts (Figure 26),
- o Destination pie charts, and
- o Pie charts and arrow flows on the same map (Figure 27).

¹⁵Developed at the University of Washington. Paper with above title presented at the 61st Annual Meeting of the TRB. Authors: Bob Evatt, Jr., Jerry Schneider, Harvey Greenberg & Natarajan Ianarthanan.

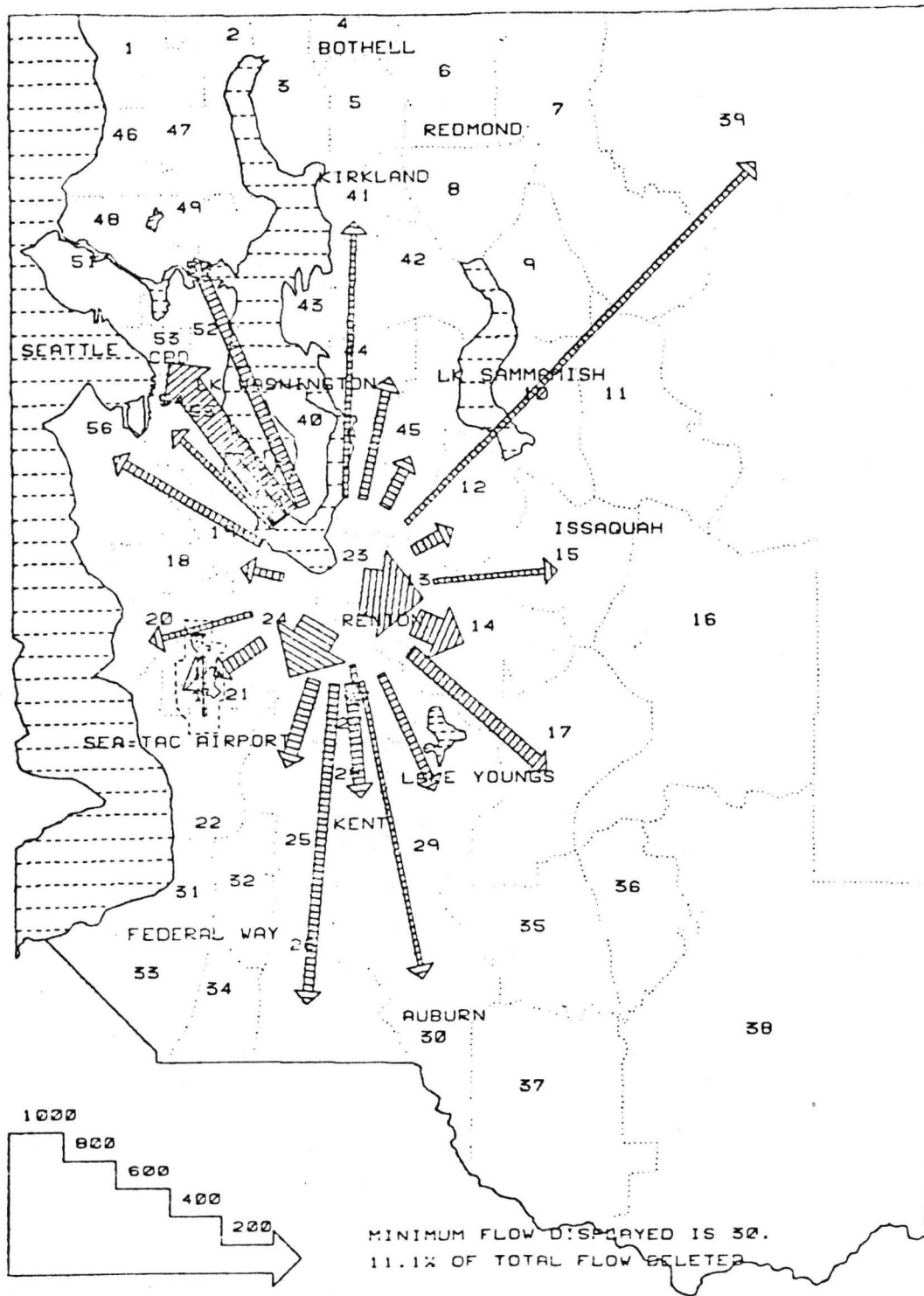
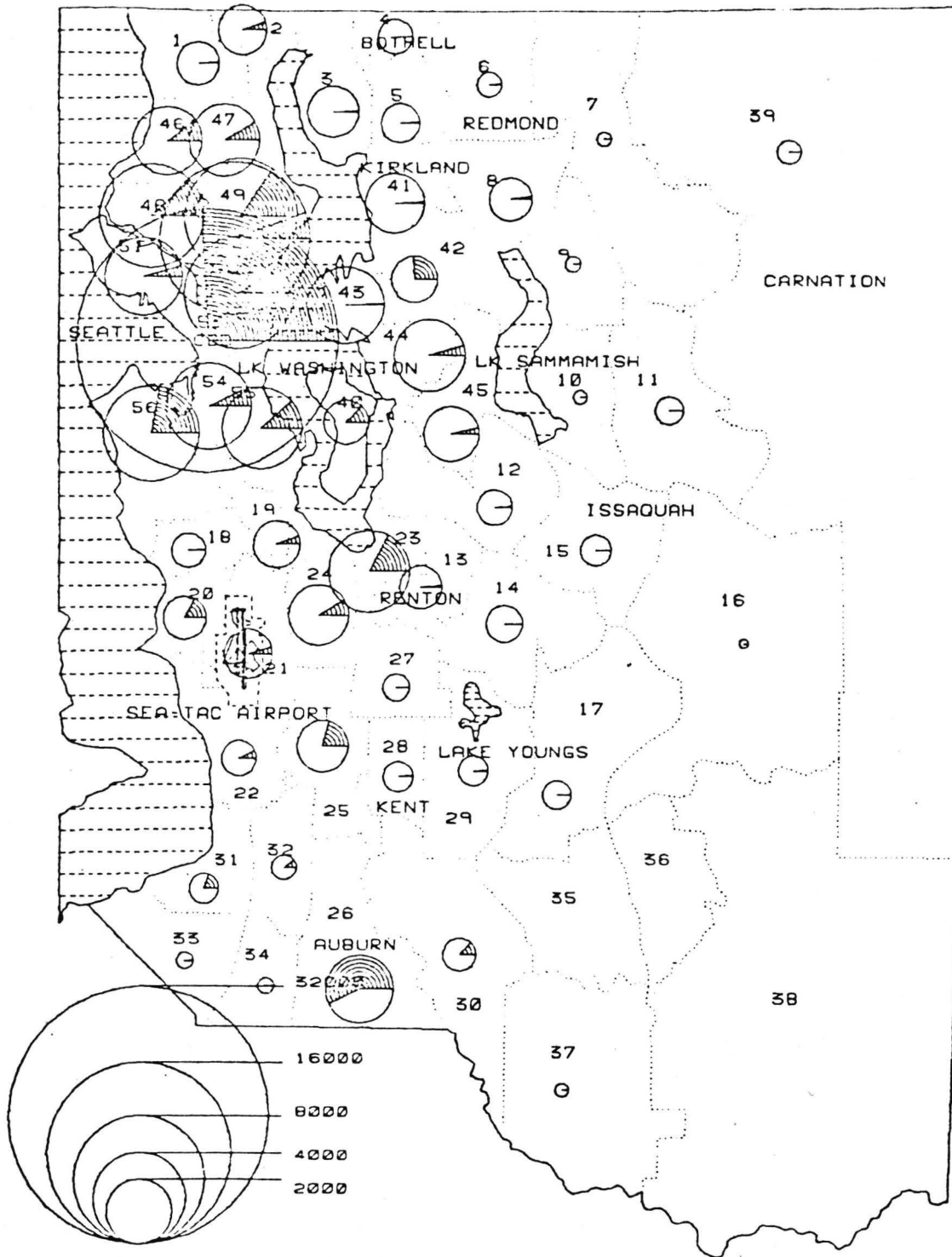


FIGURE 25
 INTERZONAL FLOW OF TRANSIT WORK TRIPS

Source: "FLOWMAP: An Interactive Graphic Mapping Program for Displaying Origin-Destination Patterns in Space and Time," by Bob Evatt, Jr., Jerry Schnieder, Harvey Greenberg and Natarajan Ianarathanan. Paper presented at the 61st Annual Meeting, Transportation Research Board.



INTERNAL FLOWS ARE SHADED, OUTFLOWS ARE UNSHADED

FIGURE 26

ORIGIN PIE CHART OF TRANSIT WORK TRIPS

Source: "FLOWMAP: An Interactive Graphic Mapping Program for Displaying Origin-Destination Patterns in Space and Time," by Bob Evatt, Jr., Jerry Schnieder, Harvey Greenberg and Natarajan Ianarthanan. Paper presented at the 61st Annual Meeting, Transportation Research Board.

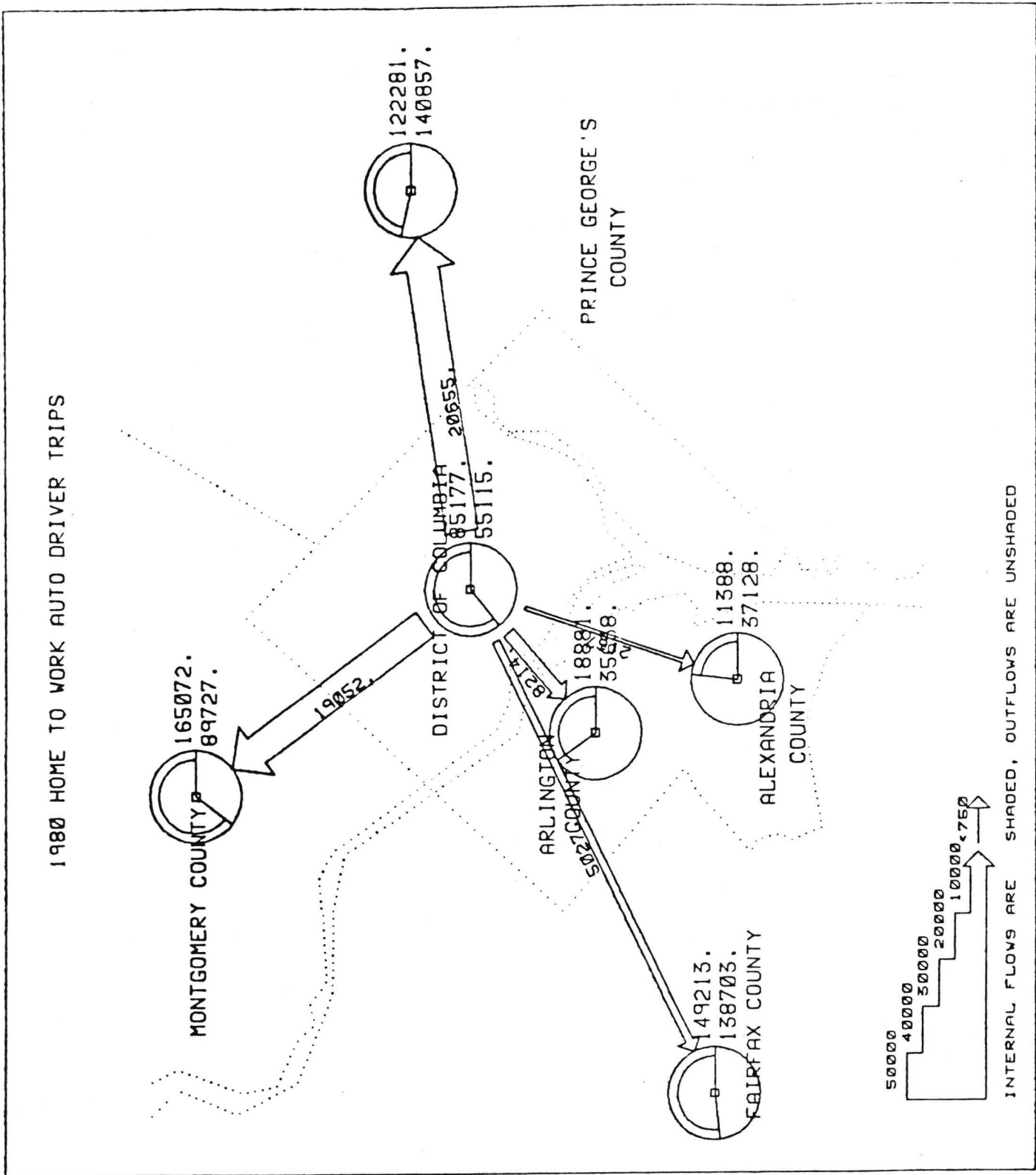


FIGURE 27

PIE CHARTS AND ARROWS

Source: "FLOWMAP: An Interactive Graphic Mapping Program for Displaying Origin-Destination Patterns in Space and Time," by Bob Evatt, Jr., Jerry Schnieder, Harvey Greenberg and Natarajan Ianarthan. Paper presented at the 61st Annual Meeting, Transportation Research Board.

Further information on this system can be obtained from:

Mr. Jerry B. Schneider
Professor of Urban Planning and
Civil Engineering
133 More Hall (FX-10)
Department of Civil Engineering
University of Washington
Seattle, Washington 98195

SUMMARY

The 1980 Census is a valuable source of data needed in many transportation planning efforts. As such, the Census fills a void left by the absence of local travel data collection in most urbanized areas since the 1960's.

The best source of Census data is the Urban Transportation Planning Package (UTPP). Although the package must be ordered at a cost from the Bureau of the Census, the form and features available in it make the UTPP the most cost-effective source of data. The six parts of the UTPP provide:

- o Residence data such as population, housing units, vehicles available, household size, and income;
- o Work-end data on employees by occupation and industry, mode of travel used, income, sex, etc.;
- o Relationships useful to most planning agencies (i.e., vehicles available by household size and income and percent of households by income and number of vehicles);
- o Journey-to-work trips by mode between residence and work place by trip duration, and by car occupancy.

The UTPP is the only Census source in which: (1) information can be supplied by traffic analysis zone; (2) an allocation of workers to work place is made when a work address cannot be coded; and (3) data are available on zone-to-zone journey-to-work trips. The cost of the UTPP is low compared to its uses. For UTPP data coded at the zone level, the cost to an area in the 200,000 population range is about \$2,500. For a population of 500,000, the cost is about \$6,500. The specific cost for a given urban area will be supplied by the Bureau of the Census upon request to the address on page 32.

Census data provide a base for a wide variety of metropolitan planning organization activities. A summary, analysis, and presentation of the data for 1980, or updated to the current year, supplies information necessary to any understanding of population, housing, and related factors for today as well as changes that have occurred over time.

Work trips represent a significant share of total travel in a region. The Census journey-to-work data provide insight into many characteristics of such travel, including geographic distribution, choice of mode, trip duration, vehicle use, occupancy, and carpooling. Important studies of current conditions that can

be accomplished with such Census data include analysis of accessibility of segments of the population to community services and employment, analysis of the potential for transit use, and determination of the most effective sites for park-and-ride lots. Still other analyses important to evaluating current and long-range problems and issues are development and/or checking of procedures of trip generation, mode choice, and trip-distribution.

A planner's aid of case studies demonstrating the handling and use of Census data will be published probably in early 1983. As planned, the case studies will include:

- o Building J trip files of the journey-to-work using UTPS Program MBUILD.
- o Building Z files of zonal attributes for the residence and work ends using UMODEL.
- o Building charts relating percent of households to cars available and income, percent transit usage to vehicles available and income, and percent transit usage to workers per household and income.
- o Developing data in a form to calibrate a logit model using ULOGIT.
- o Producing an ADT model from work trips as shown in Figure 23.
- o Developing data in a form for calibrating a gravity model using AGM, including development of trip-length frequency distributions by mode.
- o Locating park-and-ride lots using UMATRIX to transpose trip tables and UROAD to load selected origin-destination trips.

The case studies will be in the form of flow charts and program set-ups. In some cases output data will be included.

A large number of requests for the UTPP are anticipated. Requests will be handled in the order received for those areas in which data are available.

APPENDIX A

STF TABLE OUTLINES

- | | | |
|--|---|--|
| <p>1. URBAN AND RURAL (3) [3]
 Universe: Persons
 Total
 Inside urbanized areas
 Rural
 NOTE: Urban is derived by subtracting rural from total</p> | <p>8. SPANISH ORIGIN (5) [5]
 Universe: Persons
 Not of Spanish origin
 Mexican
 Puerto Rican
 Cuban
 Other Spanish</p> | <p>12. RACE (5) BY AGE (4) [20]
 Universe: Persons
 Total:
 Under 5 years
 5 to 17 years
 18 to 64 years
 65 years and over
 White:
 (Repeat Age)
 Black:
 (Repeat Age)
 American Indian, Eskimo, and Aleut:
 (Repeat Age)
 Asian and Pacific Islander: <u>4/</u>
 (Repeat Age)</p> |
| <p>2. FAMILIES [1]
 3. HOUSEHOLDS <u>1/</u> [1]
 4. URBAN AND RURAL (3) [3]
 Universe: Housing Units (Including Vacant Seasonal And Migratory Units) <u>2/</u>
 Total
 Inside urbanized areas
 Rural
 NOTE: Urban is derived by subtracting rural from total</p> | <p>9. RACE (5) [5]
 Universe: Persons Of Spanish Origin
 Total
 White
 Black
 American Indian, Eskimo, Aleut, and Asian and Pacific Islander <u>4/</u>
 Other <u>3/</u></p> | <p>13. RACE (3) BY AGE (4) [12]
 Universe: Persons Of Spanish Origin
 Total:
 Under 5 years
 5 to 17 years
 18 to 64 years
 65 years and over
 White:
 (Repeat Age)
 Black:
 (Repeat Age)</p> |
| <p>5. OCCUPANCY STATUS (3) [3]
 Universe: Year-Round Housing Units
 Total
 Occupied <u>1/</u>
 Vacant</p> | <p>10. SEX (2) BY AGE (26) [52]
 Universe: Persons
 Total:
 Under 1 year
 1 and 2 years
 3 and 4 years
 5 years
 6 years
 7 to 9 years
 10 to 13 years
 14 years
 15 years
 16 years
 17 years
 18 years
 19 years
 20 years
 21 years
 22 to 24 years
 25 to 29 years
 30 to 34 years
 35 to 44 years
 45 to 54 years
 55 to 59 years
 60 and 61 years
 62 to 64 years
 65 to 74 years
 75 to 84 years
 85 years and over
 Female:
 (Repeat Age)</p> | <p>14. SEX (2) BY MARITAL STATUS (5) [10]
 Universe: Persons 15 Years And Over
 Male:
 Single
 Now married, except separated
 Separated
 Widowed
 Divorced
 Female:
 (Repeat Marital Status)</p> |
| <p>6. SEX (2) [2]
 Universe: Persons
 Male
 Female</p> | <p>11. MEDIAN AGE BY SEX (3) [3]
 Universe: Persons
 (1 implied decimal)
 Total
 Male
 Female</p> | <p>15. HOUSEHOLD TYPE AND RELATIONSHIP (9) [9]
 Universe: Persons
 In family household:
 Householder
 Spouse
 Other relatives <u>5/</u>
 Nonrelatives <u>6/</u>
 In nonfamily household:
 Male householder
 Female householder
 Nonrelatives <u>6/</u>
 In group quarters:
 Inmate of institution
 Other</p> |
| <p>7. RACE (15) [15]
 Universe: Persons
 White
 Black
 American Indian, Eskimo, and Aleut:
 American Indian
 Eskimo
 Aleut
 Asian and Pacific Islander: <u>4/</u>
 Japanese
 Chinese
 Filipino
 Korean
 Asian Indian
 Vietnamese
 Hawaiian
 Guamanian
 Samoan
 Other <u>3/</u></p> | | |

() Indicates number of cells in each stratifier.
 [] Indicates number of cells in each table.

16. PERSONS IN HOUSEHOLD AND HOUSEHOLD TYPE (7) 7/ [7]
 Universe: Households
 1 person:
 Male householder
 Female householder
 2 or more persons:
 Married-couple family
 Other family:
 Male householder, no wife present
 Female householder, no husband present
 Nonfamily household:
 Male householder
 Female householder
17. HOUSEHOLD TYPE AND RELATIONSHIP (7) [7]
 Universe: Persons Under 18 Years
 In household:
 Householder or spouse
 Own child of householder: 8/
 In married-couple family
 In other family (male or female householder, no spouse present)
 Other relatives 5/
 Nonrelatives 6/
 In group quarters:
 Inmate of institution
 Other
18. AGE (2) [2]
 Universe: Related Children 8/
 Under 5 years
 5 to 17 years
19. HOUSEHOLD TYPE (4) [4]
 Universe: Households With One or More Persons Under 18 Years
 Married-couple family
 Other family:
 Male householder, no wife present
 Female householder, no husband present
 Nonfamily household
20. HOUSEHOLD TYPE AND RELATIONSHIP (9) [9]
 Universe: Persons 65 Years And Over
 In family household:
 Householder
 Spouse
 Other relatives 5/
 Nonrelatives 6/
- In nonfamily household:
 Male householder
 Female householder
 Nonrelatives 6/
 In group quarters:
 Inmate of institution
 Other
21. PERSONS IN HOUSEHOLD AND HOUSEHOLD TYPE (3) 7/ [3]
 Universe: Households With One Or More Persons 60 Years And Over
 1 person
 2 or more persons:
 Family household
 Nonfamily household
22. PERSONS IN HOUSEHOLD AND HOUSEHOLD TYPE (3) 7/ [3]
 Universe: Households With One Or More Persons 65 Years And Over
 1 person
 2 or more persons:
 Family household
 Nonfamily household
23. TENURE (2) BY AGE OF HOUSEHOLDER (2) [4]
 Universe: Occupied Housing Units With One Or More Persons 65 Years And Over
 Total:
 Householder under 65 years
 Householder 65 years and over
 Renter occupied:
 (Repeat Age of Householder)
24. HOUSEHOLDS WITH ONE OR MORE NONRELATIVES PRESENT [1]
 25. VACANCY STATUS (4) [4]
 Universe: Vacant Housing Units
 For sale only
 For rent
 Held for occasional use
 Other vacants 9/
26. TENURE (2) [2]
 Universe: Occupied Housing Units
 Total
 Renter occupied
27. TENURE (2) BY RACE OF HOUSEHOLDER (5) [10]
 Universe: Occupied Housing Units
 Total:
 White
 Black
 American Indian, Eskimo, and Aleut
 Asian and Pacific Islander 4/
 Other 3/
 Renter occupied:
 (Repeat Race of Householder)
28. TENURE (2) BY RACE OF HOUSEHOLDER (3) [6]
 Universe: Occupied Housing Units With Householder Of Spanish Origin
 Total:
 Total
 White
 Black
 Renter occupied:
 (Repeat Race of Householder)
29. TENURE AND VACANCY STATUS (4) [4]
 Universe: Condominium Housing Units
 Total
 Renter occupied
 Vacant for sale only
 Other vacants 9/
30. ROOMS (6) [6]
 Universe: Year-Round Housing Units
 1 room
 2 rooms
 3 rooms
 4 rooms
 5 rooms
 6 or more rooms
31. MEDIAN ROOMS [1]
 (1 implied decimal)
 Universe: Year-Round Housing Units
32. AGGREGATE ROOMS BY TENURE AND VACANCY STATUS (5) 10/ [5]
 Universe: Year-Round Housing Units
 Total
 Renter occupied
 Vacant for sale only
 Vacant for rent
 Other vacants 9/

33. TENURE (2) BY PERSONS
IN UNIT (6) 7/ [12]
Universe: Occupied
Housing Units
Total:
1 person
2 persons
3 persons
4 persons
5 persons
6 or more persons
Renter occupied:
(Repeat Persons in Unit)

34. MEDIAN PERSONS
PER UNIT 7/ [1]
(2 implied decimals)
Universe: Occupied
Housing Units

35. PERSONS PER UNIT 7/ [1]
(2 implied decimals)
Universe: Occupied
Housing Units

36. TENURE (2) 10/ [2]
Universe: Persons In
Occupied Housing
Units
Total
Renter occupied

37. TENURE (2) BY PERSONS
PER ROOM (3) [6]
Universe: Occupied
Housing Units
Total:
1.00 or less
1.01 to 1.50
1.51 or more
Renter occupied:
(Repeat Persons Per Room)

38. VALUE (13) [13]
Universe: Specified Owner-
Occupied Noncondo-
minium Housing
Units 11/
Less than \$10,000
\$10,000 to \$14,999
\$15,000 to \$19,999
\$20,000 to \$24,999
\$25,000 to \$29,999
\$30,000 to \$34,999
\$35,000 to \$39,999
\$40,000 to \$49,999
\$50,000 to \$79,999
\$80,000 to \$99,999
\$100,000 to \$149,999
\$150,000 to \$199,999
\$200,000 or more

39. MEDIAN VALUE [1]
Universe: Specified Owner-
Occupied Noncondo-
minium Housing
Units 11/

40. AGGREGATE VALUE AND PRICE
ASKED BY OCCUPANCY
STATUS (2) 10/ 14/ [2]
Universe: Specified Owner-
Occupied And
Vacant-For-Sale-
Only Noncondominium
Housing Units 11/
Owner occupied
Vacant for sale only

41. OCCUPANCY STATUS (2) [2]
Universe: Specified Owner-
Occupied And Vacant-
For-Sale-Only Non-
condominium Housing
Units 11/
Owner occupied
Vacant for sale only

42. AGGREGATE VALUE AND PRICE
ASKED BY OCCUPANCY
STATUS (2) 10/ 14/ [2]
Universe: Owner-Occupied
And Vacant-For-
Sale-Only
Condominium
Housing Units 11/
Owner occupied
Vacant for sale only

43. CONTRACT RENT (14) [14]
Universe: Specified Renter-
Occupied Housing
Units 12/
With cash rent:
Less than \$50
\$50 to \$99
\$100 to \$119
\$120 to \$139
\$140 to \$149
\$150 to \$159
\$160 to \$169
\$170 to \$199
\$200 to \$249
\$250 to \$299
\$300 to \$399
\$400 to \$499
\$500 or more
No cash rent

44. MEDIAN CONTRACT RENT [1]
Universe: Specified Renter-
Occupied Housing
Units Paying
Cash Rent 12/

45. AGGREGATE CONTRACT RENT
AND RENT ASKED
BY OCCUPANCY STATUS (2)
10/ [2]
Universe: Specified Renter-
Occupied Paying
Cash Rent And
Vacant-For-Rent
Housing Units 12/
Renter occupied
Vacant for rent

46. OCCUPANCY STATUS (2), [2]...
Universe: Specified Renter-
Occupied Paying
Cash Rent And
Vacant-For-Rent
Housing Units 12/
Renter occupied
Vacant for rent

47. TENURE AND OCCUPANCY
STATUS (3) BY PLUMBING
FACILITIES (2) [6]
Universe: Year-Round
Housing Units
Total:
Complete plumbing for
exclusive use
Lacking complete
plumbing for
exclusive use 13/
Total occupied:
(Repeat Plumbing
Facilities)
Renter occupied:
(Repeat Plumbing
Facilities)

48. TENURE (2) [2]
Universe: Occupied Housing
Units With 1.01
Or More Persons
Per Room Lacking
Complete Plumbing
Facilities For
Exclusive Use 13/
Total
Renter occupied

49. TENURE (2) 10/ [2]
Universe: Persons In
Occupied Housing
Units With 1.01
Or More Persons
Per Room
Total
Renter occupied

50. PERSONS IN OCCUPIED HOUSING UNITS LACKING COMPLETE PLUMBING FACILITIES FOR EXCLUSIVE USE 10/ 13/ [1]

51. PLUMBING FACILITIES (2) 10/ [2]

Universe: Persons In Occupied Housing Units With 1.01 Or More Persons Per Room

Complete plumbing for exclusive use
Lacking complete plumbing for exclusive use 13/

52. VACANT HOUSING UNITS WHICH ARE BOARDED UP [1]

53. VACANT-FOR-RENT HOUSING UNITS WHICH HAVE BEEN VACANT 2 OR MORE MONTHS [1]

54. VACANT-FOR-SALE-ONLY HOUSING UNITS WHICH HAVE BEEN VACANT 6 OR MORE MONTHS [1]

55. UNITS AT ADDRESS (4) [4]

Universe: Year-Round Housing Units

1
2 to 9
10 or more
Mobile home or trailer

56. PERSONS SUBSTITUTED [1]

57. ALLOCATIONS (POPULATION) (7) [7]

Universe: Persons Not Substituted With One Or More Items Allocated

Persons with one or more items allocated 15/
Relationship allocated
Sex allocated
Age allocated
Race allocated
Origin allocated
Marital status allocated for persons 15 years and over

58. YEAR-ROUND HOUSING UNITS SUBSTITUTED [1]

59. ALLOCATIONS (HOUSING) (9) [9]

Universe: Year-Round Housing Units Not Substituted With One Or More Housing Items Allocated

Year-round housing units with one or more housing items allocated 16/
Vacancy status allocated
Duration of vacancy allocated
Units at address allocated
Rooms allocated
Plumbing facilities allocated
Tenure allocated
Value or price asked allocated 11/
Contract rent or rent asked allocated 12/

1980 Census of Population and Housing

Revised February 1982 *

Tentative Publication and Computer Tape Program

The results of the 1980 census will be released as soon as they are tabulated and assembled. In this data dissemination program three major media will be utilized: printed reports, computer tapes, and microfiche.

The publications of the 1980 census are released under three subject titles, *1980 Census of Population and Housing*, *1980 Census of Population*, and *1980 Census of Housing*. The description of the publication program below is organized in sections, by census title, followed by the reports under each title. It should be noted that a number of the population census reports contain some housing data and a number of the housing census reports contain some population data.

Following the description of the publication program are sections on computer tapes, maps, and microfiche, and a section listing the subject items included in the 1980 census.

The data product descriptions include listings of geographic areas for which data are summarized in that product. Note that the term "place" refers to incorporated places and census designated (or unincorporated) places, as well as towns and townships in 11 States (the 6 New England States, the 3 mid-Atlantic States, Michigan, and Wisconsin).

Order forms for these materials are available in most cases, subject to availability of the data product, from Data User Services Division, Customer Services, Bureau of the Census, Washington, D.C. 20233; Census Bureau Regional Offices; U.S. Department of Commerce District Offices; and State Data Centers. Inquiries concerning any phase of the data dissemination program may be addressed to Data User Services Division, Customer Services, Bureau of the Census, Washington, D.C. 20233. After publication, census reports are on file in many libraries and are available for examination at any Department of Commerce District Office or Census Bureau Regional Office.

The Bureau is continually reviewing its 1980 census publication and computer tape program. Changes may occur to content, schedules, and media as described in this leaflet. When dates are not shown below, schedules are in review. Revisions showing more complete scheduling will be issued as necessary.

REPORTS

1980 Census of Population and Housing

Preliminary Reports

Series PHC80-P Preliminary Population and Housing Unit Counts

Issued: 10/80-2/81 These reports present preliminary population and housing unit counts as compiled in the census district offices. Counts are shown for the following areas or their equivalents: States, counties, county subdivisions, incorporated places, standard metropolitan statistical areas (SMSA's) as designated prior to the census, and congressional districts as delineated for the 96th Congress. There is one report for each State, the District of Columbia, Puerto Rico, Guam, Virgin Islands of the United States, and American Samoa, and a U.S. Summary report showing counts for the United States, regions, divisions, and States.

Advance Reports

Series PHC80-V Final Population and Housing Unit Counts

To be Issued: 2/81-early 1982 These reports present provisional population counts classified by race and Spanish origin and also final housing unit counts prior to their publication in the final reports. These figures supersede the preliminary counts published in the PHC80-P series. Final counts are shown for the following areas or their equivalents: States, counties, county subdivisions, incorporated places, and congressional

districts as delineated for the 96th Congress. There is one report for each State, the District of Columbia, Puerto Rico, Guam, Virgin Islands of the United States, and American Samoa, and a U.S. Summary report showing counts for the United States, regions, divisions, States, and congressional districts.

Final Reports

Series PHC80-1 BLOCK STATISTICS

To be issued: 10/81-9/82
These reports present population and housing unit totals and statistics on selected characteristics which are based on complete-count data. Statistics are shown for individual blocks in urbanized areas, for selected blocks adjacent to urbanized areas, for blocks in places of 10,000 or more inhabitants, and for blocks in areas which contracted with the Census Bureau to provide block statistics. The set of reports consists of 375 sets of microfiche (no printed reports), and includes a report for each SMSA, showing blocked areas within the SMSA, and a report for each State and for Puerto Rico, showing blocked areas outside SMSA's, and a U.S. Summary which is an index to the set. In addition to microfiche, printed detailed maps showing the blocks covered by the particular report are available.

Series PHC80-2 CENSUS TRACTS

To be issued: late 1982-mid-1983
Statistics for most of the population and housing subjects included in the 1980 census are presented for census tracts in SMSA's and in other tracted areas. Some tables show complete-count data and others, sample-estimate data. Most statistics are presented by race and Spanish origin for areas with at least a specified number of persons in the relevant population groups. There is one report for each SMSA, as well as one for most States and Puerto Rico covering the tracted areas outside SMSA's (designated selected areas).

Copies of tables containing complete-count data may be purchased at the cost of reproduction as each set of tables is completed. Completion dates range from early 1982 through mid-1982.

Series PHC80-3 SUMMARY CHARACTERISTICS FOR GOVERNMENTAL UNITS AND STANDARD METROPOLITAN STATISTICAL AREAS

To be issued: 8/82-Late 1982
Statistics are presented on total population and on complete-count and sample population characteristics such as age, race, education, disability, ability to speak English, labor force, and income, and on total housing units and housing characteristics such as value, age of structure, and rent. These are shown for the following areas or their equivalents: States, SMSA's, counties, county subdivisions (those which are functioning general-purpose local governments), and incorporated places. There is one report for each State, the District of Columbia, and Puerto Rico. This series does not include a U.S. Summary.

Copies of tables containing complete-count data may be purchased at the cost of reproduction as each set of tables is completed. Completion dates range from September 1981 through early 1982.

Series PHC80-4 CONGRESSIONAL DISTRICTS OF THE 98th CONGRESS

To be issued: Fall 1982-
Early 1983
This report presents complete-count and sample data for congressional districts of the 98th Congress. The report reflects redistricting now underway in anticipation of the 1982 elections and the special needs of the congressional audience. One report will be issued for each of the 50 States and the District of Columbia.

Copies of tables containing complete-count data may be purchased at the cost of reproduction as each set of tables is completed. Completion dates range from early 1982 through mid-1982.

Series PHC80-SI-1 PROVISIONAL ESTIMATES OF SOCIAL, ECONOMIC, AND HOUSING CHARACTERISTICS

Issued: March 1982
This report presents provisional estimates based on sample data collected in the 1980 census. Data on social, economic, and housing characteristics are shown for the United States as a whole, each State, the District of Columbia, and SMSA's of 1,000,000 or more inhabitants. These data are based on a special subsample of the full census sample. The sample, which represents about 1.6 percent of the total population, was developed to provide users with early data on characteristics of the population and housing units.

1980 Census of Population

Final Reports

Volume 1.

CHARACTERISTICS OF THE POPULATION

This volume presents final population counts and statistics on population characteristics. It consists of reports for the following 57 areas: the United States, each of the 50 States, the District of Columbia, Puerto Rico, and the outlying areas of Guam, Virgin Islands of the United States, American Samoa, and the Trust Territory of the Pacific Islands. The volume consists of four chapters for each area, chapters A, B, C, and D. Chapters A and B present data collected on a complete count basis, and chapters C and D present estimates based on sample information, except for outlying areas where all data are collected on a complete-count basis. In the complete-count data presented there are some differences from the counts presented earlier in the PHC80-V reports because corrections were made for errors found after the PHC80-V reports were issued. Chapters B, C, and D present most statistics by race and Spanish origin for areas with at least a specified number of the relevant population groups.

The U.S. Summary reports present statistics for the United States, regions, divisions, States, and selected areas below the State level. The State or equivalent area reports (which include the District of Columbia, Puerto Rico, and outlying areas) present statistics for the State or equivalent area and its subdivisions.

Statistics for each of the 57 areas are issued in separate paperbound editions of chapters A, B, and C. Chapter D is to be issued on microfiche only.

Series PC80-1-A Chapter A

NUMBER OF INHABITANTS

To be issued: Final population counts are shown for the following areas or their equivalents: States, counties, county subdivisions, incorporated places and census designated places (and towns and townships in selected States), standard consolidated statistical areas (SCSA's), SMSA's, and urbanized areas. Selected tables contain population counts by urban and rural residence. Many tables contain historical statistics from previous censuses.

10/81-
7/82

Series PC80-1-B Chapter B

GENERAL POPULATION CHARACTERISTICS

To be issued: Statistics on household relationship, age, race, Spanish origin, sex, and marital status are shown for the following areas or their equivalents: States, counties (by rural residence), county subdivisions, places (and towns and townships in selected States) of 1,000 or more inhabitants, SCSA's, SMSA's, urbanized areas, American Indian reservations, and Alaska Native villages.

3/82-
Fall 1982

Series PC80-1-C Chapter C

GENERAL SOCIAL AND ECONOMIC CHARACTERISTICS

To be issued: Data for subjects shown in the PC80-1-B reports are presented in more detail in PC80-1-C. Also shown are statistics on nativity, State or country of birth, citizenship and year of immigration for the foreign-born population, language spoken at home and ability to speak English, ancestry, fertility, family composition, type of group quarters, marital history, residence in 1975, journey to work, school enrollment, years of school completed, disability, veteran status, labor-force status, occupation, industry, class of worker, labor-force status in 1979, income in 1979, and poverty status in 1979. Each subject is shown for some or all of the following areas or their equivalents: States, counties (by rural and rural-farm residence), places (and towns and townships in selected States) of 2,500 or more inhabitants, SCSA's, SMSA's, urbanized areas, American Indian reservations, and Alaska Native villages.

Late 1982-
Spring 1983

Series PC80-1-D Chapter D

DETAILED POPULATION CHARACTERISTICS

To be issued: Statistics on population characteristics are presented in considerable detail and cross-classified by age, race, Spanish origin, and other characteristics. Each subject is shown for the State or equivalent area, and some subjects are also shown for rural residence at the State level. Most subjects are shown for SMSA's of 250,000 or more inhabitants, and a few are shown for central cities of these SMSA's.

mid to late
1983

Series PC80-2 Volume 2.

SUBJECT REPORTS

To be issued: Each of the reports in this volume focuses on a particular subject. Cross-tabulations of population characteristics are shown on a national, regional, and divisional level. A few reports show statistics beginning 1983 for States, large cities, SMSA's, American Indian reservations, or Alaska Native villages. Separate reports are tentatively planned on any or all of the following characteristics: racial and ethnic groups, type of residence, fertility, families, marital status, migration, education, employment, occupation, industry, journey to work, income, poverty status, and other subjects.

Note that the preparation of subject reports is dependent upon availability of funding in 1983.

Series PC80-S1 **SUPPLEMENTARY REPORTS**

These reports present special compilations of 1980 census statistics dealing with specific population subjects. The reports tentatively include the following:

- | | | |
|-------|---------------|--|
| 5/81 | 1. PC80-SI-1 | Age, Sex, Race, and Spanish Origin of the Population by Regions, Divisions, and States: 1980 |
| 5/81 | 2. PC80-SI-2 | Population and Households by States and Counties: 1980 |
| 7/81 | 3. PC80-SI-3 | Race of the Population by States: 1980 |
| 9/81 | 4. PC80-SI-4 | Population and Households for Census Designated Places: 1980 |
| 10/81 | 5. PC80-SI-5 | Standard Metropolitan Statistical Areas and Standard Consolidated Statistical Areas: 1980 |
| | 6. Unassigned | Nonpermanent Residents by State and County: 1980 |
| | 7. Unassigned | Population and Housing Unit Counts for Identified American Indian Areas and Alaska Native Villages: 1980 |
| | 8. Unassigned | Persons of Spanish Origin by State: 1980 |

1980 Census of Housing

Final Reports

Volume 1.

CHARACTERISTICS OF HOUSING UNITS

This volume presents final housing unit counts and statistics on housing characteristics. It consists of reports for the following 57 areas: the United States, each of the 50 States, the District of Columbia, Puerto Rico, and the outlying areas of Guam, Virgin Islands of the United States, American Samoa, and the Trust Territory of the Pacific Islands. The volume consists of two chapters for each area, chapters A and B. Chapter A presents data collected on a complete-count basis. Chapter B presents estimates based on sample information, except for outlying areas where all data are collected on a complete-count basis. Both chapters present most statistics by race and Spanish origin for areas with at least a specified number of the relevant population groups.

The U.S. Summary report presents statistics for the United States, regions, divisions, States, and selected areas below the State level. The State or equivalent area reports (which include the District of Columbia, Puerto Rico, and outlying areas) present statistics for the State or equivalent area and its subdivisions.

Statistics for each of the 57 areas are issued in separate paperbound editions of chapters A and B.

Series HC80-1-A Chapter A

GENERAL HOUSING CHARACTERISTICS

To be issued: Statistics on units at address, tenure, condominium status, number of rooms, persons per room, plumbing facilities, value, contract rent, and vacancy status are shown for some or all of the following areas or their equivalents: States, counties, county subdivisions, places (and towns and townships in selected States) of 1,000 or more inhabitants, SCSSA's, SMSA's, urbanized areas, American Indian reservations, and Alaska Native villages. Selected tables contain housing characteristics for urban and rural areas.

Series HC80-1-B Chapter B

DETAILED HOUSING CHARACTERISTICS

To be issued: Some subjects included in the HC80-1-A reports are also covered in this report. Additional subjects covered include units in structure, year moved into unit, year structure built, heating equipment, fuels, air conditioning, water and sewage, gross rent, and selected monthly ownership costs. The statistics are shown for some or all of the following areas or their equivalents: States, counties, places (and towns and townships in selected States) of 2,500 or more inhabitants, SCSSA's, SMSA's, urbanized areas, American Indian reservations, and Alaska Native villages. Selected tables show housing characteristics for rural-farm and rural-nonfarm residence at the State and county level.

Series HC80-2 Volume 2.

METROPOLITAN HOUSING CHARACTERISTICS

To be issued: This volume presents statistics on microfiche (tentatively, no printed reports planned) for most of
mid to late the 1980 housing census subjects in considerable detail and cross-classification. Most statistics are
1983 presented by race and Spanish origin for areas with at least a specified number of the relevant pop-
ulation groups. Data are shown for States or equivalent areas, SMSA's and their central cities, and
other cities of 50,000 or more inhabitants. There is one report for each SMSA, and one report for
each State, the District of Columbia, and Puerto Rico. The set includes a U.S. Summary report
showing these statistics for the United States and regions.

Series HC80-3 Volume 3.

SUBJECT REPORTS

To be issued: Each of the reports in this volume focuses on a particular subject. Detailed sample estimates and
beginning cross-tabulations of housing characteristics are provided on a national, regional, and divisional
1983 level. Separate reports are tentatively planned on housing of the elderly, mobile homes, and
American Indian households.

Note that the preparation of subject reports is dependent upon availability of funding in 1983.

Series HC80-4 Volume 4.

COMPONENTS OF INVENTORY CHANGE

To be issued: This volume consists of two reports presenting statistics on the 1980 characteristics of housing
Early 1983 units which existed in 1973, as well as on newly constructed units, conversions, mergers, demoli-
tions, and other additions and losses to the housing inventory between 1973 and 1980. These
reports present data derived from a sample survey conducted in the fall of 1980. Data are pre-
sented for the United States and regions. Some data are presented by inside and outside SMSA's
and central cities.

HC80-5 Volume 5.

RESIDENTIAL FINANCE

To be issued: This volume consists of one report presenting statistics on the financing of nonfarm homeowner,
mid 1983 rental and vacant properties, including characteristics of the mortgage, property, and owner. The
statistics are based on a sample survey conducted in the spring of 1981. Data are presented for the
United States and regions. Some data are presented by inside and outside SMSA's and central
cities.

HC80-SI-1 SUPPLEMENTARY REPORT—Selected Housing Characteristics by States and Counties: 1980

Issued: This report presents statistics from the 1980 Census of Housing on general characteristics of
10/81 housing units for the 50 States and the District of Columbia, counties, and independent cities.

1980 Census of Population and Housing

Evaluation and Reference Reports

Series PHC80-E **EVALUATION AND RESEARCH REPORTS**

Beginning These reports present the results of the extensive evaluation program conducted as an integral part
1983 of the 1980 census. This program relates to such matters as completeness of enumeration and
quality of the data on characteristics.

Series PHC80-R **REFERENCE REPORTS**

These reports present information on the various administrative and methodological aspects of the
1980 census. The series includes:

PHC80-R1 **Users' Guide.**

To be issued: This report covers subject content, procedures, geography, statistical products, limitations of the
beginning data, sources of user assistance, notes on data use, a glossary of terms, and guides for locating data
April 1982 in reports and tape files. The guide is issued in loose-leaf form and sold in parts (R1-A, -B, etc.) as
they are prepared.

PHC80-R2 **History.**

To be issued: This report describes in detail all phases of the 1980 census, from the earliest planning, and through
1984 all stages, to the dissemination of data and evaluation of results. It contains detailed discussions of
1980 census questions and their use in previous decennial censuses.

- PHC80-R3 Alphabetical Index of Industries and Occupations.**
 To be issued: This report was developed primarily for use in classifying responses to certain census questions beginning in 1980 with updates through 1983 relating to an employer's kind of business and an employee's kind of work. The index lists approximately 20,000 industry and 29,000 occupation titles in alphabetical order.
- PHC80-R4 Classified Index of Industries and Occupations.**
 To be issued: This report defines the industrial and occupational classifications adopted for the 1980 Census of Population. It presents the individual titles that constitute each of the 231 industry and 503 occupation categories in the classification systems. The individual titles are the same as those shown in the Alphabetical Index. The 1980 occupation classification reflects the new U.S. Standard Occupational Classification (SOC). As in the past, the 1980 industry classification also reflects the Standard Industrial Classification (SIC).
- PHC80-R5 Geographic Identification Code Scheme.**
 To be issued: This report identifies the names and related geographic codes for each State, county, minor civil division, place, region, division, SCSA, SMSA, American Indian reservation, and Alaska Native village for which the Census Bureau tabulated data from the 1980 census.

COMPUTER TAPES

Summary Tape Files—General

In addition to the printed and microfiche reports, results of the 1980 census also are provided on computer tape for the United States and Puerto Rico in the form of summary tape files (STF's). These data products have been designed to provide statistics with greater subject and geographic detail than is feasible or desirable to provide in printed and microfiche reports. The STF data are made available, subject to suppression of certain detail where necessary to protect confidentiality, at nominal cost.

There are five STF's, and the amount of geographic and subject detail presented varies. STF's 1 and 2 contain complete-count data, and STF's 3, 4, and 5 contain sample-estimate data. Note

that the term "cells" used below refers to the number of subject statistics provided for each geographic area, and the number of cells is indicative of the complexity of the subject content of the file.

Additionally, each of the STF's consists of a set of tapes with geographic coverage varying by file within the set. These are issued a State at a time, followed by the national level tapes. More complete descriptions of the STF's than given in the summaries below can be found in the technical documentation for the specific file, and in the *1980 Census of Population and Housing Users' Guide*.

Summary Tape Files

- STF 1** This file provides 321 cells of complete-count population and housing data. Data are summarized for the United States, regions, divisions, States, SCSA's, SMSA's, urbanized areas, congressional districts, counties, county subdivisions, places, census tracts, enumeration districts in unblocked areas, and blocks and block groups in blocked areas. This file set includes data shown in the PHC80-1, PHC80-3, and PC80-1-A reports.
- STF 2** This file contains 2,292 cells of detailed complete-count population and housing data, of which 962 are repeated for race and/or Spanish origin groups present in the tabulation area. Data are summarized for the United States, regions, divisions, States, SCSA's, urbanized areas, counties, county subdivisions, places of 1,000 or more inhabitants, census tracts, American Indian reservations, and Alaska Native villages. This file set includes data shown in the PHC80-2, PC80-1-B, and HC80-1-A reports.
- STF 3** This file contains 1,126 cells of population and housing data estimated from the sample for the same area as in STF 1, excluding blocks. This file set includes data shown in the PHC80-3 reports. In addition, the Census Bureau is exploring the possibility of producing STF 3 data for 5-digit ZIP Code areas on a cost-reimbursable, special-tabulation basis.
- STF 4** This file is the geographic counterpart of STF 2, but the number of cells of data is approximately three times greater. STF 4 provides detailed population and housing data estimated from the sample, some of which are repeated for race, Spanish origin, and ancestry groups. Data are summarized for areas similar to those shown for STF 2, except that data for places are limited to those with 2,500 or more inhabitants. This file set includes data shown in the PHC80-2, PC80-1-C, and HC80-1-B reports.

STF 5 This file contains over 100,000 cells of population and housing data estimated from the sample and provides highly detailed tabulations and cross-classifications for States, SMSA's, and counties and cities of 50,000 or more inhabitants. Most subjects are classified by race and Spanish origin. This file set includes data shown in the PC80-1-D and HC80-2 reports.

To be available:
mid to late 1983

Other Computer Tape Files

P.L. 94-171 In accordance with Public Law (P.L.) 94-171, the Census Bureau provided population tabulations to all States for legislative reapportionment/redistricting. The file was issued on a State-by-State basis. It contains the final population counts classified by race and Spanish origin. The data are tabulated for the following levels of geography as applicable: States, counties, county subdivisions, incorporated places, census tracts, block groups, and blocks or enumeration districts. For States participating in the voluntary program to define election precincts in conjunction with the Census Bureau, the data are also tabulated for election precincts.

Population Counts
Issued:
2/81-3/81

Master Area Reference File (MARF) This geographic reference file is an extract of STF 1 designed for those who require a master list of geographic codes and areas, along with basic census counts arranged hierarchically from the State down to the block group and enumeration district level and is issued on a State-by-State basis. The file contains records for States, counties, county subdivisions, places, census tracts, enumeration districts in unblocked areas, and block groups in blocked areas. Each record shows the total population by five race groups, population of Spanish origin, number of housing units, number of households, number of families, and a few other items.

To be available:
9/81-early
1982

**Geographic Base File/
Dual Independent Map
Encoding-GBF/DIME**
Beginning in 1978
periodic updates

These files are computerized representations of the Metropolitan Map Series, including address ranges and ZIP Codes, which generally cover the urbanized portions of SMSA's. GBF/DIME files are used to assign census geographic codes to addresses (geocoding). The files are issued by SMSA.

Public-Use Microdata Samples Public-use microdata samples are computerized files containing most population and housing characteristics as shown on a sample of individual census records. These files contain no names or addresses, and geographic identification is sufficiently broad to protect confidentiality.

To be available:
Fall 1982

There are three mutually exclusive samples, the A sample including 5 percent, and the B and C samples each including 1 percent of all persons and housing units. States and most large SMSA's will be identifiable on one or more of the files. Microdata files allow the user to prepare customized tabulations.

Census/EEO Special File In addition to the regular summary tape files, the Bureau plans to prepare a "Census/EEO Special File." This public-use computer file will provide sample census data with specified relevance to EEO and affirmative action uses. The file will contain two tabulations, one with detailed occupational data and the other with years of school completed by age. The data in both tabulations will be crossed by sex and Hispanic origin or race for non-Hispanics. These data will be provided for all counties, for all SMSA's, and for incorporated places with a population of 50,000 or more.

To be available:
Late 1982

MAPS

Maps necessary to define areas are generally published as part of the corresponding reports. Detailed map packages showing the blocks in the *1980 Census of Population and Housing Block Statistics* reports (PHC80-1) must be purchased separately. Maps necessary to define enumeration districts are available on a cost-of-reproduction basis.

MICROFICHE

Some of the computer tape products are available on microfiche. Like the summary tape file sets, the STF microfiche are issued a State at a time, followed by the national-level microfiche. These include:

STF 1A Microfiche—Data from the STF 1 file set are presented in tabular form for STF 1A summarization levels (block data from STF 1B are not included).

P.L. 94-171 Counts Microfiche—Data from the P.L. 94-171 file are presented in a listing format on microfiche. The microfiche was issued on a State-by-State basis.

APPENDIX C

URBAN TRANSPORTATION PLANNING PLACKAGE

1980 CENSUS

DETAILED
SPECIFICATIONS

Journey-to-Work and Migration
Statistics Branch
U.S. Bureau of the Census
November 3, 1981
Revised June 21, 1982

NOTE

The Urban Transportation Planning Package is a special tabulation of census data for individual standard metropolitan statistical areas (SMSA's) tailored to geographic areas that are used in transportation planning. Local transportation planning organizations submit specifications to the Census Bureau for the geographic detail required for their SMSA (i.e., traffic zones or census tracts), and the Bureau then produces a standard set of tabulations for those planning areas on a cost reimbursable basis. These specifications were prepared by an ad hoc committee of transportation planners, representing the Transportation Research Board's Committee on Information Systems and Data Requirements. Funding for the development of the UTPP Program is provided by the U.S. Department of Transportation.

URBAN TRANSPORTATION PLANNING PACKAGE

1980 CENSUS

<u>PART</u>	<u>DESCRIPTION</u>	<u>TABULATIONS</u>	<u>DATA ITEMS</u>
I	Tabulations by census tract or block group (or zone-special order) of residence.	29	773
II	Tabulations by large geographic areas of residence.	19	11,642
III	Tabulations by census tract (or zone-special order) of work.	14	517
IV	Tabulations by census tract of residence to census tract of work (or zone of residence to zone of work-special order).	3	30
V	Tabulations by block group of work (sub-totals to census tract of work or zone of work-special order).	7	107
VI	Tabulations by county of residence to county of work (includes 20 external counties with a large number of journey-to-work trips)	10	322
<hr/>		<hr/>	<hr/>
	TOTAL	82	13,391

6/10/82

PART I - TABULATIONS BY CENSUS TRACT OR BLOCK GROUP (OR ZONE-SPECIAL ORDER)
OF RESIDENCE

Subtotals By:

- (a) CBD
- (b) Central City
- (c) Area (Urbanized or Study)
- (d) Minor Civil Division (9 N.E. States only)
- (e) County
- (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS</u>
I-1.	Number of persons in households by sex and age	51
I-2.	Number of persons in group quarters by sex and age	51
I-3.	All persons by sex and age	51
I-4.	All persons by race and Spanish origin	8
I-5.	Number of persons 3 years old and over enrolled in school	6
I-6.	Number of workers by sex and occupation	36
I-7.	Number of workers by sex and industry	48
I-8.	Number of workers by sex and class of worker	15
I-9.	Number of households by size of household	10
I-10.	Number of households by number of workers in household	9
I-11.	Number of households by household income	12
I-12.	Number of vacant year-round housing units by duration of vacancy	7
I-13.	Number of year-round housing units by type of structure	10
I-14.	Number of households by number of automobiles available	5
I-15.	Number of households by number of trucks or vans available	5
I-16.	Number of households by number of vehicles (cars, trucks, or vans) available	5
I-17.	All workers not working at home by mean travel time, means of transportation, and carpooling	26
I-18.	All workers by means of transportation and carpooling	14
I-19.	All workers using a car, truck, or van, by carpool type and vehicle occupancy	40

PART I - (Continued)

I-20.	Number of vehicles (cars, trucks, or vans) used in travel to work	1
I-21.	Number of persons per vehicle	1
I-22.	Number of persons per carpool	1
I-23.	Number of workers by means of transportation and earnings	75
I-24.	Number of workers in households by means of transportation and household income	60
I-25.	Number of workers by means of transportation, race, and Spanish origin	40
I-26.	Number of workers by means of transportation, sex, and age	105
I-27.	Number of workers in households by means of transportation and number of vehicles (cars, trucks, or vans) available	25
I-28.	Noninstitutional population 16 years old and over with a disability by type of disability and age	42
I-29.	All workers with a public transportation disability by means of transportation and carpooling	14
		—
	TOTAL	773

I-1. SEX (3) BY AGE (17)

Data
Items

Universe: All Persons in Households

51

All persons in households:
(Repeat Age)

Male:

All ages

Under 6 years

6-13 years

14-15 years

16-18 years

19-20 years

21-24 years

25-34 years

35-44 years

45-54 years

55-59 years

60-61 years

62-64 years

65-74 years

75 years and over

Median

Mean

Female:

(Repeat Age)

I-2. SEX (3) BY AGE (17)

Data
Items

Universe: All Persons in Group Quarters

51

All persons in group quarters:
(Repeat Age)

Male:

All ages

Under 6 years

6-13 years

14-15 years

16-18 years

19-20 years

21-24 years

25-34 years

35-44 years

45-54 years

55-59 years

60-61 years

62-64 years

I-2. SEX (3) BY AGE (17) - Continued

65-74 years
75 years and over
Median
Mean

Female:
(Repeat Age)

I-3. SEX (3) BY AGE (17)

Universe: All persons

All persons:
(Repeat Age)

Male:

All ages
Under 6 years
6-13 years
14-15 years
16-18 years
19-20 years
21-24 years
25-34 years
35-44 years
45-54 years
55-59 years
60-61 years
62-64 years
65-74 years
75 years and over
Median
Mean

Female:
(Repeat Age)

I-4. RACE AND SPANISH ORIGIN (8)

Universe: All persons

All persons

White
Black
American Indian, Eskimo, and Aleut
Asian and Pacific Islander
Other races

Spanish origin
Not of Spanish origin

Data
Items

51

Data
Items

8

I-5. SCHOOL ENROLLMENT (6)	<u>Data Items</u>
Universe: All Persons 3 Years Old and Over Enrolled in School	6
Total enrolled, 3 years old and over Nursery School Kindergarten Elementary High school College	
I-6. SEX (3) BY OCCUPATION (12)	<u>Data Items</u>
Universe: All Workers	36
All workers (Repeat Occupation)	
Male	
In civilian labor force, at work Executive, administrative, and managerial occupations Professional specialty occupations Technicians and related support occupations Sales occupations Administrative support occupations, including clerical Service occupations Farming, forestry, and fishing occupations Precision products, craft, and repair occupations Operators, fabricators, and laborers Armed forces, at work	
Female	
(Repeat Occupation)	
I-7. SEX (3) BY INDUSTRY (16)	<u>Data Items</u>
Universe: All Workers	48
All workers (Repeat Industry)	
Male	
In civilian labor force, at work Agriculture, forestry, and fisheries Mining Construction Manufacturing Transportation, communications, and other public utilities Wholesale trade Retail trade	

I-7. SEX (3) BY INDUSTRY (16) - Continued

Finance, insurance, and real estate
Business and repair services
Personal services
Entertainment and recreation services
Professional and related services
Public administration
Armed forces, at work

Female
(Repeat Industry)

I-8. SEX (3) BY CLASS OF WORKER (5)

Data
Items

Universe: All Workers

15

All workers
Private wage and salary workers
Government workers
Self-employed workers
Unpaid family workers

Male
(Repeat Class of Worker)

Female
(Repeat Class of Worker)

I-9. SIZE OF HOUSEHOLD (10)

Data
Items

Universe: All Households

10

All households
1 person
2 persons
3 persons
4 persons
5 persons
6 persons
7 or more persons
Median
Mean

I-10	NUMBER OF WORKERS IN HOUSEHOLD (9)	<u>Data Items</u>
	Universe: All Households	9
	All households	
	No workers	
	1 worker	
	2 workers	
	3 workers	
	4 workers	
	5 or more workers	
	Median	
	Mean	
I-11.	HOUSEHOLD INCOME (12)	<u>Data Items</u>
	Universe: All Households	12
	All households	
	Less than \$5,000	
	\$5,000 to \$7,999	
	\$8,000 to \$9,999	
	\$10,000 to \$14,999	
	\$15,000 to \$19,999	
	\$20,000 to \$24,999	
	\$25,000 to \$34,999	
	\$35,000 to \$49,999	
	\$50,000 or more	
	Median	
	Mean	
I-12.	DURATION OF VACANCY (7)	<u>Data Items</u>
	Universe: All Vacant Year-Round Housing Units	7
	All vacant year-round housing units	
	Less than 1 month	
	1 up to 2 months	
	2 up to 6 months	
	6 up to 12 months	
	1 year up to 2 years	
	2 or more years	
I-13.	TYPE OF STRUCTURE (10)	<u>Data Items</u>
	Universe: All Year-Round Housing Units	10
	All year-round housing units	
	One family house-detached	
	One family house-attached	
	Building for 2-4 families	

I-13. TYPE OF STRUCTURE (10) - Continued

Building for 5-9 families
Building for 10-19 families
Building for 20-49 families
Building for 50 or more families
Mobile home or trailer
Other (boat, van, tent, etc.)

I-14. NUMBER OF AUTOMOBILES AVAILABLE (5)

Data
Items

Universe: All Households

5

All Households
No automobiles
1 automobile
2 automobiles
3 or more automobiles

I-15. NUMBER OF TRUCKS OR VANS AVAILABLE (5)

Data
Items

Universe: All Households

5

All households
No trucks or vans
1 truck or van
2 trucks or vans
3 or more trucks or vans

I-16. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) AVAILABLE (5)

Data
Items

Universe: All Households

5

All households
No vehicles
1 vehicle
2 vehicles
3 or more vehicles

I-17. MEAN (AVERAGE) TRAVEL TIME AND STANDARD DEVIATION (2) BY MEANS OF TRANSPORTATION AND CARPOOLING (13)

Data
Items

Universe: All Workers Not Working at Home

26

Mean travel time (minutes):
All workers not working at home
Car: drive alone
carpool
Truck or van: drive alone
carpool

I-17. MEAN (AVERAGE) TRAVEL TIME AND STANDARD DEVIATION (2) BY MEANS OF TRANSPORTATION AND CARPOOLING (13) - Continued

Bus or streetcar
 Railroad
 Subway or elevated
 Taxicab
 Motorcycle
 Bicycle
 Walked only
 Other means

Standard deviation:
 (Repeat Means of Transportation and Carpooling)

I-18. MEANS OF TRANSPORTATION AND CARPOOLING (14)

Data
 Items

Universe: All Workers

14

All workers
 Car: drive alone
 carpool
 Truck or van: drive alone
 carpool
 Bus or streetcar
 Railroad
 Subway or elevated
 Taxicab
 Motorcycle
 Bicycle
 Walked only
 Worked at home
 Other means

I-19. CARPOOL TYPE (5) BY VEHICLE OCCUPANCY (8)

Data
 Items

Universe: All Workers Using a Car, Truck, or Van

40

All workers using a car, truck, or van
 Drive alone
 In 2-person carpools
 In 3-person carpools
 In 4-person carpools
 In 5-person carpools
 In 6-person carpools
 In 7-or-more person carpools

Drive alone
 (Repeat Vehicle Occupancy)

Share driving
 (Repeat Vehicle Occupancy)

I-19. CARPOOL TYPE (5) BY VEHICLE OCCUPANCY (8) - Continued

Drive others only
(Repeat Vehicle Occupancy)

Ride as passenger only
(Repeat Vehicle Occupancy)

I-20. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) USED IN TRAVEL TO WORK (1)

Data
Items

Number of vehicles = (Total workers who drive alone) +
(Total workers in 2-person carpools x .5) +
(Total workers in 3-person carpools x .3333) +
(Total workers in 4-person carpools x .25) +
(Total workers in 5-person carpools x .2) +
(Total workers in 6-person carpools x .1666) +
(Total workers in 7-or-more person carpools x .1428)

1

I-21. PERSONS PER VEHICLE (1)

Data
Items

No. of workers using a car, truck, or van
No. of vehicles used in travel to work

1

I-22. PERSONS PER CARPOOL (1)

Data
Items

No. of workers who share driving, drive others only, or ride as passenger only
No. of carpool vehicles used in travel to work (Total vehicles minus vehicles of workers who drive alone)

1

I-23. MEANS OF TRANSPORTATION (5) BY EARNINGS (15)

Data
Items

Universe: All Workers

75

All workers
Without earnings
With earnings
\$1 to \$2,999
\$3,000 to \$4,999
\$5,000 to \$7,999
\$8,000 to \$9,999
\$10,000 to \$14,999
\$15,000 to \$19,999
\$20,000 to \$24,999
\$25,000 to \$34,999
\$35,000 to \$49,999
\$50,000 or more
Median
Mean

I-23. MEANS OF TRANSPORTATION (5) BY EARNINGS (15) - Continued

Car, truck, or van
(Repeat Earnings)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)
(Repeat Earnings)

Bicycle, walked only, or worked at home
(Repeat Earnings)

Other means (motorcycle or other means)
(Repeat Earnings)

I-24. MEANS OF TRANSPORTATION (5) BY HOUSEHOLD INCOME (12)

Data
Items

Universe: All Workers in Households

60

All workers

Less than \$5,000
\$5,000 to \$7,999
\$8,000 to \$9,999
\$10,000 to \$14,999
\$15,000 to \$19,999
\$20,000 to \$24,999
\$25,000 to \$34,999
\$35,000 to \$49,999
\$50,000 or more
Median
Mean

Car, truck, or van
(Repeat Household Income)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)
(Repeat Household Income)

Bicycle, walked only, or worked at home
(Repeat Household Income)

Other means (motorcycle or other means)
(Repeat Household Income)

I-25. MEANS OF TRANSPORTATION (5) BY RACE AND SPANISH ORIGIN (8)

Data
Items

Universe: All Workers

40

All workers

White

Black

American Indian, Eskimo, and Aleut

Asian and Pacific Islander

Other races

Spanish origin

Not Spanish origin

Car, Truck, or Van

(Repeat Race and Spanish Origin)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)

(Repeat Race and Spanish Origin)

Bicycle, walked only, or worked at home

(Repeat Race and Spanish Origin)

Other means (motorcycle or other means)

(Repeat Race and Spanish Origin)

I-26. MEANS OF TRANSPORTATION (5) BY SEX (3) BY AGE (7)

Data
Items

Universe: All Workers

105

All workers

16-20 years

21-44 years

45-59 years

60-61 years

62-64 years

65 years and over

Male

(Repeat Age)

Female

(Repeat Age)

Car, truck, or van

(Repeat same as for All workers)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)

(Repeat same as for All workers)

Bicycle, walked only, or worked at home

(Repeat same as for All workers)

I-26. MEANS OF TRANSPORTATION (5) BY SEX (3) BY AGE (7) - Continued

Other means (motorcycle or other means)
(Repeat same as for All workers)

I-27. MEANS OF TRANSPORTATION (5) BY NUMBER OF VEHICLES
(CARS, TRUCKS, OR VANS) AVAILABLE (5)

Data
Items

Universe: All Workers in Households

25

All workers in households

No vehicles

1 vehicle

2 vehicles

3 or more vehicles

Car, Truck, or Van

(Repeat Number of Vehicles Available)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)

(Repeat Number of Vehicles Available)

Bicycle, walked only, or worked at home

(Repeat Number of Vehicles Available)

Other means (motorcycle or other means)

(Repeat Number of Vehicles Available)

I-28. TYPE OF DISABILITY (6) BY AGE (7)

Universe: Non-Institutioned Population 16 Years and over
with a Disability

I-28. TYPE OF DISABILITY (6) BY AGE (7) - Continued

Persons 16 years old and over with a disability
(work disability and/or public transportation disability)

16-20 years
21-44 years
45-59 years
60-61 years
62-64 years
65 years and over

With a public transportation disability and a work disability
that prevents working
(Repeat Age)

With a public transportation disability and a work disability
that does not prevent working
(Repeat Age)

With a public transportation disability but no work disability
(Repeat Age)

With no public transportation disability but with a work
disability that prevents working
(Repeat Age)

With no public transportation disability but with a work
disability that does not prevent working
(Repeat Age)

I-29. MEANS OF TRANSPORTATION AND CARPOOLING (14)

Data
Items

Universe: All Workers With a Public Transportation Disability

14

All workers with a public transportation disability

Car: drive alone
carpool
Truck or van: drive alone
carpool
Bus or streetcar
Railroad
Subway or elevated
Taxicab
Motorcycle
Bicycle
Walked only
Worked at home
Other means

PART II - TABULATIONS BY LARGE GEOGRAPHIC AREAS OF RESIDENCE

- Tabulations By:
 (a) CBD (optional)
 (b) Central City
 (c) Area (Urbanized or Study)
 (d) Minor Civil Division (9 N.E. States only)
 (e) County
 (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS</u>
II-1.	Number of workers by race, Spanish origin, earnings, means of transportation, and carpooling	1,680
II-2.	Number of workers by means of transportation, carpooling, and class of worker	70
II-3.	Number of workers by age, earnings, means of transportation, and carpooling	1,470
II-4.	Number of workers not working at home by travel time and means of transportation	470
II-5.	Number of workers in households by household income, size of household, means of transportation, and carpooling	1,344
II-6.	Number of workers in households by household income, number of vehicles (cars, trucks, or vans) available, means of transportation, and carpooling	840
II-7.	Number of workers in households by sex, number of workers per household, number of vehicles (cars, trucks, or vans) available, means of transportation, and carpooling	1,050
II-8.	Number of workers in households by race and Spanish origin, household income, and number of vehicles (cars, trucks, or vans) available	480
II-9.	Number of workers in households who use a car, truck, or van, by vehicle occupancy, household income, and size of household	768
II-10.	Number of workers in households who use a car, truck, or van by vehicle occupancy, size of household, and number of vehicles (cars, trucks, or vans) available	320
II-11.	Number of workers in households who use a car, truck, or van by vehicle occupancy, household income, and number of vehicles (cars, trucks, or vans) available	480
II-12.	Number of workers who use a car, truck, or van by sex, carpool type, and vehicle occupancy	120

PART II - (Continued)

II-13.	Number of households by type of structure, household income, and size of household	960
II-14.	Number of households by number of automobiles available, household income, and size of household	480
II-15.	Number of households by number of trucks or vans available, household income, and size of household	480
II-16.	Number of households by number of vehicles (cars, trucks, or vans) available, household income, and size of household	480
II-17.	Number of households by type of structure and number of automobiles available	50
II-18.	Number of households by type of structure and number of trucks or vans available	50
II-19.	Number of households by type of structure and number of vehicles (cars, trucks, or vans) available	50
	TOTAL	<hr/> 11,642

II-1. RACE AND SPANISH ORIGIN (8) BY EARNINGS (15) BY MEANS
OF TRANSPORTATION AND CARPOOLING (14)

Data
Items

Universe: All Workers

1,680

All workers:

Total, earnings
(Repeat Means of Transportation and Carpooling)

Without earnings

Car: drive alone
carpool

Truck or van: drive alone
carpool

Bus or streetcar

Railroad

Subway or elevated

Taxicab

Motorcycle

Bicycle

Walked only

Worked at home

Other means

With earnings

(Repeat Means of Transportation and Carpooling)

\$1-\$2,999

(Repeat Means of Transportation and Carpooling)

\$3,000-\$4,999

(Repeat Means of Transportation and Carpooling)

\$5,000-\$7,999

(Repeat Means of Transportation and Carpooling)

\$8,000-\$9,999

(Repeat Means of Transportation and Carpooling)

\$10,000-\$14,999

(Repeat Means of Transportation and Carpooling)

\$15,000-\$19,999

(Repeat Means of Transportation and Carpooling)

\$20,000-\$24,999

(Repeat Means of Transportation and Carpooling)

\$25,000-\$34,999

(Repeat Means of Transportation and Carpooling)

\$35,000-\$49,999

(Repeat Means of Transportation and Carpooling)

\$50,000 or more

(Repeat Means of Transportation and Carpooling)

II-1. RACE AND SPANISH ORIGIN (8) BY EARNINGS (15) BY MEANS OF TRANSPORTATION AND CARPOOLING (14) - Continued

Median
(Repeat Means of Transportation and Carpooling)

Mean
(Repeat Means of Transportation and Carpooling)

White:
(Repeat same as for All workers)

Black:
(Repeat same as for All workers)

American Indian, Eskimo, and Aleut:
(Repeat same as for All workers)

Asian and Pacific Islander:
(Repeat same as for All workers)

Other races:
(Repeat same as for All workers)

Spanish origin:
(Repeat same as for All workers)

Not of Spanish origin:
(Repeat same as for All workers)

II-2. MEANS OF TRANSPORTATION AND CARPOOLING (14) BY CLASS OF WORKER (5)

Data
Items

Universe: All Workers

70

All workers
Private wage and salary workers
Government workers
Self-employed workers
Unpaid family workers

Car: drive alone
(Repeat Class of Worker)

Car: carpool
(Repeat Class of Worker)

Truck or van: drive alone
(Repeat Class of Worker)

Truck or van: carpool
(Repeat Class of Worker)

II-2. MEANS OF TRANSPORTATION AND CARPOOLING (14) BY CLASS OF WORKER (5) - Continued

Bus or streetcar
(Repeat Class of Worker)

Railroad
(Repeat Class of Worker)

Subway or elevated
(Repeat Class of Worker)

Taxicab
(Repeat Class of Worker)

Motorcycle
(Repeat Class of Worker)

Bicycle
(Repeat Class of Worker)

Walked only
(Repeat Class of Worker)

Worked at home
(Repeat Class of Worker)

Other means
(Repeat Class of Worker)

II-3. AGE (7) BY EARNINGS (15) BY MEANS OF TRANSPORTATION AND CARPOOLING (14)

Data
Items

Universe: All Workers

1,470

All Workers:

Total, earnings
(Repeat Means of Transportation and Carpooling)

Without earnings

Car: drive alone
carpool

Truck or van: drive alone
carpool

Bus or streetcar

Railroad

Subway or elevated

Taxicab

Motorcycle

Bicycle

Walked only

Worked at home

Other means

II-3. AGE (7) BY EARNINGS (15) BY MEANS OF TRANSPORTATION
AND CARPOOLING (14) - Continued

With earnings
(Repeat Means of Transportation and Carpooling)

\$1-\$2,999
(Repeat Means of Transportation and Carpooling)

\$3,000-\$4,999
(Repeat Means of Transportation and Carpooling)

\$5,000-\$7,999
(Repeat Means of Transportation and Carpooling)

\$8,000-\$9,999
(Repeat Means of Transportation and Carpooling)

\$10,000-\$14,999
(Repeat Means of Transportation and Carpooling)

\$15,000-\$19,999
(Repeat Means of Transportation and Carpooling)

\$20,000-\$24,999
(Repeat Means of Transportation and Carpooling)

\$25,000-\$34,999
(Repeat Means of Transportation and Carpooling)

\$35,000-\$49,999
(Repeat Means of Transportation and Carpooling)

\$50,000 or more
(Repeat Means of Transportation and Carpooling)

Median
(Repeat Means of Transportation and Carpooling)

Mean
(Repeat Means of Transportation and Carpooling)

16-20 years:
(Repeat same as for All Workers)

21-44 years:
(Repeat same as for All Workers)

45-59 years:
(Repeat same as for All Workers)

60-61 years:
(Repeat same as for All Workers)

62-64 years:
(Repeat same as for All Workers)

65 years and over:
(Repeat same as for All Workers)

II-4. TRAVEL TIME (94) BY MEANS OF TRANSPORTATION (5)

Data
Items

Universe: All Workers Not Working at Home

470

All workers not working at home
(Repeat Means of Transportation)

1 minute

Car, truck, or van
Public transportation (bus or streetcar, railroad,
subway or elevated, taxicab)
Bicycle or walked only
Motorcycle or other means

2 minutes

(Repeat Means of Transportation)

3 minutes

(Repeat Means of Transportation)

.
.
.

90 minutes

(Repeat Means of Transportation)

91 or more minutes

(Repeat Means of Transportation)

Median

(Repeat Means of Transportation)

Mean

(Repeat Means of Transportation)

II-5. HOUSEHOLD INCOME (12) BY SIZE OF HOUSEHOLD (8) BY
MEANS OF TRANSPORTATION AND CARPOOLING (14)

Data
Items

Universe: All Workers in Households

1,344

All workers in households:

Total, size of household
(Repeat Means of Transportation and Carpooling)

1 person

Car: drive alone
carpool
Truck or van: drive alone
carpool
Bus or streetcar
Railroad

II-5. HOUSEHOLD INCOME (12) BY SIZE OF HOUSEHOLD (8) BY
MEANS OF TRANSPORTATION AND CARPOOLING (14) - Continued

Subway or elevated
Taxicab
Motorcycle
Bicycle
Walked only
Worked at home
Other means

2 persons
(Repeat Means of Transportation and Carpooling)

3 persons
(Repeat Means of Transportation and Carpooling)

4 persons
(Repeat Means of Transportation and Carpooling)

5 persons
(Repeat Means of Transportation and Carpooling)

6 persons
(Repeat Means of Transportation and Carpooling)

7 or more persons
(Repeat Means of Transportation and Carpooling)

Less than \$5,000:
(Repeat same as for All workers in households)

\$5,000-\$7,999:
(Repeat same as for All workers in households)

\$8,000-\$9,999:
(Repeat same as for All workers in households)

\$10,000-\$14,999:
(Repeat same as for All workers in households)

\$15,000-\$19,999:
(Repeat same as for All workers in households)

\$20,000-\$24,999:
(Repeat same as for All workers in households)

\$25,000-\$34,999:
(Repeat same as for All workers in households)

\$35,000-\$49,999:
(Repeat same as for All workers in households)

\$50,000 or more:
(Repeat same as for All workers in households)

II-5. HOUSEHOLD INCOME (12) BY SIZE OF HOUSEHOLD (8) BY
MEANS OF TRANSPORTATION AND CARPOOLING (14) - Continued

Median:
(Repeat same as for All workers in households)

Mean:
(Repeat same as for All workers in households)

II-6. HOUSEHOLD INCOME (12) BY NUMBER OF VEHICLES
(CARS, TRUCKS, OR VANS) AVAILABLE (5) BY
MEANS OF TRANSPORTATION AND CARPOOLING (14)

Data
Items

840

Universe: All Workers In Households

All workers in households:

Total, number of vehicles available
(Repeat Means of Transportation and Carpooling)

No vehicles

Car: drive alone
carpool

Truck or van: drive alone
carpool

Bus or streetcar

Railroad

Subway or elevated

Taxicab

Motorcycle

Bicycle

Walked only

Worked at home

Other means

1 vehicle

(Repeat Means of Transportation and Carpooling)

2 vehicles

(Repeat Means of Transportation and Carpooling)

3 vehicles

(Repeat Means of Transportation and Carpooling)

Less than \$5,000:

(Repeat same as for All workers in households)

\$5,000-\$7,999:

(Repeat same as for All workers in households)

\$8,000-\$9,999:

(Repeat same as for All workers in households)

II-6. HOUSEHOLD INCOME (12) BY NUMBER OF VEHICLES
 (CARS, TRUCKS, OR VANS) AVAILABLE (5) BY
 MEANS OF TRANSPORTATION AND CARPOOLING (14) - Continued

\$10,000-\$14,999:
 (Repeat same as for All workers in households)

\$15,000-\$19,999:
 (Repeat same as for All workers in households)

\$20,000-\$24,999:
 (Repeat same as for All workers in households)

\$25,000-\$34,999:
 (Repeat same as for All workers in households)

\$35,000-\$49,999:
 (Repeat same as for All workers in households)

\$50,000 or more:
 (Repeat same as for All workers in households)

Median:
 (Repeat same as for All workers in households)

Mean:
 (Repeat same as for All workers in households)

II-7. SEX (3) BY NUMBER OF WORKERS PER HOUSEHOLD (5)
 BY NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS)
 AVAILABLE (5) BY MEANS OF TRANSPORTATION AND
 CARPOOLING (14)

Data
Items

1,050

Universe: All Workers in Households

All workers in households:

- Total, workers per household
- Total, number of vehicles available
 - Car: drive alone
 - carpool
 - Truck: drive alone
 - carpool
 - Bus or streetcar
 - Railroad
 - Subway or elevated
 - Taxicab
 - Motorcycle
 - Bicycle
 - Walked only
 - Worked at home
 - Other means

No vehicles
 (Repeat Means of Transportation and Carpooling)

II-7. SEX (3) BY NUMBER OF WORKERS PER HOUSEHOLD (5)
BY NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS)
AVAILABLE (5) BY MEANS OF TRANSPORTATION AND
CARPOOLING (14) - Continued

1 vehicle
(Repeat Means of Transportation and Carpooling)

2 vehicles
(Repeat Means of Transportation and Carpooling)

3 or more vehicles
(Repeat Means of Transportation and Carpooling)

1 worker
(Repeat same as for Total, workers per household)

2 workers
(Repeat same as for Total, workers per household)

3 workers
(Repeat same as for Total, workers per household)

4 or more workers
(Repeat same as for Total, workers per household)

Male:
(Repeat same as for All workers in households)

Female:
(Repeat same as for All workers in households)

II-8. RACE AND SPANISH ORIGIN (8) BY HOUSEHOLD INCOME (12)
BY NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) AVAILABLE (5)

Data
Items

Universe: All Workers in Households

480

All workers in households:
Total, household income
(Repeat Number of Vehicles Available)

Less than \$5,000
No vehicles
1 vehicle
2 vehicles
3 or more vehicles

\$5,000-\$7,999
(Repeat Number of Vehicles Available)

\$8,000-\$9,999
(Repeat Number of Vehicles Available)

II-8. RACE AND SPANISH ORIGIN (8) BY HOUSEHOLD INCOME (12)
BY NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) AVAILABLE (5) - Continued

\$10,000-\$14,999

(Repeat Number of Vehicles Available)

\$15,000-\$19,999

(Repeat Number of Vehicles Available)

\$20,000-\$24,999

(Repeat Number of Vehicles Available)

\$25,000-\$34,999

(Repeat Number of Vehicles Available)

\$35,000-\$49,999

(Repeat Number of Vehicles Available)

\$50,000 or more

(Repeat Number of Vehicles Available)

Median

(Repeat Number of Vehicles Available)

Mean

(Repeat Number of Vehicles Available)

White:

(Repeat same as for All workers in households)

Black:

(Repeat same as for All workers in households)

American Indian, Eskimo, and Aleut:

(Repeat same as for All workers in households)

Asian and Pacific Islander:

(Repeat same as for All workers in households)

Other races:

(Repeat same as for All workers in households)

Spanish Origin:

(Repeat same as for All workers in households)

Not of Spanish origin:

(Repeat same as for All workers in households)

II-9. VEHICLE OCCUPANCY (8) BY HOUSEHOLD INCOME (12)
BY SIZE OF HOUSEHOLD (8)

Data
Items

Universe: All Workers in Households Who Use a
Car, Truck, or Van

768

All workers in households who use a car, truck, or van:

Total, household income
(Repeat Size of Household)

Less than \$5,000

- 1 person
- 2 persons
- 3 persons
- 4 persons
- 5 persons
- 6 persons
- 7 or more persons

\$5,000-\$7,999
(Repeat Size of Household)

\$8,000-\$9,999
(Repeat Size of Household)

\$10,000-\$14,999
(Repeat Size of Household)

\$15,000-\$19,999
(Repeat Size of Household)

\$20,000-\$24,999
(Repeat Size of Household)

\$25,000-\$34,999
(Repeat Size of Household)

\$35,000-\$49,999
(Repeat Size of Household)

\$50,000 or more
(Repeat Size of Household)

Median
(Repeat Size of Household)

Mean
(Repeat Size of Household)

Drive alone:
(Repeat same as for All workers in households who use a car, truck, or van)

II-9. VEHICLE OCCUPANCY (8) BY HOUSEHOLD INCOME (12)
BY SIZE OF HOUSEHOLD (8) - Continued

In 2-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 3-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 4-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 5-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 6-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 7-or-more person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

II-10. VEHICLE OCCUPANCY (8) BY SIZE OF HOUSEHOLD (8) BY NUMBER
OF VEHICLES (CARS, TRUCKS, OR VANS) AVAILABLE (5)

Data
Items

Universe: All Workers in Households Who Use
a Car, Truck, or Van

320

All workers in households who use a car, truck, or van:

Total, size of household

(Repeat Number of Vehicles Available)

1 person

No vehicles

1 vehicle

2 vehicles

3 or more vehicles

2 persons

(Repeat Number of Vehicles Available)

3 persons

(Repeat Number of Vehicles Available)

4 persons

(Repeat Number of Vehicles Available)

5 persons

(Repeat Number of Vehicles Available)

6 persons

(Repeat Number of Vehicles Available)

7 or more persons

(Repeat Number of Vehicles Available)

II-10. VEHICLE OCCUPANCY (8) BY SIZE OF HOUSEHOLD (8) BY NUMBER
OF VEHICLES (CARS, TRUCKS, OR VANS) AVAILABLE (5) - Continued

Drive alone:

(Repeat same as for All workers in households who use a car, truck, or van)

In 2-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 3-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 4-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 5-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 6-person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

In 7-or-more person carpool:

(Repeat same as for All workers in households who use a car, truck, or van)

II-11. VEHICLE OCCUPANCY (8) BY HOUSEHOLD INCOME (12)
BY NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS)
AVAILABLE (5)

Data
Items

480

Universe: All Workers in Households Who Use
a Car, Truck, or Van

All workers in households who use a car, truck, or van:

Total, household income

(Repeat Number of Vehicles Available)

Less than \$5,000

No vehicles

1 vehicle

2 vehicles

3 or more vehicles

\$5,000-\$7,999

(Repeat Number of Vehicles Available)

\$8,000-\$9,999

(Repeat Number of Vehicles Available)

\$10,000-\$14,999

(Repeat Number of Vehicles Available)

\$15,000-\$19,999

(Repeat Number of Vehicles Available)

\$20,000-\$24,999

(Repeat Number of Vehicles Available)

II-11. VEHICLE OCCUPANCY (8) BY HOUSEHOLD INCOME (12)
 BY NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS)
 AVAILABLE (5) - Continued

\$25,000-\$34,999
 (Repeat Number of Vehicles Available)

\$35,000-\$49,999
 (Repeat Number of Vehicles Available)

\$50,000 or more
 (Repeat Number of Vehicles Available)

Median
 (Repeat Number of Vehicles Available)

Mean
 (Repeat Number of Vehicles Available)

Drive alone:
 (Repeat same as for All workers in households who use a car, truck, or van)

In 2-person carpool:
 (Repeat same as for All workers in households who use a car, truck, or van)

In 3-person carpool:
 (Repeat same as for All workers in households who use a car, truck, or van)

In 4-person carpool:
 (Repeat same as for All workers in households who use a car, truck, or van)

In 5-person carpool:
 (Repeat same as for All workers in households who use a car, truck, or van)

In 6-person carpool:
 (Repeat same as for All workers in households who use a car, truck, or van)

In 7-or-more person carpool:
 (Repeat same as for All workers in households who use a car, truck, or van)

II-12. SEX (3) BY CARPOOL TYPE (5) BY VEHICLE OCCUPANCY (8)

Data
Items

Universe: All Workers Who Use a Car, Truck, or Van

120

All workers who use a car, truck, or van:
 Total, carpool type
 (Repeat Vehicle Occupancy)

- Drive alone
- Drive alone
- In 2-person carpool
- In 3-person carpool
- In 4-person carpool
- In 5-person carpool
- In 6-person carpool
- In 7-or-more person carpool

II-12. SEX (3) BY CARPOOL TYPE (5) BY VEHICLE OCCUPANCY (8) - Continued

Share driving
(Repeat Vehicle Occupancy)

Drive others only
(Repeat Vehicle Occupancy)

Ride as passenger only
(Repeat Vehicle Occupancy)

Male:
(Repeat same as for All workers who use a car, truck, or van)

Female:
(Repeat same as for All workers who use a car, truck, or van)

II-13. TYPE OF STRUCTURE (10) BY HOUSEHOLD INCOME (12)
BY SIZE OF HOUSEHOLD (8)

Data
Items

Universe: All Households

960

All households:
Total, household income
(Repeat Size of Household)

Less than \$5,000
1 person
2 persons
3 persons
4 persons
5 persons
6 persons
7 or more persons

\$5,000-\$7,999
(Repeat Size of Household)

\$8,000-\$9,999
(Repeat Size of Household)

\$10,000-\$14,999
(Repeat Size of Household)

\$15,000-\$19,999
(Repeat Size of Household)

\$20,000-\$24,999
(Repeat Size of Household)

\$25,000-\$34,999
(Repeat Size of Household)

II-13. TYPE OF STRUCTURE (10) BY HOUSEHOLD INCOME (12)
BY SIZE OF HOUSEHOLD (8) - Continued

\$35,000-\$49,999
(Repeat Size of Household)

\$50,000 or more
(Repeat Size of Household)

Median
(Repeat Size of Household)

Mean
(Repeat Size of Household)

1 family house-detached:
(Repeat same as for All households)

1 family house-attached:
(Repeat same as for All households)

Building for 2-4 families:
(Repeat same as for All households)

Building for 5-9 families:
(Repeat same as for All households)

Building for 10-19 families:
(Repeat same as for All households)

Building for 20-49 families:
(Repeat same as for All households)

Building for 50 or more families:
(Repeat same as for All households)

Mobile home or trailer:
(Repeat same as for All households)

Other (boat, van, tent, etc.):
(Repeat same as for All households)

II-14. NUMBER OF AUTOMOBILES AVAILABLE (5) BY HOUSEHOLD
INCOME (12) BY SIZE OF HOUSEHOLD (8)

Data
Items

Universe: All Households

480

All households:
Total, household income
(Repeat Size of Household)

II-14. NUMBER OF AUTOMOBILES AVAILABLE (5) BY HOUSEHOLD
INCOME (12) BY SIZE OF HOUSEHOLD (8) - Continued

Less than \$5,000

- 1 person
- 2 persons
- 3 persons
- 4 persons
- 5 persons
- 6 persons
- 7 or more persons

\$5,000-\$7,999
(Repeat Size of Household)

\$8,000-\$9,999
(Repeat Size of Household)

\$10,000-\$14,999
(Repeat Size of Household)

\$15,000-\$19,999
(Repeat Size of Household)

\$20,000-\$24,999
(Repeat Size of Household)

\$25,000-\$34,999
(Repeat Size of Household)

\$35,000-\$49,999
(Repeat Size of Household)

\$50,000 or more
(Repeat Size of Household)

Median
(Repeat Size of Household)

Mean
(Repeat Size of Household)

No automobiles:
(Repeat same as for All households)

1 automobile:
(Repeat same as for All households)

2 automobiles:
(Repeat same as for All households)

3 or more automobiles:
(Repeat same as for All households)

II-15. NUMBER OF TRUCKS OR VANS AVAILABLE (5) BY
HOUSEHOLD INCOME (12) BY SIZE OF HOUSEHOLD (8)

Data
Items

Universe: All Households

480

All households:

Total, household income
(Repeat Size of Household)

Less than \$5,000

- 1 person
- 2 persons
- 3 persons
- 4 persons
- 5 persons
- 6 persons
- 7 or more persons

\$5,000-\$7,999
(Repeat Size of Household)

\$8,000-\$9,999
(Repeat Size of Household)

\$10,000-\$14,999
(Repeat Size of Household)

\$15,000-\$19,999
(Repeat Size of Household)

\$20,000-\$24,999
(Repeat Size of Household)

\$25,000-\$34,999
(Repeat Size of Household)

\$35,000-\$49,999
(Repeat Size of Household)

\$50,000 or more
(Repeat Size of Household)

Median
(Repeat Size of Household)

Mean
(Repeat Size of Household)

No trucks or vans:
(Repeat same as for All households)

1 truck or van:
(Repeat same as for All households)

II-15. NUMBER OF TRUCKS OR VANS AVAILABLE (5) BY
HOUSEHOLD INCOME (12) BY SIZE OF HOUSEHOLD (8) - Continued

2 trucks or vans:
(Repeat same as for All households)

3 or more trucks or vans:
(Repeat same as for All households)

II-16. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS)
AVAILABLE (5) BY HOUSEHOLD INCOME (12)
BY SIZE OF HOUSEHOLD (8)

Data
Items

480

Universe: All Households

All households:
Total, household income
(Repeat Size of Household)

Less than \$5,000
1 person
2 persons
3 persons
4 persons
5 persons
6 persons
7 or more persons

\$5,000-\$7,999
(Repeat Size of Household)

\$8,000-\$9,999
(Repeat Size of Household)

\$10,000-\$14,999
(Repeat Size of Household)

\$15,000-\$19,999
(Repeat Size of Household)

\$20,000-\$24,999
(Repeat Size of Household)

\$25,000-\$34,999
(Repeat Size of Household)

\$35,000-\$49,999
(Repeat Size of Household)

\$50,000 or more
(Repeat Size of Household)

Median
(Repeat Size of Household)

II-16. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS)
AVAILABLE (5) BY HOUSEHOLD INCOME (12)
BY SIZE OF HOUSEHOLD (8) - Continued

Mean
(Repeat Size of Household)

No vehicles:
(Repeat same as for All households)

1 vehicle:
(Repeat same as for All households)

2 vehicles:
(Repeat same as for All households)

3 or more vehicles:
(Repeat same as for All households)

II-17. TYPE OF STRUCTURE (10) BY NUMBER OF
AUTOMOBILES AVAILABLE (5)

Data
Items

Universe: All Households

50

All households
No automobiles
1 automobile
2 automobiles
3 or more automobiles

1 family house-detached
(Repeat Number of Automobiles Available)

1 family house-attached
(Repeat Number of Automobiles Available)

Building for 2-4 families
(Repeat Number of Automobiles Available)

Building for 5-9 families
(Repeat Number of Automobiles Available)

Building for 10-19 families
(Repeat Number of Automobiles Available)

Building for 20-49 families
(Repeat Number of Automobiles Available)

Building for 50 or more families
(Repeat Number of Automobiles Available)

Mobile home or trailer
(Repeat Number of Automobiles Available)

Other (boat, van, tent, etc.)
(Repeat Number of Automobiles Available)

II-18. TYPE OF STRUCTURE (10) BY NUMBER OF TRUCKS OR VANS AVAILABLE (5)

Data
Items

Universe: All Households

50

All households

No trucks or vans

1 truck or van

2 trucks or vans

3 or more trucks or vans

1 family house-detached

(Repeat Number of Trucks or Vans Available)

1 family house-attached

(Repeat Number of Trucks or Vans Available)

Building for 2-4 families

(Repeat Number of Trucks or Vans Available)

Building for 5-9 families

(Repeat Number of Trucks or Vans Available)

Building for 10-19 families

(Repeat Number of Trucks or Vans Available)

Building for 20-49 families

(Repeat Number of Trucks or Vans Available)

Building for 50 or more families

(Repeat Number of Trucks or Vans Available)

Mobile home or trailer

(Repeat Number of Trucks or Vans Available)

Other (boat, van, tent, etc.)

(Repeat Number of Trucks or Vans Available)

II-19. TYPE OF STRUCTURE (10) BY NUMBER OF VEHICLES
(CARS, TRUCKS, OR VANS) AVAILABLE (5)

Data
Items

Universe: All Households

50

All households

No vehicles

1 vehicle

2 vehicles

3 or more vehicles

1 family house-detached

(Repeat Number of Vehicles Available)

1 family house-attached

(Repeat Number of Vehicles Available)

Building for 2-4 families

(Repeat Number of Vehicles Available)

Building for 5-9 families

(Repeat Number of Vehicles Available)

Building for 10-19 families

(Repeat Number of Vehicles Available)

Building for 20-49 families

(Repeat Number of Vehicles Available)

Building for 50 or more families

(Repeat Number of Vehicles Available)

Mobile home or trailer

(Repeat Number of Vehicles Available)

Other (boat, van, tent, etc.)

(Repeat Number of Vehicles Available)

PART III - TABULATIONS BY CENSUS TRACT (OR ZONE-SPECIAL ORDER)
OF WORK

Subtotals By:

- (a) CBD
- (b) Central City
- (c) Area (Study)
- (d) Minor Civil Division (9 N.E. States only)
- (e) County
- (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS</u>
III-1.	Number of workers by sex and occupation	36
III-2.	Number of workers by sex and industry	48
III-3.	Number of workers by sex and class of worker	15
III-4.	Number of workers by means of transportation and earnings	75
III-5.	Number of workers by means of transportation and carpooling	14
III-6.	Number of workers not working at home by mean (average) travel time and standard deviation, means of transportation, and carpooling	26
III-7.	Number of workers by means of transportation, race, and Spanish origin	40
III-8.	Number of workers by means of transportation and sex	15
III-9.	Number of workers using a car, truck, or van by carpool type and vehicle occupancy	40
III-10.	Number of vehicles (cars, trucks, or vans) used in travel to work	1
III-11.	Number of persons per vehicle	1
III-12.	Number of persons per carpool	1
III-13.	Number of workers in households by number of workers per household, means of transportation, and household income	180
III-14.	Number of workers in households by means of transportation and number of vehicles (cars, trucks, or vans) available	25
TOTAL		517

III-1. SEX (3) BY OCCUPATION (12)

Data
Items

Universe: All Workers

36

All workers
(Repeat Occupation)

Male

In civilian labor force, at work
Executive, administrative, and managerial occupations
Professional specialty occupations
Technicians and related support occupations
Sales occupations
Administrative support occupations, including clerical
Service occupations
Farming, forestry, and fishing occupations
Precision products, craft, and repair occupations
Operators, fabricators, and laborers
Armed forces, at work

Female
(Repeat Occupation)

III-2. SEX (3) BY INDUSTRY (16)

Data
Items

Universe: All Workers

48

All workers
(Repeat Industry)

Male

In civilian labor force, at work
Agriculture, forestry, and fisheries
Mining
Construction
Manufacturing
Transportation, communications, and other public utilities
Wholesale trade
Retail trade
Finance, insurance, and real estate
Business and repair services
Personal services
Entertainment and recreation services
Professional and related services
Public administration
Armed forces, at work

Female
(Repeat Industry)

III-3. SEX (3) BY CLASS OF WORKER (5)

Data
Items

Universe: All Workers

15

All workers

- Private wage and salary workers
- Government workers
- Self-employed workers
- Unpaid family workers

Male

(Repeat Class of Worker)

Female

(Repeat Class of Worker)

III-4. MEANS OF TRANSPORTATION (5) BY EARNINGS (15)

Data
Items

Universe: All Workers

75

All workers

Without earnings

With earnings

- \$1 to \$2,999
- \$3,000 to \$4,999
- \$5,000 to \$7,999
- \$8,000 to \$9,999
- \$10,000 to \$14,999
- \$15,000 to \$19,999
- \$20,000 to \$24,999
- \$25,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 or more
- Median
- Mean

Car, truck, or van
(Repeat Earnings)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)
(Repeat Earnings)

Bicycle, walked only, or worked at home
(Repeat Earnings)

Other means (motorcycle or other means)
(Repeat Earnings)

III-5. MEANS OF TRANSPORTATION AND CARPOOLING (14)	<u>Data Items</u>
Universe: All Workers	14
All workers Car: drive alone carpool Truck or van: drive alone carpool Bus or streetcar Railroad Subway or elevated Taxicab Motorcycle Bicycle Walked only Worked at home Other means	
III-6. MEAN (AVERAGE) TRAVEL TIME AND STANDARD DEVIATION (2) BY MEANS OF TRANSPORTATION AND CARPOOLING (13)	<u>Data Items</u>
Universe: All Workers Not Working at Home	26
Mean travel time (minutes): All workers not working at home Car: drive alone carpool Truck or van: drive alone carpool Bus or streetcar Railroad Subway or elevated Taxicab Motorcycle Bicycle Walked only Other means	
Standard deviation: (Repeat Means of Transportation and Carpooling)	
III-7. MEANS OF TRANSPORTATION (5) BY RACE AND SPANISH ORIGIN (8)	<u>Data Items</u>
Universe: All Workers	40
All workers White Black American Indian, Eskimo, and Aleut Asian and Pacific Islander Other races	

III-7. MEANS OF TRANSPORTATION (5) BY RACE AND SPANISH ORIGIN (8) - Continued

Spanish origin
Not Spanish origin

Car, Truck, or Van
(Repeat Race and Spanish Origin)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)
(Repeat Race and Spanish Origin)

Bicycle, walked only, or worked at home
(Repeat Race and Spanish Origin)

Other means (motorcycle or other means)
(Repeat Race and Spanish Origin)

III-8. MEANS OF TRANSPORTATION (5) BY SEX (3)

Data
Items

Universe: All Workers

15

All workers
Car, truck; or van
Public transportation (bus or streetcar,
subway or elevated, railroad, or taxicab)
Bicycle, walked only, or worked at home
Other means (motorcycle or other means)

Male
(Repeat Means of Transportation)

Female
(Repeat Means of Transportation)

III-9. CARPOOL TYPE (5) BY VEHICLE OCCUPANCY (8)

Data
Items

Universe: All Workers Using a Car, Truck, or Van

40

All workers using a car, truck, or van
Drive alone
In 2-person carpools
In 3-person carpools
In 4-person carpools
In 5-person carpools
In 6-person carpools
In 7-or-more person carpools

Drive alone
(Repeat Vehicle Occupancy)

III-9. CARPOOL TYPE (5) BY VEHICLE OCCUPANCY (8) - Continued

Share driving
(Repeat Vehicle Occupancy)

Drive others only
(Repeat Vehicle Occupancy)

Ride as passenger only
(Repeat Vehicle Occupancy)

III-10. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) USED IN TRAVEL TO WORK (1)

Data
Items

Number of vehicles = (Total workers who drive alone) +
(Total workers in 2-person carpools x .5) +
(Total workers in 3-person carpools x .3333) +
(Total workers in 4-person carpools x .25) +
(Total workers in 5-person carpools x .2) +
(Total workers in 6-person carpools x .1666) +
(Total workers in 7-or-more person carpools x .1428)

1

III-11. PERSONS PER VEHICLE (1)

Data
Items

No. of workers using a car, truck, or van
No. of vehicles used in travel to work

1

III-12. PERSONS PER CARPOOL (1)

Data
Items

No. of workers who share driving, drive others only, or ride as passenger only
No. of carpool vehicles used in travel to work (Total vehicles minus vehicles of workers who drive alone)

1

III-13. NUMBER OF WORKERS PER HOUSEHOLD (3) BY MEANS OF TRANSPORTATION (5) BY HOUSEHOLD INCOME (12)

Data
Items

Universe: All Workers in Households

180

All workers in households:

Total, means of transportation

Less than \$5,000

\$5,000 to \$7,999

\$8,000 to \$9,999

\$10,000 to \$14,999

\$15,000 to \$19,999

\$20,000 to \$24,999

\$25,000 to \$34,999

\$35,000 to \$49,999

\$50,000 or more

Median

Mean

III-13. NUMBER OF WORKERS PER HOUSEHOLD (3) BY MEANS
OF TRANSPORTATION (5) BY HOUSEHOLD INCOME (12) - Continued

Car, truck, or van
(Repeat Household Income)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)
(Repeat Household Income)

Bicycle, walked only, or worked at home
(Repeat Household Income)

Other means (motorcycle or other means)
(Repeat Household Income)

1 worker:
(Repeat same as for All workers in households)

2 or more workers:
(Repeat same as for All workers in households)

III-14. MEANS OF TRANSPORTATION (5) BY NUMBER OF VEHICLES
(CARS, TRUCKS, OR VANS) AVAILABLE (5)

Data
Items

Universe: All Workers in Households

25

All workers in households
No vehicles
1 vehicle
2 vehicle
3 or more vehicles

Car, Truck, or Van
(Repeat Number of Vehicles Available)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)
(Repeat Number of Vehicles Available)

Bicycle, walked only, or worked at home
(Repeat Number of Vehicles Available)

Other means (motorcycle or other means)
(Repeat Number of Vehicles Available)

PART IV - TABULATIONS BY CENSUS TRACT OF RESIDENCE TO CENSUS TRACT OF WORK
(OR ZONE OF RESIDENCE TO ZONE OF WORK-SPECIAL ORDER)

Subtotals By:

- (a) CBD
- (b) Central City
- (c) Area (Urbanized (Residence Only) or Study)
- (d) Minor Civil Division (9 N.E. States only)
- (e) County
- (f) SMSA

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS</u>
IV-1.	Number of workers by means of transportation	14
IV-2	Number of workers not working at home by mean (average) travel time and means of transportation	13
IV-3.	Number of vehicles (cars, trucks, or vans) used in travel to work, number of persons per vehicle, and number of persons per carpool	3
	TOTAL	30

6/10/82

	<u>Data Items</u>
IV-1. MEANS OF TRANSPORTATION (14)	
Universe: All Workers	14
All workers	
Car, truck, or van:	
Drive alone	
Carpool:	
2-person carpool	
3-person carpool	
4-or-more person carpool	
Bus or streetcar	
Subway or elevated	
Railroad	
Taxicab	
Motorcycle	
Bicycle	
Walked only	
Worked at home	
Other means	
IV-2. MEAN (AVERAGE) TRAVELTIME BY MEANS OF TRANSPORTATION (13)	
Universe: All Workers Not Working at Home	13
Mean traveltime (minutes):	
All workers not working at home	
Car, truck, or van:	
Drive alone	
Carpool:	
2-person carpool	
3-person carpool	
4-or-more person carpool	
Bus or streetcar	
Subway or elevated	
Railroad	
Taxicab	
Motorcycle	
Bicycle	
Walked only	
Other means	
IV-3. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) USED IN TRAVEL TO WORK (1), PERSONS PER VEHICLE (1), AND PERSONS PER CARPOOL (1)	
Number of vehicles = (Total workers who drive alone) + (Total workers in 2-person carpools x .5) + (Total workers in 3-person carpools x .3333) + (Total workers in 4-person carpools x .25) + (Total workers in 5-person carpools x .2) + (Total workers in 6-person carpools x .1666) + (Total workers in 7-or-more person carpools x .1428)	3

IV-3. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) USED IN TRAVEL TO WORK (1), PERSONS PER VEHICLE (1), AND PERSONS PER CARPOOL (1) (Continued)

Persons per vehicle =

No. of workers using a car, truck, or van
No. of vehicles used in travel to work

Persons per carpool =

No. of workers who share driving, drive others only,
or ride as passenger only
No. of carpool vehicle used in travel to work (Total
vehicles minus vehicles of workers who drive alone)

PART V - TABULATIONS BY BLOCK GROUP OF WORK (SUB-TOTALS TO CENSUS TRACT OF WORK (OR ZONE OF WORK-SPECIAL ORDER))

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS</u>
V-1.	Number of workers by sex and occupation	36
V-2.	Number of workers by sex and industry	48
V-3.	Number of workers by sex and class of worker	15
V-4.	Number of workers by means of transportation	5
V-5.	Number of vehicles (cars, trucks, or vans) used in travel to work	1
V-6.	Number of persons per vehicle	1
V-7.	Number of persons per carpool	1
	TOTAL	<hr/> 107

V-1. SEX (3) BY OCCUPATION (12)

Data
Items

Universe: All Workers

36

All workers
(Repeat Occupation)

Male

In civilian labor force, at work
Executive, administrative, and managerial occupations
Professional specialty occupations
Technicians and related support occupations
Sales occupations
Administrative support occupations, including clerical
Service occupations
Farming, forestry, and fishing occupations
Precision products, craft, and repair occupations
Operators, fabricators, and laborers
Armed forces, at work

Female

(Repeat Occupation)

V-2. SEX (3) BY INDUSTRY (16)

Data
Items

Universe: All Workers

48

All workers
(Repeat Industry)

Male

In civilian labor force, at work
Agriculture, forestry, and fisheries
Mining
Construction
Manufacturing
Transportation, communications, and other public utilities
Wholesale trade
Retail trade
Finance, insurance, and real estate
Business and repair services
Personal services
Entertainment and recreation services
Professional and related services
Public administration
Armed forces, at work

Female

(Repeat Industry)

V-3. SEX (3) BY CLASS OF WORKER (5)	<u>Data Items</u>
Universe: All Workers	15
All workers	
Private wage and salary workers	
Government workers	
Self-employed workers	
Unpaid family workers	
Male	
(Repeat Class of Worker)	
Female	
(Repeat Class of Worker)	
V-4. MEANS OF TRANSPORTATION (5)	<u>Data Items</u>
Universe: All Workers	5
All workers:	
Car, truck, or van	
Public transportation (bus or streetcar, subway or elevated, railroad, or taxicab)	
Bicycle, walked only, or worked at home	
Other means (motorcycle or other means)	
V-5. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) USED IN TRAVEL TO WORK (1)	<u>Data Items</u>
Number of vehicles = (Total workers who drive alone) + (Total workers in 2-person carpools x .5) + (Total workers in 3-person carpools x .3333) + (Total workers in 4-person carpools x .25) + (Total workers in 5-person carpools x .2) + (Total workers in 6-person carpools x .1666) + (Total workers in 7-or-more person carpools x .1428)	1
V-6. PERSONS PER VEHICLE (1)	<u>Data Items</u>
<u>No. of workers using a car, truck, or van</u> No. of vehicles used in travel to work	1
V-7. PERSONS PER CARPOOL (1)	<u>Data Items</u>
<u>No. of workers who share driving, drive others only, or ride as passenger only</u> No. of carpool vehicles used in travel to work (Total vehicles minus vehicles of workers who drive alone)	1

PART VI - TABULATIONS BY COUNTY OF RESIDENCE TO COUNTY OF WORK (INCLUDES
20 EXTERNAL COUNTIES WITH A LARGE NUMBER OF JOURNEY-TO-WORK TRIPS)

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>DATA ITEMS</u>
VI-1.	Number of workers by sex and occupation	36
VI-2.	Number of workers by sex and industry	48
VI-3.	Number of workers by sex and class of worker	15
VI-4.	Number of workers by means of transportation and earnings	75
VI-5.	Number of workers by means of transportation, race, and Spanish origin	40
VI-6.	Number of workers by means of transportation and sex	15
VI-7.	Number of workers using a car, truck, or van, by carpool type	5
VI-8.	Number of vehicles (cars, trucks, or vans) used in travel to work, number of persons per vehicle, and number of persons per carpool	3
VI-9.	Number of workers in households by means of transportation and number of vehicles (cars, trucks, or vans) available	25
VI-10.	Number of workers in households by means of transportation and household income	60
TOTAL		322

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VI-1. SEX (3) BY OCCUPATION (12)

Data
Items

Universe: All Workers

36

All workers
(Repeat Occupation)

Male

In civilian labor force, at work
Executive, administrative, and managerial occupations
Professional specialty occupations
Technicians and related support occupations
Sales occupations
Administrative support occupations, including clerical
Service occupations
Farming, forestry, and fishing occupations
Precision products, craft, and repair occupations
Operators, fabricators, and laborers
Armed forces, at work

Female

(Repeat Occupation)

VI-2. SEX (3) BY INDUSTRY (16)

Data
Items

Universe: All Workers

48

All workers
(Repeat Industry)

Male

In civilian labor force, at work
Agriculture, forestry, and fisheries
Mining
Construction
Manufacturing
Transportation, communications, and other public utilities
Wholesale trade
Retail trade
Finance, insurance, and real estate
Business and repair services
Personal services
Entertainment and recreation services
Professional and related services
Public administration
Armed forces, at work

Female

(Repeat Industry)

VI-3. SEX (3) BY CLASS OF WORKER (5)

Data
Items

Universe: All Workers

15

All workers

Private wage and salary workers

Government workers

Self-employed workers

Unpaid family workers

Male

(Repeat Class of Worker)

Female

(Repeat Class of Worker)

VI-4. MEANS OF TRANSPORTATION (5) BY EARNINGS (15)

Data
Items

Universe: All Workers

75

All workers

Without earnings

With earnings

\$1 to \$2,999

\$3,000 to \$4,999

\$5,000 to \$7,999

\$8,000 to \$9,999

\$10,000 to \$14,999

\$15,000 to \$19,999

\$20,000 to \$24,999

\$25,000 to \$34,999

\$35,000 to \$49,999

\$50,000 or more

Median

Mean

Car, truck, or van

(Repeat Earnings)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)

(Repeat Earnings)

Bicycle, walked only, or worked at home

(Repeat Earnings)

Other means (motorcycle or other means)

(Repeat Earnings)

VI-5. MEANS OF TRANSPORTATION (5) BY RACE AND SPANISH ORIGIN (8)	<u>Data Items</u>
Universe: All Workers	40
All workers White Black American Indian, Eskimo, and Aleut Asian and Pacific Islander Other races Spanish origin Not Spanish origin	
Car, Truck, or Van (Repeat Race and Spanish Origin)	
Public transportation (bus or streetcar, subway or elevated, railroad, or taxicab) (Repeat Race and Spanish Origin)	
Bicycle, walked only, or worked at home (Repeat Race and Spanish Origin)	
Other means (motorcycle or other means) (Repeat Race and Spanish Origin)	
VI-6. MEANS OF TRANSPORTATION (5) BY SEX (3)	<u>Data Items</u>
Universe: All Workers	15
All workers Car, truck, or van Public transportation (bus or streetcar, subway or elevated, railroad, or taxicab) Bicycle, walked only, or worked at home Other means (motorcycle or other means)	
Male (Repeat Means of Transportation)	
Female (Repeat Means of Transportation)	
VI-7. CARPOOL TYPE (5)	<u>Data Items</u>
Universe: All Workers Using a Car, Truck, or Van	5
All workers using a car, truck, or van Drive alone Share driving Drive others only Ride as passenger only	

VI-8. NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) USED IN TRAVEL TO WORK (1) PERSONS PER VEHICLE (1), AND PERSONS PER CARPOOL (1) Data
Items

Number of vehicles = (Total workers who drive alone) + 3
 (Total workers in 2-person carpools x .5) +
 (Total workers in 3-person carpools x .3333) +
 (Total workers in 4-person carpools x .25) +
 (Total workers in 5-person carpools x .2) +
 (Total workers in 6-person carpools x .1666) +
 (Total workers in 7-or-more person carpools x .1428)

Persons per vehicle =

$$\frac{\text{No. of workers using a car, truck, or van}}{\text{No. of vehicles used in travel to work}}$$

Persons per carpool =

$$\frac{\text{No. of workers who share driving, drive others only, or ride as passenger only}}{\text{No. of carpool vehicles used in travel to work (Total vehicles minus vehicles of workers who drive alone)}}$$

VI-9. MEANS OF TRANSPORTATION (5) BY NUMBER OF VEHICLES (CARS, TRUCKS, OR VANS) AVAILABLE (5) Data
Items

Universe: All workers in Households 25

All workers in households
 No vehicles
 1 vehicle
 2 vehicles
 3 or more vehicles

Car, Truck, or Van
 (Repeat Number of Vehicles Available)

Public transportation (bus or streetcar, subway or elevated, railroad, or taxicab)
 (Repeat Number of Vehicles Available)

Bicycle, walked only, or worked at home
 (Repeat Number of Vehicles Available)

Other means (motorcycle or other means)
 (Repeat Number of Vehicles Available)

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VI-10. MEANS OF TRANSPORTATION (5) BY HOUSEHOLD INCOME_ (12)

Data
Items

Universe: All Workers in Households

60

All workers

Less than \$5,000
\$5,000 to \$7,999
\$8,000 to \$9,999
\$10,000 to \$14,999
\$15,000 to \$19,999
\$20,000 to \$24,999
\$25,000 to \$34,999
\$35,000 to \$49,999
\$50,000 or more
Median
Mean

Car, truck, or van
(Repeat Household Income)

Public transportation (bus or streetcar, subway or elevated,
railroad, or taxicab)
(Repeat Household Income)

Bicycle, walked only, or worked at home
(Repeat Household Income)

Other means (motorcycle or other means)
(Repeat Household Income)

APPENDIX D

DEFINITIONS OF CENSUS TERMS

Place Of Work

The data on place of work were derived from answers to question 23, asked only of persons who indicated in answer to question 22 that they had worked at any time during the reference week.

Place of work refers to the geographic locations at which workers carried out their occupational activities during the reference week. The exact address (number and street) of the place of work was asked, as well as the place (city, town, village, borough, etc.); whether or not the place of work was inside or outside its incorporated (legal) limits; and the county, state, and ZIP code. If the person's employer operated in more than one location, the exact address of the location or branch where the respondent worked was requested. If the number and street name could not be given, the building name or other description of the physical location was to be entered.

Respondents who worked at more than one location were asked to report the one at which they worked the greatest number of hours during the reference week. Those who regularly worked in several locations during the reference week were requested to give the address at which they began work each day. In those cases in which daily work was not begun at a central location each day, respondents were asked to provide as much information as possible which described the area in which they worked most during the reference week (for example, various locations within a particular city).

Respondents were tabulated as working in an incorporated place if they reported working inside its legal limits, or reported an incorporated place as their place of work without specifying whether or not they worked inside its legal boundaries. Those who reported working outside the limits of an incorporated place were tabulated as working outside the place. In contrast, respondents who reported a Census designated place (CDP)--a place with no legal boundaries--as their place of work were tabulated as working in that place regardless of their response on the incorporated limits question. The accuracy of place-of-work data for certain CDP's may be affected by the extent to which their Census names were familiar to respondents, and by coding problems caused by similarities between the CDP name and the names of other geographic jurisdictions in the same vicinity.

Place-of-work data are given for minor civil divisions (townships and towns) in the nine Northeastern States. Many townships and towns are locally regarded as equivalent to a place

and were, therefore, reported as the place of work. When a respondent reported a locality or incorporated place that is part of a township or town, the coding and tabulating procedure was designed to include the response in the total for the township or town. It is believed that the accuracy of place-of-work data for minor civil divisions is greatest for the New England States. However, the data for some New England towns, for towns in New York, and for townships in New Jersey and Pennsylvania may be affected by coding problems that resulted from unfamiliarity of the respondent with the minor civil division in which the workplace was located, or from a township and a neighboring city or borough having the same or similar names.

Means Of Transportation To Work

Data on means of transportation to work were derived from answers to questions 24b, 24c and 24d, asked only of persons who indicated in answer to question 22 that they had worked at any time during the reference week.

Means of transportation to work refers to the principal mode of travel or type of conveyance the respondent usually used to get from home to work during the reference week. Those who used different means of transportation on different days of the week were asked to specify the one they used most often. Those who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip.

The category "private vehicle" includes cars (including company cars but excluding taxicabs), trucks of one-ton capacity or less, and vans. The category "public transportation" includes bus or streetcar, subway or elevated, railroad, and taxicab.

A question on carpooling (question 24c) was asked of all workers who reported their means of transportation to work as "car," "truck," or "van." The category "drive alone" includes those who usually drove alone to work as well as those who were driven to work by someone who then drove back home or to a nonwork destination. The category "carpool" includes those who reported that they usually shared driving, drove others, or rode as a passenger during the reference week.

The data on means of transportation for some areas in this report may show workers using modes of public transportation that are not available in those areas (e.g., subway or elevated riders in an SMSA where there actually is no subway or elevated service). This result is attributable to respondents who worked during the reference week at a location that was different from their usual place of work (such as persons away from home on business in an SMSA where subway service was available), and those who used more than one means of transportation each day but whose principal means was not available where they lived (for

example, residents of nonmetropolitan areas who drove to the fringe of an SMSA and took the commuter railroad most of the distance to work).

Private Vehicle Occupancy

Data on private vehicle occupancy were derived from answers to question 24d, asked only of respondents who indicated in answer to question 22 that they had worked at any time during the reference week, and who reported in answer to question 24c that they usually shared driving, drove others, or rode as a passenger in a car, truck, or van.

Private vehicle occupancy refers to the number of persons who usually rode to work in the vehicle during the reference week. The measure of "persons per private vehicle" was obtained by dividing the number of persons who reported using a car, truck, or van to get to work by the number of such vehicles that they used. The number of vehicles used was derived by counting each person who drove alone as one vehicle, each person who reported being in a two-person carpool as one-half vehicle, each person who reported being in a three-person carpool as one-third vehicle, etc., then summing the vehicles.

Traveltime To Work

Data on traveltime to work were derived from answers to question 24a, asked only of respondents who indicated in answer to question 22 that they had worked at any time during the reference week. Traveltime to work refers to the total number of minutes that it usually took the respondent to get from home to work during the reference week. The elapsed time includes time spent waiting for public transportation, picking up passengers in carpools, or in other activities related to getting to work.

APPENDIX E

COMMUTERSHEDS FOR PLACE-OF-WORK CODING IN 1980

When coding place-of-work for these SMSA's	Also code persons working within these SMSA's to tract/block	Criteria
<u>United States</u>	<u>93</u>	
<u>New England</u>	<u>22</u>	
Boston →	Brockton	I.B.
Bridgeport →	New Haven - West Haven Norwalk Stamford	II. II. II.
Bristol →	New Britain	I.B.
Brockton →	Boston	I.A.
Fall River →	New Bedford	III.
Hartford →	New Britain	I.B.
Lawrence - Haverhill →	Boston	I.A.
Lowell →	Boston	I.A.
Manchester →	Nashua	I.B.
New Bedford →	Fall River	III.
New Britain →	Bristol Hartford Meriden	I.B. I.A. I.B.
New Haven →	Bridgeport Meriden	II. I.B.
Norwalk →	New York Stamford	II. II.
Springfield - Chicopee- Holyoke →	Hartford	I.A.
Stamford →	New York	II.
Waterbury →	New Haven	II.
E-1		

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COMMUTERSHEDS FOR PLACE-OF-WORK CODING IN 1980

When coding place-of-work for these SMSA's	Also code persons working within these SMSA's to tract/block	Criteria
<u>Middle Atlantic</u>	<u>28</u>	
Jersey City →	New York Newark	II. II.
Long Branch - Asbury Park →	New Brunswick - Perth Amboy - Sayreville New York Newark	II. II. II.
Nassau - Suffolk →	New York	II.
New Brunswick - Perth Amboy - Sayreville →	Jersey City Long Branch - Asbury Park New York Newark	II. II. II. II.
New York →	Jersey City Nassau - Suffolk New Brunswick - Perth Amboy - Sayreville Newark Paterson - Clifton - Passaic Stamford	II. II. II. II. II. II.
Newark →	Jersey City New Brunswick - Perth Amboy - Sayreville New York Paterson - Clifton - Passaic	II. II. II. II.
Paterson - Clifton - Passaic →	New York Newark	II. II.
Philadelphia →	Trenton Wilmington	II. I.A.
Poughkeepsie →	New York	II.
Trenton →	Philadelphia	II.
Wilmington →	Philadelphia	I.A.
York →	Harrisburg	I.A.
<u>East North Central</u>	<u>16</u>	
Akron →	Cleveland	I.A.
Ann Arbor →	Detroit	II.

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COMMUTERSHEDS FOR PLACE-OF-WORK CODING IN 1980

When coding place-of-work for these SMSA's	Also code persons working within these SMSA's to tract/block	Criteria
Canton →	Akron	I.B.
Chicago →	Gary - Hammond - East Chicago	I.A.
Cincinnati →	Hamilton - Middletown	II.
Cleveland →	Akron Lorain - Elyria	I.A. II.
Detroit →	Ann Arbor	II.
Gary - Hammond - East Chicago →	Chicago	I.A.
Hamilton - Middletown →	Cincinnati	II.
Kenosha →	Racine	III.
Lorain - Elyria →	Cleveland	II.
Milwaukee →	Racine	II.
Racine →	Kenosha Milwaukee	III. II.
Springfield →	Dayton	I.A.
<u>South Atlantic</u>		
Baltimore →	Washington	I.A.
Bradenton →	Sarasota	III.
Ft. Lauderdale - Hollywood →	Miami	I.A.
Miami →	Ft. Lauderdale - Hollywood	I.A.
Newport News - Hampton →	Norfolk - Virginia Beach - Portsmouth	III.
Norfolk - Virginia Beach - Portsmouth →	Newport News - Hampton	III.
Sarasota →	Bradenton	III.
Washington →	Baltimore	I.A.

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COMMUTERSHEDS FOR PLACE-OF-WORK CODING IN 1980

When coding place-of-work for these SMSA's	Also code persons working within these SMSA's to tract/block	Criteria
<u>East South Central</u>	<u>3</u>	
Biloxi - Gulfport →	Pascagoula - Moss Point	III.
Mobile →	Pascagoula - Moss Point	I.B.
Pascagoula - Moss Point →	Biloxi - Gulfport	III.
<u>West South Central</u>	<u>2</u>	
Galveston - Texas City →	Houston	II.
Houston →	Galveston - Texas City	II.
<u>Mountain</u>	<u>0</u>	
<u>Pacific</u>	<u>14</u>	
Anaheim - Santa Ana - Garden Grove →	Los Angeles - Long Beach	II.
Los Angeles - Long Beach →	Anaheim - Santa Ana - Garden Grove Oxnard - Simi Valley - Ventura Riverside - San Bernardino - Ontario	II. II. II.
Oxnard - Simi Valley - Ventura →	Los Angeles - Long Beach	II.
Riverside - San Bernardino - Ontario →	Anaheim - Santa Ana - Garden Grove Los Angeles - Long Beach	II. II.
San Francisco - Oakland →	San Jose Vallejo - Fairfield - Napa	II. II.
San Jose →	San Francisco - Oakland	II.
Santa Rosa →	San Francisco - Oakland	II.
Seattle - Everett →	Takoma	II.
Takoma →	Seattle - Everett	II.
Vallejo - Fairfield - Napa →	San Francisco - Oakland	II.

APPENDIX F

SUMMARY OF CENSUS BUREAU SOFTWARE PROGRAMS

The Census Software Package (CENSPAC): This is a generalized data retrieval, data management, and report generation system for use with Census Bureau statistical data files and non-Census data files. CENSPAC can process any fixed length record data file, including 1980 Census summary files and micro-data files, but its features have wider application. CENSPAC can produce reports, create file extracts or copies, sort data, and/or re-aggregate data in a single run. The following capabilities are included in CENSPAC:

- o Generalized input file definition
- o Use of machine readable data dictionaries
- o Matching for two input files
- o Sorting
- o Record selection
- o Report generation
- o Extract file creation
- o Inter- and intra-record computation and array manipulation
- o Aggregation
- o User subroutine and source-code interface

CENSPAC was written using the 1974 ANSI COBOL standard. It requires a minimum of 150K characters of main storage on IBM systems or 25K words on UNIVAC 1100 systems, direct access storage for the data dictionary files, as well as input and output devices to support the input and output data files for particular runs. CENSPAC was developed on an IBM 370/168 under VS and is operational on UNIVAC EXEC-8, Honeywell Level 6, Control Data Corporation Cyber 7, DEC-10, DEC VAX, and APPLE II systems. The system is written in a machine-independent style so that conversion to other systems can be accomplished. The flow chart in Figure F-1 identifies the three programs and the key files in the CENSPAC system.

The CENSPAC system, including source code and user manual, is available for the cost of reproduction (\$140 for the program release tape; \$5 for the user manual, if ordered separately).

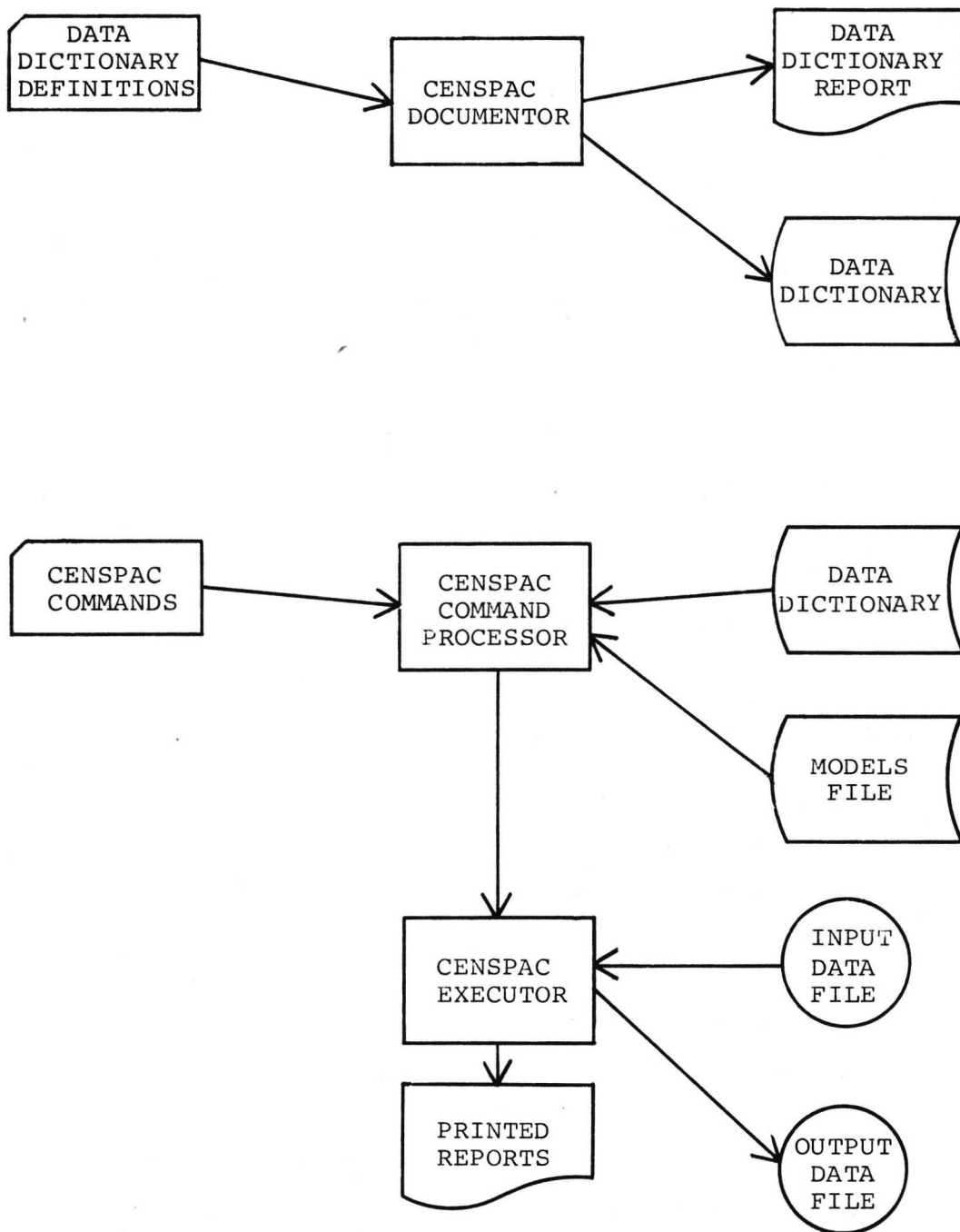


FIGURE F-1
CENSPAC SYSTEM

Source: Census Data User Service Division summary, March 1981.

ADMATCH: A program designed to match GBF/Dime or ACG reference files against user data files containing address information and to append Census geocodes to the user data file. The system consists of a pre-processor which standardizes address fields and the matcher program. Separate versions are supplied for IBM OS Assembler, IBM DOS Assembler, and COBOL. The COBOL version was developed by a user group and is not currently supported by the Census Bureau.

CARPOL: A FORTRAM IV program designed to assist with carpooling. The program generates a list of potential riders for carpooling.

EASYMAP: A FORTRAN choropleth (shaded area) mapping program that produces maps by geographic area. Maps can contain various densities of shading to represent different data values. Data values and other text can be printed inside the boundaries of each geographical area. EASYMAP is easy to use and allows the user considerable flexibility in producing line printer maps. This system is designed to be used on small to medium-scale computers by users with minimal computer knowledge.

EASYCORD: A FORTRAN program designed to calculate areas and compute centroids of user-specified areas such as blocks, tracts, block groups or other local areas in the GBF/Dime file. It can produce three types of output files, one of which is a boundary file compatible with EASYMAP.

GRIDS: The Grid-Related Information Display System is a generalized computer graphic system capable of a wide variety of mapping tasks such as producing shaded, density, and value maps.

SPLITS: A COBOL program which will separate pre-processed ADMATCH GBF/Dime records into individual block face records prior to ADMATCH matching.

UNIMATCH: A generalized record-linkage system which has additional capabilities over the ADMATCH program (see above). Separate versions are available for IBM OS Assembler and IBM DOS Assembler. This may be used for most linkage applications by defining with the UNIMATCH language the nature of the record-linkage task (such as the matching of street intersections, major traffic generators, individual names, etc.) UNIMATCH can be used for a variety of record-linkage applications such as matching vital statistics files, matching names having uncertainty in spelling, updating a master file with a transaction file, or address matching.

Zipstan: An address standardizer designed to be operated in conjunction with the UNIMATCH system. ZIPSTAN assists users in one particular application of UNIMATCH: the linkage of records on the basis of street addresses containing nonstandard abbreviated components, or street addresses written in free field format.

This leaflet shows the content of the two questionnaires being used in the 1980 Census of Population and Housing. See the explanatory notes on page 2.

Please fill out this official Census Form and mail it back on Census Day, Tuesday, April 1, 1980

1980 Census of the United States

If the address shown below has the wrong apartment identification, please write the correct apartment number or location here:

DO	A1	A2	A4	A5	A6

Your answers are confidential

By law (title 13, U.S. Code), census employees are subject to fine and/or imprisonment for any disclosure of your answers. Only after 72 years does your information become available to other government agencies or the public. The same law requires that you answer the questions to the best of your knowledge.

Para personas de habla hispana

(For Spanish speaking persons):
 SI USTED DESEA UN CUESTIONARIO DEL CENSO EN ESPAÑOL llame a la oficina del censo. El número de teléfono se encuentra en el encabezado de la dirección.

Si prefiere, marque esta casilla y devuelva el cuestionario por correo en el sobre que se le incluye.

A message from the Director, Bureau of the Census . . .

We must, from time to time, take stock of ourselves as a people if our Nation is to meet successfully the many national and local challenges we face. This is the purpose of the 1980 census.

The essential need for a population census was recognized almost 200 years ago when our Constitution was written. As provided by article I, the first census was conducted in 1790 and one has been taken every 10 years since then.

The law under which the census is taken protects the confidentiality of your answers. For the next 72 years — or until April 1, 2052 — only sworn census workers have access to the individual records, and no one else may see them.

Your answers, when combined with the answers from other people, will provide the statistical figures needed by public and private groups, schools, business and industry, and Federal, State, and local governments across the country. These figures will help all sectors of American society understand how our population and housing are changing. In this way, we can deal more effectively with today's problems and work toward a better future for all of us.

The census is a vitally important national activity. Please do your part by filling out this census form accurately and completely. If you mail it back promptly in the enclosed postage-paid envelope, it will save the expense and inconvenience of a census taker having to visit you.

Thank you for your cooperation.

How to fill out your Census Form

See the filled-out example in the yellow instruction guide. This guide will help with any problems you may have.

If you need more help, call the Census Office. The telephone number of the local office is shown at the bottom of the address box on the front cover.

Use a black pencil to answer the questions. Black pencil is better to use than ballpoint or other pens.

Fill circles "O" completely, like this: ●

When you write in an answer, print or write clearly.

Make sure that answers are provided for everyone here.

See page 4 of the guide if a roomer or someone else in the household does not want to give you all the information for the form.

Answer the questions on pages 1 through 5, and then starting with pages 6 and 7, fill a pair of pages for each person in the household.

Check your answers. Then write your name, the date, and telephone number on the back page.

Mail back this form on Tuesday, April 1, or as soon afterward as you can. Use the enclosed envelope; no stamp is needed.

Please start by answering Question 1 below.

Question 1

List in Question 1

- Family members living here, including babies still in the hospital.
- Relatives living here.
- Lodgers or boarders living here.
- Other persons living here.
- College students who stay here while attending college, even if their parents live elsewhere.
- Persons who usually live here but are temporarily away (including children in boarding school below the college level).
- Persons with a home elsewhere but who stay here most of the week while working.

Do Not List in Question 1

- Any person away from here in the Armed Forces.
- Any college student who stays somewhere else while attending college.
- Any person who usually stays somewhere else most of the week while working there.
- Any person away from here in an institution such as a home for the aged or mental hospital.
- Any person staying or visiting here who has a usual home elsewhere.

1. What is the name of each person who was living here on Tuesday, April 1, 1980, or who was staying or visiting here and had no other home?

Note

If everyone here is staying only temporarily and has a usual home elsewhere, please mark this box .

Then please:

- answer the questions on pages 2 through 5 only, and
- enter the address of your usual home on the back page.

Please continue →

Here are the QUESTIONS ↓	PERSON in column 1		PERSON in column 2	
	Last name		Last name	
These are the columns for ANSWERS → Please fill one column for each person listed in Question 1.	First name	Middle initial	First name	Middle initial
<p>2. How is this person related to the person in column 1?</p> <p>Fill one circle.</p> <p>If "Other relative" of person in column 1, give exact relationship, such as mother-in-law, niece, grandson, etc.</p>	<p>START in this column with the household member (or one of the members) in whose name the home is owned or rented. If there is no such person, start in this column with any adult household member.</p>		<p>If relative of person in column 1:</p> <p><input type="radio"/> Husband/wife <input type="radio"/> Father/mother</p> <p><input type="radio"/> Son/daughter <input type="radio"/> Other relative</p> <p><input type="radio"/> Brother/sister</p> <hr/> <p>If not related to person in column 1:</p> <p><input type="radio"/> Roomer, boarder <input type="radio"/> Other nonrelative</p> <p><input type="radio"/> Partner, roommate</p> <p><input type="radio"/> Paid employee</p>	
<p>3. Sex Fill one circle.</p>	<input type="radio"/> Male <input checked="" type="checkbox"/> Female		<input type="radio"/> Male <input checked="" type="checkbox"/> Female	
<p>4. Is this person —</p> <p>Fill one circle.</p>	<input type="radio"/> White <input type="radio"/> Asian Indian <input type="radio"/> Black or Negro <input type="radio"/> Hawaiian <input type="radio"/> Japanese <input type="radio"/> Guamanian <input type="radio"/> Chinese <input type="radio"/> Samoan <input type="radio"/> Filipino <input type="radio"/> Eskimo <input type="radio"/> Korean <input type="radio"/> Aleut <input type="radio"/> Vietnamese <input type="radio"/> Other — Specify <input type="radio"/> Indian (Amer.) Print tribe		<input type="radio"/> White <input type="radio"/> Asian Indian <input type="radio"/> Black or Negro <input type="radio"/> Hawaiian <input type="radio"/> Japanese <input type="radio"/> Guamanian <input type="radio"/> Chinese <input type="radio"/> Samoan <input type="radio"/> Filipino <input type="radio"/> Eskimo <input type="radio"/> Korean <input type="radio"/> Aleut <input type="radio"/> Vietnamese <input type="radio"/> Other — Specify <input type="radio"/> Indian (Amer.) Print tribe	
<p>5. Age, and month and year of birth</p> <p>a. Print age at last birthday.</p> <p>b. Print month and fill one circle.</p> <p>c. Print year in the spaces, and fill one circle below each number.</p>	<p>a. Age at last birthday</p> <p>b. Month of birth</p> <p>c. Year of birth</p> <p>1 ● 8 ○ 0 ○ 0 ○ 9 ○ 1 ○ 1 ○ 2 ○ 2 ○ 3 ○ 3 ○ 4 ○ 4 ○ 5 ○ 5 ○ 6 ○ 6 ○ 7 ○ 7 ○ 8 ○ 8 ○ 9 ○ 9 ○</p> <p><input type="radio"/> Jan.—Mar. <input type="radio"/> Apr.—June <input type="radio"/> July—Sept. <input type="radio"/> Oct.—Dec.</p>		<p>a. Age at last birthday</p> <p>b. Month of birth</p> <p>c. Year of birth</p> <p>1 ● 8 ○ 0 ○ 0 ○ 9 ○ 1 ○ 1 ○ 2 ○ 2 ○ 3 ○ 3 ○ 4 ○ 4 ○ 5 ○ 5 ○ 6 ○ 6 ○ 7 ○ 7 ○ 8 ○ 8 ○ 9 ○ 9 ○</p> <p><input type="radio"/> Jan.—Mar. <input type="radio"/> Apr.—June <input type="radio"/> July—Sept. <input type="radio"/> Oct.—Dec.</p>	
<p>6. Marital status</p> <p>Fill one circle.</p>	<input type="radio"/> Now married <input type="radio"/> Separated <input type="radio"/> Widowed <input type="radio"/> Never married <input type="radio"/> Divorced		<input type="radio"/> Now married <input type="radio"/> Separated <input type="radio"/> Widowed <input type="radio"/> Never married <input type="radio"/> Divorced	
<p>7. Is this person of Spanish/Hispanic origin or descent?</p> <p>Fill one circle.</p>	<input type="radio"/> No (not Spanish/Hispanic) <input type="radio"/> Yes, Mexican, Mexican-Amer., Chicano <input type="radio"/> Yes, Puerto Rican <input checked="" type="checkbox"/> <input type="radio"/> Yes, Cuban <input type="radio"/> Yes, other Spanish/Hispanic		<input type="radio"/> No (not Spanish/Hispanic) <input type="radio"/> Yes, Mexican, Mexican-Amer., Chicano <input type="radio"/> Yes, Puerto Rican <input checked="" type="checkbox"/> <input type="radio"/> Yes, Cuban <input type="radio"/> Yes, other Spanish/Hispanic	
<p>8. Since February 1, 1980, has this person attended regular school or college at any time? Fill one circle. Count nursery school, kindergarten, elementary school, and schooling which leads to a high school diploma or college degree.</p>	<input type="radio"/> No, has not attended since February 1 <input type="radio"/> Yes, public school, public college <input type="radio"/> Yes, private, church-related <input type="radio"/> Yes, private, not church-related		<input type="radio"/> No, has not attended since February 1 <input type="radio"/> Yes, public school, public college <input type="radio"/> Yes, private, church-related <input type="radio"/> Yes, private, not church-related	
<p>9. What is the highest grade (or year) of regular school this person has ever attended?</p> <p>Fill one circle.</p> <p>If now attending school, mark grade person is in. If high school was finished by equivalency test (GED), mark "12."</p>	<p>Highest grade attended:</p> <input type="radio"/> Nursery school <input type="radio"/> Kindergarten Elementary through high school (grade or year) 1 2 3 4 5 6 7 8 9 10 11 12 ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ College (academic year) <input checked="" type="checkbox"/> 1 2 3 4 5 6 7 8 or more ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ <input type="radio"/> Never attended school — Skip question 10		<p>Highest grade attended:</p> <input type="radio"/> Nursery school <input type="radio"/> Kindergarten Elementary through high school (grade or year) 1 2 3 4 5 6 7 8 9 10 11 12 ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ College (academic year) <input checked="" type="checkbox"/> 1 2 3 4 5 6 7 8 or more ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ <input type="radio"/> Never attended school — Skip question 10	
<p>10. Did this person finish the highest grade (or year) attended?</p> <p>Fill one circle.</p>	<input type="radio"/> Now attending this grade (or year) <input type="radio"/> Finished this grade (or year) <input type="radio"/> Did not finish this grade (or year)		<input type="radio"/> Now attending this grade (or year) <input type="radio"/> Finished this grade (or year) <input type="radio"/> Did not finish this grade (or year)	
	CENSUS USE ONLY	A. ○ I ○ N ○ ○	CENSUS USE ONLY	A. ○ I ○ N ○ ○

QUESTIONS ASKED OF ALL HOUSEHOLDS

If you listed more than 7 persons in Question 1, please see note on back page.

PERSON in column 7
Last name, First name, Middle initial, If relative of person in column 1, If not related to person in column 1, Sex, Race, Age at last birthday, Month of birth, Marital status, Ethnicity, Highest grade attended, CENSUS USE ONLY

H1. Did you leave anyone out of Question 1 because you were not sure if the person should be listed...

H2. Did you list anyone in Question 1 who is away from home now...

H3. Is anyone visiting here who is not already listed?

H4. How many living quarters, occupied and vacant, are at this address?

H5. Do you enter your living quarters...

H6. Do you have complete plumbing facilities in your living quarters...

H7. How many rooms do you have in your living quarters?

H8. Are your living quarters...

H9. Is this apartment (house) part of a condominium?

H10. If this is a one-family house...

a. Is the house on a property of 10 or more acres?

b. Is any part of the property used as a commercial establishment or medical office?

H11. If you live in a one-family house or a condominium unit...

What is the value of this property, that is, how much do you think this property...

- Do not answer this question if this is...
A mobile home or trailer
A house on 10 or more acres
A house with a commercial establishment or medical office on the property
Less than \$10,000
\$10,000 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 \$34,999
\$35,000 to \$39,999
\$40,000 to \$44,999
\$45,000 to \$49,999
\$50,000 to \$54,999
\$55,000 to \$59,999
\$60,000 to \$64,999
\$65,000 to \$69,999
\$70,000 to \$74,999
\$75,000 to \$79,999
\$80,000 to \$89,999
\$90,000 to \$99,999
\$100,000 to \$124,999
\$125,000 to \$149,999
\$150,000 to \$199,999
\$200,000 or more

H12. If you pay rent for your living quarters...

What is the monthly rent?
If rent is not paid by the month, see the instruction guide on how to figure a monthly rent.

- Less than \$50
\$50 to \$59
\$60 to \$69
\$70 to \$79
\$80 to \$89
\$90 to \$99
\$100 to \$109
\$110 to \$119
\$120 to \$129
\$130 to \$139
\$140 to \$149
\$150 to \$159
\$160 to \$169
\$170 to \$179
\$180 to \$189
\$190 to \$199
\$200 to \$224
\$225 to \$249
\$250 to \$274
\$275 to \$299
\$300 to \$349
\$350 to \$399
\$400 to \$499
\$500 or more

FOR CENSUS USE ONLY

A4. Block number, A6. Serial number, B. Type of unit or quarters, For vacant units C1. Is this unit for..., C2. Vacancy status, C3. Is this unit boarded up?, D. Months vacant, E. Indicators, F. Total persons

QUESTIONS ASKED OF SAMPLE HOUSEHOLDS

<p>H13. Which best describes this building? <i>Include all apartments, flats, etc., even if vacant.</i></p> <p> <input type="radio"/> A mobile home or trailer <input type="radio"/> A one-family house detached from any other house <input type="radio"/> A one-family house attached to one or more houses <input type="radio"/> A building for 2 families <input type="radio"/> A building for 3 or 4 families <input type="radio"/> A building for 5 to 9 families <input type="radio"/> A building for 10 to 19 families <input type="radio"/> A building for 20 to 49 families <input type="radio"/> A building for 50 or more families <input type="radio"/> A boat, tent, van, etc. <input checked="" type="checkbox"/> </p>	<p>H21a. Which fuel is used most for house heating?</p> <p> <input type="radio"/> Gas: from underground pipes serving the neighborhood <input type="radio"/> Coal or coke <input type="radio"/> Gas: bottled, tank, or LP <input type="radio"/> Wood <input type="radio"/> Electricity <input type="radio"/> Other fuel <input type="radio"/> Fuel oil, kerosene, etc. <input checked="" type="checkbox"/> <input type="radio"/> No fuel used </p>
<p>H14a. How many stories (floors) are in this building? <i>Count an attic or basement as a story if it has any finished rooms for living purposes.</i></p> <p> <input type="radio"/> 1 to 3 — <i>Skip to H15</i> <input type="radio"/> 7 to 12 <input type="radio"/> 4 to 6 <input type="radio"/> 13 or more stories </p>	<p>b. Which fuel is used most for water heating?</p> <p> <input type="radio"/> Gas: from underground pipes serving the neighborhood <input type="radio"/> Coal or coke <input checked="" type="checkbox"/> <input type="radio"/> Gas: bottled, tank, or LP <input type="radio"/> Wood <input type="radio"/> Electricity <input type="radio"/> Other fuel <input type="radio"/> Fuel oil, kerosene, etc. <input type="radio"/> No fuel used </p>
<p>b. Is there a passenger elevator in this building?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p>	<p>c. Which fuel is used most for cooking?</p> <p> <input type="radio"/> Gas: from underground pipes serving the neighborhood <input type="radio"/> Coal or coke <input type="radio"/> Gas: bottled, tank, or LP <input type="radio"/> Wood <input type="radio"/> Electricity <input type="radio"/> Other fuel <input type="radio"/> Fuel oil, kerosene, etc. <input checked="" type="checkbox"/> <input type="radio"/> No fuel used </p>
<p>H15a. Is this building —</p> <p> <input type="radio"/> On a city or suburban lot, or on a place of less than 1 acre? — <i>Skip to H16</i> <input type="radio"/> On a place of 1 to 9 acres? <input type="radio"/> On a place of 10 or more acres? </p>	<p>H22. What are the costs of utilities and fuels for your living quarters?</p> <p>a. Electricity</p> <p>\$ _____ .00 OR <input type="radio"/> Included in rent or no charge <i>Average monthly cost</i> <input type="radio"/> Electricity not used</p>
<p>b. Last year, 1979, did sales of crops, livestock, and other farm products from this place amount to —</p> <p> <input type="radio"/> Less than \$50 (or None) <input type="radio"/> \$250 to \$599 <input type="radio"/> \$1,000 to \$2,499 <input type="radio"/> \$50 to \$249 <input checked="" type="checkbox"/> \$600 to \$999 <input type="radio"/> \$2,500 or more </p>	<p>b. Gas</p> <p>\$ _____ .00 OR <input type="radio"/> Included in rent or no charge <i>Average monthly cost</i> <input type="radio"/> Gas not used</p>
<p>H16. Do you get water from —</p> <p> <input type="radio"/> A public system (<i>city water department, etc.</i>) or private company? <input type="radio"/> An individual drilled well? <input type="radio"/> An individual dug well? <input type="radio"/> Some other source (<i>a spring, creek, river, cistern, etc.</i>)? </p>	<p>c. Water</p> <p>\$ _____ .00 OR <input type="radio"/> * Included in rent or no charge <i>Yearly cost</i> <input type="radio"/> These fuels not used</p>
<p>H17. Is this building connected to a public sewer?</p> <p> <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>	<p>d. Oil, coal, kerosene, wood, etc.</p> <p>\$ _____ .00 OR <input type="radio"/> Included in rent or no charge <i>Yearly cost</i> <input type="radio"/> These fuels not used</p>
<p>H18. About when was this building originally built? Mark when the building was first constructed, not when it was remodeled, added to, or converted.</p> <p> <input type="radio"/> 1979 or 1980 <input type="radio"/> 1960 to 1969 <input type="radio"/> 1940 to 1949 <input type="radio"/> 1975 to 1978 <input type="radio"/> 1950 to 1959 <input type="radio"/> 1939 or earlier <input type="radio"/> 1970 to 1974 <input checked="" type="checkbox"/> </p>	<p>H23. Do you have complete kitchen facilities? Complete kitchen facilities are a sink with piped water, a range or cookstove, and a refrigerator.</p> <p><input type="radio"/> Yes <input checked="" type="checkbox"/> <input type="radio"/> No</p>
<p>H19. When did the person listed in column 1 move into this house (or apartment)?</p> <p> <input type="radio"/> 1979 or 1980 <input type="radio"/> 1950 to 1959 <input type="radio"/> 1975 to 1978 <input type="radio"/> 1949 or earlier <input type="radio"/> 1970 to 1974 <input type="radio"/> Always lived here <input type="radio"/> 1960 to 1969 </p>	<p>H24. How many bedrooms do you have? <i>Count rooms used mainly for sleeping even if used also for other purposes.</i></p> <p> <input type="radio"/> No bedroom <input type="radio"/> 2 bedrooms <input type="radio"/> 4 bedrooms <input type="radio"/> 1 bedroom <input type="radio"/> 3 bedrooms <input type="radio"/> 5 or more bedrooms </p>
<p>H20. How are your living quarters heated? <i>Fill one circle for the kind of heat used most.</i></p> <p> <input type="radio"/> Steam or hot water system <input type="radio"/> Central warm-air furnace with ducts to the individual rooms (<i>Do not count electric heat pumps here</i>) <input type="radio"/> Electric heat pump <input type="radio"/> Other built-in electric units (<i>permanently installed in wall, ceiling, or baseboard</i>) <input checked="" type="checkbox"/> <input type="radio"/> Floor, wall, or pipeless furnace <input type="radio"/> Room heaters <u>with</u> flue or vent, burning gas, oil, or kerosene <input type="radio"/> Room heaters <u>without</u> flue or vent, burning gas, oil, or kerosene (<i>not portable</i>) <input type="radio"/> Fireplaces, stoves, or portable room heaters of any kind <input type="radio"/> No heating equipment </p>	<p>H25. How many bathrooms do you have? <i>A complete bathroom is a room with flush toilet, bathtub or shower, and wash basin with piped water.</i> <i>A half bathroom has at least a flush toilet or bathtub or shower, but does not have all the facilities for a complete bathroom.</i></p> <p> <input type="radio"/> No bathroom, or only a half bathroom <input type="radio"/> 1 complete bathroom <input type="radio"/> 1 complete bathroom, plus half bath(s) <input type="radio"/> 2 or more complete bathrooms </p>
<p>H21b. Which fuel is used most for house heating?</p> <p> <input type="radio"/> Gas: from underground pipes serving the neighborhood <input type="radio"/> Coal or coke <input type="radio"/> Gas: bottled, tank, or LP <input type="radio"/> Wood <input type="radio"/> Electricity <input type="radio"/> Other fuel <input type="radio"/> Fuel oil, kerosene, etc. <input checked="" type="checkbox"/> <input type="radio"/> No fuel used </p>	<p>H26. Do you have a telephone in your living quarters?</p> <p><input type="radio"/> Yes <input checked="" type="checkbox"/> <input type="radio"/> No</p>
<p>H22. What are the costs of utilities and fuels for your living quarters?</p> <p>a. Electricity</p> <p>\$ _____ .00 OR <input type="radio"/> Included in rent or no charge <i>Average monthly cost</i> <input type="radio"/> Electricity not used</p>	<p>H27. Do you have air conditioning?</p> <p> <input type="radio"/> Yes, a central air-conditioning system <input type="radio"/> Yes, 1 individual room unit <input type="radio"/> Yes, 2 or more individual room units <input type="radio"/> No </p>
<p>b. Last year, 1979, did sales of crops, livestock, and other farm products from this place amount to —</p> <p> <input type="radio"/> Less than \$50 (or None) <input type="radio"/> \$250 to \$599 <input type="radio"/> \$1,000 to \$2,499 <input type="radio"/> \$50 to \$249 <input checked="" type="checkbox"/> \$600 to \$999 <input type="radio"/> \$2,500 or more </p>	<p>H28. How many automobiles are kept at home for use by members of your household?</p> <p> <input type="radio"/> None <input checked="" type="checkbox"/> <input type="radio"/> 2 automobiles <input type="radio"/> 1 automobile <input type="radio"/> 3 or more automobiles </p>
<p>H23. Do you get water from —</p> <p> <input type="radio"/> A public system (<i>city water department, etc.</i>) or private company? <input type="radio"/> An individual drilled well? <input type="radio"/> An individual dug well? <input type="radio"/> Some other source (<i>a spring, creek, river, cistern, etc.</i>)? </p>	<p>H29. How many vans or trucks of one-ton capacity or less are kept at home for use by members of your household?</p> <p> <input type="radio"/> None <input type="radio"/> 2 vans or trucks <input type="radio"/> 1 van or truck <input type="radio"/> 3 or more vans or trucks </p>

QUESTIONS ASKED OF SAMPLE HOUSEHOLDS

Please answer H30–H32 if you live in a one-family house which you own or are buying, unless this is –

- A mobile home or trailer
- A house on 10 or more acres
- A condominium unit
- A house with a commercial establishment or medical office on the property

If any of these, or if you rent your unit or this is a multi-family structure, skip H30 to H32 and turn to page 6.

H30. What were the real estate taxes on this property last year?

\$ _____ .00 OR None

H31. What is the annual premium for fire and hazard insurance on this property?

\$ _____ .00 OR None

H32a. 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 page 6

b. Do you have a second or junior mortgage on this property?

Yes No

c. How much is your total regular monthly payment to the lender?
Also include payments on a contract to purchase and to lenders holding second or junior mortgages on this property.

\$ _____ .00 OR No regular payment required — Skip to page 6

d. Does your regular monthly payment (amount entered in H32c) include payments for real estate taxes on this property?

Yes, taxes included in payment

No, taxes paid separately or taxes not required

e. Does your regular monthly payment (amount entered in H32c) include payments for fire and hazard insurance on this property?

Yes, insurance included in payment

No, insurance paid separately or no insurance

Please turn to page 6

➔

The sample questionnaire contains housing questions H13 to H32 shown here on pages 4 and 5.

QUESTIONS ASKED OF SAMPLE HOUSEHOLDS

<p>Name of Person 1 on page 2:</p> <p style="text-align: center;">Last name First name Middle initial</p> <hr/> <p>11. In what State or foreign country was this person born? <i>Print the State where this person's mother was living when this person was born. Do not give the location of the hospital unless the mother's home and the hospital were in the same State.</i></p> <p>----- <i>Name of State or foreign country; or Puerto Rico, Guam, etc.</i></p>	<p>16. When was this person born?</p> <p><input type="radio"/> Born before April 1965 — <i>Please go on with questions 17-33</i></p> <p><input checked="" type="radio"/> Born April 1965 or later — <i>Turn to next page for next person</i></p>	<p>22a. Did this person work at any time last week?</p> <p><input type="radio"/> Yes — <i>Fill this circle if this person worked full time or part time.</i> <i>(Count part-time work such as delivering papers, or helping without pay in a family business or farm. Also count active duty in the Armed Forces.)</i></p> <p><input type="radio"/> No — <i>Fill this circle if this person did not work, or did only own housework, school work, or volunteer work.</i></p> <p style="text-align: center;">↓ Skip to 25</p>																								
<p>12. If this person was born in a foreign country —</p> <p>a. Is this person a naturalized citizen of the United States?</p> <p><input type="radio"/> Yes, a naturalized citizen <input type="radio"/> No, not a citizen <input checked="" type="radio"/> Born abroad of American parents</p> <p>b. When did this person come to the United States to stay?</p> <p><input type="radio"/> 1975 to 1980 <input type="radio"/> 1965 to 1969 <input type="radio"/> 1950 to 1959 <input type="radio"/> 1970 to 1974 <input type="radio"/> 1960 to 1964 <input type="radio"/> Before 1950</p>	<p>17. In April 1975 (five years ago) was this person —</p> <p>a. On active duty in the Armed Forces?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p> <p>b. Attending college?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p> <p>c. Working at a job or business?</p> <p><input type="radio"/> Yes, full time <input type="radio"/> No <input type="radio"/> Yes, part time</p>	<p>b. How many hours did this person work last week (at all jobs)? <i>Subtract any time off; add overtime or extra hours worked.</i></p> <p style="text-align: center;">Hours <input type="checkbox"/></p> <p>-----</p>																								
<p>13a. Does this person speak a language other than English at home?</p> <p><input type="radio"/> Yes <input type="radio"/> No, only speaks English — <i>Skip to 14</i></p> <p>b. What is this language?</p> <p>----- <i>(For example — Chinese, Italian, Spanish, etc.)</i></p> <p>c. How well does this person speak English?</p> <p><input type="radio"/> Very well <input type="radio"/> Not well <input type="radio"/> Well <input checked="" type="radio"/> Not at all</p>	<p>18a. Is this person a veteran of active-duty military service in the Armed Forces of the United States? <i>If service was in National Guard or Reserves only, see instruction guide.</i></p> <p><input type="radio"/> Yes <input type="radio"/> No — <i>Skip to 19</i></p> <p>b. Was active-duty military service during — <i>Fill a circle for each period in which this person served.</i></p> <p><input type="radio"/> May 1975 or later <input type="radio"/> Vietnam era (<i>August 1964–April 1975</i>) <input type="radio"/> February 1955–July 1964 <input type="radio"/> Korean conflict (<i>June 1950–January 1955</i>) <input type="radio"/> World War II (<i>September 1940–July 1947</i>) <input type="radio"/> World War I (<i>April 1917–November 1918</i>) <input type="radio"/> Any other time</p>	<p>23. At what location did this person work last week? <i>If this person worked at more than one location, print where he or she worked most last week.</i> <i>If one location cannot be specified, see instruction guide.</i></p> <p>a. Address (Number and street) ----- <i>If street address is not known, enter the building name, shopping center, or other physical location description.</i></p> <p>b. Name of city, town, village, borough, etc. -----</p>																								
<p>14. What is this person's ancestry? If uncertain about how to report ancestry, see instruction guide.</p> <p>----- <i>(For example: Afro-Amer., English, French, German, Honduran, Hungarian, Irish, Italian, Jamaican, Korean, Lebanese, Mexican, Nigerian, Polish, Ukrainian, Venezuelan, etc.)</i></p>	<p>19. Does this person have a physical, mental, or other health condition which has lasted for 6 or more months and which . . .</p> <table style="width:100%; border: none;"> <tr> <td style="width:80%;"></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">No</td> </tr> <tr> <td>a. Limits the kind or amount of work this person can do at a job?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>b. Prevents this person from working at a job?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>c. Limits or prevents this person from using public transportation?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>		Yes	No	a. Limits the kind or amount of work this person can do at a job?	<input type="checkbox"/>	<input type="checkbox"/>	b. Prevents this person from working at a job?	<input type="checkbox"/>	<input type="checkbox"/>	c. Limits or prevents this person from using public transportation?	<input type="checkbox"/>	<input type="checkbox"/>	<p>c. Is the place of work inside the incorporated (legal) limits of that city, town, village, borough, etc.?</p> <p><input type="radio"/> Yes <input type="radio"/> No, in unincorporated area</p> <p>d. County -----</p> <p>e. State ----- f. ZIP Code -----</p>												
	Yes	No																								
a. Limits the kind or amount of work this person can do at a job?	<input type="checkbox"/>	<input type="checkbox"/>																								
b. Prevents this person from working at a job?	<input type="checkbox"/>	<input type="checkbox"/>																								
c. Limits or prevents this person from using public transportation?	<input type="checkbox"/>	<input type="checkbox"/>																								
<p>15a. Did this person live in this house five years ago (April 1, 1975)? <i>If in college or Armed Forces in April 1975, report place of residence there.</i></p> <p><input type="radio"/> Born April 1975 or later — <i>Turn to next page for next person</i> <input type="radio"/> Yes, this house — <i>Skip to 16</i> <input checked="" type="radio"/> No, different house</p> <p>b. Where did this person live five years ago (April 1, 1975)?</p> <p>(1) State, foreign country, Puerto Rico, Guam, etc.: -----</p> <p>(2) County: -----</p> <p>(3) City, town, village, etc.: -----</p> <p>(4) Inside the incorporated (legal) limits of that city, town, village, etc.?</p> <p><input type="radio"/> Yes <input type="radio"/> No, in unincorporated area</p>	<p>20. If this person is a female —</p> <table style="width:100%; border: none;"> <tr> <td style="width:15%;"></td> <td style="width:10%; text-align: center;">None</td> <td style="width:10%; text-align: center;">1</td> <td style="width:10%; text-align: center;">2</td> <td style="width:10%; text-align: center;">3</td> <td style="width:10%; text-align: center;">4</td> <td style="width:10%; text-align: center;">5</td> <td style="width:10%; text-align: center;">6</td> </tr> <tr> <td>How many babies has she ever had, not counting stillbirths?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td><i>Do not count her stepchildren or children she has adopted.</i></td> <td style="text-align: center;">7</td> <td style="text-align: center;">8</td> <td style="text-align: center;">9</td> <td style="text-align: center;">10</td> <td style="text-align: center;">11</td> <td style="text-align: center;">12 or more</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> <p>21. If this person has ever been married —</p> <p>a. Has this person been married more than once?</p> <p><input type="radio"/> Once <input type="radio"/> More than once</p> <p>b. Month and year of marriage? Month and year of first marriage?</p> <p style="text-align: center;">(Month) (Year) (Month) (Year)</p> <p>c. If married more than once — Did the first marriage end because of the death of the husband (or wife)?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p>		None	1	2	3	4	5	6	How many babies has she ever had, not counting stillbirths?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Do not count her stepchildren or children she has adopted.</i>	7	8	9	10	11	12 or more	<input type="checkbox"/>	<p>24a. Last week, how long did it usually take this person to get from home to work (one way)?</p> <p style="text-align: center;">Minutes</p> <p>-----</p> <p>b. How did this person usually get to work last week? <i>If this person used more than one method, give the one usually used for most of the distance.</i></p> <p><input type="radio"/> Car <input checked="" type="radio"/> Taxicab <input type="radio"/> Truck <input type="radio"/> Motorcycle <input type="radio"/> Van <input type="radio"/> Bicycle <input type="radio"/> Bus or streetcar <input type="radio"/> Walked only <input type="radio"/> Railroad <input type="radio"/> Worked at home <input type="radio"/> Subway or elevated <input type="radio"/> Other — <i>Specify</i></p> <p><i>If car, truck, or van in 24b, go to 24c. Otherwise, skip to 28.</i></p> <p>-----</p>
	None	1	2	3	4	5	6																			
How many babies has she ever had, not counting stillbirths?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																			
<i>Do not count her stepchildren or children she has adopted.</i>	7	8	9	10	11	12 or more	<input type="checkbox"/>																			

QUESTIONS ASKED OF SAMPLE HOUSEHOLDS

The sample questionnaire also contains population questions 11 to 33, shown here on pages 6 and 7. These questions appear on pairs of facing pages of the sample form (i.e., 6 and 7, 8 and 9, etc.) for each person in the household. Note that questions 17 to 33 do not apply to persons under 15 years of age.

<p>c. When going to work last week, did this person usually —</p> <p><input type="radio"/> Drive alone — <i>Skip to 28</i> <input type="radio"/> Drive others only</p> <p><input type="radio"/> Share driving <input type="radio"/> Ride as passenger only</p> <p>d. How many people, including this person, usually rode to work in the car, truck, or van last week?</p> <p><input type="radio"/> 2 <input checked="" type="radio"/> 4 <input type="radio"/> 6</p> <p><input type="radio"/> 3 <input type="radio"/> 5 <input checked="" type="radio"/> 7 or more</p> <p><i>After answering 24d, skip to 28.</i></p>	<p>31a. Last year (1979), did this person work, even for a few days, at a paid job or in a business or farm?</p> <p><input type="radio"/> Yes <input checked="" type="radio"/> No — <i>Skip to 31d</i></p>
<p>25. Was this person temporarily absent or on layoff from a job or business last week?</p> <p><input type="radio"/> Yes, on layoff</p> <p><input type="radio"/> Yes, on vacation, temporary illness, labor dispute, etc.</p> <p><input type="radio"/> No</p>	<p>b. How many weeks did this person work in 1979? <i>Count paid vacation, paid sick leave, and military service.</i></p> <p>Weeks _____</p>
<p>26a. Has this person been looking for work during the last 4 weeks?</p> <p><input checked="" type="radio"/> Yes <input type="radio"/> No — <i>Skip to 27</i></p>	<p>c. During the weeks worked in 1979, how many hours did this person usually work each week?</p> <p>Hours _____</p>
<p>b. Could this person have taken a job last week?</p> <p><input type="radio"/> No, already has a job <input checked="" type="radio"/></p> <p><input type="radio"/> No, temporarily ill</p> <p><input type="radio"/> No, other reasons (<i>in school, etc.</i>)</p> <p><input type="radio"/> Yes, could have taken a job <input checked="" type="radio"/></p>	<p>d. Of the weeks not worked in 1979 (if any), how many weeks was this person looking for work or on layoff from a job?</p> <p>Weeks _____</p>
<p>27. When did this person last work, even for a few days?</p> <p><input type="radio"/> 1980 <input type="radio"/> 1978 <input type="radio"/> 1970 to 1974</p> <p><input type="radio"/> 1979 <input type="radio"/> 1975 to 1977 <input type="radio"/> 1969 or earlier</p> <p><i>} Skip to 31d</i></p> <p><input type="radio"/> Never worked</p>	<p>32. Income in 1979 — <i>Fill circles and print dollar amounts.</i> <i>If net income was a loss, write "Loss" above the dollar amount.</i> <i>If exact amount is not known, give best estimate. For income received jointly by household members, see instruction guide.</i></p>
<p>28–30. Current or most recent job activity <i>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 last job or business since 1975.</i></p>	<p>During 1979 did this person receive any income from the following sources? <i>If "Yes" to any of the sources below — How much did this person receive for the entire year?</i></p>
<p>28. Industry</p> <p>a. For whom did this person work? <i>If now on active duty in the Armed Forces, print "AF" and skip to question 31.</i></p> <p>_____ <i>(Name of company, business, organization, or other employer)</i></p>	<p>a. Wages, salary, commissions, bonuses, or tips from all jobs . . . <i>Report amount before deductions for taxes, bonds, dues, or other items.</i></p> <p><input type="radio"/> Yes → \$ _____ .00</p> <p><input type="radio"/> No <i>(Annual amount — Dollars)</i></p>
<p>b. What kind of business or industry was this? <i>Describe the activity at location where employed.</i></p> <p>_____ <i>(For example: Hospital, newspaper publishing, mail order house, auto engine manufacturing, breakfast cereal manufacturing)</i></p>	<p>b. Own nonfarm business, partnership, or professional practice . . . <i>Report net income after business expenses.</i></p> <p><input checked="" type="radio"/> Yes → \$ _____ .00</p> <p><input type="radio"/> No <i>(Annual amount — Dollars)</i></p>
<p>c. Is this mainly — <i>(Fill one circle)</i></p> <p><input type="radio"/> Manufacturing <input checked="" type="radio"/> Retail trade</p> <p><input type="radio"/> Wholesale trade <input type="radio"/> Other — <i>(agriculture, construction, service, government, etc.)</i></p>	<p>c. Own farm. . . <i>Report net income after operating expenses. Include earnings as a tenant farmer or sharecropper.</i></p> <p><input type="radio"/> Yes → \$ _____ .00</p> <p><input type="radio"/> No <i>(Annual amount — Dollars)</i></p>
<p>29. Occupation</p> <p>a. What kind of work was this person doing?</p> <p>_____ <i>(For example: Registered nurse, personnel manager, supervisor of order department, gasoline engine assembler, grinder operator)</i></p>	<p>d. Interest, dividends, royalties, or net rental income . . . <i>Report even small amounts credited to an account.</i></p> <p><input type="radio"/> Yes → \$ _____ .00</p> <p><input type="radio"/> No <i>(Annual amount — Dollars)</i></p>
<p>b. What were this person's most important activities or duties?</p> <p>_____ <i>(For example: Patient care, directing hiring policies, supervising order clerks, assembling engines, operating grinding mill)</i></p>	<p>e. Social Security or Railroad Retirement . . .</p> <p><input checked="" type="radio"/> Yes → \$ _____ .00</p> <p><input type="radio"/> No <i>(Annual amount — Dollars)</i></p>
<p>30. Was this person — <i>(Fill one circle)</i></p> <p>Employee of private company, business, or individual, for wages, salary, or commissions <input checked="" type="radio"/></p> <p>Federal government employee <input type="radio"/></p> <p>State government employee <input type="radio"/></p> <p>Local government employee (city, county, etc.) <input type="radio"/></p> <p>Self-employed in own business, professional practice, or farm —</p> <p>Own business not incorporated <input type="radio"/></p> <p>Own business incorporated <input type="radio"/></p> <p>Working without pay in family business or farm <input type="radio"/></p>	<p>f. Supplemental Security (SSI), Aid to Families with Dependent Children (AFDC), or other public assistance or public welfare payments . . .</p> <p><input type="radio"/> Yes → \$ _____ .00</p> <p><input type="radio"/> No <i>(Annual amount — Dollars)</i></p>
	<p>g. Unemployment compensation, veterans' payments, pensions, alimony or child support, or any other sources of income received regularly . . .</p> <p><i>Exclude lump-sum payments such as money from an inheritance or the sale of a home.</i></p> <p><input checked="" type="radio"/> Yes → \$ _____ .00</p> <p><input type="radio"/> No <i>(Annual amount — Dollars)</i></p> <p>33. What was this person's total income in 1979? <i>Add entries in questions 32a through g; subtract any losses.</i> \$ _____ .00 <i>If total amount was a loss, write "Loss" above amount.</i> <i>(Annual amount — Dollars)</i></p> <p>OR <input type="radio"/> None</p>

Please Make Sure You Have Filled This Form Completely

For persons who answered in Question 1 that they are staying here only temporarily and have a usual home elsewhere, enter the address of usual home here:

House number Street or road Apartment number or location

City County

State ZIP Code

For Answers to Questions H1, H2, and H3:

H1. Name of person(s) left out and reason:

H2. Name of person(s) away from home and reason away:

H3. Name of visitor(s) for whom there is no one at the home address to report the person to a Census Taker:

NOTE

If you have listed more than 7 persons in Question 1, 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.

1 Check to be certain you have:

- Answered Question 1 on page 1.
- Answered the questions on page 2 about the people in your household.
- Answered the questions on page 3 about your house or apartment.
- Answered Questions H13 through H32 on pages 4 and 5.
- Fill a pair of pages for each person listed on pages 2 and 3. That is, pages 6 and 7 should be filled for the Person in column 1; pages 8 and 9 for the Person in column 2, etc.

Please notice we need answers to questions 17 through 33 for every person born before April 1965 even though they may not seem to apply to the particular person.

For example, you may have forgotten to fill all the necessary circles on work or on income for a teenager going to school, or a retired person. To avoid our having to check with you to make sure of the answer, please be certain you have given all the necessary answers.

2 Write here the name of the person who filled the form, the date the form was completed, and the telephone number on which the people in this household can be called.

Name _____

Date _____

Telephone Number _____

3 Then fold the form the way it was sent to you. Mail it back in the enclosed envelope. The address of the U.S. Census Office appears on the front cover of this questionnaire. Please be sure that before you seal the envelope the address shows through the window. No stamp is required.

Thank you very much.

APPENDIX H
 MODIFIED
URBAN TRANSPORTATION PLANNING PACKAGE
1980 CENSUS

<u>PART</u>	<u>DESCRIPTION</u>	<u>TABULATIONS</u>	<u>DATA ITEMS</u>
I	Tabulations by census tract or block group (or zone-special order) of residence.	29	773
II	Tabulations by large geographic areas of residence.	19	11,642
** III	Tabulations by census tract (or zone-special order) of work.	14	517
** IV	Tabulations by census tract of residence to census tract of work (or zone of residence to zone of work-special order).	3	30
** V	Tabulations by block group of work (sub-totals to census tract of work or zone of work-special order).	7	107
VI	Tabulations by county of residence to county of work (includes 20 external counties with a large number of journey-to-work trips)	10	322
<hr/>		<hr/>	<hr/>
	TOTAL	82	13,391

** = will change to:

- III TABULATIONS BY CENTRAL CITY(S), PLACE(S) 2500+ pop., county, SMSA OF WORK
- IV TABULATIONS BY PLACE/COUNTY OF RESIDENCE TO PLACE/COUNTY OF WORK
- V NOT APPLICABLE TO THOSE AREAS NOT PARTICIPATED IN THE CENSUS GBF/DIME PROGRAM

APPENDIX I

LIST OF URBANIZED AREAS THAT CAN GET A MODIFIED
URBAN TRANSPORTATION PLANNING PACKAGE

Auburn-Opelika, Alabama
Decatur, Alabama
Dothan, Alabama

Chico, California
Redding, California
Visalia, California
Yiba City, California
Yuma, Arizona-California

Grand Junction, Colorado

Fort Pierce, Florida
Fort Walton Beach, Florida
Naples, Florida
Ocala, Florida

Athens, Georgia
Rome, Georgia

Pocatello, Idaho

Danville, Illinois

Elhart-Goshen, Indiana

Iowa City, Iowa

Houma, Louisiana

Bangor, Maine

Hagerstown, Maryland-Pennsylvania

Taunton, Massachusetts

Benton Harbor, Michigan

Hattiesburg, Mississippi

Joplin, Missouri

Missoula, Montana

Portsmouth-Dover-Rochester, New Hampshire-Maine

Las Cruces, New Mexico
Santa Fe, New Mexico

Glens Falls, New York
Newburgh, New York

Concord, North Carolina
Goldsboro, North Carolina
Hickory, North Carolina
Jacksonville, North Carolina

Bismarck-Mandan, North Dakota

Newark, Ohio

Enid, Oklahoma

Medford, Oregon

State College, Pennsylvania
Sharon, Pennsylvania-Ohio

Aguadilla, Puerto Rico
Arecibo, Puerto Rico
Vega Baja-Manati, Puerto Rico

Newport, Rhode Island

Anderson, South Carolina
Florence, South Carolina
Rock Hill, South Carolina

Rapid City, South Dakota

Victoria, Texas

Burlington, Vermont

Charlottesville, Virginia
Danville, Virginia

Bellingham, Washington
Bremerton, Washington
Olympia, Washington
Longview, Washington-Oregon

Cumberland, Maryland-West Virginia

Janesville, Wisconsin
Sheboygan, Wisconsin
Wausau, Wisconsin
Beloit, Wisconsin-Illinois

Casper, Wyoming
Cheyenne, Wyoming

APPENDIX J

BASIC DATA FOR URBAN TRANSPORTATION PLANNING

PART I:	<u>Tabulations by Tract of Residence</u>	<u>Urban Transportation Planning Package</u>	<u>Summary Tape File or Publication</u>
	Population	Yes (1)	Yes
	Household Size	Yes (1)	Yes
	Household Income	Yes (1)	Yes
	Auto Ownership by H.H.	Yes (1)	Yes
	Mode of Travel to Work	Yes (1)	Yes
	Average Carpool Size	Yes (1)	Yes
	Average Traveltime	Yes (1)	Yes
	Dwelling Units by Type	Yes (1)	Yes
PART II:	<u>Tabulations by Large Areas of Residence</u>		
	H.H.s by Structure Type by H.H. Income by Size of H.H.	Yes	No
	H.H.s by Auto Available by H.H. Income by Size of H.H.	Yes	No
	Workers by H.H. Income by H.H. Size by Mode	Yes	No
	Workers by Sex by Workers in H.H. by Vehicle Available by Mode	Yes	No
PART III:	<u>Tabulations by Tract of Work</u>		
	Workers by Occupation by Sex	Yes (1)	No
	Workers by Major Industry Group by Sex	Yes (1)	No
	Workers by Mode	Yes (1)	No
	Average Traveltime by Mode	Yes (1)	No
	Average Carpool Size	Yes (1)	No
PART IV:	<u>Tabulations by Tract of Residence to Tract of Work</u>		
	Count of Workers	Yes (1)	No
	Count of Workers by Combined Mode	Yes (1)	No
	Average Traveltime by Combined Mode	Yes (1)	No
	Average Vehicle Occupancy	Yes (1)	No
PART V:	<u>Tabulations by Block Group of Work</u>		
	Workers by Major Industry Group by Sex	Yes	No
	Workers by Combined Mode	Yes	No
	Private Vehicles by Class of Worker by Sex	Yes	No
	Average Vehicle Occupancy	Yes	No
PART VI:	<u>Tabulation by County to County</u>		
	Workers by Major Industry Group by Sex	Yes	No
	Workers by Combined Mode by H.H. Income	Yes	No
	Workers by Combined Mode by Vehicles in H.H.	Yes	No
	Average Vehicle Occupancy	Yes	No

(Note:) 1. Available at Traffic Analysis Zone.

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