U.S. Department
of Transportation
**Federal Highway
Administration**

Journey-To-Work Trends in the United States and its Major Metropolitan Areas 1960-1990

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Listing of Metropolitan Areas With Over One Million Inhabitants in 1990 (Listed numerically by population rank, and alphabetically)

Numerical Listing			Alphabetical Listing		
Profile No.	Code	Metropolitan Area	Profile No.	Code	Metropolitan Area
1	NYC	New York--Northern New Jersey--Long Island CMSA	12	ATL	Atlanta
2	LOS	Los Angeles--Anaheim--Riverside, CA CMSA	18	BAL	Baltimore
3	CHI	Chicago--Gary--Lake County, IL--IN--WI CMSA	7	BOS	Boston
4	SFC	San Francisco--Oakland--San Jose, CA CMSA	33	BUF	Buffalo
5	PHI	Philadelphia--Wilmington--Trenton, PA--NJ--DE--MD CMSA	34	CHA	Charlotte
6	DET	Detroit--Ann Arbor, MI CMSA	3	CHI	Chicago
7	BOS	Boston--Lawrence--Salem, MA--NH CMSA	23	CIN	Cincinatti
8	WAS	Washington, DC--MD--VA MSA	13	CLE	Cleveland
9	DAL	Dallas--Fort Worth, TX CMSA	29	COL	Columbus
10	HOU	Houston--Galveston--Brazoria, TX CMSA	9	DAL	Dallas
11	MIA	Miami--Fort Lauderdale, FL CMSA	22	DEN	Denver
12	ATL	Atlanta, GA MSA	6	DET	Detroit
13	CLE	Cleveland--Akron--Lorain, OH CMSA	36	HAR	Hartford
14	SEA	Seattle--Tacoma, WA CMSA	10	HOU	Houston
15	SDG	San Diego, CA MSA	31	IND	Indianapolis
16	MIN	Minneapolis--St. Paul, MN--WI MSA	25	KSC	Kansas City
17	STL	St. Louis, MO--IL MSA	2	LOS	Los Angeles
18	BAL	Baltimore, MD MSA	11	MIA	Miami
19	PIT	Pittsburgh--Beaver Valley, PA CMSA	24	MIL	Milwaukee
20	PHX	Phoenix, AZ MSA	16	MIN	Minneapolis
21	TAM	Tampa--St. Petersburg--Clearwater, FL MSA	32	NRL	New Orleans
22	DEN	Denver--Boulder, CO CMSA	1	NYC	New York City
23	CIN	Cincinnati--Hamilton, OH--KY--IN CMSA	28	NFK	Norfolk
24	MIL	Milwaukee--Racine, WI CMSA	37	ORL	Orlando
25	KSC	Kansas City, MO--KS MSA	5	PHI	Philadelphia
26	SAC	Sacramento, CA MSA	20	PHX	Phoenix
27	POR	Portland--Vancouver, OR--WA CMSA	19	PIT	Pittsburgh
28	NFK	Norfolk--Virginia Beach--Newport News, VA MSA	27	POR	Portland
29	COL	Columbus, OH MSA	35	PRO	Providence
30	SAT	San Antonio, TX MSA	39	ROC	Rochester
31	IND	Indianapolis, IN MSA	26	SAC	Sacramento
32	NRL	New Orleans, LA MSA	17	STL	St. Louis
33	BUF	Buffalo--Niagara Falls, NY CMSA	38	SLC	Salt Lake City
34	CHA	Charlotte--Gastonia--Rock Hill, NC--SC MSA	30	SAT	San Antonio
35	PRO	Providence--Pawtucket--Fall River, RI--MA CMSA	15	SDG	San Diego
36	HAR	Hartford--New Britain--Middletown, CT CMSA	4	SFC	San Francisco
37	ORL	Orlando, FL MSA	14	SEA	Seattle
38	SLC	Salt Lake City--Ogden, UT MSA	21	TAM	Tampa
39	ROC	Rochester, NY MSA	8	WAS	Washington DC

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13. ABSTRACT (Maximum 200 words)

This report identified the changes which have occurred from 1960 to 1990 in population and demographics, worker characteristics, means of travel to work, household vehicle availability, and geographic revisions in the United States and its large metropolitan areas. The report is based on the U.S. Bureau of the Census data from decennial data sets.

Selected Census information for 1960, 1970, 1980 and 1990 was summarized from available Census data sets, and to a more limited extent from Census publications. Due to the thirty year time span, two levels of geography are used to present and analyze these data. In producing this report, evaluations were made of differences in selected data items over the involved time period. The report summarizes these evaluations and presents the resultants data in a series of tables, figures, metropolitan statistical profiles and maps.

Chapter 1 of the report contains background information, technical details about the data and geographic conventions that were used in the analysis. Chapter 2 presents national summary information for journey-to-work trends over the thirty year period. Chapter 3 looks at demographic characteristics in large metropolitan areas. Chapter 4 considers the characteristics of the work trip, worker residences and places of work, commuter flows and travel times within large metropolitan areas. Chapter 5 examines the means of transportation used by metropolitan area workers. Chapter 6 looks at trends in households, vehicle ownership and availability. Chapter 7 identifies how these data are affected by the latest geographic revision, showing what has occurred since 1990. The Profiles provide detailed statistical information, and maps for the U.S. as a whole, and for each of the 39 metropolitan areas that formed the core of this study.

14. SUBJECT TERMS

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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
AREA				
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yards	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
NOTE: Volumes greater than 1000 l shall be shown in m^3.				
MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5(F-32)/9 or (F-32)/1.8	Celcius temperature	°C
ILLUMINATION				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m^2	cd/m^2
FORCE and PRESSURE or STRESS				
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
AREA				
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
VOLUME				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.71	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
MASS				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
TEMPERATURE (exact)				
°C	Celcius temperature	1.8C + 32	Fahrenheit temperature	°F
ILLUMINATION				
lx	lux	0.0929	foot-candles	fc
cd/m^2	candela/m^2	0.2919	foot-Lamberts	fl
FORCE and PRESSURE or STRESS				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

* SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.

(Revised September 1993)

JOURNEY-TO-WORK TRENDS IN THE UNITED STATES AND ITS MAJOR METROPOLITAN AREAS, 1960-1990

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Research and Special Programs Administration
John A. Volpe National Transportation Systems Center
Cambridge, MA

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Washington, D.C.

FINAL REPORT

PREFACE/ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

How people in the United States travel to work is affected by demographic and worker characteristics, the availability of alternative modes of commuting, perceived travel time and the supply and location of jobs. This report explores commuting behavior on both a national and a metropolitan area basis from data drawn from the U.S. Decennial Census. Topics covered in the report include: population characteristics, characteristics of workers, mode choice for the commute trip and vehicle ownership and availability, and the effect on the data of geographic revisions. The thirty year trends from 1960-1990 are observed, as well as the more recent trends over the ten years from 1980-1990. Two levels of analysis are presented. First, national level trends are looked at, followed by an analysis of trends in large metropolitan areas.

Thirty Year Trends, 1960-1990

Population and Workers. Over the thirty year period from 1960-1990 the U.S. population increased 39% from 179 million to 249 million, and the number of households increased 73% from 53 million in 1960 to 92 million in 1990. During this same period, however, household size decreased from 3.33 persons per household to 2.63 persons per household.

The number of workers from 1960-1990 increased 78%, from about 65 million to 115 million (Figure ES-1). This increase in the number of workers is almost twice the rate of population growth. Much of the increase can be attributed to increasing numbers of women in the workforce. In 1960, women comprised only 32.3% of the workforce, but by 1990 this number had jumped to 45.3% (Figure ES-2). Also of note is that the percent of workers with jobs outside their county of residence increased 200% between 1960 and 1990, while the percent of central county commutes declined.

Metropolitan areas with populations over one million increased from thirty-four areas in 1960 to thirty-nine areas in 1990. Population within these metropolitan areas increased much more than the

Figure ES-1. Total Population and Full-Time Workers 1960 and 1990

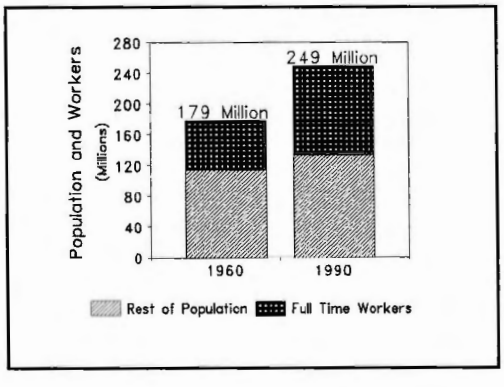
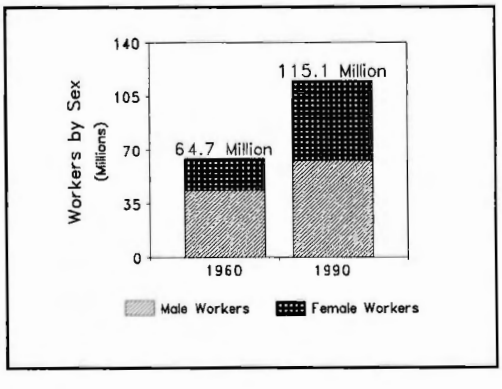


Figure ES-2. Total Workers by Sex 1960 and 1990

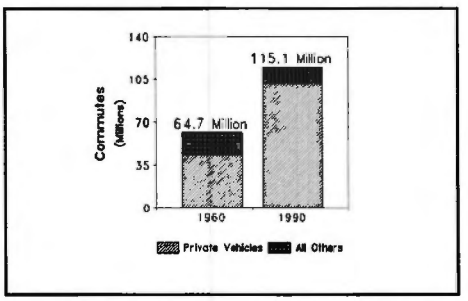


national figures, growing from 77 million people in 1960 to 124 million people in 1990, a 60% increase. By definition, population is much more dense in the metropolitan areas than in the U.S. as a whole, with 664 persons per square mile in the former and only 70 persons per square mile in the latter. A decrease in household size, much the same as the national decrease, resulted in persons per household dropping from 3.24 in 1960 to 2.65 in 1990.

In the thirty-nine metropolitan areas the number of workers increased at a faster rate than nationally. The figures more than doubled from 29 million workers in 1960 to almost 60 million workers in 1990. Each successive decade from 1960 onward produced a 22% average annual growth rate from 1960-1990. Nationally in 1990, there were 33 workers per square mile, while in the metropolitan areas there were 320 workers per square mile. The number of women in the workforce in the metropolitan areas increased almost identically to the national figures, from 33.6% to 45.6%.

Commuting. Private vehicle trips increased consistently as more people began to drive alone to work. From 1960-1990, total workers increased by 78%, while workers commuting by private vehicle rose from 43 million in 1960 to 101 million in 1990, or about 135.5%. By 1990, workers commuting by private vehicle accounted for 88% of all commute trips (Figure ES-3). Transit decreased from 7.8 million in 1960 to 5.9 million in 1990 as more and more people began to drive alone to work. Departure times were spread over many hours, with most workers departing between 7:00 A.M. and 8:29 A.M. An important external factor affecting commuting behavior is increasing suburbanization of the United States. Those workers whose jobs were located outside their counties of residence rose from 9 million in 1960 to 27.5 million in 1990, a gain of 206%, the fastest rising segment of work commuters.

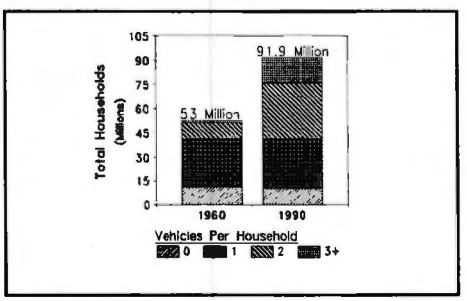
Figure ES-3. Total Worker Commutes by Mode 1960 and 1990



In almost every instance from 1960-1990, private vehicles captured increasingly larger shares of all metropolitan area work trips. Indeed, private vehicle trips increased from 61% of all commute trips in 1960 to 83% in 1990. In fourteen of the thirty-nine metropolitan areas private vehicles accounted for over 90% of total 1990 commute trips. Also in 1990, transit ridership in metropolitan areas was 9%, while only 5.3% nationally.

Household Vehicles. Household vehicle growth was very strong, almost tripling from 54.8 million in 1960 to 152.4 million in 1990. In 1960, the average household had only one vehicle, but that figure rose to 1.66 by 1990 as multiple vehicle households became the majority. Similarly, the number of households with three or more vehicles increased to 17% of all households or nearly 16 million in 1990, up from only 1.3 million in 1960, becoming the fastest growing of all household types. Almost all the growth in vehicles has occurred in households with two or more vehicles. These growth patterns are illustrated in Figure ES-4. Additional factors affecting household ownership of vehicles include the increase in average vehicle age and the advent of smaller, more fuel efficient

Figure ES-4. Total Households by Number of Household Vehicles, 1960 and 1990



automobiles. From 1960-1990 vehicles per household in the metropolitan areas increased from 1.0 to 1.59, while vehicles per person increased from 0.31 to 0.58. Overall, suburban counties had higher growth rates in vehicles per household than central counties.

Ten Year Trends, 1980-1990

Population and Workers. In the ten years from 1980-1990 the U.S. population increased 9.8%, from 227 million people to 248 million people and the number of households increased 14% from 80 million to 92 million. Persons per household, continuing the trend from 1960 onward, declined 4.4% from 2.75 to 2.63. The number of workers increased 19%, from 97 million to 115 million. Workers per household in contrast, increased less than 5%, from 1.22 to 1.25. The comparatively small increase in workers per household is explained by the dramatic tandem drop in household size. Workers who worked in their county of residence increased 25% from 1980-1990, while workers who worked outside their county of residence increased almost 50%.

The population increased slightly faster in metropolitan areas than in the U.S. as a whole, from 111 million in 1980 to 124 million in 1990. Persons per household in the thirty-nine metropolitan areas in 1990 ranged from a high of 3.04 in Salt Lake City to a low of 2.32 in Tampa. The number of workers in the metropolitan areas also rose slightly faster than the number of workers nationally, from 46 million in 1980 to 59.7 million in 1990. The number of workers per household rose from 1.18 in 1980 to 1.31 in 1990. Again, like the national numbers listed above, this increase appears much less static in light of decreasing household size. From 1980-1990, among the metropolitan areas, the maximum number of workers per household was 1.52 in Washington, D.C., while the minimum was in Tampa with 1.05. The maximum number of workers as a percent of population was in Washington, D.C. with 56.4%, while the minimum was in New Orleans with 41.5%.

Commuting. In 1980, 64% of all commuters drove alone to work; by 1990 the drive alone share had increased to 73%. This increase in the rate of driving alone substantially affected other journey-to-work modes. Transit use, for example, fell from 6.2% to 5.1% from 1980-1990. The share of people walking to work decreased from 5.4 million in 1980 to 4.5 million in 1990. Additionally, the percentage of persons using carpools declined 32%. Time spent commuting has increased slowly from 21.7 minutes in 1980 to 22.4 minutes in 1990.

Much of the gain in numbers of people driving alone from 1980 to 1990 came at the expense of carpooling, and to a lesser degree, transit. Transit declined from 6.22% in 1980 to 5.12% in 1990. Working at home showed an increase from 2.2 million in 1980 to 3.4 million in 1990. However, over the thirty years from 1960-1990 working at home experienced an overall 27% loss in share of commute modes. Central county to central county and suburban county to same suburban county commute trips composed the majority of trips for the metropolitan areas in 1990. In 1990, workers in metropolitan areas averaged 25.2 minutes commuting to their jobs.

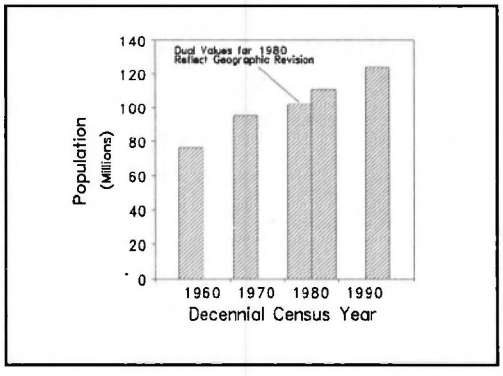
Household Vehicles. The dramatic rise in vehicles per household mentioned above halted and from 1980-1990 the number of vehicles per household grew only 5%, from 1.61 in 1980 to 1.66 in 1990. Vehicles per worker declined a small amount from 1.34 to 1.32. Between 1980 and 1990 zero vehicle households, as a percentage of all households, declined by 11% while households with three or more vehicles remained constant.

The unprecedented growth in the number of vehicles per household that occurred between 1960-1980 slowed (much like the figures for the U.S. as a whole) from 1.52 in 1980 to 1.59 in 1990. From 1980-1990 seventeen central counties had declines in zero vehicle households and thirty counties experienced growth in three or more vehicle households. In 1990, Tampa and Sacramento, at 1.45 vehicles per worker, tied for the maximum number, while New York City had the minimum with 0.93 vehicles per worker.

Geographic Revisions in Metropolitan Areas

The Office of Management and Budget (OMB) periodically revises the geographic boundaries of metropolitan areas, thus affecting data comparisons for Census journey-to-work data. Figure ES-5 shows the effect of the 1983 revision on total population in large metropolitan areas. The net effect was to increase area population counts. As a result of the revision, population in metropolitan areas changed in 1980 from 102 million to 110.7 million. The bulk of this Report includes tables using the 1974 and 1983 OMB definitions. In 1992, OMB again updated the definition of metropolitan areas. The effect of this was a general expansion in the land area of the thirty-nine metropolitan areas. Chapter 7 includes tables comparing figures using the 1983 and 1992 OMB definitions. The expansion affects the demographic characteristics of the land area in two ways. First, population in the metropolitan areas increased slightly. Second, population density declined as larger, less populated counties were added to the boundaries of the metropolitan areas.

Figure ES-5. Effect of Geographic Revision on Total Population of Metropolitan Areas



Chapter 1

INTRODUCTION

Chapter 1 provides an overview and reviews the background of this report. It addresses issues of geographic revision, the sources and definitions of data, and the limitations of the data. Guidance is provided on using and interpreting the data tables found in the report. The organization of the report is then outlined and discussed.

An Overview

This report documents the changes that occurred nationwide between 1960 and 1990 in journey-to-work demographic characteristics, geographic flows, mode of travel to work, vehicle availability, and other related indicators of commuting activity by U.S. workers.[1] Thirty years ago, most commuter trips were traditional, home-to-work, suburb-to-central city trips. A journey to work in 1990 is more likely to include side trips for day care, for convenience shopping, or some other purpose aside from getting to or from work. It is also more likely to occur entirely within suburban counties. In this report, particular emphasis is placed on the 1980-1990 period, where rapidly changing socioeconomic factors may help to explain various trends that occurred.

Most of the data used in this report are from the 1990 Census of Population and Housing, Summary Tape File (STF) 3, and earlier editions of the Census of Population and Housing.

In the chapters that follow, more detailed information is provided for each of the thirty-nine metropolitan areas having over one million residents as reported in the 1990 Census and defined by the Office of Management and Budget. The general structure is to report information at three levels: 1) metropolitan areawide data, 2) central county data, and 3) suburban county data. By subject area, the report looks at population and households, worker characteristics, places of work and residence, worker flows and travel times, mode of travel, and vehicle availability.

Background

In 1986, the FHWA published the report *Journey-to-Work Trends Based on 1960, 1970, and 1980 Decennial Censuses*[2] (from now on called the Trends report). The report was prepared for use by policy makers, program managers, and researchers in the analysis of the highway and transportation system. The design and content of the report were guided by a special task force of the TRB Committee on Data Collection and Information Systems. Material in the FHWA report was the basis of the highly regarded *Commuting in America*[3] report.

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[1] The present report updates and expands upon an earlier report: Briggs, D., Pisarski, A. and McDonnell, J. "Journey-to-Work-Trends Based on 1960, 1970 and 1980 Decennial Censuses" (U.S. DOT/FHWA, July 1986).

[2] Briggs, D., Pisarski, A. and McDonnell, J. "Journey-to-Work Trends Based on the 1960, 1970 and 1980 Decennial Censuses" (U.S. DOT/FHWA. July 1986).

[3] Pisarski, A. "Commuting in America" (Eno Foundation, 1987)

A DOT Working Group on Journey to Work was established in 1992 to guide the writing of the present report. The objective of this report was to update and expand the information in the Trends report. The Trends report covered thirty-four metropolitan areas. Due to changes in population, the list of new areas has grown to thirty-nine areas, encompassing six additions and one deletion (Dayton/Springfield).[4] Table 1-1 lists the thirty-nine metropolitan areas included in this report. The profile numbers match 1990 population ranks while the codes reference the graphs used in this report.

Guide to Using the Report

Cautions on Using Data in the Tables. The tables in chapters two through six depict the U.S. and its thirty-nine metropolitan areas with over one million inhabitants in 1990. At the bottom of each table, totals are provided. Because there are occasional missing entries for metropolitan areas, readers should exercise caution when comparing the totals. This is especially so when comparing entries from the 1960-1980 and 1980-1990 periods, because the geography and metropolitan areas both change across the periods. Table P-1 in the Profiles section presents national level totals for many data items, and readers may wish to refer to these when making specific metropolitan area comparisons. Other details to bear in mind include:

- **Metropolitan Areas:** In comparing data from 1960-1980 with data from 1990, readers should note that the two groups of metropolitan areas over one million are not in direct correspondence. The 1960-1980 group contains thirty-four areas, while the 1980-1990 group has thirty-nine areas.

- **Totals:** Column totals reflect only metropolitan areas for which data were obtainable for all years represented on the table. Totals are provided only for the convenience of readers, and do not necessarily suggest all activity for metropolitan areas over one million. Missing data should be noted before using totals.

- **Percent Changes:** All totals for percent changes reflect only those metropolitan areas for which data were obtainable. Thus, any missing observations were first excluded from calculations.

---

[4] Six new metropolitan areas were added in 1990. These areas and their central counties are:

Metropolitan Area	Central County
Norfolk, VA	Norfolk City, VA
Charlotte NC/SC	Mecklenberg County, NC
Hartford, CT	Hartford City, CT
Orlando, FL	Orange County, FL
Salt Lake City, UT	Salt Lake County, UT
Rochester, NY	Monroe County, NY

Table 1-1. Listing of Metropolitan Areas With Over One Million Inhabitants in 1990 (Listed numerically by population rank, and alphabetically)

Numerical Listing			*Alphabetical Listing*		
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8	WAS	Washington, DC--MD--VA MSA	13	CLE	Cleveland
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15	SDG	San Diego, CA MSA	31	IND	Indianapolis
16	MIN	Minneapolis--St. Paul, MN--WI MSA	25	KSC	Kansas City
17	STL	St. Louis, MO--IL MSA	2	LOS	Los Angeles
18	BAL	Baltimore, MD MSA	11	MIA	Miami
19	PIT	Pittsburgh--Beaver Valley, PA CMSA	24	MIL	Milwaukee
20	PHX	Phoenix, AZ MSA	16	MIN	Minneapolis
21	TAM	Tampa--St. Petersburg--Clearwater, FL MSA	32	NRL	New Orleans
22	DEN	Denver--Boulder, CO CMSA	1	NYC	New York
23	CIN	Cincinnati--Hamilton, OH--KY--IN CMSA	28	NFK	Norfolk
24	MIL	Milwaukee--Racine, WI CMSA	37	ORL	Orlando
25	KSC	Kansas City, MO--KS MSA	5	PHI	Philadelphia
26	SAC	Sacramento, CA MSA	20	PHX	Phoenix
27	POR	Portland--Vancouver, OR--WA CMSA	19	PIT	Pittsburgh
28	NFK	Norfolk--Virginia Beach--Newport News, VA MSA	27	POR	Portland
29	COL	Columbus, OH MSA	35	PRO	Providence
30	SAT	San Antonio, TX MSA	39	ROC	Rochester
31	IND	Indianapolis, IN MSA	26	SAC	Sacramento
32	NRL	New Orleans, LA MSA	17	STL	St. Louis
33	BUF	Buffalo--Niagara Falls, NY CMSA	38	SLC	Salt Lake City
34	CHA	Charlotte--Gastonia--Rock Hill, NC--SC MSA	30	SAT	San Antonio
35	PRO	Providence--Pawtucket--Fall River, RI--MA CMSA	15	SDG	San Diego
36	HAR	Hartford--New Britain--Middletown, CT CMSA	4	SFC	San Francisco
37	ORL	Orlando, FL MSA	14	SEA	Seattle
38	SLC	Salt Lake City--Ogden, UT MSA	21	TAM	Tampa
39	ROC	Rochester, NY MSA	8	WAS	Washington DC

Report Organization. The report provides information for each of the thirty-nine metropolitan areas having over one million residents as defined by the 1990 Census figures. The general structure is to report information at three levels: 1) metropolitan areawide data, 2) central county data, and 3) suburban county data. In terms of broad themes, the report looks at population and households, worker characteristics, places of work and residence, worker flows and travel times, mode of travel, and vehicle availability.

Chapter 2 documents *national changes* that occurred between 1960 and 1990 in journey-to-work demographic characteristics, geographic flows, mode of travel to work, vehicle availability, and other related indicators of commuting activity by U.S. workers. Particular emphasis is placed on the years from 1980-1990, a decade of rapidly changing socioeconomic factors.

Chapter 3 describes *population characteristics* within the thirty-nine metropolitan areas, including trends for central and suburban counties. The effects of central county size and land area are assessed, along with such items as household formation and size, household income, and urban and rural residence. Some principal themes that emerge from the analysis include declining household size, rapid population growth in Sunbelt areas, and population growth in suburban areas.

Chapter 4 describes *characteristics of the work trip.* The chapter includes discussion and tables on residential and workplace location based on central/suburban county definitions and the effect of commuting flows and travel times. Also included is new data on time leaving home to go to work.

Chapter 5 includes tables on *mode choice for the commute trip.* Drive alone trips were foremost over the past 30 years, while losses occurred in public transit, carpooling and even walking. There was some growth in the number of people who work at home. Some factors contributing to mode choice include increases in multipurpose trips, the increase in women in the labor force, and the adoption of flexible work hours by some companies.

Chapter 6 addresses household *vehicle ownership and availability,* including vehicles per person and vehicles available per worker. Nearly 80 million vehicles were located within the thirty-nine metropolitan areas comprising the study group. Over the thirty-year period, vehicles per household grew 60%, while vehicles per worker increased by over 50%.

Chapter 7 documents the changes in *geographic redefinition* of the metropolitan areas. In late 1992, the U.S. Office of Management and Budget revised the geography of many metropolitan areas discussed in this report. This chapter illustrates how the new geographic boundaries affect some population, worker, and vehicle characteristics described in earlier chapters of the report.

The **Profiles** section includes a *map* showing the geography, county boundaries, and central cities of each metropolitan area. Also provided are a one-page *statistical profile* sheet of 1990 data for each metropolitan area and a profile of U.S. totals. Readers can obtain local commuting and demographic statistics from these profiles. Most of the data in these profiles are replicated in the topically defined tables in the preceding chapters.

The **Appendices** provide details on *additions and deletions of counties* that have resulted from geographic revisions.

Sources of Data

The Census Bureau distributes data from the 1990 Census of Population and Housing in a series of Summary Tape Files (STF's). There are four STF series at various levels of geographic detail. In preparing this report, the STF 3A series was used. It includes sample data weighted to represent the total population. In addition, the file contains 100-percent counts and unweighted sample counts. It contains characteristics similar in content to the 1980 STF, but with expanded detail. The STF 3A provides data for states and their sub-areas in hierarchical sequence down to the block-group level. These include county, county subdivision, place (or place part), census tract/block numbering area (or part), and block group (or part).

Information was extracted from CD-ROMs and loaded onto a database manager and spreadsheet software programs. When required, data for earlier years were obtained directly from the Census Bureau or from publications commonly available in libraries, such as the Census of Population and Housing (CPH-L-80) data set.

Limitations and Accuracy of the Data. Because the geographic scale of analysis is limited to counties in this report, we cannot fully explore suburban development, reverse commuting, and suburb-to-suburb commuting. The county level analysis in this report does show major increases in commuting from the central county to suburban counties, and major increases in suburban county to suburban county. Because the objective of this report was to update the county level commuting flows presented in the earlier Trends report, movements of workers within counties, or along specific high density corridors within counties are beyond the scope of this analysis.[5] Also, for each metropolitan area, its central county and suburban counties often make up much different proportions of total land area. All data should be evaluated in this light.

The 1990 census data reported in STF 3A are based on a sample and are therefore subject to both sampling and nonsampling errors. Sampling error in data arises from the selection of persons and housing units to be included in the sample. Nonsampling error affects both sample and 100-percent data, and is introduced as a result of errors that may occur during the collection and processing phases of the census.

Each housing unit in the country received one of two versions of the census questionnaire: 1) a short-form that contained certain basic demographic and housing questions (100-percent questions), and 2) a long-form that contained the 100-percent items and a number of additional questions. For the long-form, the primary sampling unit for the 1990 census was the housing unit, including all occupants. Three sampling rates were employed. Rural areas (fewer than 2,500 persons) were sampled at a rate of 1-in-2. Urban areas were sampled at a rate of 1-in-8. All other areas were sampled at a rate of 1-in-6. When all sampling rates were taken into account across the U.S., approximately 1-in-6 housing units were included in the 1990 census sample.

Geography Considerations

Definition of Metropolitan Area. The general concept of a metropolitan area (MA) is a large population nucleus surrounded by adjacent communities that have a high degree of economic and social

[5] For more detailed information at the local level, readers can consult the Census Transportation Planning Packages (CTPP) published by the Census Bureau, or other STF data series.

integration with that nucleus. Some MA's are defined around two or more nuclei. Each MA must contain either a place with at least 50,000 inhabitants or an urbanized area and a total population of at least 100,000 (75,000 in New England). An MA may also include one or more outlying counties that have close economic and social relationships with the central county. An outlying county must have a specified level of commuting to the central counties and also must meet certain standards regarding metropolitan character, such as population density, urban population, and population growth. In New England, MA's are composed of cities and towns rather than whole counties.

If an area has more than one million inhabitants and meets certain other requirements specified in the Metropolitan Area standards published in the *Federal Register*,[6] it is termed a Consolidated Metropolitan Statistical Area (CMSA), consisting of two or more major components recognized as Primary Metropolitan Statistical Areas (PMSA's). Metropolitan Statistical Areas (MSA's) are relatively freestanding MA's and are not closely associated with other MA's. These areas typically are surrounded by nonmetropolitan areas. The OMB defines MA's in terms of entire counties, except in the six New England states where they are defined in terms of cities and towns. The set of areas known as MSA's, PMSA's, and CMSA's are collectively designated MA's. In this report, there are 19 CMSA's and 20 MSA's.[7]

Revisions to Geographic Boundaries. The MSA/CMSA boundaries in the Trends report were based on the 1974 Census boundary definitions. The 1990 Decennial Census uses the updated 1983 Census boundary definitions. A DOT Working Group on Journey to Work decided to adopt the new boundary definitions and work backward to revise the 1980 data to conform with the new definitions. Readers should note that in all the tables and figures presented in this report, the data for New York City do not include the New England portion of the CMSA (i.e., Fairfield County, Connecticut). Table 1-2 below indicates the effect of geography revisions on specific metropolitan areas. The boundaries of ten metropolitan areas remained unchanged. In twenty-three metropolitan areas the geography increased. Six areas actually decreased in size as a result of the revision process.

For 1980 data, the geographic boundaries used in the earlier Trends report were adjusted to updates based on the new geography. Counties that were either added or removed from the thirty-nine MSA's/CMSA's were identified. Due to the way in which data were collected, it was not possible to adjust data from 1960 or 1970 using the new boundaries.[8] The DOT Working Group preferred to continue using the central county as a unit of analysis. Analysis based on the unit of central city was considered, but ultimately considered unsatisfactory for this report.[9] The Working Group also decided to limit the scope to metropolitan areas with over one million inhabitants.

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[6] FR (12154-12160), March 30, 1990.

[7] Two terms that were used in the 1980 Census are no longer being used. These are the Standard Metropolitan Statistical Area (SMSA), and the Standard Consolidated Statistical Area (SCSA).

[8] Data for many counties that had been added to the definitions of metropolitan areas over the years were not covered in the necessary detail previous to their inclusion in the new boundaries.

[9] In each MSA and CMSA, the largest place and, in some cases, additional places are designated as central cities. A few PMSA's do not have central cities. The largest central city, and in some cases, up to two additional central cities are included in the title of the MA; there are also central cities that are not included in an MA title. An MA central city does not include any part of that city that extends outside the MA boundary.

Two sets of trends are presented in the tables in the following chapters: 1) the 1974 OMB geographic definitions are used to show data comparisons for 1960, 1970, and 1980; and 2) the 1983 OMB definitions are used to compare data for 1980 and 1990. Thus, there will be two observations for 1980 data; existing 1980 data are revised using the 1983 definitions, but not 1970 or 1960. Figure 1-1 illustrates how the change in geography affects the 1980 count of suburban population in the thirty-nine metropolitan areas. In presenting the tables, tables using the 1983 OMB definition for 1980 data have an "A" in the table number suffix. Tables using the 1974 OMB definition for 1980 data do not have an "A" in the table number suffix.

New England. As in the Trends report, the New England portion will continue to be excluded from the New York CMSA. The Boston and Providence metropolitan areas were excluded from the 1960 and 1970 data sets. These exclusions will continue, except for most 1980 and 1990 tabulations. Hartford is new to the list, and only 1980 and 1990 data will be presented, due to the grouping of data by cities and towns rather than counties. The NECMA[10] definition is employed to include the New England areas in particular analyses.

Data Definitions

Urban and Rural. The Census Bureau defines "urban" for the 1990 census as comprising all territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urbanized areas. More specifically, "urban" consists of territory, persons, and housing units in: 1) Places of 2,500 or more persons incorporated as cities, villages, boroughs (except in New York), and towns (except in the six New England states, New York, and Wisconsin), but excluding the rural portions of "extended cities"; 2) Census designated places of 2,500 or persons; 3) Other territory, incorporated or unincorporated, included in urbanized areas. Territory, population, and housing units not classified as urban constitute "rural." The urban and rural classification cuts across the other hierarchies; for example, there is generally both urban and rural territory within both metropolitan and nonmetropolitan areas.

To improve its measure of urban territory, population, and housing units, the Census Bureau adopted the concept of the urbanized area and delineated boundaries for unincorporated places (now, census designated places) for the 1950 census. This "urban" definition has remained basically unchanged since then.

Household. A household includes all the persons who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. In 100-percent tabulations, the count of households or householders always equals the count of occupied housing units. In sample tabulations, the numbers may differ as a result of the weighting process.

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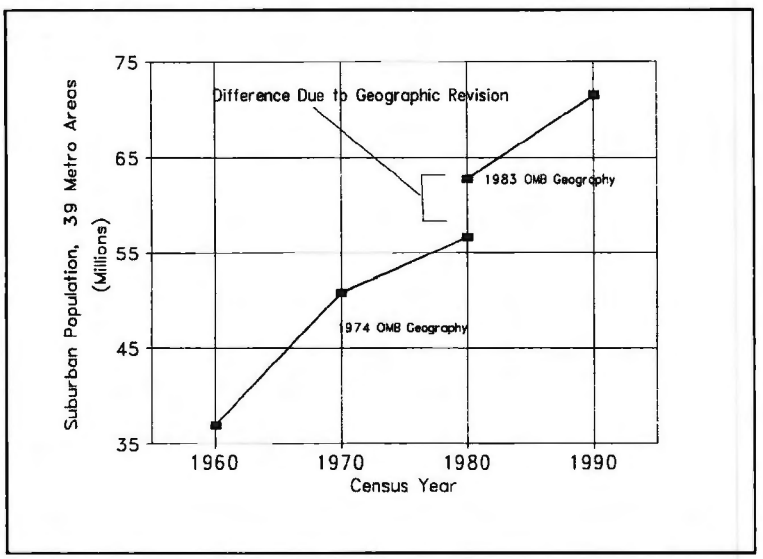
[10] Readers should take note that in computing some of the data series for New England metropolitan areas (Boston, Providence, and Hartford), the New England County Metropolitan Area (NECMA) definition is used to delineate county boundaries. This was necessary to maintain consistency with other parts of the U.S., since in New England metropolitan areas are defined by cities and towns, and hence leading to only partial county coverage (rather than the complete county coverage that NECMA's provide).

Table 1-2. Effect of 1983 OMB Revisions on Geographies of 1990 Metropolitan Areas With Over One Million Inhabitants

Geography Unchanged	Geography Increased	Geography Decreased	New Areas in 1990
Los Angeles	New York	Dallas	Norfolk
Houston	Chicago	Atlanta	Charlotte
Miami	San Francisco	Denver	Hartford
Cleveland	Philadelphia	Cincinnati	Orlando
Seattle	Detroit	Indianapolis	Salt Lake City
San Diego	Boston	Providence	Rochester
Phoenix	Washington		
Milwaukee	Minneapolis		
San Antonio	St. Louis		
Buffalo	Baltimore		
	Pittsburgh		
	Tampa		
	Kansas City		
	Sacramento		
	Portland		
	Columbus		
	New Orleans		

Figure 1-1. Effect of Geographic Revisions on Suburban Population, Thirty-Nine Metropolitan Areas, 1960-1990



Persons per household is a measure obtained by dividing the number of persons in households by the number of households. In cases where persons in households are cross-classified by race or Hispanic origin, the race or Hispanic origin of the householder is used rather than the race or Hispanic origin of each individual.

Income of Households and Median Income. Includes the income of the householder and all other persons 15 years old and over in the household, whether related to the householder or not. Because many households consist of only one person, average household income is usually less than family income.

The median divides the income distribution into two equal parts, one having incomes above the median and the other having incomes below the median. For households and families, the median income is based on the distribution of the total number of units including those with no income. The median for persons is based on persons with income. The median income values for all households, families, and persons are computed on the basis of more detailed income intervals than shown in most tabulations. Median household or family income figures of $50,000 or less are calculated using linear interpolation. For persons, corresponding median values of $40,000 or less are also computed using linear interpolation.

Vehicles Available. The data on vehicles available were obtained from questionnaire item H13, which was asked at occupied housing units on a sample basis. These data show the number of households with a specified number of passenger cars, vans, and pickup or panel trucks of one-ton capacity or less kept at home and available for the use of household members. Vehicles rented or leased for one month or more, company vehicles, and police and government vehicles are included if kept at home and used for non-business purposes. Dismantled or immobile vehicles are excluded. Vehicles kept at home but used only for business purposes also are excluded. Vehicles per household is computed by dividing aggregate vehicles available by the number of occupied housing units.

Limitations. 1980 census evaluations showed that the number of automobiles were slightly overreported, the number of vans and trucks slightly underreported. The statistics do not measure the number of vehicles privately owned or the number of households owning vehicles. Data on automobiles available were collected from 1960 to 1980. In 1980, a separate question also was asked on the number of trucks and vans. The data on automobiles and trucks and vans were presented separately and also as a combined vehicles available tabulation. The 1990 data are comparable to the 1980 vehicles available tabulations.

Employment Status. The data on employment status were derived from answers to questionnaire items 21, 25, and 26, which were asked of a sample of persons. The series of questions on employment status was asked of all persons 15 years old and over and was designed to identify, in this sequence: (1) persons who worked at any time during the reference week; (2) persons who did not work during the reference week but who had jobs or businesses from which they were temporarily absent (excluding layoff); (3) persons on layoff; and (4) persons who did not work during the reference week, but who were looking for work the last four weeks and were available for work during the reference week.

The employment status data shown in this and other 1990 census tabulations relate to persons 16 years old and over. Some tabulations showing employment status, however, include persons 15 years old. By definition, these persons are classified as "Not in Labor Force." In the 1940, 1950, and 1960 censuses, employment status data were presented for persons 14 years old and over. The change in the universe was made in 1970 to agree with the official measurement of the labor force as revised in January 1967

by the U.S. Department of Labor. The 1970 census was the last to show employment data for persons 14 and 15 years old.

Employed persons are defined as all civilians 16 years old and over who were either (1) "at work" – those who did any work at all during the reference week as paid employees, worked in their own business or profession, worked on their own farm 15 hours or more as unpaid workers on a family farm or in a family business; or (2) were "with a job but not at work" – those who did not work during the reference week but had jobs or businesses from which they were temporarily absent due to illness, bad weather, industrial dispute, vacation, or other personal reasons. Excluded from the employed are persons whose only activity consisted of work around the house or unpaid volunteer work for religious, charitable, and similar organizations; also excluded are persons on active duty in the United States Armed Forces.

Limitations. The census may understate the number of employed persons because persons who have irregular, casual, or unstructured jobs sometimes report themselves as not working. The number of employed persons "at work" is probably overstated in the census (and conversely, the number of employed "with a job, but not at work" is understated) because some persons on vacation or sick leave erroneously reported themselves as working. This problem has no effect on the total number of employed persons. Since persons can change their employment status from one week to another, the lack of a uniform reference week may mean that the employment data do not reflect the reality of the unemployment situation of any given week.

Place of Work. The data on place of work were derived from answers to questionnaire item 22, which was asked of persons who indicated in question 21 that they worked at some time during the reference week. Data were tabulated for workers 16 years and over; that is, members of the Armed Forces and civilians who were at work during the reference week. Data on place of work refer to the geographic location 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 or town, or post office); whether or not the place of work was inside or outside the limits of that city or town; 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. When the number and street name were unknown, a description of the location, such as the building name or nearest street or intersection, was entered.

Persons who worked at more than one location during the reference week were asked to report the one at which they worked the greatest number of hours. Persons who regularly worked in several locations each day during the reference week were requested to give the address at which they began work each day. For cases in which daily work did not begin at a central place each day, the person was asked to provide as much information as possible to describe the area in which he or she worked most during the reference week.

In some tabulations, place-of-work locations may be defined as "in area of residence" and "outside area of residence." The area of residence may vary from table to table or even within a table. For example, in a table that provides data for counties, "in area of residence" refers to persons who worked in the same county in which they lived, while "outside area of residence" refers to persons whose workplace is different from the one in which they lived. Similarly, in a table that provides data for several types of areas, such as the State and its individual metropolitan areas, counties, and places, the place-of-work data will be variable and is determined by the geographic level (State, metropolitan area, county, or place) shown in each section of the tabulation.

In tabulations that present data for an MSA/PMSA, place-of-work locations are specified to show the main destinations of workers living in the MSA/PMSA. All place-of-work locations are identified with respect to the boundaries of the MSA/PMSA as "inside MSA/PMSA" or "outside MSA/PMSA." Locations within the MSA/PMSA are further divided into each central city, and each county or county balance. Selected large incorporated places also may be specified as places to work.

Within New England MSA/PMSA's, the places of work presented generally are cities and towns. Locations outside MSA/PMSA's are specified if they are significant commuting destinations for residents of major MSA/PMSA's and their central cities, component counties, large incorporated places, or counties, cities, or other geographic area outside any metropolitan area. In tabulations for MSA/PMSA's in New England and certain other metropolitan areas, some place-of-work locations are identified as "areas" (e.g., Area 1, Area 5, Area 12, etc.). Such areas consist of groups of towns, cities, or counties that have been identified as unique place-of-work destinations. When an adjoining MSA/PMSA or MSA/PMSA remainder is specified as a place-of-work location, its components are not defined. However, the components are presented in the 1990 CP-1, General Population Characteristics for Metropolitan Areas and the 1990 CH-1, General Housing Characteristics for Metropolitan Areas reports. In tabulations that present data for census tracts outside metropolitan areas, place-of-work locations are defined as "in county of residence" and "outside county of residence."

Place-of-work data are given for selected minor civil divisions (generally, cities, towns, and townships) in the nine Northeastern States, based on the responses to the place-of-work question. Many towns and townships are regarded locally as the equivalent of a place and therefore, were reported a locality or incorporated place that formed a part of a township or town. The accuracy of the 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 the unfamiliarity of the respondent with the minor civil division in which the workplace was located or when a township and a city or borough of the same or similar name are located close together.

The wording of the question on place of work was substantially the same in the 1990 census as it was in 1980. However, data on place of work from the 1990 census are based on the full census sample, while data from the 1980 census were based on only about one-half of the full sample. For the 1980 census, nonresponse or incomplete responses to the place-of-work question were not allocated, resulting in the use of "not reported" categories in the 1980 publications. However, for the 1990 census, when place of work was not reported or the response was incomplete, a work location was allocated to the person based on their means of transportation to work, travel time to work, industry, and location of residence and workplace of others. The 1990 publications, therefore, do not contain a "not reported" category for the place-of-work data.

Comparisons between 1980 and 1990 census data on the gross number of workers in particular commuting flows, or the total number of persons working in an area, should be made with extreme caution. Any apparent increase in the magnitude of the gross numbers may be due solely to the fact that for 1990 the "not reported" cases have been distributed among specific place-of-work destinations, instead of tallied in a separate category as in 1980. In this report, the numbers in tables have been distributed.

Limitations. The data on place of work relate to a reference week; that is, the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed by enumerators. This week is not the same for all respondents because the enumeration was not completed in 1 week. However, for the majority of persons, the reference week for the 1990

census is the last week in March 1990. The lack of a uniform reference week means that the place-of-work data reported in the census will not exactly match the distribution of workplace locations observed or measured during an actual workweek. The place-of-work data are estimates of persons 16 years old and over who were both employed and at work during the reference week (including persons in the Armed Forces). Therefore, the data on place of work understate the total number of jobs or total employment in a geographical area during the reference week. It also should be noted that persons who had irregular, casual, or unstructured jobs during the reference week may have erroneously reported themselves as not working.

The address where the individual worked most often during the reference week was recorded on the census questionnaire. If a worker held two jobs, only data about the primary job (the one worked the greatest number of hours during the preceding week) was requested. Persons who regularly worked in several locations during the reference week were requested to give the address at which they began each day. For cases in which daily work was not begun at a central place each day, the person was asked to provide as much information as possible to describe the area in which he or she worked most during the reference week.

Means of Transportation. The data on means of transportation to work were derived from answers to questionnaire item 23a, which was asked of persons who indicated in question 21 that they worked at some time during the reference week. Means of Transportation to work refers to the principal mode of travel or type of conveyance that the person usually used to get from home to work during the reference week.

Persons who used different means of transportation on different days of the week were asked to specify the one they used most often. Persons 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, "Public transportation," includes workers who used a bus or trolley bus, streetcar or trolley car, subway or elevated rail, railroad, ferryboat, or taxicab even if each mode is not identified separately within the data distribution. The category, "Other means," may vary from table to table, depending on the amount of detail shown in a particular distribution.

The means of transportation data for some areas may show workers using modes of public transportation that are not available in those areas (e.g., subway or elevated riders in a metropolitan area where there actually is no subway or elevated service). This result is largely due to persons 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 area where subway service was available) and persons who used more than one means of transportation each day but whose principal means was unavailable where they lived (for example, residents of nonmetropolitan areas who drove to the fringe of an metropolitan area and took the commuter railroad most of the distance to work).

Private Vehicle Occupancy. The data on private vehicle occupancy were derived from answers to questionnaire item 23b. This question was asked of persons who indicated in question 21 that they worked at some time during the reference week and who reported in question 23a that their means of transportation to work was "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. Other transportation discussions on vehicle occupancy may use occupancy that is weighted by trip length.

The category, "Drove alone," includes persons who usually drove alone to work as well as persons who were driven to work by someone who then drove back home or to a nonwork destination. The

category, "Carpooled," includes workers who reported that two or more persons usually rode to work in the vehicle during the reference week.

The measure persons per car, truck, or van is 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 is 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, and so on, and then summing all the vehicles.

Time Leaving Home to Go to Work. The data on time leaving home to go to work were derived from answers to questionnaire item 24a. This question was asked of persons who indicated in question 21 that they worked at some time during the reference week and who reported in question 23a that they worked outside their home. The departure time refers to the time of day that the person usually left home to go to work during the reference week.

Travel Time to Work. The data on travel time to work were derived from answers to questionnaire item 24b. This question was asked of persons who indicated in question 21 that they worked at some time during the reference week and who reported in question 23a that they worked outside their home. Travel time to work refers to the total number of minutes that it usually took the person 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, and time spent in other activities related to getting to work.

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Chapter 2

NATIONAL SUMMARY

Commuting Indicators

Thirty Year Trends. Commuting behavior by U.S. workers can be viewed as an outcome of demographic characteristics, the supply and location of jobs, the costs and availability of various commuting options, and perceived travel time. Over the 1960-1990 period there were a number of factors that influenced commuting behavior in both quantity and magnitude. Table 2-1 highlights national data from the 1960, 1970, 1980 and 1990 decennial censuses and their journey-to-work components.[1] This table compares broad measures and characteristics of the population, workers, commuting activities, and mode of travel. Table 2-2 displays similar information for the 1960-1990 period, but focuses on comparisons between totals for the U.S. and large metropolitan areas with over one million inhabitants.

As the two tables show, over the period 1960-1990 the U.S. general population increased from 179 million to almost 249 million. Meanwhile, the number of workers rose from about 65 million to 115 million, or almost twice the growth rate of the population. There was also a sharp drop in household size. In 1960, the typical household had 3.33 persons, but by 1990 household size had diminished to 2.63 persons – a decrease of 21%. The totals for large metropolitan areas show results comparable to the U.S. figures. Table 2-2 shows greater growth for population and workers in metropolitan areas, but much of the difference is caused by the addition of several new metropolitan areas over the period. The percentage of workers commuting by privately owned vehicles (POV) is higher outside of the metropolitan areas. Otherwise, the ratios show little difference between the U.S. and metropolitan areas.

Throughout the period, the percent of workers who worked outside their county of residence grew by over 200%, suggesting the progressive suburbanization of places of work. With greater economic activity came a higher standard of living for many households, and with it the ability to buy more automobiles. The Interstate Highway System was virtually completed during these years. The total number of vehicles in households increased over threefold. The average household in 1960 had only 1.03 vehicles, but by 1990 it had 1.66 vehicles. The fastest rising category during the period was households with three or more vehicles. By 1990, nearly 16 million U.S. households had three or more vehicles, or about 17% of all U.S. households.

During the 1960-1990 period, the baby-boomers grew from a population of school-aged children into working adults in their thirties and forties. The rapid growth in U.S. workers was driven in large measure by these baby-boomers entering the labor force. Also of note was the increase in workers per household, representing an increase in women in the labor force. In 1960, females made up 33.6% of all workers in large metropolitan area, but by 1990 females formed 45.6% of total workers. Another important change was a declining birth rate. In 1960, the U.S. had a birth rate per of 23.8 per thousand, but by 1990, the birth rate had dropped to 16.7.[2]

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[1] For the sake of clarity, and in order to illuminate these broader trends, the subject of geographic redefinition of metropolitan areas is left for later chapters. While such changes are not ordinarily evident in state and national level tabulations, readers for now should keep in mind that issues of geography and measurement are closely linked.

[2] The birth rate appears to have bottomed out in 1986 at 15.5.

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Table 2-1. Journey-to-Work Comparisons, National Totals, 1960-1990

DATA ITEMS	1960	1970	1980	1990	Percent Change 1960-70	1970-80	1980-90	1960-90
POPULATION								
Total	179,323,175	203,211,926	226,545,805	248,709,873	13.32	11.48	9.78	38.69
Number of Households	53,022,121	63,444,750	80,389,673	91,993,582	19.66	26.71	14.43	73.50
Persons per Household	3.33	3.11	2.75	2.63	-6.61	-11.58	-4.36	-21.02
Persons per Vehicle	3.27	2.57	1.75	1.63	-21.44	-32.12	-6.52	-50.15
Households per Vehicle	0.97	0.80	0.62	0.60	-17.05	-22.85	-2.56	-37.64
Urban Population	125,268,750	149,646,029	167,050,992	187,051,543	19.46	11.63	11.97	49.32
Rural Population	54,054,525	53,565,297	59,494,813	61,658,330	-0.91	11.07	3.64	14.07
Percent Urban	69.86%	73.64%	73.74%	75.21%	5.42	0.13	1.99	7.66
WORKERS								
Total	64,655,805	76,852,389	96,617,296	115,070,274	18.86	25.72	19.10	77.97
Workers as Percent of Population	36.06%	37.82%	42.65%	46.27%	4.89	12.77	8.49	28.32
Worked in County of Residence	55,254,625	62,065,319	76,564,160	87,587,677	12.33	23.36	14.40	58.52
Worked Outside County of Residence	9,401,180	14,784,070	20,108,023	27,482,597	57.26	36.01	36.67	192.33
Workers per Household	1.22	1.21	1.20	1.25	-0.66	-0.78	4.08	2.58
Workers per Vehicle	1.18	0.97	0.74	0.76	-17.60	-23.45	1.41	-36.03
COMMUTING (1)								
Mean Travel Time to Work			21.7	22.4			3.23	
Private Vehicle (2)	42,987,904	61,963,414	83,016,457	101,285,208	44.14	33.98	22.01	135.61
% Private Vehicle	69.48%	80.63%	85.92%	88.02%	16.05	6.57	2.44	26.69
Public Transit (3)	7,806,932	6,514,012	6,007,728	5,890,155	-16.56	-7.77	-1.96	-24.55
% Transit	12.62%	8.48%	6.22%	5.12%	-32.82	-26.64	-17.68	-59.43
Walked to Work	6,416,343	5,689,819	5,413,248	4,488,886	-11.32	-4.86	-17.08	-30.04
% Walked	10.37%	7.40%	5.60%	3.90%	-28.61	-24.32	-30.37	-62.38
Worked at Home	4,662,750	2,685,144	2,179,863	3,406,025	-42.41	-18.82	56.25	-26.95
% Worked At Home	7.54%	3.49%	2.26%	2.96%	-53.64	-35.43	31.19	-60.72
VEHICLES (4)								
Total Household Vehicles (5)	54,766,718	79,002,052	129,747,911	152,380,479	44.25	64.23	17.44	178.24
Vehicles per Household	1.03	1.25	1.61	1.66	20.55	29.62	2.63	60.37
Vehicles per Person	0.31	0.39	0.57	0.61	27.29	47.32	6.98	100.61
Vehicles per Worker	0.85	1.03	1.34	1.32	21.36	30.64	-1.39	56.34
Households with 0 Vehicles	11,416,835	11,081,394	10,390,307	10,602,297	-2.94	-6.24	2.04	-7.13
% with 0 Vehicles	21.53%	17.47%	12.92%	11.53%	-18.88	-26.00	-10.83	-46.48
Households with 1 Vehicle	30,189,103	30,268,323	28,564,622	31,038,711	0.26	-5.63	8.66	2.81
% with 1 Vehicle	56.94%	47.71%	35.53%	33.74%	-16.21	-25.52	-5.04	-40.74
Households with 2 Vehicles	10,073,684	18,599,907	27,347,235	34,361,045	84.64	47.03	25.65	241.10
% with 2 Vehicles	19.00%	29.32%	34.02%	37.35%	54.31	16.04	9.80	96.60
Households with 3+ Vehicles	1,342,499	3,495,126	14,087,509	15,945,357	160.34	303.06	13.19	1,087.74
% with 3+ Vehicles	2.53%	5.51%	17.52%	17.33%	117.58	218.10	-1.09	584.57

(1) Does not include means of travel to work not reported for 1960 of 2,781,876.

(2) Includes cars, trucks, vans, bicycles, motorcycles, taxicabs, and all other means.

(3) Public Transit includes bus, streetcar, subway, railroad, and ferries.

(4) Vehicles include automobile only for 1960 and 1970. For 1980 and 1990, it includes cars, vans, and trucks of one ton capacity or less kept at home for use by members of the household.

(5) Households with three or more vehicles assumed 3.3 vehicles per household.

Table 2-2. National Trends 1960-1990 Factors, U.S. Totals Compared to Metropolitan Areas With Over One Million Inhabitants.

Factor	U.S. Totals	Metropolitan Area Totals[3]
Population		
1960	179,323,175	77,175,875
1990	248,709,873	123,814,261
Percent Change	38.69%	60.43%
Workers		
1960	64,655,805	29,033,438
1990	115,070,274	59,704,401
Percent Change	77.97%	105.64%
Male/Female Worker Ratio		
1960	67.7%/32.3%	66.4%/33.6%
1990	54.7%/45.3%	54.4%/45.6%
Persons/Household		
1960	3.33	3.24
1990	2.63	2.65
Percent Change	21.02	-21.40%
Workers/Household		
1960	1.22	1.24
1990	1.25	1.31
Percent Change	2.58%	5.65%
Vehicles/Household		
1960	1.03	1.00
1990	1.66	1.59
Percent Change	60.37%	59.00%
Vehicles/Person		
1960	0.31	0.31
1990	0.61	0.58
Percent Change	100.61%	87.10%
% Workers Traveling by POV		
1960	66.49%	61.03%
1990	88.02%	83.44%

[3] The list of metropolitan areas over one million has increased over the thirty year period from thirty-four to thirty-nine areas. In addition, there have been a few areas that lost population and hence no longer on the list. These facts should be considered when interpreting this table.

Over the past thirty years, many areas of the country have been making the transition from a manufacturing based labor force to service sector jobs. Service sector employment in the U.S. has displaced the predominant role held by manufacturing for many decades. The concentrated centers of industrial activity that characterized manufacturing employment in the early years of the 1960-1990 period are now being replaced by the service sector and high technology jobs of the 1990's.

The geographies of metropolitan areas have been altered to accommodate the increasingly decentralized nature of workers' places of work and residences. Metropolitan areas on the East and West coasts, in particular, have grown geographically closer, as populations and jobs alike have spread out from the urban cores. Some neighboring metropolitan areas no longer have rural or semi-rural areas separating them.

During the thirty years, American workers continued to convey their established preference for private automobile travel. Noteworthy is the large amount of highway construction that took place during the early part of the period, providing the capacity for more vehicles. Compared to 1960 and 1970 data on surfaced roadways, however, current data reflects a slowing of construction in recent years.[4] Sales of new passenger cars totaled 6.7 million in 1960, and about 6 million in 1990, despite several years of more robust sales in the 1970's and early 1980's. People are keeping their cars for a longer time; the average age of a household vehicle grew from 5.1 years in 1969 to 7.7 years in 1990.[5]

Looking ahead, new technologies in telecommunications and transportation promise to lessen the differences between traditional central business districts and dispersed employment areas of the suburbs. Service sector employment is transforming how jobs are performed, the time it takes to accomplish them, where they are located, and the mode of travel used to reach them. For example, the technology to permit people to work at home through computer networks is changing rapidly. This technology may have significant impacts on journey-to-work decisions, but we do not as yet know the scope or the timing of these impacts.

Ten Year Trends. The trends between 1980 and 1990 include smaller but increasing numbers of households, population dispersion, increasing urbanization, a large growth in workers particularly in the service sector, and increasing female labor force participation. Housing costs increased in the East and West coasts during the 1980's. Housing costs are a major determinant of residence location, and could have indirectly affected journey-to-work data in those locales. Table 2-3 below compares ten year trends for metropolitan areas with U.S. totals for some common commuting factors. In the 1980's population in the U.S. grew by 9.78%, while in large metropolitan areas it grew by 11.81%. The number of workers rose at over twice the rate of population. Both workers per household and vehicles per household were slightly higher outside metropolitan areas.

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[4] Data from the FHWA's *Highway Statistics* shows the following:

U.S. Road and Street Mileage, Surfaced (millions)	1960	1970	1980	1990
	2.56	2.95	3.36	3.52

[5] Source: Hu, P.S., and Young, J. "Summary of Travel Trends, 1990 Nationwide Personal Transportation Survey" (U.S. DOT/FHWA, March 1992).

Table 2-3. Ten Year Trends in Journey-to-Work Factors, U.S. Totals Compared to Metropolitan Areas With Over One Million Inhabitants (based on 1983 geography)

Factor	U.S. Totals	Metropolitan Area Totals
Population		
1980	226,545,805	110,732,144
1990	248,709,873	123,814,261
Percent Change	9.78%	11.81%
Workers		
1980	96,617,296	46,444,001
1990	115,070,274	59,704,401
Percent Change	19.10%	21.56%
Workers/Household		
1980	1.20	1.18
1990	1.25	1.24
Vehicles/Household		
1980	1.61	1.52
1990	1.66	1.59

Table 2-4 presents a detailed profile of national and metropolitan data for 1990 only. Information is provided on population, workers, travel time, vehicles, mode, and other related indicators for the U.S. as a whole, the thirty-nine metropolitan areas over one million, and the remainder of the nation.[6] The thirty-nine metropolitan areas account for almost 50% of the U.S. population, and almost half the total household vehicles, but only 5% of the land area. Almost 52% of all U.S. workers are employed within these metropolitan areas. In 1990, many other comparisons between the U.S. and large metropolitan areas are similar. Metropolitan area households had an average of 1.31 workers compared to 1.25 workers per household for the entire U.S. Median household income was just slightly higher in metropolitan areas. Mean travel time was 22.4 minutes in the U.S., versus 25.2 minutes in the metropolitan areas. Outside the large metropolitan areas, drive alone commutes were a little higher, and transit usage was lower. These and other comparisons are listed in Table 2-5 below.

From 1980-1990, both residential and employment densities continued to increase in suburban counties, maintaining a trend that had become well-established in the 1970's. Additional changes consisted of rising vehicle ownership rates, smaller and more fuel efficient cars, and increases in commuters who drove alone. Later in this report, these factors are examined in more detail. From 1980-1990, at the national level, travel times to work did not rise much, although some differences are found among metropolitan areas. In 1980, the average reported travel time for the U.S. as a whole was 21.7 minutes, and by 1990 that figure had risen to 22.4 minutes. The relatively small increase may reflect more driving alone. Also, some commuters shifted from slower to faster modes of transportation. Table 2-6 provides a summary of journey-to-work trends from 1980-1990, and lists supporting facts from the 1990 Census.

[6] This table is duplicated in the Profiles section of this report, preceding the profiles for each of the thirty-nine metropolitan areas.

Table 2-4. Journey-to-Work Profile: National Summary Statistics (1990)

Demographics and Land Area	
Area Population	248,709,873
% Inside 39 Metro Areas	49.78
% Remainder of Nation	50.22
% Urban	75.21
% Rural	24.79
Total Households	91,993,582
Persons Per Household	2.63
Median Household Income	
Nationwide	$30,338
Inside 39 Metro Areas	$31,016
Remainder of Nation	$29,665
National Age Characteristcs	
Median Age	32.90
% 15 Years or Less	22.87
% 65 Years or More	12.56
Square Miles	
National Total	3,536,338
% Inside 39 Metro Areas	5.27
% Remainder of Nation	94.73

Workers	
National Total	115,070,274
% of Population	46.3
% Male	54.7
% Female	45.3
Inside 39 Metro Areas	59,704,401
% Inside 39 Metro Areas	51.89
Remainder of Nation	55,365,873
% Remainder of Nation	48.11

Household Vehicle Availability	
National	
Total Vehicles	152,380,479
% 0 Vehicles	11.53
% 1 Vehicles	33.76
% 2 Vehicles	37.37
% 3+ Vehicles	17.34
Inside 39 Metro Areas	
Total Vehicles	72,464,899
% 0 Vehicles	14.02
% 1 Vehicles	34.00
% 2 Vehicles	35.85
% 3+ Vehicles	16.12
Remainder of Nation	
Total Vehicles	79,915,580
% 0 Vehicles	9.08
% 1 Vehicles	33.52
% 2 Vehicles	38.86
% 3+ Vehicles	18.54

Travel Time	
Mean (in minutes)	
Originating in:	
Nation	22.38
39 Metro Areas	25.20
Remainder of Nation	19.30

Commute Length	
National	
% Less Than 15 Minutes	15.87
% 15 - 29 Minutes	51.64
% 30 - 39 Minutes	14.66
% 40 - 59 Minutes	9.01
% 60 Minutes or More	5.86
Inside 39 Metro Areas	
% Less Than 15 Minutes	11.45
% 15 - 29 Minutes	49.22
% 30 - 39 Minutes	17.48
% 40 - 59 Minutes	11.77
% 60 Minutes or More	7.52
Remainder of Nation	
% Less Than 15 Minutes	20.63
% 15 - 29 Minutes	54.24
% 30 - 39 Minutes	11.62
% 40 - 59 Minutes	6.04
% 60 Minutes or More	4.07

Time Workers Leave Home	
National	
5:00 AM - 6:59 AM	26.04
7:00 AM - 8:29 AM	41.87
8:30 AM - 9:59 AM	10.28
All Other Departures	18.85
Worked at Home	2.96
Inside 39 Metro Areas	
5:00 AM - 6:59 AM	25.49
7:00 AM - 8:29 AM	42.44
8:30 AM - 9:59 AM	11.57
All Other Departures	17.93
Worked at Home	2.57
Remainder of Nation	
5:00 AM - 6:59 AM	26.63
7:00 AM - 8:29 AM	41.26
8:30 AM - 9:59 AM	8.88
All Other Departures	19.84
Worked at Home	3.39

Journey to Work by Mode	
National	
% Drive Alone	73.19
% Carpooled	13.36
% Public Transit	5.27
% Motorcycle	0.21
% Walk	3.90
% Bicycle	0.41
% Other	0.70
% Work at Home	2.96
Inside 39 Metro Areas	
% Drive Alone	70.75
% Carpooled	12.69
% Public Transit	8.98
% Motorcycle	0.21
% Walk	3.76
% Bicycle	0.43
% Other	0.62
% Work at Home	2.57
Remainder of Nation	
% Drive Alone	75.81
% Carpooled	14.09
% Public Transit	1.27
% Motorcycle	0.20
% Walk	4.06
% Bicycle	0.38
% Other	0.79
% Work at Home	3.39

General Indicators	
National	
Population/Sq. Mile	70
Households/Sq. Mile	26
Workers/Sq. Mile	33
Workers/Household	1.25
Vehicles/Household	1.66
Vehicles/Worker	1.32
Workers/Vehicle	0.76
Inside 39 Metro Areas	
Population/Sq. Mile	664
Households/Sq. Mile	245
Workers/Sq. Mile	320
Workers/Household	1.31
Vehicles/Household	1.59
Vehicles/Worker	1.21
Workers/Vehicle	0.82
Remainder of Nation	
Population/Sq. Mile	37
Households/Sq. Mile	14
Workers/Sq. Mile	17
Workers/Household	1.19
Vehicles/Household	1.72
Vehicles/Worker	1.44
Workers/Vehicle	0.69

Table 2-5. Selected Demographic and Commuting Comparisons, U.S. and Large Metropolitan Areas, 1990

Factor	U.S. Totals	Metropolitan Area Totals
Population Per Square Mile	70	664
Workers Per Square Mile	33	320
Median Household Income	$30,338	$31,016
Mean Travel Time (minutes)	22.4	25.2
Total Vehicles (millions)	152.4	72.5
% Workers Driving Alone	73.2	70.8
% Workers Carpooling	13.4	12.7
% Workers Using Transit	5.3	9.0

In analyzing large data sets, it is often helpful to quickly scan the range of statistics, such as those presented in Tables 2-7 and 2-8. These tables compare selected maximum and minimum data values for states and metropolitan areas, respectively. Metropolitan area level data frequently parallel the state level data in terms of maximum and minimum values. This suggests that similar patterns are occurring at micro and macro levels within a state, or that the effects of a large metropolitan area dominate state data totals. Work trips in the state of New York averaged 27.8 minutes, while trips in North Dakota required an average of only 11.9 minutes. For the thirty-nine metropolitan areas, New York state had both the metropolitan area with the highest and the area with the lowest mean travel times in 1990. The highest mean travel time was 31.7 minutes in New York City, the lowest was in Buffalo at 19.4 minutes.

Household Formations. The pattern of more but smaller households seems firmly in place and may hold significance both for journey-to-work decisions and transportation planning. From 1960-1990, the number of U.S. households rose from 53 million in 1960 to 92 million in 1990, an almost 75% increase. The increase in the number of households is also reflected in declining household size. In 1980, the average household had 2.75 people. This dropped 4.4% in 1990 to 2.63 people per household.

Urban Populations.[7] From 1960-1990, the urban population in the country advanced by nearly 50%, compared to a corresponding rural population increase of 14%. By 1990, three-fourths of all persons lived within areas defined as urban. For the entire United States, urban population rose in the 1980's by almost 12%. Individual states varied widely; Nevada's urban population rose over 55%, and both Alaska and Arizona rose over 40%. On the other hand, West Virginia had a loss of 8.1% in urban residents, and Louisiana and Iowa had small losses as well. The data indicate that migration to high growth states is concentrated in their urban areas.

Growth in the Number of Workers. From 1960 to 1990, the total number of workers in the U.S. grew in absolute terms by 78%. The U.S. had over 115 million workers in 1990, about 46.3% of the total population. In 1960, only 36.1% of the population were workers. Nationwide, the number of workers sixteen years old and older increased sharply in the 1980-1990 period, both in absolute figures

[7] The Census Bureau defines "urban" for the 1990 census as comprising all territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urbanized areas. All other area is classified as rural. Also, the Census Bureau defines an Urbanized Area (UA) as one or more places (central place) and the adjacent densely settled surrounding territory (urban fringe) that together have a minimum of 50,000 persons.

Table 2-6. Indicators, Trends, and Factsheet for Journey-to-Work Patterns, 1980-1990

Indicator	Trends	Facts
Population and Households	• Declines in household size. • Lower, then higher birth rates. • Population dispersion to outlying areas and migration to sunbelt states.	• Persons per household dropped 4.4%, from 2.75 to 2.63. • U.S. population grew from 226.5 million to 248.7 million, or 9.8%. • In 1990, South Atlantic Census area had highest rate of immigration from other states (14.3%). • Birth rates per thousand: 15.9 in 1980, 15.6 in 1983, 16.7 in 1990. • Median U.S. age rose from 30 to 32.8.
Economic and Employment Factors	• Growth in service sector jobs. • Price declines in gasoline. • Lower inflation. • Highway construction slows. • Increase in female workers. • Aging workforce. • Staggered/flexible work hours. • Increase in work at home jobs.	• Service sector: 30.9% of all jobs in 1980, 40.3% in 1990. • Percent change in consumer price index: 13.5% in 1980, 5.4% in 1990. • Average retail price of unleaded regular gasoline: $1.25 in 1980, $1.16 in 1990. • Female workers rose from 42.4% to 45.6% of labor force. • Workers who work at home rose from 2.2 million to 3.4 million, or 56.3%.
Commuting Characteristics	• Increases in workers who drive alone. • Carpools and public transit declines. • Travel times increased slightly.	• Workers driving alone increased by 35.4%. • Workers using carpools fell by 19.3%, public transit decreased 1.96%. • Mean travel time: 21.7 minutes in 1980, 22.4 minutes in 1990. • Workers employed outside their county of residence increased by 36.7%.
Vehicles	• Rising vehicle ownership rates. • Gains in fuel efficiency. • Downsizing of motor vehicles.	• Vehicles per household rose from 1.61 to 1.66. • Households with two vehicles increased by 25.7%. Households with three or more vehicles rose by 13.2%. • Average miles per gallon for cars: 15.5 in 1980, 21 in 1990.

Source (apart from this report): Statistical Abstract of the United States

Table 2-7. Journey to Work, 1990, Maximums and Minimums by State

Choice of Mode to Work in 1990

Mode Choice	State	Maximum	State	Minimum
Drive Alone	Michigan	81.5%	New York	54.3%
Carpool	Hawaii	20.5%	South Dakota	10.1%
Public Transit	New York	24.8%	South Dakota	0.3%
Walk	District of Columbia	11.8%	Alabama	1.9%
Work at Home	South Dakota	9.5%	Alabama	1.8%
Other	Alaska	4.5%	Minnesota	0.5%

Household Vehicle Ownership in 1990

Households With	State	Maximum	State	Minimum
Zero Vehicles	New York	30.0%	Idaho	4.6%
One Vehicle	Florida	41.0%	Idaho	28.1%
Two Vehicles	New Hampshire	44.2%	New York	26.5%
Three or More Vehicles	Wyoming	27.4%	New York	11.1%

Commuting Indicators From the 1990 Census

Indicator	State	Maximum	State	Minimum
Mean Travel Time To Work (minutes)	New York	27.80	North Dakota	11.90
Persons Per Household	Utah	3.15	Florida	2.46
Workers Per Household	Hawaii	1.59	West Virginia	0.97
Workers as Percent of Population	Maryland	51.90%	West Virginia	34.30%
Vehicles Per Household	Wyoming	1.98	New York	1.22
Vehicles Per Worker	Montana	1.66	New York	0.98
Workers Per Vehicle	New York	1.02	Montana	0.60
Median Household Income	Connecticut	$41,721	Mississippi	$20,136

Table 2-8. Journey to Work, 1990, Maximums and Minimums by Metropolitan Area

Choice of Mode to Work in 1990

Mode Choice	Metropolitan Area	Maximum	Metropolitan Area	Minimum
Drive Alone	Detroit	82.70%	New York City	52.30%
Carpool	Washington, D.C.	15.80%	Boston	10.30%
Public Transit	New York City	27.80%	Tampa	1.60%
Walk	New York City	6.50%	Atlanta	1.50%
Work at Home	Norfolk	5.30%	New Orleans	1.70%
Other	Norfolk	1.10%	Minneapolis	0.40%

Household Vehicle Ownership in 1990

Households With	Metropolitan Area	Maximum	Metropolitan Area	Minimum
Zero Vehicles	New York City	31.60%	Salt Lake City	6.10%
One Vehicle	Tampa	44.40%	Salt Lake City	29.50%
Two Vehicles	Salt Lake City	42.10%	New York City	25.30%
Three or More Vehicles	Salt Lake City	22.40%	New Orleans	10.80%

Commuting Indicators From the 1990 Census

Indicator	Metropolitan Area	Maximum	Metropolitan Area	Minimum
Mean Travel Time To Work (minutes)	New York City	31.10	Buffalo	19.40
Persons Per Household	Salt Lake City	3.04	Tampa	2.32
Workers Per Household	Washington, D.C.	1.52	Tampa	1.05
Workers as Percent of Population	Washington, D.C.	56.40%	New Orleans	41.50%
Vehicles Per Household	Salt Lake City	1.88	New York City	1.20
Vehicles Per Worker	Sacramento/Tampa	1.45	New York City	0.93
Workers Per Vehicle	New York City	1.08	Sacramento/Tampa	0.69
Median Household Income	Washington, D.C.	$46,856	New Orleans	$24,442

and as a percentage of the resident population. Total workers rose by over 19%, more than twice the growth of the total resident population. Nevada led all states with a 52% increase in workers, followed closely by Alaska and Florida.

A significant proportion of the increase in workers may be attributable to the increase of women in the workforce (Table 2-9). Recent data[8] indicate a compound annual growth rate of 2.9% for female workers compared to 1.6% for male workers. The labor force participation rates by sex over the 1960-1990 period reveal the changing mix.

Table 2-9. Labor Force Participation Rates by Sex, Percentages, 1960-1990

Sex	1960	1970	1980	1990
Male	83.3%	79.7%	77.4%	76.1%
Female	37.7	43.3	51.5	57.5

Workers per Household. The average number of workers per household remained nearly the same during 1960 to 1980. From 1980-1990, workers per household rose from 1.20 to 1.25, an increase of 4%. This apparently static trend must be evaluated in combination with dramatic declines in household size. In 1960, there were 1.22 workers and an average household size of 3.33. In 1990, there was an average of 1.25 workers, and average household size of 2.63.

During the past decade, a 9% increase in workers per household was recorded in California, while New York and New Jersey each had gains of about 8%. Workers per household fell in Texas, Louisiana, and Wyoming, probably due to weakness in the energy industry.

California was the only state with an increase in persons per household. This ratio rose by over 4% from 1980-1990. Possible explanations include: a large immigrant population; above average birth rates; and high housing costs, forcing more people to share living quarters. Taking 1985 as the midpoint year of the 1980's, California had several metropolitan areas among the leaders in median sales prices of existing single family homes. Also in 1985, California's birth rate per thousand was 17.9, compared to a national average of 15.8.[9]

Density Indicators. Figure 2-1 illustrates several data series (persons, vehicles, workers, households) expressed in terms of square miles in the metropolitan area. Population density is always the highest of these measures, and produces similar increases in the other data. The numbers show fairly uniform correlation across the thirty-nine metropolitan areas, only the older industrialized areas like New York, Chicago, Boston, and Philadelphia display much higher densities. In these cities, most of the indicators lie well above 500 units per square mile.

[8] Employment and Earnings, U.S. Department of Labor, Bureau of Labor Statistics, p.173, January 1993.

[9] Source: *Statistical Abstract of the United States.*

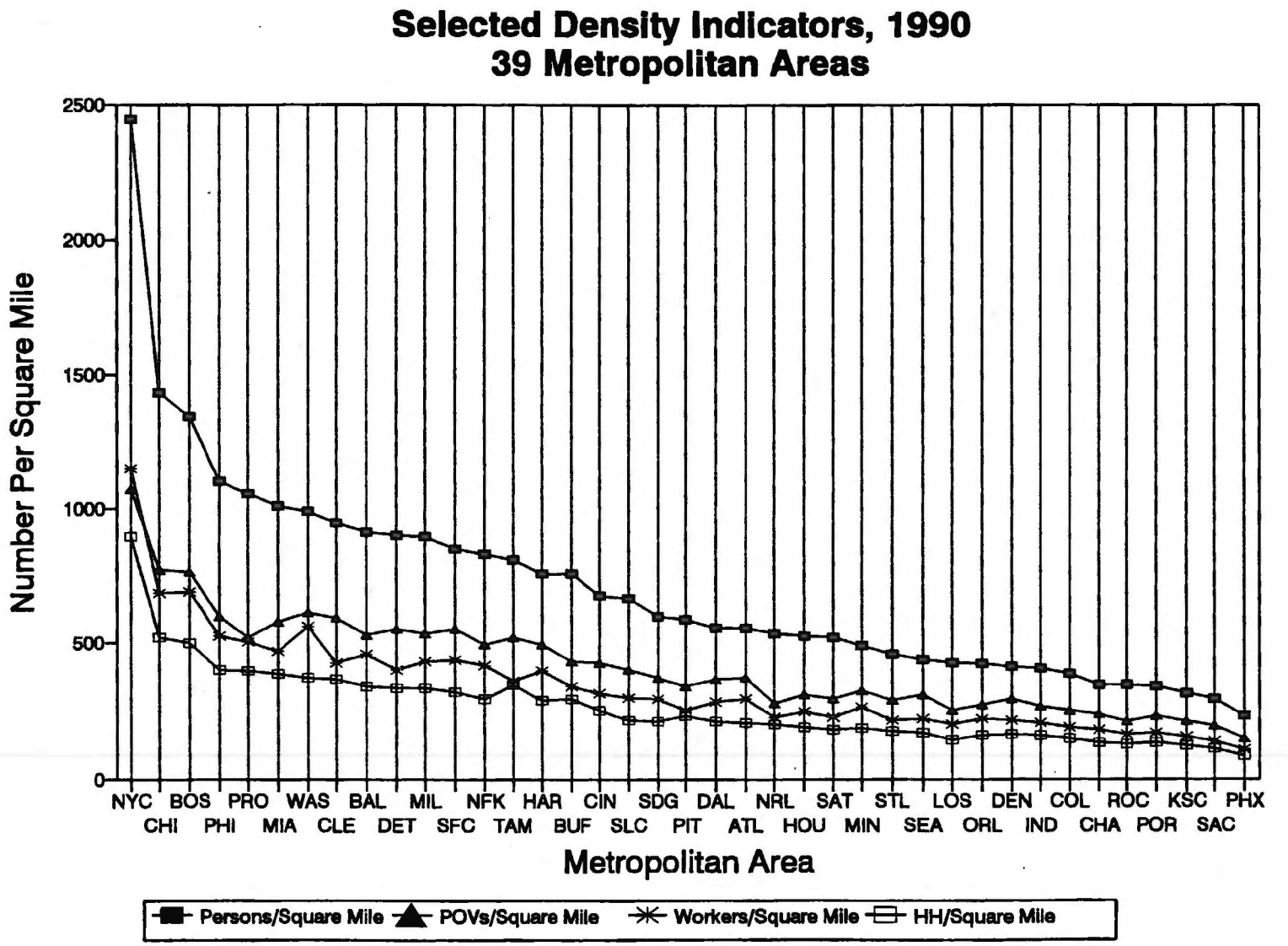


Figure 2-1. Selected Density Indicators, 1990 — 39 Metropolitan Areas

Care must be exercised in interpreting these densities. Metropolitan area boundaries are periodically redefined to add new counties, often with lower densities. The net effect is that densities are often diluted, although the densities in the previously defined metropolitan area may have increased.

The distribution of worker densities closely matches changes in population density. Some exceptions should be noted, since local demographics can create atypical differences. Sunbelt locations, for example, generally have a higher incidence of retirees resulting in lower work densities.

Choice of Mode to Work

Driving alone to work has consistently increased at each census point from 1960 to 1990 while carpooling has consistently decreased. Figure 2-2 compares the thirty-nine metropolitan areas with nationwide totals of mode choice for the journey to work. In metropolitan areas, 9% of the journey-to-work trips are made using transit, compared to 5% nationwide. The 4% difference is largely comprised of commuters who drive alone (73.4% for U.S. and 71% for metropolitan areas) or travel in vehicle pools (13.4% for U.S. and 12.7% for metropolitan areas). The percentage of people who work at home shows little difference between national and metropolitan area totals.

Driving Alone. Over the thirty year period, the number of people driving alone to work has increased almost without interruption. The use of private vehicles for commuting grew by more than 135% over the period. In 1960, almost forty-three million commuters drove alone and by 1990, the number had risen to 101 million. As a share of all commuting trips, the use of private vehicles increased by just under 30% during this period.

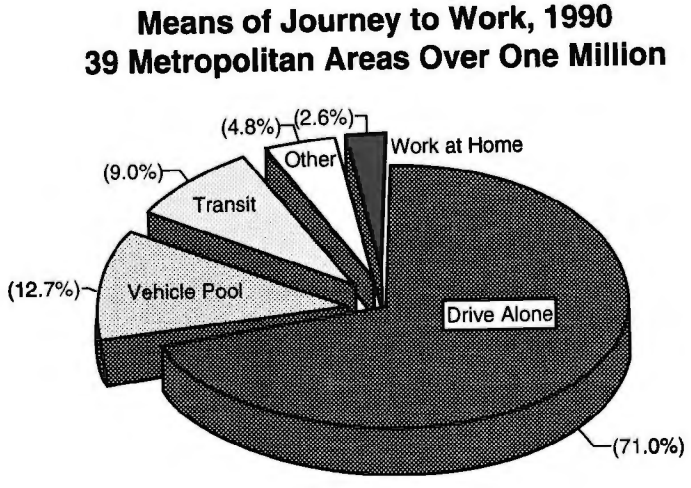
One of the major results of the 1990 journey-to-work data, compared to 1980, is the increase in commuters who drove alone, both in absolute numbers and as a proportion of all trips. In 1980, 64.4% of all commuters drove to work alone. By 1990, the drive alone share increased to 73.2%. The increase in the number of drive alone commuters in the U.S. was over 35%.

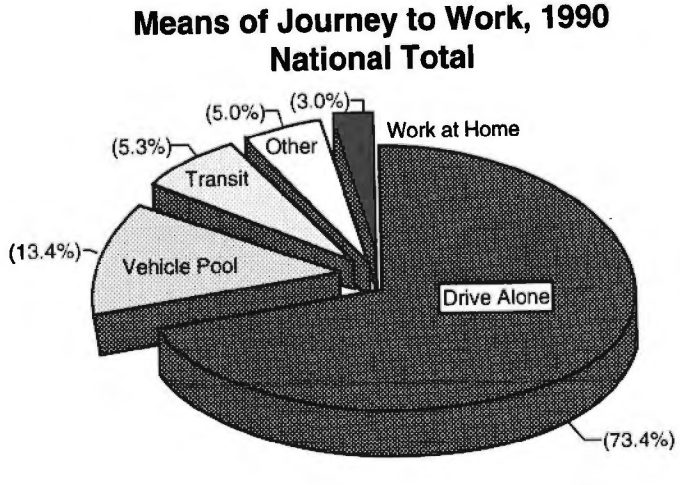
Carpooling. From 1980 to 1990, commuters using carpools declined substantially, falling 32% nationally. In 1990, the market share for carpools was 13.3% nationwide. Carpool usage decreased the most in New England and the North Central states. Hawaii led all states in carpooling in 1990 with 20.5% of commuting trips. The Washington, D.C. MSA registered the highest share of carpooling among metropolitan areas in 1990, with almost 16% of trips by that mode.

Public Transit. Public transit usage declined sharply over the period, but with temporary upsurges during the years of tight gasoline supplies in the 1970's. Workers using public transit totaled 7.8 million in 1960 and 5.9 million in 1990. During the 1970's and 1980's, new subway systems were built in the San Francisco Bay area, Atlanta, and Washington, DC. However, public transit use dropped by 25% altogether in the last thirty years.

In the 1980's, public transit lost market share in the journey to work, declining from 6.2% in 1980 to 5.1% in 1990. Most losses came at the expense of commuters driving alone. In 1990, the state of New York ranked first in taking public transit to work, with almost one quarter of all commuters using that mode. As a mode, public transit in the U.S. accounted for only about 5% of all journeys to work in 1990. Bus riders were the highest subcomponent of transit users at 3% of total journeys to work.

Figure 2-2. Means of Journey to Work, 1990 — National and Metropolitan Area Totals





Walking to Work. From 1960-1990, walking to work fell by 30%, dropping from 6.4 million in 1960 to 4.5 million in 1990. Its share of all commuting trips also decreased from 10.4% to 3.9%. The number of commuters who walked to work decreased nationally from 5.4 million in 1980 to 4.5 million in 1990.

Working at Home. Working at home showed an overall loss of 27% in the thirty year period, suggesting declines in farming activity. This category, however, displayed a sharp turnaround during the 1980's in both absolute numbers and its market share. In 1980, 2.2 million people worked at home. In 1990, there were 3.4 million in this category. This change may indicate increases in telecommuting or other service oriented work at home employment.

Travel Time

Nationwide, travel time to work rose by just 3.2% in the 1980's, increasing from 21.7 minutes to 22.4 minutes. Inside the thirty-nine metropolitan areas in 1990, the average travel time was 25.2 minutes. Ten states reported net decreases in travel time, headed by Wyoming with a 13.5% drop. The highest percent increases were located in New Hampshire, Hawaii, and California, all three states having above average population growth rates in the 1980's. In 1990, New York had the longest mean travel time with 28.6 minutes, while the fastest was 13 minutes in North Dakota. The modest increases from 1980 - 1990 may reflect more driving alone, as commuters shifted from slower to faster modes of transportation.

Time Leaving Home. A question added in the 1990 Census concerned departure time for work. There is no pronounced difference in departure times between the metropolitan areas and the rest of the nation. The majority of people both inside and outside metropolitan area chose to leave for work between the hours of 7:00 A.M. and 8:29 A.M. The second most frequent departure interval was between 5:00 A.M. and 6:59 A.M. Inside the thirty-nine metropolitan areas, 25.49% left between 5:00 A.M. and 6:59 A.M., while in the remainder of the nation, 26.04% departed between 5:00 A.M. and 6:59 A.M. (Table 2-10).

Table 2-10. Departure Times to Work, U.S. and Metropolitan Area Comparisons, 1990

Time Interval	U.S. Totals	Thirty-Nine Metropolitan Areas
5:00 A.M. - 6:59 A.M.	26.04%	25.49%
7:00 A.M. - 8:29 A.M.	41.87%	42.44%
8:30 A.M. - 9:59 A.M.	10.28%	11.27%
All Other Departures	18.85%	17.93%
Worked at Home	2.96%	2.57%

Total Vehicles and Vehicles Per Household

Over the past thirty years, privately owned vehicles have become pervasive in U.S. households. Although automobiles still constitute the largest component of private vehicles, there has been a dramatic increase in the number of light trucks, vans, and utility vehicles for private travel. According to the Bureau of the Census, the availability of household vehicles in the U.S. from 1960-1990 increased 178%. This is based on 54.8 million vehicles available in 1960 and 152.4 million in 1990.[10] Vehicles per household increased from 1.03 to 1.66 during the period, or about 60%. Vehicles per worker also rose by a slightly smaller amount with the greatest increases occurring in the 1970's for both measures.

A number of factors contributed to the 1960-1990 increases. These include rising household incomes, growth in the number of workers per household, and decentralization of jobs and residences. The rapid growth in female workers is probably a leading factor behind the growth in total vehicles, as two-income households and female-headed households often acquire a separate vehicle for each worker.

During the 1980-1990 period, U.S. households acquired 17.4% more vehicles. In 1990, the thirty-nine metropolitan areas accounted for nearly 72.5 million vehicles in U.S. households, about 48% of all U.S. household vehicles. California heads all states with over 18 million vehicles, and the Los Angeles CMSA alone accounted for nearly 8.6 million vehicles, the greatest total among the metropolitan areas. Texas, New York, Florida and Ohio also had large numbers of household vehicles.

The Salt Lake City CMSA had the highest rate among metropolitan areas with 1.88 vehicles per household in 1990. New York City, with 1.20 vehicles per household, had the lowest rate. Vehicles per household rose, 3.1% increase from 1980 to 1990. In 1990, Wyoming led all states with 1.98 vehicles per household, compared to a low of 1.22 in New York. Tampa had the highest level of vehicles per worker in 1990, with a ratio of 1.45. The average number of vehicles per person increased from 0.31 in 1960 to 0.61 in 1990. Thus, more and more, workers have at least one vehicle available to them at any time. This means that transit or carpool trips for work are by choice and not dependency.

Zero Vehicle Households. The share of households without any vehicles declined by over 46% in the thirty year study period. Between 1980 and 1990 the absolute number of households with no vehicles available remained relatively constant, rising by a modest 2%. As a percentage of all households, however, this class declined by nearly 11%. By 1990, the share of households without vehicles accounted for just 11.5% of all U.S. households. The New York City CMSA is an important exception to the general trend, with a zero vehicle household share of 32% in its metropolitan area. It alone accounts for about 15% of the U.S. total households without any vehicle.

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[10] The Census Bureau calculates household vehicles in a different way than the Federal Highway Administration (FHWA), and readers should take note of these differences in comparing Census data to other published data. In its annual publication *Highway Statistics* the FHWA includes commercial automobiles and commercial light trucks. Also, some commercial vehicles are kept at home and are likely to be counted by the Census Bureau as household vehicles. In 1990, the FHWA reported a total of 185.3 million registered vehicles, of which 143.6 million were automobiles, 37.4 million light trucks, and 4.3 million were motorcycles.

One Vehicle Households. From 1960-1990 households with only one vehicle available grew by less than 3%, remaining at roughly thirty million over the entire period. Like zero vehicle households, however, the relative share of such households plummeted by about 41%. In 1990, households with just one vehicle comprised around 34% of all U.S. households. The Tampa MSA had the highest share of one vehicle households in 1990.

In 1960, most households (56%) had only one vehicle, regardless of the number of adults living in the household. In 1990, with increases in vehicle availability, one vehicle households were most likely in areas with a high proportion of single adult households. This seems to be the case whether it be a young adult, a single parent, or an elderly widow(er). There is probably a high correlation between one vehicle households and persons over 65 years old.

Two Vehicle Households. During the 1960-1990 period, two vehicle households in absolute terms swelled by 241% nationwide, from just over 10 million to over 34 million. The relative share of these households also increased almost 97%. In 1990 tabulations, two vehicle households outnumber all others, accounting for about 37% of the total. In the 1980's, two vehicle households displayed the most consistent and strongest growth rates among these categories, rising over 25% nationwide. By 1990, over 44% of households in New Hampshire had two vehicles, the highest for any state. New York state, at 26.5%, had the smallest percentage. The Salt Lake City CMSA had the highest share of two vehicle households in the U.S. in 1990 (42.1%), while New York City had the lowest share (25.3%).

Three or More Vehicle Households. From 1960-1990, the number of households with three or more vehicles soared by nearly 1100%, increasing from about 1.3 million to nearly 16 million households. In 1960, households with three or more vehicles accounted for 2.5% of all households. By 1990, that share had risen to over 17% of all households. In 1990, the Salt Lake City CMSA had the highest share of households with three or more vehicles (22.4%). New Orleans had the smallest share (10.8%). Among metropolitan areas, growth rates for households with three or more vehicles were extremely strong in the 1970's, but weakened in the 1980's.

From 1980-1990, U.S. households with three or more vehicles rose in absolute terms by 13.2%. As a share of all households, however, this category remained nearly even between 1980 and 1990. In 1990, New York state had the lowest proportion of households in this category at around 11%, while Wyoming had a corresponding percentage of over 27%.

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Chapter 3

DEMOGRAPHIC CHARACTERISTICS

This chapter describes aspects of population in the thirty-nine metropolitan areas, including trends for their central county and suburban counties. The effects of household formation and size are discussed along with household income, central county size, and urban population. Major themes from 1960-1990 include declining household size, increasing numbers of households, and rapid population growth in Sunbelt and suburban areas.

Population: Areawide, Central County, and Suburban County

From 1960-1990, the U.S. population increased from 179 million to 249 million, a gain of almost 40%. The 1960's produced the highest growth rate as population increased by 13.3%. Each succeeding decade produced a slower rate of growth. From 1980-1990, population increased by only 9.8%, the second lowest growth rate in census history. The Census Bureau attributed the decline primarily to a decrease in the rate of childbearing. Increases in immigration did not offset this low growth rate. Tables 3-1 and 3-1A show the growth rates for metropolitan areas over one million. Compared to U.S. totals, growth in the large metropolitan areas was generally stronger, rising 24% in the 1960's, 7.3% in the 1970's and 11.8% in the 1980's.

Table 3-2 lists the percent changes in the five fastest and five slowest growing metropolitan areas by decade during the 1960-1990 period. Phoenix was among the most rapidly growing areas in all three decades. Other metropolitan areas in the Sunbelt also appear more than once, such as San Diego, Miami, and Houston. Washington, D.C., grew 37% in the 1960's, the only northern metropolitan area in this category. By contrast, metropolitan areas in the slowest growing areas were consistent across the decades, with Pittsburgh, Buffalo and Cleveland appearing in each. In 1990, five metropolitan areas had populations of five million or more. New York City had the most with 17.1 million. Rochester was the smallest of the thirty-nine areas, with one million inhabitants.

Comparative Growth Rates in Central Counties and Suburban Counties. Much of the population growth in urban areas over the last thirty years occurred in the suburban counties. As shown in Tables 3-1 and 3-1A, suburban counties displayed rapid growth compared to central counties. Table 3-3 below shows the metropolitan areas with the fastest growing suburban counties between 1960 and 1990. In addition, it may be argued that those metropolitan areas that are exclusively or predominantly central counties have had, de facto, similar "suburban" growth rates. Miami's suburban counties grew by over 200% from 1960-1980. During the 1980's, Orlando and Cincinnati had the highest suburban growth rates, with 73% and 66%, respectively. Most other localities with high suburban growth rates were in the metropolitan areas of the South and West.[1]

[1] As noted in Chapter 1, it is necessary to split the 1980-90 time period in order to account for geographic redefinition.

Table 3-1. Population (Areawide, Central and Suburban Counties) 1960-1980

Area	1960			1970			1980		
	Areawide	% CC	% SC	Areawide	% CC	% SC	Areawide	% CC	% SC
New York City	15,125,552	11.23	88.77	16,694,775	9.22	90.78	15,795,751	9.04	90.96
Los Angeles	7,751,616	77.90	22.10	9,972,037	70.52	29.48	11,497,568	65.04	34.96
Chicago	6,895,076	74.40	25.60	7,730,231	71.05	28.95	7,869,542	66.76	33.24
San Francisco	3,638,939	20.34	79.66	4,628,199	15.46	84.54	5,179,784	13.11	86.89
Philadelphia	5,023,854	39.86	60.14	5,621,375	34.66	65.34	5,547,902	30.43	69.57
Detroit	4,122,160	64.68	35.32	4,665,493	57.16	42.84	4,618,161	50.62	49.38
Boston				3,526,349	18.18	81.82	3,448,122	16.33	83.67
Washington, DC	2,122,767	35.99	64.01	2,908,801	26.01	73.99	3,060,922	20.85	79.15
Dallas	1,737,960	54.75	45.25	2,377,979	55.82	44.18	2,974,805	52.32	47.68
Houston	1,570,758	79.14	20.86	2,169,128	80.30	19.70	3,101,293	77.69	22.31
Miami	1,268,993	73.68	26.32	1,887,892	67.15	32.85	2,643,981	61.49	38.51
Atlanta	1,169,047	47.59	52.41	1,597,816	38.03	61.97	2,029,710	29.06	70.94
Cleveland	2,732,350	60.31	39.69	3,000,276	57.37	42.63	2,834,062	52.87	47.13
Seattle	1,428,803	65.44	34.56	1,832,896	63.10	36.90	2,093,112	60.66	39.34
San Diego	1,033,011	100.00	0.00	1,357,854	100.00		1,861,846	100.00	
Minneapolis	1,597,815	52.75	47.25	1,965,159	48.86	51.14	2,113,533	44.54	55.46
St. Louis	2,144,205	34.98	65.02	2,410,163	25.82	74.18	2,356,460	19.23	80.77
Baltimore	1,803,745	52.06	47.94	2,070,670	43.74	56.26	2,174,023	36.19	63.81
Pittsburgh	2,405,435	67.70	32.30	2,401,245	66.84	33.16	2,263,894	64.05	35.95
Phoenix	663,510	100.00	0.00	967,522	100.00		1,509,052	100.00	
Tampa	809,238	49.16	50.84	1,088,549	45.04	54.96	1,569,134	41.23	58.77
Denver	934,884	52.83	47.17	1,237,208	41.60	58.40	1,620,902	30.38	69.62
Cincinnati	1,467,555	58.88	41.12	1,611,058	57.35	42.65	1,660,278	52.60	47.40
Milwaukee	1,420,631	72.95	27.05	1,574,526	66.94	33.06	1,570,275	61.45	38.55
Kansas City	1,108,620	56.17	43.83	1,271,515	51.48	48.52	1,327,106	47.42	52.58
Sacramento	625,503	80.38	19.62	800,592	78.88	21.12	1,014,002	77.26	22.74
Portland	821,897	63.61	36.39	1,009,127	55.16	44.84	1,242,594	45.28	54.72
Columbus	845,290	80.79	19.21	1,017,847	81.86	18.14	1,093,316	79.50	20.50
San Antonio	736,012	93.36	6.64	888,179	93.50	6.50	1,071,954	92.24	7.76
Indianapolis	1,070,294	65.18	34.82	1,248,333	63.47	36.53	1,305,911	58.60	41.40
New Orleans	907,123	69.18	30.82	1,045,809	56.75	43.25	1,187,073	46.97	53.03
Buffalo	1,306,957	81.46	18.54	1,349,211	82.53	17.47	1,242,826	81.71	18.29
Providence				1,075,107	16.67	83.33	1,096,092	14.31	85.69
Total	**76,289,600**	**51.60**	**48.40**	**90,401,465**	**47.99**	**52.01**	**97,430,772**	**45.78**	**54.22**

Table 3-1. Population (Areawide, Central and Suburban Counties) 1960-1980 (Cont.)

Area	Percent Change 1960 - 1970			Percent Change 1970 - 1980			Percent Change 1960 - 1980		
	Areawide	CC	SC	Areawide	CC	SC	Areawide	CC	SC
New York City	10.37	-9.37	12.87	-5.39	-7.21	-5.20	4.43	-15.90	7.00
Los Angeles	28.64	16.45	71.64	15.30	6.33	36.74	48.32	23.82	134.70
Chicago	12.11	7.07	26.77	1.80	-4.35	16.89	14.13	2.42	48.18
San Francisco	27.19	-3.33	34.98	11.92	-5.13	15.04	42.34	-8.29	55.27
Philadelphia	11.89	-2.69	21.56	-1.31	-13.36	5.09	10.43	-15.70	27.75
Detroit	13.18	0.02	37.29	-1.01	-12.33	14.09	12.03	-12.32	56.63
Boston				-2.22	-12.18	-0.01			
Washington, DC	37.03	-0.97	58.40	5.23	-15.62	12.56	44.19	-16.44	78.29
Dallas	36.83	39.49	33.60	25.10	17.26	35.00	71.17	63.57	80.36
Houston	38.09	40.12	30.41	42.97	38.33	61.92	97.44	93.82	111.16
Miami	48.77	35.59	85.69	40.05	28.24	64.20	108.35	73.87	204.90
Atlanta	36.68	9.22	61.61	27.03	-2.91	45.40	73.62	6.04	134.99
Cleveland	9.81	4.45	17.94	-5.54	-12.95	4.43	3.72	-9.07	23.16
Seattle	28.28	23.70	36.95	14.20	9.78	21.75	46.49	35.80	66.74
San Diego	31.45	31.45		37.12	37.12		80.23	80.23	
Minneapolis	22.99	13.91	33.13	7.55	-1.94	16.62	32.28	11.69	55.26
St. Louis	12.40	-17.04	28.24	-2.23	-27.18	6.46	9.90	-39.59	36.52
Baltimore	14.80	-3.54	34.72	4.99	-13.14	19.09	20.53	-16.21	60.43
Pittsburgh	-0.17	-1.45	2.49	-5.72	-9.65	2.21	-5.88	-10.96	4.76
Phoenix	45.82	45.82		55.97	55.97		127.43	127.43	
Tampa	34.52	23.25	45.41	44.15	31.96	54.14	93.90	62.64	124.13
Denver	32.34	4.21	63.84	31.01	-4.34	56.19	73.38	-0.31	155.91
Cincinnati	9.78	6.93	13.86	3.06	-5.50	14.56	13.13	1.05	30.43
Milwaukee	10.83	1.71	35.43	-0.27	-8.45	16.30	10.53	-6.89	57.51
Kansas City	14.69	5.11	26.98	4.37	-3.86	13.11	19.71	1.05	43.62
Sacramento	27.99	25.60	37.78	26.66	24.05	36.39	62.11	55.81	87.92
Portland	22.78	6.48	51.28	23.14	1.07	50.28	51.19	7.62	127.35
Columbus	20.41	22.01	13.69	7.41	4.31	21.44	29.34	27.27	38.07
San Antonio	20.67	20.86	18.13	20.69	19.07	44.07	45.64	43.90	70.18
Indianapolis	16.63	13.58	22.35	4.61	-3.42	18.56	22.01	9.70	45.06
New Orleans	15.29	-5.43	61.78	13.51	-6.06	39.18	30.86	-11.16	125.17
Buffalo	3.23	4.58	-2.70	-7.88	-8.80	-3.55	-4.91	-4.62	-6.16
Providence				1.95	-12.50	4.84			
Total	**18.50**	**10.20**	**27.35**	**7.78**	**2.82**	**12.35**	**27.71**	**13.31**	**43.07**

Table 3-1A. Population (Areawide, Central and Suburban Counties) 1980-1990

Area	1980			1990			Percent Change 1980 - 1990		
	Areawide	% CC	% SC	Areawide	% CC	% SC	Areawide	CC	SC
New York City	17,012,502	8.40	91.60	17,125,727	8.69	91.31	0.67	4.15	0.35
Los Angeles	11,497,568	65.04	34.96	14,531,529	60.99	39.01	26.39	18.53	41.00
Chicago	7,937,326	66.19	33.81	8,065,633	63.29	36.71	1.62	-2.83	10.32
San Francisco	5,360,925	12.67	87.33	6,253,311	11.58	88.42	16.65	6.63	18.10
Philadelphia	5,680,768	29.72	70.28	5,899,345	26.88	73.12	3.85	-6.08	8.05
Detroit	4,752,820	49.19	50.81	4,665,236	45.26	54.74	-1.84	-9.68	5.74
Boston	3,971,792	14.17	85.83	4,171,747	13.77	86.23	5.03	2.01	5.53
Washington, DC	3,250,822	19.64	80.36	3,923,574	15.47	84.53	20.69	-4.92	26.95
Dallas	2,930,516	53.11	46.89	3,885,415	47.69	52.31	32.58	19.05	47.92
Houston	3,101,293	77.69	22.31	3,711,043	75.94	24.06	19.66	16.96	29.07
Miami	2,643,981	61.49	38.51	3,192,582	60.67	39.33	20.75	19.15	23.30
Atlanta	2,138,231	27.59	72.41	2,833,511	22.90	77.10	32.52	10.01	41.09
Cleveland	2,834,062	52.87	47.13	2,759,823	51.17	48.83	-2.62	-5.76	0.90
Seattle	2,093,112	60.66	39.34	2,559,164	58.90	41.10	22.27	18.71	27.75
San Diego	1,861,846	100.00		2,498,016	100.00		34.17	34.17	
Minneapolis	2,137,133	44.05	55.95	2,464,124	41.90	58.10	15.30	9.67	19.73
St. Louis	2,376,998	19.06	80.94	2,444,099	16.23	83.77	2.82	-12.45	6.42
Baltimore	2,199,531	35.77	64.23	2,382,172	30.90	69.10	8.30	-6.45	16.52
Pittsburgh	2,423,311	59.84	40.16	2,242,798	59.59	40.41	-7.45	-7.84	-6.87
Phoenix	1,509,052	100.00		2,122,101	100.00		40.62	40.62	
Tampa	1,613,603	40.09	59.91	2,067,959	40.33	59.67	28.16	28.92	27.65
Denver	1,618,461	30.42	69.58	1,848,319	25.30	74.70	14.20	-5.03	22.61
Cincinnati	1,401,491	62.31	37.69	1,744,124	49.67	50.33	24.45	-0.80	66.18
Milwaukee	1,570,275	61.45	38.55	1,607,183	59.69	40.31	2.35	-0.59	7.04
Kansas City	1,433,458	43.90	56.10	1,566,280	40.43	59.57	9.27	0.63	16.02
Sacramento	1,099,814	71.23	28.77	1,481,102	70.30	29.70	34.67	32.91	39.01
Portland	1,490,153	37.76	62.24	1,477,895	39.51	60.49	-0.82	3.78	-3.61
Norfolk	1,160,311	23.01	76.99	1,396,107	18.71	81.29	20.32	-2.15	27.04
Columbus	1,243,833	69.88	30.12	1,377,419	69.80	30.20	10.74	10.62	11.02
San Antonio	1,071,954	92.24	7.76	1,302,099	91.04	8.96	21.47	19.88	40.35
Indianapolis	1,166,575	65.60	34.40	1,249,822	63.78	36.22	7.14	4.17	12.79
New Orleans	1,256,256	44.38	55.62	1,238,816	40.11	59.89	-1.39	-10.87	6.17
Buffalo	1,242,826	81.71	18.29	1,189,288	81.44	18.56	-4.31	-4.62	-2.90
Charlotte	971,391	41.62	58.38	1,162,093	44.01	55.99	19.63	26.51	14.73
Providence	1,083,139	14.48	85.52	1,141,525	14.08	85.92	5.39	2.50	5.88
Hartford	1,013,508	13.46	86.54	1,085,895	12.87	87.13	7.14	2.45	7.87
Orlando	700,055	67.28	32.72	1,072,748	63.15	36.85	53.24	43.84	72.57
Salt Lake City	910,222	68.01	31.99	1,072,227	67.71	32.29	17.80	17.27	18.93
Rochester	971,230	72.30	27.70	1,002,410	71.23	28.77	3.21	1.67	7.23
Total	**110,732,144**	**43.28**	**56.72**	**123,814,261**	**42.27**	**57.73**	**11.81**	**9.22**	**13.79**

Table 3-2. Fastest and Slowest Growing Metropolitan Areas, Percent Changes by Decade

Fastest Growing Populations

1960-1970		*1970-1980*		*1980-1990*	
Metropolitan Area	**Percent Change**	**Metropolitan Area**	**Percent Change**	**Metropolitan Area**	**Percent Change**
Miami	48.8%	Phoenix	56.0%	Orlando	53.2%
Los Angeles	48.3	Tampa	44.2	Phoenix	40.6
Phoenix	45.8	Houston	43.0	Sacramento	34.7
Houston	38.1	Miami	40.1	San Diego	34.2
Washington, DC	37.0	San Diego	37.1	Dallas	32.6

Slowest Growing Populations

1960-1970		*1970-1980*		*1980-1990*	
Metropolitan Area	**Percent Change**	**Metropolitan Area**	**Percent Change**	**Metropolitan Area**	**Percent Change**
Pittsburgh	-0.2%	Buffalo	-7.9%	Pittsburgh	-7.5%
Buffalo	3.2	Pittsburgh	-5.7	Buffalo	-4.3
Cincinnati	9.8	Cleveland	-5.5	Cleveland	-2.6
Cleveland	9.8	New York City	-5.4	Detroit	-1.8
New York City	10.4	St. Louis	-2.2	New Orleans	-1.4

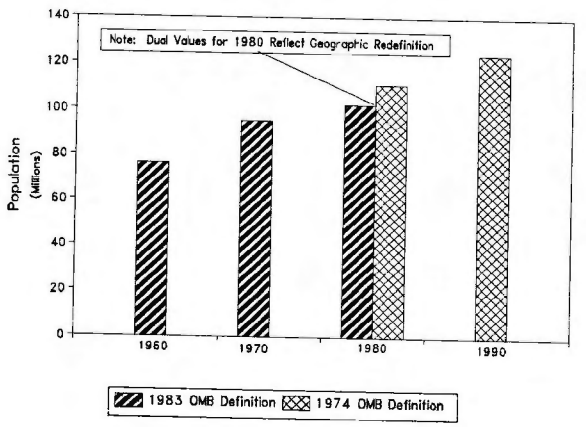
Table 3-3. Fastest Growing Suburban Counties in Large U.S. Metropolitan Areas, 1960-1980 and 1980-1990

1960-1980		*1980-1990*	
Metropolitan Area	**Percent Change**	**Metropolitan Area**	**Percent Change**
Miami	204.9%	Orlando	72.6%
Denver	155.9	Cincinnati	66.2
Atlanta	135.0	Dallas	47.9
Los Angeles	134.7	Atlanta	41.1
Portland	127.4	Los Angeles	41.0

Figure 3-1 illustrates the relationship in 1990 between land area and population in central counties of the metropolitan areas. Only five areas have 50% or more of their total land area in central counties (San Diego, Phoenix, San Antonio, Buffalo, and Miami). In contrast, nineteen metropolitan areas have 50% or more of their total population in central counties. Thus, in most metropolitan areas, central counties still have a disproportionately high share of the total population, but a disproportionately low share of total land area. The data also suggest the higher population densities that exist in central counties compared to suburban counties.

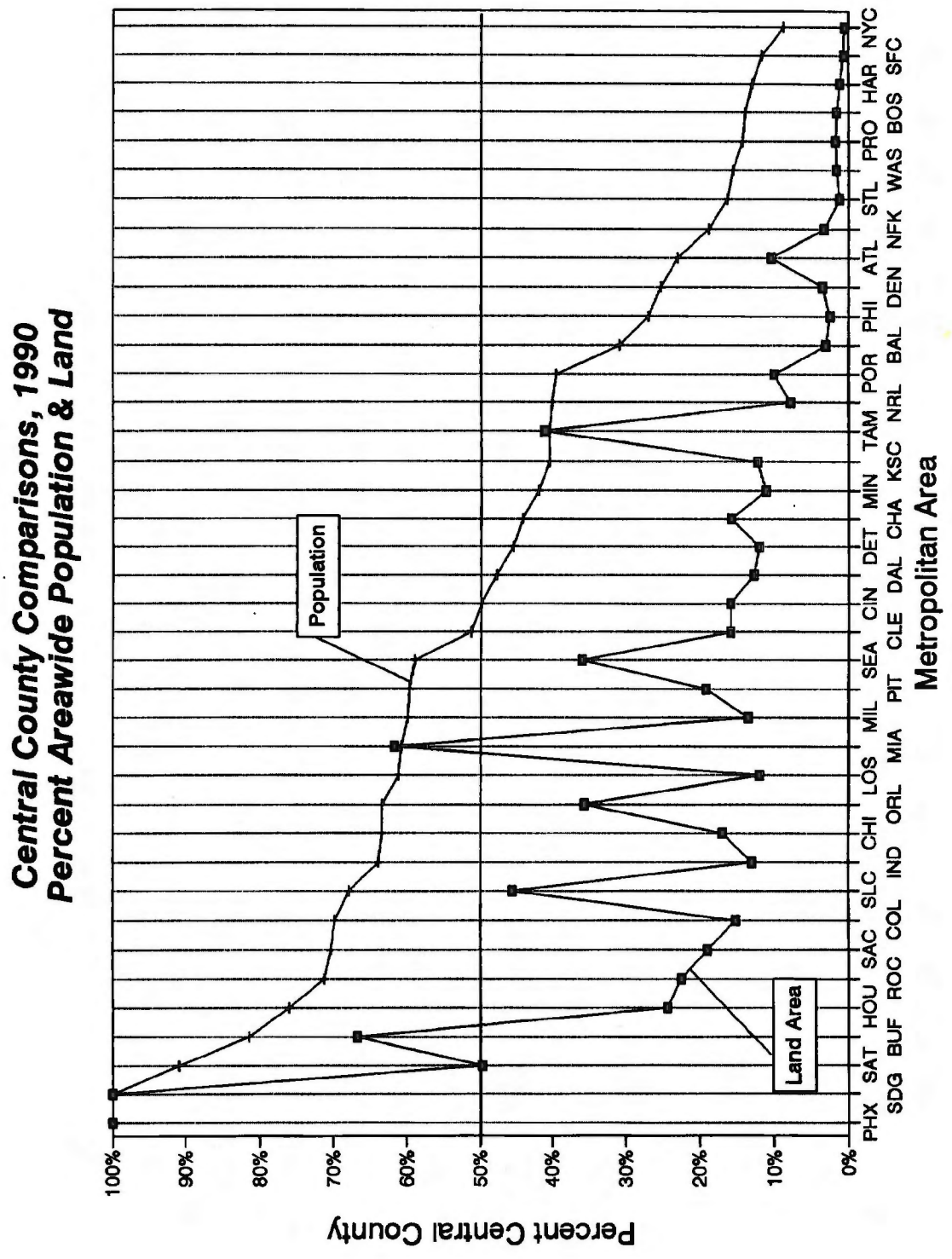
Figure 3-2 shows the effects of the 1983 geographic change on population at the areawide level for the group of thirty-nine metropolitan areas. The two values for 1980 reflect the geographic revisions. As may be confirmed in Tables 3-1 and 3-1A, suburban counties accounted for most of the areawide growth, almost a 14% increase from 1980-1990, continuing the high rates established in the previous two decades.

Figure 3-2. Effect of 1983 Geographic Revision On Area Population



Viewing the entire thirty year period, many older metropolitan areas lost more than 20% of their central county population (Philadelphia, Detroit, Washington, D.C., St. Louis, Baltimore, and New Orleans). Central counties with the highest growth rates are concentrated in the West and South. The central counties of five metropolitan areas grew by over 100% from 1960 to 1990. The rates, however, are somewhat overstated in metropolitan areas such as Phoenix and San Diego which are entirely central county. In the 1980's, only Orlando, Charlotte, Sacramento, and Tampa registered gains of 25% or better (excluding 100% central county areas).

Figure 3-1. Central County Comparisons, 1990 — Percent Areawide Population & Land



Fourteen metropolitan areas had net decreases in central county population during the 1960 to 1990 period (Table 3-4). St. Louis had the largest loss in central county population, a decline of 47.1%. Several others lost over twenty percent of central county populations. Generally, the 1970's appeared to mark the height of losses in central county populations (Figure 3-3). Indeed, twenty-one of the metropolitan areas had percent decreases during the 1970's. In the 1980's, however, central county populations grew in eight areas that had previously declined in the 1970's. These were New York City, San Francisco, Boston, Atlanta, Minneapolis, Kansas City, Indianapolis, and Providence. Without the influence of immigration, it is unlikely that Central County population would have increased in the 1980's. From 1980 to 1990 the central counties averaged only a 9.2% population increase, while the suburban counties averaged 13.8%.

Despite some increases in central counties populations during the 1980's, suburban populations are accounting for increasingly higher shares of overall area populations. During that time, thirty-three central counties had net losses in share of metropolitan area population (Table 3-5, Figure 3-4). The loss in central county share for seven metropolitan areas exceeded ten percent.

Household Formation and Size. From 1960-1990 the number of households in the U.S. increased nearly 75%, from 53 million to 92 million. Meanwhile, household size was declining. In 1960, the average U.S. household had 3.33 persons. The average household had 3.11 persons in 1970, 2.75 persons in 1980, and 2.63 persons in 1990. This represented a decline of over 20% during the thirty year period. The 1970-1980 period accounted for not only the largest percent increase in total households (26.7%), but also the largest percent decline in household size (11.58%). This pattern of more but smaller households seems firmly in place.

For the thirty-nine metropolitan areas, there was wide variation in 1990 in household size, ranging from 3.09 persons per household in Salt Lake City to 2.37 in Tampa. Most of these areas showed declines in households between 1980 and 1990. One exception to this trend should be noted. California's four large metropolitan areas (Los Angeles, San Francisco, San Diego, and Sacramento) had increasing household size from 1980 to 1990. Los Angeles had the highest growth, increasing from 2.78 to 2.96 between 1980 and 1990, a 6.5% rise. In California, there are strong, local influences affecting demographic measures, such as new immigrant households and higher housing costs.

Figure 3-5 and Table 3-6 show demographic characteristics for persons per household, vehicles per household and workers per household. In this report, workers per household is calculated by dividing total workers by total households. Because total workers includes workers who live in group quarters and not in households, the number is slightly overstated. The largest discrepancy is in areas with high military and college dormitory group quarters population. While persons per household reflects very little variation among the metropolitan areas, vehicles per household and workers per household show wider variation due to differing costs of vehicle ownership, conditions that affect labor force participation, availability of transportation alternatives and other local conditions.

Urban Populations. ~~The Census Bureau categorizes populations according to urban and rural.~~ Urban populations include those living in officially designated "urbanized areas" (UZA's), plus those living in urban areas outside UZA's. Rural population includes rural farm and rural nonfarm. From 1960 to 1990, the urban population of the United States rose from 54.1 million to 61.7 million, an increase of 49.3%. The largest increase was in the 1960's when urban population rose 19.5%. As a share of the total, urban population represented 69.9% in 1960, 73.6% in 1970, 73.7% in 1980, and 75.2% in 1990.

Table 3-4. Central County Population, 1960-1990

Area	Central County Population				Percent Change			
	1960	1970	1980	1990	1960-70	1970-80	1980-90	1960-90
New York City	1,698,281	1,539,233	1,428,285	1,487,536	-9.37	-7.21	4.15	-12.41
Los Angeles	6,038,771	7,032,075	7,477,503	8,863,164	16.45	6.33	18.53	46.77
Chicago	5,129,725	5,492,369	5,253,655	5,105,067	7.07	-4.35	-2.83	-0.48
San Francisco	740,316	715,674	678,974	723,959	-3.33	-5.13	6.63	-2.21
Philadelphia	2,002,512	1,948,609	1,688,210	1,585,577	-2.69	-13.36	-6.08	-20.82
Detroit	2,666,297	2,666,751	2,337,891	2,111,687	0.02	-12.33	-9.68	-20.80
Boston		641,071	562,994	574,283		-12.18	2.01	
Washington, DC	763,956	756,510	638,333	606,900	-0.97	-15.62	-4.92	-20.56
Dallas	951,527	1,327,321	1,556,390	1,852,810	39.49	17.26	19.05	94.72
Houston	1,243,158	1,741,912	2,409,547	2,818,199	40.12	38.33	16.96	126.70
Miami	935,047	1,267,792	1,625,781	1,937,094	35.59	28.24	19.15	107.17
Atlanta	556,326	607,592	589,904	648,951	9.22	-2.91	10.01	16.65
Cleveland	1,647,895	1,721,300	1,498,400	1,412,140	4.45	-12.95	-5.76	-14.31
Seattle	935,014	1,156,633	1,269,749	1,507,319	23.70	9.78	18.71	61.21
San Diego	1,033,011	1,357,854	1,861,846	2,498,016	31.45	37.12	34.17	141.82
Minneapolis	842,854	960,080	941,411	1,032,431	13.91	-1.94	9.67	22.49
St. Louis	750,026	622,236	453,085	396,685	-17.04	-27.18	-12.45	-47.11
Baltimore	939,024	905,759	786,775	736,014	-3.54	-13.14	-6.45	-21.62
Pittsburgh	1,628,587	1,605,016	1,450,085	1,336,449	-1.45	-9.65	-7.84	-17.94
Phoenix	663,510	967,522	1,509,052	2,122,101	45.82	55.97	40.62	219.83
Tampa	397,788	490,265	646,960	834,054	23.25	31.96	28.92	109.67
Denver	493,887	514,678	492,365	467,610	4.21	-4.34	-5.03	-5.32
Cincinnati	864,121	924,018	873,224	866,228	6.93	-5.50	-0.80	0.24
Milwaukee	1,036,341	1,054,063	964,988	959,275	1.71	-8.45	-0.59	-7.44
Kansas City	622,732	654,558	629,266	633,232	5.11	-3.86	0.63	1.69
Sacramento	502,778	631,498	783,381	1,041,219	25.60	24.05	32.91	107.09
Portland	522,813	556,667	562,640	583,887	6.48	1.07	3.78	11.68
Norfolk			266,979	261,229			-2.15	
Columbus	682,923	833,249	869,132	961,437	22.01	4.31	10.62	40.78
San Antonio	687,151	830,460	988,800	1,185,394	20.8	19.07	19.88	72.51
Indianapolis	697,567	792,299	765,233	797,159	13.5	-3.42	4.17	14.28
New Orleans	627,525	593,471	557,515	496,938	-5.43	-6.06	-10.87	-20.81
Buffalo	1,064,688	1,113,491	1,015,472	968,532	4.58	-8.80	-4.62	-9.03
Charlotte			404,270	511,433			26.51	
Providence		179,213	156,804	160,728		-12.50	2.50	
Hartford			136,392	139,739			2.45	
Orlando			471,016	677,491			43.84	
Salt Lake City			619,066	725,956			17.27	
Rochester			702,238	713,968			1.67	
Total	**39,366,151**	**43,380,955**	**44,603,852**	**48,577,064**	**10.20**	**2.82**	**8.91**	**23.40**

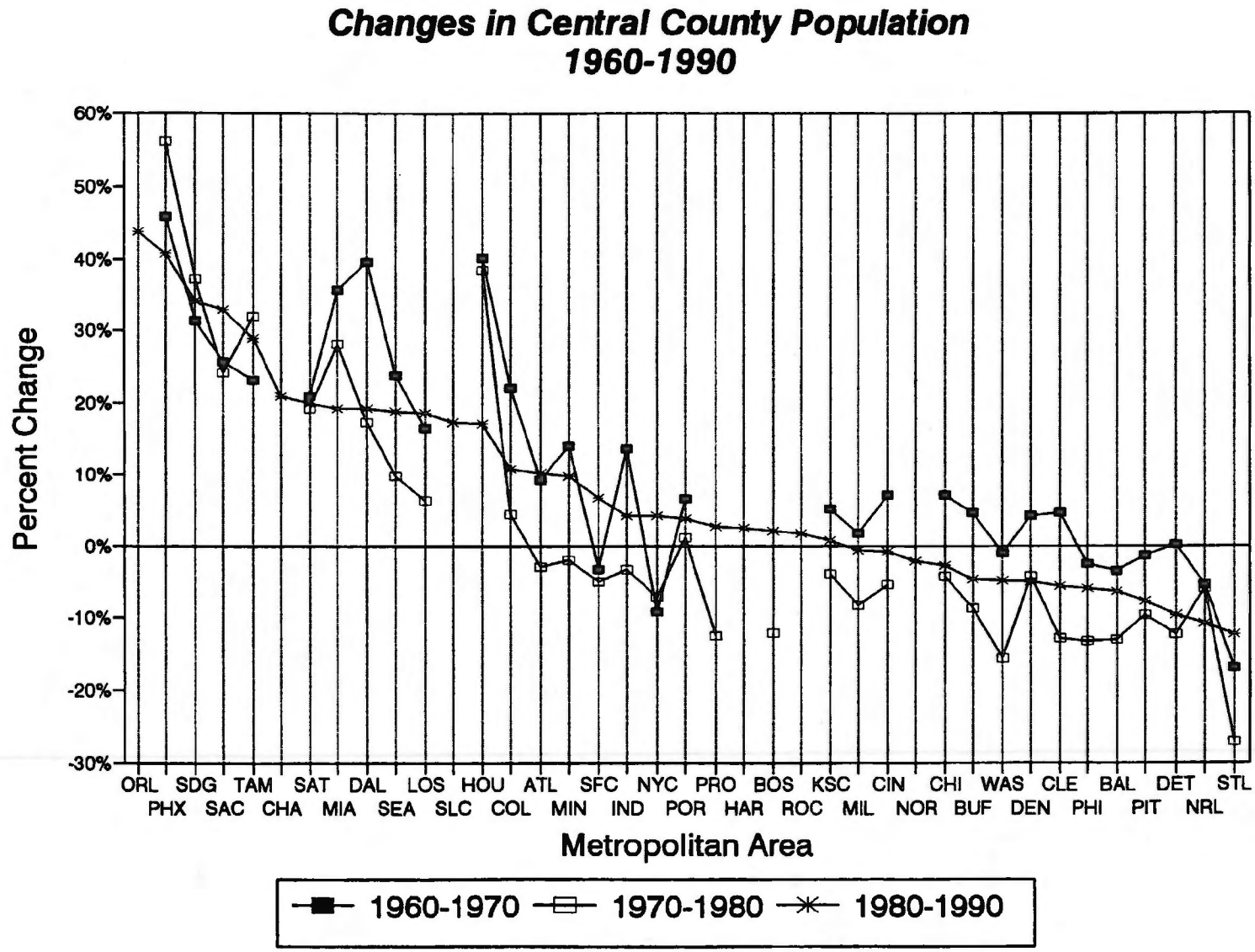
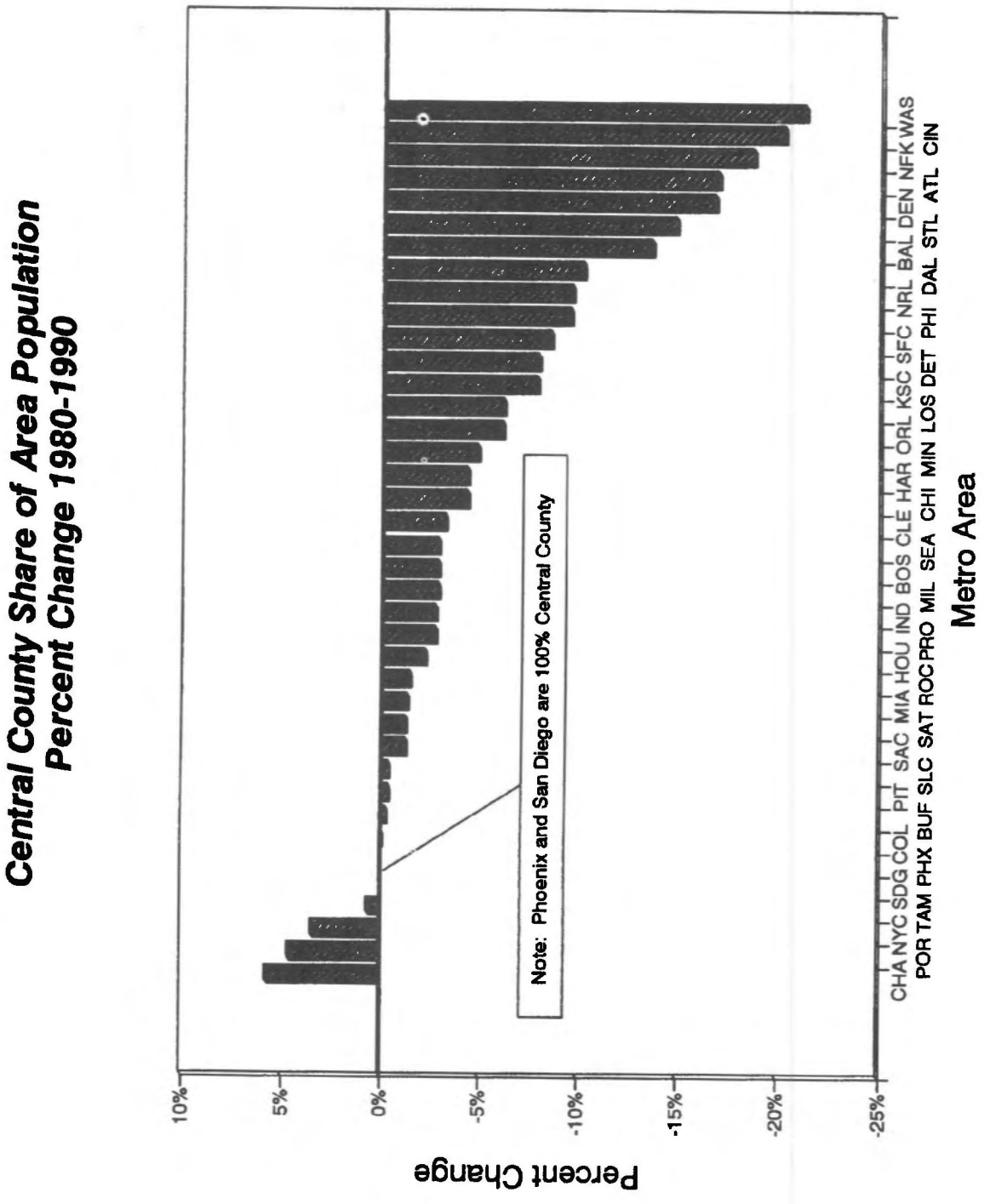


Figure 3-3. Changes in Central County Population 1960-1990

Table 3-5. Relationship of Central County to Areawide Population, 1980-1990

Area	1980			1990			% Change
	Areawide	Central County	% CC	Areawide	Central County	% CC	CC Share
New York City	17,012,502	1,428,285	8.40	17,125,727	1,487,536	8.69	3.46
Los Angeles	11,497,568	7,477,503	65.04	14,531,529	8,863,164	60.99	-6.22
Chicago	7,937,326	5,253,655	66.19	8,065,633	5,105,067	63.29	-4.37
San Francisco	5,360,925	678,974	12.67	6,253,311	723,959	11.58	-8.59
Philadelphia	5,680,768	1,688,210	29.72	5,899,345	1,585,577	26.88	-9.56
Detroit	4,752,820	2,337,891	49.19	4,665,236	2,111,687	45.26	-7.98
Boston	3,971,792	562,994	14.17	4,171,747	574,283	13.77	-2.88
Washington, DC	3,250,822	638,333	19.64	3,923,574	606,900	15.47	-21.23
Dallas	2,930,516	1,556,390	53.11	3,885,415	1,852,810	47.69	-10.21
Houston	3,101,293	2,409,547	77.69	3,711,043	2,818,199	75.94	-2.26
Miami	2,643,981	1,625,781	61.49	3,192,582	1,937,094	60.67	-1.33
Atlanta	2,138,231	589,904	27.59	2,833,511	648,951	22.90	-16.98
Cleveland	2,834,062	1,498,400	52.87	2,759,823	1,412,140	51.17	-3.22
Seattle	2,093,112	1,269,749	60.66	2,559,164	1,507,319	58.90	-2.91
San Diego	1,861,846	1,861,846	100.00	2,498,016	2,498,016	100.00	0.00
Minneapolis	2,137,133	941,411	44.05	2,464,124	1,032,431	41.90	-4.88
St. Louis	2,376,998	453,085	19.06	2,444,099	396,685	16.23	-14.85
Baltimore	2,199,531	786,775	35.77	2,382,172	736,014	30.90	-13.62
Pittsburgh	2,423,311	1,450,085	59.84	2,242,798	1,336,449	59.59	-0.42
Phoenix	1,509,052	1,509,052	100.00	2,122,101	2,122,101	100.00	0.00
Tampa	1,613,603	646,960	40.09	2,067,959	834,054	40.33	0.59
Denver	1,618,461	492,365	30.42	1,848,319	467,610	25.30	-16.84
Cincinnati	1,401,491	873,224	62.31	1,744,124	866,228	49.67	-20.29
Milwaukee	1,570,275	964,988	61.45	1,607,183	959,275	59.69	-2.87
Kansas City	1,433,458	629,266	43.90	1,566,280	633,232	40.43	-7.90
Sacramento	1,099,814	783,381	71.23	1,481,102	1,041,219	70.30	-1.30
Portland	1,490,153	562,640	37.76	1,477,895	583,887	39.51	4.64
Norfolk	1,160,311	266,979	23.01	1,396,107	261,229	18.71	-18.68
Columbus	1,243,833	869,132	69.88	1,377,419	961,437	69.80	-0.11
San Antonio	1,071,954	988,800	92.24	1,302,099	1,185,394	91.04	-1.31
Indianapolis	1,166,575	765,233	65.60	1,249,822	797,159	63.78	-2.77
New Orleans	1,256,256	557,515	44.38	1,238,816	496,938	40.11	-9.61
Buffalo	1,242,826	1,015,472	81.71	1,189,288	968,532	81.44	-0.33
Charlotte	971,391	404,270	41.62	1,162,093	511,433	44.01	5.75
Providence	1,083,139	156,804	14.48	1,141,525	160,728	14.08	-2.74
Hartford	1,013,508	136,392	13.46	1,085,895	139,739	12.87	-4.38
Orlando	700,055	471,016	67.28	1,072,748	677,491	63.15	-6.14
Salt Lake City	910,222	619,066	68.01	1,072,227	725,956	67.71	-0.45
Rochester	971,230	702,238	72.30	1,002,410	713,968	71.23	-1.49
Total	**110,732,144**	**47,923,611**	**43.28**	**123,814,261**	**52,341,891**	**42.27**	**-2.32**

Figure 3-4. Central County Share of Area Population — Percent Change 1980-1990



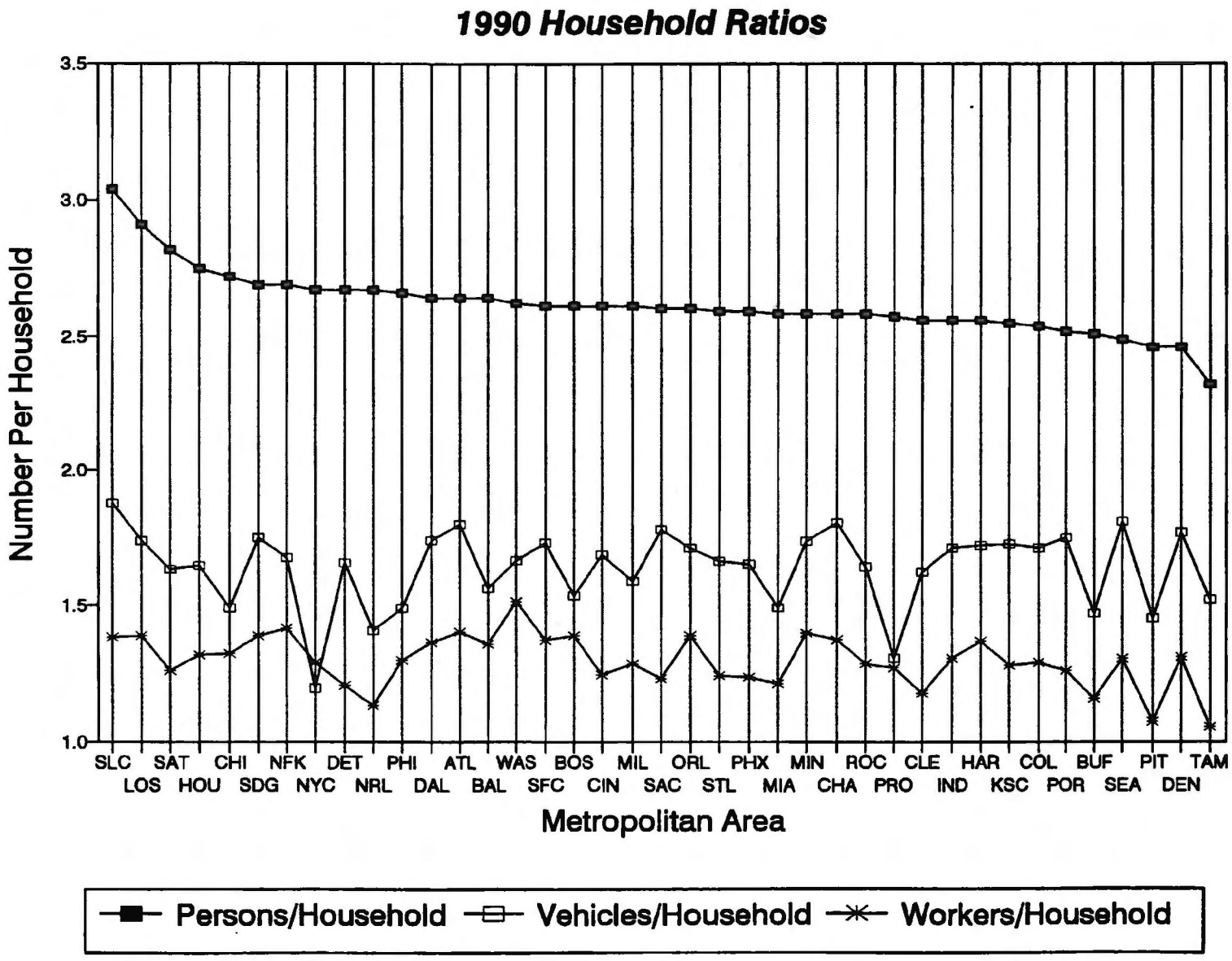


Figure 3-5. 1990 Household Ratios

In the thirty-nine metropolitan areas, urban and rural population for 1990 are displayed in Table 3-6. The Miami metropolitan area had the highest percentage of population (98.9%) classified as urban, while Charlotte showed the fewest (68.7%) people living in urban areas. The average for the entire group of large metropolitan areas was 91.6%, compared to 75.2% for the U.S. as a whole. In sum, the data depict a country with an increasingly urban population, and large metropolitan areas that are now overwhelmingly urban.

Household Income. Table 3-7 shows 1990 data for household income. The top five areas for median household income are Washington, D.C., San Francisco, Hartford, Boston, and New York. Thus, while Sunbelt regions have the highest rates of population growth, the older Northeastern metropolitan areas continue to have the highest household incomes. This may be due to the combination of higher local wages and more workers per household. In Washington, D.C., over 20% of the households had 1990 incomes of $75,000 or more. At the lower end of the group are New Orleans, Tampa, San Antonio and Pittsburgh. In New Orleans, over 30% of households earned less than $15,000. In 1990, the median household income in Washington, D.C. was $46,856, while the median household income in New Orleans was $24,442.

Trip volume and mode choice decisions reflect household income levels and geographic location of income groups. Workers in certain economically sensitive industries and occupations may display different commuting patterns than those in more stable industries. Lower incomes mean fewer vehicles available per household, and thus fewer drive alone commute trips.

Table 3-6. Demographic Ratios and Urban/Rural Population Percentages, 1990

Metro-politan Area	Persons Per Household	Vehicles Per Household	Workers Per Household*	Percent Urban Population	Percent Rural Population
NYC	2.67	1.20	1.29	95.7%	4.3%
LOS	2.91	1.74	1.39	97.4%	2.6%
CHI	2.72	1.49	1.32	96.0%	4.0%
SFC	2.61	1.73	1.37	96.1%	3.9%
PHI	2.66	1.49	1.30	89.0%	11.0%
DET	2.67	1.66	1.21	88.4%	11.6%
BOS	2.61	1.54	1.39	87.1%	12.9%
WAS	2.62	1.67	1.52	91.5%	8.5%
DAL	2.64	1.74	1.36	92.6%	7.4%
HOU	2.75	1.65	1.32	89.7%	10.3%
MIA	2.58	1.49	1.21	98.9%	1.1%
ATL	2.64	1.80	1.40	80.9%	19.1%
CLE	2.56	1.62	1.17	90.1%	9.9%
SEA	2.49	1.81	1.30	89.9%	10.1%
SDG	2.69	1.75	1.39	95.2%	4.8%
MIN	2.58	1.74	1.40	89.9%	10.1%
STL	2.59	1.66	1.24	87.9%	12.1%
BAL	2.64	1.57	1.35	87.2%	12.8%
PIT	2.46	1.45	1.07	80.9%	19.1%
PHX	2.59	1.65	1.23	96.4%	3.6%
TAM	2.32	1.52	1.05	89.2%	10.8%
DEN	2.46	1.77	1.31	94.2%	5.8%
CIN	2.61	1.69	1.25	85.1%	14.9%
MIL	2.61	1.59	1.28	89.6%	10.4%
KSC	2.55	1.72	1.28	89.2%	10.8%
SAC	2.60	1.78	1.23	87.9%	12.1%
POR	2.52	1.75	1.26	84.7%	15.3%
NFK	2.69	1.68	1.41	94.8%	5.2%
COL	2.54	1.71	1.29	80.9%	19.1%
SAT	2.82	1.63	1.26	91.2%	8.8%
IND	2.56	1.71	1.30	82.7%	17.3%
NRL	2.67	1.41	1.13	93.2%	6.8%
BUF	2.51	1.47	1.15	85.4%	14.6%
CHA	2.58	1.80	1.37	68.7%	31.3%
PRO	2.57	1.30	1.27	87.1%	12.9%
HAR	2.56	1.72	1.37	80.3%	19.7%
ORL	2.60	1.71	1.38	90.3%	9.7%
SLC	3.04	1.88	1.38	98.4%	1.6%
ROC	2.58	1.64	1.28	70.6%	29.4%

*Total workers divided by total households. Total workers includes workers who live in group quarters.

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Table 3-7. Median Household Income and Percent of Households in Income Intervals, Thirty-Nine Metropolitan Areas, 1990

Metro-politan Area	Median Household Income	Income Intervals in $ Thousands				
		< $15	$15-$29.9	$30-$49.9	$50-$74.9	$75+
NYC	$37,869	20.3%	19.4%	23.4%	18.8%	18.1%
LOS	36,711	18.5%	21.7%	25.2%	18.7%	15.9%
CHI	35,916	19.1%	21.9%	27.1%	18.9%	13.1%
SFC	41,459	15.1%	19.3%	25.5%	21.2%	18.9%
PHI	35,735	19.5%	21.9%	26.8%	18.8%	13.0%
DET	34,729	22.0%	21.2%	25.8%	18.7%	12.3%
BOS	40,647	17.5%	18.4%	24.9%	21.3%	17.8%
WAS	46,856	10.4%	17.2%	25.9%	23.7%	22.7%
DAL	32,825	19.3%	25.6%	26.8%	16.9%	11.3%
HOU	31,488	22.3%	25.0%	25.2%	16.3%	11.2%
MIA	28,503	26.0%	26.1%	24.0%	14.1%	9.8%
ATL	36,051	17.2%	23.1%	27.8%	19.0%	12.9%
CLE	30,332	24.0%	25.4%	26.8%	15.3%	8.5%
SEA	35,047	17.4%	24.2%	29.1%	18.4%	10.9%
SDG	35,022	17.9%	24.3%	26.7%	18.2%	12.9%
MIN	36,564	16.6%	22.8%	29.5%	19.7%	11.4%
STL	31,706	21.9%	24.7%	27.7%	16.7%	9.0%
BAL	36,550	18.2%	21.8%	27.3%	19.5%	13.1%
PIT	26,501	28.2%	27.4%	24.7%	12.6%	7.0%
PHX	30,797	21.1%	27.3%	27.0%	15.3%	9.2%
TAM	26,036	26.3%	30.8%	24.9%	11.5%	6.5%
DEN	33,126	19.5%	25.0%	27.4%	17.4%	10.7%
CIN	30,979	23.1%	25.2%	27.0%	15.9%	8.8%
MIL	32,359	21.3%	24.5%	28.7%	17.1%	8.4%
KSC	31,948	20.9%	25.9%	28.0%	16.4%	8.7%
SAC	32,734	20.2%	24.9%	27.0%	17.7%	10.2%
POR	31,070	20.8%	27.1%	28.5%	15.4%	8.2%
NFK	30,841	20.1%	28.2%	28.8%	15.7%	7.2%
COL	30,668	22.0%	26.7%	27.9%	15.3%	8.1%
SAT	26,092	27.8%	28.8%	24.5%	12.3%	6.6%
IND	31,655	20.4%	26.5%	27.9%	16.5%	8.7%
NRL	24,442	32.7%	26.1%	22.7%	11.8%	6.7%
BUF	28,084	26.8%	26.1%	26.4%	14.0%	6.7%
CHA	31,126	21.2%	26.6%	27.9%	15.9%	8.4%
PRO	31,857	23.5%	23.3%	27.4%	16.7%	9.2%
HAR	41,440	15.0%	19.1%	26.7%	22.8%	16.3%
ORL	31,230	19.2%	28.3%	28.4%	15.6%	8.5%
SLC	30,882	19.7%	28.4%	29.8%	15.1%	6.9%
ROC	34,234	19.8%	23.4%	27.9%	18.5%	10.4%

Chapter 4

CHARACTERISTICS OF THE WORK TRIP: WORKER RESIDENCES, PLACES OF WORK, COMMUTER FLOWS, AND TRAVEL TIMES

This chapter describes the characteristics of workers. It includes discussion and tables on the growth of workers, residential and workplace location based on central/suburban county definitions, male/female distributions, and the effects of commuting flows and travel times. New data on time leaving home to go to work are also discussed.

Characteristics of Workers

The biggest change in commuting behavior over the last thirty years is in the dramatic increase in women's participation in the labor force. Another major change is the development of "reverse" commuting (residents in central cities who work in the suburbs), and commuting between suburbs.

In 1990, the U.S. had 115 million workers or approximately 46.3% of the population in the workforce. In the thirty-nine metropolitan areas, there was a slightly greater proportion (49.1%) of workers to total population. In 1960, when there were 64.7 million workers in the U.S., only 36.1% of the population was working. Much of the increase during the past thirty years can be accounted for by the increase in women's participation in the labor force, rising from 32.3% of all workers in 1960 to 45.3% of all workers in 1990.

Because the geographic scale of analysis in this report is limited to counties, we cannot fully explore suburban development, reverse commuting, and suburb-to-suburb commuting. The county level analysis in this report shows major increases in commuting from the central county to suburban counties, and in one suburban county to other suburban counties. Table 4-1 below compares worker characteristics between the U.S. and the thirty-nine metropolitan areas.

Table 4-1. Worker Comparisons, U.S. and Thirty-Nine Metropolitan Areas, 1990

Item	U.S. Totals	Percent	Metropolitan Areas	Percent
Population	248,709,873	100.0%	123,814,261	100.0%
Total Workers	115,070,274	46.3%	59,704,401	46.3%
Worked In County of Residence	87,587,677	76.1%	43,233,668	72.4%
Worked Outside County of Residence	23,488,393	20.4%	14,016,809	23.5%
Worked Out of State	3,994,204	3.5%	2,377,625	4.0%

Growth in the Number of Workers. Over the 1960-1990 period, total workers grew by nearly 78%. As a share of the total U.S. population, workers increased from 36.1% in 1960 to 46.3% in 1990, resulting in a total rise in this ratio of about 24%. Nationwide, the number of workers sixteen and older

increased sharply in the 1980-1990 period, both in absolute figures and as a percentage of the total population. Total workers rose by over 19%, from 42.6% in 1980 to 46.3% in 1990, more than twice the growth of the total population.

The growth in workers was driven by three main factors. First, was the sheer demographics of the baby boomers entering the labor force. Second, was the general increase in the number of workers per household. Third, was a significant increase in the number of women in the work force. In 1990, the U.S. work force was over 46% female.

Among the thirty-nine large metropolitan areas, each successive decade from 1960 to 1990 produced an average growth rate of 22% in the number of workers. Considerable variation is found across metropolitan areas. These data are presented in Tables 4-2 and 4-2A. In the 1980-1990 period, for example, the change in the number of workers ranged from a high of over 71% in Orlando to a 0.7% decline in Pittsburgh. While much of this activity reflects the differing rates of population growth between Sunbelt areas and more northerly areas, some northern areas such as New York City and Philadelphia have rising number of workers despite a fairly static overall total population.

The Rise in Workers to Total Population. In the 1960-1990 period, the number of U.S. workers increased at twice the rate of the total population. There were 64.7 million workers in 1960 (36.1% of the population), and 115 million workers in 1990 (46.3% of the population). The growth rate of workers continued unabated in the 1980's, following trends established in the 1960's and 1970's.

Figure 4-1 compares the percent of workers to total population for large metropolitan areas during the 1960-1990 period. Each decade has produced a steadily higher proportion of workers to population, led in 1990 by Washington, D.C. with over 55%. The area with the lowest proportion of workers to population was New Orleans with about 42%. Metropolitan areas at the lower (right hand) tail of Figure 4-1 may be areas with large manufacturing sectors or with higher than average retirement populations.

Between 1960 and 1980, the metropolitan areas with the highest growth rates of workers as a percent of the population were in Houston, Minneapolis and Denver (Tables 4-3 and 4-3A). Between 1980 and 1990, the leaders in this category were Tampa, Philadelphia and Atlanta. In Houston and Dallas, where energy related unemployment occurred, there was little change in the proportion of workers to population in the last decade.

The Male/Female Distribution of Workers. The total increase in workers is due in large part to the rising proportion of women in the labor force during the last thirty years. In the U.S., women as a percentage of all workers have grown from 33.2% in 1960 to almost 45.3% in 1990. Recent data show a compound annual growth rate of almost 3% for female workers, almost twice the male worker rate.[1] Parity between the number of male workers and female workers may be developing in the 1990's. Among large metropolitan areas, the highest percentages of female workers in 1990 are in Boston (47.4%), Washington, D.C. (47.5%), and Providence (47.4%). The highest percentages of male workers are in San Diego (58.3%), Norfolk (58.0%) and Los Angeles (57.1%), largely attributable to the effects of near by military bases. The complete list of male and female labor force percentages from 1960 - 1990 is outlined in Figure 4-2 and Tables 4-4 and 4-4A.

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[1] Hu, P.S, and Young, J. "Summary of Travel Trends, 1990 Nationwide Personal Transportation Survey" (U.S. DOT/FHWA, March 1992).

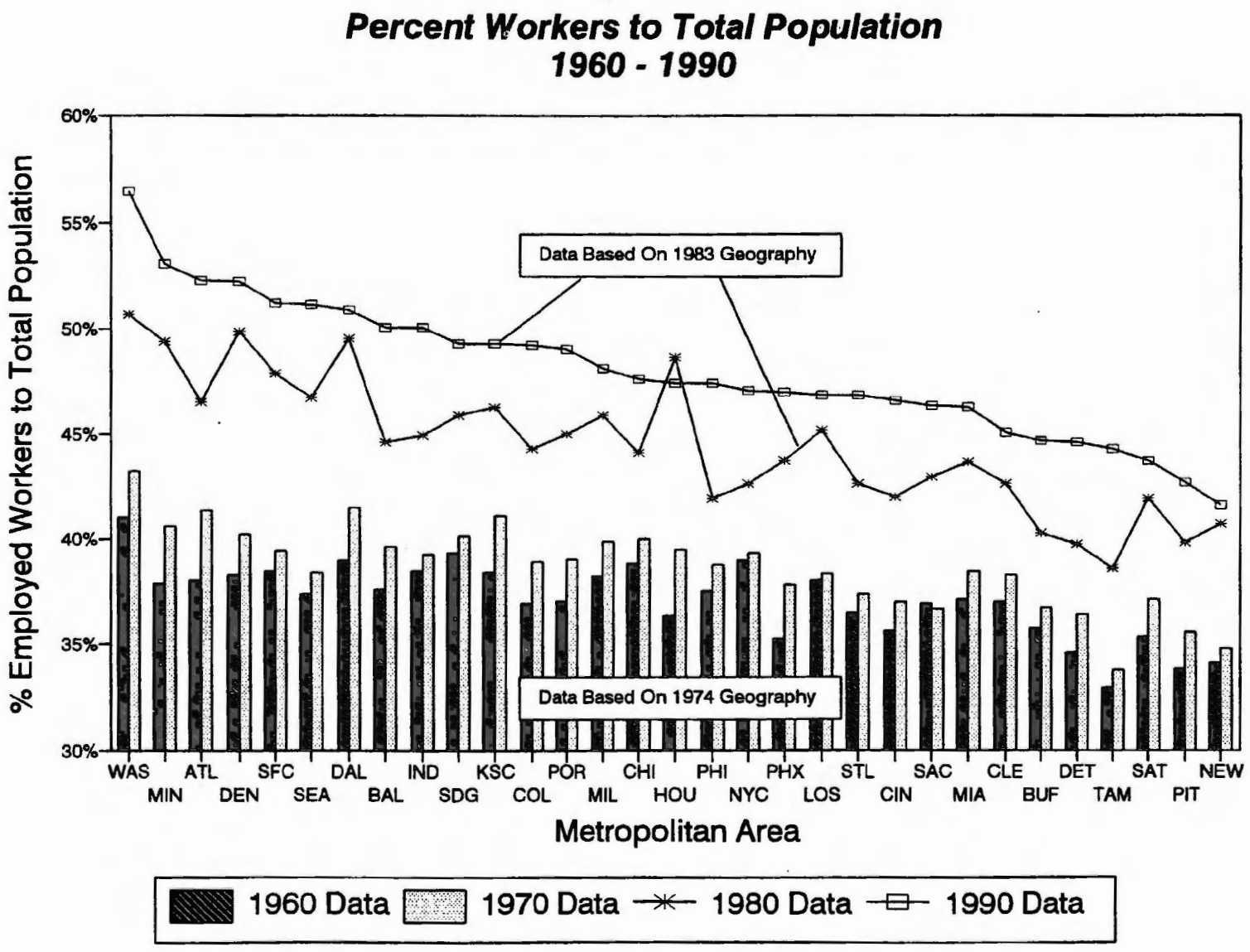

Figure 4-1. Percent Workers to Total Population, 1960-1990

Table 4-2. Workers by Place of Residence (Areawide, Central, and Suburban Counties) 1960-1980

Area	1960			1970			1980		
	Areawide	% CC	% SC	Areawide	% CC	% SC	Areawide	% CC	% SC
New York City	5,886,760	13.28	86.72	6,559,153	10.46	89.54	6,737,511	10.09	89.91
Los Angeles	2,944,496	79.62	20.38	3,821,341	72.17	27.83	5,189,055	65.14	34.86
Chicago	2,674,645	77.32	22.68	3,089,717	71.64	28.36	3,466,377	65.80	34.20
San Francisco	1,397,515	24.09	75.91	1,824,464	17.47	82.53	2,482,965	13.44	86.56
Philadelphia	1,881,353	41.33	58.67	2,178,519	34.06	65.94	2,327,057	26.09	73.91
Detroit	1,424,586	65.41	34.59	1,698,646	56.72	43.28	1,836,510	45.89	54.11
Boston				1,424,038			1,614,734		
Washington, DC	869,632	39.65	60.35	1,256,081	26.70	73.30	1,559,820	18.94	81.06
Dallas	677,200	56.74	43.26	985,683	57.11	42.89	1,469,079	53.94	46.06
Houston	570,562	80.89	19.11	855,427	82.10	17.90	1,508,211	79.55	20.45
Miami	470,475	75.75	24.25	725,677	69.50	30.50	1,153,080	63.17	36.83
Atlanta	443,766	49.17	50.83	660,013	38.14	61.86	950,030	26.52	73.48
Cleveland	1,009,058	62.37	37.63	1,147,050	59.07	40.93	1,203,817	53.14	46.86
Seattle	533,270	67.35	32.65	703,300	64.13	35.87	976,885	63.79	36.21
San Diego	405,497	100.00		544,348	100.00		853,666	100.00	
Minneapolis	604,622	55.23	44.77	796,965	51.33	48.67	1,046,229	46.49	53.51
St. Louis	781,822	36.68	63.32	899,598	25.00	75.00	1,004,504	16.86	83.14
Baltimore	676,742	52.54	47.46	819,597	42.07	57.93	968,908	30.54	69.46
Pittsburgh	813,897	69.52	30.48	853,151	67.89	32.11	912,880	65.88	34.12
Phoenix	233,880	100.00		365,896	100.00		658,854	100.00	
Tampa	266,229	53.53	46.47	367,266	50.73	49.27	608,999	46.30	53.70
Denver	357,363	55.24	44.76	497,057	42.55	57.45	808,019	30.12	69.88
Cincinnati	522,756	60.52	39.48	595,683	58.38	41.62	692,424	53.68	46.32
Milwaukee	542,220	74.78	25.22	627,231	68.36	31.64	720,308	60.72	39.28
Kansas City	425,361	58.24	41.76	521,912	52.66	47.34	620,092	46.97	53.03
Sacramento	230,925	81.38	18.62	293,180	80.02	19.98	435,089	78.42	21.58
Portland	304,381	65.53	34.47	393,331	56.23	43.77	568,916	45.91	54.09
Columbus	311,896	82.49	17.51	395,826	82.99	17.01	488,303	81.10	18.90
San Antonio	259,785	93.48	6.52	329,203	93.40	6.60	449,090	92.24	7.76
Indianapolis	411,416	66.69	33.31	489,625	64.81	35.19	577,759	60.23	39.77
New Orleans	309,237	71.44	28.56	363,821	56.59	43.41	484,155	44.29	55.71
Buffalo	466,984	81.45	18.55	495,141	82.70	17.30	499,842	81.64	18.36
Providence				442,722	16.43	83.57	486,604	13.21	86.79
Total	**28,708,331**	**53.11**	**46.89**	**37,020,662**	**46.41**	**51.17**	**45,359,772**	**44.19**	**54.19**

Table 4-2. Workers by Place of Residence (Areawide, Central, and Suburban Counties) 1960-1980 (Cont.)

Area	Percent Change 1960 - 1970			Percent Change 1970 - 1980			Percent Change 1960 - 1980		
	Areawide	CC	SC	Areawide	CC	SC	Areawide	CC	SC
New York City	11.42	-12.23	15.04	2.72	-0.96	3.15	14.45	-13.07	18.67
Los Angeles	29.78	17.63	77.25	35.79	22.57	70.08	76.23	44.17	201.47
Chicago	15.52	7.04	44.44	12.19	3.04	35.31	29.60	10.29	95.44
San Francisco	30.55	-5.30	41.93	36.09	4.71	42.74	77.67	-0.84	102.58
Philadelphia	15.80	-4.60	30.16	6.82	-18.18	19.73	23.69	-21.94	55.84
Detroit	19.24	3.39	49.21	8.12	-12.52	35.16	28.92	-9.56	101.68
Boston				13.39		18.85			
Washington, DC	44.44	-2.75	75.44	24.18	-11.91	37.33	79.37	-14.33	140.92
Dallas	45.55	46.51	44.29	49.04	40.76	60.07	116.93	106.23	130.97
Houston	49.93	52.17	40.45	76.31	70.84	101.41	164.34	159.96	182.89
Miami	54.24	41.53	93.96	58.90	44.43	91.86	145.09	104.41	272.14
Atlanta	48.73	15.35	81.02	43.94	0.11	70.96	114.08	15.48	209.48
Cleveland	13.68	7.65	23.66	4.95	-5.59	20.16	19.30	1.63	48.59
Seattle	31.88	25.58	44.90	38.90	38.16	40.22	83.19	73.50	103.17
San Diego	34.24	34.24		56.82	56.82		110.52	110.52	
Minneapolis	31.81	22.50	43.30	31.28	18.89	44.34	73.04	45.64	106.83
St. Louis	15.06	-21.57	36.29	11.66	-24.67	23.77	28.48	-40.92	68.69
Baltimore	21.11	-3.03	47.84	18.22	-14.19	41.75	43.17	-16.79	109.55
Pittsburgh	4.82	2.37	10.43	7.00	3.83	13.70	12.16	6.29	25.55
Phoenix	56.45	56.45		80.07	80.07		181.71	181.71	
Tampa	37.95	30.74	46.26	65.82	51.35	80.72	128.75	97.87	164.31
Denver	39.09	7.14	78.52	62.56	15.08	97.73	126.11	23.29	252.98
Cincinnati	13.95	9.93	20.12	16.24	6.87	29.38	32.46	17.48	55.41
Milwaukee	15.68	5.75	45.12	14.84	2.01	42.56	32.84	7.87	106.88
Kansas City	22.70	10.94	39.11	18.81	5.96	33.10	45.78	17.55	85.16
Sacramento	26.96	24.83	36.26	48.40	45.44	60.27	88.41	81.56	118.38
Portland	29.22	10.87	64.12	44.64	18.09	78.74	86.91	30.93	193.35
Columbus	26.91	27.68	23.29	23.36	20.55	37.07	56.56	53.92	68.99
San Antonio	26.72	26.62	28.22	36.42	34.72	60.51	72.87	70.57	105.81
Indianapolis	19.01	15.65	25.73	18.00	9.67	33.33	40.43	26.84	67.64
New Orleans	17.65	-6.80	78.81	33.08	4.13	70.81	56.56	-2.94	205.42
Buffalo	6.03	7.67	-1.16	0.95	-0.35	7.17	7.04	7.29	5.93
Providence				9.91	-11.65	14.15			
Total	**28.95**	**12.68**	**40.75**	**22.53**	**16.66**	**29.75**	**58.00**	**31.45**	**82.62**

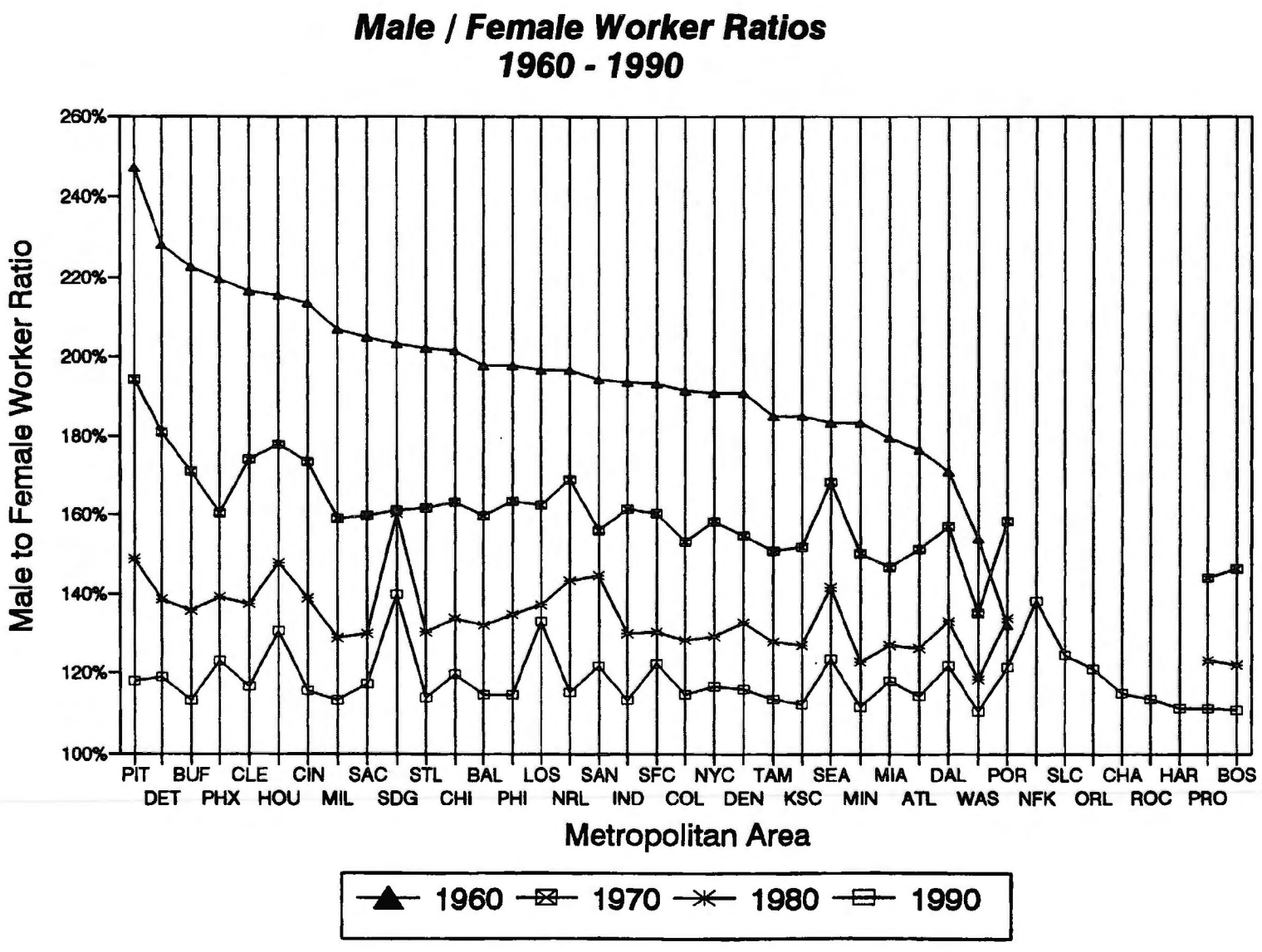

Figure 4-2. Male/Female Worker Ratios, 1960-1990

Table 4-2A. Workers by Place of Residence (Areawide, Central, and Suburban Counties) 1980-1990

Area	1980			1990			Percent Change 1980 - 1990		
	Areawide	% CC	% SC	Areawide	% CC	% SC	Areawide	CC	SC
New York City	7,248,643	9.38	90.62	8,057,252	9.36	90.64	11.16	10.97	11.17
Los Angeles	5,189,055	65.14	34.86	6,809,043	60.44	39.56	31.22	21.75	48.91
Chicago	3,496,988	65.23	34.77	3,841,337	61.69	38.31	9.85	3.89	21.03
San Francisco	2,564,593	13.01	86.99	3,200,833	11.94	88.06	24.81	14.55	26.34
Philadelphia	2,378,301	25.52	74.48	2,794,917	22.92	77.08	17.52	5.52	21.63
Detroit	1,887,578	44.65	55.35	2,079,880	39.55	60.45	10.19	-2.40	20.34
Boston				2,141,717	13.19	86.81		12.91	
Washington, DC	1,646,632	17.94	82.06	2,214,350	13.75	86.25	34.48	3.06	41.35
Dallas	1,450,908	54.61	45.39	1,976,606	47.72	52.28	36.23	19.02	56.94
Houston	1,508,211	79.55	20.45	1,759,796	77.07	22.93	16.68	13.04	30.84
Miami	1,153,080	63.17	36.83	1,476,085	60.16	39.84	28.01	21.91	38.49
Atlanta	995,028	25.32	74.68	1,481,781	21.28	78.72	48.92	25.16	56.98
Cleveland	1,206,817	53.00	47.00	1,242,099	49.72	50.28	2.92	-3.46	10.12
Seattle	976,885	63.79	36.21	1,308,338	61.59	38.41	33.93	29.30	42.08
San Diego	853,666	100.00		1,230,446	100.00		44.14	44.14	
Minneapolis	1,055,726	46.07	53.93	1,307,624	42.91	57.09	23.86	15.37	31.12
St. Louis	1,012,460	16.73	83.27	1,144,336	13.85	86.15	13.03	-6.44	16.94
Baltimore	979,973	30.19	69.81	1,191,813	25.82	74.18	21.62	3.98	29.24
Pittsburgh	963,336	62.43	37.57	956,154	62.27	37.73	-0.75	-1.00	-0.33
Phoenix	658,854	100.00		996,495	100.00		51.25	51.25	
Tampa	622,490	45.30	54.70	914,711	44.93	55.07	46.94	45.74	47.94
Denver	806,904	30.16	69.84	964,912	23.99	76.01	19.58	-4.88	30.15
Cincinnati	587,898	63.22	36.78	812,766	49.14	50.86	38.25	7.46	91.17
Milwaukee	720,308	60.72	39.28	772,752	56.87	43.13	7.28	0.48	17.79
Kansas City	663,211	43.91	56.09	771,309	39.52	60.48	16.30	4.68	25.40
Sacramento	471,851	72.31	27.69	685,945	70.31	29.69	45.37	41.36	55.85
Portland	670,458	38.95	61.05	724,532	39.56	60.44	8.07	9.74	7.00
Norfolk	531,647	24.06	75.94	698,999	18.68	81.32	31.48	2.06	40.80
Columbus	550,284	71.97	28.03	677,859	71.89	28.11	23.18	23.05	23.54
San Antonio	449,090	92.24	7.76	569,149	90.77	9.23	26.73	24.72	50.68
Indianapolis	523,549	66.47	33.53	624,971	63.46	36.54	19.37	13.96	30.10
New Orleans	510,747	41.98	58.02	514,726	36.32	63.68	0.78	-12.82	10.62
Buffalo	499,842	81.64	18.36	531,122	81.50	18.50	6.26	6.08	7.04
Charlotte	472,188	42.94	57.06	604,856	45.83	54.17	28.10	36.74	21.59
Providence				544,668	12.25	87.75		3.79	
Hartford				561,969	9.84	90.16		0.97	
Orlando	324,943	69.13	30.87	557,448	63.91	36.09	71.55	58.61	100.53
Salt Lake City	384,078	69.40	30.60	479,338	68.69	31.31	24.80	23.51	27.72
Rochester	427,779	74.03	25.97	481,467	72.09	27.91	12.55	9.60	20.95
Total	**46,444,001**	**44.93**	**55.07**	**56,456,047**	**42.83**	**57.17**	**21.56**	**15.87**	**26.19**

Table 4-3. Workers As a Percent of Population, 1960-1980

Area	Workers (% of population)			Percent Change		
	1960	1970	1980	1960-70	1970-80	1960-80
New York City	38.9	39.3	42.7	0.9	8.6	9.6
Los Angeles	38.0	38.3	45.1	0.9	17.8	18.8
Chicago	38.8	40.0	44.0	3.0	10.2	13.6
San Francisco	38.4	39.4	47.9	2.6	21.6	24.8
Philadelphia	37.4	38.8	41.9	3.5	8.2	12.0
Detroit	34.6	36.4	39.8	5.4	9.2	15.1
Boston		40.4	46.8		16.0	
Washington, DC	41.0	43.2	51.0	5.4	18.0	24.4
Dallas	39.0	41.5	49.4	6.4	19.1	26.7
Houston	36.3	39.4	48.6	8.6	23.3	33.9
Miami	37.1	38.4	43.6	3.7	13.5	17.6
Atlanta	38.0	41.3	46.8	8.8	13.3	23.3
Cleveland	36.9	38.2	42.5	3.5	11.1	15.0
Seattle	37.3	38.4	46.7	2.8	21.6	25.0
San Diego	39.3	40.1	45.9	2.1	14.4	16.8
Minneapolis	37.8	40.6	49.5	7.2	22.1	30.8
St. Louis	36.5	37.3	42.6	2.4	14.2	16.9
Baltimore	37.5	39.6	44.6	5.5	12.6	18.8
Pittsburgh	33.8	35.5	40.3	5.0	13.5	19.2
Phoenix	35.2	37.8	43.7	7.3	15.4	23.9
Tampa	32.9	33.7	38.8	2.6	15.0	18.0
Denver	38.2	40.2	49.8	5.1	24.1	30.4
Cincinnati	35.6	37.0	41.7	3.8	12.8	17.1
Milwaukee	38.2	39.8	45.9	4.4	15.2	20.2
Kansas City	38.4	41.0	46.7	7.0	13.8	21.8
Sacramento	36.9	36.6	42.9	-0.8	17.2	16.2
Portland	37.0	39.0	45.8	5.2	17.5	23.6
Columbus	36.9	38.9	44.7	5.4	14.8	21.0
San Antonio	35.3	37.1	41.9	5.0	13.0	18.7
Indianapolis	38.4	39.2	44.2	2.0	12.8	15.1
New Orleans	34.1	34.8	40.8	2.0	17.2	19.6
Buffalo	35.7	36.7	40.2	2.7	9.6	12.6
Providence		41.2	44.4		7.8	
Total	**37.6**	**39.0**	**44.5**	**3.6**	**14.1**	**18.2**

Table 4-3A. Workers As a Percent of Population, 1980-1990

Area	Workers (% of population)		Percent Change
	1980	1990	1980-90
New York City	42.6	47.0	10.4
Los Angeles	45.1	46.9	3.8
Chicago	44.1	47.6	8.1
San Francisco	47.8	51.2	7.0
Philadelphia	41.9	47.4	13.2
Detroit	39.7	44.6	12.3
Boston		51.3	
Washington, DC	50.7	56.4	11.4
Dallas	49.5	50.9	2.8
Houston	48.6	47.4	-2.5
Miami	43.6	46.2	6.0
Atlanta	46.5	52.3	12.4
Cleveland	42.6	45.0	5.7
Seattle	46.7	51.1	9.5
San Diego	45.9	49.3	7.4
Minneapolis	49.4	53.1	7.4
St. Louis	42.6	46.8	9.9
Baltimore	44.6	50.0	12.3
Pittsburgh	39.8	42.6	7.2
Phoenix	43.7	47.0	7.6
Tampa	38.6	44.2	14.7
Denver	49.9	52.2	4.7
Cincinnati	41.9	46.6	11.1
Milwaukee	45.9	48.1	4.8
Kansas City	46.3	49.2	6.4
Sacramento	42.9	46.3	7.9
Portland	45.0	49.0	9.0
Norfolk	45.8	50.1	9.3
Columbus	44.2	49.2	11.2
San Antonio	41.9	43.7	4.3
Indianapolis	44.9	50.0	11.4
New Orleans	40.7	41.5	2.2
Buffalo	40.2	44.7	11.0
Charlotte	48.6	52.0	7.1
Providence		47.7	
Hartford		51.8	
Orlando	46.4	52.0	12.0
Salt Lake City	42.2	44.7	5.9
Rochester	44.0	48.0	9.0
Total	**44.37**	**48.08**	**8.36**

Table 4-4. Workers by Gender, 1960-1980

Area	Male (% of workers)			Female (% of workers)		
	1960	1970	1980	1960	1970	1980
New York City	65.6	61.3	56.4	34.4	38.7	43.6
Los Angeles	66.3	61.9	57.8	33.7	38.1	42.2
Chicago	66.9	62.0	57.2	33.2	38.0	42.8
San Francisco	65.9	61.6	56.6	34.1	38.4	43.4
Philadelphia	66.4	62.1	57.4	33.6	38.0	42.6
Detroit	69.5	64.4	58.1	30.5	35.6	42.0
Boston		59.4	55.0		40.6	45.0
Washington, DC	60.6	57.4	54.2	39.4	42.5	45.8
Dallas	63.1	61.1	57.1	36.9	38.9	42.9
Houston	68.3	64.0	59.6	31.7	36.0	40.4
Miami	64.2	59.5	55.9	35.8	40.6	44.1
Atlanta	63.8	60.2	55.8	36.2	39.8	44.2
Cleveland	68.4	63.5	57.9	31.6	36.5	42.1
Seattle	64.7	62.7	58.6	35.3	37.3	41.4
San Diego	67.0	61.7	61.6	33.0	38.3	38.4
Minneapolis	64.7	60.0	55.1	35.3	40.0	44.9
St. Louis	66.9	61.8	56.6	33.1	38.2	43.4
Baltimore	66.4	61.5	56.9	33.6	38.5	43.1
Pittsburgh	71.2	66.0	59.8	28.8	34.0	40.2
Phoenix	68.7	61.6	58.2	31.3	38.4	41.8
Tampa	64.9	60.1	56.1	35.1	39.9	43.9
Denver	65.6	60.7	57.0	34.4	39.3	43.0
Cincinnati	68.1	63.4	58.1	31.9	36.6	41.9
Milwaukee	67.4	61.4	56.3	32.6	38.6	43.7
Kansas City	64.9	60.3	55.9	35.1	39.7	44.1
Sacramento	67.2	61.5	56.5	32.8	38.5	43.5
Portland	45.5	61.3	57.2	34.5	38.7	42.8
Columbus	65.7	60.5	56.2	34.3	39.5	43.8
San Antonio	66.0	60.9	59.1	34.0	39.1	40.9
Indianapolis	66.0	61.8	56.5	34.1	38.3	43.5
New Orleans	66.3	62.8	58.9	33.7	37.2	41.1
Buffalo	69.0	63.1	57.6	31.0	36.9	42.4
Providence		59.0	55.2		41.0	44.8

Table 4-4A. Workers by Gender, 1980-1990

Area	Male (% of workers)		Female (% of workers)	
	1980	1990	1980	1990
New York City	56.4	53.8	43.6	46.2
Los Angeles	57.8	57.1	42.2	42.9
Chicago	57.2	54.5	42.8	45.5
San Francisco	56.6	55.0	43.4	45.0
Philadelphia	57.4	53.4	42.6	46.6
Detroit	58.1	54.4	42.0	45.6
Boston	55.0	52.6	45.0	47.4
Washington, DC	54.2	52.5	45.8	47.5
Dallas	57.1	54.9	42.9	45.1
Houston	59.6	56.6	40.4	43.4
Miami	55.9	54.1	44.1	45.9
Atlanta	55.8	53.3	44.2	46.7
Cleveland	57.9	53.8	42.1	46.2
Seattle	58.6	55.2	41.4	44.8
San Diego	61.6	58.3	38.4	41.7
Minneapolis	55.1	52.7	44.9	47.3
St. Louis	56.6	53.2	43.4	46.8
Baltimore	56.9	53.4	43.1	46.6
Pittsburgh	59.8	54.1	40.2	45.9
Phoenix	58.2	55.2	41.8	44.8
Tampa	56.1	53.2	43.9	46.8
Denver	57.0	53.7	43.0	46.3
Cincinnati	58.1	53.6	41.9	46.4
Milwaukee	56.3	53.1	43.7	46.9
Kansas City	55.9	52.9	44.1	47.1
Sacramento	56.5	54.0	43.5	46.0
Portland	57.2	54.8	42.8	45.2
Norfolk		58.0		42.0
Columbus	56.2	53.4	43.8	46.6
San Antonio	59.1	54.9	40.9	45.1
Indianapolis	56.5	53.1	43.5	46.9
New Orleans	58.9	53.6	41.1	46.4
Buffalo	57.6	53.1	42.4	46.9
Charlotte		53.5		46.5
Providence	55.2	52.6	44.8	47.4
Hartford		52.7		47.3
Orlando		54.8		45.2
Salt Lake City		55.4		44.6
Rochester		53.2		46.8

Workers per Household and Workers per Family. The U.S. has become a country of households and families with multiple workers. For this report, workers per household is calculated using total workers divided by total households. This ratio does not account for the fact that some workers are not in households, particularly in military group quarters. Thus the figures for Norfolk, San Diego and Los Angeles are somewhat inflated using this method of calculation. The definition of workers per family, however is taken directly from Summary Tape File 3. Families, by census definition, have at least two persons and who are related by birth, marriage or adoption.

From 1960-1990, workers per household showed only a slight growth at a national level, climbing only 2.6%. In 1960, the ratio was 1.22, and in 1990 it was 1.25. Although household size was getting smaller, more members of households were working. In the 1980's, workers per household in the U.S. grew by 4.2%. It is possible that the thirty year trend toward smaller households may be reaching its lower limits.

Table 4-5 lists workers per household for the large metropolitan areas and reflects a large degree of variability between those areas. Households in Washington, D.C. and Norfolk, for example, each had an average of over 1.4 workers, while households in Tampa, Pittsburgh, and New Orleans had fewer than 1.15 workers in 1990. Although Tampa, with 1.05 workers per household defined the low end of the range, it was the fastest growing area in terms of workers per household, rising 11.0% in the 1980's. In eight metropolitan areas, workers per household declined from 1980 to 1990. The biggest drop was in Houston, where this ratio fell from 1.38 in 1980 to 1.32 in 1990.

Changes in workers per household varies widely relative to total population in the metropolitan areas. Houston's population grew by 19.7% from 1980 to 1990, but the number of workers per household declined by 4%. A similar pattern took place in San Antonio. In contrast, New York City's population rose by just 0.7% in the 1980's, although workers per household grew by 8.6%. Philadelphia and Detroit exhibited changes comparable to those in New York City. During the 1980 to 1990 period, the older, northern metropolitan areas experienced a resurgence of workers. This was due to the changing nature of the workforce; service sector employment, the increase in female workers, and the maturation of the baby boomers.

Figure 4-3 depicts multiple worker families in 1990. For most of the thirty-nine areas, over 40% of all families have two workers per family, ranging from nearly 55% in Minneapolis to around 39% in Pittsburgh. The percentage of families with three or more workers hovers around 15% nationwide, reaching nearly 20% in Boston, and falling to a low of 10% in Tampa.

Figure 4-3. Workers Per Family — Percentage Distributions (1989 Data)

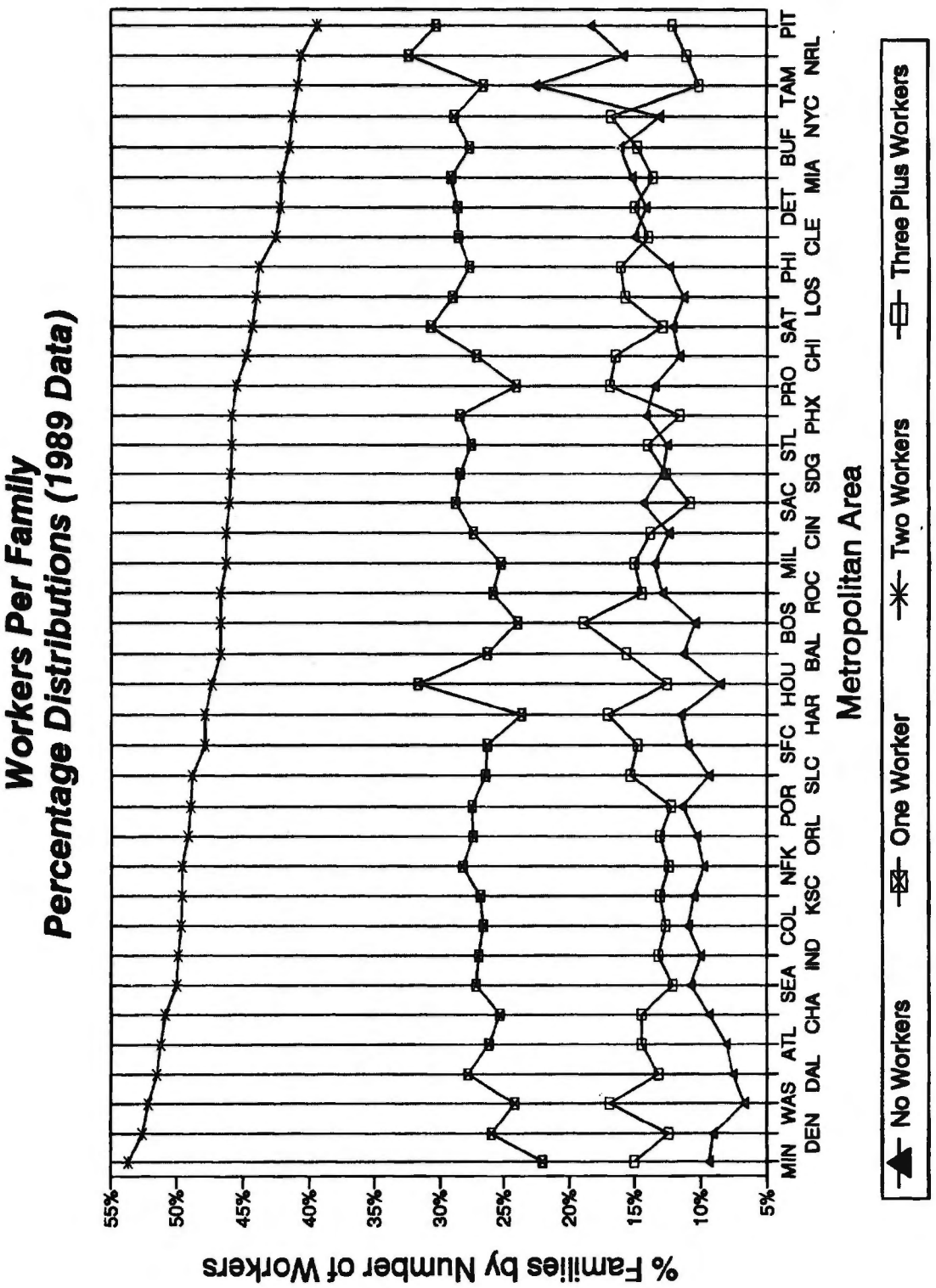

Table 4-5. Workers per Household*, 1980 and 1990, for Large Metropolitan Areas.

Metropolitan Area	1980	1990	Metropolitan Area	1980	1990
Washington, DC	1.41	1.52	Columbus	1.22	1.29
Norfolk	1.38	1.42	New York City	1.18	1.29
Atlanta	1.30	1.40	Rochester	1.25	1.29
Minneapolis	1.37	1.40	Milwaukee	1.29	1.28
Los Angeles	1.26	1.39	Kansas City	1.25	1.28
Orlando	1.29	1.39	San Antonio	1.30	1.26
San Diego	1.27	1.39	Portland	1.19	1.26
Salt Lake City	1.33	1.38	Cincinnati	1.18	1.24
San Francisco	1.26	1.37	St. Louis	1.20	1.24
Charlotte	1.38	1.37	Phoenix	1.21	1.23
Dallas	1.37	1.36	Sacramento	1.13	1.23
Baltimore	1.28	1.35	Miami	1.12	1.21
Houston	1.38	1.32	Detroit	1.15	1.21
Chicago	1.26	1.32	Cleveland	1.18	1.17
Denver	1.33	1.31	Buffalo	1.12	1.15
Seattle	1.23	1.31	New Orleans	1.16	1.13
Indianapolis	1.25	1.30	Pittsburgh	1.09	1.07
Philadelphia	1.21	1.30	Tampa	0.95	1.05

* Total workers divided by total households. Total workers includes workers who live in group quarters.

(Sorted by 1990 number and based on 1983 geography. New England areas excluded)

Workers by Place of Residence and Place of Work

Two primary concepts are used in the discussion of place of work and place of residence:

Central/Suburban County: For these tables and figures, each worker has a residence in either a central county or a suburban county. Likewise, each worker has a work location in either a central county or a suburban county. The flows between these types of counties is discussed.

Same/Different County: For these tables and figures, it does not matter whether the county of work or residence is considered the central county or the suburban county. The distinguishing characteristic is whether or not it is the same or different. Therefore, living and working in a central county is classified the same as living and working in one suburban county. Similarly, living in a central county and working in a suburban county is classified the same as living in a suburban county and working in a central county.

An important caveat when considering counties is the variation in the number of counties comprising a given metropolitan area. For example, New York, with the largest metropolitan area population has twenty-three counties, but Los Angeles with the second largest metropolitan population has only five. Phoenix, with a population of 2.1 million, and San Diego, 2.5 million, constitute only one county each. (See Chapter Three for a detailed discussion of counties.)

During the 1960-1990 period, the proportion of U.S. workers who worked in their county of residence showed little variation. Central county workers tended to live in the central county. Suburban county workers tended to work in the suburban county of residence. In 1960, 81.7% of workers were employed in their county of residence. For the remaining years, the percentages were 74% in 1970, 72.5% in 1980, and 76.1% in 1990. Table 4-6 below indicates that the biggest change was the shift in residences from central counties to suburban counties. In 1960, about 46.8% of workers in large metropolitan areas lived in suburban counties. By 1990, the percentage of workers living in suburban counties was around 57.2%, having steadily increased in each preceding decade.

Table 4-6. Workers by County of Residence, Large Metropolitan Areas, 1960-1990.

Residence of Workers	1960	1970	1980	1990
Areawide	29,033,438	37,416,482	46,444,001	56,456,047
Central County	15,444,704	18,310,716	21,016,490	24,180,355
Percent	(53.2%)	(48.9%)	(45.3%)	(42.8%)
Suburban County	13,588,734	19,105,766	24,760,108	32,275,692
Percent	(46.8%)	(51.1%)	(54.7%)	(57.2%)

Suburban counties continue to make rapid gains as both a work location and a residence location. Several metropolitan areas (St. Louis, Baltimore, Denver, Detroit, Norfolk) had over 30% of their central county residents commute to suburban jobs. Increases in suburban county jobs were most evident in high-growth, Sunbelt metropolitan areas such as Orlando, Dallas, and San Antonio. During the 1980's, the thirty year trend toward suburban county employment showed some indication of slowing in certain areas. Older, northern, metropolitan areas like New York, Philadelphia, Washington, D.C., and Baltimore registered increases in the absolute number of workers employed in central counties during the 1980's, after two decades of decline (Table 4-7).

Workers Living in Central Counties. Tables 4-8 and 4-8A describe the work location of central county residents for 1980 and 1990. Among large metropolitan areas, about 90% of workers who live in the central county, also work there. Metropolitan areas with high percentages of central county residents who also work in the central county include Rochester, San Antonio, Houston, and Columbus, each with over 95% in 1990. Because Phoenix and San Diego metropolitan areas include only one county which by definition is the central county, nearly all of the working residents work in the central county.

In contrast, in St. Louis, Denver and Baltimore over 30% of central county residents commute to the suburban counties. In Washington, D.C., almost 10% of the central county residents work out of the area entirely, the highest rate among the metropolitan areas. Figure 4-4 graphs these relationships for workers who also lived in their central county in 1990.

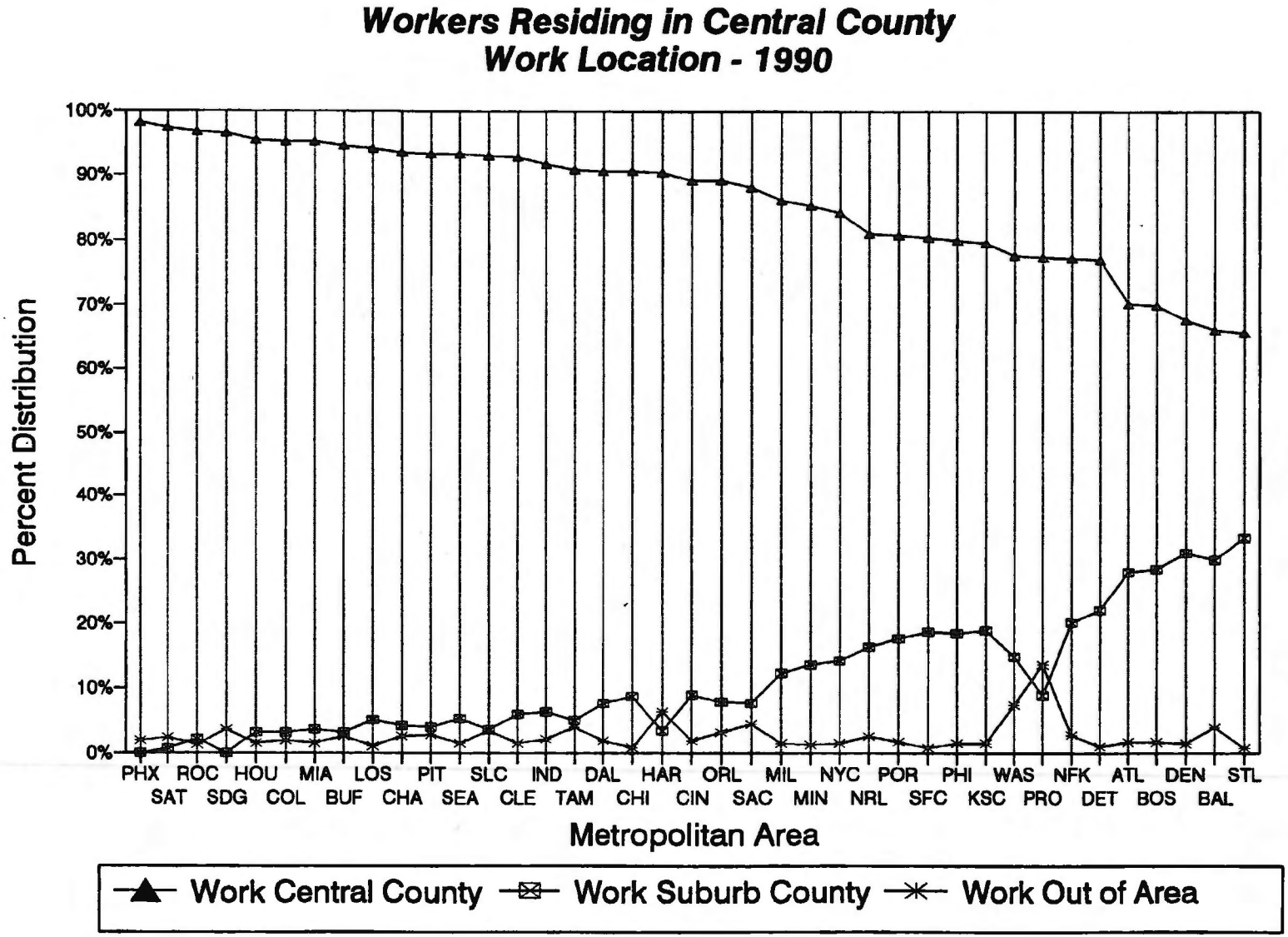

Figure 4-4. Workers Residing in Central County — Work Location — 1990

Table 4-7. Central County Workers, 1960-1990

Area	Central County Workers				Percent Change			
	1960	1970	1980	1990	1960-70	1970-80	1980-90	1960-90
New York City	781,756	686,176	679,599	754,148	-12.23	-0.96	10.97	-3.53
Los Angeles	2,344,440	2,757,759	3,380,069	4,115,248	17.63	22.57	21.75	75.53
Chicago	2,068,110	2,213,608	2,280,950	2,369,624	7.04	3.04	3.89	14.58
San Francisco	336,596	318,741	333,762	382,309	-5.30	4.71	14.55	13.58
Philadelphia	777,655	741,907	607,053	640,577	-4.60	-18.18	5.52	-17.63
Detroit	931,881	963,470	842,838	822,620	3.39	-12.52	-2.40	-11.72
Boston			250,233	282,528			12.91	
Washington, DC	344,812	335,344	295,399	304,428	-2.75	-11.91	3.06	-11.71
Dallas	384,228	562,942	792,396	943,146	46.51	40.76	19.02	145.47
Houston	461,520	702,278	1,199,746	1,356,196	52.17	70.84	13.04	193.85
Miami	356,364	504,345	728,431	887,996	41.53	44.43	21.91	149.18
Atlanta	218,209	251,707	251,980	315,366	15.35	0.11	25.16	44.52
Cleveland	629,398	677,570	639,668	617,552	7.65	-5.59	-3.46	-1.88
Seattle	359,182	451,053	623,184	805,782	25.58	38.16	29.30	124.34
San Diego	405,497	544,348	853,666	1,230,446	34.24	56.82	44.14	203.44
Minneapolis	333,928	409,062	486,349	561,081	22.50	18.89	15.37	68.02
St. Louis	286,762	224,899	169,408	158,499	-21.57	-24.67	-6.44	-44.73
Baltimore	355,576	344,801	295,890	307,679	-3.03	-14.19	3.98	-13.47
Pittsburgh	565,811	579,196	601,403	595,405	2.37	3.83	-1.00	5.23
Phoenix	233,880	365,896	658,854	996,495	56.45	80.07	51.25	326.07
Tampa	142,500	186,303	281,968	410,950	30.74	51.35	45.74	188.39
Denver	197,401	211,494	243,383	231,503	7.14	15.08	-4.88	17.28
Cincinnati	316,363	347,766	371,673	399,406	9.93	6.87	7.46	26.25
Milwaukee	405,446	428,746	437,352	439,449	5.75	2.01	0.48	8.39
Kansas City	247,751	274,846	291,235	304,852	10.94	5.96	4.68	23.05
Sacramento	187,932	234,599	341,201	482,321	24.83	45.44	41.36	156.65
Portland	199,472	221,156	261,164	286,600	10.87	18.09	9.74	43.68
Norfolk			127,920	130,549			2.06	
Columbus	257,295	328,510	396,033	487,305	27.68	20.55	23.05	89.40
San Antonio	242,842	307,478	414,219	516,606	26.62	34.72	24.72	112.73
Indianapolis	274,358	317,303	347,999	396,584	15.65	9.67	13.96	44.55
New Orleans	220,919	205,903	214,415	186,926	-6.80	4.13	-12.82	-15.39
Buffalo	380,339	409,500	408,061	432,883	7.67	-0.35	6.08	13.82
Charlotte			202,735	277,227			36.74	
Providence		72,738	64,266	66,699		-11.65	3.79	
Hartford			54,756	55,289			0.97	
Orlando			224,619	356,271			58.61	
Salt Lake City			266,558	329,238			23.51	
Rochester			316,680	347,088			9.60	
Total	**15,248,223**	**17,108,706**	**19,729,348**	**22,739,982**	**12.20**	**15.32**	**15.26**	**49.13**

Table 4-8. Place of Work, Workers Living in Central Counties, 1980

Area	Work in Central County		Work in Suburban County		Work Out of Area	
	Number	Percent	Number	Percent	Number	Percent
New York City	505,693	84.23	82,871	13.80	11,811	1.97
Los Angeles	2,924,845	95.91	27,474	0.90	97,369	3.19
Chicago	1,933,512	94.38	104,391	5.10	10,817	0.53
San Francisco	252,407	85.57	40,529	13.74	2,045	0.69
Philadelphia	473,938	85.65	73,751	13.33	5,631	1.02
Detroit	641,125	83.34	121,359	15.78	6,790	0.88
Washington, DC	205,743	80.87	44,974	17.68	3,693	1.45
Dallas	682,496	95.11	27,474	3.83	7,601	1.06
Houston	1,019,368	96.98	19,977	1.90	11,742	1.12
Miami	611,109	96.26	15,733	2.48	8,018	1.26
Atlanta	176,276	78.02	46,291	20.49	3,374	1.49
Cleveland	561,749	95.05	24,570	4.16	4,677	0.79
Seattle	547,374	94.70	22,682	3.92	7,981	1.38
San Diego	744,771	94.21			45,733	5.79
Minneapolis	400,397	87.80	51,429	11.28	4,207	0.92
St. Louis	113,431	75.57	35,859	23.89	817	0.54
Baltimore	196,995	75.95	55,129	21.26	7,234	2.79
Pittsburgh	532,784	94.45	19,167	3.40	12,135	2.15
Phoenix	585,761	98.59			8,387	1.41
Tampa	235,129	92.36	9,105	3.58	10,346	4.06
Denver	165,485	74.92	53,166	24.07	2,222	1.01
Cincinnati	323,275	93.48	18,188	5.26	4,378	1.27
Milwaukee	371,533	91.89	28,844	7.13	3,939	0.97
Kansas City	221,365	83.47	40,259	15.18	3,584	1.35
Sacramento	283,100	92.28	13,860	4.52	9,821	3.20
Portland	206,326	87.61	25,689	10.91	3,493	1.48
Columbus	348,448	96.33	5,724	1.58	7,564	2.09
San Antonio	373,156	97.91	1,601	0.42	6,367	1.67
Indianapolis	307,666	95.13	12,117	3.75	3,638	1.12
New Orleans	156,213	82.73	26,320	13.94	6,300	3.34
Buffalo	365,715	95.31	11,763	3.07	6,219	1.62
Total	**16,467,185**	**92.23**	**1,060,296**	**5.94**	**327,933**	**1.84**

Table 4-8A. Place of Work, Workers Living in Central Counties, 1990

Area	Work in Central County		Work in Suburban County		Work Out of Area	
	Number	Percent	Number	Percent	Number	Percent
New York City	635,761	84.30	107,817	14.30	10,570	1.40
Los Angeles	3,872,310	94.10	206,638	5.02	36,300	0.88
Chicago	2,147,598	90.63	204,259	8.62	17,767	0.75
San Francisco	307,400	80.41	71,702	18.75	3,207	0.84
Philadelphia	513,167	80.11	118,025	18.42	9,385	1.47
Detroit	633,415	77.00	182,086	22.13	7,119	0.87
Boston	226,723	69.95	92,254	28.46	5,132	1.58
Washington, DC	236,734	77.76	44,995	14.78	22,699	7.46
Dallas	855,094	90.66	71,105	7.54	16,947	1.80
Houston	1,294,782	95.47	42,132	3.11	19,282	1.42
Miami	844,722	95.13	31,561	3.55	11,713	1.32
Atlanta	221,309	70.18	88,685	28.12	5,372	1.70
Cleveland	573,657	92.89	35,678	5.78	8,217	1.33
Seattle	750,970	93.20	42,780	5.31	12,032	1.49
San Diego	1,187,997	96.55			42,449	3.45
Minneapolis	478,582	85.30	75,997	13.54	6,502	1.16
St. Louis	104,181	65.73	53,065	33.48	1,253	0.79
Baltimore	203,387	66.10	92,320	30.01	11,972	3.89
Pittsburgh	555,766	93.34	23,204	3.90	16,435	2.76
Phoenix	977,648	98.11			18,847	1.89
Tampa	373,741	90.95	20,980	5.11	16,229	3.95
Denver	156,628	67.66	71,838	31.03	3,037	1.31
Cincinnati	356,399	89.23	35,336	8.85	7,671	1.92
Milwaukee	378,890	86.22	54,012	12.29	6,547	1.49
Kansas City	242,909	79.68	57,688	18.92	4,255	1.40
Sacramento	424,777	88.07	36,800	7.63	20,744	4.30
Portland	231,766	80.87	50,270	17.54	4,564	1.59
Norfolk	100,821	77.23	26,260	20.12	3,468	2.66
Columbus	464,102	95.24	14,617	3.00	8,586	1.76
San Antonio	502,381	97.25	2,990	0.58	11,235	2.17
Indianapolis	363,631	91.69	24,902	6.28	8,051	2.03
New Orleans	151,738	81.18	30,524	16.33	4,664	2.50
Buffalo	409,439	94.58	12,976	3.00	10,468	2.42
Charlotte	258,943	93.40	11,456	4.13	6,828	2.46
Providence	214,207	77.50	24,660	8.92	37,538	13.58
Hartford	391,507	90.45	14,298	3.30	27,031	6.25
Orlando	317,493	89.12	27,822	7.81	10,956	3.08
Salt Lake City	306,533	93.10	11,823	3.59	10,882	3.31
Rochester	335,539	96.67	7,204	2.08	4,345	1.25
Total	**22,602,647**	**89.64**	**2,120,759**	**8.41**	**490,299**	**1.94**

** *Boston, Providence, and Hartford county flows are based on the (NECMA) New England County Metropolitan Area.*

Workers Living in Suburban Counties. The picture is more complicated for workers who reside in suburban counties (Tables 4-9 and 4-9A, Figure 4-5). The Indianapolis and Houston metropolitan areas showed increases of over 40% of such workers in 1990, compared to similar rates in 1980 of 33.5% and 37.1% respectively. Altogether, eleven large metropolitan areas had higher rates of commuting to the central counties in 1990 than in 1980. Some of the factors related to these figures are the relative size (square miles) of the central county to the suburban counties and the spatial configuration of the suburban counties relative to other suburban counties in the metropolitan area.

Compared to the central counties there is a smaller concentration of suburban county residents who work in the same suburban county. The greatest concentrations in this category are located in Tampa and Miami each having over 80% in 1980 and 1990. Los Angeles, San Francisco, and Buffalo also had large numbers of workers who lived and worked in the same suburban county. In the Atlanta and Washington, D.C. metropolitan areas, less than 50% of suburban county residents worked in the same suburban county.

Of those suburban county residents who work in a different suburban county, the highest numbers are in New York, Norfolk and Atlanta, each with over 23% in 1990. In contrast, in both 1980 and 1990 Seattle had less than 1% of its suburban workers commuting to other suburban counties within the metropolitan area. Comparing 1980 and 1990 data for this category of workers, there has been relatively strong growth among many of the metropolitan areas. The same applies for those suburban residence workers who work outside the metropolitan area. In 1990, the Baltimore and Washington, D.C. areas each had over 13% of suburban county workers in the "out of area" category. Thus, the new OMB definition for 1992 combines them in one metropolitan area.

Jobs to Workers in Central Counties. Figure 4-6 illustrates the number of jobs in central counties of metropolitan areas compared to the number of workers who live in the central county. In 1990, thirty-four of the thirty-nine areas had more jobs than workers in their central counties. This measure gives a snapshot of the possible daytime instability of vehicles versus population in these areas. It also suggests the degree of congestion that could exist due to the influx of workers commuting to central counties. In four metropolitan areas, central county jobs outnumber workers by more than 1.7:1, New York being the highest at 2.65:1. Washington, D.C., St. Louis, and Atlanta also ranked high by this measure.

Except those metropolitan areas that are entirely designated as central counties, the lowest ratios of jobs to workers were in Providence (0.97:1), San Antonio (1:1), and Sacramento (1:1). Those metropolitan areas at the lower part of the graph may suggest a greater decentralization of jobs. There may be an inverse relationship between the geographic size of central counties and their ratio of jobs to workers. Metropolitan areas with less than 10% of their total land area in central counties have the highest ratios of jobs to workers. Smaller land areas often imply higher concentrations of jobs and workers. Central county land areas were discussed in Chapter 3.

Commuter Flows and Travel Times

Intracounty and Intercounty Commuting Trends. The last thirty years have seen a change in both residential and job locations across the metropolitan region. In the period from 1960 to 1980, there were substantial and significant increases in the number of workers who lived in one county and worked in another county (about 100% for the total of metropolitan areas). In the same period, there were more modest increases (35%) in the number of workers who lived and worked in the same county.

Figure 4-5. Workers Residing in Suburban Counties — Work Location — 1990

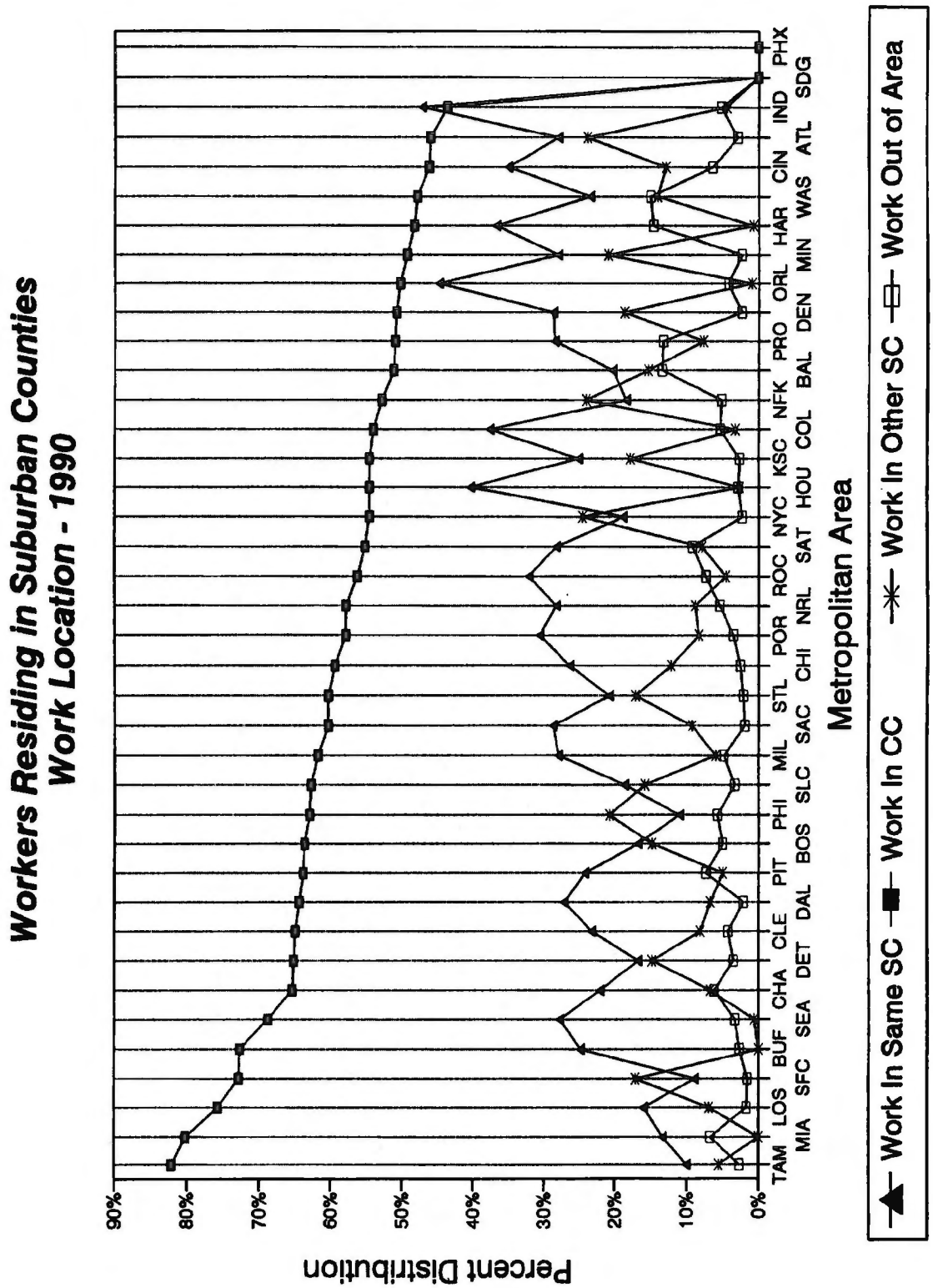

Figure 4-6. Central County Jobs to Workers, 1990

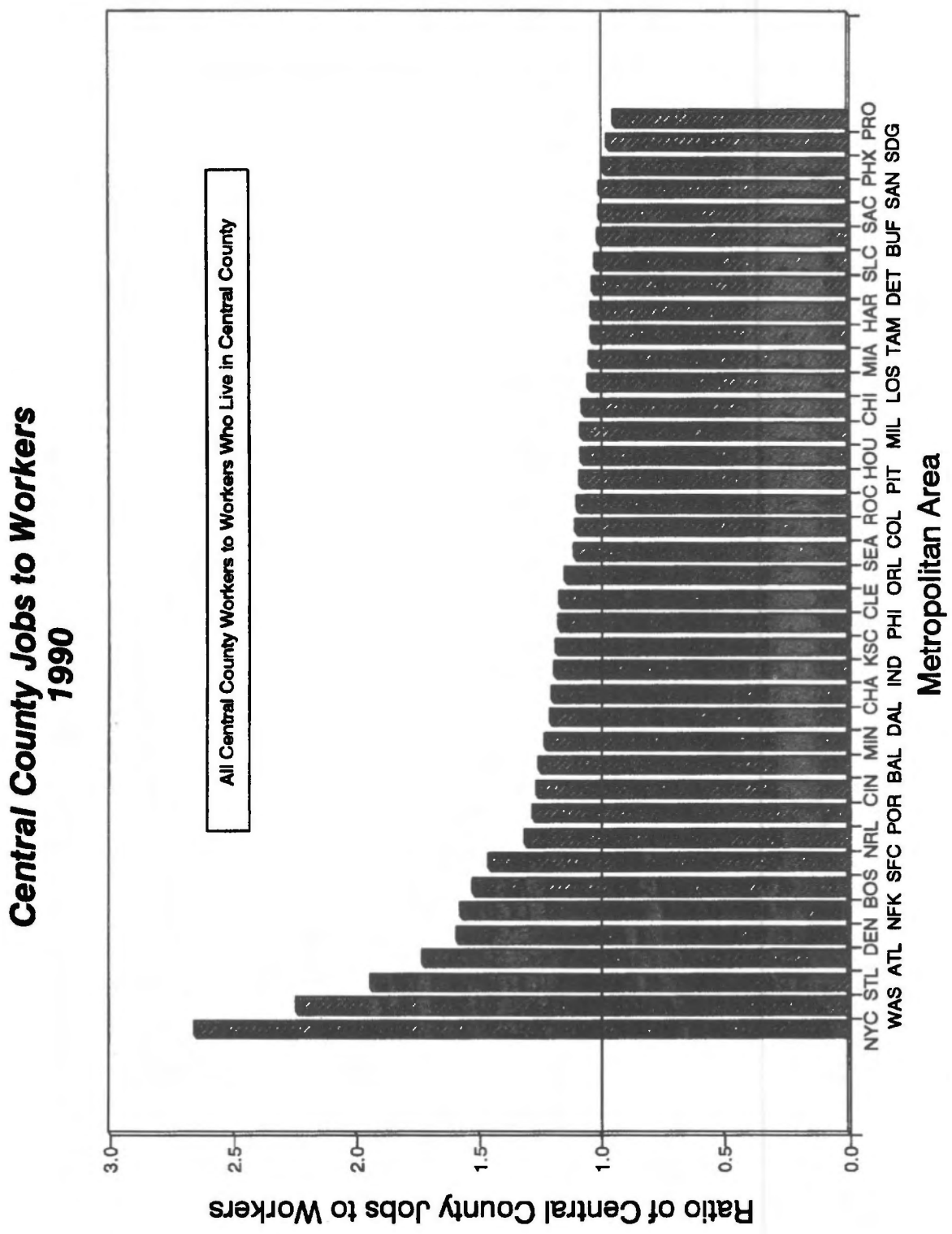

Table 4-9. Place of Work, Workers Living in Suburban Counties, 1980

Area	Work in Central County		Work in Same Suburban County		Work in Other Suburban County		Work Out of Area	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
New York City	1,192,898	21.86	2,999,651	54.97	1,154,901	21.17	108,955	2.00
Los Angeles	276,669	16.99	1,261,956	77.49	71,702	4.40	18,227	1.12
Chicago	274,462	25.28	710,274	65.42	78,124	7.20	22,878	2.11
San Francisco	198,938	10.38	1,449,169	75.58	247,733	12.92	21,545	1.12
Philadelphia	215,863	13.62	1,031,327	65.06	263,874	16.65	74,213	4.68
Detroit	185,821	19.85	626,402	66.90	105,023	11.22	19,056	2.04
Washington, DC	352,817	30.27	496,310	42.58	267,925	22.98	48,620	4.17
Dallas	144,754	23.41	431,468	69.78	29,567	4.78	12,498	2.02
Houston	91,123	33.46	168,246	61.78	7,153	2.63	5,807	2.13
Miami	49,275	13.07	309,985	82.20			17,866	4.74
Atlanta	222,284	34.38	293,251	45.35	114,871	17.77	16,194	2.50
Cleveland	108,253	20.61	369,086	70.28	32,087	6.11	15,762	3.00
Seattle	74,641	22.92	240,388	73.82	621	0.19	9,994	3.07
San Diego								
Minneapolis	127,650	24.32	290,447	55.33	96,609	18.40	10,271	1.96
St. Louis	192,461	24.96	475,648	61.70	88,502	11.48	14,317	1.86
Baltimore	180,964	29.29	303,294	49.09	65,321	10.57	68,225	11.04
Pittsburgh	69,793	23.84	198,944	67.97	5,730	1.96	18,244	6.23
Phoenix								
Tampa	19,516	6.58	263,246	88.76	6,718	2.27	7,098	2.39
Denver	188,606	36.17	250,550	48.05	71,499	13.71	10,831	2.08
Cincinnati	108,255	36.13	147,808	49.34	28,878	9.64	14,659	4.89
Milwaukee	76,809	29.26	167,422	63.79	9,584	3.65	8,658	3.30
Kansas City	88,210	29.33	157,726	52.45	47,667	15.85	7,109	2.36
Sacramento	22,087	25.61	57,473	66.64	717	0.83	5,968	6.92
Portland	99,626	35.61	159,202	56.90	12,621	4.51	8,335	2.98
Columbus	27,592	32.03	52,055	60.43	1,482	1.72	5,006	5.81
San Antonio	9,312	28.93	18,895	58.71	1,486	4.62	2,493	7.75
Indianapolis	79,135	37.13	116,088	54.47	8,173	3.84	9,717	4.56
New Orleans	78,060	32.75	136,908	57.44	6,075	2.55	17,298	7.26
Buffalo	15,454	17.81	69,884	80.54			1,430	1.65
Total	**4,771,328**	**22.24**	**13,253,103**	**61.79**	**2,824,643**	**13.17**	**601,274**	**2.80**

Table 4-9A. Place of Work, Workers Living in Suburban Counties, 1990

Area	Work in Central County		Work in Same Suburban County		Work in Other Suburban County		Work Out of Area	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
New York City	1,365,191	18.69	3,988,507	54.61	1,791,553	24.53	157,853	2.16
Los Angeles	429,013	15.93	2,040,222	75.74	181,485	6.74	43,075	1.60
Chicago	387,511	26.33	873,424	59.35	176,537	12.00	34,241	2.33
San Francisco	248,517	8.82	2,052,514	72.82	477,222	16.93	40,271	1.43
Philadelphia	234,111	10.87	1,350,985	62.71	447,094	20.75	122,150	5.67
Detroit	209,255	16.64	819,579	65.19	185,552	14.76	42,874	3.41
Boston	266,276	16.58	1,021,793	63.63	237,584	14.79	80,201	4.99
Washington, DC	446,455	23.38	912,392	47.77	267,722	14.02	283,353	14.84
Dallas	279,039	27.00	663,887	64.24	69,256	6.70	21,278	2.06
Houston	162,270	40.21	220,094	54.53	10,350	2.56	10,886	2.70
Miami	77,285	13.14	471,595	80.19			39,209	6.67
Atlanta	323,566	27.74	534,609	45.83	276,403	23.70	31,837	2.73
Cleveland	144,477	23.13	405,163	64.87	49,534	7.93	25,373	4.06
Seattle	138,379	27.54	345,428	68.73	2,894	0.58	15,855	3.15
San Diego								
Minneapolis	207,045	27.73	367,161	49.18	156,352	20.94	15,985	2.14
St. Louis	203,701	20.66	593,596	60.21	167,976	17.04	20,564	2.09
Baltimore	179,085	20.26	452,126	51.14	135,012	15.27	117,911	13.34
Pittsburgh	87,279	24.19	230,051	63.77	17,409	4.83	26,010	7.21
Phoenix								
Tampa	49,923	9.91	413,211	82.03	27,438	5.45	13,189	2.62
Denver	209,722	28.60	371,624	50.67	135,601	18.49	16,462	2.24
Cincinnati	144,442	34.94	190,523	46.09	52,487	12.70	25,908	6.27
Milwaukee	92,738	27.82	205,271	61.59	19,411	5.82	15,883	4.77
Kansas City	116,732	25.03	254,347	54.53	83,376	17.87	12,002	2.57
Sacramento	58,235	28.60	122,931	60.37	18,589	9.13	3,869	1.90
Portland	133,489	30.48	253,203	57.82	36,139	8.25	15,101	3.45
Norfolk	104,279	18.34	299,730	52.73	135,903	23.91	28,538	5.02
Columbus	71,586	37.57	102,667	53.88	6,113	3.21	10,188	5.35
San Antonio	14,777	28.12	28,938	55.07	4,073	7.75	4,755	9.05
Indianapolis	107,226	46.95	99,684	43.65	9,779	4.28	11,698	5.12
New Orleans	92,600	28.25	189,364	57.77	28,430	8.67	17,406	5.31
Buffalo	24,279	24.71	71,347	72.63			2,613	2.66
Charlotte	72,408	22.10	213,698	65.23	21,771	6.65	19,752	6.03
Providence	45,372	28.42	81,281	50.91	11,999	7.52	21,014	13.16
Hartford	54,117	36.72	70,870	48.08	1,067	0.72	21,339	14.48
Orlando	90,104	44.79	100,792	50.10	1,911	0.95	8,370	4.16
Salt Lake City	27,761	18.50	93,869	62.54	23,574	15.71	4,896	3.26
Rochester	43,043	32.03	75,567	56.23	6,092	4.53	9,677	7.20
Total	**6,941,288**	**20.30**	**20,582,043**	**60.20**	**5,273,688**	**15.43**	**1,391,586**	**4.07**

** *Boston, Providence, and Hartford county flows are based on the (NECMA) New England County Metropolitan Area.*

The trend reversed itself in the 1980's, partly due to the growth of jobs in the suburban counties. Many areas, formerly "bedroom communities," have developed as regional employment centers. Between 1980 and 1990, the number of workers who lived and worked in the same county increased by over 30% for the total of metropolitan areas. The number of workers who lived in one county and worked in another county only increased by 7% overall. For example, in the Los Angeles metropolitan area, there was a 78% increase in intercounty commuting between 1970 and 1980, and a 10% decrease in intercounty commuting between 1980 and 1990. These figures and trends are displayed in Tables 4-10 through 4-11A and Figures 4-7 and 4-8.

Commuting Flows. Table 4-12 shows the regional share of five types of county to county commuter flows for 1980, 1990, and the change in the proportion of shares between 1980 and 1990.[2] The five types of flows are:

Central County to Central County
Central County to Suburban County
Suburban County to Central County
Suburban County to Same Suburban County
Suburban County to Other Suburban County (in the same metropolitan area)

It does not, however, reveal the total number for each type of commute, and out of area commutes are omitted from the table. For the actual numbers, please refer to Tables 4-8, 4-8A, 4-9 and 4-9A, keeping in mind that different geographies are reported for 1980 and 1990.

Figure 4-9 shows the percentage distribution of these five types of commute flows for 1990. It is evident from Figure 4-9 that Central County to Central County (CC-CC) and Suburban County to Same Suburban County (SC-Same) trips make up the majority of workers' origin to destination trips in the thirty-nine metropolitan areas in 1990. Thus, while the category Suburban County to Other Suburban County (SC-Other SC) trips had the largest increase in share in the 1980's, they make up less than 10% of all trips in metropolitan areas. How county lines are drawn makes the greatest difference in how the distribution among the five categories appears in these tables. If areas such as Phoenix and San Diego had their existing land areas divided into central and suburban counties, we might find significant Suburban County to Suburban County (SC-SC) flows there also.

In 1980, twelve of the thirty-one metropolitan areas had more than 60% of the flows in the CC-CC category. By 1990, only nine of the same thirty-one areas met this proportion of flows. This includes San Diego and Phoenix.

Fourteen of the thirty-one metropolitan areas in this table showed declines of 5% or more in the relative share in CC-CC commuting flows. In fact, all of the thirty-one metropolitan areas except Indianapolis (1.28%) and Buffalo (.02%) showed decreases in the proportion of CC-CC flows. Concurrently, SC-Same SC commute flows showed increases, particularly in Washington, D.C., Baltimore, Denver, Kansas City, Portland, and New Orleans. Washington, D.C. had by far the greatest increase (11.5%) in SC-Same SC commute flow, indicating rapid employment development in the suburban counties in the 1980's.

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[2] The three New England metropolitan areas are not included in this analysis, nor are the six new metropolitan areas included as a result of the 1983 geographic revisions.

Figure 4-7. Workers Living & Working in Same County — Percent Change 1960-1990

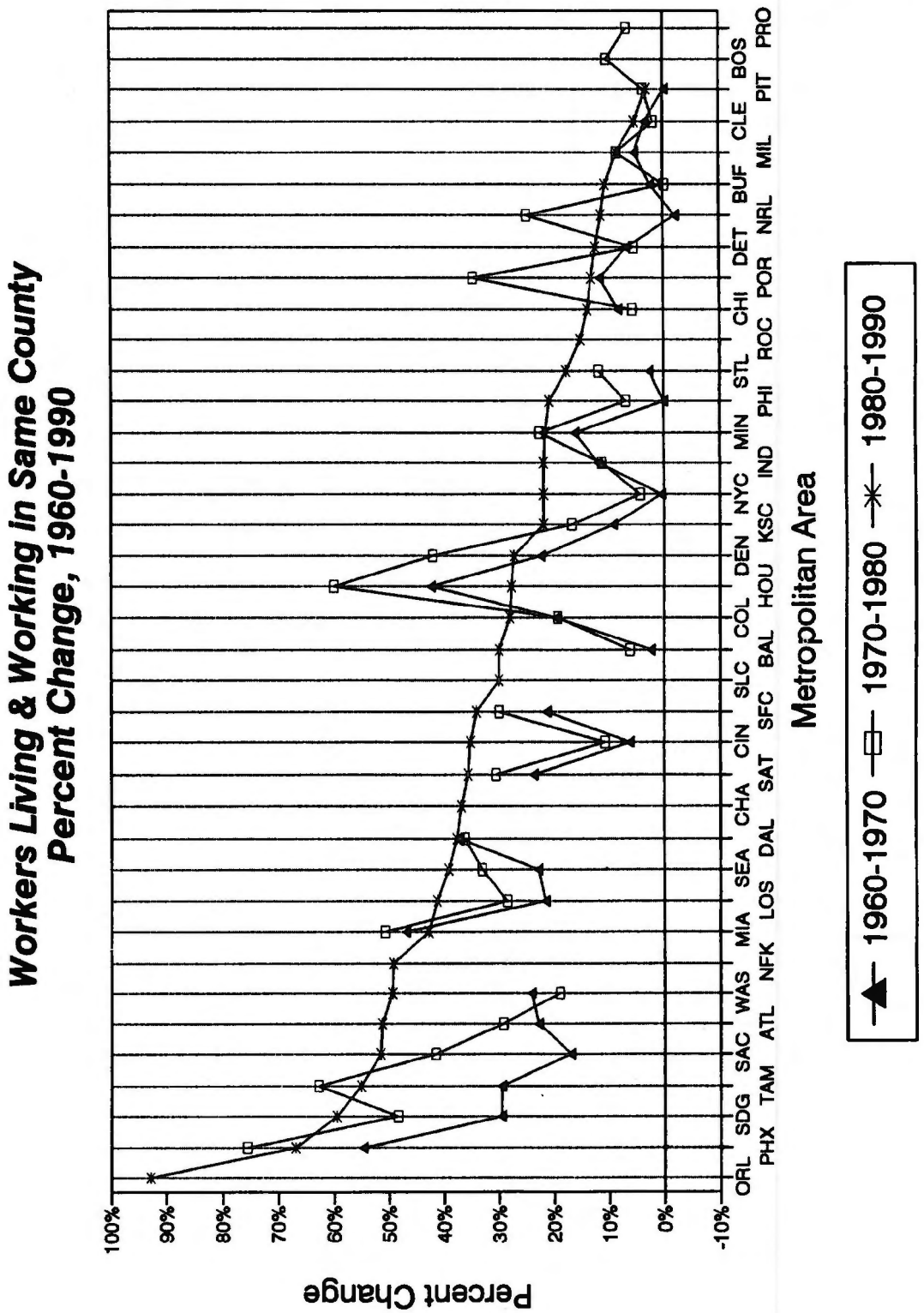
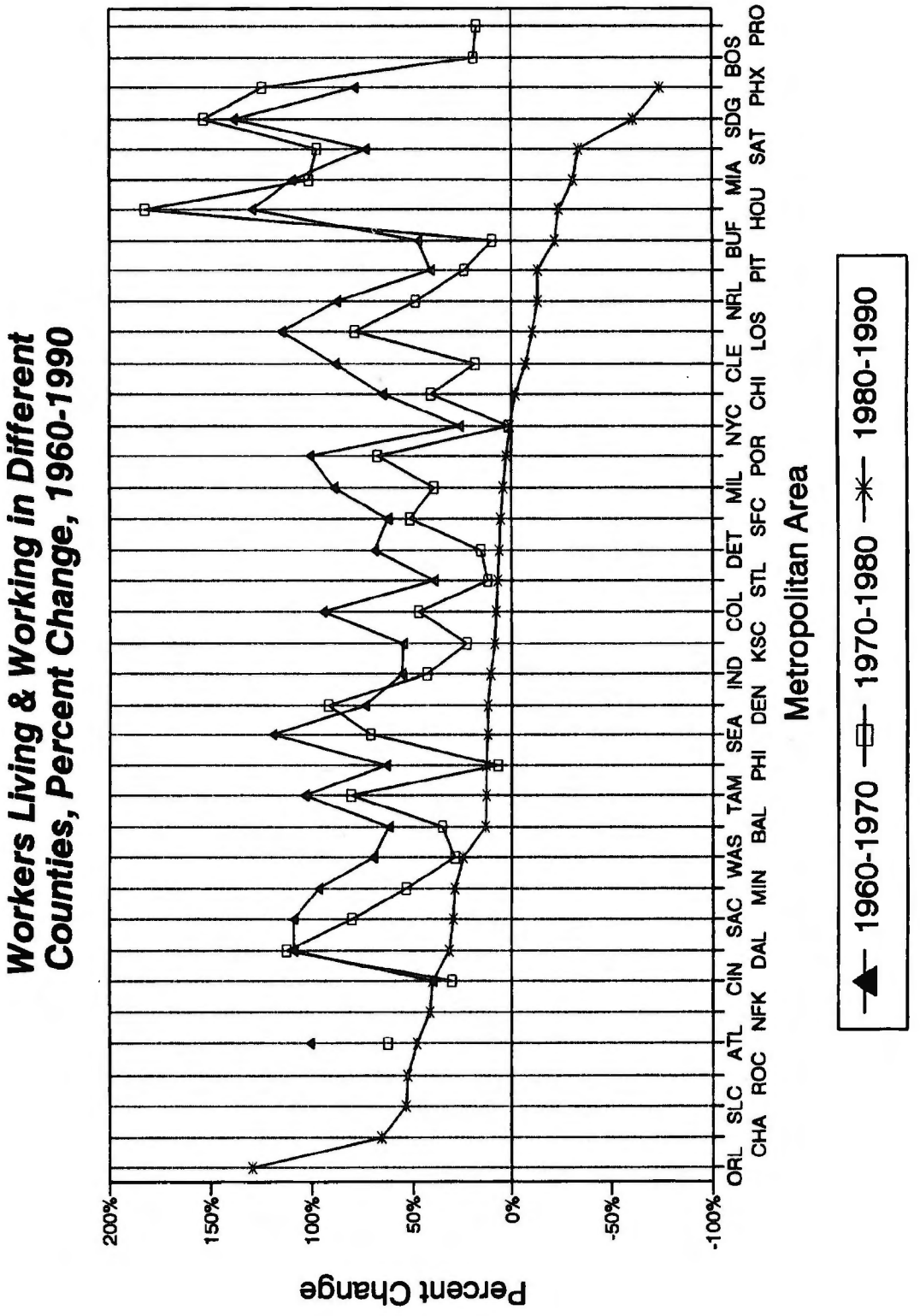


Figure 4-8. Workers Living & Working in Different Counties — Percent Change 1960-1990



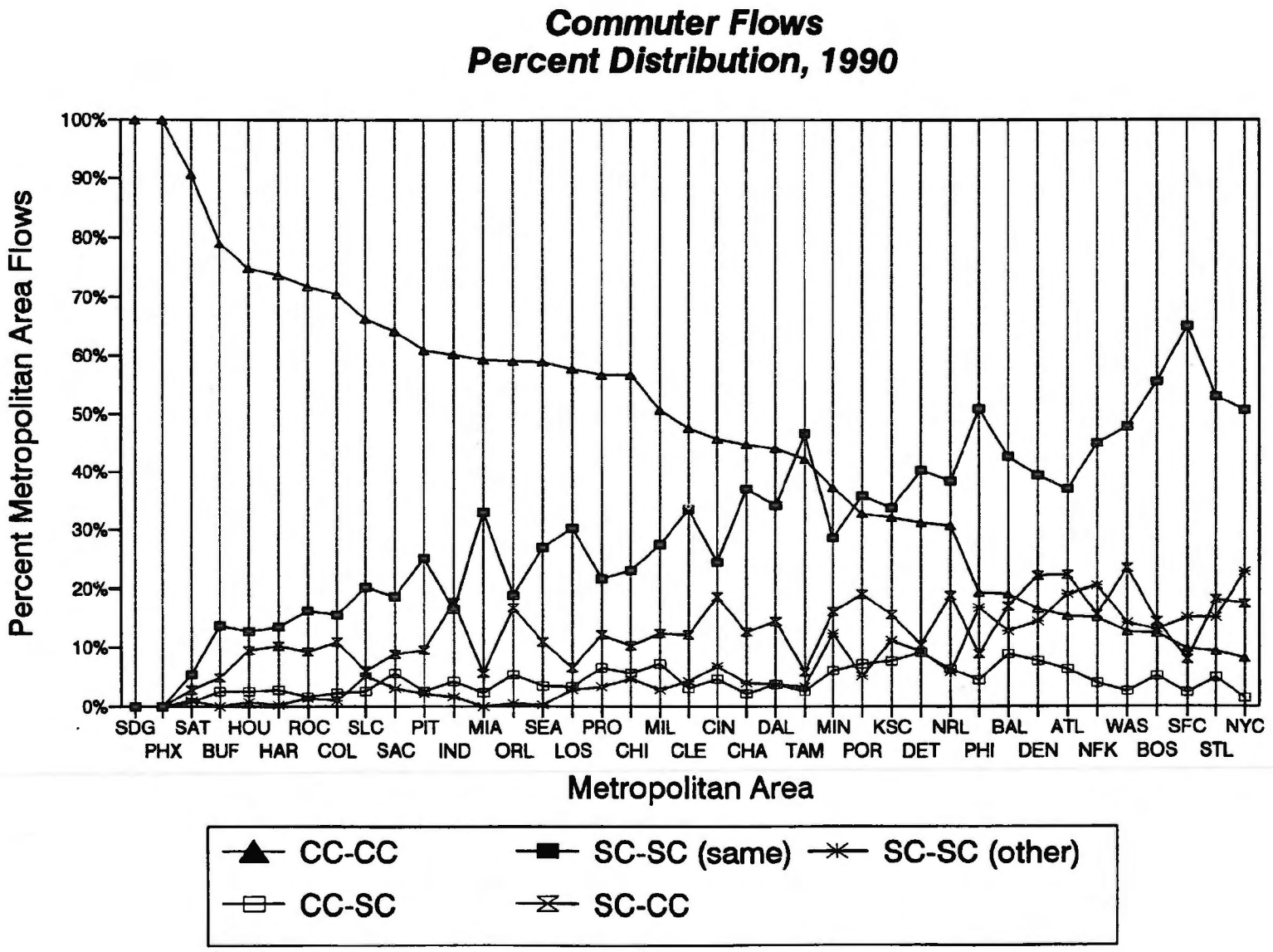


Figure 4-9. Commuter Flows — Percent Distribution, 1990

Table 4-10. Workers Living & Working in the Same County, 1960-1980

Area	Workers Living and Working in Same County			Percent Change		
	1960	1970	1980	1960-70	1970-80	1960-80
New York City	3,354,274	3,365,626	3,505,344	0.34	4.15	4.50
Los Angeles	2,683,092	3,260,336	4,186,801	21.51	28.42	56.04
Chicago	2,319,465	2,504,875	2,643,789	7.99	5.55	13.98
San Francisco	1,079,722	1,308,154	1,701,576	21.16	30.07	57.59
Philadelphia	1,407,890	1,407,439	1,505,265	-0.03	6.95	6.92
Detroit	1,131,028	1,204,619	1,267,527	6.51	5.22	12.07
Boston		894,291	985,130		10.16	
Washington, DC	477,932	592,848	704,521	24.04	18.84	47.41
Dallas	597,281	818,727	1,113,964	37.08	36.06	86.51
Houston	521,016	741,710	1,187,614	42.36	60.12	127.94
Miami	415,469	610,392	921,094	46.92	50.90	121.70
Atlanta	295,994	363,685	469,527	22.87	29.10	58.63
Cleveland	885,769	915,279	930,835	3.33	1.70	5.09
Seattle	482,789	592,281	787,762	22.68	33.00	63.17
San Diego	387,480	501,392	744,771	29.40	48.54	92.21
Minneapolis	486,303	564,490	690,844	16.08	22.38	42.06
St. Louis	514,076	527,036	589,079	2.52	11.77	14.59
Baltimore	461,916	471,870	500,289	2.15	6.02	8.31
Pittsburgh	709,503	706,455	731,728	-0.43	3.58	3.13
Phoenix	215,648	333,358	585,761	54.58	75.72	171.63
Tampa	236,103	305,917	498,375	29.57	62.91	111.08
Denver	239,665	292,762	416,035	22.15	42.11	73.59
Cincinnati	401,016	425,386	471,083	6.08	10.74	17.47
Milwaukee	473,186	497,016	538,955	5.04	8.44	13.90
Kansas City	298,267	325,355	379,091	9.08	16.52	27.10
Sacramento	205,727	240,530	340,573	16.92	41.59	65.55
Portland	243,721	271,424	365,528	11.37	34.67	49.98
Columbus	281,233	336,099	400,503	19.51	19.16	42.41
San Antonio	243,044	300,279	392,051	23.55	30.56	61.31
Indianapolis	341,642	381,439	423,754	11.65	11.09	24.03
New Orleans	240,384	234,948	293,121	-2.26	24.76	21.94
Buffalo	427,224	436,682	435,599	2.21	-0.25	1.96
Providence		306,967	327,543		6.70	
Total	**22,057,859**	**24,838,409**	**29,722,759**	**12.61**	**19.66**	**34.75**

Table 4-10A. Workers Living & Working in the Same County, 1980-1990

Area	Workers Living and Working in Same County		Percent Change
	1980	1990	1980-90
New York City	3,800,709	4,624,268	21.67
Los Angeles	4,186,801	5,912,532	41.22
Chicago	2,658,007	3,021,022	13.66
San Francisco	1,759,569	2,359,914	34.12
Philadelphia	1,543,644	1,864,152	20.76
Detroit	1,293,803	1,452,994	12.30
Boston		1,361,952	
Washington, DC	745,561	1,114,010	49.42
Dallas	1,103,772	1,518,981	37.62
Houston	1,187,614	1,514,876	27.56
Miami	921,094	1,316,317	42.91
Atlanta	499,723	755,918	51.27
Cleveland	930,835	978,820	5.16
Seattle	787,762	1,096,398	39.18
San Diego	744,771	1,187,997	59.51
Minneapolis	696,043	845,743	21.51
St. Louis	592,911	697,777	17.69
Baltimore	504,758	655,513	29.87
Pittsburgh	762,680	785,817	3.03
Phoenix	585,761	977,648	66.90
Tampa	506,923	786,952	55.24
Denver	415,733	528,252	27.07
Cincinnati	404,519	546,922	35.20
Milwaukee	538,955	584,161	8.39
Kansas City	408,616	497,256	21.69
Sacramento	361,168	547,708	51.65
Portland	429,190	484,969	13.00
Norfolk	263,527	392,981	49.12
Columbus	443,300	566,769	27.85
San Antonio	392,051	531,319	35.52
Indianapolis	380,860	463,315	21.65
New Orleans	306,923	341,102	11.14
Buffalo	435,599	480,786	10.37
Charlotte	344,988	472,641	37.00
Providence		289,752	
Hartford		446,341	
Orlando	216,870	418,285	92.87
Salt Lake City	308,065	400,402	29.97
Rochester	357,071	411,106	15.13
Total	**31,820,176**	**41,135,623**	**29.28**

Table 4-11. Workers Living & Working in Different Counties, 1960-1980

Area	Workers Living and Working in Different Counties			Percent Change		
	1960	1970	1980	1960-70	1970-80	1960-80
New York City	2,532,486	3,193,527	3,232,167	26.10	1.21	27.63
Los Angeles	261,404	561,005	1,002,254	114.61	78.65	283.41
Chicago	355,180	584,842	822,588	64.66	40.65	131.60
San Francisco	317,793	516,310	781,389	62.47	51.34	145.88
Philadelphia	473,463	771,080	821,792	62.86	6.58	73.57
Detroit	293,558	494,027	568,983	68.29	15.17	93.82
Boston		529,747	629,604		18.85	
Washington, DC	391,700	663,233	855,299	69.32	28.96	118.36
Dallas	79,919	166,956	355,115	108.91	112.70	344.34
Houston	49,546	113,717	320,597	129.52	181.93	547.07
Miami	55,006	115,285	231,986	109.59	101.23	321.75
Atlanta	147,772	296,328	480,503	100.53	62.15	225.17
Cleveland	123,289	231,771	272,982	87.99	17.78	121.42
Seattle	50,481	111,019	189,123	119.92	70.35	274.64
San Diego	18,017	42,956	108,895	138.42	153.50	504.40
Minneapolis	118,319	232,475	355,385	96.48	52.87	200.36
St. Louis	267,746	372,562	415,425	39.15	11.50	55.16
Baltimore	214,826	347,727	468,619	61.86	34.77	118.14
Pittsburgh	104,394	146,696	181,152	40.52	23.49	73.53
Phoenix	18,232	32,538	73,093	78.47	124.64	300.91
Tampa	30,126	61,349	110,624	103.64	80.32	267.20
Denver	117,698	204,295	391,984	73.58	91.87	233.04
Cincinnati	121,740	170,297	221,341	39.89	29.97	81.81
Milwaukee	69,034	130,215	181,353	88.62	39.27	162.70
Kansas City	127,094	196,557	241,001	54.65	22.61	89.62
Sacramento	25,198	52,650	94,516	108.95	79.52	275.09
Portland	60,660	121,907	203,388	100.97	66.84	235.29
Columbus	30,663	59,727	87,800	94.79	47.00	186.34
San Antonio	16,741	28,924	57,039	72.77	97.20	240.71
Indianapolis	69,774	108,186	154,005	55.05	42.35	120.72
New Orleans	68,853	128,873	191,034	87.17	48.23	177.45
Buffalo	39,760	58,459	64,243	47.03	9.89	61.58
Providence		135,755	159,061		17.17	
Total	**6,650,472**	**10,980,995**	**14,324,340**	**65.12**	**30.45**	**115.39**

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Table 4-11A. Workers Living & Working in Different Counties, 1980-1990

Area	Workers Living and Working in Different Counties		Percent Change
	1980	1990	1980-90
New York City	3,412,805	3,432,984	0.59
Los Angeles	1,002,254	896,511	-10.55
Chicago	836,960	820,315	-1.99
San Francisco	797,636	840,919	5.43
Philadelphia	827,759	930,765	12.44
Detroit	590,049	626,886	6.24
Boston		779,765	
Washington, DC	882,250	1,100,340	24.72
Dallas	348,755	457,625	31.22
Houston	320,597	244,920	-23.61
Miami	231,986	159,768	-31.13
Atlanta	492,467	725,863	47.39
Cleveland	282,982	263,279	-6.96
Seattle	189,123	211,940	12.06
San Diego	108,895	42,449	-61.02
Minneapolis	359,005	461,881	28.66
St. Louis	418,810	446,559	6.63
Baltimore	474,155	536,300	13.11
Pittsburgh	197,188	170,337	-13.62
Phoenix	73,093	18,847	-74.22
Tampa	113,551	127,759	12.51
Denver	391,283	436,660	11.60
Cincinnati	190,158	265,844	39.80
Milwaukee	181,353	188,591	3.99
Kansas City	252,298	274,053	8.62
Sacramento	106,702	138,237	29.55
Portland	232,967	239,563	2.83
Norfolk	216,348	306,018	41.45
Columbus	103,567	111,090	7.26
San Antonio	57,039	37,830	-33.68
Indianapolis	146,269	161,656	10.52
New Orleans	199,901	173,624	-13.15
Buffalo	64,243	50,336	-21.65
Charlotte	80,134	132,215	64.99
Providence		254,916	
Hartford		115,628	
Orlando	60,660	139,163	129.41
Salt Lake City	51,629	78,936	52.89
Rochester	46,185	70,361	52.35
Total	**14,341,056**	**15,320,424**	**6.83**

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Table 4-12. Journey-to-Work Flows, Share of Commuters, 1980 and 1990

Area	Flow from Place of Residence To Place of Work (as a % of all trips)					
	Central - Central County			Central - Suburban County		
	1980	1990	* Dif	1980	1990	* Dif
New York City	8.52	8.06	-0.46	1.40	1.37	-0.03
Los Angeles	64.10	57.54	-6.56	0.60	3.07	2.47
Chicago	62.36	56.67	-5.68	3.37	5.39	2.02
San Francisco	11.53	9.74	-1.80	1.85	2.27	0.42
Philadelphia	23.02	19.27	-3.75	3.58	4.43	0.85
Detroit	38.17	31.20	-6.96	7.22	8.97	1.75
Washington, DC	15.04	12.41	-2.64	3.29	2.36	-0.93
Dallas	51.87	44.11	-7.76	2.09	3.67	1.58
Houston	78.06	74.86	-3.20	1.53	2.44	0.91
Miami	61.97	59.27	-2.70	1.60	2.21	0.62
Atlanta	20.67	15.32	-5.35	5.43	6.14	0.71
Cleveland	51.27	47.47	-3.80	2.24	2.95	0.71
Seattle	61.80	58.65	-3.15	2.56	3.34	0.78
San Diego	100.00	100.00				
Minneapolis	41.43	37.24	-4.19	5.32	5.91	0.59
St. Louis	12.52	9.28	-3.24	3.96	4.73	0.77
Baltimore	24.57	19.15	-5.42	6.88	8.69	1.82
Pittsburgh	64.47	60.83	-3.64	2.32	2.54	0.22
Phoenix	100.00	100.00				
Tampa	44.06	42.22	-1.84	1.71	2.37	0.66
Denver	22.69	16.57	-6.12	7.29	7.60	0.31
Cincinnati	51.61	45.74	-5.87	2.90	4.53	1.63
Milwaukee	56.79	50.50	-6.30	4.41	7.20	2.79
Kansas City	39.87	32.17	-7.70	7.25	7.64	0.39
Sacramento	75.05	64.23	-10.82	3.67	5.56	1.89
Portland	40.98	32.88	-8.10	5.10	7.13	2.03
Columbus	80.05	70.42	-9.63	1.31	2.22	0.90
San Antonio	92.26	90.82	-1.44	0.40	0.54	0.14
Indianapolis	58.81	60.08	1.28	2.32	4.11	1.80
New Orleans	38.71	30.80	-7.91	6.52	6.20	-0.33
Buffalo	79.02	79.04	0.02	2.54	2.50	-0.04
Total	**42.91**	**39.29**	**-3.62**	**2.76**	**3.66**	**0.90**

**Dif — The difference is reported here rather than percentage change because the 1980 & 1990 data are based on different geographies, as detailed in Chapter 1.*

Table 4-12. Journey-to-Work Flows, Share of Commuters, 1980 and 1990 (Cont.)

Area	Flow from Place of Residence To Place of Work (as a % of all trips)								
	Suburban - Central County			Suburban - Same County			To Other Suburban County		
	1980	1990	* Dif	1980	1990	* Dif	1980	1990	* Dif
New York City	20.10	17.31	-2.79	50.53	50.56	0.03	19.46	22.71	3.25
Los Angeles	6.06	6.37	0.31	27.66	30.32	2.66	1.57	2.70	1.13
Chicago	8.85	10.23	1.37	22.91	23.05	0.14	2.52	4.66	2.14
San Francisco	9.09	7.87	-1.22	66.21	65.01	-1.20	11.32	15.11	3.80
Philadelphia	10.49	8.79	-1.70	50.09	50.72	0.63	12.82	16.79	3.97
Detroit	11.06	10.31	-0.75	37.29	40.38	3.08	6.25	9.14	2.89
Washington, DC	25.80	23.40	-2.40	36.29	47.81	11.53	19.59	14.03	-5.56
Dallas	11.00	14.40	3.39	32.79	34.25	1.46	2.25	3.57	1.33
Houston	6.98	9.38	2.40	12.88	12.72	-0.16	0.55	0.60	0.05
Miami	5.00	5.42	0.43	31.44	33.09	1.66			
Atlanta	26.06	22.40	-3.66	34.38	37.01	2.63	13.47	19.13	5.67
Cleveland	9.88	11.95	2.08	33.68	33.53	-0.16	2.93	4.10	1.17
Seattle	8.43	10.81	2.38	27.14	26.98	-0.16	0.07	0.23	0.16
San Diego									
Minneapolis	13.21	16.11	2.90	30.05	28.57	-1.48	10.00	12.17	2.17
St. Louis	21.25	18.15	-3.10	52.51	52.88	0.38	9.77	14.96	5.19
Baltimore	22.57	16.86	-5.71	37.83	42.58	4.74	8.15	12.71	4.57
Pittsburgh	8.45	9.55	1.11	24.07	25.18	1.10	0.69	1.91	1.21
Phoenix									
Tampa	3.66	5.64	1.98	49.32	46.68	-2.65	1.26	3.10	1.84
Denver	25.86	22.18	-3.68	34.35	39.31	4.95	9.80	14.34	4.54
Cincinnati	17.28	18.54	1.26	23.60	24.45	0.86	4.61	6.74	2.13
Milwaukee	11.74	12.36	0.62	25.59	27.36	1.77	1.47	2.59	1.12
Kansas City	15.89	15.46	-0.43	28.41	33.69	5.28	8.59	11.04	2.46
Sacramento	5.85	8.81	2.95	15.24	18.59	3.35	0.19	2.81	2.62
Portland	19.79	18.94	-0.85	31.62	35.92	4.30	2.51	5.13	2.62
Columbus	6.34	10.86	4.52	11.96	15.58	3.62	0.34	0.93	0.59
San Antonio	2.30	2.67	0.37	4.67	5.23	0.56	0.37	0.74	0.37
Indianapolis	15.13	17.72	2.59	22.19	16.47	-5.72	1.56	1.62	0.05
New Orleans	19.34	18.80	-0.55	33.92	38.44	4.51	1.51	5.77	4.27
Buffalo	3.34	4.69	1.35	15.10	13.77	-1.33			
Total	**12.43**	**11.98**	**-0.45**	**34.53**	**35.78**	**1.25**	**7.36**	**9.29**	**1.93**

** Dif — The difference is reported here rather than percent change because the 1980 & 1990 data are based on different geographies, as detailed in Chapter 1.*

Generally speaking, the proportionate share of CC-SC commute flows increased between 1980 and 1990, but not by much. The areas with the largest increases were Milwaukee (2.79%) and Los Angeles (2.47%). Theses similarities belie large differences, particularly when examining these flows in conjunction with changes in total population. Milwaukee had only a 2.3% increase in population between 1980 and 1990, while Los Angeles had a 26% increase in population. Thus, the difference in the number of CC-SC commute flows in Milwaukee was 26,000, but in Los Angeles it was 179,000.

The proportionate share of Suburban County to Central County (SC-CC) commute flows varied widely between 1980 and 1990. In some areas, this type of commute flow declined by more than 3%, but in others the reverse was true. Areas where SC-CC commute flows declined as a share were Baltimore (-5.71%), Denver (-3.68%), Atlanta (-3.66%), St. Louis (-3.10%), and New York City (-2.79%). Areas where SC-CC commute flows increased as a share include Columbus (4.52%), Dallas (3.39%), Sacramento (2.95%), and Minneapolis (2.90%).

Travel Time. From 1980-1990, nationwide travel time to work increased by just 3.2%, increasing from 21.7 minutes to 22.4 minutes.[3] The modest increases from 1980 - 1990 may reflect more driving alone (a faster mode than most others) or dispersion of employment locations.

Table 4-13 highlights the mean travel times and percent changes, over the 1980-1990 period, for the thirty-nine metropolitan areas, for all modes and all workers (except work at home). These same data are shown graphically in Figure 4-10. The metropolitan areas showing the highest increases include San Diego, Orlando, Los Angeles, and Sacramento; all were over 10%. Decreases in mean travel time were registered in New York, Salt Lake City and Pittsburgh. In New York, average travel time went from 33.7 minutes in 1980 to 31.1 minutes in 1990, a drop of nearly 8%. This could signify several trends, such as job decentralization, the increases in privately owned vehicle travel (a faster mode), or localized factors such as the completion of major construction projects.

Table 4-14 examines various distributions of travel time intervals for the metropolitan areas. The most common trip time interval is between fifteen and twenty-nine minutes. This share ranges from a high of 45% of all workers in Salt Lake City to just under 30% in New York. The next most common interval is for work trips less than fifteen minutes. In Providence, over 35% of all workers had these comparatively quick commute times. The longest commute times, more than one hour, are most concentrated in New York, Washington, DC, and Chicago. Over 10% of the labor force in those areas experiences this lengthy commute time.

Time Leaving Home to Go to Work. These new data collected in the 1990 Census add more information on commuting characteristics in metropolitan areas. For both the U.S. as a whole and the thirty-nine metropolitan areas, the highest percentages are in the 7:00 - 8:29 A.M. period. The national total has a much higher proportion who leave home between 5:00 - 6:59 A.M. The data show more regularity of departure times within the major metropolitan areas. Table 4-15 compares and summarizes this information for the U.S. and its large metropolitan areas. Table 4-16 lists percentages of time leaving home to go to work for each of the thirty-nine areas.

[3] Travel time was collected for the first time in the 1980 Census.

Figure 4-10. Mean Travel Time to Work, 1980 and 1990

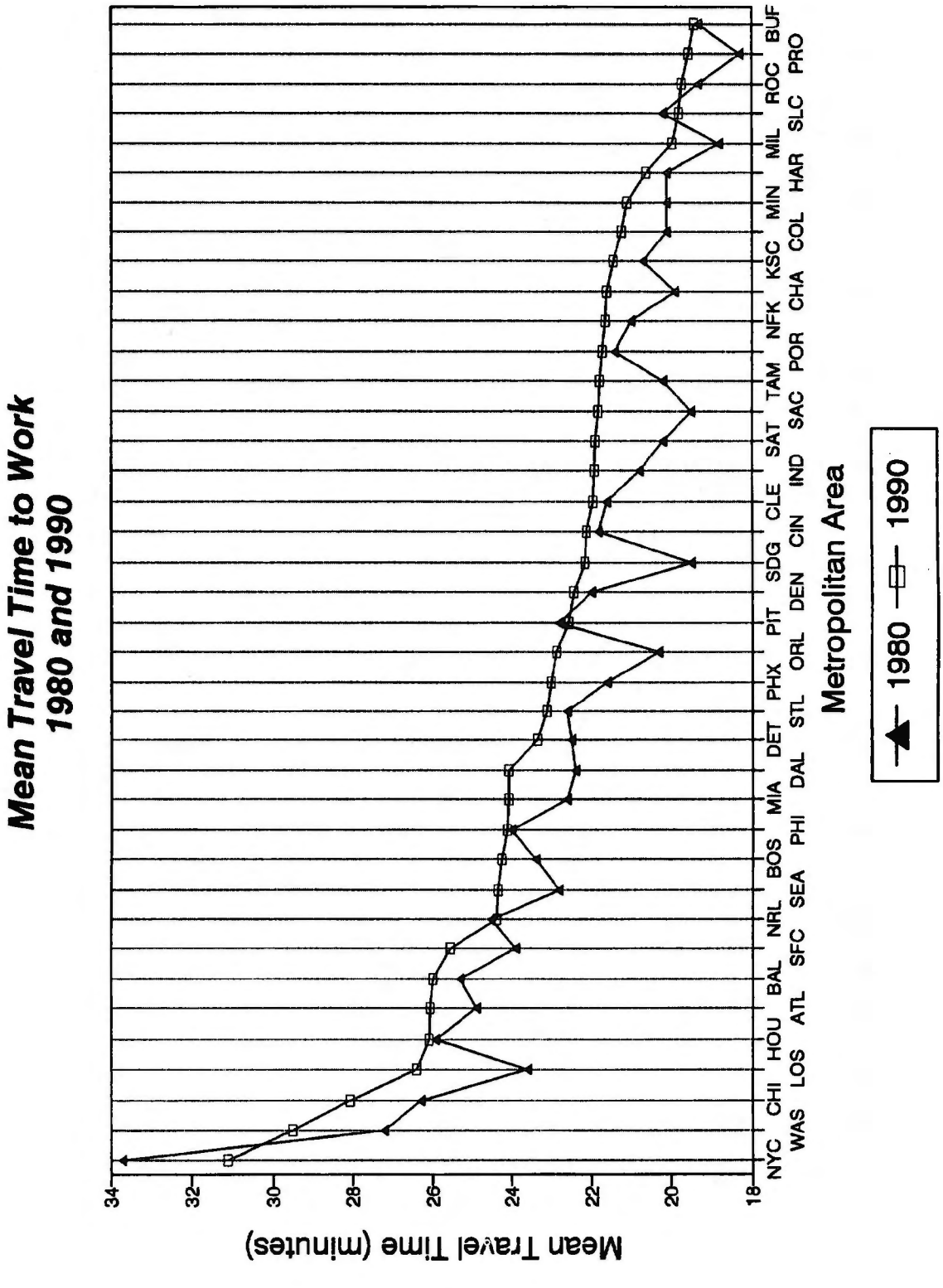

Table 4-13. Journey-to-Work Flows, Mean Travel Times and Percent Changes, 1980 and 1990

Area	1980			1990			% Change Travel Time
	Workers in Area	Work at Home	Mean Time	Workers in Area	Work at Home	Mean Time	
New York City	7,248,643	102,084	33.7	8,057,252	186,512	31.1	-7.70
Los Angeles	5,189,055	78,972	23.6	6,809,043	186,102	26.4	11.87
Chicago	3,496,988	41,347	26.3	3,841,337	80,832	28.1	6.73
San Francisco	2,564,593	47,767	23.9	3,200,833	111,565	25.6	6.91
Philadelphia	2,378,301	36,551	24.0	2,794,917	63,090	24.1	0.47
Detroit	1,887,578	19,339	22.5	2,079,880	36,656	23.4	3.84
Boston			23.4	2,141,717	53,692	24.2	3.62
Washington, DC	1,646,632	26,268	27.2	2,214,350	62,878	29.5	8.53
Dallas	1,450,908	19,975	22.4	1,976,606	45,116	24.1	7.37
Houston	1,508,211	16,658	25.9	1,759,796	36,340	26.1	0.71
Miami	1,153,080	13,754	22.6	1,476,085	29,149	24.1	6.47
Atlanta	995,028	11,366	24.9	1,481,781	33,221	26.0	4.57
Cleveland	1,206,817	15,047	21.6	1,242,099	24,401	22.0	1.67
Seattle	976,885	20,241	22.8	1,308,338	43,979	24.3	6.73
San Diego	853,666	17,397	19.5	1,230,446	61,285	22.2	13.69
Minneapolis	1,055,726	24,427	20.1	1,307,624	44,425	21.1	4.93
St. Louis	1,012,460	16,346	22.6	1,144,336	27,152	23.1	2.25
Baltimore	979,973	13,571	25.3	1,191,813	27,276	26.0	2.65
Pittsburgh	963,336	11,201	22.8	956,154	19,808	22.6	-1.05
Phoenix	658,854	10,545	21.6	996,495	29,309	23.0	6.49
Tampa	622,490	9,473	20.2	914,711	20,769	21.8	7.84
Denver	806,904	16,640	22.0	964,912	34,767	22.4	1.93
Cincinnati	587,898	9,362	21.8	812,766	17,042	22.1	1.43
Milwaukee	720,308	11,409	18.8	772,752	17,331	20.0	6.15
Kansas City	663,211	10,362	20.7	771,309	21,337	21.4	3.56
Sacramento	471,851	8,732	19.5	685,945	21,338	21.8	11.80
Portland	670,458	12,498	21.4	724,532	27,306	21.7	1.50
Norfolk	531,647		21.0	698,999	37,301	21.6	2.98
Columbus	550,284	7,518	20.1	677,859	15,629	21.2	5.67
San Antonio	449,090	6,386	20.2	569,149	13,115	21.9	8.34
Indianapolis	523,549	9,380	20.8	624,971	14,989	21.9	5.40
New Orleans	510,747	5,107	24.5	514,726	8,877	24.4	-0.57
Buffalo	499,842	7,480	19.3	531,122	9,808	19.4	0.67
Charlotte	472,188		19.9	604,856	11,390	21.6	8.60
Providence	486,604		18.3	544,668	7,352	19.6	6.95
Hartford			20.1	561,969	10,967	20.6	2.51
Orlando	324,943		20.3	557,448	10,883	22.9	12.72
Salt Lake City	384,078		20.2	479,338	14,846	19.8	-1.92
Rochester	427,779		19.3	481,467	11,709	19.7	2.21
Total	**44,303,366**	**657,203**		**53,633,939**	**1,371,404**	**25.2**	

Table 4-14. Travel Time Intervals to Work, Percent Distribution (in minutes), 1990

Area	15 Minutes or Less	15 - 29 Minutes	30 - 39 Minutes	40 - 59 Minutes	60 Minutes or More	Work at Home
New York City	21.23	28.15	16.66	15.13	16.51	2.31
Los Angeles	23.81	34.36	17.86	12.01	9.22	2.73
Chicago	22.73	30.94	18.22	15.33	10.67	2.10
San Francisco	24.56	34.83	16.82	12.39	7.91	3.49
Philadelphia	27.20	35.38	16.62	12.21	6.33	2.26
Detroit	25.74	39.48	17.85	10.73	4.42	1.76
Boston	27.70	33.40	17.38	12.62	6.40	2.51
Washington, DC	17.45	30.93	20.08	18.06	10.65	2.84
Dallas	23.71	38.43	19.39	11.31	4.88	2.28
Houston	22.14	34.96	20.18	13.44	7.21	2.07
Miami	22.13	38.49	21.61	11.16	4.63	1.97
Atlanta	20.40	35.49	20.81	14.97	6.10	2.24
Cleveland	27.75	41.00	16.90	9.02	3.36	1.96
Seattle	23.95	37.81	17.58	11.86	5.45	3.36
San Diego	26.43	40.08	16.65	7.91	3.95	4.98
Minneapolis	28.21	42.63	15.33	7.76	2.68	3.40
St. Louis	25.37	39.06	18.64	10.63	3.93	2.37
Baltimore	21.36	36.87	18.89	13.43	7.17	2.29
Pittsburgh	29.24	37.29	15.76	10.91	4.74	2.07
Phoenix	26.09	38.65	18.14	10.09	4.08	2.94
Tampa	29.03	39.16	16.61	8.94	3.99	2.27
Denver	25.83	40.83	17.32	8.95	3.47	3.60
Cincinnati	26.49	42.19	17.28	8.71	3.24	2.10
Milwaukee	32.27	43.14	13.61	6.00	2.74	2.24
Kansas City	27.87	41.63	17.04	7.70	3.00	2.77
Sacramento	29.05	40.47	15.40	7.79	4.19	3.11
Portland	28.27	40.91	15.37	7.98	3.70	3.77
Norfolk	26.03	40.92	16.39	8.07	3.25	5.34
Columbus	27.91	43.90	15.60	7.09	3.19	2.31
San Antonio	25.43	44.29	17.82	6.49	3.67	2.30
Indianapolis	26.80	42.79	17.11	7.44	3.46	2.40
New Orleans	24.05	39.15	18.73	9.80	6.54	1.72
Buffalo	33.47	42.57	14.28	5.51	2.33	1.85
Charlotte	27.90	40.96	17.21	8.80	3.25	1.88
Providence	36.24	39.87	11.90	6.42	3.82	1.75
Hartford	30.55	40.87	15.86	8.26	2.51	1.95
Orlando	24.41	39.84	19.96	10.36	3.48	1.95
Salt Lake City	31.27	44.91	12.75	4.94	3.03	3.10
Rochester	32.74	42.74	12.94	6.44	2.70	2.43

Table 4-15. Departure Time Intervals for Work Trips, U.S. and Large Metropolitan Areas, Percentage Distributions, 1990

Time Interval	U.S. Totals	Thirty-nine Metropolitan Areas
5:00 A.M. - 6:59 A.M.	26.0%	25.5%
7:00 A.M. - 8:29 A.M.	41.9%	42.4%
8:30 A.M. - 9:59 A.M.	10.3%	11.3%
All Other Departures	18.9%	17.9%
Worked at Home	3.0%	2.6%

Table 4-16. Time Leaving Home to Go to Work, 1990

Area	5:00 AM - 6:59 AM		7:00 AM - 8:29 AM		8:30 AM - 9:59 AM		All Other Departures		Work At Home	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
New York City	1,570,501	19.49	3,737,872	46.39	1,274,483	15.82	1,287,884	15.98	186,512	2.31
Los Angeles	1,988,648	29.21	2,617,755	38.45	760,033	11.16	1,256,505	18.45	186,102	2.73
Chicago	1,103,783	28.73	1,530,200	39.84	382,474	9.96	744,048	19.37	80,832	2.10
San Francisco	768,998	24.02	1,355,709	42.35	405,089	12.66	559,472	17.48	111,565	3.49
Philadelphia	627,737	22.46	1,276,894	45.69	346,080	12.38	481,116	17.21	63,090	2.26
Detroit	520,191	25.01	820,637	39.46	241,185	11.60	461,211	22.17	36,656	1.76
Boston	471,202	22.00	975,233	45.54	280,935	13.12	360,655	16.84	53,692	2.51
Washington, DC	600,459	27.12	955,168	43.14	294,843	13.32	301,002	13.59	62,878	2.84
Dallas	487,123	24.64	916,220	46.35	192,731	9.75	335,416	16.97	45,116	2.28
Houston	530,435	30.14	749,876	42.61	159,121	9.04	284,024	16.14	36,340	2.07
Miami	318,027	21.55	669,317	45.34	211,396	14.32	248,196	16.81	29,149	1.97
Atlanta	356,320	24.05	681,426	45.99	170,578	11.51	240,236	16.21	33,221	2.24
Cleveland	294,832	23.74	524,429	42.22	141,275	11.37	257,162	20.70	24,401	1.96
Seattle	400,819	30.64	479,388	36.64	132,567	10.13	251,585	19.23	43,979	3.36
San Diego	385,153	31.30	452,757	36.80	123,089	10.00	208,162	16.92	61,285	4.98
Minneapolis	336,796	25.76	553,706	42.34	121,642	9.30	251,055	19.20	44,425	3.40
St. Louis	323,881	28.30	467,488	40.85	104,661	9.15	221,154	19.33	27,152	2.37
Baltimore	327,625	27.49	510,023	42.79	127,465	10.70	199,424	16.73	27,276	2.29
Pittsburgh	234,780	24.55	394,827	41.29	111,819	11.69	194,920	20.39	19,808	2.07
Phoenix	304,458	30.55	371,992	37.33	84,506	8.48	206,230	20.70	29,309	2.94
Tampa	219,476	23.99	406,547	44.45	103,593	11.33	164,326	17.96	20,769	2.27
Denver	267,898	27.76	405,822	42.06	90,147	9.34	166,278	17.23	34,767	3.60
Cincinnati	199,692	24.57	343,486	42.26	84,981	10.46	167,565	20.62	17,042	2.10
Milwaukee	222,872	28.84	298,959	38.69	63,952	8.28	169,638	21.95	17,331	2.24
Kansas City	196,467	25.47	348,983	45.25	66,594	8.63	137,928	17.88	21,337	2.77
Sacramento	185,147	26.99	285,503	41.62	68,697	10.01	125,260	18.26	21,338	3.11
Portland	186,937	25.80	303,093	41.83	68,749	9.49	138,447	19.11	27,306	3.77
Norfolk	223,416	31.96	249,685	35.72	68,011	9.73	120,586	17.25	37,301	5.34
Columbus	165,390	24.40	292,139	43.10	67,857	10.01	136,844	20.19	15,629	2.31
San Antonio	150,467	26.44	248,679	43.69	51,785	9.10	105,103	18.47	13,115	2.30
Indianapolis	165,657	26.51	274,029	43.85	53,295	8.53	117,001	18.72	14,989	2.40
New Orleans	143,400	27.86	214,906	41.75	56,443	10.97	91,100	17.70	8,877	1.72
Buffalo	110,965	20.89	224,608	42.29	68,428	12.88	117,313	22.09	9,808	1.85
Charlotte	162,308	26.83	265,673	43.92	52,810	8.73	112,675	18.63	11,390	1.88
Providence	136,524	25.07	237,001	43.51	59,607	10.94	101,999	18.73	9,537	1.75
Hartford	147,381	26.23	254,009	45.20	58,474	10.41	91,138	16.22	10,967	1.95
Orlando	143,497	25.74	242,671	43.53	57,126	10.25	103,271	18.53	10,883	1.95
Salt Lake City	119,112	24.85	197,340	41.17	49,296	10.28	98,744	20.60	14,846	3.10
Rochester	122,416	25.43	203,430	42.25	52,856	10.98	91,056	18.91	11,709	2.43
Total	**15,220,790**	**25.49**	**25,337,480**	**42.44**	**6,908,673**	**11.57**	**10,705,729**	**17.93**	**1,531,729**	**2.57**

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Chapter 5

MEANS OF JOURNEY TO WORK

This chapter reviews mode choice for the commute trip over the thirty year period from 1960 to 1990. During this time, the interstate highway system was virtually completed, maximum speed limits for motor vehicles were lowered and then later raised on many highways, automobiles became smaller and more fuel efficient, and several new subway systems were built. Drive alone trips continued to be the number one form of commuting. Losses in market share took place in public transit, carpooling and even walking, although there was some growth in the number of people who work at home.

During the 1980's, mode choice continued to shift. The most striking changes were the increases in driving alone and decreases in carpooling. Factors influencing these statistics were increasing employment opportunities in the suburbs, and increases in multiple worker households, including women with young children.

The Use of Privately Owned Vehicles for Commuting[1]

The privately owned vehicle in general, and driving alone in specific, is unquestionably the mode of choice for most American workers. In 1960, about 43 million workers commuted by private vehicle. By 1990 this figure had risen to over 101 million; a gain of over 135% during the thirty year period.

Private automobile travel continued to increase in the 1980's; a decade which saw falling gasoline prices in real terms, and greater consumer certainty about gasoline supplies. These factors coupled with increasingly more fuel efficient cars, continued decentralization of jobs and residences, and alterations in traditional work schedules all contributed to the relative attractiveness of driving alone.

Commuting Shares Accounted for by Privately Owned Vehicles. In almost every instance in the thirty years from 1960-1990, private vehicles acquired increasingly higher shares of all metropolitan area work trips (Tables 5-1 and 5-1A). As a share of all commuting trips, private vehicles increased nationally from 69.5% in 1960 to 88% in 1990. Within large metropolitan areas, private vehicle commutes accounted for 61% of all trips in 1960 and 83.4% in 1990.

In fourteen of the thirty-nine metropolitan areas, over 90% of workers used a private vehicle for commuting in 1990. The leaders included Charlotte, Detroit, Dallas, Kansas City and Indianapolis. New York City had the lowest share (62.5%), but even this was slightly higher than the comparable figure for 1980.

[1] Privately owned vehicle trips include driving alone and vehicle pools in automobiles, vans, light trucks, and motorcycles.

Table 5-1. Workers Use of Privately Owned Vehicles, 1960-1980

Area	Workers in Area			Workers Travel by POV			Percent Travel by POV		
	1960	1970	1980	1960	1970	1980	1960	1970	1980
New York City	5,886,760	6,559,153	6,737,511	2,192,250	3,314,378	3,977,392	37.24	50.53	59.03
Los Angeles	2,944,496	3,821,341	5,189,055	2,274,396	3,330,757	4,524,246	77.24	87.16	87.19
Chicago	2,674,645	3,089,717	3,466,377	1,414,679	2,095,454	2,630,165	52.89	67.82	75.88
San Francisco	1,397,515	1,824,464	2,482,965	927,927	1,420,706	1,963,376	66.40	77.87	79.07
Philadelphia	1,881,353	2,178,519	2,327,057	1,073,301	1,515,289	1,816,549	57.05	69.56	78.06
Detroit	1,424,586	1,698,646	1,836,510	1,055,911	1,438,246	1,673,686	74.12	84.67	91.13
Boston		1,424,038	1,614,734		1,010,172	1,232,447		70.94	76.33
Washington, DC	869,632	1,256,081	1,559,820	521,720	926,921	1,189,284	59.99	73.79	76.24
Dallas	677,200	985,683	1,469,079	516,746	866,241	1,345,065	76.31	87.88	91.56
Houston	570,562	855,427	1,508,211	424,975	741,565	1,381,989	74.48	86.69	91.63
Miami	470,475	725,677	1,153,080	336,441	612,610	1,021,006	71.51	84.42	88.55
Atlanta	443,766	660,013	950,030	308,584	562,253	836,837	69.54	85.19	88.09
Cleveland	1,009,058	1,147,050	1,203,817	699,909	933,960	1,040,813	69.36	81.42	86.46
Seattle	533,270	703,300	976,885	384,824	580,193	813,178	72.16	82.50	83.24
San Diego	405,497	544,348	853,666	265,008	412,447	693,573	65.35	75.77	81.25
Minneapolis	604,622	796,965	1,046,229	413,032	637,985	868,533	68.31	80.05	83.02
St. Louis	781,822	899,598	1,004,504	527,382	749,506	890,557	67.46	83.32	88.66
Baltimore	676,742	819,597	968,908	424,792	623,557	793,773	62.77	76.08	81.92
Pittsburgh	813,897	853,151	912,880	496,000	624,872	730,610	60.94	73.24	80.03
Phoenix	233,880	365,896	658,854	179,000	325,190	587,125	76.53	88.87	89.11
Tampa	266,229	367,266	608,999	194,049	321,670	547,706	72.89	87.59	89.94
Denver	357,363	497,057	808,019	262,803	423,329	691,568	73.54	85.17	85.59
Cincinnati	522,756	595,683	692,424	359,103	496,615	610,795	68.69	83.37	88.21
Milwaukee	542,220	627,231	720,308	341,371	487,148	608,846	62.96	77.67	84.53
Kansas City	425,361	521,912	620,092	309,344	453,477	560,769	72.73	86.89	90.43
Sacramento	230,925	293,180	435,089	183,479	255,919	377,025	79.45	87.29	86.65
Portland	304,381	393,331	568,916	221,830	327,975	473,797	72.88	83.38	83.28
Columbus	311,896	395,826	488,303	219,780	325,435	432,116	70.47	82.22	88.49
San Antonio	259,785	329,203	449,090	172,588	263,792	390,810	66.43	80.13	87.02
Indianapolis	411,416	489,625	577,759	299,915	417,315	526,632	72.90	85.23	91.15
New Orleans	309,237	363,821	484,155	163,116	253,788	398,903	52.75	69.76	82.39
Buffalo	466,984	495,141	499,842	313,001	392,070	426,487	67.03	79.18	85.32
Providence		442,722	486,604		367,950	424,286		83.11	87.19
Total	**28,708,331**	**35,153,902**	**43,258,434**	**17,477,256**	**26,130,663**	**34,823,211**	**60.88**	**74.33**	**80.50**

Table 5-1A. Workers Use of Privately Owned Vehicles, 1980-1990

Area	Workers in Areas		Workers Travel by POV		Percent Travel by POV	
	1980	1990	1980	1990	1980	1990
New York City	7,248,643	8,057,252	4,434,163	5,038,702	61.17	62.54
Los Angeles	5,189,055	6,809,043	4,524,246	5,978,283	87.19	87.80
Chicago	3,496,988	3,841,337	2,657,720	3,049,431	76.00	79.38
San Francisco	2,564,593	3,200,833	2,031,909	2,602,203	79.23	81.30
Philadelphia	2,378,301	2,794,917	1,863,340	2,271,550	78.35	81.27
Detroit	1,887,578	2,079,880	1,721,228	1,928,862	91.19	92.74
Boston		2,141,717		1,721,420		80.38
Washington, DC	1,646,632	2,214,350	1,265,348	1,743,115	76.84	78.72
Dallas	1,450,908	1,976,606	1,328,510	1,828,641	91.56	92.51
Houston	1,508,211	1,759,796	1,381,989	1,594,796	91.63	90.62
Miami	1,153,080	1,476,085	1,021,006	1,325,040	88.55	89.77
Atlanta	995,028	1,481,781	879,049	1,344,050	88.34	90.71
Cleveland	1,206,817	1,242,099	1,040,813	1,115,769	86.24	89.83
Seattle	976,885	1,308,338	813,178	1,116,958	83.24	85.37
San Diego	853,666	1,230,446	693,573	1,041,651	81.25	84.66
Minneapolis	1,055,726	1,307,624	876,693	1,140,292	83.04	87.20
St. Louis	1,012,460	1,144,336	897,318	1,050,392	88.63	91.79
Baltimore	979,973	1,191,813	803,635	1,014,461	82.01	85.12
Pittsburgh	963,336	956,154	776,189	805,276	80.57	84.22
Phoenix	658,854	996,495	587,125	890,988	89.11	89.41
Tampa	622,490	914,711	559,912	842,308	89.95	92.08
Denver	806,904	964,912	690,575	843,448	85.58	87.41
Cincinnati	587,898	812,766	515,154	736,585	87.63	90.63
Milwaukee	720,308	772,752	608,846	680,827	84.53	88.10
Kansas City	663,211	771,309	598,266	712,685	90.21	92.40
Sacramento	471,851	685,945	409,807	609,800	86.85	88.90
Portland	670,458	724,532	564,505	623,518	84.20	86.06
Norfolk	531,647	698,999	442,983	607,168	83.32	86.86
Columbus	550,284	677,859	488,823	616,342	88.83	90.92
San Antonio	449,090	569,149	390,810	508,377	87.02	89.32
Indianapolis	523,549	624,971	477,837	578,705	91.27	92.60
New Orleans	510,747	514,726	423,644	443,696	82.95	86.20
Buffalo	499,842	531,122	426,487	468,941	85.32	88.29
Charlotte	472,188	604,856	434,162	564,043	91.95	93.25
Providence		544,668		495,377		90.95
Hartford		561,969		509,307		90.63
Orlando	324,943	557,448	289,397	509,215	89.06	91.35
Salt Lake City	384,078	479,338	338,732	432,770	88.19	90.28
Rochester	427,779	481,467	367,538	430,132	85.92	89.34
Total	**46,444,001**	**56,456,047**	**37,624,510**	**47,089,020**	**81.01**	**83.41**

Tables 5-2 and 5-2A illustrate changes by central county and suburban county. Viewing the 1960-1990 period as a whole, it is apparent that suburban county growth of private vehicle travel far exceeded that in the central county and mirrors the growth in residential population in the suburban counties. Moreover, alternatives to driving a private vehicle, such as walking or taking transit, are generally less available.

Privately Owned Vehicles — Drivers, Passengers and Occupancy Rates. The declines in private vehicle occupancy experienced during the 1970's continued unabated in the 1980's (Tables 5-3 and 5-3A). In 1970, occupancy rates ranged from 1.11 in Los Angeles to 1.24 in Baltimore. Most of the thirty-nine metropolitan areas consistently exhibited occupancy levels of less than 1.1 in 1990. The range in 1990 varied from 1.06 in Detroit and Cleveland to 1.13 in Washington, D.C. compared to ranges of 1.07 (Salt Lake City) to 1.38 (Norfolk) in 1980.

Vehicle occupancy rates tended to be higher in central counties and lower in suburban counties (Table 5-4). There were many opportunities in central counties to take advantage of work location densities through the use of vehicle pools or other shared arrangements. In 1990, New York had a central county occupancy rate of 1.25 compared to 1.10 in its suburban counties, but typically the central/suburban spread was much less. In a few cases, suburban county occupancy rates were actually higher than their central county counterparts (Charlotte, Rochester, Seattle, Minneapolis, Salt Lake City). This may be suggestive of a decentralized, but still concentrated, network of employment locations; i.e., large corporate headquarters or manufacturing plants situated in the suburban and exurban rings of metropolitan areas.

Similarly, Privately Owned Vehicle (POV) use is increasing in both central and suburban counties, but is increasing more substantially in suburban counties. Table 5-5 shows that in general POV drivers in suburban counties are increasing more quickly than POV passengers. Consequently POV occupancy is declining.

Individual Modal Trends

Tables 5-6, 5-6A and 5-7 present various counts of journey to work by mode in the 1980 and 1990 periods. The Census questionnaire asks each worker for one method of transportation used to make the journey to work. If an individual uses more than one method, he or she is asked to answer with the method used for the longest distance. For example, a person who drives alone for two miles to a park and ride lot and then takes a bus for 8 miles would answer "bus". These data will be discussed below:

Driving Alone. A major result of the 1990 journey-to-work data, compared to 1980, was the increase in commuters who drive alone. In 1980, 64.4% of all commuters, 62.2 million, drove to work alone. By 1990, that figure increased to 73.2% or 84.2 million workers. Much of the gain in numbers of people driving alone from 1980 to 1990 came at the expense of carpooling, and to a lesser degree from transit. Of the thirty-nine metropolitan areas, in both 1980 and 1990, Detroit had the highest proportion of workers driving alone to work.

Table 5-2. Workers Travel by Privately Owned Vehicles, Percent Change Between 1960-1980

Area	Central County		Suburban County	
	1960-70	1970-80	1960-70	1970-80
New York City	34.29	4.77	51.60	20.33
Los Angeles	31.92	21.77	100.89	70.44
Chicago	38.35	14.85	71.85	46.39
San Francisco	18.06	-0.24	58.93	42.94
Philadelphia	22.95	-7.09	48.39	28.72
Detroit	19.35	-3.72	63.56	40.15
Boston		4.60		24.20
Washington, DC	21.54	-14.87	97.35	37.63
Dallas	67.75	45.50	67.48	68.02
Houston	76.26	79.31	66.77	119.04
Miami	70.14	52.05	113.67	97.43
Atlanta	48.62	1.77	106.15	73.03
Cleveland	28.90	0.67	39.50	24.73
Seattle	44.21	35.19	64.04	48.98
San Diego	55.64	68.16		
Minneapolis	40.30	21.71	71.91	50.65
St. Louis	3.79	-19.37	57.71	28.72
Baltimore	15.57	-10.44	70.82	46.95
Pittsburgh	24.29	12.19	29.15	25.46
Phoenix	81.67	80.55		
Tampa	54.24	54.94	79.80	86.28
Denver	28.18	13.57	94.37	96.58
Cincinnati	35.75	11.76	41.86	38.06
Milwaukee	31.81	11.17	68.87	50.88
Kansas City	37.19	9.48	57.83	38.39
Sacramento	38.63	43.58	43.31	63.68
Portland	26.41	14.41	84.22	79.45
Columbus	48.28	29.29	47.10	49.48
San Antonio	53.23	45.76	47.75	80.87
Indianapolis	34.62	17.51	47.95	41.59
New Orleans	24.88	23.87	100.33	87.44
Buffalo	27.30	7.94	16.99	12.47
Providence		-13.24		20.00

Table 5-2A. Workers Travel by Privately Owned Vehicles, Percent Change Between 1980-1990

Area	Central County	Suburban County
New York City	19.34	13.54
Los Angeles	21.94	50.19
Chicago	9.03	23.24
San Francisco	23.14	28.47
Philadelphia	6.57	25.42
Detroit	-0.54	21.81
Boston	20.88	
Washington, DC	2.85	42.08
Dallas	19.40	58.95
Houston	11.10	31.90
Miami	23.20	40.55
Atlanta	30.79	59.24
Cleveland	2.55	11.83
Seattle	33.24	43.93
San Diego	50.48	
Minneapolis	21.04	37.28
St. Louis	1.43	19.61
Baltimore	9.51	31.42
Pittsburgh	5.38	1.49
Phoenix	51.76	
Tampa	47.90	52.57
Denver	-1.83	31.40
Cincinnati	10.42	95.71
Milwaukee	5.56	20.41
Kansas City	8.12	27.28
Sacramento	44.30	61.10
Portland	-8.37	25.61
Norfolk	4.63	45.01
Columbus	26.03	26.23
San Antonio	28.48	47.56
Indianapolis	15.97	30.92
New Orleans	-7.80	11.60
Buffalo	10.04	9.60
Charlotte	38.01	24.01
Providence	14.19	
Hartford	6.79	
Orlando	62.54	104.49
Salt Lake City	26.10	31.45
Rochester	14.10	25.11

Table 5-3. Privately Owned Vehicle Occupancy, 1970-1980

Area	POV Drivers		POV Passengers		POV Occupancy	
	1970	1980	1970	1980	1970	1980
New York City	2,833,579	3,425,970	480,799	551,422	1.17	1.16
Los Angeles	2,996,353	4,032,576	334,404	491,670	1.11	1.12
Chicago	1,752,845	2,303,899	342,609	326,266	1.20	1.14
San Francisco	1,261,920	1,736,046	158,786	227,330	1.13	1.13
Philadelphia	1,283,728	1,579,944	231,561	236,605	1.18	1.15
Detroit	1,255,511	1,503,632	182,735	170,054	1.15	1.11
Boston	840,109	1,067,602	170,063	164,845	1.20	1.15
Washington, DC	760,403	980,109	166,518	209,175	1.22	1.21
Dallas	741,906	1,175,438	124,335	169,627	1.17	1.14
Houston	633,824	1,188,768	107,741	193,221	1.17	1.16
Miami	524,684	899,771	87,926	121,235	1.17	1.13
Atlanta	475,377	732,353	86,876	104,484	1.18	1.14
Cleveland	808,385	935,708	125,575	105,105	1.16	1.11
Seattle	507,705	713,052	72,488	100,126	1.14	1.14
San Diego	365,288	611,093	47,159	82,480	1.13	1.13
Minneapolis	534,457	751,920	103,528	116,613	1.19	1.16
St. Louis	624,806	768,506	124,700	122,051	1.20	1.16
Baltimore	502,397	669,916	121,160	123,857	1.24	1.18
Pittsburgh	531,187	631,482	93,685	99,128	1.18	1.16
Phoenix	287,568	517,967	37,622	69,158	1.13	1.13
Tampa	280,106	486,426	41,564	61,280	1.15	1.13
Denver	371,670	601,512	51,689	90,056	1.14	1.15
Cincinnati	418,731	540,265	77,884	70,530	1.19	1.13
Milwaukee	414,790	533,929	72,358	74,917	1.17	1.14
Kansas City	379,391	486,574	74,086	74,195	1.20	1.15
Sacramento	226,896	334,772	29,023	42,253	1.13	1.13
Portland	287,478	418,396	40,497	55,401	1.14	1.13
Columbus	278,321	383,806	47,114	48,310	1.17	1.13
San Antonio	222,246	340,517	41,546	50,293	1.19	1.15
Indianapolis	345,944	459,864	71,371	66,768	1.21	1.15
New Orleans	211,949	342,486	41,839	56,417	1.20	1.16
Buffalo	331,873	375,346	60,197	51,141	1.18	1.14
Providence	301,362	364,822	66,588	59,464	1.22	1.16
Total	**23,592,789**	**31,894,467**	**3,916,026**	**4,585,477**	**1.17**	**1.14**

Table 5-3A. Privately Owned Vehicle Occupancy, 1980-1990

Area	POV Drivers		POV Passengers		POV Occupancy	
	1980	1990	1980	1990	1980	1990
New York City	3,777,200	4,577,141	656,983	461,561	1.17	1.10
Los Angeles	4,032,576	5,396,643	491,670	581,640	1.12	1.11
Chicago	2,324,561	2,798,921	333,159	250,510	1.14	1.09
San Francisco	1,789,602	2,372,801	242,307	229,402	1.14	1.10
Philadelphia	1,616,637	2,087,549	246,703	184,001	1.15	1.09
Detroit	1,542,361	1,817,245	178,867	111,617	1.12	1.06
Boston		1,602,738		118,682		1.07
Washington, DC	1,030,479	1,543,801	234,869	199,314	1.23	1.13
Dallas	1,163,718	1,680,335	164,792	148,306	1.14	1.09
Houston	1,188,768	1,453,911	193,221	140,885	1.16	1.10
Miami	899,771	1,209,623	121,235	115,417	1.13	1.10
Atlanta	762,241	1,242,028	116,808	102,022	1.15	1.08
Cleveland	935,708	1,048,353	105,105	67,416	1.11	1.06
Seattle	713,052	1,032,699	100,126	84,259	1.14	1.08
San Diego	611,093	950,262	82,480	91,389	1.13	1.10
Minneapolis	757,602	1,061,730	119,091	78,562	1.16	1.07
St. Louis	773,540	975,258	123,778	75,134	1.16	1.08
Baltimore	676,843	921,156	126,792	93,305	1.19	1.10
Pittsburgh	664,770	739,649	111,419	65,627	1.17	1.09
Phoenix	517,967	814,074	69,158	76,914	1.13	1.09
Tampa	495,836	777,386	64,076	64,922	1.13	1.08
Denver	600,897	779,545	89,678	63,903	1.15	1.08
Cincinnati	461,487	687,070	53,666	49,515	1.12	1.07
Milwaukee	533,929	636,119	74,917	44,708	1.14	1.07
Kansas City	508,130	660,713	84,487	51,972	1.17	1.08
Sacramento	360,205	559,310	49,602	50,490	1.14	1.09
Portland	489,593	575,942	74,912	47,576	1.15	1.08
Norfolk	320,494	553,267	122,489	53,901	1.38	1.10
Columbus	429,371	575,641	59,452	40,701	1.14	1.07
San Antonio	340,517	462,800	50,293	45,577	1.15	1.10
Indianapolis	431,367	535,929	56,470	42,776	1.13	1.08
New Orleans	360,352	400,395	63,292	43,301	1.18	1.11
Buffalo	375,346	437,442	51,141	31,499	1.14	1.07
Charlotte	324,304	516,599	109,858	47,444	1.34	1.09
Providence		458,997		36,380		1.08
Hartford		474,640		34,667		1.07
Orlando	225,316	469,609	64,081	39,606	1.28	1.08
Salt Lake City	253,608	396,396	18,578	36,374	1.07	1.09
Rochester	277,432	400,707	90,106	29,425	1.32	1.07
Total	**32,566,673**	**43,148,049**	**4,995,661**	**3,940,971**	**1.15**	**1.09**

Table 5-4. Privately Owned Vehicle Occupancy, Central and Suburban Counties, 1990

Area	Central County			Suburban County		
	POV Drivers	POV Passengers	Occupancy	POV Drivers	POV Passengers	Occupancy
New York City	70,039	17,473	1.25	4,507,102	444,088	1.10
Los Angeles	3,171,178	353,007	1.11	2,225,465	228,633	1.10
Chicago	1,567,967	166,018	1.11	1,230,954	84,492	1.07
San Francisco	166,740	24,372	1.15	2,206,060	205,031	1.09
Philadelphia	324,107	46,383	1.14	1,763,441	137,619	1.08
Detroit	694,714	51,683	1.07	1,122,531	59,934	1.05
Boston	126,486	16,560	1.13	1,476,251	102,123	1.07
Washington, DC	123,023	20,292	1.16	1,420,778	179,022	1.13
Dallas	780,649	73,836	1.09	899,686	74,470	1.08
Houston	1,110,101	107,674	1.10	343,809	33,212	1.10
Miami	705,705	75,292	1.11	503,917	40,126	1.08
Atlanta	237,021	19,072	1.08	1,005,007	82,950	1.08
Cleveland	497,810	34,825	1.07	550,543	32,591	1.06
Seattle	617,353	48,943	1.08	415,347	35,315	1.09
San Diego	950,262	91,389	1.10			
Minneapolis	442,434	28,968	1.07	619,297	49,593	1.08
St. Louis	115,691	12,040	1.10	859,568	63,093	1.07
Baltimore	179,256	28,963	1.16	741,900	64,342	1.09
Pittsburgh	433,441	41,370	1.10	306,208	24,257	1.08
Phoenix	814,074	76,914	1.09			
Tampa	348,344	30,004	1.09	429,042	34,918	1.08
Denver	172,802	16,222	1.09	606,743	47,681	1.08
Cincinnati	328,256	23,386	1.07	358,814	26,129	1.07
Milwaukee	343,790	27,807	1.08	292,328	16,902	1.06
Kansas City	253,100	22,273	1.09	407,613	29,699	1.07
Sacramento	396,782	36,108	1.09	162,528	14,382	1.09
Portland	210,981	19,714	1.09	364,961	27,862	1.08
Norfolk	81,399	9,821	1.12	471,868	44,080	1.09
Columbus	410,239	28,591	1.07	165,401	12,111	1.07
San Antonio	418,586	41,270	1.10	44,214	4,307	1.10
Indianapolis	335,556	28,093	1.08	200,373	14,683	1.07
New Orleans	122,444	15,836	1.13	277,951	27,465	1.10
Buffalo	353,229	26,058	1.07	84,213	5,441	1.06
Charlotte	234,129	18,616	1.08	282,470	28,828	1.10
Providence	46,398	5,818	1.13	405,668	22,212	1.05
Hartford	34,060	4,822	1.14	440,579	29,846	1.07
Orlando	294,279	25,682	1.09	175,330	13,924	1.08
Salt Lake City	270,692	23,996	1.09	125,704	12,378	1.10
Rochester	287,970	19,677	1.07	112,738	9,747	1.09
Total	**18,071,090**	**1,758,865**	**1.10**	**27,606,402**	**2,363,486**	**1.09**

Table 5-5. Privately Owned Vehicle Drivers and Passengers, Percent Change Between 1980-1990

Area	Central County		Suburban County	
	POV Drivers	POV Passengers	POV Drivers	POV Passengers
New York City	-2.14	29.15	21.36	14.21
Los Angeles	21.06	27.92	67.41	100.64
Chicago	19.75	-9.88	54.13	5.60
San Francisco	-0.12	-0.90	41.99	50.96
Philadelphia	-6.01	-12.24	32.31	7.77
Detroit	-0.02	-26.67	42.50	21.73
Boston	6.74	-4.65	29.58	-2.84
Washington, DC	-9.43	-32.29	36.46	43.47
Dallas	48.78	25.41	71.13	50.09
Houston	81.07	68.87	117.85	125.76
Miami	57.30	23.31	100.21	77.16
Atlanta	7.19	-26.94	77.97	45.53
Cleveland	4.60	-24.40	29.47	-6.12
Seattle	36.48	26.57	47.39	61.17
San Diego	67.29	74.90		
Minneapolis	27.83	-11.05	53.77	35.12
St. Louis	-11.70	-45.86	31.22	14.72
Baltimore	-1.72	-36.24	49.67	33.09
Pittsburgh	14.18	1.01	27.32	14.67
Phoenix	80.12	83.82		
Tampa	58.66	30.67	89.18	66.01
Denver	15.14	4.06	91.85	135.05
Cincinnati	17.70	-20.39	44.27	5.04
Milwaukee	14.89	-9.00	54.02	30.73
Kansas City	15.14	-16.07	41.29	21.26
Sacramento	44.38	37.51	61.05	88.05
Portland	15.99	4.30	78.96	83.46
Columbus	34.98	-3.64	51.63	35.41
San Antonio	50.51	19.92	91.73	33.89
Indianapolis	23.61	-13.07	49.69	4.45
New Orleans	29.18	-0.89	90.24	72.80
Buffalo	12.11	-14.80	17.42	-16.17
Providence	-6.99	-37.44	25.46	-5.41

Table 5-6. Journey to Work by Mode, 1980

Area	Workers in Area	% POV Drivers	% POV Passenger	% Bus	% Subway /Rail	% Walk	% Taxi	% Motor-cycle	% Bicycle	% Other	% Work @ Home
New York City	6,737,511	50.85	8.18	8.67	20.94	7.86	0.67	0.11	0.31	0.89	1.52
Los Angeles	5,189,055	77.71	9.48	5.01	0.02	3.51	0.05	1.08	0.85	0.76	1.52
Chicago	3,466,377	66.46	9.41	8.84	7.59	5.65	0.21	0.07	0.22	0.35	1.19
San Francisco	2,482,965	69.92	9.16	9.20	2.14	4.39	0.08	0.92	1.25	1.03	1.92
Philadelphia	2,327,057	67.89	10.17	7.04	5.61	6.50	0.07	0.18	0.37	0.60	1.57
Detroit	1,836,510	81.87	9.26	3.50	0.03	3.34	0.13	0.07	0.20	0.54	1.05
Boston	1,614,734	66.12	10.21	7.27	5.62	*	*	*	*	10.78	*
Washington, DC	1,559,820	62.83	13.41	10.62	4.45	4.93	0.38	0.33	0.34	1.02	1.68
Dallas	1,469,079	80.01	11.55	3.34	0.01	2.16	0.06	0.54	0.17	0.80	1.36
Houston	1,508,211	78.82	12.81	2.84	0.01	2.72	0.11	0.44	0.28	0.87	1.10
Miami	1,153,080	78.03	10.51	4.72	0.03	3.15	0.15	0.60	0.78	0.82	1.19
Atlanta	950,030	77.09	11.00	6.71	0.68	1.90	0.16	0.31	0.09	0.86	1.20
Cleveland	1,203,817	77.73	8.73	7.28	0.47	3.70	0.06	0.07	0.13	0.58	1.25
Seattle	976,885	72.99	10.25	8.11	0.01	4.72	0.06	0.77	0.60	0.41	2.07
San Diego	853,666	71.58	9.66	3.20	0.03	9.87	0.07	1.47	1.10	0.97	2.04
Minneapolis	1,046,229	71.87	11.15	8.55	0.01	4.96	0.10	0.19	0.40	0.45	2.33
St. Louis	1,004,504	76.51	12.15	5.57	0.01	3.20	0.14	0.14	0.16	0.49	1.63
Baltimore	968,908	69.14	12.78	9.70	0.25	5.23	0.29	0.31	0.19	0.71	1.40
Pittsburgh	912,880	69.17	10.86	11.31	0.10	6.60	0.09	0.09	0.08	0.47	1.23
Phoenix	658,854	78.62	10.50	1.95	0.01	3.30	0.04	1.62	1.65	0.72	1.60
Tampa	608,999	79.87	10.06	1.67	0.02	3.33	0.08	1.10	0.93	1.38	1.56
Denver	808,019	74.44	11.15	6.04	0.01	4.60	0.10	0.35	0.68	0.57	2.06
Cincinnati	692,424	78.03	10.19	5.59	0.01	3.98	0.14	0.12	0.11	0.48	1.35
Milwaukee	720,308	74.13	10.40	6.98	0.03	5.74	0.08	0.25	0.33	0.48	1.58
Kansas City	620,092	78.47	11.97	3.94	0.01	2.59	0.11	0.19	0.11	0.94	1.67
Sacramento	435,089	76.94	9.71	3.49	0.01	3.44	0.02	1.08	2.65	0.66	2.01
Portland	568,916	73.54	9.74	8.34	0.01	4.15	0.06	0.70	0.60	0.67	2.20
Columbus	488,303	78.60	9.89	4.51	0.01	4.30	0.11	0.14	0.36	0.53	1.54
San Antonio	449,090	75.82	11.20	4.51	0.00	5.39	0.06	0.61	0.33	0.65	1.42
Indianapolis	577,759	79.59	11.56	2.83	0.00	3.12	0.15	0.14	0.01	0.98	1.62
New Orleans	484,155	70.74	11.65	10.55	0.01	3.92	0.34	0.48	0.48	0.76	1.05
Buffalo	499,842	75.09	10.23	6.30	0.01	5.93	0.26	0.10	0.30	0.28	1.50
Providence	486,604	74.97	12.22	3.70	0.17	*	*	*	*	8.94	*
Total	**45,359,772**	**70.31**	**10.11**	**6.71**	**4.49**	**4.67**	**0.20**	**0.42**	**0.47**	**1.17**	**1.45**

** Boston and Providence data not available for mode split, other captures walk, taxi, motorcycle, bicycle, other and work at home.*

Table 5-6A. Journey to Work by Mode, 1990

Area	Workers in Area	% POV Driver	% POV Passenger	% Bus	% Subway /Rail	% Walk	% Taxi	% Motor-cycle	% Bicycle	% Other	% Work @ Home
New York City	8,037,960	56.94	5.74	8.03	18.82	6.54	0.78	0.06	0.24	0.54	2.32
Los Angeles	6,808,483	79.26	8.54	4.49	0.03	2.94	0.04	0.51	0.71	0.75	2.73
Chicago	3,841,166	72.87	6.52	6.81	6.57	4.01	0.27	0.05	0.21	0.57	2.10
San Francisco	3,196,799	74.22	7.18	6.27	2.82	3.64	0.08	0.54	1.09	0.66	3.49
Philadelphia	2,794,655	74.70	6.58	5.97	4.13	5.26	0.08	0.10	0.33	0.60	2.26
Detroit	2,079,795	87.38	5.37	2.30	0.01	2.41	0.11	0.05	0.18	0.43	1.76
Boston	2,139,896	74.90	5.55	4.87	5.48	5.47	0.22	0.07	0.43	0.51	2.51
Washington, DC	2,214,311	69.72	9.00	6.66	6.68	3.85	0.31	0.12	0.30	0.52	2.84
Dallas	1,976,562	85.01	7.50	2.25	0.01	1.86	0.09	0.19	0.13	0.66	2.28
Houston	1,759,752	82.62	8.01	3.65	0.02	2.26	0.11	0.20	0.29	0.78	2.07
Miami	1,476,040	81.95	7.82	3.64	0.57	2.25	0.13	0.21	0.55	0.89	1.97
Atlanta	1,481,736	83.82	6.89	3.54	1.05	1.45	0.12	0.11	0.09	0.69	2.24
Cleveland	1,242,042	84.41	5.43	4.21	0.28	2.98	0.06	0.06	0.13	0.48	1.96
Seattle	1,307,226	79.00	6.45	6.16	0.02	3.53	0.06	0.32	0.52	0.59	3.36
San Diego	1,230,333	77.24	7.43	3.16	0.04	4.53	0.07	0.68	0.88	1.00	4.98
Minneapolis	1,307,595	81.20	6.01	5.19	0.01	3.22	0.08	0.09	0.42	0.39	3.40
St. Louis	1,144,305	85.23	6.57	2.82	0.01	2.15	0.14	0.07	0.12	0.53	2.37
Baltimore	1,191,775	77.29	7.83	6.26	1.13	4.05	0.26	0.13	0.15	0.61	2.29
Pittsburgh	956,134	77.36	6.86	7.67	0.20	5.08	0.08	0.06	0.12	0.51	2.07
Phoenix	996,460	81.70	7.72	2.00	0.01	2.65	0.11	0.73	1.40	0.74	2.94
Tampa	914,654	84.99	7.10	1.31	0.02	2.27	0.13	0.39	0.73	0.80	2.27
Denver	964,881	80.79	6.62	4.16	0.02	3.28	0.06	0.20	0.72	0.54	3.60
Cincinnati	812,738	84.54	6.09	3.55	0.01	2.99	0.10	0.07	0.10	0.46	2.10
Milwaukee	772,727	82.32	5.79	4.79	0.03	3.95	0.06	0.12	0.28	0.43	2.24
Kansas City	771,301	85.66	6.74	2.02	0.01	1.89	0.10	0.09	0.10	0.61	2.77
Sacramento	685,905	81.54	7.36	2.12	0.24	2.68	0.04	0.46	1.81	0.64	3.11
Portland	724,495	79.50	6.57	5.22	0.14	3.27	0.05	0.33	0.61	0.55	3.77
Norfolk	698,900	79.16	7.71	2.03	0.03	3.67	0.12	0.27	0.52	1.15	5.34
Columbus	677,859	84.92	6.00	2.64	0.01	3.25	0.09	0.09	0.24	0.45	2.31
San Antonio	569,125	81.32	8.01	3.61	0.01	3.58	0.05	0.23	0.16	0.75	2.30
Indianapolis	624,950	85.76	6.84	1.95	0.01	2.17	0.11	0.07	0.14	0.53	2.40
New Orleans	514,235	77.86	8.42	6.86	0.01	3.10	0.29	0.17	0.50	1.06	1.73
Buffalo	531,114	82.36	5.93	4.06	0.39	4.38	0.25	0.05	0.21	0.52	1.85
Charlotte	604,814	85.41	7.84	1.69	0.01	2.07	0.14	0.10	0.13	0.72	1.88
Providence	520,103	86.92	5.39	1.90	0.28	3.37	0.04	0.05	0.16	0.48	1.41
Hartford	561,950	84.46	6.17	3.56	0.05	3.04	0.05	0.08	0.16	0.49	1.95
Orlando	557,430	84.25	7.11	1.42	0.02	3.46	0.10	0.43	0.62	0.65	1.95
Salt Lake City	479,315	82.70	7.59	2.94	0.01	2.32	0.02	0.30	0.51	0.51	3.10
Rochester	481,463	83.23	6.11	3.11	0.01	4.34	0.07	0.05	0.22	0.43	2.43
Total	**59,650,984**	**76.57**	**6.91**	**4.89**	**3.84**	**3.75**	**0.21**	**0.21**	**0.43**	**0.62**	**2.56**

Table 5-7. Journey-to-Work Mode Share, 1990

Area	Drive Alone		Vehicle Pool		Transit		Other		Work at Home	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
New York City	4,212,768	52.29	830,398	10.31	2,239,776	27.80	587,798	7.30	186,512	2.31
Los Angeles	4,960,888	72.86	1,052,249	15.45	310,563	4.56	299,241	4.39	186,102	2.73
Chicago	2,592,012	67.48	459,372	11.96	524,756	13.66	184,365	4.80	80,832	2.10
San Francisco	2,203,208	68.83	416,375	13.01	297,363	9.29	172,322	5.38	111,565	3.49
Philadelphia	1,934,795	69.23	339,504	12.15	284,579	10.18	172,949	6.19	63,090	2.26
Detroit	1,720,149	82.70	209,717	10.08	50,568	2.43	62,790	3.02	36,656	1.76
Boston	1,502,708	70.16	220,185	10.28	227,948	10.64	137,184	6.41	53,692	2.51
Washington, DC	1,396,480	63.07	349,273	15.77	302,351	13.65	103,368	4.67	62,878	2.84
Dallas	1,559,416	78.89	273,037	13.81	46,504	2.35	52,533	2.66	45,116	2.28
Houston	1,341,876	76.25	256,399	14.57	66,540	3.78	58,641	3.33	36,340	2.07
Miami	1,114,511	75.50	213,658	14.47	64,240	4.35	54,527	3.69	29,149	1.97
Atlanta	1,156,901	78.08	188,844	12.74	69,822	4.71	32,993	2.23	33,221	2.24
Cleveland	988,796	79.61	127,692	10.28	56,675	4.56	44,535	3.59	24,401	1.96
Seattle	965,417	73.79	155,709	11.90	82,619	6.31	60,614	4.63	43,979	3.36
San Diego	880,634	71.57	169,326	13.76	40,378	3.28	78,823	6.41	61,285	4.98
Minneapolis	994,590	76.06	146,892	11.23	69,125	5.29	52,592	4.02	44,425	3.40
St. Louis	913,303	79.81	137,883	12.05	33,994	2.97	32,004	2.80	27,152	2.37
Baltimore	846,322	71.01	169,695	14.24	91,176	7.65	57,344	4.81	27,276	2.29
Pittsburgh	683,400	71.47	122,414	12.80	75,995	7.95	54,537	5.70	19,808	2.07
Phoenix	755,116	75.78	143,170	14.37	21,184	2.13	47,716	4.79	29,309	2.94
Tampa	724,420	79.20	121,420	13.27	13,367	1.46	34,735	3.80	20,769	2.27
Denver	725,366	75.17	120,028	12.44	40,961	4.25	43,790	4.54	34,767	3.60
Cincinnati	644,269	79.27	92,858	11.42	29,758	3.66	28,839	3.55	17,042	2.10
Milwaukee	597,224	77.29	84,502	10.94	37,737	4.88	35,958	4.65	17,331	2.24
Kansas City	616,880	79.98	96,537	12.52	16,504	2.14	20,051	2.60	21,337	2.77
Sacramento	519,109	75.68	93,834	13.68	16,462	2.40	35,202	5.13	21,338	3.11
Portland	536,907	74.10	88,975	12.28	39,259	5.42	32,085	4.43	27,306	3.77
Norfolk	510,273	73.00	98,754	14.13	15,319	2.19	37,352	5.34	37,301	5.34
Columbus	539,583	79.60	77,347	11.41	18,587	2.74	26,713	3.94	15,629	2.31
San Antonio	425,653	74.79	84,011	14.76	20,870	3.67	25,500	4.48	13,115	2.30
Indianapolis	498,776	79.81	80,393	12.86	12,999	2.08	17,814	2.85	14,989	2.40
New Orleans	365,840	71.07	78,718	15.29	37,337	7.25	23,954	4.65	8,877	1.72
Buffalo	409,719	77.14	59,495	11.20	24,943	4.70	27,157	5.11	9,808	1.85
Charlotte	476,962	78.86	87,667	14.49	11,186	1.85	17,651	2.92	11,390	1.88
Providence	428,505	78.62	67,169	12.33	14,116	2.59	25,341	4.65	9,537	1.75
Hartford	446,346	79.43	63,419	11.29	20,567	3.66	20,670	3.68	10,967	1.95
Orlando	437,591	78.50	74,000	13.27	8,617	1.55	26,357	4.73	10,883	1.95
Salt Lake City	367,159	76.60	67,072	13.99	14,266	2.98	15,995	3.34	14,846	3.10
Rochester	374,490	77.78	55,877	11.61	15,372	3.19	24,019	4.99	11,709	2.43
Total	**42,368,362**	**70.96**	**7,573,868**	**12.69**	**5,364,383**	**8.98**	**2,866,059**	**4.80**	**1,531,729**	**2.57**

Figure 5-1 illustrates the percentage of all 1990 work trips consisting of drive alone and carpools. The share of those who drive alone ranges from almost 83% in Detroit to just over 52% in New York. In thirty-three of the thirty-nine metropolitan areas 70%-80% of workers drive alone. The areas with the smallest proportion of drive alone commuters have large investments in heavy rail (e.g., New York City, Chicago, Washington, D.C., San Francisco, Philadelphia, Boston).

Carpooling. Nationally, carpools accounted for just over 13% of all journeys to work in 1990 or 15,373,388 workers. The share of carpools remains relatively stable across metropolitan areas, ranging from 10% to 15%. Among the thirty-nine metropolitan areas, Washington, D.C., New Orleans, and Los Angeles had the highest shares of carpool trips (over 15%) while Detroit, Boston, Cleveland and New York had the lowest shares (close to 10%).

The 1990 data (Table 5-8) exposes the term "vehicle pools" (multiple persons traveling together in the same vehicle) as a misnomer. The preponderance of all vehicle pools consist of only two persons. Only in Washington, DC does a four or more person vehicle pool have a notable proportion of work trips (3%). This is reflected in Washington, D.C.'s status as number one among all metropolitan areas in terms of vehicle occupancy, with an average ridership of 1.13.

As is evident in Figure 5-2, Washington, D.C. is also the leader among metropolitan areas in terms of carpooling, with 20% of private vehicle trips used for that purpose. It is possible that well structured public policy and/or incentive programs designed to stimulate carpool usage made an impact on carpooling decisions. The lowest incidence of carpooling relative to private vehicles was found in Providence, Detroit, and Cleveland, each with under 12% of the workforce using carpools.

Public Transit (Bus and Rail). In the U.S., the number of workers using transit for their journey to work has declined almost 25% in the thirty years from 1960 - 1990. As a share of all modes, transit commuters have declined from 12.6% in 1960, to 6.22% in 1980, to 5.12% in 1990. In 1990, nationwide, 5.3% of workers used transit (including taxi), while in large metropolitan areas the figure was 9%.

In 1990, among the metropolitan areas, New York ranked first in share of transit commuters, with 27.8%, followed by Chicago (13.7%) and Washington, D.C. (13.7%). Tampa, Orlando, and Charlotte trailed all other areas in transit usage, each registering less than 2% shares.

Between 1960 and 1970, most metropolitan areas experienced declines in the number of workers using the bus to go to work (Table 5-9). The exceptions, that is metropolitan areas with increases, were New York, Washington, D.C., and Miami.

However, between 1970 and 1980, many metropolitan areas experienced an increase in the number of bus commuters. The rise of transit in the 1970's occurred primarily in the rapidly growing metropolitan areas of the West and South. Federal funding for new transit systems was plentiful during the 1970's and the oil crises years of 1973 and 1979 provided the necessary catalyst for mode shifts to occur. Phoenix, San Diego, Portland, Sacramento, and Denver all showed increases of over 100% in the number of bus commuters between 1970 and 1980, more than surpassing the decline between 1960 and 1970. In New York, in the same time period, however, bus commuters declined by 24%.

Figure 5-1. Drive Alone vs. Vehicle Pool Trips — Percent of All Work Trips, 1990

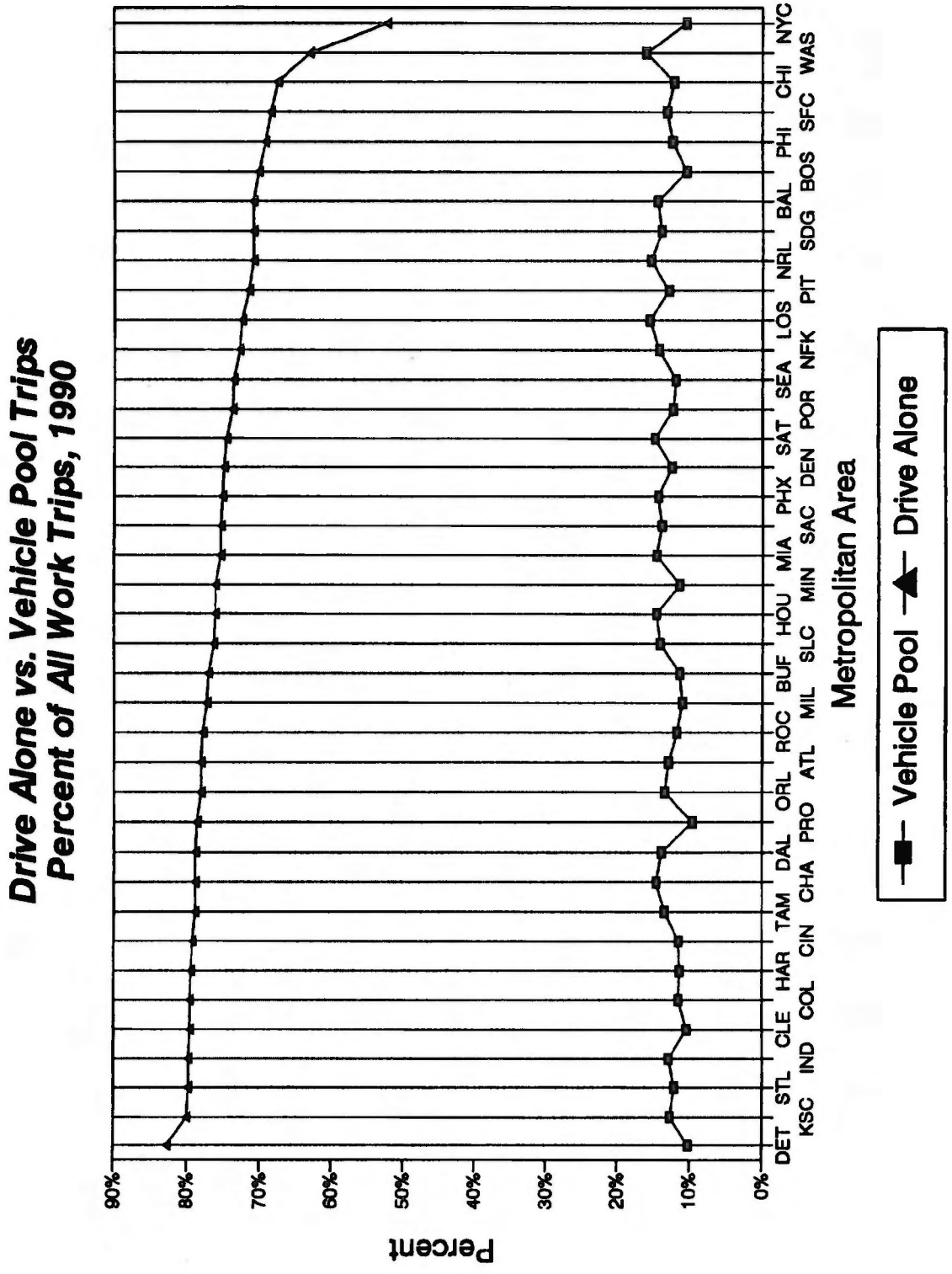

Table 5-8. Journey to Work by Vehicle Pools, 1990

Area	Areawide				Central County			
	4 or More	3 People	2 People	Total	4 or More	3 People	2 People	Total
New York City	92,478	109,298	628,622	830,398	8,174	3,830	16,411	28,415
Los Angeles	102,801	151,928	797,520	1,052,249	60,676	93,629	485,265	639,570
Chicago	38,341	59,263	361,768	459,372	28,956	41,885	230,695	301,536
San Francisco	35,560	63,383	317,432	416,375	4,327	6,717	32,881	43,925
Philadelphia	24,673	42,318	272,513	339,504	7,167	12,740	64,515	84,422
Detroit	11,092	21,152	177,473	209,717	5,585	10,776	80,197	96,558
Boston	15,902	22,576	181,707	220,185	3,522	3,867	22,257	29,646
Washington, DC	53,216	53,954	242,103	349,273	12,065	23,352	108,479	143,896
Dallas	20,380	35,590	217,067	273,037	10,080	18,511	107,185	135,776
Houston	24,122	33,619	198,658	256,399	18,656	25,444	151,834	195,934
Miami	15,010	25,665	172,983	213,658	11,199	17,174	109,955	138,328
Atlanta	12,697	23,947	152,200	188,844	2,289	4,082	29,076	35,447
Cleveland	5,588	11,785	110,319	127,692	2,649	6,222	57,239	66,110
Seattle	11,184	18,156	126,369	155,709	5,443	10,088	75,728	91,259
San Diego	11,018	21,538	136,770	169,326	11,018	21,538	136,770	169,326
Minneapolis	8,862	14,537	123,493	146,892	2,333	4,935	47,621	54,889
St. Louis	11,902	15,335	110,646	137,883	1,457	2,489	18,443	22,389
Baltimore	16,019	22,454	131,222	169,695	5,946	8,112	37,634	51,692
Pittsburgh	6,903	14,367	101,144	122,414	3,763	8,977	64,823	77,563
Phoenix	8,366	17,173	117,631	143,170	8,366	17,173	117,631	143,170
Tampa	7,290	12,946	101,184	121,420	4,068	6,225	45,312	55,605
Denver	6,066	12,613	101,349	120,028	1,677	3,564	25,036	30,277
Cincinnati	4,815	10,301	77,742	92,858	2,283	5,069	36,429	43,781
Milwaukee	3,781	8,479	72,242	84,502	2,357	5,285	44,897	52,539
Kansas City	6,227	11,266	79,044	96,537	2,788	4,999	33,450	41,237
Sacramento	6,015	10,893	76,926	93,834	4,069	7,679	55,614	67,362
Portland	5,058	9,928	73,989	88,975	1,861	4,321	30,751	36,933
Norfolk	8,163	12,010	78,581	98,754	1,344	2,233	14,518	18,095
Columbus	2,884	7,490	66,973	77,347	1,755	5,200	47,537	54,492
San Antonio	6,307	10,302	67,402	84,011	5,784	9,258	61,009	76,051
Indianapolis	3,854	9,039	67,500	80,393	2,412	5,819	44,691	52,922
New Orleans	7,388	10,570	60,760	78,718	2,515	4,197	22,110	28,822
Buffalo	2,598	6,008	50,889	59,495	2,146	5,087	41,941	49,174
Charlotte	5,723	12,063	69,881	87,667	2,031	4,233	28,421	34,685
Providence	3,607	5,985	42,296	51,888	766	1,405	8,556	10,727
Hartford	5,712	6,574	51,133	63,419	923	1,440	6,221	8,584
Orlando	4,476	7,907	61,617	74,000	3,061	5,216	39,584	47,861
Salt Lake City	5,289	7,756	54,027	67,072	2,807	4,872	37,056	44,735
Rochester	2,179	5,197	48,501	55,877	1,205	3,266	33,093	37,564
Total	623,546	955,365	5,979,676	7,558,587	259,523	430,909	2,650,865	3,341,297

Table 5-8. Journey to Work by Vehicle Pools, 1990 (Cont.)

Area	Suburban County				Percent Vehicle Pool Areawide			% Drive Alone Areawide	% Drive Alone Central County
	4 or More	3 People	2 People	Total	4 or More	3 People	2 People		
New York City	84,304	105,468	612,211	801,983	1.84	2.17	12.48	83.52	67.53
Los Angeles	42,125	58,299	312,255	412,679	1.72	2.54	13.34	82.40	81.85
Chicago	9,385	17,378	131,073	157,836	1.26	1.94	11.86	84.94	82.61
San Francisco	31,233	56,666	284,551	372,450	1.37	2.44	12.20	84.00	77.02
Philadelphia	17,506	29,578	207,998	255,082	1.09	1.86	12.00	85.05	77.21
Detroit	5,507	10,376	97,276	113,159	0.58	1.10	9.20	89.13	87.06
Boston	12,380	18,709	159,450	190,539	0.92	1.31	10.56	87.21	79.28
Washington, DC	41,151	30,602	133,624	205,377	3.05	3.10	13.89	79.96	74.40
Dallas	10,300	17,079	109,882	137,261	1.11	1.95	11.87	85.07	84.11
Houston	5,466	8,175	46,824	60,465	1.51	2.11	12.46	83.92	83.91
Miami	3,811	8,491	63,028	75,330	1.13	1.94	13.05	83.88	82.29
Atlanta	10,408	19,865	123,124	153,397	0.94	1.78	11.32	85.95	86.16
Cleveland	2,939	5,563	53,080	61,582	0.50	1.06	9.89	88.56	87.59
Seattle	5,741	8,068	50,641	64,450	1.00	1.63	11.31	86.06	86.30
San Diego					1.06	2.07	13.13	83.74	83.74
Minneapolis	6,529	9,602	75,872	92,003	0.78	1.27	10.83	87.12	88.36
St. Louis	10,445	12,846	92,203	115,494	1.13	1.46	10.53	86.87	82.47
Baltimore	10,073	14,342	93,588	118,003	1.58	2.21	12.94	83.27	75.17
Pittsburgh	3,140	5,390	36,321	44,851	0.86	1.78	12.56	84.80	83.66
Phoenix					0.94	1.93	13.20	83.93	83.93
Tampa	3,222	6,721	55,872	65,815	0.87	1.54	12.01	85.58	85.30
Denver	4,389	9,049	76,313	89,751	0.72	1.50	12.02	85.77	83.98
Cincinnati	2,532	5,232	41,313	49,077	0.65	1.40	10.55	87.39	87.55
Milwaukee	1,424	3,194	27,345	31,963	0.56	1.25	10.61	87.59	85.86
Kansas City	3,439	6,267	45,594	55,300	0.87	1.58	11.09	86.45	85.03
Sacramento	1,946	3,214	21,312	26,472	0.99	1.79	12.61	84.61	84.44
Portland	3,197	5,607	43,238	52,042	0.81	1.59	11.87	85.73	83.99
Norfolk	6,819	9,777	64,063	80,659	1.34	1.98	12.94	83.74	80.16
Columbus	1,129	2,290	19,436	22,855	0.47	1.22	10.87	87.45	87.58
San Antonio	523	1,044	6,393	7,960	1.24	2.03	13.26	83.47	83.46
Indianapolis	1,442	3,220	22,809	27,471	0.67	1.56	11.66	86.11	85.45
New Orleans	4,873	6,373	38,650	49,896	1.67	2.38	13.69	82.26	79.16
Buffalo	452	921	8,948	10,321	0.55	1.28	10.85	87.31	87.04
Charlotte	3,692	7,830	41,460	52,982	1.01	2.14	12.39	84.46	86.28
Providence	2,841	4,580	33,740	41,161	0.75	1.25	8.81	86.40	79.46
Hartford	4,789	5,134	44,912	54,835	1.12	1.29	10.04	87.55	77.92
Orlando	1,415	2,691	22,033	26,139	0.88	1.55	12.10	85.47	85.04
Salt Lake City	2,482	2,884	16,971	22,337	1.22	1.79	12.48	84.50	84.82
Rochester	974	1,931	15,408	18,313	0.51	1.21	11.28	87.01	87.79
Total	**364,023**	**524,456**	**3,328,811**	**4,217,290**	**1.04**	**1.60**	**10.02**	**84.80**	**83.00**

Figure 5-2. Vehicle Pools in Commuting, 1990 — Percent of All Private Vehicle Trips

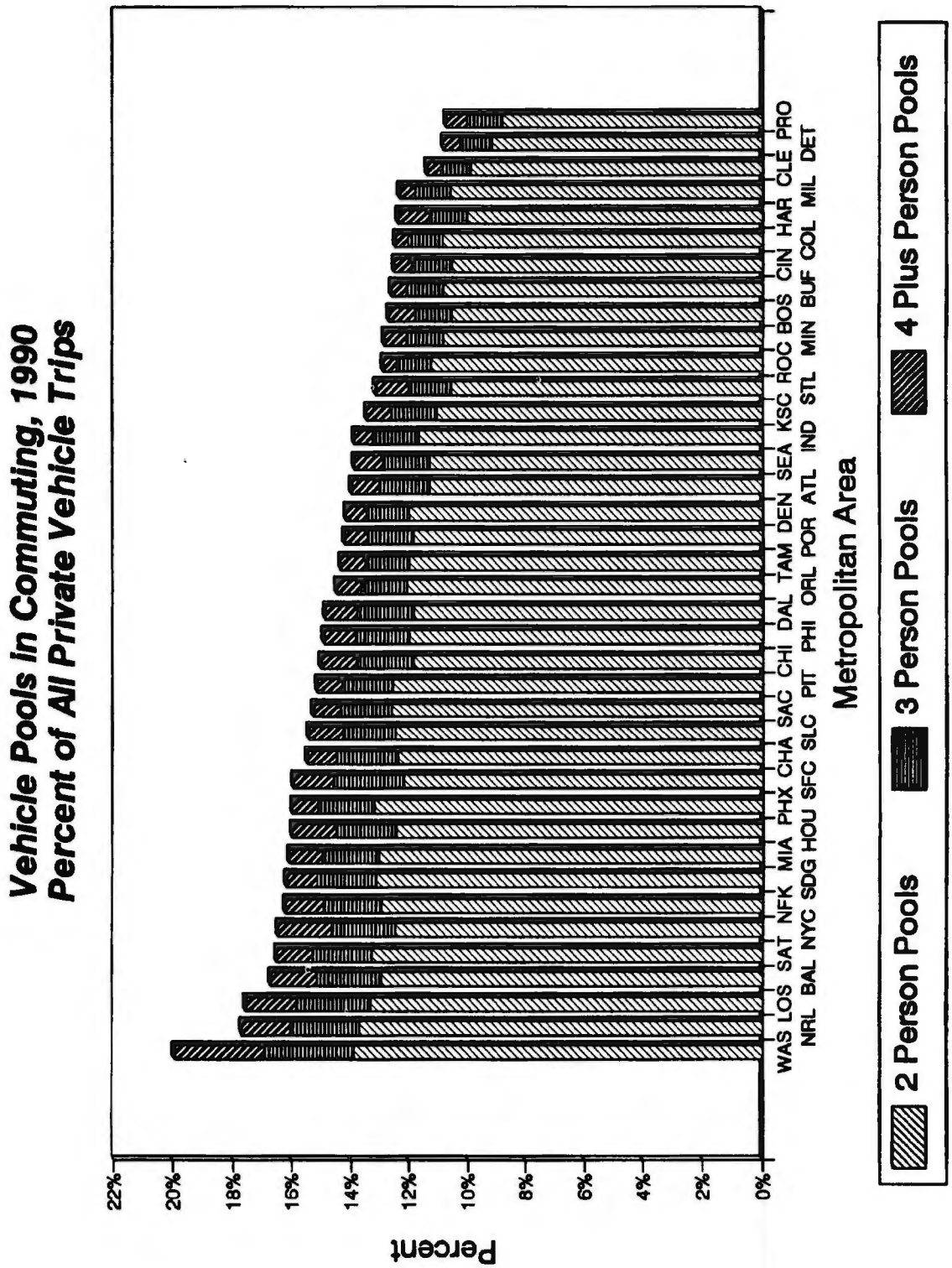

Table 5-9. Journey to Work by Bus, Percent Change Between 1960-1980

Area	Bus/Streetcar Riders			Percent Change	
	1960	1970	1980	1960-70	1970-80
New York City	767,035	772,691	584,450	0.7	-24.4
Los Angeles	200,576	155,709	260,224	-22.4	67.1
Chicago	463,943	403,702	306,351	-13.0	-24.1
San Francisco	188,664	191,369	228,324	1.4	19.3
Philadelphia	310,047	260,216	163,882	-16.1	-37.0
Detroit	163,111	122,404	64,359	-25.0	-47.4
Boston		134,640	117,391		-12.8
Washington, DC	183,559	190,323	165,646	3.7	-13.0
Dallas	61,506	47,819	49,102	-22.3	2.7
Houston	52,061	42,885	42,759	-17.6	-0.3
Miami	47,638	48,061	54,473	0.9	13.3
Atlanta	65,636	52,218	63,734	-20.4	22.1
Cleveland	163,145	105,633	87,624	-35.3	-17.0
Seattle	52,703	41,614	79,201	-21.0	90.3
San Diego	22,160	13,069	27,308	-41.0	109.0
Minneapolis	78,410	65,798	89,441	-16.1	35.9
St. Louis	119,395	65,995	55,998	-44.7	-15.1
Baltimore	118,851	105,642	93,998	-11.1	-11.0
Pittsburgh	148,478	121,076	103,228	-18.5	-14.7
Phoenix	8,656	4,256	12,870	-50.8	202.4
Tampa	16,181	9,976	10,189	-38.3	2.1
Denver	32,585	20,234	48,801	-37.9	141.2
Cincinnati	69,125	42,143	38,708	-39.0	-8.2
Milwaukee	102,254	67,602	50,291	-33.9	-25.6
Kansas City	46,470	26,574	24,425	-42.8	-8.1
Sacramento	11,066	6,444	15,166	-41.8	135.4
Portland	30,256	22,818	47,441	-24.6	107.9
Columbus	37,573	27,529	22,033	-26.7	-20.0
San Antonio	24,099	18,237	20,271	-24.3	11.2
Indianapolis	33,916	24,135	16,372	-28.8	-32.2
New Orleans	89,505	71,846	51,085	-19.7	-28.9
Buffalo	74,686	50,029	31,478	-33.0	-37.1
Providence		19,106	17,983		-5.9
Total	**3,783,290**	**3,351,793**	**3,044,606**	**-11.4**	**-9.2**

Table 5-9A. Journey to Work by Public Transit, Percent Change Between 1980-1990

Area	Bus			Subway/Rail			Transit **
	1980	1990	% Change	1980	1990	% Change	% Change
New York City	593,490	645,104	8.70	1,419,216	1,512,513	6.57	7.20
Los Angeles	260,224	305,631	17.45	1,293	1,812	40.14	17.56
Chicago	306,380	261,659	-14.60	263,374	252,469	-4.14	-9.76
San Francisco	231,385	200,470	-13.36	53,060	90,307	70.20	2.23
Philadelphia	164,156	166,733	1.57	130,434	115,325	-11.58	-4.25
Detroit	64,539	47,855	-25.85	508	244	-51.97	-26.06
Washington, DC	166,972	147,430	-11.70	69,726	148,016	112.28	24.82
Dallas	48,952	44,445	-9.21	180	179	-0.56	-9.18
Houston	42,759	64,197	50.14	144	361	150.69	50.47
Miami	54,473	53,794	-1.25	385	8,420	2,087.01	13.41
Atlanta	63,826	52,471	-17.79	6,431	15,487	140.82	-3.27
Cleveland	87,624	52,330	-40.28	5,686	3,481	-38.78	-40.19
Seattle	79,201	80,548	1.70	141	233	65.25	1.81
San Diego	27,308	38,860	42.30	229	516	125.33	42.99
Minneapolis	89,463	67,864	-24.14	*	*		-24.14
St. Louis	56,026	32,318	-42.32	*	*		-42.32
Baltimore	94,043	74,587	-20.69	2,425	13,462	455.13	-8.73
Pittsburgh	103,984	73,322	-29.49	942	1,919	103.72	-28.29
Phoenix	12,870	19,962	55.10	*	*		55.10
Tampa	10,232	11,941	16.70	118	189	60.17	17.20
Denver	48,785	40,163	-17.67	85	159	87.06	-17.49
Cincinnati	37,433	28,818	-23.01	*	*		-23.01
Milwaukee	50,291	36,996	-26.44	205	235	14.63	-26.27
Kansas City	24,557	15,606	-36.45	*	*		-36.45
Sacramento	15,795	14,519	-8.08	57	1,631	2,761.40	1.88
Portland	48,531	37,796	-22.12	43	1,041	2,320.93	-20.05
Norfolk	23,267	14,187	-39.03	141	182	29.08	-38.62
Columbus	22,181	17,925	-19.19	*	*		-19.19
San Antonio	20,271	20,528	1.27	*	*		1.27
Indianapolis	16,084	12,201	-24.14	*	*		-24.14
New Orleans	51,539	35,282	-31.54	*	*		-31.54
Buffalo	31,478	21,547	-31.55	64	2,086	3,159.38	-25.07
Charlotte	11,197	10,251	-8.45	*	*		-8.45
Orlando	5,184	7,929	52.95	*	*		52.95
Salt Lake City	18,578	14,077	-24.23	*	*		-24.23
Rochester	2,721	14,977	450.42	*	*		450.42
Total	**2,985,799**	**2,784,323**	**-6.75**	**1,954,887**	**2,170,267**	**11.02**	**0.28**

* *The means of transportation data for some areas may show workers using modes of public transportation not available in those areas. This result is largely due to persons who worked during the reference week at a location that was different from their usual workplace.*

** *Transit is the sum of Bus and Subway/Rail, this does not include all forms of public transportation.*

Between 1980 and 1990, twenty-six of the thirty-nine metropolitan areas showed declines in the number of bus commuters (Table 5-9A and Figure 5-3). Of the thirty-three metropolitan areas shown in Table 5-6, all except for Houston showed declines in the share of bus commuters between 1980 and 1990. Cleveland, St. Louis, Kansas City, and Norfolk each lost over 35% in the number of bus commuters. However, some metropolitan areas did experience increases in numbers of workers using the bus. For example, Houston, San Diego, Phoenix, and Orlando each gained 40% or better. Figure 5-4 shows the trends over thirty years.

Figure 5-5 shows rail and subway commuting trends between 1960 and 1990. Trends between 1980 and 1990 are shown in Table 5-9A. Over the last thirty years, major new rail systems have been established in Atlanta (MARTA), San Francisco (BART), and Washington, D.C. (Metro). Smaller systems, mostly light rail, have been established in Sacramento, Miami, Baltimore, Portland, and Buffalo. These new services reflect 2,000 to 11,000 percent increases in workers using rail/subway for their journey to work in the first decade of operation, because the initial number was close to zero.

For older rail systems, such as New York, Chicago, Philadelphia and Boston, the number of rail/subway commuters has declined over the last thirty years. New York posted a gain in the number of rail/subway commuters between 1980 and 1990, after significant losses between 1970 and 1980. Chicago, on the other hand, posted a small increase between 1970 and 1980, and then posted a small (-4%) loss between 1980 and 1990.

In the U.S. as a whole, rail and subway commuters accounted for about 2% of all workers in 1990, compared to around 4% at the large metropolitan area level. Between 1980 and 1990, there is wide variation in the change in rail/subway commuters, reflecting the introduction of new service or facilities in areas such as Miami, Sacramento, Portland, and Buffalo. Despite these gains, rail/subway commuters remained one percent or less in these four areas.

Only in the New York metropolitan area does rail/subway make up a large proportion of commuters (20.9% in 1980 and 18.8% in 1990). Despite the drop in share between 1980 and 1990, the number of rail/subway commuters increased from 1.4 million in 1980 to 1.5 million in 1990. These 1.5 million workers in the New York metropolitan area represent nearly 65% of the rail/subway commuters nationwide.

In 1990, Washington, D.C. became the nation's third largest metropolitan area market in terms of number of rail/subway commuters. New York is the largest, followed by Chicago. Historically, Philadelphia has been third.

Working at Home. In contrast to carpooling and public transit, the share of commuters who worked at home increased nationally from 2.3% in 1980 to 3.0% in 1990. The pattern may reflect factors such as 'telecommuting', and the rise of service oriented jobs, both of which are consistent with working at home.

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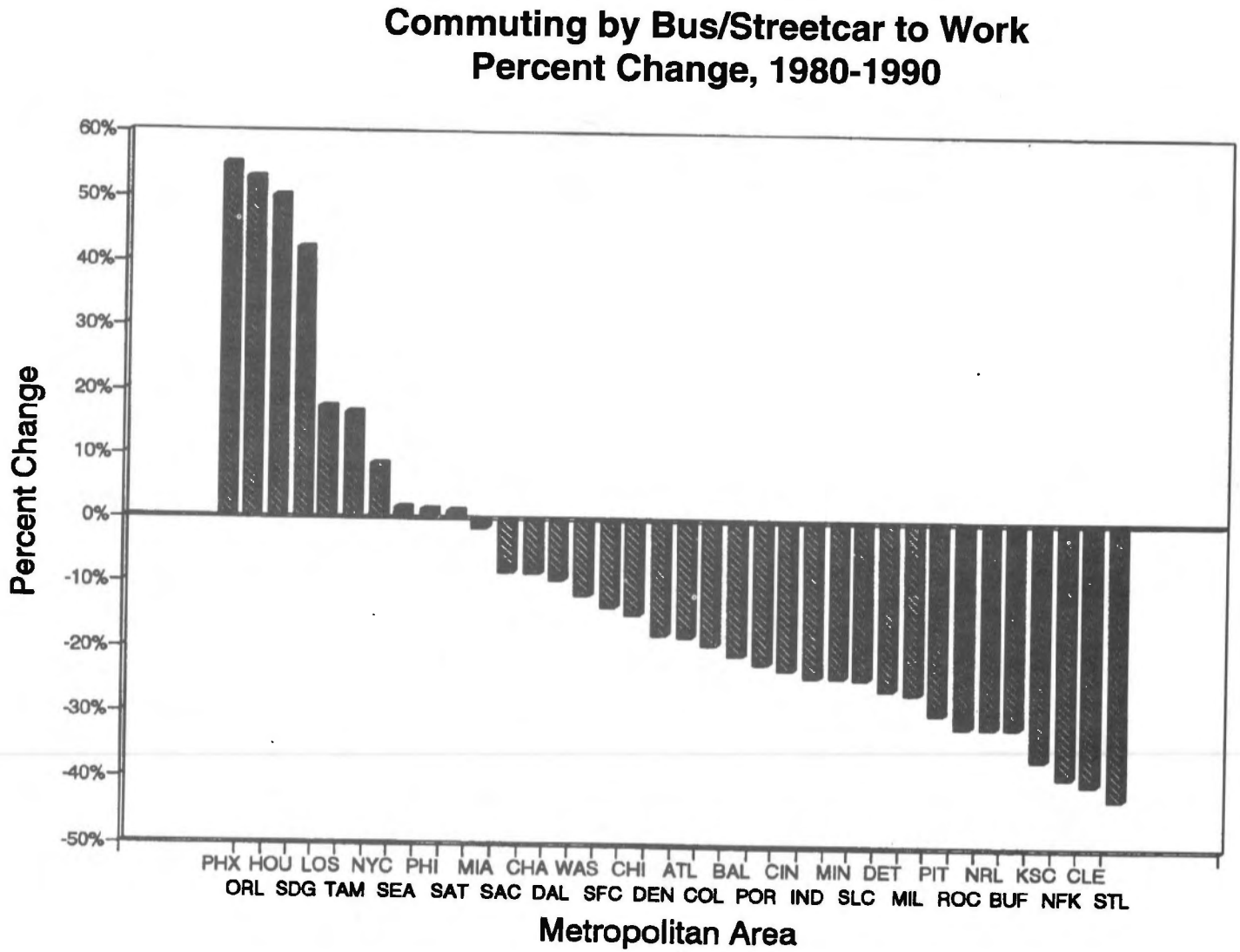


Figure 5-3. Commuting by Bus/Streetcar to Work — Percent Change 1980-1990

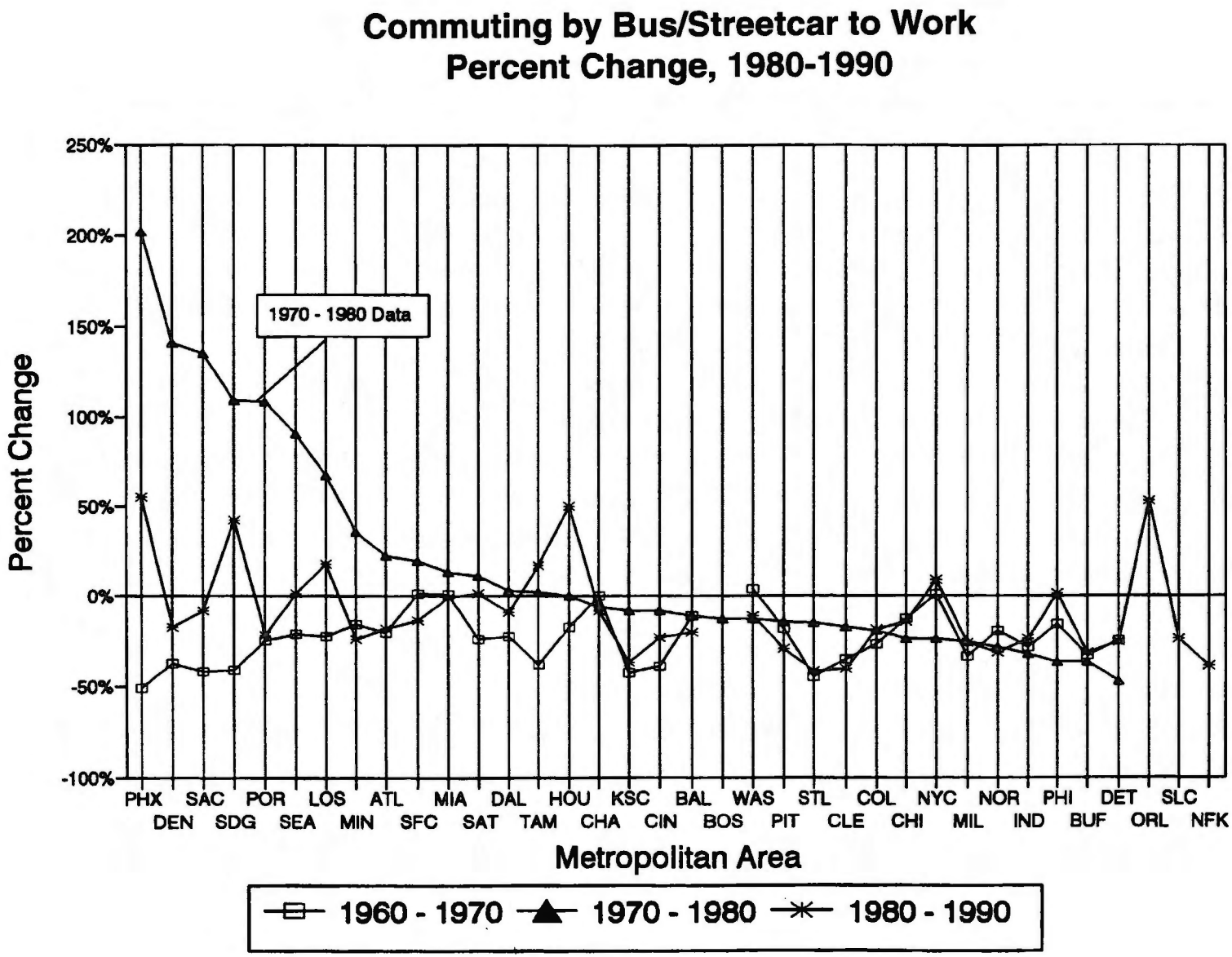
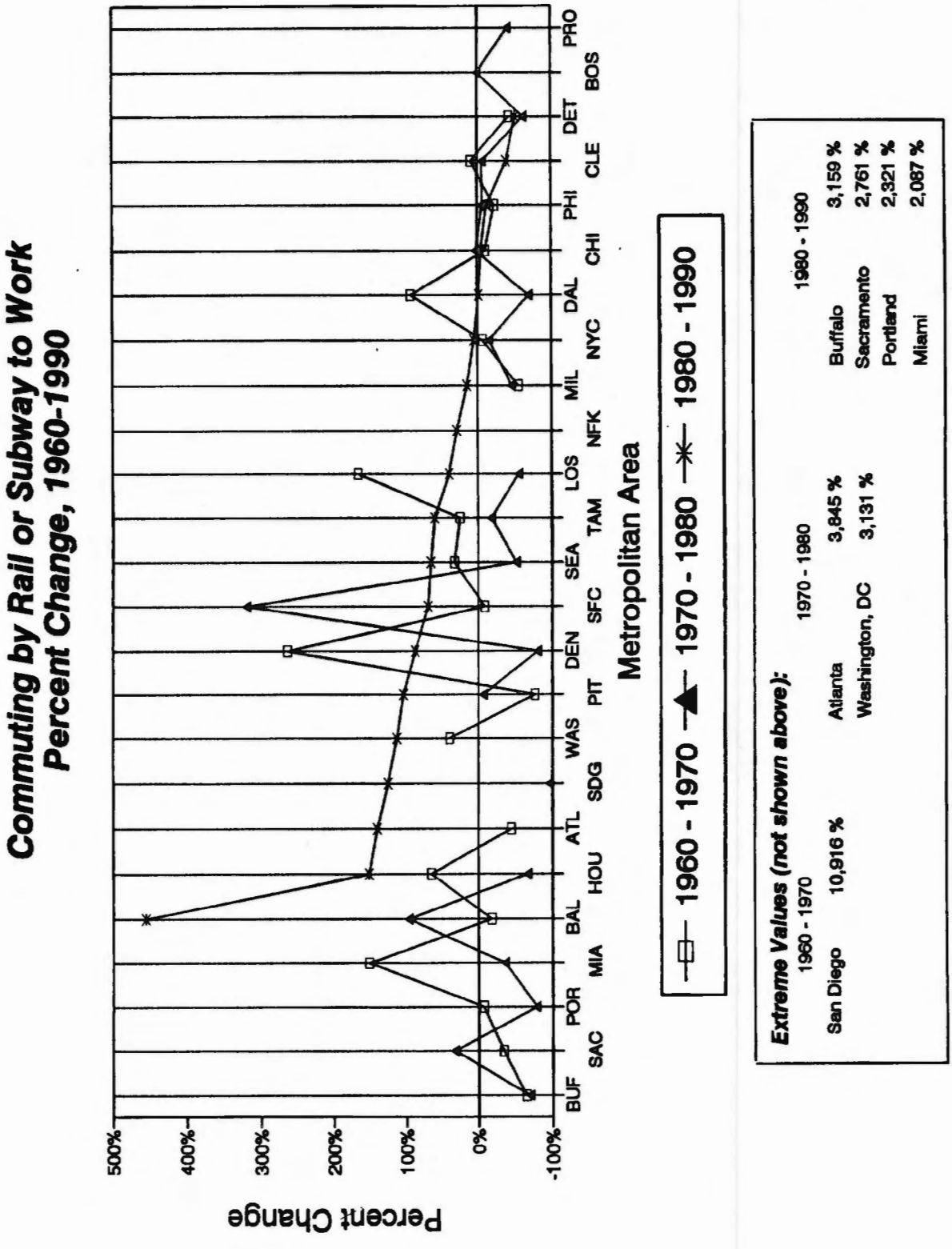


Figure 5-4. Commuting by Bus/Streetcar to Work — Percent Change 1960-1990

Figure 5-5. Commuting by Rail or Subway to Work — Percent Change, 1960-1990



There were more people working at home in 1960 than in 1990, but in the last decade, the number of people working at home increased over 56% nationwide. Figure 5-6 traces the percent change in work at home against the total number of such workers in the thirty-nine metropolitan areas in 1980 and 1990. The percentage of workers who work at home are small, but growing in every metropolitan area.

Bicycling and Walking to Work. In the U.S., bicycling formed a less than one half percent share of all work trips in 1990 (Figure 5-7). Walking, on the other hand, claimed approximately 4% of the journeys, somewhat lower than the 5.6% nationally in 1980. Overall, New York, Boston, Philadelphia, and San Diego topped the list in combined proportion of work trips by walking and bicycling, with better than 5% shares. Of those who bicycle, however, the highest shares were in Sacramento, Phoenix, and San Francisco.

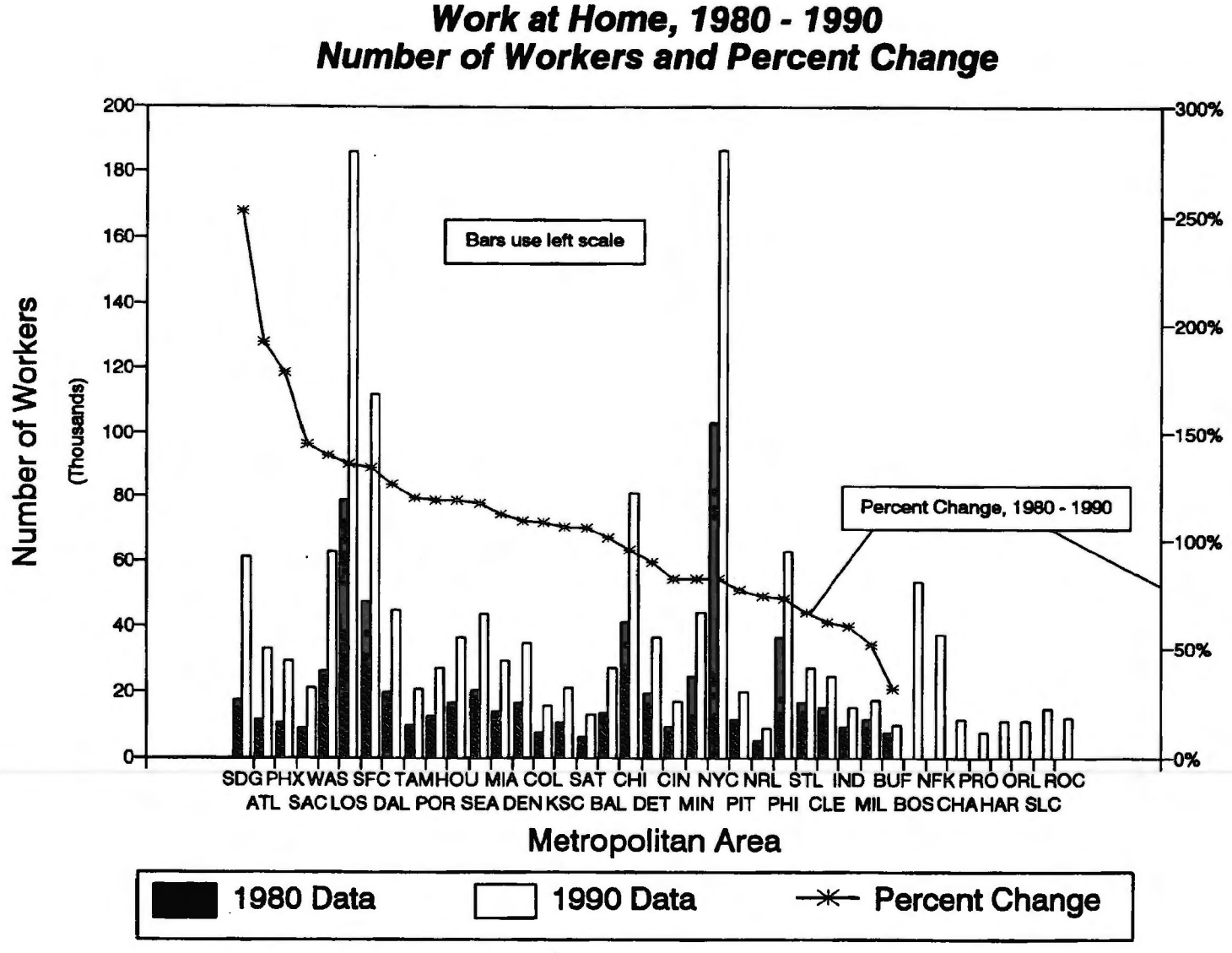


Figure 5-6. Work at Home, 1980-1990 — Number of Workers and Percent Change

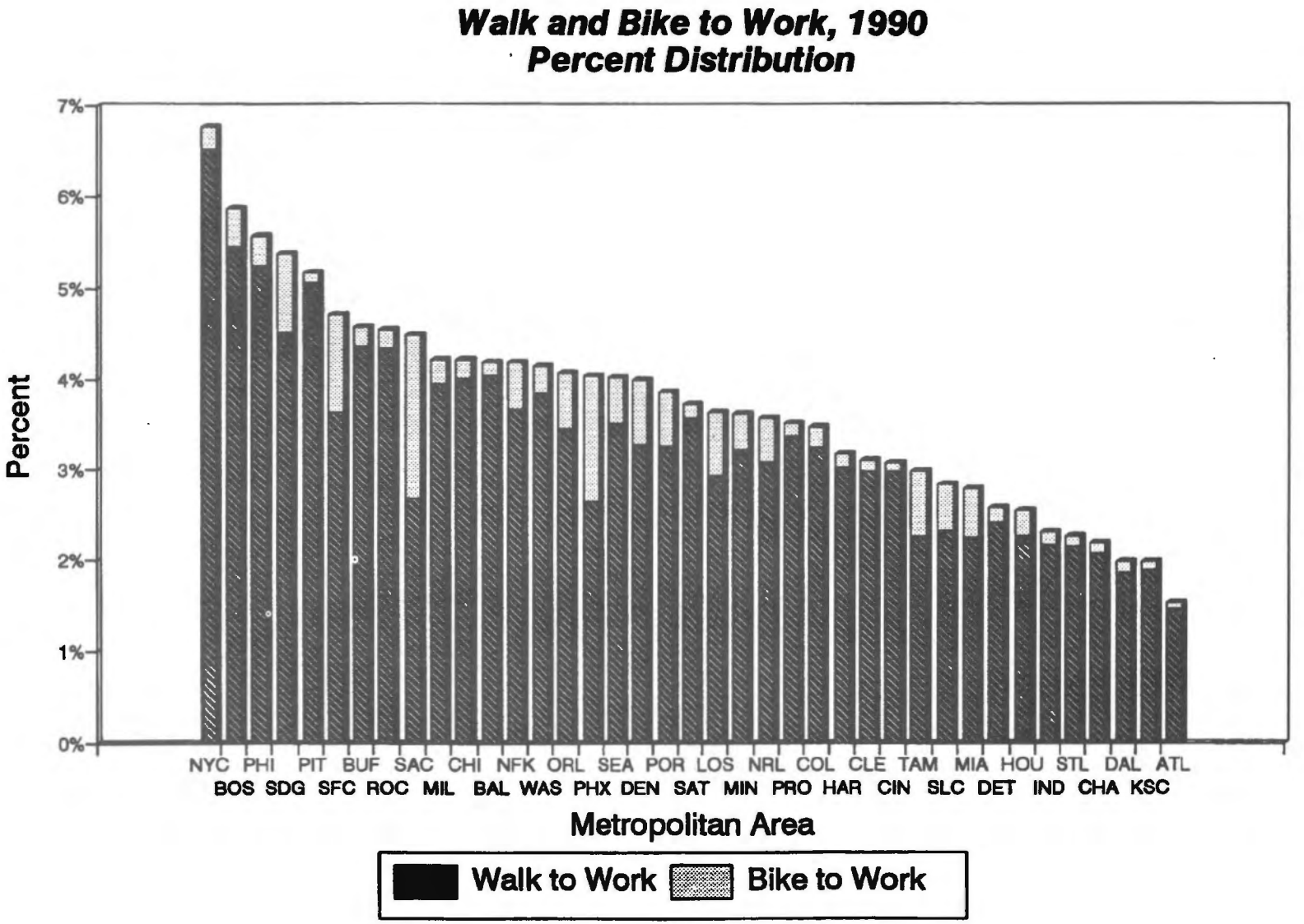


Figure 5-7. Walk and Bike to Work, 1990 — Percent Distribution

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Chapter 6

VEHICLE OWNERSHIP AND AVAILABILITY

This chapter examines issues concerning household vehicle availability. Included are overall vehicle volumes and growth rates, incidence and shares of multi-vehicle households, and trends in households without vehicles.

Trends in Household Vehicle Ownership

In 1990, there were over 152 million vehicles in U.S. households, an increase of 17.4% from 1980 and 178% from 1960. While the total number of vehicles continued to grow, the growth in the 1980's was much smaller than the dramatic growth of the 1970's. During the 1980's, the total number of household vehicles increased slightly faster than household formations, but not quite as rapidly as the number of workers. Thus, the growth in vehicles per household exceeded 3% nationally, while vehicles per worker fell by 1.5%. Nationwide, vehicles per household in 1990 stood at 1.66, compared to 1.03 vehicles per household in 1960. Vehicles per worker equaled 1.32 in 1990, compared to 0.85 in 1960.

In 1990, the Census Bureau collected household vehicle data in eight categories, from zero vehicle households up to seven or more vehicle households. Table 6-1 displays households by vehicle availability for the metropolitan areas for 1980 and 1990. The total number of zero vehicle and one vehicle households remained virtually unchanged from 1960 to 1990. The number of households with no vehicles was about 11 million in 1960 and 10 million in 1990. Similarly, there were just over 30 million households with one vehicle in 1960 and again in 1990. In the last thirty years, households with multiple vehicles have become the norm.

In the large metropolitan areas, percent changes in total household vehicles varied widely in the 1980's (Figure 6-1). Some of the fastest growing areas were Orlando, Atlanta, and Cincinnati. Even in the older, industrial areas of the Northeast and Midwest where there were declines in population, the number of vehicles continued to increase. For example, Pittsburgh, with a 7.5% decline in population, had a 5% increase in vehicles.

The analysis of total vehicles and changing relative household shares is useful in understanding such patterns as urban congestion, local economic conditions, and mode choice decisions. Figure 6-2, for instance, examines vehicles per square mile, and assesses vehicle densities across the thirty-nine metropolitan areas. The New York metropolitan area is clearly the most dense, having over 900 household vehicles per square mile of land, while Salt Lake City and Rochester are among the least dense, with approximately 100 vehicles per square mile.

A closer examination of vehicle growth may be seen in Table 6-2 and 6-2A, where central county and suburban county rates are listed separately for four household classifications. In the 1960-1980 period (Table 6-2), higher suburban vehicle growth rates paralleled the patterns of population and worker growth which occurred in suburban areas during the '60s and '70s.

Table 6-1. Households by Vehicle Availability, 1980-1990

Area	0 Vehicle Households		1 Vehicle Households		2 Vehicle Households		3+ Vehicles Households	
	1980	1990	1980	1990	1980	1990	1980	1990
New York City	2,069,662	1,981,582	2,096,108	1,997,100	1,434,177	1,583,468	523,569	703,714
Los Angeles	425,594	436,773	1,521,737	1,649,594	1,355,443	1,835,083	828,323	979,270
Chicago	525,908	481,943	1,077,418	1,030,125	863,791	1,008,472	299,727	387,523
San Francisco	246,591	241,975	730,311	754,819	666,773	853,276	398,667	479,738
Philadelphia	370,636	364,856	741,099	749,712	622,080	751,861	236,259	287,675
Detroit	191,584	209,583	579,999	564,951	594,728	647,561	278,766	301,383
Boston		228,010		547,476		555,154		216,472
Washington, DC	158,287	173,181	436,679	483,983	392,591	536,559	178,709	265,635
Dallas	69,608	92,322	354,042	507,132	394,760	603,651	241,717	246,767
Houston	78,551	110,538	387,176	493,520	406,177	535,013	224,449	192,774
Miami	151,722	165,276	450,209	490,145	309,337	412,991	116,079	152,385
Atlanta	83,967	93,785	243,896	315,708	276,883	421,485	158,341	225,449
Cleveland	127,146	131,506	376,615	362,038	362,831	389,154	152,692	174,955
Seattle	77,386	79,250	261,937	315,429	271,055	389,209	181,816	218,269
San Diego	62,055	70,337	244,886	302,648	221,374	343,476	141,779	170,942
Minneapolis	82,959	85,569	270,877	293,920	279,351	387,530	136,692	168,497
St. Louis	104,163	100,461	301,454	310,880	308,807	361,693	130,390	151,699
Baltimore	138,577	144,015	271,570	278,081	252,211	316,701	103,472	141,348
Pittsburgh	155,368	147,511	357,977	335,520	275,963	303,017	95,762	105,875
Phoenix	32,478	57,626	206,700	317,181	186,887	315,529	118,694	117,224
Tampa	72,861	79,324	312,043	385,903	194,292	303,924	77,455	100,330
Denver	48,634	57,233	201,311	245,580	214,761	287,240	143,696	147,753
Cincinnati	70,481	76,103	173,345	207,169	175,625	251,164	79,237	118,484
Milwaukee	79,308	80,636	212,603	203,803	194,731	226,481	73,460	90,538
Kansas City	52,503	51,898	180,058	199,107	196,989	245,587	99,462	105,755
Sacramento	34,709	42,533	143,422	181,569	141,501	219,222	96,714	113,124
Portland	56,456	50,631	191,409	185,656	192,374	227,485	125,215	111,759
Norfolk	45,778	48,855	142,764	165,749	140,124	197,504	57,263	81,428
Columbus	44,480	46,597	163,136	175,970	167,510	210,210	74,141	91,758
San Antonio	35,548	45,213	124,931	165,519	120,873	170,396	64,978	69,893
Indianapolis	39,976	42,458	146,706	162,305	158,767	191,388	73,036	83,859
New Orleans	81,920	82,804	164,862	169,781	139,010	153,461	53,406	49,132
Buffalo	74,707	75,282	187,121	171,729	136,917	156,952	46,730	57,840
Charlotte	33,321	38,132	109,273	133,933	131,169	174,108	68,581	94,497
Providence		49,083		149,590		160,487		70,620
Hartford		43,139		128,104		164,362		75,955
Orlando	20,326	26,658	98,766	144,027	91,548	167,488	42,003	63,486
Salt Lake City	19,315	21,096	88,160	102,370	104,304	146,243	77,600	77,822
Rochester	41,085	41,841	136,157	127,101	119,993	146,020	44,960	59,513
Total	**6,003,650**	**6,395,615**	**13,686,757**	**15,504,927**	**12,095,707**	**16,350,605**	**5,843,840**	**7,351,140**

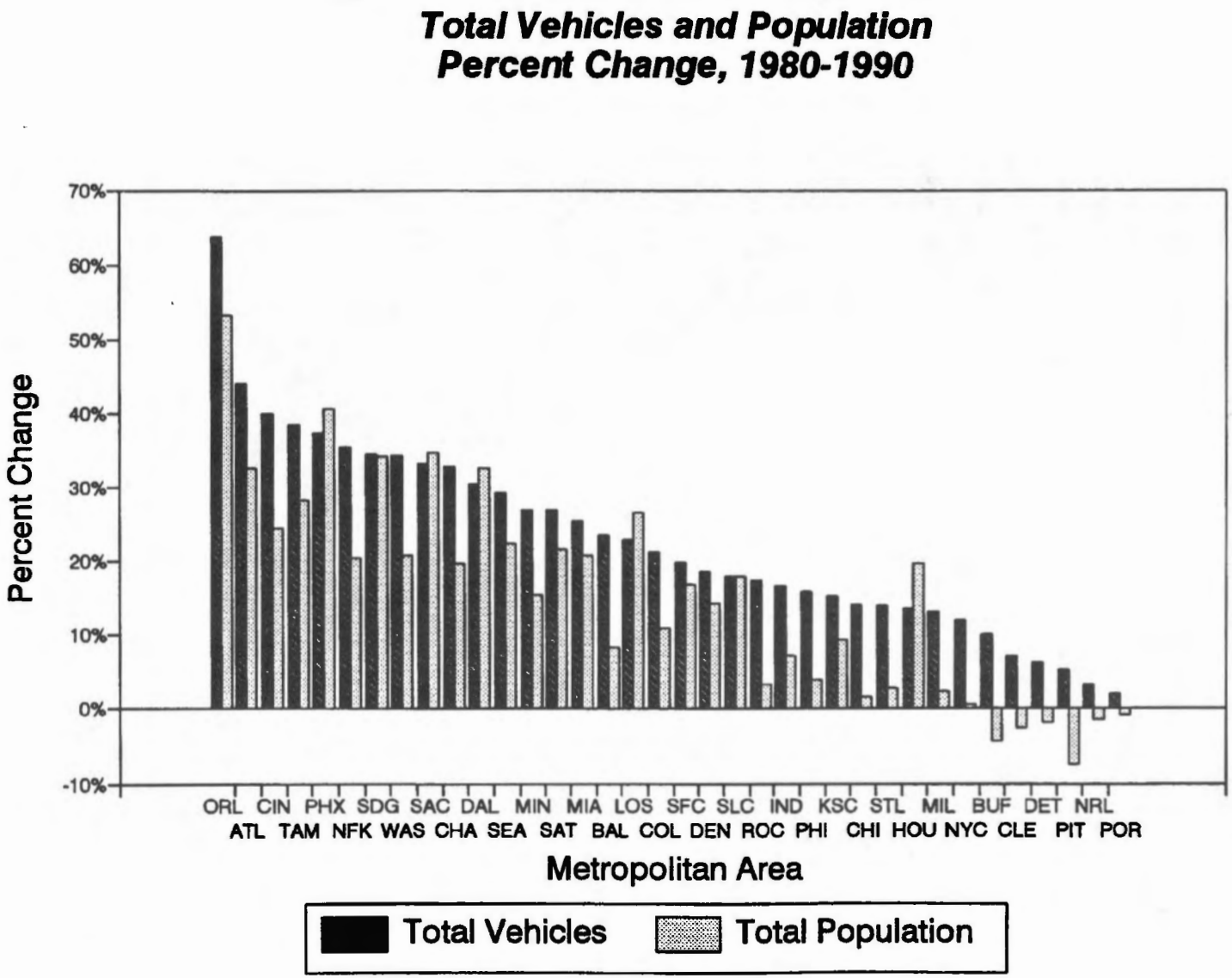


Figure 6-1. Total Vehicles and Population — Percent Change, 1980-1990

Figure 6-2. Vehicles Per Square Mile, 1990

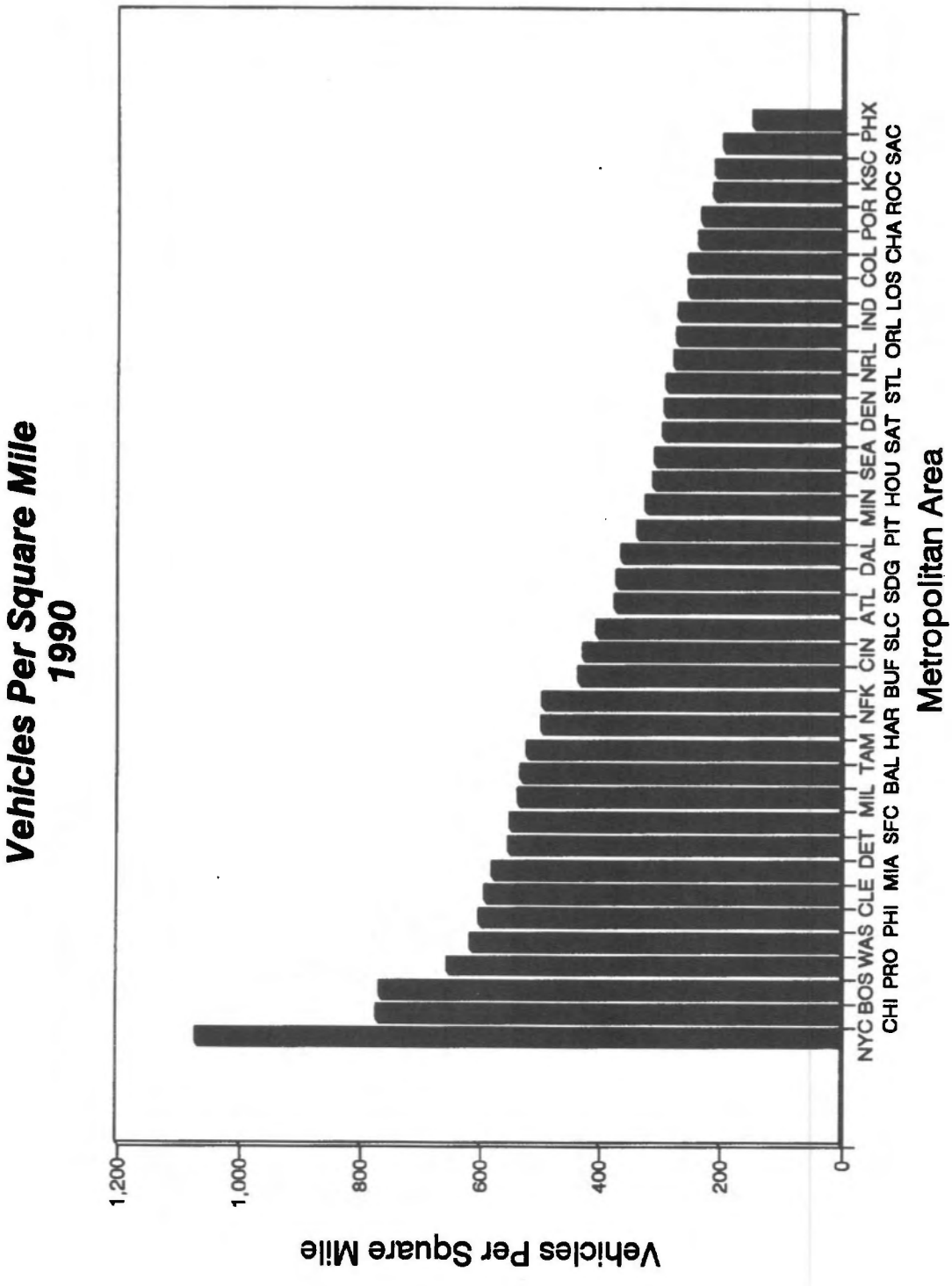


Table 6-2. Households by Vehicle Availability, Percent Change 1960-1980

Area	Central County				Surburban Counties			
	0 VEH	1 VEH	2 VEH	3+ VEH	0 VEH	1 VEH	2 VEH	3+ VEH
New York City	1.23	2.03	32.20	-71.79	10.80	-12.33	141.06	497.80
Los Angeles	3.30	1.35	52.85	488.24	61.80	69.57	224.23	1,477.34
Chicago	-7.23	-12.59	165.31	473.61	-8.62	-3.21	245.60	1,004.69
San Francisco	-15.78	-6.99	90.25	218.91	26.06	18.63	134.09	996.16
Philadelphia	-11.84	-13.08	131.81	330.67	4.79	-7.91	163.38	718.26
Detroit	-11.77	-29.70	69.42	476.16	35.16	2.11	176.35	1,110.66
Washington, DC	-19.79	-0.76	105.19	145.10	82.24	36.04	254.78	1,345.22
Dallas	0.53	37.54	145.69	1,100.38	-26.81	8.43	215.47	1,721.86
Houston	4.89	65.15	118.96	1,416.23	-11.15	34.60	973.94	2,629.71
Miami	70.02	46.70	173.62	848.66	284.49	195.41	383.50	1,335.03
Atlanta	6.14	9.57	88.11	524.43	15.73	57.64	322.87	2,333.71
Cleveland	-10.87	-19.77	87.06	410.76	-7.30	-20.38	146.80	912.25
Seattle	-6.96	1.84	131.24	984.40	-6.67	11.73	191.39	1,392.44
San Diego	49.25	40.53	184.03	1,140.19				
Minneapolis	5.04	-9.89	136.68	619.33	4.55	-1.28	254.18	1,364.87
St. Louis	-43.01	-40.40	106.05	208.66	-1.33	-14.79	219.36	1,448.38
Baltimore	-4.68	-18.13	103.79	325.57	25.89	9.10	274.69	1,114.54
Pittsburgh	-10.72	-21.00	140.30	567.16	-19.84	-24.52	201.33	898.48
Phoenix	44.94	89.76	263.49	1,331.43				
Tampa	13.87	36.41	194.65	870.36	69.86	114.42	301.34	1,220.73
Denver	-9.66	5.45	58.09	374.77	83.81	81.27	250.42	1,332.86
Cincinnati	-24.21	-16.47	138.24	529.29	-13.08	-21.35	205.87	1,440.09
Milwaukee	-8.53	-18.99	149.80	453.22	2.69	-12.01	231.52	1,053.14
Kansas City	-33.53	-23.84	131.84	765.65	-10.77	-7.93	178.41	1,613.82
Sacramento	37.00	35.38	131.24	752.04	50.52	37.80	158.20	836.30
Portland	2.72	-8.63	84.23	691.42	38.96	45.90	239.36	1,772.17
Columbus	4.58	5.62	174.41	791.39	-22.50	-22.95	204.13	1,141.16
San Antonio	-4.05	14.04	178.81	1,092.42	-14.43	0.45	233.70	2,908.73
Indianapolis	-18.62	-9.11	132.81	712.72	-15.06	-28.48	233.79	2,054.61
New Orleans	-15.29	-7.66	122.16	364.52	20.36	82.00	379.79	1,753.51
Buffalo	-7.77	-23.02	66.94	640.06	-6.11	-30.81	564.45	622.66

Table 6-2A. Households by Vehicle Availability, Percent Change 1980-1990

Area	Central County				Surburban Counties			
	0 VEH	1 VEH	2 VEH	3+ VEH	0 VEH	1 VEH	2 VEH	3+ VEH
New York City	-1.44	12.18	40.11	82.85	-5.31	-5.83	10.23	34.30
Los Angeles	-3.75	1.14	23.86	12.14	30.58	24.88	54.35	26.79
Chicago	-10.76	-6.06	11.97	26.47	11.42	-0.13	22.97	32.06
San Francisco	-9.33	0.11	24.12	22.03	3.52	4.04	28.30	20.26
Philadelphia	-3.59	-5.18	4.47	2.94	2.09	4.54	24.06	23.72
Detroit	5.20	-11.69	-4.27	-3.43	23.79	8.23	18.66	15.32
Washington, DC	-2.38	-5.49	7.17	20.26	27.41	16.28	39.86	50.32
Dallas	30.36	27.42	31.10	-9.75	36.48	66.52	76.88	13.11
Houston	41.60	23.29	25.72	-16.50	36.74	48.69	53.11	-7.53
Miami	-0.31	3.71	26.87	36.25	34.27	15.24	42.87	23.97
Atlanta	-3.25	6.42	28.77	38.53	35.44	41.88	58.90	43.17
Cleveland	47.22	-6.60	4.10	11.13	-41.48	0.26	10.35	16.97
Seattle	-0.68	19.22	40.91	17.42	10.37	22.61	47.80	23.76
San Diego	13.35	23.59	55.16	20.57				
Minneapolis	-2.05	4.98	14.99	15.55	11.33	12.07	63.45	28.32
St. Louis	-13.53	-9.50	4.93	1.44	7.85	7.55	18.65	17.57
Baltimore	-1.44	-7.90	7.13	13.60	22.56	9.45	30.20	39.84
Pittsburgh	-6.34	-7.10	11.19	14.07	-1.75	-4.84	8.05	7.08
Phoenix	77.43	53.45	68.83	-1.24				
Tampa	12.53	31.79	54.93	23.82	6.94	20.12	57.52	34.48
Denver	0.49	0.65	5.36	-15.64	56.20	38.87	44.71	7.53
Cincinnati	-2.07	-1.07	11.17	16.43	39.58	64.28	92.65	88.84
Milwaukee	1.27	-6.65	13.52	13.16	4.15	2.65	19.68	31.70
Kansas City	-8.57	2.95	14.38	-1.69	13.59	18.23	31.66	11.14
Sacramento	21.92	26.44	50.67	13.80	24.80	27.08	65.83	22.88
Portland	-12.97	-1.24	25.34	-5.73	-4.79	-4.62	14.41	-12.76
Norfolk	-11.46	-1.84	15.47	9.09	18.41	22.59	46.17	47.70
Columbus	4.19	9.33	28.01	22.75	7.50	3.09	19.89	25.36
San Antonio	25.60	31.02	39.24	0.81	59.82	52.64	58.37	96.64
Indianapolis	5.85	10.46	18.60	5.39	8.11	11.18	23.85	26.28
New Orleans	-8.33	-10.37	-6.02	-10.98	36.31	16.64	18.33	-7.03
Buffalo	-0.50	-9.05	15.11	25.90	8.81	-4.35	12.69	16.30
Charlotte	21.50	32.78	42.62	37.49	8.84	13.81	25.31	37.97
Orlando	25.48	37.31	75.32	35.82	47.70	65.07	97.09	80.86
Salt Lake City	9.50	17.35	38.85	-2.44	8.31	12.86	43.14	5.73
Rochester	1.56	-7.75	19.95	33.07	3.21	-3.36	26.10	30.95

Average Number of Vehicles Per Household. Nationally, the average number of vehicles per household increased from 1.03 vehicles in 1960 to 1.66 vehicles in 1990. The trend for the metropolitan areas was slightly lower than nationally, from 1.00 vehicles in 1960 to 1.59 vehicles in 1990. This dramatic increase occurred simultaneously with a decline in average household size; thus, vehicle availability per person has virtually doubled in the last thirty years (Table 2-2).

In 1990, for the thirty-nine metropolitan areas, the average number of vehicles per household ranged from a low of 1.20 vehicles in New York, to 1.88 vehicles in Salt Lake City (Table 3-6). Twenty-three of the thirty-nine metropolitan areas fall in the range of 1.60 to 1.79 vehicles per household. The metropolitan areas with the highest average number of vehicles were, after Salt Lake City, Seattle (1.81), Atlanta (1.80), and Charlotte (1.80). The New York metropolitan area had the greatest proportion (31.6%) of households without any vehicle, contributing very strongly to the low average.

Zero Vehicle Households. Between 1960 and 1980 the absolute number of zero vehicle households declined by one million, then showed a modest increase between 1980 and 1990 for an overall 7% decline. As a share of total households, however, this group declined from 21.5% of households in 1960 to 11.5% in 1990. Within the thirty-nine metropolitan areas, the corresponding share was higher at 14%. The New York metropolitan area in 1990 had 6.9% of the U.S. population and 18% of all households with zero vehicles.

From 1980-1990, seventeen central counties had declines in zero vehicle households. The highest increases in central county households with zero vehicles were concentrated in places like Miami, San Diego, and Phoenix, that had large influxes of immigrants, large retirement populations, or both. This trend seems even more apparent in the suburban counties of these sunbelt metropolitan areas. Figure 6-3 depicts, in graph form, the data for zero vehicle households presented in Table 6-2A.

One Vehicle Households. From 1960 to 1990, households with only one vehicle available grew by less than 3%, but like zero vehicle households, the relative share of such households fell by 41%. While in 1960 over half of all households (56.9%) had one vehicle, by 1990 only 34% of households were in this category.

In large metropolitan areas, the central/suburban county split for one vehicle households displays a wide range of values. From 1960-1980, percent changes in central counties ranged from a low of -40% to a high of 90%. In the 1980's, the numbers began to stabilize, ranging from -10% to 53%. The suburban county households with one vehicle displayed an equally erratic set of percent changes in the years from 1960-1980, ranging from -31% to 195%. Like the central county, this also began to stabilize in the 1980's, with a range of -6% to 66%.

Two Vehicle Households. Two vehicle households displayed the strongest and most consistent growth rates among the four categories, rising over 25% nationwide from 1980-1990. The share of households with two vehicles increased from 19% in 1960 to 37% in 1990.

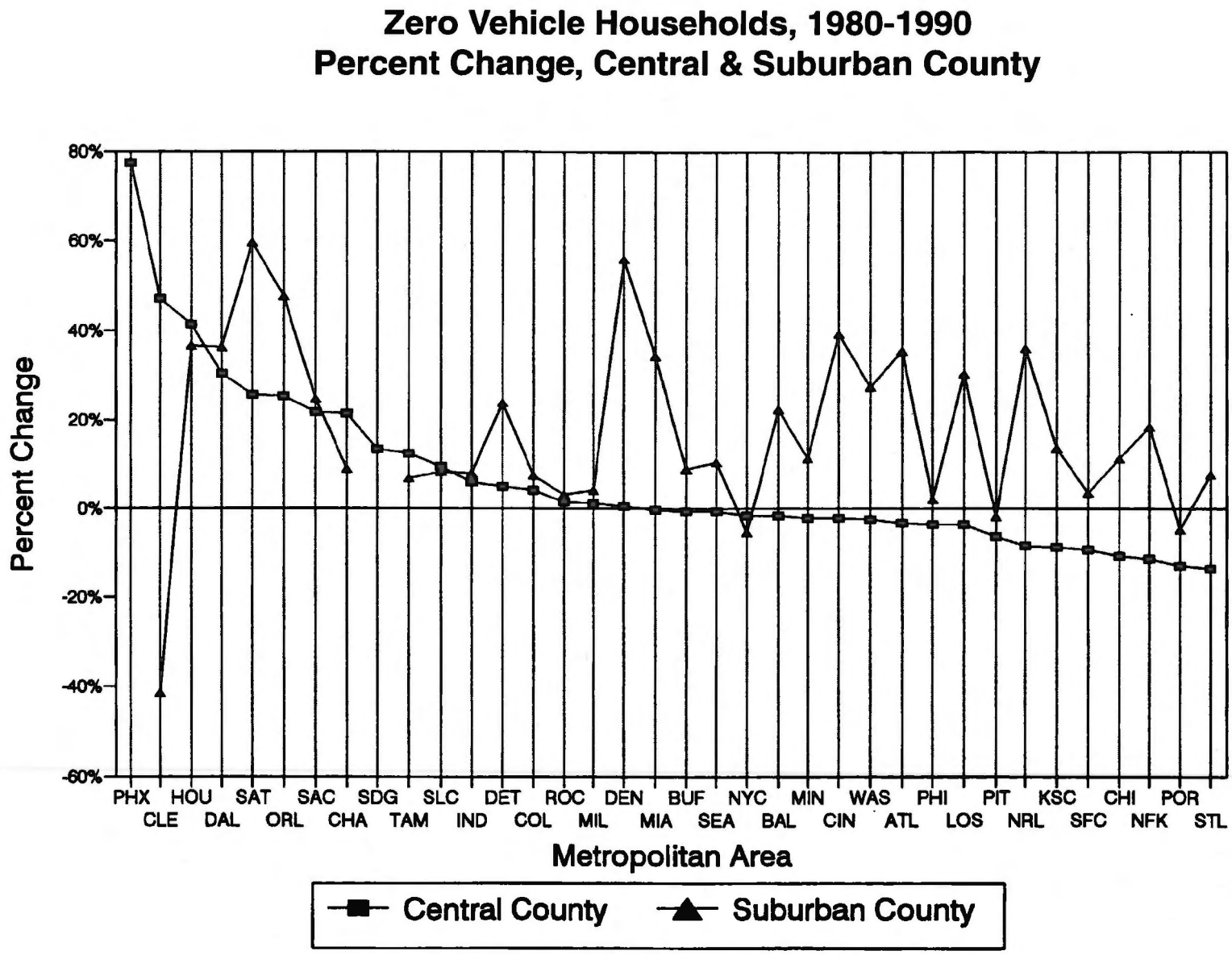


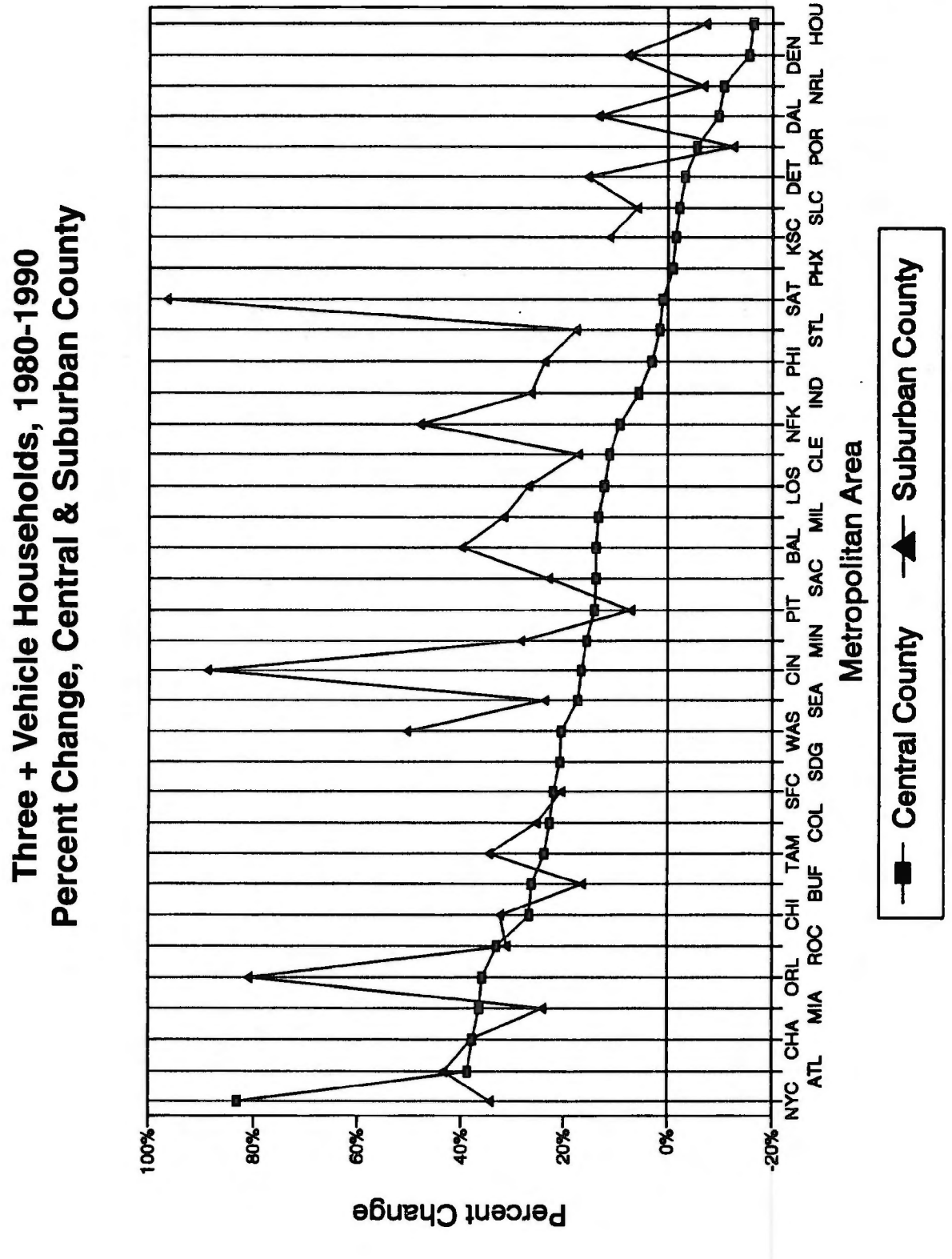
Figure 6-3. Zero Vehicle Households, 1980-1990 — Percent Change, Central and Suburban County

Both central county and suburban county rates of growth have been robust for households with two vehicles. In the 1960-1980 period, central counties of twenty-two metropolitan areas had increases over 100% for two-vehicle households, while suburban counties in six metropolitan areas grew over 300% in the same period. Although the 1980's saw more moderate increases (and decreases in Detroit and New Orleans), both central and suburban counties continued to post gains in the number of households with two vehicles.

Three or More Vehicle Households. Nationwide, from 1960-1990, households with three or more vehicles soared from only 2.5% in 1960, to 17.5% in 1980 and 17.3% in 1990. The number of households with three or more vehicles increased from 1.3 million in 1960 to nearly 16 million in 1990. By 1990, many households with three or more vehicles had fewer drivers than vehicles (e.g., three vehicles for two adult drivers).

In central and suburban counties, growth rates in households with three or more vehicles was extremely strong in the 1960's and 1970's, but weakened in the 1980's. Figure 6-4 illustrates contrasting growth rates for the 1980-1990 period for households with three or more vehicles. The highest rates appear to be associated with those metropolitan areas that fared well economically during the 1980's. By comparison, the lowest rates of growth were concentrated in those sunbelt states and metropolitan areas hit hard by energy-related unemployment. This suggests that the acquisition of a third or more household vehicle is often discretionary and is not required by household journey-to-work circumstances.

Figure 6-4. Three + Vehicle Households, 1980-1990 — Percent Change, Central and Suburban County



Chapter 7

SELECTED CHANGES BASED ON 1992 GEOGRAPHIC REDEFINITION

The latest publicly available data for the Journey-To-Work components of national transportation statistics are from the 1990 Decennial Census. On December 31, 1992 the Office of Management and Budget (OMB) redefined Metropolitan Areas for use in Federal Statistical activities.[1] These updates are based on population estimates derived from special census population counts. This chapter illustrates, through selected data series, how the new geographic boundaries affect population, worker, and vehicle characteristics described in earlier chapters of the report. Readers should note that none of these revisions are reflected in the metropolitan area maps located in the Profiles section of this report, nor in any of the data tabulations provided.

Geographic Boundary Changes

In 1990, thirty-nine metropolitan areas had populations of at least one million. Eleven of these areas remained unchanged in the OMB revision process. As a result of the new revisions, twenty metropolitan areas showed absolute growth in population from the inclusion of additional counties. Only the Columbus MSA incurred an absolute loss in population from the deletion of a county. Other metropolitan areas had combinations of counties added and subtracted. Within this group, Atlanta displayed a net gain in population, while Philadelphia experienced a net loss. Finally, the Washington MSA and Baltimore MSA have now been combined to form one Consolidated Metropolitan Statistical Area, incorporating parts of three states and the District of Columbia. The complete list of metropolitan area changes is summarized in Table 7-1.

Changes in Total Areawide Population and Population Density. Table 7-2 compares the post-revision population changes in the thirty-nine metropolitan areas. Of those metropolitan areas that lost population, the changes were quite minor, with Columbus dropping 2.3% and Philadelphia about one tenth of a percent. Six metropolitan areas jumped over 10% in population as a direct result of the revision process. In Cincinnati and Portland the change represented an increase of greater than 20%. Cincinnati is an interesting case. Although it is an older, northern city, it displayed some growth patterns normally associated with Sunbelt locations. As such, it is a fine example of a metropolitan area that has successfully managed the conversion from an industrial to a services-driven economy.

Population density was substantially more affected as a result of the revisions. Twenty-three metropolitan areas experienced declines in density as newer, larger, and presumably less populated counties were added to their boundaries (Table 7-3). In Phoenix, for example, density declined by

[1] OMB Bulletin No. 93-05, "Revised Statistical Definitions for Metropolitan Areas," (Executive Office of the President, Office of Management and Budget, December 28, 1992).

Table 7.1 Changes in Metropolitan Areas as a Result of the 1992 OMB Revision[2]

Areas that did not change:

Los Angeles
San Francisco
Miami
San Diego
Tampa
Denver
Milwaukee
Sacramento
Buffalo
Charlotte
Salt Lake City

County changes:

New York City
Dutchess, NY (added)
Pike, PA (added)
Mercer, NJ (transferred to PHI)
Warren, NJ (added)

Chicago
DeKalb, IL (added)
Kankakee, IL (added)

Philadelphia
Atlantic NJ (added)
Cape May, NJ (added)
Mercer, NJ (transferred to NYC)

Detroit
Genesee (added)
Lenawee (added)

Dallas
Henderson (added)
Hood (added)
Hunt (added)

Houston
Chambers (added)

Atlanta
Bartow (added)
Carroll (added)
Butts (removed)

Cleveland
Ashtabula (added)

Seattle
Kitsap (added)
Thurston (added)
Island (added)

Minneapolis
Sherbourne, MN (added)
Pierce, WI (added)

St. Louis
Lincoln, MO (added)
Warren, MO (added)

Pittsburgh
Butler (added)

Phoenix
Pinal (added)

Cincinnati
Brown, OH (added)
Butler, OH (added)
Gallatin, KY (added)
Grant, KY (added)
Pendleton, KY (added)
Ohio, IN (added)

Kansas City
Clinton, MO (added)

Portland
Columbia, OR (added)
Marion, OR (added)
Polk, OR (added)

Norfolk
Island of Wight, VA (added)
Mathews, VA (added)
Currituck, NC (added)

Columbus
Union (removed)

San Antonio
Wilson (added)

Indianapolis
Madison, IN (added)

New Orleans
Plaquemines Parish (added)
St James Parish (added)

Orlando
Lake (added)

Rochester
Genesee (added)

Washington-Baltimore (Combined-1992):

Washington, MD (added)
Clarke, VA (added)
Culpepper, VA (added)
Fauquier, VA (added)
King George, VA (added)
Spotsylvania, VA (added)
Warren, VA (added)
Berkeley, WV (added)
Jefferson, WV (added)

[2] New York City Metropolitan Area excludes New England portion.

Table 7-2. 1990 Population, 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	17,125,727	17,830,586	4.12
Los Angeles	14,531,529	14,531,529	0.00
Chicago	8,065,633	8,239,820	2.16
San Francisco	6,253,311	6,253,311	0.00
Philadelphia	5,899,345	5,892,937	-0.11
Detroit	4,665,236	5,187,171	11.19
Boston	4,171,747	5,455,403	30.77
Washington - Baltimore	6,305,746	6,727,050	6.68
Dallas	3,885,415	4,037,282	3.91
Houston	3,711,043	3,731,131	0.54
Miami	3,192,582	3,192,582	0.00
Atlanta	2,833,511	2,959,950	4.46
Cleveland	2,759,823	2,859,644	3.62
Seattle	2,559,164	2,970,328	16.07
San Diego	2,498,016	2,498,016	0.00
Minneapolis	2,464,124	2,538,834	3.03
St. Louis	2,444,099	2,492,525	1.98
Pittsburgh	2,242,798	2,394,811	6.78
Phoenix	2,122,101	2,238,480	5.48
Tampa	2,067,959	2,067,959	0.00
Denver	1,848,319	1,980,140	7.13
Cincinnati	1,744,124	2,109,050	20.92
Milwaukee	1,607,183	1,607,183	0.00
Kansas City	1,566,280	1,582,875	1.06
Sacramento	1,481,102	1,481,102	0.00
Portland	1,477,895	1,793,476	21.35
Norfolk	1,396,107	1,443,244	3.38
Columbus	1,377,419	1,345,450	-2.32
San Antonio	1,302,099	1,324,749	1.74
Indianapolis	1,249,822	1,380,491	10.46
New Orleans	1,238,816	1,285,270	3.75
Buffalo	1,189,288	1,189,288	0.00
Charlotte	1,162,093	1,162,093	0.00
Providence	1,141,525	1,134,350	-0.63
Hartford	1,085,895	1,157,585	6.60
Orlando	1,072,748	1,224,852	14.18
Salt Lake City	1,072,227	1,072,227	0.00
Rochester	1,002,410	1,062,470	5.99
Total	**123,814,261**	**129,435,244**	**4.54**

Table 7-3. 1990 Worker Population, 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	8,057,252	8,403,964	4.30
Los Angeles	6,809,043	6,809,043	0.00
Chicago	3,841,337	3,928,664	2.27
San Francisco	3,200,833	3,200,833	0.00
Philadelphia	2,794,917	2,784,581	-0.37
Detroit	2,079,880	2,325,097	11.79
Boston	2,141,717		
Washington - Baltimore	3,406,163	3,619,254	6.26
Dallas	1,976,606	2,045,034	3.46
Houston	1,759,796	1,769,243	0.54
Miami	1,476,085	1,476,085	0.00
Atlanta	1,481,781	1,542,338	4.09
Cleveland	1,242,099	1,317,728	6.09
Seattle	1,308,338	1,515,183	15.81
San Diego	1,230,446	1,230,446	0.00
Minneapolis	1,307,624	1,347,571	3.05
St. Louis	1,144,336	1,166,023	1.90
Pittsburgh	956,154	1,029,136	7.63
Phoenix	996,495	1,040,962	4.46
Tampa	914,711	914,711	0.00
Denver	964,912	1,026,847	6.42
Cincinnati	812,766	991,939	22.04
Milwaukee	772,752	772,752	0.00
Kansas City	771,309	778,624	0.95
Sacramento	685,945	685,945	0.00
Portland	724,532	873,392	20.55
Norfolk	698,999	722,493	3.36
Columbus	677,859	662,150	-2.32
San Antonio	569,149	579,283	1.78
Indianapolis	624,971	688,229	10.12
New Orleans	514,726	533,845	3.71
Buffalo	531,122	531,122	0.00
Charlotte	604,856	604,856	0.00
Providence	544,668		
Hartford	561,969		
Orlando	557,448	619,039	11.05
Salt Lake City	479,338	479,338	0.00
Rochester	481,467	509,733	5.87
Total	**56,456,047**	**58,525,483**	**3.67**

33.4% with the addition of Pinal county. Similarly, the population density of New Orleans declined by 30% with the addition of the Plaquemines and St. James parishes. Only Columbus, which had a county removed, posted a gain of 11% in density.

Changes in Total Areawide Workers. Table 7-4 shows that the change in workers parallels the population change. In Cincinnati, the percentage change in workers (22%) is one percent greater than the corresponding change in population. Portland also records a gain of 20.5% in its worker base. Six different metropolitan areas show a higher percent gain in workers than they do in population, the most noteworthy being Cleveland where the geographic revision nearly doubled the rate of workers relative to population growth.

Table 7-5 depicts the distribution of worker densities created by the redefinition. In most cases, the changes closely match the changes previously observed in population density. Exceptions include Orlando and Phoenix (worker densities decreased faster than population), and Cleveland and Pittsburgh (population density decreased faster than worker). These disparities, though minor, show how the demographics in an area make a difference in particular calculations. Orlando and Phoenix, as sunbelt locales, generally have a higher incidence of retirees. Pittsburgh and Cleveland, in the heart of the U.S. heavy industry belt, possess a higher incidence of workers. Table 7-6 shows how the new geography affects the proportion of workers relative to the overall population of an area. Eleven metropolitan areas show increases, while eight display declines in the share of workers; Orlando is at the high end of the range (3% rise) while Cleveland is at the low end (2% fall).

Changes in Total Areawide Vehicle Populations. In Table 7-7 and Table 7-8 changes in areawide vehicle population and density are fairly consistent with changes in population and workers. Fourteen metropolitan areas have higher rates of vehicle growth than population, while in ten metropolitan areas, vehicles grow at a lower rate. The most noticeable divergences in these two measures appear to be in New York (vehicles increasing at a faster rate than population) and Seattle and Phoenix (vehicles increasing at a slower rate than population). Overall there is a strong accordance between population densities and vehicle densities.

It is evident from Table 7-9 that the added counties have more vehicles per household. As a rule, the growth in households with two or more vehicles is greater than the increase in households with less than two vehicles. The four cities with top growth among the four household vehicle categories are: zero vehicles (16.3% in Orlando); one vehicle (20.3% in Orlando); two vehicles (22.2% in Cincinnati), and three or more vehicles (16.5% in Seattle).

Changes in Land Area. Table 7-10 compares the land area in square miles before the new geographic definition and the change in area size after the 1992 geographic definition. The overall effect of the new boundaries is that the densities have been diluted, and in some cases the dilution is considerable. Five metropolitan areas increased their land area by better than 40% as a result of the redefinition in geography: Cincinnati (65.0%), Portland (59.1%), Phoenix (58.3%), New Orleans (47.3%) and Washington/Baltimore (45.5%).[3]

[3] Calculation based on combined land areas before the merger of the two MSA's.

Table 7-4. 1990 Workers as a Percent of Population, 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	52.95	52.87	-0.16
Los Angeles	53.14	53.14	0.00
Chicago	52.37	52.32	-0.10
San Francisco	48.81	48.81	0.00
Philadelphia	52.62	52.75	0.24
Detroit	55.42	55.18	-0.44
Boston	48.66		
Washington - Baltimore	45.98	53.80	17.00
Dallas	49.13	49.35	0.45
Houston	52.58	52.58	0.00
Miami	53.77	53.77	0.00
Atlanta	47.71	52.11	9.23
Cleveland	54.99	53.92	-1.95
Seattle	48.88	48.99	0.23
San Diego	50.74	50.74	0.00
Minneapolis	46.93	46.92	-0.03
St. Louis	53.18	53.22	0.07
Pittsburgh	57.37	57.03	-0.60
Phoenix	53.04	53.50	0.86
Tampa	55.77	55.77	0.00
Denver	47.80	51.86	8.50
Cincinnati	53.40	52.97	-0.81
Milwaukee	51.92	51.92	0.00
Kansas City	50.76	50.81	0.11
Sacramento	53.69	53.69	0.00
Portland	50.98	51.30	0.64
Norfolk	49.93	49.94	0.01
Columbus	50.79	50.79	0.00
San Antonio	56.29	56.27	-0.03
Indianapolis	50.00	50.15	0.30
New Orleans	58.45	58.46	0.02
Buffalo	55.34	55.34	0.00
Charlotte	47.95	47.95	0.00
Providence	52.29		
Hartford	48.25		
Orlando	48.04	49.46	2.97
Salt Lake City	55.30	55.30	0.00
Rochester	51.97	52.02	0.11
Total	**52.32**	**51.91**	**-0.80**

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Table 7-5. 1990 Vehicle Availability, 1983 & 1992 Geography Definition

Area	0 Vehicles Households			1 Vehicle Households		
	1983	1992	% Change	1983	1992	% Change
New York City	1,981,582	2,006,695	1.27	1,997,100	2,077,695	4.04
Los Angeles	436,773	436,773	0.00	1,649,594	1,649,594	0.00
Chicago	481,943	486,693	0.99	1,030,125	1,051,228	2.05
San Francisco	241,975	241,975	0.00	754,819	754,819	0.00
Philadelphia	364,856	368,303	0.94	749,712	755,717	0.80
Detroit	209,583	229,668	9.58	564,951	630,451	11.59
Boston	228,010			547,476		
Washington - Baltimore	317,196	329,327	3.82	762,064	804,066	5.51
Dallas	92,322	95,893	3.87	507,132	523,586	3.24
Houston	110,538	110,952	0.37	493,520	495,581	0.42
Miami	165,276	165,276	0.00	490,145	490,145	0.00
Atlanta	93,785	96,820	3.24	315,708	328,864	4.17
Cleveland	131,506	134,639	2.38	362,038	374,946	3.57
Seattle	79,250	87,916	10.94	315,429	362,043	14.78
San Diego	70,337	70,337	0.00	302,648	302,648	0.00
Minneapolis	85,569	86,448	1.03	293,920	299,963	2.06
St. Louis	100,461	101,628	1.16	310,880	315,397	1.45
Pittsburgh	147,511	150,751	2.20	335,520	353,498	5.36
Phoenix	57,626	59,420	3.11	317,181	332,371	4.79
Tampa	79,324	79,324	0.00	385,903	385,903	0.00
Denver	57,233	60,025	4.88	245,580	259,600	5.71
Cincinnati	76,103	85,194	11.95	207,169	244,855	18.19
Milwaukee	80,636	80,636	0.00	203,803	203,803	0.00
Kansas City	51,898	52,215	0.61	199,107	200,952	0.93
Sacramento	42,533	42,533	0.00	181,569	181,569	0.00
Portland	50,631	58,647	15.83	185,656	223,332	20.29
Norfolk	48,855	50,262	2.88	165,749	170,586	2.92
Columbus	46,597	46,034	-1.21	175,970	173,080	-1.64
San Antonio	45,213	45,746	1.18	165,519	167,614	1.27
Indianapolis	42,458	46,569	9.68	162,305	179,626	10.67
New Orleans	82,804	84,962	2.61	169,781	174,478	2.77
Buffalo	75,282	75,282	0.00	171,729	171,729	0.00
Charlotte	38,132	38,132	0.00	133,933	133,933	0.00
Providence	49,083			149,590		
Hartford	43,139			128,104		
Orlando	26,658	30,993	16.26	144,027	173,307	20.33
Salt Lake City	21,096	21,096	0.00	102,370	102,370	0.00
Rochester	41,841	43,444	3.83	127,101	134,403	5.75
Total	**6,075,383**	**6,200,608**	**2.06**	**14,679,757**	**15,183,752**	**3.43**

Table 7-5. 1990 Vehicle Availability, 1983 & 1992 Geography Definition (Cont.)

Area	2 Vehicles Households			3+ Vehicles Households		
	1983	1992	% Change	1983	1992	% Change
New York City	1,583,468	1,713,199	8.19	703,714	747,258	6.19
Los Angeles	1,835,083	1,835,083	0.00	979,270	979,270	0.00
Chicago	1,008,472	1,033,599	2.49	387,523	397,752	2.64
San Francisco	853,276	853,276	0.00	479,738	479,738	0.00
Philadelphia	751,861	750,379	-0.20	287,675	286,742	-0.32
Detroit	647,561	720,434	11.25	301,383	325,657	8.05
Boston	555,154			216,472		
Washington - Baltimore	853,260	914,002	7.12	406,983	443,139	8.88
Dallas	603,651	628,966	4.19	246,767	257,438	4.32
Houston	535,013	537,950	0.55	192,774	194,192	0.74
Miami	412,991	412,991	0.00	152,385	152,385	0.00
Atlanta	421,485	439,390	4.25	225,449	235,740	4.56
Cleveland	389,154	403,092	3.58	174,955	181,736	3.88
Seattle	389,209	431,211	10.79	218,269	254,313	16.51
San Diego	343,476	343,476	0.00	170,942	170,942	0.00
Minneapolis	387,530	398,557	2.85	168,497	174,870	3.78
St. Louis	361,693	369,001	2.02	151,699	156,103	2.90
Pittsburgh	303,017	324,816	7.19	105,875	116,183	9.74
Phoenix	315,529	329,710	4.49	117,224	118,746	1.30
Tampa	303,924	303,924	0.00	100,330	100,330	0.00
Denver	287,240	306,092	6.56	147,753	159,553	7.99
Cincinnati	251,164	306,905	22.19	118,484	137,703	16.22
Milwaukee	226,481	226,481	0.00	90,538	90,538	0.00
Kansas City	245,587	247,916	0.95	105,755	107,376	1.53
Sacramento	219,222	219,222	0.00	113,124	113,124	0.00
Portland	227,485	273,528	20.24	111,759	135,595	21.33
Norfolk	197,504	204,720	3.65	81,428	85,570	5.09
Columbus	210,210	205,491	-2.24	91,758	88,893	-3.12
San Antonio	170,396	173,591	1.88	69,893	71,532	2.35
Indianapolis	191,388	210,028	9.74	83,859	93,591	11.61
New Orleans	153,461	159,112	3.68	49,132	51,281	4.37
Buffalo	156,952	156,952	0.00	57,840	57,840	0.00
Charlotte	174,108	174,108	0.00	94,497	94,497	0.00
Providence	160,487			70,620		
Hartford	164,362			75,955		
Orlando	167,488	189,243	12.99	63,486	71,732	12.99
Salt Lake City	146,243	146,243	0.00	77,822	77,822	0.00
Rochester	146,020	154,888	6.07	59,513	63,454	6.62
Total	**15,470,602**	**16,097,576**	**4.05**	**6,988,093**	**7,272,635**	**4.07**

Table 7-6. 1990 Land Area (in Square Miles), 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	7,001	8,934	27.60
Los Angeles	33,966	33,966	0.00
Chicago	5,619	6,931	23.34
San Francisco	7,368	7,368	0.00
Philadelphia	5,346	5,936	11.04
Detroit	5,176	6,566	26.86
Boston	3,105		
Washington - Baltimore	6,576	9,578	45.65
Dallas	6,968	9,105	30.67
Houston	7,107	7,707	8.43
Miami	3,154	3,154	0.00
Atlanta	5,121	6,126	19.62
Cleveland	2,910	3,613	24.15
Seattle	5,892	7,224	22.60
San Diego	4,204	4,204	0.00
Minneapolis	5,051	6,064	20.06
St. Louis	5,331	6,393	19.93
Pittsburgh	3,835	4,624	20.56
Phoenix	9,204	14,574	58.34
Tampa	2,554	2,554	0.00
Denver	4,503	8,496	88.66
Cincinnati	2,592	4,277	64.99
Milwaukee	1,793	1,793	0.00
Kansas City	4,988	5,407	8.40
Sacramento	5,094	5,094	0.00
Portland	4,371	6,954	59.09
Norfolk	1,685	2,349	39.36
Columbus	3,579	3,142	-12.20
San Antonio	2,520	3,327	32.04
Indianapolis	3,071	3,523	14.72
New Orleans	2,309	3,400	47.25
Buffalo	1,568	1,568	0.00
Charlotte	3,379	3,379	0.00
Providence	1,081		
Hartford	1,430		
Orlando	2,538	3,491	37.56
Salt Lake City	1,617	1,617	0.00
Rochester	2,932	3,426	16.86
Total	**180,923**	**215,862**	**19.31**

Table 7-7. 1990 Vehicle Population, 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	7,486,292	7,970,044	6.46
Los Angeles	8,551,351	8,551,351	0.00
Chicago	4,325,895	4,431,008	2.43
San Francisco	4,044,506	4,044,506	0.00
Philadelphia	3,202,762	3,202,724	0.00
Detroit	2,854,637	3,145,987	10.21
Boston	2,372,142		
Washington - Baltimore	3,811,628	4,094,429	7.42
Dallas	2,528,765	2,631,063	4.05
Houston	2,199,700	2,212,315	0.57
Miami	1,818,998	1,818,998	0.00
Atlanta	1,902,660	1,985,586	4.36
Cleveland	1,717,698	1,780,859	3.68
Seattle	1,814,135	2,063,698	13.76
San Diego	1,553,709	1,553,709	0.00
Minneapolis	1,625,020	1,674,148	3.02
St. Louis	1,534,873	1,568,539	2.19
Pittsburgh	1,290,942	1,386,534	7.40
Phoenix	1,335,078	1,383,653	3.64
Tampa	1,324,840	1,324,840	0.00
Denver	1,307,645	1,398,309	6.93
Cincinnati	1,100,494	1,313,085	19.32
Milwaukee	955,540	955,540	0.00
Kansas City	1,039,273	1,051,125	1.14
Sacramento	993,322	993,322	0.00
Portland	1,009,431	1,217,852	20.65
Norfolk	829,469	862,407	3.97
Columbus	899,191	877,409	-2.42
San Antonio	736,958	750,852	1.89
Indianapolis	821,816	908,532	10.55
New Orleans	638,839	661,929	3.61
Buffalo	676,505	676,505	0.00
Charlotte	793,989	793,989	0.00
Providence	703,610		
Hartford	707,480		
Orlando	688,507	788,509	14.52
Salt Lake City	651,669	651,669	0.00
Rochester	615,534	653,577	6.18
Total	**68,681,668**	**71,378,600**	**3.93**

Table 7-8. 1990 Population Density Per Square Mile, 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	2,446	1,996	-18.41
Los Angeles	428	428	0.00
Chicago	1,435	1,189	-17.18
San Francisco	849	849	0.00
Philadelphia	1,104	993	-10.04
Detroit	901	790	-12.35
Boston	1,343		
Washington - Baltimore	959	702	-26.76
Dallas	558	443	-20.48
Houston	522	484	-7.28
Miami	1,012	1,012	0.00
Atlanta	553	483	-12.67
Cleveland	948	792	-16.54
Seattle	434	411	-5.33
San Diego	594	594	0.00
Minneapolis	488	419	-14.18
St. Louis	458	390	-14.96
Pittsburgh	585	518	-11.43
Phoenix	231	154	-33.38
Tampa	810	810	0.00
Denver	410	233	-43.22
Cincinnati	673	493	-26.71
Milwaukee	896	896	0.00
Kansas City	314	293	-6.77
Sacramento	291	291	0.00
Portland	338	258	-23.72
Norfolk	828	614	-25.82
Columbus	385	428	11.25
San Antonio	517	398	-22.95
Indianapolis	407	392	-3.72
New Orleans	537	378	-29.54
Buffalo	759	759	0.00
Charlotte	344	344	0.00
Providence	1,056		
Hartford	759		
Orlando	423	351	-16.99
Salt Lake City	663	663	0.00
Rochester	342	310	-9.30
Total	**649**	**564**	**-13.14**

Table 7-9. 1990 Worker Density Per Square Mile, 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	1,151	941	-18.26
Los Angeles	200	200	0.00
Chicago	684	567	-17.08
San Francisco	434	434	0.00
Philadelphia	523	469	-10.28
Detroit	402	354	-11.88
Boston	690		
Washington - Baltimore	518	378	-27.05
Dallas	284	225	-20.82
Houston	248	230	-7.28
Miami	468	468	0.00
Atlanta	289	252	-12.98
Cleveland	427	365	-14.55
Seattle	222	210	-5.54
San Diego	293	293	0.00
Minneapolis	259	222	-14.16
St. Louis	215	182	-15.03
Pittsburgh	249	223	-10.72
Phoenix	108	71	-34.03
Tampa	358	358	0.00
Denver	214	121	-43.59
Cincinnati	314	232	-26.03
Milwaukee	431	431	0.00
Kansas City	155	144	-6.87
Sacramento	135	135	0.00
Portland	166	126	-24.23
Norfolk	415	308	-25.83
Columbus	189	211	11.26
San Antonio	226	174	-22.91
Indianapolis	203	195	-4.01
New Orleans	223	157	-29.56
Buffalo	339	339	0.00
Charlotte	179	179	0.00
Providence	504		
Hartford	393		
Orlando	220	177	-19.27
Salt Lake City	296	296	0.00
Rochester	164	149	-9.40
Total	**312**	**271**	**-13.11**

Table 7-10. 1990 Vehicle Density Per Square Mile, 1983 & 1992 Geography Definition

Area	1983 Definition	1992 Definition	% Change
New York City	1,069	892	-16.57
Los Angeles	252	252	0.00
Chicago	770	639	-16.96
San Francisco	549	549	0.00
Philadelphia	599	540	-9.95
Detroit	552	479	-13.13
Boston	764		
Washington - Baltimore	580	427	-26.25
Dallas	363	289	-20.38
Houston	309	287	-7.25
Miami	577	577	0.00
Atlanta	372	324	-12.76
Cleveland	590	493	-16.49
Seattle	308	286	-7.21
San Diego	370	370	0.00
Minneapolis	322	276	-14.19
St. Louis	288	245	-14.79
Pittsburgh	337	300	-10.91
Phoenix	145	95	-34.55
Tampa	519	519	0.00
Denver	290	165	-43.32
Cincinnati	425	307	-27.68
Milwaukee	533	533	0.00
Kansas City	208	194	-6.69
Sacramento	195	195	0.00
Portland	231	175	-24.17
Norfolk	492	367	-25.39
Columbus	251	279	11.14
San Antonio	292	226	-22.84
Indianapolis	268	258	-3.64
New Orleans	277	195	-29.63
Buffalo	432	432	0.00
Charlotte	235	235	0.00
Providence	651		
Hartford	495		
Orlando	271	226	-16.74
Salt Lake City	403	403	0.00
Rochester	210	191	-9.14
Total	**380**	**331**	**-12.89**

Section P

U.S. and Metropolitan Area Maps and Statistical Profiles

153-916 O - 94 - 6

Table P-1. Listing of Metropolitan Areas With Over One Million Inhabitants in 1990 [1]

[1] The profile number refers to the area's population rank in 1990.

U.S. AND METROPOLITAN AREA MAPS AND STATISTICAL PROFILES

The attached series of metropolitan area county boundary maps and statistical profiles are included as a supplement to the main journey to work analysis in earlier chapters. The thirty-nine metropolitan area profiles follow the National Summary. Each of the thirty-nine is presented in order of its population rank in 1990. Preceding each profile is an area and county map drawn using a geographic information system software package[2] and is thus diagramed to scale. The central cities contained within the metropolitan areas boundaries are also shown. For the U.S. summary, a national map is presented showing the location and relative dimensions of each metropolitan area in this study. Readers should also note that in the spatial orientation of these maps, North is generally at the top of the page.

All maps are drawn, and profiles computed, using the OMB geographic definitions assigned in 1983.[3] The data conform to totals published by the Census Bureau. For summary information on how the 1992 geographic revisions affect particular data series, please refer to Chapter 6 in the report. The profiles include many same data series found in the main body of the report, along with additional calculations, ratios, and statistics that readers may find helpful when analyzing commuting patterns for a specific area. Not all these tabulations are presented in the national summary because certain types of aggregation are either not possible or are without meaning at this level.

There are a number of general statistics throughout the Profiles which are self explanatory. It is important, however, to take note of the definitions of persons per household, workers per household and vehicles per household. The meaning of the words "per household" is not consistent throughout these definitions. Persons per household is calculated using persons in household divided by total households. Vehicles per household is calculated using total vehicles in households divided by total households. That is, for persons per household and vehicles per household, persons in group quarters are not included. Workers per household is calculated using total workers, including persons in households and persons in group quarters, divided by total households. The consequence of this definition is that workers per household is slightly overstated because persons in group quarters, by definition, are not in households. In all cases the variation results in an impact of less than 5% and in the majority of cases the difference is less than 3%.

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[2] The package used was Transcad.

[3] Readers should take note that in computing some of the data series for New England metropolitan areas (Boston, Providence, and Hartford), the New England County Metropolitan Area (NECMA) definition is used to delineate county boundaries. This was necessary to maintain consistency with other parts of the U.S., since in New England metropolitan areas are defined by cities and towns, and hence leading to only partial county coverage (rather than the complete county coverage that NECMA's provide). Also note that the New York City CMSA does not include the Connecticut portion.

Large Metropolitan Areas in the Continental United States

Journey-to-Work Profile: National Summary Statistics (1990)

Demographics and Land Area	
Area Population	248,709,873
% Inside 39 Metro Areas	49.78
% Remainder of Nation	50.22
% Urban	75.21
% Rural	24.79
Total Households	91,993,582
Persons Per Household	2.63
Median Household Income	
Nationwide	$30,338
Inside 39 Metro Areas	$31,016
Remainder of Nation	$29,665
National Age Characteristcs	
Median Age	32.90
% 15 Years or Less	22.87
% 65 Years or More	12.56
Square Miles	
National Total	3,536,338
% Inside 39 Metro Areas	5.27
% Remainder of Nation	94.73

Workers	
National Total	115,070,274
% of Population	46.3
% Male	54.7
% Female	45.3
Inside 39 Metro Areas	59,704,401
% Inside 39 Metro Areas	51.89
Remainder of Nation	55,365,873
% Remainder of Nation	48.11

Household Vehicle Availability	
National	
Total Vehicles	152,380,479
% 0 Vehicles	11.53
% 1 Vehicles	33.76
% 2 Vehicles	37.37
% 3+ Vehicles	17.34
Inside 39 Metro Areas	
Total Vehicles	72,464,899
% 0 Vehicles	14.02
% 1 Vehicles	34.00
% 2 Vehicles	35.85
% 3+ Vehicles	16.12
Remainder of Nation	
Total Vehicles	79,915,580
% 0 Vehicles	9.08
% 1 Vehicles	33.52
% 2 Vehicles	38.86
% 3+ Vehicles	18.54

Travel Time	
Mean (in minutes)	
Originating in:	
Nation	22.38
39 Metro Areas	25.20
Remainder of Nation	19.30

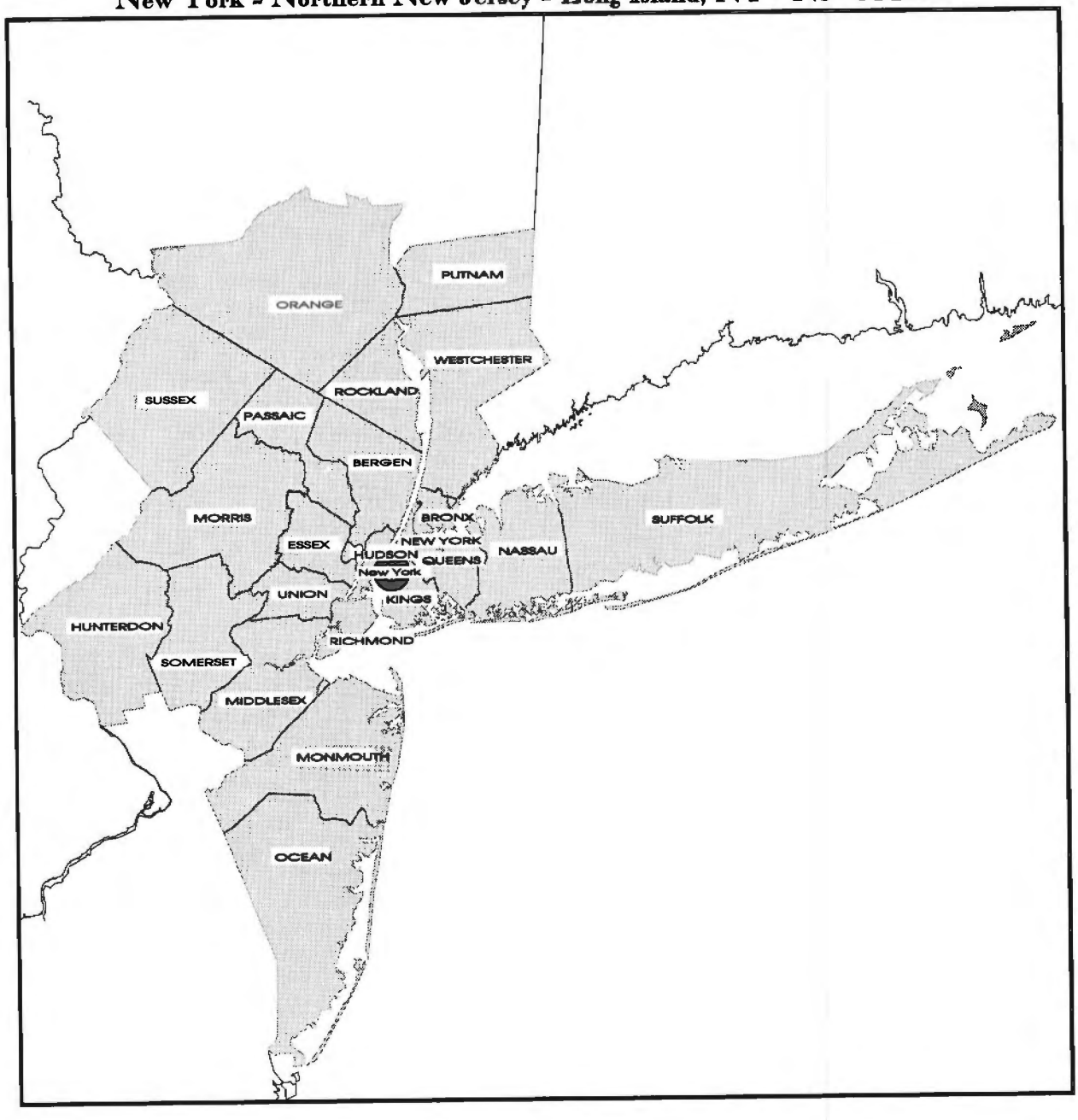
Commute Length	
National	
% Less Than 15 Minutes	15.87
% 15 - 29 Minutes	51.64
% 30 - 39 Minutes	14.66
% 40 - 59 Minutes	9.01
% 60 Minutes or More	5.86
Inside 39 Metro Areas	
% Less Than 15 Minutes	11.45
% 15 - 29 Minutes	49.22
% 30 - 39 Minutes	17.48
% 40 - 59 Minutes	11.77
% 60 Minutes or More	7.52
Remainder of Nation	
% Less Than 15 Minutes	20.63
% 15 - 29 Minutes	54.24
% 30 - 39 Minutes	11.62
% 40 - 59 Minutes	6.04
% 60 Minutes or More	4.07

Time Workers Leave Home	
National	
5:00 AM - 6:59 AM	26.04
7:00 AM - 8:29 AM	41.87
8:30 AM - 9:59 AM	10.28
All Other Departures	18.85
Worked at Home	2.96
Inside 39 Metro Areas	
5:00 AM - 6:59 AM	25.49
7:00 AM - 8:29 AM	42.44
8:30 AM - 9:59 AM	11.57
All Other Departures	17.93
Worked at Home	2.57
Remainder of Nation	
5:00 AM - 6:59 AM	26.63
7:00 AM - 8:29 AM	41.26
8:30 AM - 9:59 AM	8.88
All Other Departures	19.84
Worked at Home	3.39

Journey to Work by Mode	
National	
% Drive Alone	73.19
% Carpooled	13.36
% Public Transit	5.27
% Motorcycle	0.21
% Walk	3.90
% Bicycle	0.41
% Other	0.70
% Work at Home	2.96
Inside 39 Metro Areas	
% Drive Alone	70.75
% Carpooled	12.69
% Public Transit	8.98
% Motorcycle	0.21
% Walk	3.76
% Bicycle	0.43
% Other	0.62
% Work at Home	2.57
Remainder of Nation	
% Drive Alone	75.81
% Carpooled	14.09
% Public Transit	1.27
% Motorcycle	0.20
% Walk	4.06
% Bicycle	0.38
% Other	0.79
% Work at Home	3.39

General Indicators	
National	
Population/Sq. Mile	70
Households/Sq. Mile	26
Workers/Sq. Mile	33
Workers/Household	1.25
Vehicles/Household	1.66
Vehicles/Worker	1.32
Workers/Vehicle	0.76
Inside 39 Metro Areas	
Population/Sq. Mile	664
Households/Sq. Mile	245
Workers/Sq. Mile	320
Workers/Household	1.31
Vehicles/Household	1.59
Vehicles/Worker	1.21
Workers/Vehicle	0.82
Remainder of Nation	
Population/Sq. Mile	37
Households/Sq. Mile	14
Workers/Sq. Mile	17
Workers/Household	1.19
Vehicles/Household	1.72
Vehicles/Worker	1.44
Workers/Vehicle	0.69

New York - Northern New Jersey - Long Island, NY - NJ CMSA



Journey-to-Work Profile: New York-Northern New Jersey-Long Island, NY-NJ CMSA (1990)

Demographics and Land Area	
Area Population	17,125,727
% Central County	8.69
% Suburban Counties	91.31
% Urban	95.71
% Rural	4.29
Total Households	6,261,459
Persons Per Household	2.67
Median Household Income	
Areawide	$37,869
Central County	$32,262
Suburban Counties	$38,402
Age Characteristics	
Median Age	34.30
% 15 Years or Less	20.49
% 65 Years or More	13.08
Square Miles	
Areawide Total	7,001
% Central County	0.41
% Suburban Counties	99.59

Workers	
Living in Area	8,057,252
% of Population	47.00
% Male	53.80
% Female	46.20
Living in Central County	754,148
% Work Central County	84.30
% Work Suburban County	14.30
% Work Out of Area	1.40
Living in Suburban Counties	7,303,104
% Work Central County	18.69
% Work Same County	54.61
% Work Different County	24.53
% Work Out of Area	2.16

Journey-to-Work Flows	
% Central-Central County	7.89
% Central-Suburban County	1.34
% Suburban-Central County	16.94
% Within Suburban County	49.50
% To Other Suburban County	22.24
% Work Out of Area	2.09

Travel Time	
Mean (in minutes)	
Originating in:	
Area	31.11
Central County	28.50
Suburban Counties	31.37
Commute Length	
% Less Than 15 Minutes	21.23
% 15 - 29 Minutes	28.15
% 30 - 39 Minutes	16.66
% 40 - 59 Minutes	15.13
% 60 Minutes or More	16.51
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	19.49
% 7:00 AM - 8:29 AM	46.39
% 8:30 AM - 9:59 AM	15.82
% All Other Departures	15.98
% Worked at Home	2.31

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	5,038,702
% Travel by POVs	62.54
POV Drivers	4,577,141
% POV Drivers	56.81
POV Passengers	461,561
% POV Passengers	5.73
POV Occupancy	1.10

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	52.36
% Carpool	10.33
Transit	
% Bus	8.03
% Subway/Rail	18.82
% Taxi	0.78
Other	
% Motorcycle	0.06
% Walk	6.54
% Bicycle	0.24
% Other	0.54
% Work at Home	2.31

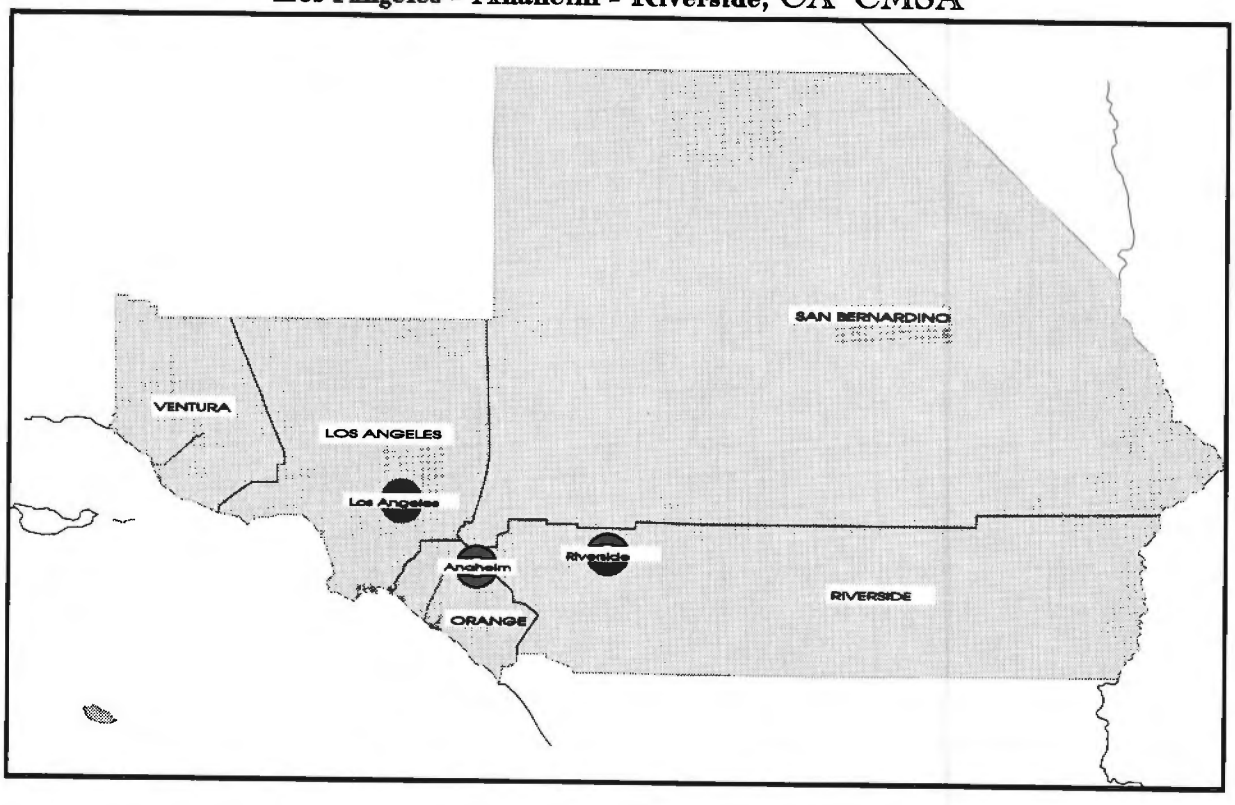
Vehicle Availability	
Total Household Vehicles	7,486,292
% 0 Vehicle Households	31.63
% 1 Vehicle Households	31.87
% 2 Vehicle Households	25.27
% 3+ Vehicle Households	11.23

General Indicators	
Population/Sq. Mile	2,446
Households/Sq. Mile	894
Workers/Sq. Mile, Areawide	
By Place of Residence	1,140
By Place of Work	1,146
Workers/Sq. Mile, Central County	
By Place of Residence	26,575
By Place of Work	71,475
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	1,037
By Place of Work	860
Workers/Household	1.29
Vehicles/Household	1.20
Vehicles/Worker	0.93
Workers/Vehicle	1.08

Central County
New York, NY
Suburban Counties
New York:
- Bronx
- Kings
- Nassau
- Orange
- Putnam
- Queens
- Richmond
- Rockland
- Suffolk
- Westchester

New Jersey:
- Bergen
- Essex
- Hudson
- Hunterdon
- Middlesex
- Monmouth
- Morris
- Ocean
- Passaic
- Somerset
- Sussex
- Union

Los Angeles - Anaheim - Riverside, CA CMSA



Journey-to-Work Profile: Los Angeles-Anaheim-Riverside, CA CMSA (1990)

Demographics and Land Area

Area Population	14,531,529
% Central County	60.99
% Suburban Counties	39.01
% Urban	97.44
% Rural	2.56
Total Households	4,909,218
Persons Per Household	2.91
Median Household Income	
Areawide	$36,711
Central County	$34,965
Suburban Counties	$39,441
Age Characteristics	
Median Age	30.70
% 15 Years or Less	23.92
% 65 Years or More	9.80
Square Miles	
Areawide Total	33,966
% Central County	11.95
% Suburban Counties	88.05

Workers

Living in Area	6,809,043
% of Population	46.90
% Male	57.10
% Female	42.90
Living in Central County	4,115,248
% Work Central County	94.10
% Work Suburban County	5.02
% Work Out of Area	0.88
Living in Suburban Counties	2,693,795
% Work Central County	15.93
% Work Same County	75.74
% Work Different County	6.74
% Work Out of Area	1.60

Journey-to-Work Flows

% Central-Central County	56.87
% Central-Suburban County	3.03
% Suburban-Central County	6.30
% Within Suburban County	29.96
% To Other Suburban County	2.67
% Work Out of Area	1.17

Travel Time

Mean (in minutes)	
Originating in:	
Area	26.40
Central County	26.48
Suburban Counties	26.29
Commute Length	
% Less Than 15 Minutes	23.81
% 15 - 29 Minutes	34.36
% 30 - 39 Minutes	17.86
% 40 - 59 Minutes	12.01
% 60 Minutes or More	9.22
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	29.21
% 7:00 AM - 8:29 AM	38.45
% 8:30 AM - 9:59 AM	11.16
% All Other Departures	18.45
% Worked at Home	2.73

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	5,978,283
% Travel by POVs	87.80
POV Drivers	5,396,643
% POV Drivers	79.26
POV Passengers	581,640
% POV Passengers	8.54
POV Occupancy	1.11

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	72.35
% Carpool	15.45
Transit	
% Bus	4.49
% Subway/Rail	0.03
% Taxi	0.04
Other	
% Motorcycle	0.51
% Walk	2.94
% Bicycle	0.71
% Other	0.75
% Work at Home	2.73

Vehicle Availability

Total Household Vehicles	8,551,351
% 0 Vehicle Households	8.91
% 1 Vehicle Households	33.66
% 2 Vehicle Households	37.45
% 3+ Vehicle Households	19.98

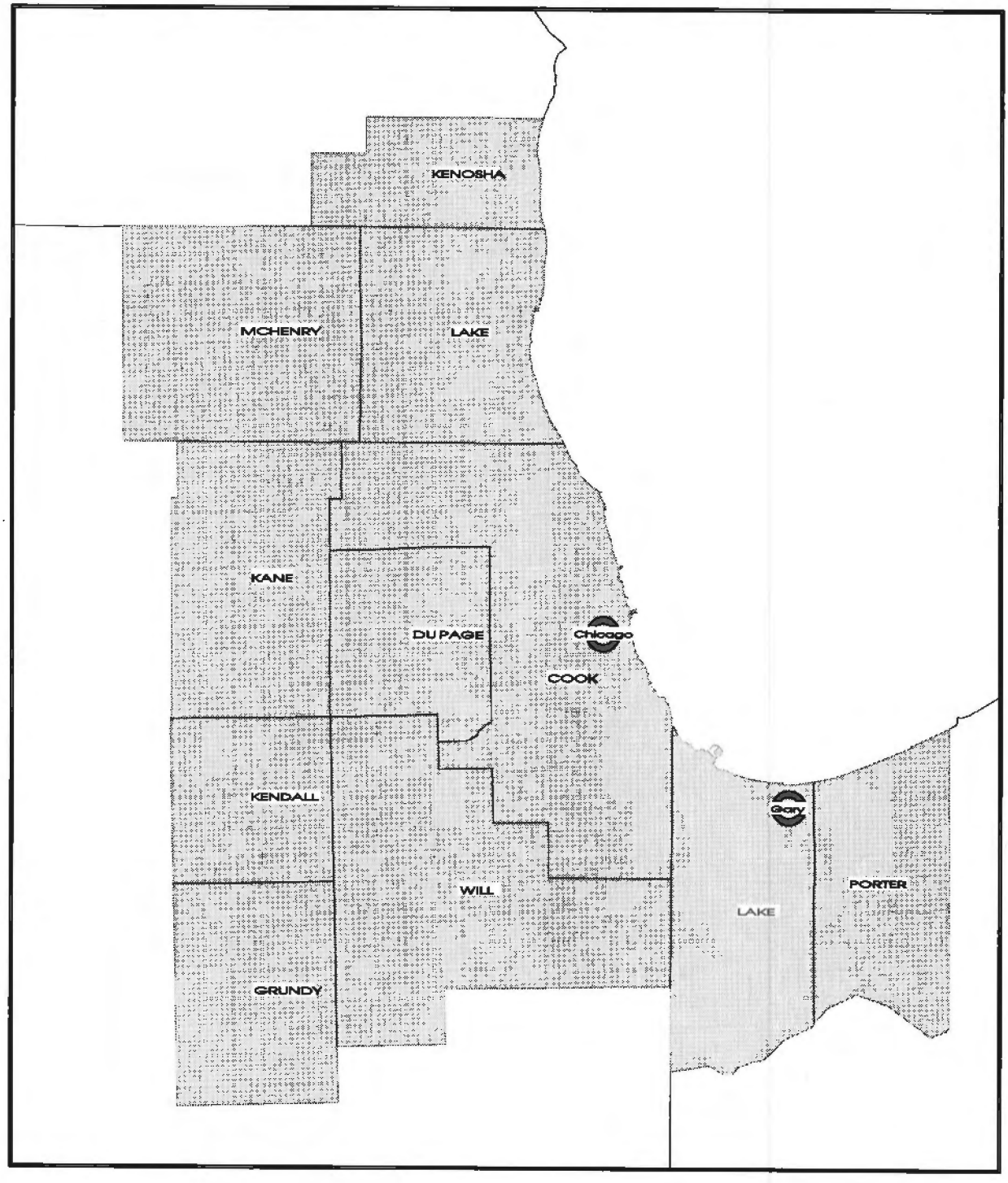
General Indicators

Population/Sq. Mile	428
Households/Sq. Mile	145
Workers/Sq. Mile, Areawide	
By Place of Residence	200
By Place of Work	200
Workers/Sq. Mile, Central County	
By Place of Residence	1,014
By Place of Work	1,066
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	90
By Place of Work	82
Workers/Household	1.39
Vehicles/Household	1.74
Vehicles/Worker	1.26
Workers/Vehicle	0.80

Central County
Los Angeles, CA

Suburban Counties
California:
Orange
Ventura
Riverside
San Bernardino

Chicago - Gary - Lake County, IL - IN - WI CMSA



Journey-to-Work Profile: Chicago-Gary-Lake County, IL-IN-WI CMSA (1990)

Demographics and Land Area	
Area Population	8,065,633
% Central County	63.29
% Suburban Counties	36.71
% Urban	95.98
% Rural	4.02
Total Households	2,903,236
Persons Per Household	2.72
Median Household Income	
Areawide	$35,916
Central County	$32,673
Suburban Counties	$41,508
Age Characteristics	
Median Age	32.30
% 15 Years or Less	23.36
% 65 Years or More	11.38
Square Miles	
Areawide Total	5,619
% Central County	16.83
% Suburban Counties	83.17

Workers	
Living in Area	3,841,337
% of Population	47.60
% Male	54.50
% Female	45.50
Living in Central County	2,369,624
% Work Central County	90.63
% Work Suburban County	8.62
% Work Out of Area	0.75
Living in Suburban Counties	1,471,713
% Work Central County	26.33
% Work Same County	59.35
% Work Different County	12.00
% Work Out of Area	2.33

Journey-to-Work Flows	
% Central-Central County	55.91
% Central-Suburban County	5.32
% Suburban-Central County	10.09
% Within Suburban County	22.74
% To Other Suburban County	4.60
% Work Out of Area	1.35

Travel Time	
Mean (in minutes)	
Originating in:	
Area	28.07
Central County	29.44
Suburban Counties	25.85
Commute Length	
% Less Than 15 Minutes	22.73
% 15 - 29 Minutes	30.94
% 30 - 39 Minutes	18.22
% 40 - 59 Minutes	15.33
% 60 Minutes or More	10.67
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	28.73
% 7:00 AM - 8:29 AM	39.84
% 8:30 AM - 9:59 AM	9.96
% All Other Departures	19.37
% Worked at Home	2.10

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	3,049,431
% Travel by POVs	79.38
POV Drivers	2,798,921
% POV Drivers	72.86
POV Passengers	250,510
% POV Passengers	6.52
POV Occupancy	1.09

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	67.43
% Carpool	11.96
Transit	
% Bus	6.81
% Subway/Rail	6.57
% Taxi	0.27
Other	
% Motorcycle	0.05
% Walk	4.01
% Bicycle	0.21
% Other	0.57
% Work at Home	2.10

Vehicle Availability	
Total Household Vehicles	4,325,895
% 0 Vehicle Households	16.57
% 1 Vehicle Households	35.42
% 2 Vehicle Households	34.68
% 3+ Vehicle Households	13.33

General Indicators	
Population/Sq. Mile	1,435
Households/Sq. Mile	517
Workers/Sq. Mile, Areawide	
By Place of Residence	684
By Place of Work	685
Workers/Sq. Mile, Central County	
By Place of Residence	2,506
By Place of Work	2,702
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	315
By Place of Work	277
Workers/Household	1.32
Vehicles/Household	1.49
Vehicles/Worker	1.13
Workers/Vehicle	0.89

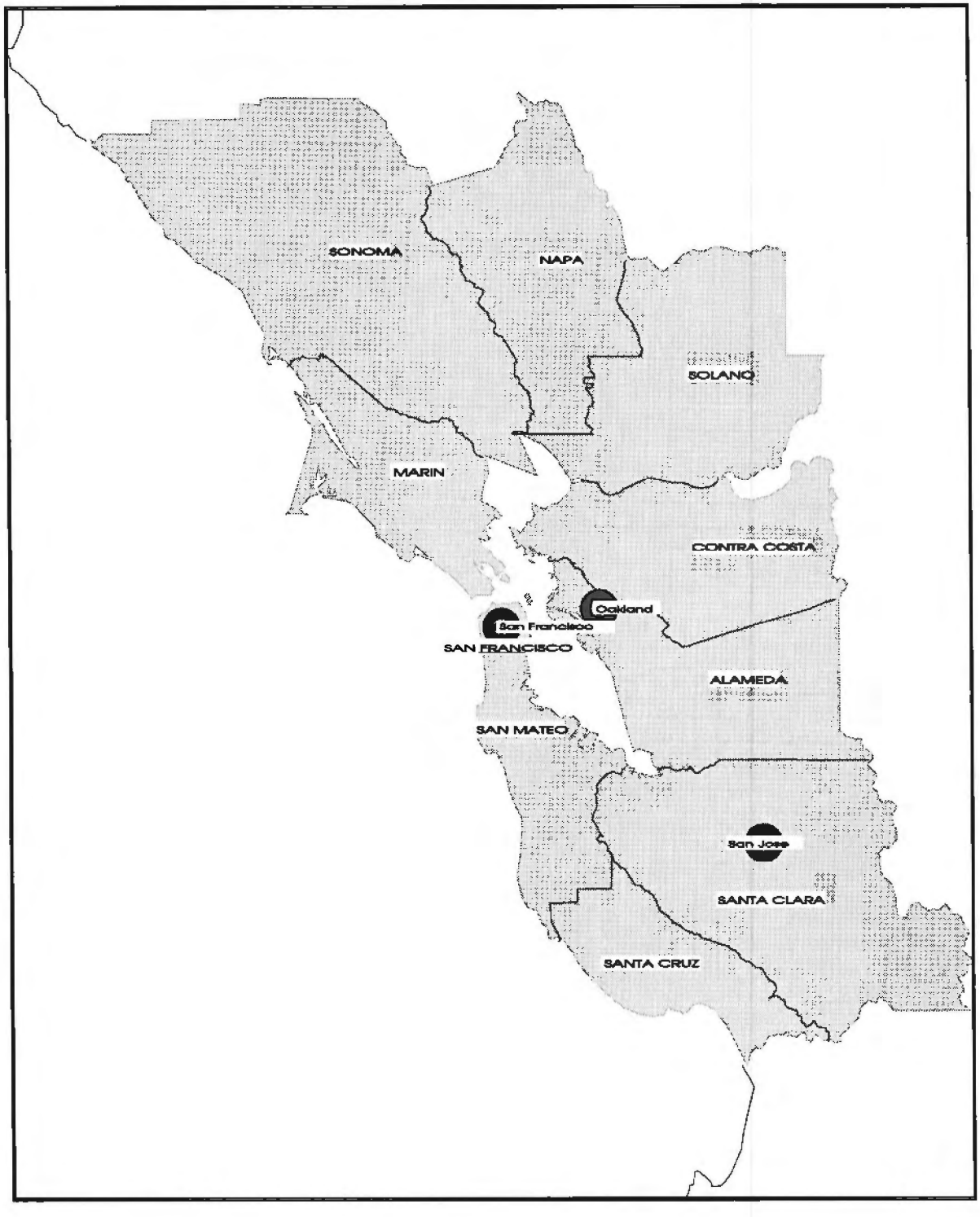
Central County
Cook, IL

Suburban Counties
Illinois:
- DuPage
- Grundy
- Kane
- Kendall
- Lake
- McHenry
- Will

Indiana:
- Lake
- Porter

Wisconsin:
- Kenosha

San Francisco - Oakland - San Jose, CA CMSA



Journey-to-Work Profile: San Francisco-Oakland-San Jose, CA CMSA (1990)

Demographics and Land Area	
Area Population	6,253,311
% Central County	11.58
% Suburban Counties	88.42
% Urban	96.08
% Rural	3.92
Total Households	2,334,992
Persons Per Household	2.61
Median Household Income	
Areawide	$41,459
Central County	$33,414
Suburban Counties	$42,512
Age Characteristics	
Median Age	33.50
% 15 Years or Less	20.68
% 65 Years or More	11.06
Square Miles	
Areawide Total	7,368
% Central County	0.63
% Suburban Counties	99.37

Workers	
Living in Area	3,200,833
% of Population	51.20
% Male	55.00
% Female	45.00
Living in Central County	382,309
% Work Central County	80.41
% Work Suburban County	18.75
% Work Out of Area	0.84
Living in Suburban Counties	2,818,524
% Work Central County	8.82
% Work Same County	72.82
% Work Different County	16.93
% Work Out of Area	1.43

Journey-to-Work Flows	
% Central-Central County	9.60
% Central-Suburban County	2.24
% Suburban-Central County	7.76
% Within Suburban County	64.12
% To Other Suburban County	14.91
% Work Out of Area	1.36

Travel Time	
Mean (in minutes)	
Originating in:	
Area	25.55
Central County	26.88
Suburban Counties	25.37
Commute Length	
% Less Than 15 Minutes	24.56
% 15 - 29 Minutes	34.83
% 30 - 39 Minutes	16.82
% 40 - 59 Minutes	12.39
% 60 Minutes or More	7.91
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	24.02
% 7:00 AM - 8:29 AM	42.35
% 8:30 AM - 9:59 AM	12.66
% All Other Departures	17.48
% Worked at Home	3.49

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	2,602,203
% Travel by POVs	81.30
POV Drivers	2,372,801
% POV Drivers	74.13
POV Passengers	229,402
% POV Passengers	7.17
POV Occupancy	1.10

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	68.38
% Carpool	13.02
Transit	
% Bus	6.27
% Subway/Rail	2.82
% Taxi	0.08
Other	
% Motorcycle	0.54
% Walk	3.64
% Bicycle	1.09
% Other	0.66
% Work at Home	3.49

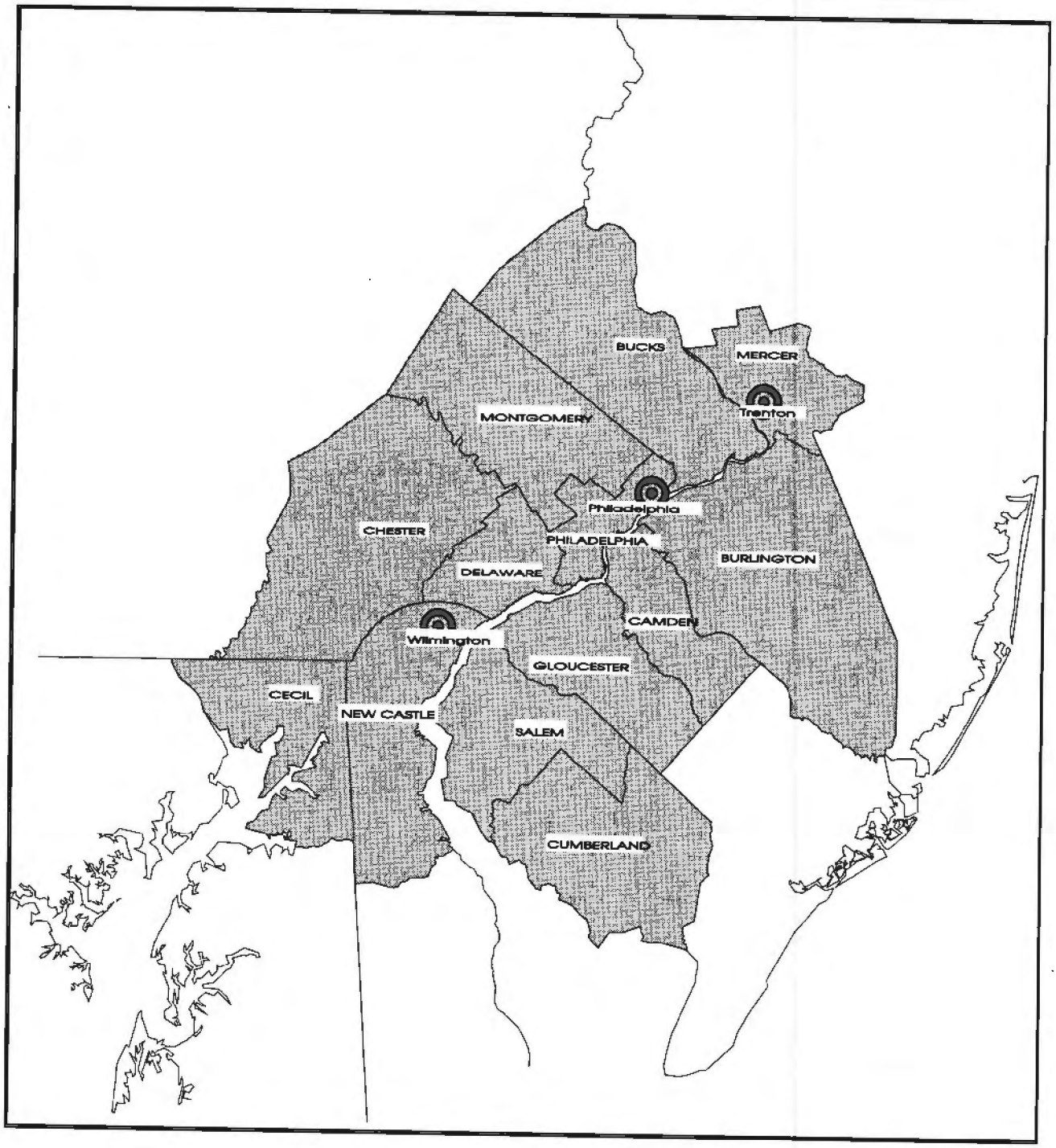
Vehicle Availability	
Total Household Vehicles	4,044,506
% 0 Vehicle Households	10.39
% 1 Vehicle Households	32.40
% 2 Vehicle Households	36.62
% 3+ Vehicle Households	20.59

General Indicators	
Population/Sq. Mile	849
Households/Sq. Mile	317
Workers/Sq. Mile, Areawide	
By Place of Residence	432
By Place of Work	439
Workers/Sq. Mile, Central County	
By Place of Residence	8,186
By Place of Work	12,062
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	383
By Place of Work	365
Workers/Household	1.37
Vehicles/Household	1.73
Vehicles/Worker	1.26
Workers/Vehicle	0.79

Central County
San Francisco, CA

Suburban Counties
California:
- Alameda
- Contra Costa
- Marin
- Napa
- San Mateo
- Santa Clara
- Santa Cruz
- Solano
- Sonoma

Philadelphia - Wilmington - Trenton, PA - NJ - DE - MD CMSA



Journey-to-Work Profile: Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD CMSA (1990)

Demographics and Land Area	
Area Population	5,899,345
% Central County	26.88
% Suburban Counties	73.12
% Urban	89.03
% Rural	10.97
Total Households	2,151,624
Persons Per Household	2.66
Median Household Income	
Areawide	$35,735
Central County	$24,603
Suburban Counties	$39,827
Age Characteristics	
Median Age	33.60
% 15 Years or Less	21.75
% 65 Years or More	13.29
Square Miles	
Areawide Total	5,346
% Central County	2.53
% Suburban Counties	97.47

Workers	
Living in Area	2,794,917
% of Population	47.40
% Male	53.40
% Female	46.60
Living in Central County	640,577
% Work Central County	80.11
% Work Suburban County	18.42
% Work Out of Area	1.47
Living in Suburban Counties	2,154,340
% Work Central County	10.87
% Work Same County	62.71
% Work Different County	20.75
% Work Out of Area	5.67

Journey-to-Work Flows	
% Central-Central County	18.36
% Central-Suburban County	4.22
% Suburban-Central County	8.38
% Within Suburban County	48.34
% To Other Suburban County	16.00
% Work Out of Area	4.71

Travel Time	
Mean (in minutes)	
Originating in:	
Area	24.11
Central County	27.40
Suburban Counties	23.13
Commute Length	
% Less Than 15 Minutes	27.20
% 15 - 29 Minutes	35.38
% 30 - 39 Minutes	16.62
% 40 - 59 Minutes	12.21
% 60 Minutes or More	6.33
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	22.46
% 7:00 AM - 8:29 AM	45.69
% 8:30 AM - 9:59 AM	12.38
% All Other Departures	17.21
% Worked at Home	2.26

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	2,271,550
% Travel by POVs	81.27
POV Drivers	2,087,549
% POV Drivers	74.69
POV Passengers	184,001
% POV Passengers	6.58
POV Occupancy	1.09

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	69.13
% Carpool	12.15
Transit	
% Bus	5.97
% Subway/Rail	4.13
% Taxi	0.08
Other	
% Motorcycle	0.10
% Walk	5.26
% Bicycle	0.33
% Other	0.60
% Work at Home	2.26

Vehicle Availability	
Total Household Vehicles	3,202,762
% 0 Vehicle Households	16.94
% 1 Vehicle Households	34.80
% 2 Vehicle Households	34.90
% 3+ Vehicle Households	13.35

General Indicators	
Population/Sq. Mile	1,104
Households/Sq. Mile	402
Workers/Sq. Mile, Areawide	
By Place of Residence	523
By Place of Work	515
Workers/Sq. Mile, Central County	
By Place of Residence	4,740
By Place of Work	5,594
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	413
By Place of Work	383
Workers/Household	1.30
Vehicles/Household	1.49
Vehicles/Worker	1.15
Workers/Vehicle	0.87

Central County
Philadelphia, PA

Suburban Counties
Pennsylvania:
- Bucks
- Chester
- Delaware
- Montgomery

New Jersey:
- Burlington
- Camden
- Cumberland
- Gloucester
- Salem
- Mercer

Delaware:
- New Castle

Maryland:
- Cecil

Detroit - Ann Arbor, MI CMSA

Journey-to-Work Profile: Detroit-Ann Arbor, MI CMSA (1990)

Demographics and Land Area	
Area Population	4,665,236
% Central County	45.26
% Suburban Counties	54.74
% Urban	88.44
% Rural	11.56
Total Households	1,724,767
Persons Per Household	2.67
Median Household Income	
Areawide	$34,729
Central County	$27,997
Suburban Counties	$40,296
Age Characteristics	
Median Age	32.80
% 15 Years or Less	22.99
% 65 Years or More	11.57
Square Miles	
Areawide Total	5,176
% Central County	11.87
% Suburban Counties	88.13

Workers	
Living in Area	2,079,880
% of Population	44.60
% Male	54.40
% Female	45.60
Living in Central County	822,620
% Work Central County	77.00
% Work Suburban County	22.13
% Work Out of Area	0.87
Living in Suburban Counties	1,257,260
% Work Central County	16.64
% Work Same County	65.19
% Work Different County	14.76
% Work Out of Area	3.41

Journey-to-Work Flows	
% Central-Central County	30.45
% Central-Suburban County	8.75
% Suburban-Central County	10.06
% Within Suburban County	39.41
% To Other Suburban County	8.92
% Work Out of Area	2.40

Travel Time	
Mean (in minutes)	
Originating in:	
Area	23.36
Central County	23.07
Suburban Counties	23.56
Commute Length	
% Less Than 15 Minutes	25.74
% 15 - 29 Minutes	39.48
% 30 - 39 Minutes	17.85
% 40 - 59 Minutes	10.73
% 60 Minutes or More	4.42
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	25.01
% 7:00 AM - 8:29 AM	39.46
% 8:30 AM - 9:59 AM	11.06
% All Other Departures	22.17
% Worked at Home	1.76

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,928,862
% Travel by POVs	92.74
POV Drivers	1,817,245
% POV Drivers	87.37
POV Passengers	111,617
% POV Passengers	5.37
POV Occupancy	1.06

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	82.66
% Carpool	10.08
Transit	
% Bus	2.30
% Subway/Rail	0.01
% Taxi	0.11
Other	
% Motorcycle	0.05
% Walk	2.41
% Bicycle	0.18
% Other	0.43
% Work at Home	1.76

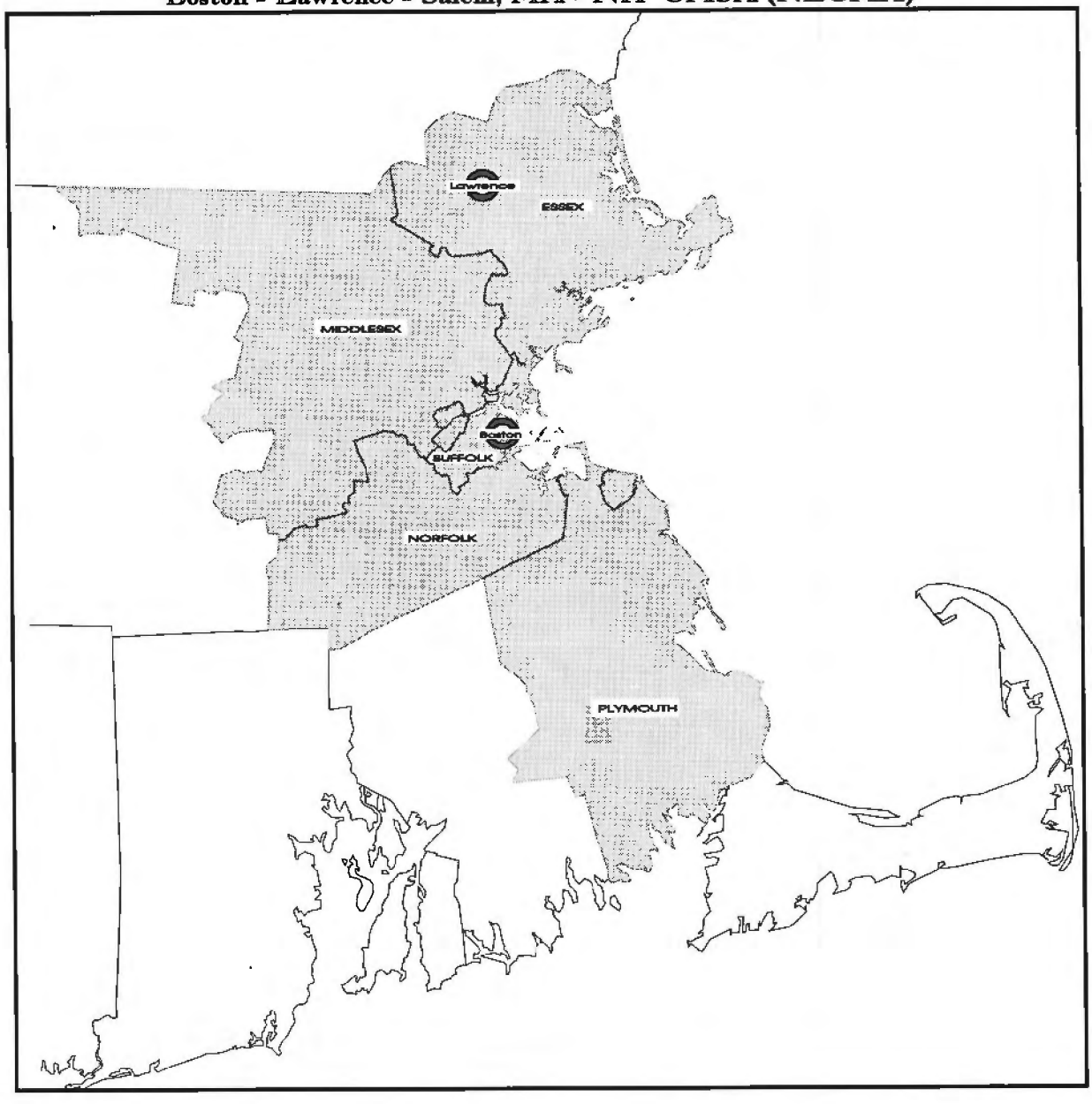
Vehicle Availability	
Total Household Vehicles	2,854,637
% 0 Vehicle Households	12.16
% 1 Vehicle Households	32.78
% 2 Vehicle Households	37.57
% 3+ Vehicle Households	17.49

General Indicators	
Population/Sq. Mile	901
Households/Sq. Mile	333
Workers/Sq. Mile, Areawide	
By Place of Residence	402
By Place of Work	401
Workers/Sq. Mile, Central County	
By Place of Residence	1,437
By Place of Work	1,383
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	262
By Place of Work	269
Workers/Household	1.21
Vehicles/Household	1.66
Vehicles/Worker	1.37
Workers/Vehicle	0.73

Central County
Wayne, MI

Suburban Counties
Michigan:
- Lapeer
- Livingston
- Macomb
- Monroe
- Oakland
- St. Clair
- Washtenaw

Boston - Lawrence - Salem, MA - NH CMSA (NECMA)



Journey-to-Work Profile: Boston-Lawrence-Salem, MA-NH CMSA (1990)

Demographics and Land Area	
Area Population	4,171,747
% Central County	13.77
% Suburban Counties	86.23
% Urban	87.08
% Rural	12.92
Total Households	1,545,347
Persons Per Household	2.61
Median Household Income	
Areawide	$40,647
Central County	$29,180
Suburban Counties	$42,478
Age Characteristics	
Median Age	33.20
% 15 Years or Less	19.75
% 65 Years or More	12.39
Square Miles	
Areawide Total	3,105
% Central County	1.56
% Suburban Counties	98.44

Workers	
Living in Area	2,141,717
% of Population	51.30
% Male	52.60
% Female	47.40
Living in Central County	324,109
% Work Central County	69.95
% Work Suburban County	28.46
% Work Out of Area	1.58
Living in Suburban Counties	1,605,854
% Work Central County	16.58
% Work Same County	63.63
% Work Different County	14.79
% Work Out of Area	4.99

Journey-to-Work Flows (calculated using NECMA definition)	
% Central-Central County	11.75
% Central-Suburban County	4.78
% Suburban-Central County	13.80
% Within Suburban County	52.94
% To Other Suburban County	12.31
% Work Out of Area	4.42

Travel Time	
Mean (in minutes)	
Originating in:	
Area	24.25
Central County	24.95
Suburban Counties	24.14
Commute Length	
% Less Than 15 Minutes	27.70
% 15 - 29 Minutes	33.40
% 30 - 39 Minutes	17.38
% 40 - 59 Minutes	12.62
% 60 Minutes or More	6.40
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	22.00
% 7:00 AM - 8:29 AM	45.54
% 8:30 AM - 9:59 AM	13.12
% All Other Departures	16.84
% Worked at Home	2.51

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,721,420
% Travel by POVs	80.38
POV Drivers	1,602,738
% POV Drivers	74.83
POV Passengers	118,682
% POV Passengers	5.54
POV Occupancy	1.07

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	70.15
% Carpool	10.29
Transit	
% Bus	4.87
% Subway/Rail	5.48
% Taxi	0.22
Other	
% Motorcycle	0.07
% Walk	5.47
% Bicycle	0.43
% Other	0.51
% Work at Home	2.51

Vehicle Availability	
Total Household Vehicles	2,372,142
% 0 Vehicle Households	14.74
% 1 Vehicle Households	35.39
% 2 Vehicle Households	35.88
% 3+ Vehicle Households	13.99

General Indicators	
Population/Sq. Mile	1,344
Households/Sq. Mile	498
Workers/Sq. Mile, Areawide	
By Place of Residence	622
By Place of Work	667
Workers/Sq. Mile, Central County	
By Place of Residence	6,693
By Place of Work	10,847
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	525
By Place of Work	505
Workers/Household	1.39
Vehicles/Household	1.54
Vehicles/Worker	1.11
Workers/Vehicle	0.90

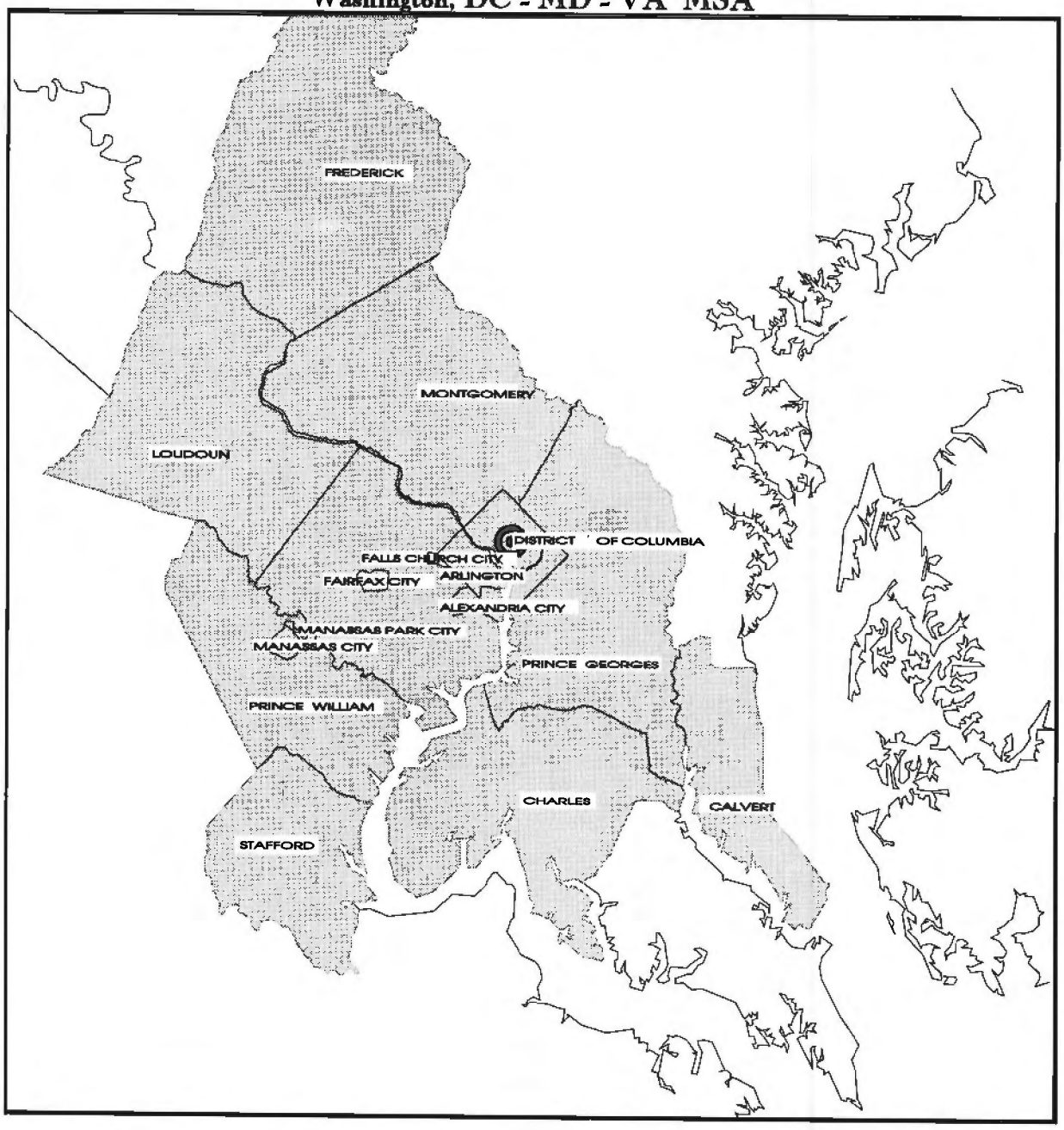
Central City, Central County
Boston City, Suffolk County, MA

Suburban Counties
CMSA
Massachusetts:
- Bristol (pt.)
- Essex (pt.)
- Middlesex (pt.)
- Norfolk (pt.)
- Plymouth (pt.)
- Worcester (pt.)

New Hampshire:
- Hillsborough (pt.)
- Rockingham (pt.)

NECMA
Massachusetts:
- Essex
- Middlesex
- Norfolk
- Plymouth

Washington, DC - MD - VA MSA



Journey-to-Work Profile: Washington, DC-MD-VA MSA (1990)

Demographics and Land Area	
Area Population	3,923,574
% Central County	15.47
% Suburban Counties	84.53
% Urban	91.53
% Rural	8.47
Total Households	1,460,785
Persons Per Household	2.62
Median Household Income	
Areawide	$46,856
Central County	$30,727
Suburban Counties	$49,807
Age Characteristics	
Median Age	32.40
% 15 Years or Less	21.05
% 65 Years or More	8.56
Square Miles	
Areawide Total	3,967
% Central County	1.55
% Suburban Counties	98.45

Workers	
Living in Area	2,214,350
% of Population	56.40
% Male	52.50
% Female	47.50
Living in Central County	304,428
% Work Central County	77.76
% Work Suburban County	14.78
% Work Out of Area	7.46
Living in Suburban Counties	1,909,922
% Work Central County	23.38
% Work Same County	47.77
% Work Different County	14.02
% Work Out of Area	14.84

Journey-to-Work Flows	
% Central-Central County	10.69
% Central-Suburban County	2.03
% Suburban-Central County	20.16
% Within Suburban County	41.20
% To Other Suburban County	12.09
% Work Out of Area	13.82

Travel Time	
Mean (in minutes)	
Originating in:	
Area	29.52
Central County	27.05
Suburban Counties	29.91
Commute Length	
% Less Than 15 Minutes	17.45
% 15 - 29 Minutes	30.93
% 30 - 39 Minutes	20.08
% 40 - 59 Minutes	18.06
% 60 Minutes or More	10.65
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	27.12
% 7:00 AM - 8:29 AM	43.14
% 8:30 AM - 9:59 AM	13.32
% All Other Departures	13.59
% Worked at Home	2.84

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,743,115
% Travel by POVs	78.72
POV Drivers	1,543,801
% POV Drivers	69.72
POV Passengers	199,314
% POV Passengers	9.00
POV Occupancy	1.13

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	62.95
% Carpool	15.77
Transit	
% Bus	6.66
% Subway/Rail	6.68
% Taxi	0.31
Other	
% Motorcycle	0.12
% Walk	3.85
% Bicycle	0.30
% Other	0.52
% Work at Home	2.84

Vehicle Availability	
Total Household Vehicles	2,433,697
% 0 Vehicle Households	11.87
% 1 Vehicle Households	33.16
% 2 Vehicle Households	36.77
% 3+ Vehicle Households	18.20

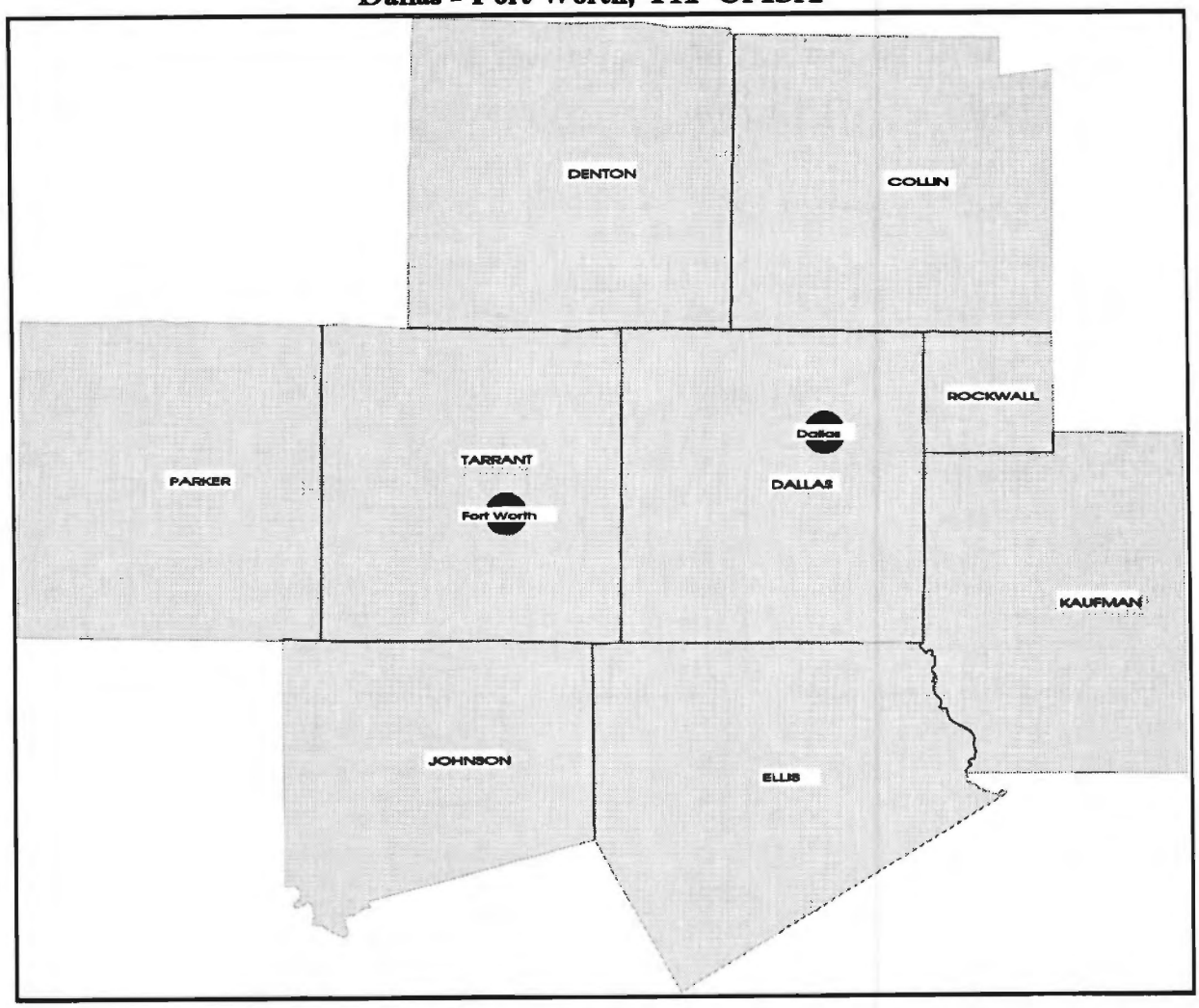
General Indicators	
Population/Sq. Mile	989
Households/Sq. Mile	368
Workers/Sq. Mile, Areawide	
By Place of Residence	562
By Place of Work	515
Workers/Sq. Mile, Central County	
By Place of Residence	4,957
By Place of Work	14,678
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	493
By Place of Work	292
Workers/Household	1.52
Vehicles/Household	1.67
Vehicles/Worker	1.10
Workers/Vehicle	0.91

Central County
District of Columbia

Suburban Counties
Maryland:
- Calvert
- Charles
- Frederick
- Montgomery
- Prince Georges

Virginia:
- Arlington
- Fairfax
- Loudoun
- Prince William
- Stafford
- Alexandria City
- Fairfax City
- Falls Church City
- Manassas City
- Manassas Park City

Dallas - Fort Worth, TX CMSA



Journey-to-Work Profile: Dallas-Fort Worth, TX CMSA (1990)

Demographics and Land Area	
Area Population	3,885,415
% Central County	47.69
% Suburban Counties	52.31
% Urban	92.61
% Rural	7.39
Total Households	1,452,215
Persons Per Household	2.64
Median Household Income	
Areawide	$32,825
Central County	$31,605
Suburban Counties	$33,937
Age Characteristics	
Median Age	30.50
% 15 Years or Less	24.52
% 65 Years or More	8.02
Square Miles	
Areawide Total	6,968
% Central County	12.63
% Suburban Counties	87.37

Workers	
Living in Area	1,976,606
% of Population	50.90
% Male	54.90
% Female	45.10
Living in Central County	943,146
% Work Central County	90.66
% Work Suburban County	7.54
% Work Out of Area	1.80
Living in Suburban Counties	1,033,460
% Work Central County	27.00
% Work Same County	64.24
% Work Different County	6.70
% Work Out of Area	2.06

Journey-to-Work Flows	
% Central-Central County	43.26
% Central-Suburban County	3.60
% Suburban-Central County	14.12
% Within Suburban County	33.59
% To Other Suburban County	3.50
% Work Out of Area	1.93

Travel Time	
Mean (in minutes)	
Originating in:	
Area	24.05
Central County	24.04
Suburban Counties	24.06
Commute Length	
% Less Than 15 Minutes	23.71
% 15 - 29 Minutes	38.43
% 30 - 39 Minutes	19.39
% 40 - 59 Minutes	11.31
% 60 Minutes or More	4.88
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	24.64
% 7:00 AM - 8:29 AM	46.35
% 8:30 AM - 9:59 AM	9.75
% All Other Departures	16.97
% Worked at Home	2.28

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,828,641
% Travel by POVs	92.51
POV Drivers	1,680,335
% POV Drivers	85.01
POV Passengers	148,306
% POV Passengers	7.50
POV Occupancy	1.09

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	78.70
% Carpool	13.81
Transit	
% Bus	2.25
% Subway/Rail	0.01
% Taxi	0.09
Other	
% Motorcycle	0.19
% Walk	1.86
% Bicycle	0.13
% Other	0.66
% Work at Home	2.28

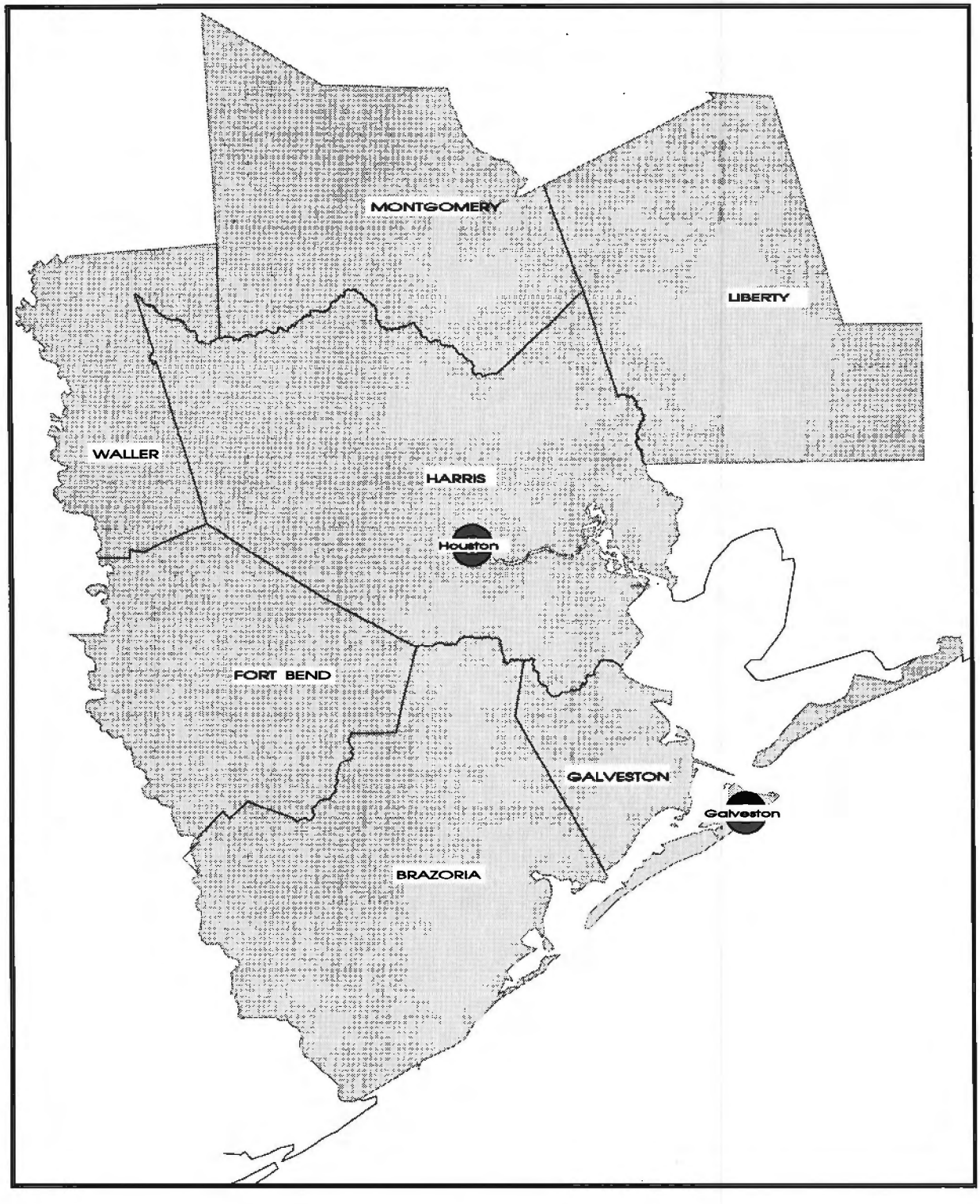
Vehicle Availability	
Total Household Vehicles	2,528,765
% 0 Vehicle Households	6.37
% 1 Vehicle Households	34.98
% 2 Vehicle Households	41.63
% 3+ Vehicle Households	17.02

General Indicators	
Population/Sq. Mile	558
Households/Sq. Mile	208
Workers/Sq. Mile, Areawide	
By Place of Residence	284
By Place of Work	275
Workers/Sq. Mile, Central County	
By Place of Residence	1,072
By Place of Work	1,317
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	170
By Place of Work	124
Workers/Household	1.36
Vehicles/Household	1.74
Vehicles/Worker	1.28
Workers/Vehicle	0.78

Central County
Dallas, TX

Suburban Counties
Texas:
- Collin
- Denton
- Ellis
- Johnson
- Kaufman
- Parker
- Rockwall
- Tarrant

Houston - Galveston - Brazoria, TX CMSA



Journey-to-Work Profile: Houston-Galveston-Brazoria, TX CMSA (1990)

Demographics and Land Area	
Area Population	3,711,043
% Central County	75.94
% Suburban Counties	24.06
% Urban	89.67
% Rural	10.33
Total Households	1,333,707
Persons Per Household	2.75
Median Household Income	
Areawide	$31,488
Central County	$30,970
Suburban Counties	$33,123
Age Characteristics	
Median Age	30.50
% 15 Years or Less	25.92
% 65 Years or More	7.32
Square Miles	
Areawide Total	7,107
% Central County	24.33
% Suburban Counties	75.67

Workers	
Living in Area	1,759,796
% of Population	47.40
% Male	56.60
% Female	43.40
Living in Central County	1,356,196
% Work Central County	95.47
% Work Suburban County	3.11
% Work Out of Area	1.42
Living in Suburban Counties	403,600
% Work Central County	40.21
% Work Same County	54.53
% Work Different County	2.56
% Work Out of Area	2.70

Journey-to-Work Flows	
% Central-Central County	73.58
% Central-Suburban County	2.39
% Suburban-Central County	9.22
% Within Suburban County	12.51
% To Other Suburban County	0.59
% Work Out of Area	1.71

Travel Time	
Mean (in minutes)	
Originating in:	
Area	26.08
Central County	25.79
Suburban Counties	27.08
Commute Length	
% Less Than 15 Minutes	22.14
% 15 - 29 Minutes	34.96
% 30 - 39 Minutes	20.18
% 40 - 59 Minutes	13.44
% 60 Minutes or More	7.21
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	30.14
% 7:00 AM - 8:29 AM	42.61
% 8:30 AM - 9:59 AM	9.04
% All Other Departures	16.14
% Worked at Home	2.07

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,594,796
% Travel by POVs	90.62
POV Drivers	1,453,911
% POV Drivers	82.62
POV Passengers	140,885
% POV Passengers	8.01
POV Occupancy	1.10

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	76.06
% Carpool	14.57
Transit	
% Bus	3.65
% Subway/Rail	0.02
% Taxi	0.11
Other	
% Motorcycle	0.20
% Walk	2.26
% Bicycle	0.29
% Other	0.78
% Work at Home	2.07

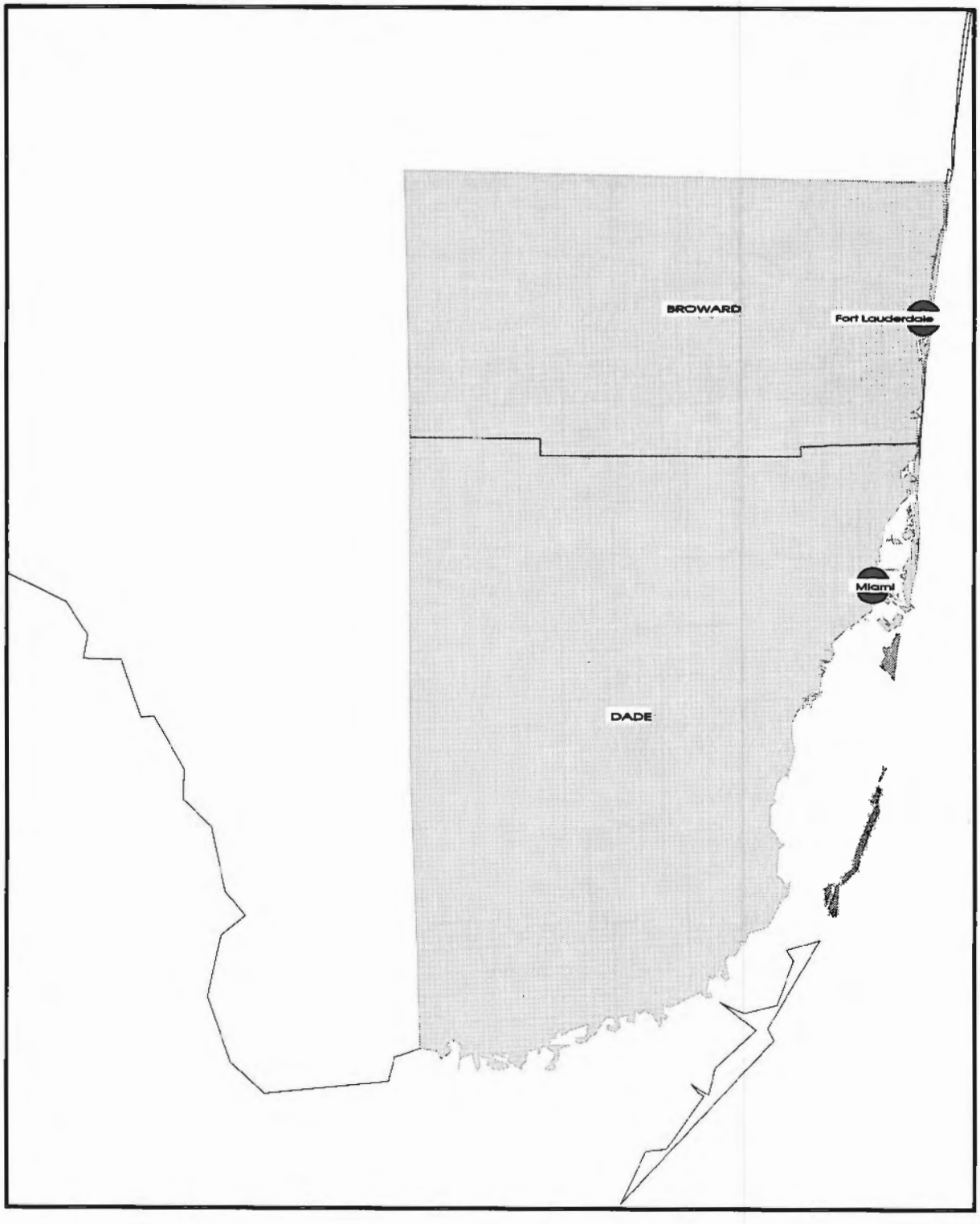
Vehicle Availability	
Total Household Vehicles	2,199,700
% 0 Vehicle Households	8.30
% 1 Vehicle Households	37.06
% 2 Vehicle Households	40.17
% 3+ Vehicle Households	14.47

General Indicators	
Population/Sq. Mile	522
Households/Sq. Mile	188
Workers/Sq. Mile, Areawide	
By Place of Residence	248
By Place of Work	248
Workers/Sq. Mile, Central County	
By Place of Residence	784
By Place of Work	857
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	75
By Place of Work	53
Workers/Household	1.32
Vehicles/Household	1.65
Vehicles/Worker	1.25
Workers/Vehicle	0.80

Central County
Harris, TX

Suburban Counties
Texas:
- Brazoria
- Fort Bend
- Galveston
- Liberty
- Montgomery
- Waller

Miami - Fort Lauderdale, FL CMSA



Journey-to-Work Profile: Miami-Fort Lauderdale, FL CMSA (1990)

Demographics and Land Area	
Area Population	3,192,582
% Central County	60.67
% Suburban County	39.33
% Urban	98.87
% Rural	1.13
Total Households	1,220,097
Persons Per Household	2.58
Median Household Income	
Areawide	$28,503
Central County	$26,909
Suburban County	$30,962
Age Characteristics	
Median Age	35.50
% 15 Years or Less	20.28
% 65 Years or More	16.65
Square Miles	
Areawide Total	3,154
% Central County	61.67
% Suburban County	38.33

Workers	
Living in Area	1,476,085
% of Population	46.20
% Male	54.10
% Female	45.90
Living in Central County	887,996
% Work Central County	95.13
% Work Suburban County	3.55
% Work Out of Area	1.32
Living in Suburban County	588,089
% Work Central County	13.14
% Work Same County	80.19
% Work Out of Area	6.67

Journey-to-Work Flows	
% Central-Central County	57.23
% Central-Suburban County	2.14
% Suburban-Central County	5.24
% Within Suburban County	31.95
% Work Out of Area	3.45

Travel Time	
Mean (in minutes)	
Originating in:	
Area	24.06
Central County	24.80
Suburban County	22.95
Commute Length	
% Less Than 15 Minutes	22.13
% 15 - 29 Minutes	38.49
% 30 - 39 Minutes	21.61
% 40 - 59 Minutes	11.16
% 60 Minutes or More	4.63
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	21.55
% 7:00 AM - 8:29 AM	45.34
% 8:30 AM - 9:59 AM	14.32
% All Other Departures	16.81
% Worked at Home	1.97

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,325,040
% Travel by POVs	89.77
POV Drivers	1,209,623
% POV Drivers	81.95
POV Passengers	115,417
% POV Passengers	7.82
POV Occupancy	1.10

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	75.29
% Carpool	14.48
Transit	
% Bus	3.64
% Subway/Rail	0.57
% Taxi	0.13
Other	
% Motorcycle	0.21
% Walk	2.25
% Bicycle	0.55
% Other	0.89
% Work at Home	1.97

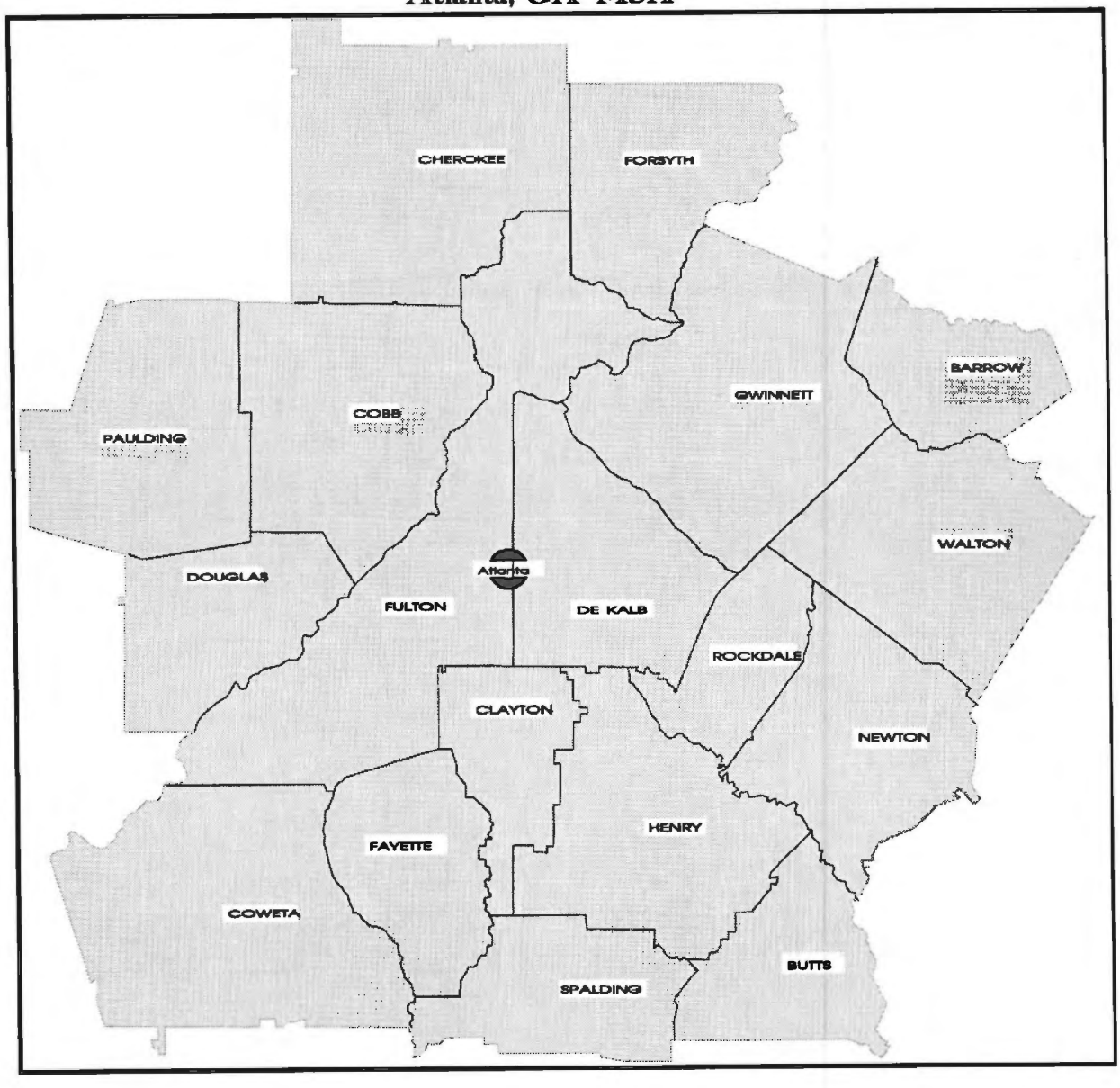
Vehicle Availability	
Total Household Vehicles	1,818,998
% 0 Vehicle Households	13.54
% 1 Vehicle Households	40.15
% 2 Vehicle Households	33.83
% 3+ Vehicle Households	12.48

General Indicators	
Population/Sq. Mile	1,012
Households/Sq. Mile	387
Workers/Sq. Mile, Areawide	
By Place of Residence	468
By Place of Work	465
Workers/Sq. Mile, Central County	
By Place of Residence	457
By Place of Work	480
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	486
By Place of Work	440
Workers/Household	1.21
Vehicles/Household	1.49
Vehicles/Worker	1.23
Workers/Vehicle	0.81

Central County
Dade, FL

Suburban County
Florida:
Broward

Atlanta, GA MSA



Journey-to-Work Profile: Atlanta, GA MSA (1990)

Demographics and Land Area

Area Population	2,833,511
% Central County	22.90
% Suburban Counties	77.10
% Urban	80.92
% Rural	19.08
Total Households	1,056,929
Persons Per Household	2.64
Median Household Income	
Areawide	$36,051
Central County	$29,978
Suburban Counties	$37,855
Age Characteristics	
Median Age	31.40
% 15 Years or Less	23.17
% 65 Years or More	7.92
Square Miles	
Areawide Total	5,121
% Central County	10.32
% Suburban Counties	89.68

Workers

Living in Area	1,481,781
% of Population	52.30
% Male	53.30
% Female	46.70
Living in Central County	315,366
% Work Central County	70.18
% Work Suburban County	28.12
% Work Out of Area	1.70
Living in Suburban Counties	1,166,415
% Work Central County	27.74
% Work Same County	45.83
% Work Different County	23.70
% Work Out of Area	2.73

Journey-to-Work Flows

% Central-Central County	14.94
% Central-Suburban County	5.99
% Suburban-Central County	21.84
% Within Suburban County	36.08
% To Other Suburban County	18.65
% Work Out of Area	2.51

Travel Time

Mean (in minutes)	
Originating in:	
Area	26.04
Central County	24.91
Suburban Counties	26.34
Commute Length	
% Less Than 15 Minutes	20.40
% 15 - 29 Minutes	35.49
% 30 - 39 Minutes	20.81
% 40 - 59 Minutes	14.97
% 60 Minutes or More	6.10
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	24.05
% 7:00 AM - 8:29 AM	45.99
% 8:30 AM - 9:59 AM	11.51
% All Other Departures	16.21
% Worked at Home	2.21

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	1,344,050
% Travel by POVs	90.71
POV Drivers	1,242,028
% POV Drivers	83.82
POV Passengers	102,022
% POV Passengers	6.89
POV Occupancy	1.08

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	77.96
% Carpool	12.74
Transit	
% Bus	3.54
% Subway/Rail	1.05
% Taxi	0.12
Other	
% Motorcycle	0.11
% Walk	1.45
% Bicycle	0.09
% Other	0.69
% Work at Home	2.24

Vehicle Availability

Total Household Vehicles	1,902,660
% 0 Vehicle Households	8.88
% 1 Vehicle Households	29.88
% 2 Vehicle Households	39.90
% 3+ Vehicle Households	21.34

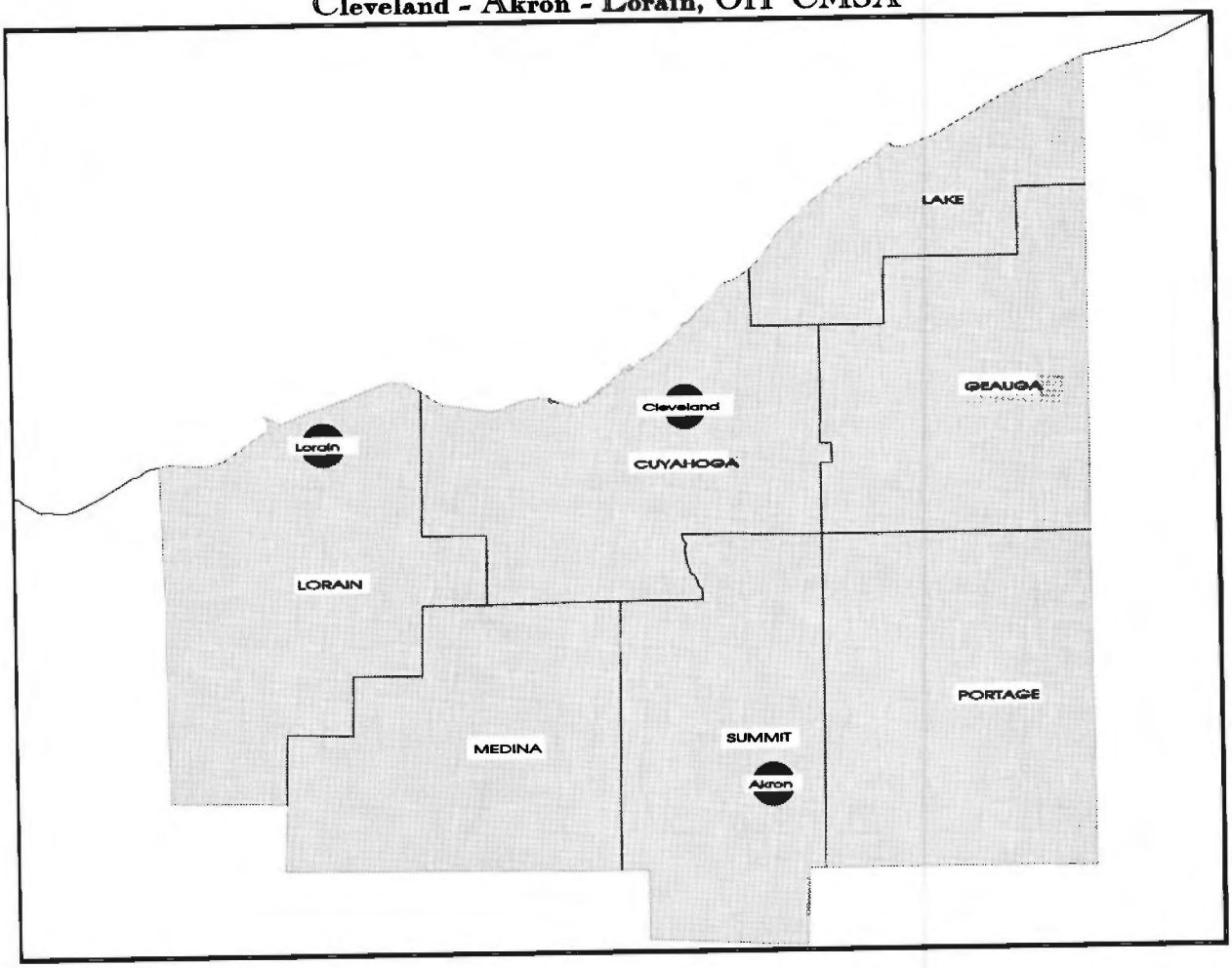
General Indicators

Population/Sq. Mile	553
Households/Sq. Mile	206
Workers/Sq. Mile, Areawide	
By Place of Residence	289
By Place of Work	297
Workers/Sq. Mile, Central County	
By Place of Residence	597
By Place of Work	1,076
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	254
By Place of Work	208
Workers/Household	1.40
Vehicles/Household	1.80
Vehicles/Worker	1.28
Workers/Vehicle	0.78

Central County
Fulton, GA

Suburban Counties
Georgia:
- Barrow
- Butts
- Cherokee
- Clayton
- Cobb
- Cowetta
- Dekalb
- Douglas
- Fayette
- Forsyth
- Gwinnett
- Henry
- Newton
- Paulding
- Rockdale
- Spalding
- Walton

Cleveland - Akron - Lorain, OH CMSA



Journey-to-Work Profile: Cleveland-Akron-Lorain, OH CMSA (1990)

Demographics and Land Area	
Area Population	2,759,823
% Central County	51.17
% Suburban Counties	48.83
% Urban	90.07
% Rural	9.93
Total Households	1,058,648
Persons Per Household	2.56
Median Household Income	
Areawide	$30,332
Central County	$28,595
Suburban Counties	$32,152
Age Characteristics	
Median Age	34.20
% 15 Years or Less	22.20
% 65 Years or More	13.89
Square Miles	
Areawide Total	2,910
% Central County	15.75
% Suburban Counties	84.25

Workers	
Living in Area	1,242,099
% of Population	45.00
% Male	53.80
% Female	46.20
Living in Central County	617,552
% Work Central County	92.89
% Work Suburban County	5.78
% Work Out of Area	1.33
Living in Suburban Counties	624,547
% Work Central County	23.13
% Work Same County	64.87
% Work Different County	7.93
% Work Out of Area	4.06

Journey-to-Work Flows	
% Central-Central County	46.18
% Central-Suburban County	2.87
% Suburban-Central County	11.63
% Within Suburban County	32.62
% To Other Suburban County	3.99
% Work Out of Area	2.70

Travel Time	
Mean (in minutes)	
Originating in:	
Area	21.96
Central County	22.41
Suburban Counties	21.52
Commute Length	
% Less Than 15 Minutes	27.75
% 15 - 29 Minutes	41.00
% 30 - 39 Minutes	16.90
% 40 - 59 Minutes	9.02
% 60 Minutes or More	3.36
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	23.74
% 7:00 AM - 8:29 AM	42.22
% 8:30 AM - 9:59 AM	11.37
% All Other Departures	20.70
% Worked at Home	1.96

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,115,769
% Travel by POVs	89.83
POV Drivers	1,048,353
% POV Drivers	84.40
POV Passengers	67,416
% POV Passengers	5.43
POV Occupancy	1.06

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	79.55
% Carpool	10.28
Transit	
% Bus	4.21
% Subway/Rail	0.28
% Taxi	0.06
Other	
% Motorcycle	0.06
% Walk	2.98
% Bicycle	0.13
% Other	0.48
% Work at Home	1.96

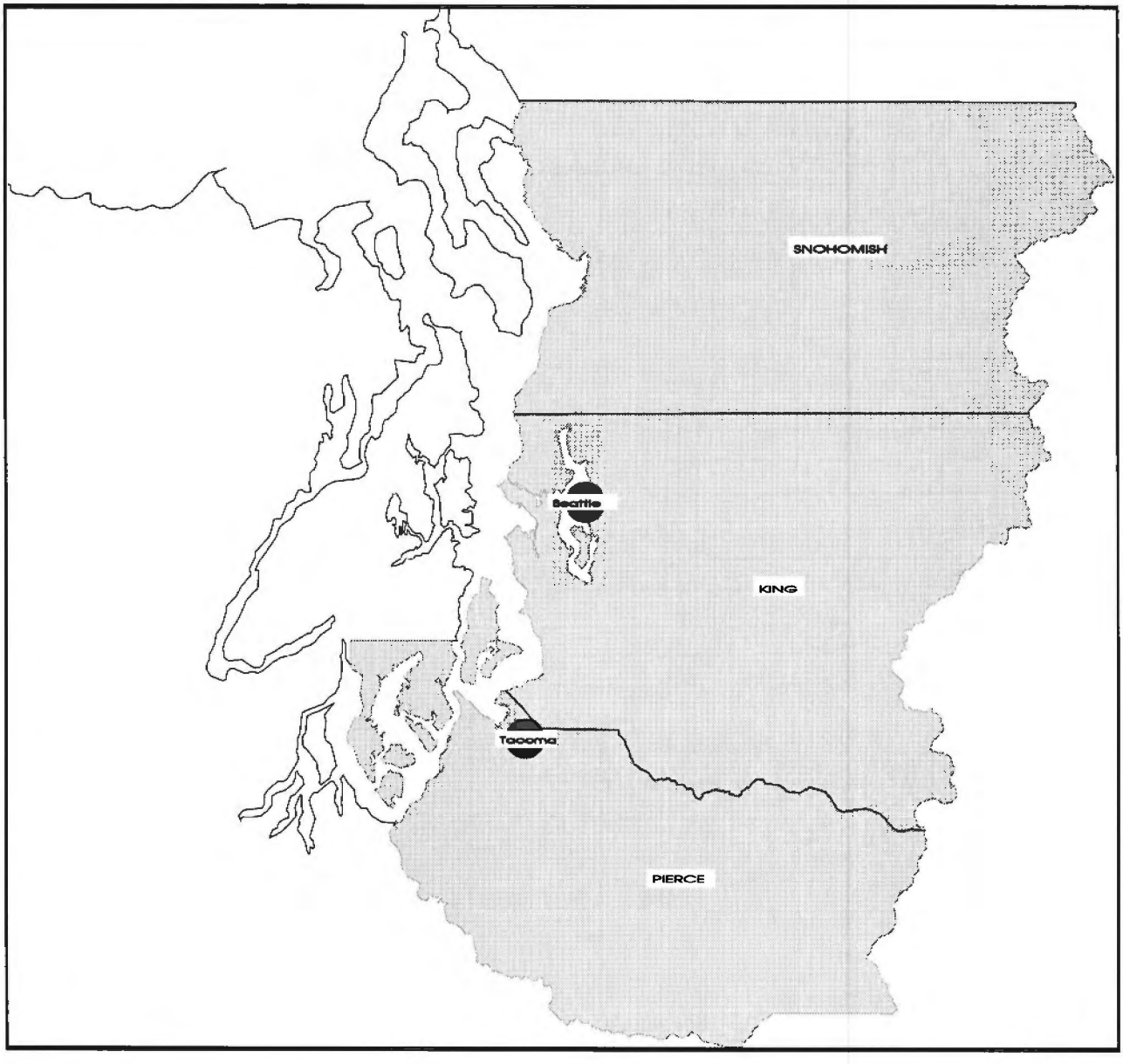
Vehicle Availability	
Total Household Vehicles	1,717,698
% 0 Vehicle Households	12.43
% 1 Vehicle Households	34.23
% 2 Vehicle Households	36.79
% 3+ Vehicle Households	16.54

General Indicators	
Population/Sq. Mile	948
Households/Sq. Mile	364
Workers/Sq. Mile, Areawide	
By Place of Residence	427
By Place of Work	434
Workers/Sq. Mile, Central County	
By Place of Residence	1,348
By Place of Work	1,590
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	255
By Place of Work	218
Workers/Household	1.17
Vehicles/Household	1.62
Vehicles/Worker	1.38
Workers/Vehicle	0.72

Central County
Cuyahoga, OH

Suburban Counties
Ohio:
- Portage
- Summit
- Geauga
- Lake
- Lorain
- Medina

Seattle - Tacoma, WA CMSA



Journey-to-Work Profile: Seattle-Tacoma, WA CMSA (1990)

Demographics and Land Area	
Area Population	2,559,164
% Central County	58.90
% Suburban Counties	41.10
% Urban	89.94
% Rural	10.06
Total Households	1,003,337
Persons Per Household	2.49
Median Household Income	
Areawide	$35,047
Central County	$36,179
Suburban Counties	$33,425
Age Characteristics	
Median Age	32.90
% 15 Years or Less	22.27
% 65 Years or More	10.66
Square Miles	
Areawide Total	5,892
% Central County	36.09
% Suburban Counties	63.91

Workers	
Living in Area	1,308,338
% of Population	51.10
% Male	55.20
% Female	44.80
Living in Central County	805,782
% Work Central County	93.20
% Work Suburban County	5.31
% Work Out of Area	1.49
Living in Suburban Counties	502,556
% Work Central County	27.54
% Work Same County	68.73
% Work Different County	0.58
% Work Out of Area	3.15

Journey-to-Work Flows	
% Central-Central County	57.40
% Central-Suburban County	3.27
% Suburban-Central County	10.58
% Within Suburban County	26.40
% To Other Suburban County	0.22
% Work Out of Area	2.13

Travel Time	
Mean (in minutes)	
Originating in:	
Area	24.33
Central County	24.16
Suburban Counties	24.61
Commute Length	
% Less Than 15 Minutes	23.95
% 15 - 29 Minutes	37.81
% 30 - 39 Minutes	17.58
% 40 - 59 Minutes	11.86
% 60 Minutes or More	5.45
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	30.64
% 7:00 AM - 8:29 AM	36.64
% 8:30 AM - 9:59 AM	10.13
% All Other Departures	19.23
% Worked at Home	3.36

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,116,958
% Travel by POVs	85.37
POV Drivers	1,032,699
% POV Drivers	78.93
POV Passengers	84,259
% POV Passengers	6.44
POV Occupancy	1.08

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	73.53
% Carpool	11.91
Transit	
% Bus	6.16
% Subway/Rail	0.02
% Taxi	0.06
Other	
% Motorcycle	0.32
% Walk	3.53
% Bicycle	0.52
% Other	0.59
% Work at Home	3.36

Vehicle Availability	
Total Household Vehicles	1,814,135
% 0 Vehicle Households	7.91
% 1 Vehicle Households	31.48
% 2 Vehicle Households	38.84
% 3+ Vehicle Households	21.78

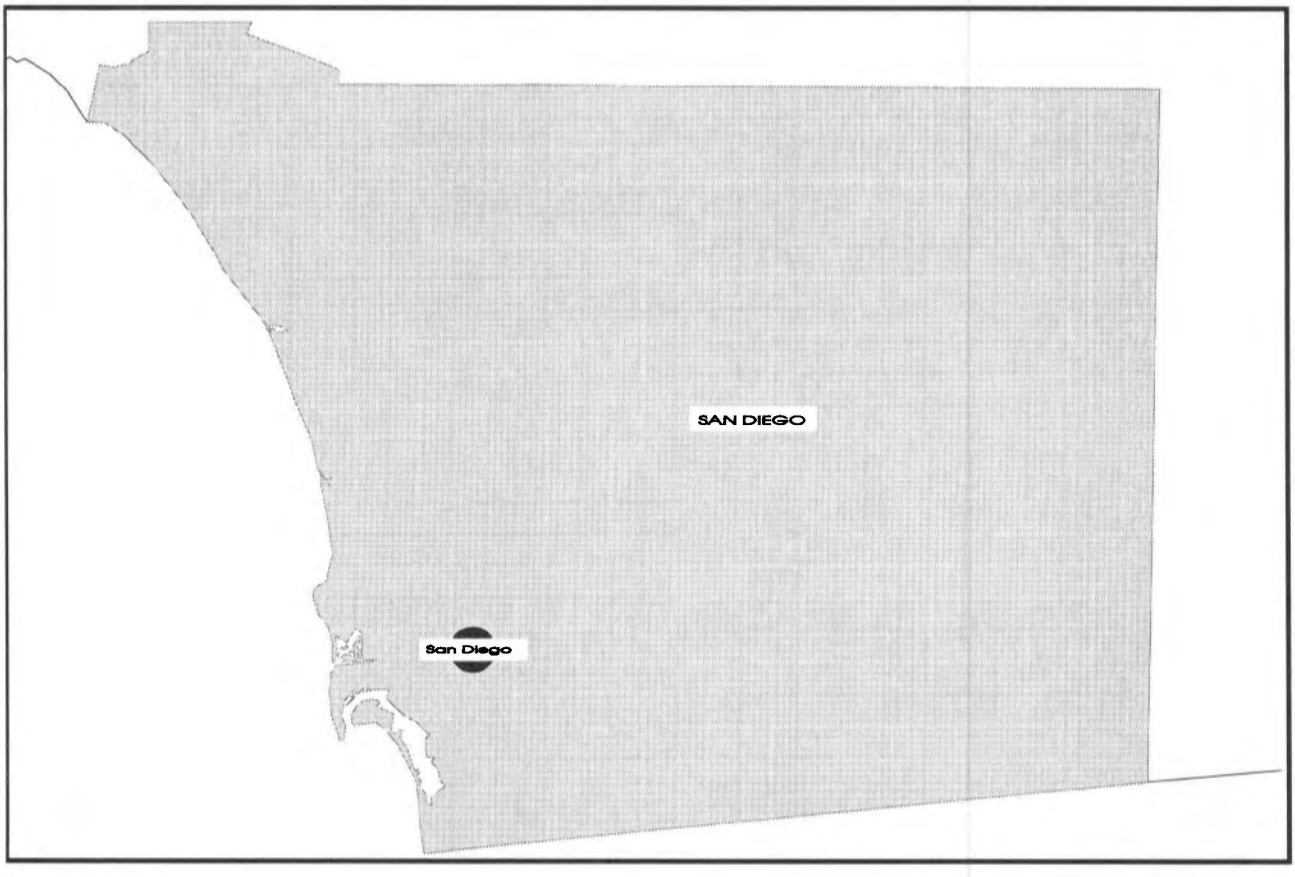
General Indicators	
Population/Sq. Mile	434
Households/Sq. Mile	170
Workers/Sq. Mile, Areawide	
By Place of Residence	222
By Place of Work	224
Workers/Sq. Mile, Central County	
By Place of Residence	379
By Place of Work	426
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	133
By Place of Work	109
Workers/Household	1.30
Vehicles/Household	1.81
Vehicles/Worker	1.39
Workers/Vehicle	0.72

Central County
King, WA

Suburban Counties
Washington:
Pierce
Snohomish

153-916 O - 94 - 7

San Diego, CA MSA



Journey-to-Work Profile: San Diego, CA MSA (1990)

Demographics and Land Area	
Area Population	2,498,016
% Central County	100.00
% Urban	95.18
% Rural	4.82
Total Households	887,719
Persons Per Household	2.69
Median Household Income	
Areawide	$35,022
Central County	$35,022
Age Characteristics	
Median Age	30.80
% 15 Years or Less	22.05
% 65 Years or More	10.93
Square Miles	
Areawide Total	4,204
% Central County	100.00

Workers	
Living in Area	1,230,446
% of Population	49.30
% Male	58.30
% Female	41.70
Living in Central County	1,230,446
% Work Central County	96.55
% Work Out of Area	3.45

Journey-to-Work Flows	
% Central-Central County	96.55
% Work Out of Area	3.45

Travel Time	
Mean (in minutes)	
Originating in:	
Area	22.17
Central County	22.17
Commute Length	
% Less Than 15 Minutes	26.43
% 15 - 29 Minutes	40.08
% 30 - 39 Minutes	16.65
% 40 - 59 Minutes	7.91
% 60 Minutes or More	3.95
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	31.30
% 7:00 AM - 8:29 AM	36.80
% 8:30 AM - 9:59 AM	10.00
% All Other Departures	16.92
% Worked at Home	4.98

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,041,651
% Travel by POVs	84.66
POV Drivers	950,262
% POV Drivers	77.23
POV Passengers	91,389
% POV Passengers	7.43
POV Occupancy	1.10

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	70.90
% Carpool	13.76
Transit	
% Bus	3.16
% Subway/Rail	0.04
% Taxi	0.07
Other	
% Motorcycle	0.68
% Walk	4.53
% Bicycle	0.88
% Other	1.00
% Work at Home	4.98

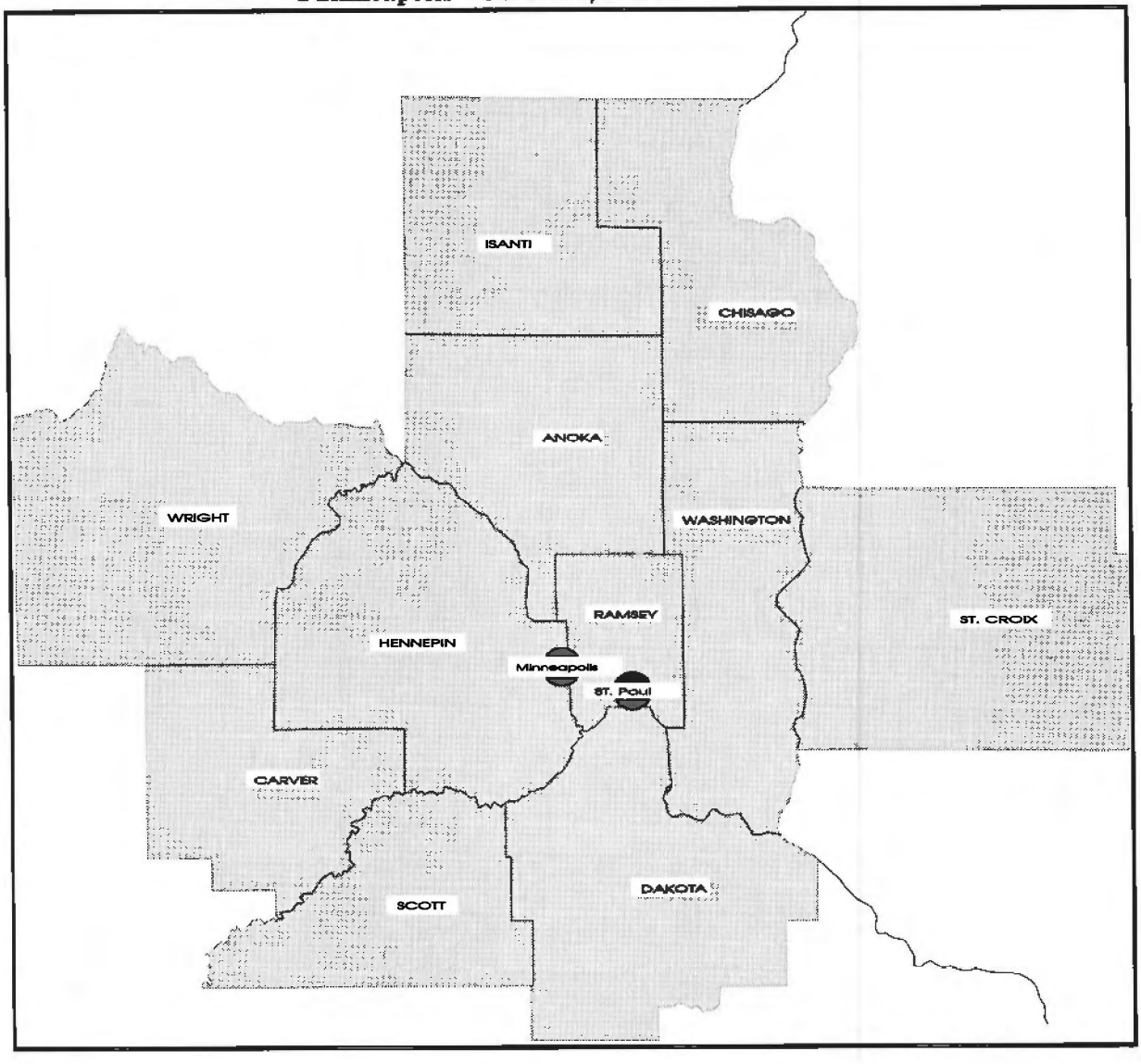
Vehicle Availability	
Total Household Vehicles	1,553,709
% 0 Vehicle Households	7.93
% 1 Vehicle Households	34.10
% 2 Vehicle Households	38.71
% 3+ Vehicle Households	19.26

General Indicators	
Population/Sq. Mile	594
Households/Sq. Mile	211
Workers/Sq. Mile, Areawide	
By Place of Residence	293
By Place of Work	287
Workers/Sq. Mile, Central County	
By Place of Residence	293
By Place of Work	287
Workers/Household	1.39
Vehicles/Household	1.75
Vehicles/Worker	1.26
Workers/Vehicle	0.79

Central County
San Diego, CA

Suburban Counties
None

Minneapolis - St. Paul, MN - WI MSA



Journey-to-Work Profile: Minneapolis-St. Paul, MN-WI MSA (1990)

Demographics and Land Area	
Area Population	2,464,124
% Central County	41.90
% Suburban Counties	58.10
% Urban	89.94
% Rural	10.06
Total Households	935,760
Persons Per Household	2.58
Median Household Income	
Areawide	$36,564
Central County	$35,659
Suburban Counties	$37,217
Age Characteristics	
Median Age	31.60
% 15 Years or Less	23.83
% 65 Years or More	9.88
Square Miles	
Areawide Total	5,051
% Central County	11.02
% Suburban Counties	88.98

Workers	
Living in Area	1,307,624
% of Population	53.10
% Male	52.70
% Female	47.30
Living in Central County	561,081
% Work Central County	85.30
% Work Suburban County	13.54
% Work Out of Area	1.16
Living in Suburban Counties	746,543
% Work Central County	27.73
% Work Same County	49.18
% Work Different County	20.94
% Work Out of Area	2.14

Journey-to-Work Flows	
% Central-Central County	36.60
% Central-Suburban County	5.81
% Suburban-Central County	15.83
% Within Suburban County	28.08
% To Other Suburban County	11.96
% Work Out of Area	1.72

Travel Time	
Mean (in minutes)	
Originating in:	
Area	21.09
Central County	20.19
Suburban Counties	21.77
Commute Length	
% Less Than 15 Minutes	28.21
% 15 - 29 Minutes	42.63
% 30 - 39 Minutes	15.33
% 40 - 59 Minutes	7.76
% 60 Minutes or More	2.68
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	25.76
% 7:00 AM - 8:29 AM	42.34
% 8:30 AM - 9:59 AM	9.30
% All Other Departures	19.20
% Worked at Home	3.40

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,140,292
% Travel by POVs	87.20
POV Drivers	1,061,730
% POV Drivers	81.20
POV Passengers	78,562
% POV Passengers	6.01
POV Occupancy	1.07

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	75.97
% Carpool	11.23
Transit	
% Bus	5.19
% Subway/Rail	0.01
% Taxi	0.08
Other	
% Motorcycle	0.09
% Walk	3.22
% Bicycle	0.42
% Other	0.39
% Work at Home	3.40

Vehicle Availability	
Total Household Vehicles	1,625,020
% 0 Vehicle Households	9.15
% 1 Vehicle Households	31.42
% 2 Vehicle Households	41.42
% 3+ Vehicle Households	18.01

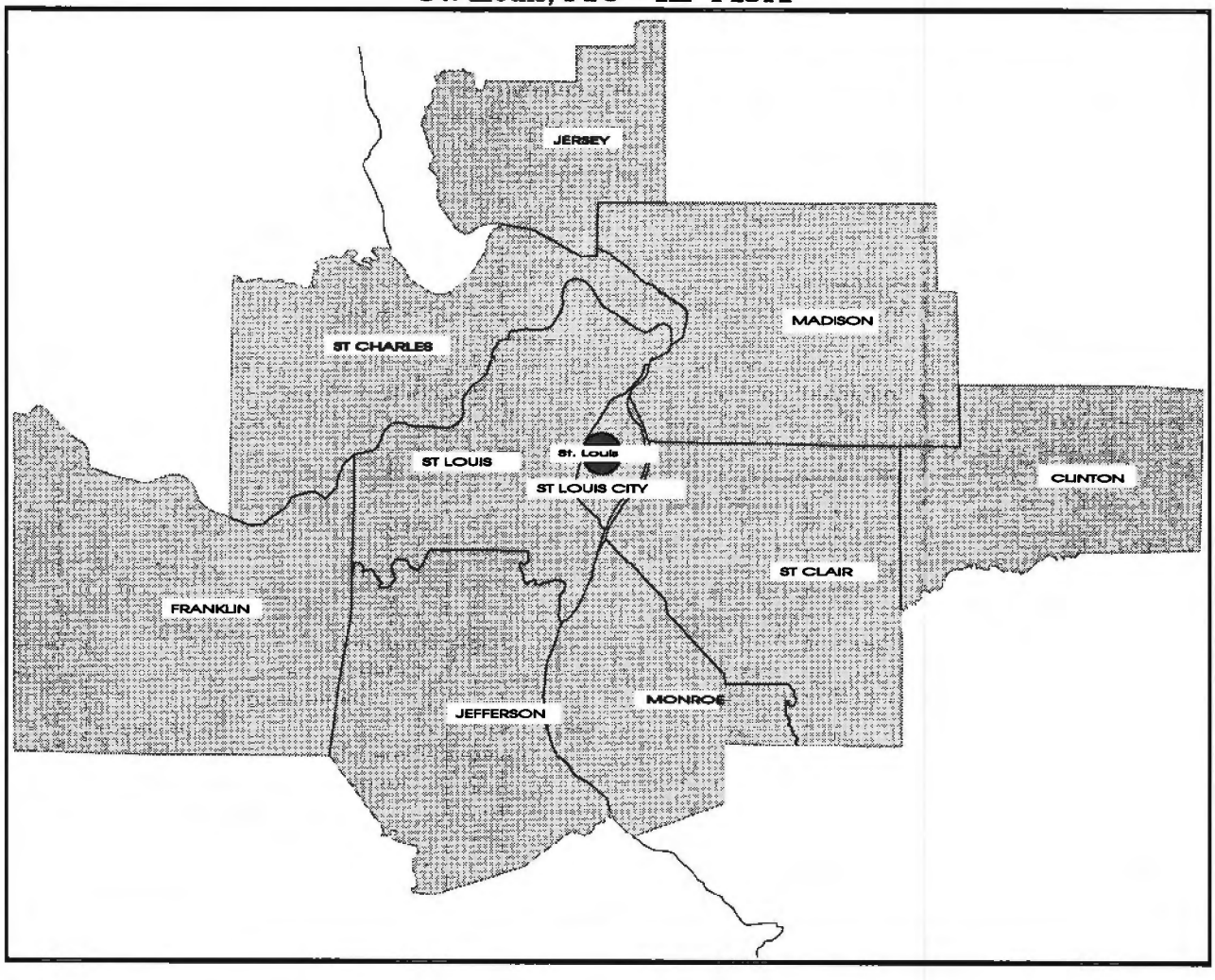
General Indicators	
Population/Sq. Mile	488
Households/Sq. Mile	185
Workers/Sq. Mile, Areawide	
By Place of Residence	259
By Place of Work	265
Workers/Sq. Mile, Central County	
By Place of Residence	1,008
By Place of Work	1,267
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	166
By Place of Work	141
Workers/Household	1.40
Vehicles/Household	1.74
Vehicles/Worker	1.24
Workers/Vehicle	0.80

Central County
Hennepin, MN

Suburban Counties
Minnesota:
- Anoka
- Carver
- Chisago
- Dakota
- Isanti
- Ramsey
- Scott
- Washington
- Wright

Wisconsin:
- St. Croix

St. Louis, MO - IL MSA



Journey-to-Work Profile: St. Louis, MO-IL MSA (1990)

Demographics and Land Area	
Area Population	2,444,099
% Central City	16.23
% Suburban Counties	83.77
% Urban	87.94
% Rural	12.06
Total Households	923,639
Persons Per Household	2.59
Median Household Income	
Areawide	$31,706
Central City	$19,458
Suburban Counties	$34,079
Age Characteristics	
Median Age	33.10
% 15 Years or Less	23.53
% 65 Years or More	12.81
Square Miles	
Areawide Total	5,331
% Central City	1.16
% Suburban Counties	98.84

Workers	
Living in Area	1,144,336
% of Population	46.80
% Male	53.20
% Female	46.80
Living in Central City	158,499
% Work Central City	65.73
% Work Suburban County	33.48
% Work Out of Area	0.79
Living in Suburban Counties	985,837
% Work Central City	20.66
% Work Same County	60.21
% Work Different County	17.04
% Work Out of Area	2.09

Journey-to-Work Flows	
% Central-Central City	9.10
% Central-Suburban County	4.64
% Suburban-Central City	17.80
% Within Suburban County	51.87
% To Other Suburban County	14.68
% Work Out of Area	1.91

Travel Time	
Mean (in minutes)	
Originating in:	
Area	23.11
Central City	21.96
Suburban Counties	23.30
Commute Length	
% Less Than 15 Minutes	25.37
% 15 - 29 Minutes	39.06
% 30 - 39 Minutes	18.64
% 40 - 59 Minutes	10.63
% 60 Minutes or More	3.93
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	28.30
% 7:00 AM - 8:29 AM	40.85
% 8:30 AM - 9:59 AM	9.15
% All Other Departures	19.33
% Worked at Home	2.37

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,050,392
% Travel by POVs	91.79
POV Drivers	975,258
% POV Drivers	85.22
POV Passengers	75,134
% POV Passengers	6.57
POV Occupancy	1.08

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	79.74
% Carpool	12.05
Transit	
% Bus	2.82
% Subway/Rail	0.01
% Taxi	0.14
Other	
% Motorcycle	0.07
% Walk	2.15
% Bicycle	0.12
% Other	0.53
% Work at Home	2.37

Vehicle Availability	
Total Household Vehicles	1,534,873
% 0 Vehicle Households	10.86
% 1 Vehicle Households	33.62
% 2 Vehicle Households	39.11
% 3+ Vehicle Households	16.40

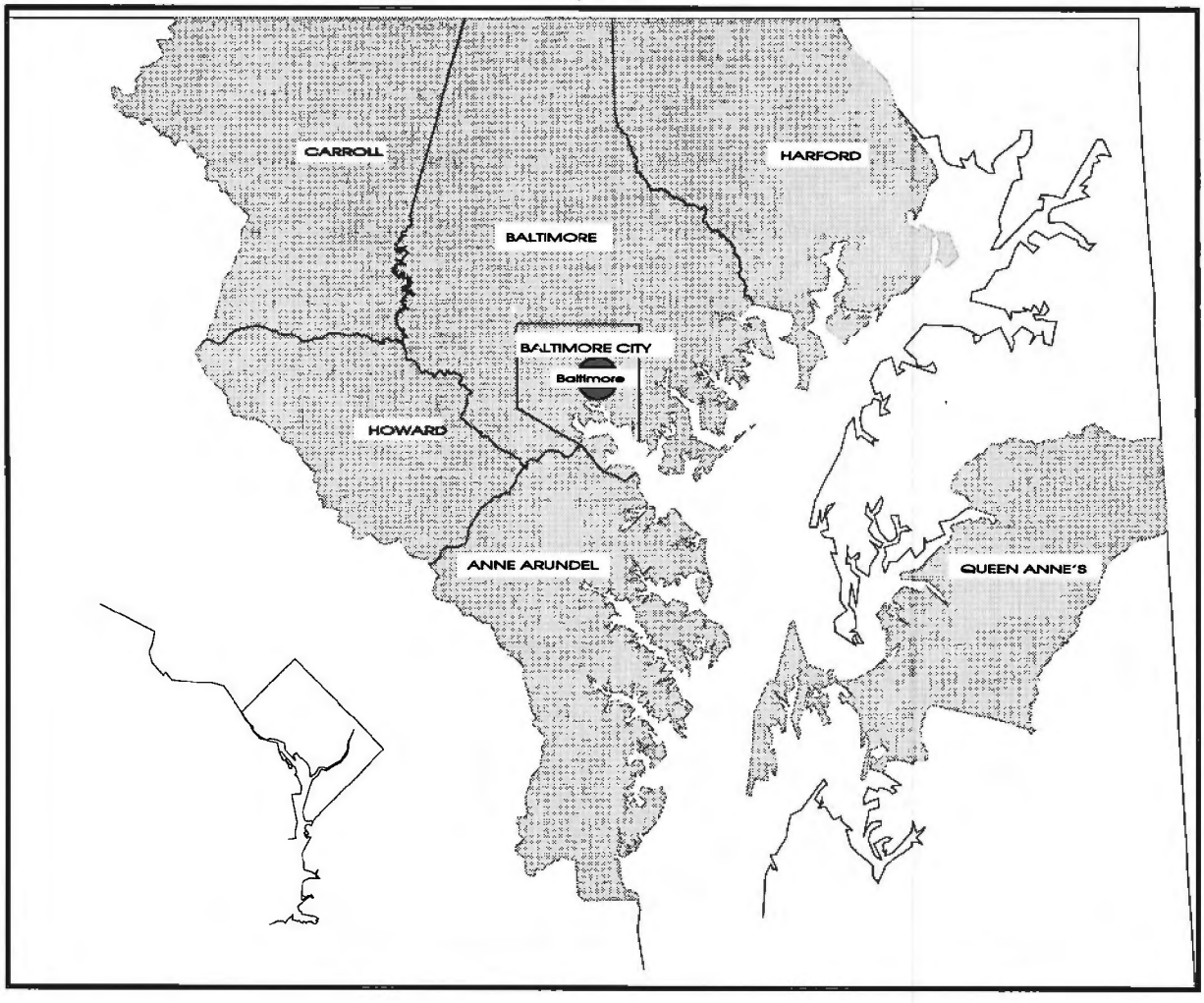
General Indicators	
Population/Sq. Mile	458
Households/Sq. Mile	173
Workers/Sq. Mile, Areawide	
By Place of Residence	215
By Place of Work	205
Workers/Sq. Mile, Central City	
By Place of Residence	2,559
By Place of Work	5,082
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	187
By Place of Work	148
Workers/Household	1.24
Vehicles/Household	1.66
Vehicles/Worker	1.34
Workers/Vehicle	0.75

Central City
St. Louis City, MC

Suburban Counties
Missouri:
- Franklin
- Jefferson
- St. Charles
- St. Louis

Illinois:
- Clinton
- Jersey
- Madison
- Monroe
- St. Clair

Baltimore, MD MSA



Journey-to-Work Profile: Baltimore, MD MSA (1990)

Demographics and Land Area	
Area Population	2,382,172
% Central City	30.90
% Suburban Counties	69.10
% Urban	87.18
% Rural	12.82
Total Households	879,968
Persons Per Household	2.64
Median Household Income	
Areawide	$36,550
Central City	$24,045
Suburban Counties	$42,141
Age Characteristics	
Median Age	33.30
% 15 Years or Less	21.73
% 65 Years or More	11.70
Square Miles	
Areawide Total	2,609
% Central City	3.10
% Suburban Counties	96.90

Workers	
Living in Area	1,191,813
% of Population	50.00
% Male	53.40
% Female	46.60
Living in Central City	307,679
% Work Central City	66.10
% Work Suburban County	30.01
% Work Out of Area	3.89
Living in Suburban Counties	884,134
% Work Central City	20.26
% Work Same County	51.14
% Work Different County	15.27
% Work Out of Area	13.34

Journey-to-Work Flows	
% Central-Central City	17.01
% Central-Suburban County	7.75
% Suburban-Central City	15.03
% Within Suburban County	37.94
% To Other Suburban County	11.33
% Work Out of Area	10.90

Travel Time	
Mean (in minutes)	
Originating in:	
Area	25.97
Central City	26.10
Suburban Counties	25.96
Commute Length	
% Less Than 15 Minutes	21.36
% 15 - 29 Minutes	36.87
% 30 - 39 Minutes	18.89
% 40 - 59 Minutes	13.43
% 60 Minutes or More	7.17
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	27.49
% 7:00 AM - 8:29 AM	42.79
% 8:30 AM - 9:59 AM	10.70
% All Other Departures	16.73
% Worked at Home	2.29

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	1,014,461
% Travel by POVs	85.12
POV Drivers	921,156
% POV Drivers	77.29
POV Passengers	93,305
% POV Passengers	7.83
POV Occupancy	1.10

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	70.88
% Carpool	14.24
Transit	
% Bus	6.26
% Subway/Rail	1.13
% Taxi	0.26
Other	
% Motorcycle	0.13
% Walk	4.05
% Bicycle	0.15
% Other	0.61
% Work at Home	2.29

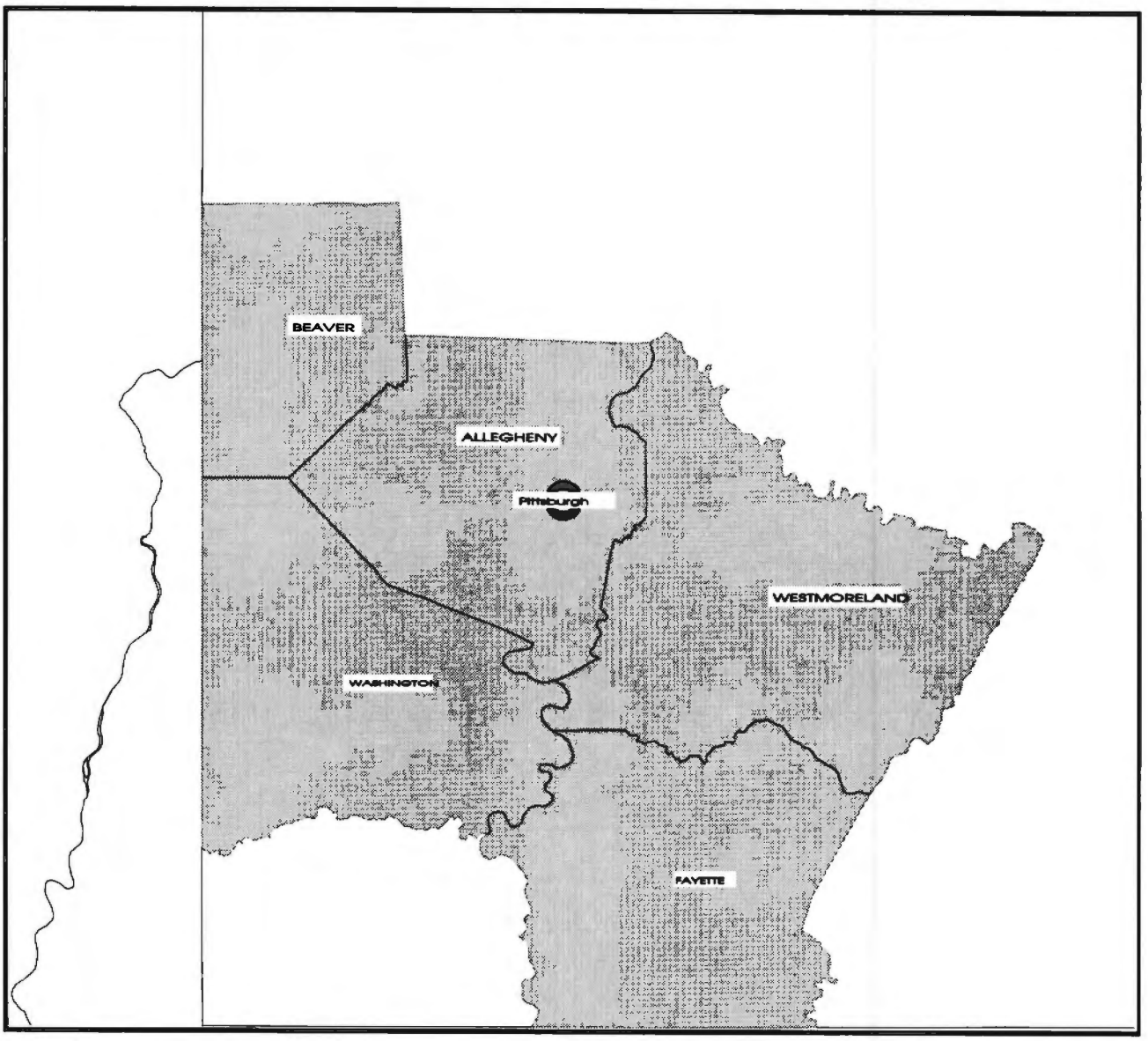
Vehicle Availability	
Total Household Vehicles	1,377,931
% 0 Vehicle Households	16.36
% 1 Vehicle Households	31.59
% 2 Vehicle Households	35.98
% 3+ Vehicle Households	16.06

General Indicators	
Population/Sq. Mile	913
Households/Sq. Mile	337
Workers/Sq. Mile, Areawide	
By Place of Residence	457
By Place of Work	424
Workers/Sq. Mile, Central City	
By Place of Residence	3,807
By Place of Work	4,816
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	350
By Place of Work	283
Workers/Household	1.35
Vehicles/Household	1.57
Vehicles/Worker	1.16
Workers/Vehicle	0.86

Central City
Baltimore City, MD

Suburban Counties
Maryland:
- Anne Arundel
- Baltimore
- Carroll
- Harford
- Howard
- Queen Anne's

Pittsburgh - Beaver Valley, PA CMSA



Journey-to-Work Profile: Pittsburgh-Beaver Valley, PA CMSA (1990)

Demographics and Land Area	
Area Population	2,242,798
% Central County	59.59
% Suburban Counties	40.41
% Urban	80.92
% Rural	19.08
Total Households	891,071
Persons Per Household	2.46
Median Household Income	
Areawide	$26,501
Central County	$28,136
Suburban Counties	$24,090
Age Characteristics	
Median Age	36.90
% 15 Years or Less	19.41
% 65 Years or More	17.33
Square Miles	
Areawide Total	3,835
% Central County	19.04
% Suburban Counties	80.96

Workers	
Living in Area	956,154
% of Population	42.60
% Male	54.10
% Female	45.90
Living in Central County	595,405
% Work Central County	93.34
% Work Suburban County	3.90
% Work Out of Area	2.76
Living in Suburban Counties	360,749
% Work Central County	24.19
% Work Same County	63.77
% Work Different County	4.83
% Work Out of Area	7.21

Journey-to-Work Flows	
% Central-Central County	58.13
% Central-Suburban County	2.43
% Suburban-Central County	9.13
% Within Suburban County	24.06
% To Other Suburban County	1.82
% Work Out of Area	4.44

Travel Time	
Mean (in minutes)	
Originating in:	
Area	22.56
Central County	23.09
Suburban Counties	21.68
Commute Length	
% Less Than 15 Minutes	29.24
% 15 - 29 Minutes	37.29
% 30 - 39 Minutes	15.76
% 40 - 59 Minutes	10.91
% 60 Minutes or More	4.74
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	24.55
% 7:00 AM - 8:29 AM	41.29
% 8:30 AM - 9:59 AM	11.69
% All Other Departures	20.39
% Worked at Home	2.07

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	805,276
% Travel by POVs	84.22
POV Drivers	739,649
% POV Drivers	77.36
POV Passengers	65,627
% POV Passengers	6.86
POV Occupancy	1.09

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	71.42
% Carpool	12.80
Transit	
% Bus	7.67
% Subway/Rail	0.20
% Taxi	0.08
Other	
% Motorcycle	0.06
% Walk	5.08
% Bicycle	0.12
% Other	0.51
% Work at Home	2.07

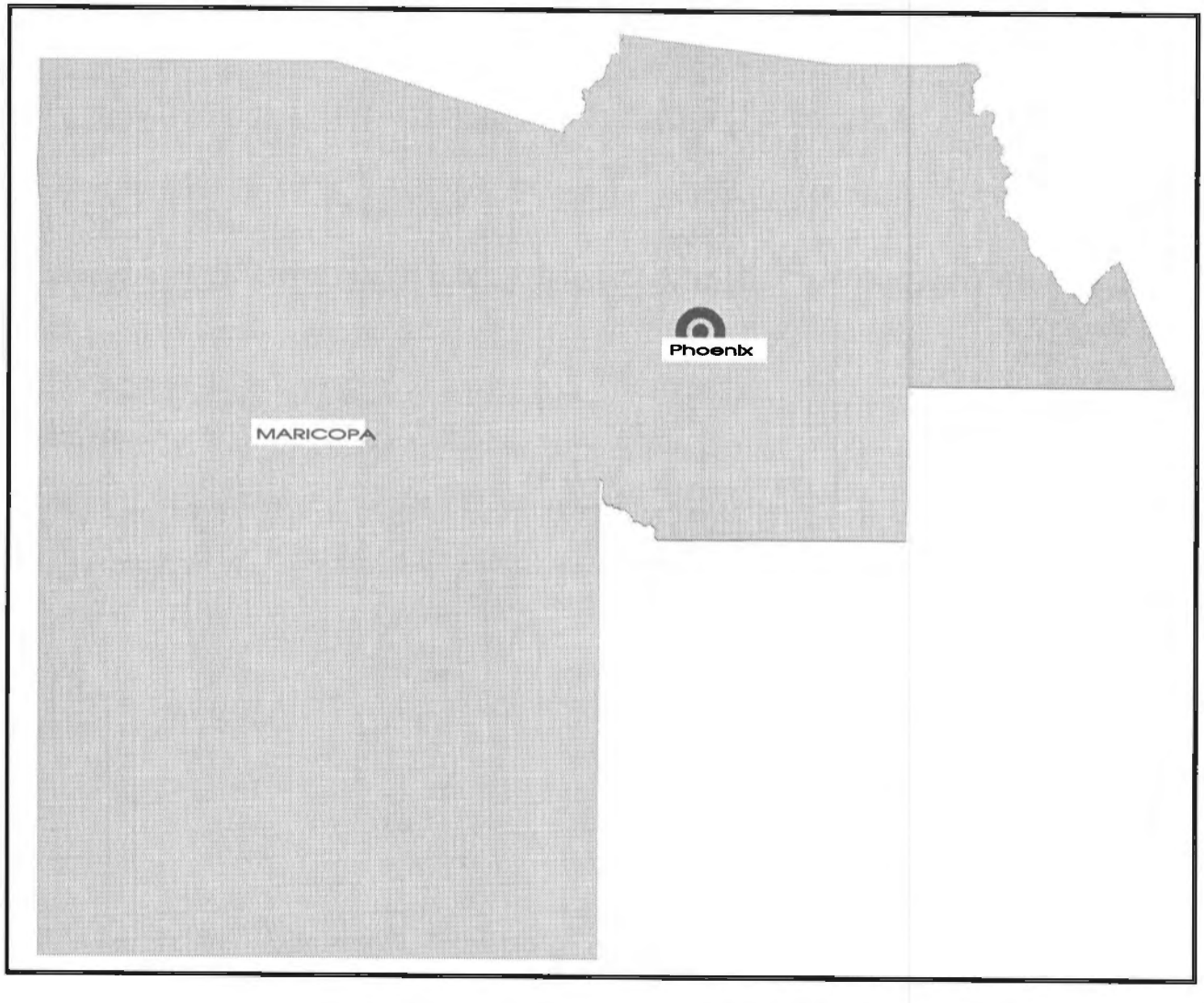
Vehicle Availability	
Total Household Vehicles	1,290,942
% 0 Vehicle Households	16.54
% 1 Vehicle Households	37.62
% 2 Vehicle Households	33.97
% 3+ Vehicle Households	11.87

General Indicators	
Population/Sq. Mile	585
Households/Sq. Mile	232
Workers/Sq. Mile, Areawide	
By Place of Residence	249
By Place of Work	238
Workers/Sq. Mile, Central County	
By Place of Residence	815
By Place of Work	915
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	116
By Place of Work	79
Workers/Household	1.07
Vehicles/Household	1.45
Vehicles/Worker	1.35
Workers/Vehicle	0.74

Central County
Allegheny, PA

Suburban Counties
Pennsylvania:
- Beaver
- Fayette
- Washington
- Westmoreland

Phoenix, AZ MSA



Journey-to-Work Profile: Phoenix, AZ MSA (1990)

Demographics and Land Area

Area Population	2,122,101
% Central County	100.00
% Urban	96.38
% Rural	3.62
Total Households	808,162
Persons Per Household	2.59
Median Household Income	
Areawide	$30,797
Central County	$30,797
Age Characteristics	
Median Age	32.00
% 15 Years or Less	23.51
% 65 Years or More	12.08
Square Miles	
Areawide Total	9,204
% Central County	100.00

Workers

Living in Area	996,495
% of Population	47.00
% Male	55.20
% Female	44.80
Living in Central County	996,495
% Work Central County	98.11
% Work Out of Area	1.89

Journey-to-Work Flows

% Central-Central County	98.11
% Work Out of Area	1.89

Travel Time

Mean (in minutes)	
Originating in:	
Area	23.00
Central County	23.00
Commute Length	
% Less Than 15 Minutes	26.09
% 15 - 29 Minutes	38.65
% 30 - 39 Minutes	18.14
% 40 - 59 Minutes	10.09
% 60 Minutes or More	4.08
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	30.55
% 7:00 AM - 8:29 AM	37.33
% 8:30 AM - 9:59 AM	8.48
% All Other Departures	20.70
% Worked at Home	2.94

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	890,988
% Travel by POVs	89.41
POV Drivers	814,074
% POV Drivers	81.69
POV Passengers	76,914
% POV Passengers	7.72
POV Occupancy	1.09

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	75.05
% Carpool	14.37
Transit	
% Bus	2.00
% Subway/Rail	0.01
% Taxi	0.11
Other	
% Motorcycle	0.73
% Walk	2.65
% Bicycle	1.40
% Other	0.74
% Work at Home	2.94

Vehicle Availability

Total Household Vehicles	1,335,078
% 0 Vehicle Households	7.14
% 1 Vehicle Households	39.28
% 2 Vehicle Households	39.07
% 3+ Vehicle Households	14.52

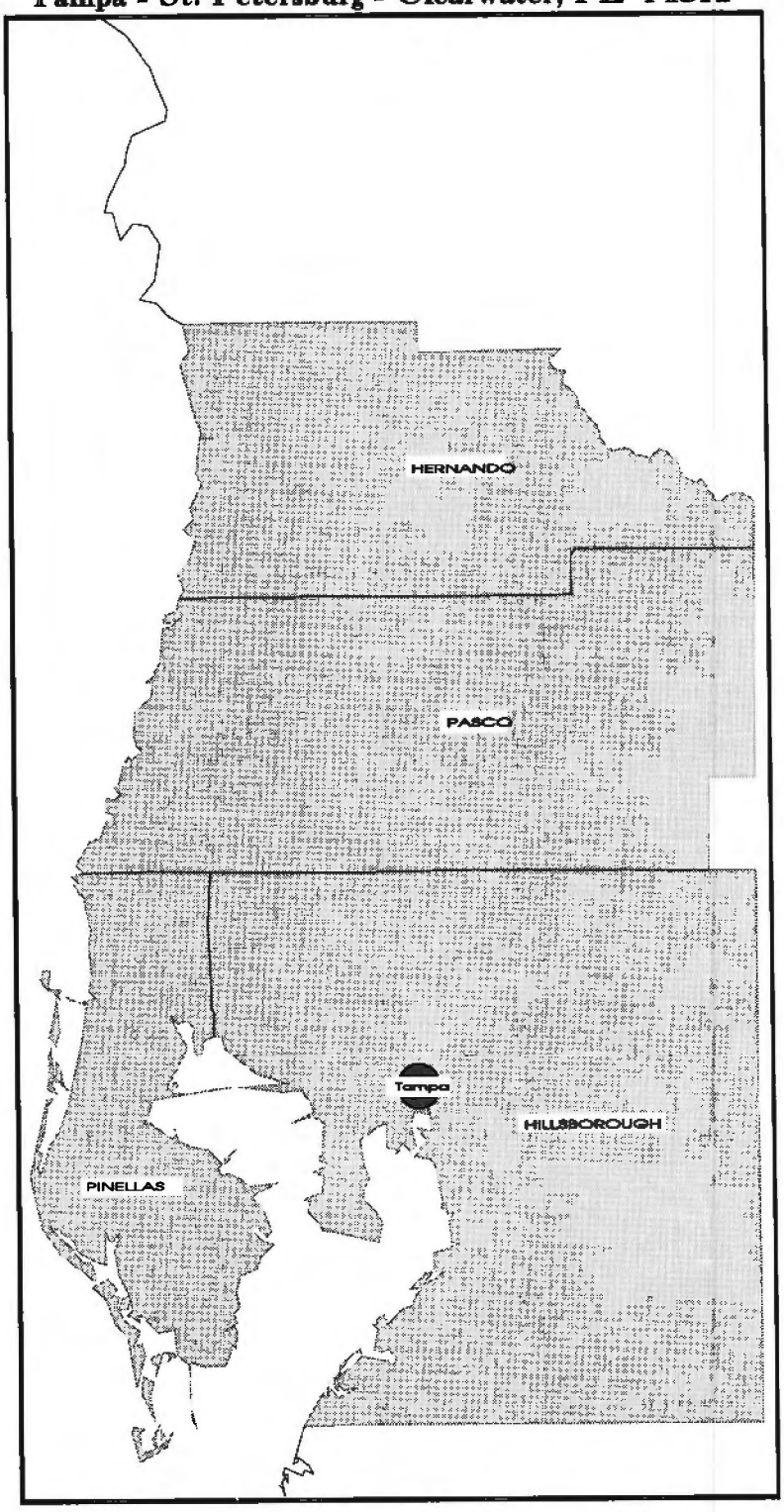
General Indicators

Population/Sq. Mile	231
Households/Sq. Mile	88
Workers/Sq. Mile, Areawide	
By Place of Residence	108
By Place of Work	108
Workers/Sq. Mile, Central County	
By Place of Residence	108
By Place of Work	108
Workers/Household	1.23
Vehicles/Household	1.65
Vehicles/Worker	1.34
Workers/Vehicle	0.75

Central County
Maricopa, AZ

Suburban Counties
None

Tampa - St. Petersburg - Clearwater, FL MSA



Journey-to-Work Profile: Tampa-St. Petersburg-Clearwater, FL MSA (1990)

Demographics and Land Area

Area Population	2,067,959
% Central County	40.33
% Suburban Counties	59.67
% Urban	89.17
% Rural	10.83
Total Households	870,999
Persons Per Household	2.32
Median Household Income	
Areawide	$26,036
Central County	$28,477
Suburban Counties	$24,386
Age Characteristics	
Median Age	38.50
% 15 Years or Less	18.21
% 65 Years or More	21.55
Square Miles	
Areawide Total	2,554
% Central County	41.14
% Suburban Counties	58.86

Workers

Living in Area	914,711
% of Population	44.20
% Male	53.20
% Female	46.80
Living in Central County	410,950
% Work Central County	90.95
% Work Suburban County	5.11
% Work Out of Area	3.95
Living in Suburban Counties	503,761
% Work Central County	9.91
% Work Same County	82.03
% Work Different County	5.45
% Work Out of Area	2.62

Journey-to-Work Flows

% Central-Central County	40.86
% Central-Suburban County	2.29
% Suburban-Central County	5.46
% Within Suburban County	45.17
% To Other Suburban County	3.00
% Work Out of Area	3.22

Travel Time

Mean (in minutes)	
Originating in:	
Area	21.78
Central County	22.18
Suburban Counties	21.46
Commute Length	
% Less Than 15 Minutes	29.03
% 15 - 29 Minutes	39.16
% 30 - 39 Minutes	16.61
% 40 - 59 Minutes	8.94
% 60 Minutes or More	3.99
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	23.99
% 7:00 AM - 8:29 AM	44.45
% 8:30 AM - 9:59 AM	11.33
% All Other Departures	17.96
% Worked at Home	2.27

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	842,308
% Travel by POVs	92.08
POV Drivers	777,386
% POV Drivers	84.99
POV Passengers	64,922
% POV Passengers	7.10
POV Occupancy	1.08

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	78.82
% Carpool	13.27
Transit	
% Bus	1.31
% Subway/Rail	0.02
% Taxi	0.13
Other	
% Motorcycle	0.39
% Walk	2.27
% Bicycle	0.73
% Other	0.80
% Work at Home	2.27

Vehicle Availability

Total Household Vehicles	1,324,840
% 0 Vehicle Households	9.12
% 1 Vehicle Households	44.38
% 2 Vehicle Households	34.95
% 3+ Vehicle Households	11.54

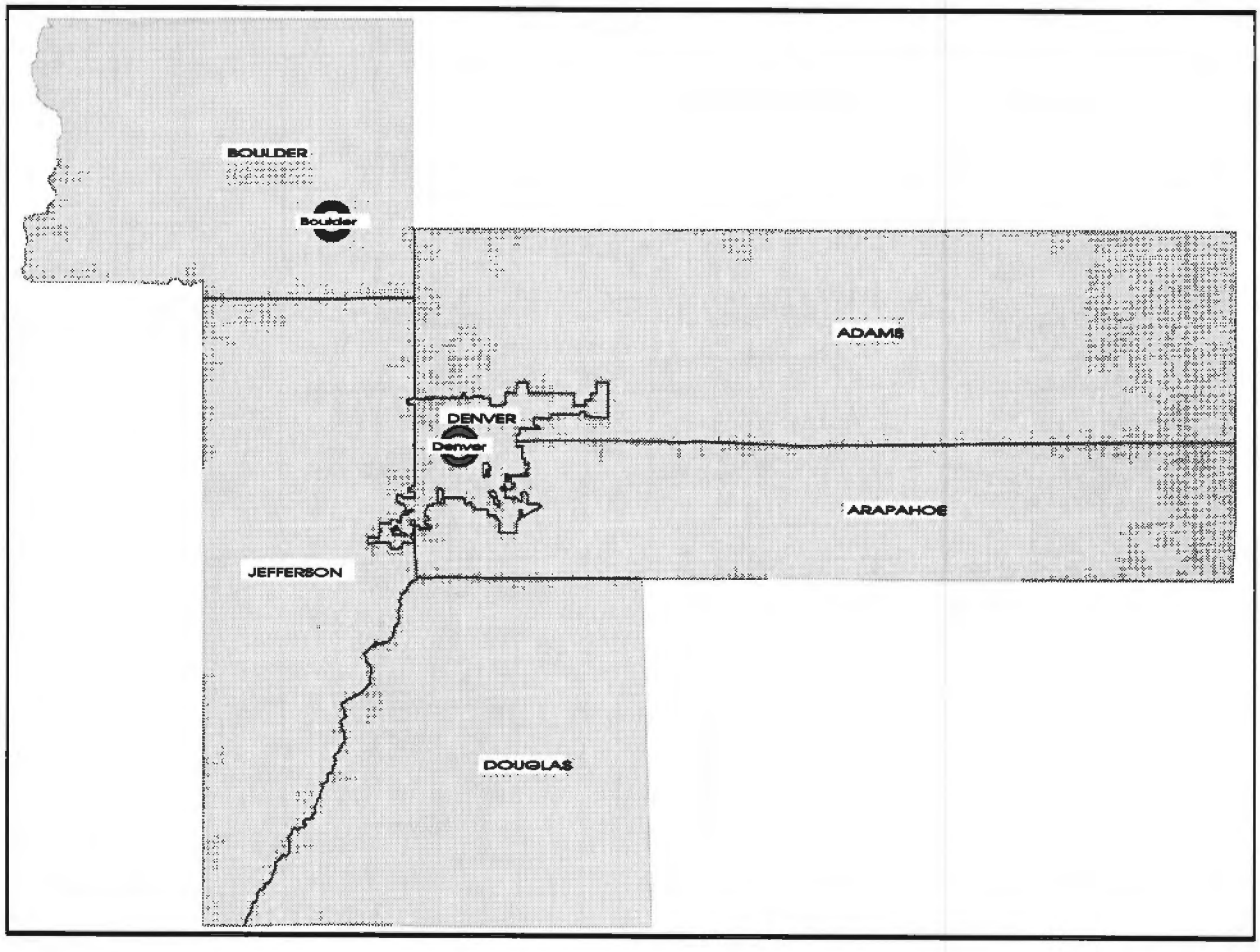
General Indicators

Population/Sq. Mile	810
Households/Sq. Mile	341
Workers/Sq. Mile, Areawide	
By Place of Residence	358
By Place of Work	353
Workers/Sq. Mile, Central County	
By Place of Residence	391
By Place of Work	413
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	335
By Place of Work	311
Workers/Household	1.05
Vehicles/Household	1.52
Vehicles/Worker	1.45
Workers/Vehicle	0.69

Central County
Hillsborough, FL

Suburban Counties
Florida:
- Hernando
- Pasco
- Pinellas

Denver - Boulder, CO CMSA



Journey-to-Work Profile: Denver-Boulder, CO CMSA (1990)

Demographics and Land Area	
Area Population	1,848,319
% Central County	25.30
% Suburban Counties	74.70
% Urban	94.23
% Rural	5.77
Total Households	739,001
Persons Per Household	2.46
Median Household Income	
Areawide	$33,126
Central County	$25,106
Suburban Counties	$35,842
Age Characteristics	
Median Age	32.60
% 15 Years or Less	23.03
% 65 Years or More	9.16
Square Miles	
Areawide Total	4,503
% Central County	3.40
% Suburban Counties	96.60

Workers	
Living in Area	964,912
% of Population	52.20
% Male	53.70
% Female	46.30
Living in Central County	231,503
% Work Central County	67.66
% Work Suburban County	31.03
% Work Out of Area	1.31
Living in Suburban Counties	733,409
% Work Central County	28.60
% Work Same County	50.67
% Work Different County	18.49
% Work Out of Area	2.24

Journey-to-Work Flows	
% Central-Central County	16.23
% Central-Suburban County	7.45
% Suburban-Central County	21.73
% Within Suburban County	38.51
% To Other Suburban County	14.05
% Work Out of Area	2.02

Travel Time	
Mean (in minutes)	
Originating in:	
Area	22.42
Central County	20.80
Suburban Counties	22.94
Commute Length	
% Less Than 15 Minutes	25.83
% 15 - 29 Minutes	40.83
% 30 - 39 Minutes	17.32
% 40 - 59 Minutes	8.95
% 60 Minutes or More	3.47
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	27.76
% 7:00 AM - 8:29 AM	42.06
% 8:30 AM - 9:59 AM	9.34
% All Other Departures	17.23
% Worked at Home	3.60

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	843,448
% Travel by POVs	87.41
POV Drivers	779,545
% POV Drivers	80.79
POV Passengers	63,903
% POV Passengers	6.62
POV Occupancy	1.08

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	74.98
% Carpool	12.44
Transit	
% Bus	4.16
% Subway/Rail	0.02
% Taxi	0.06
Other	
% Motorcycle	0.20
% Walk	3.28
% Bicycle	0.72
% Other	0.54
% Work at Home	3.60

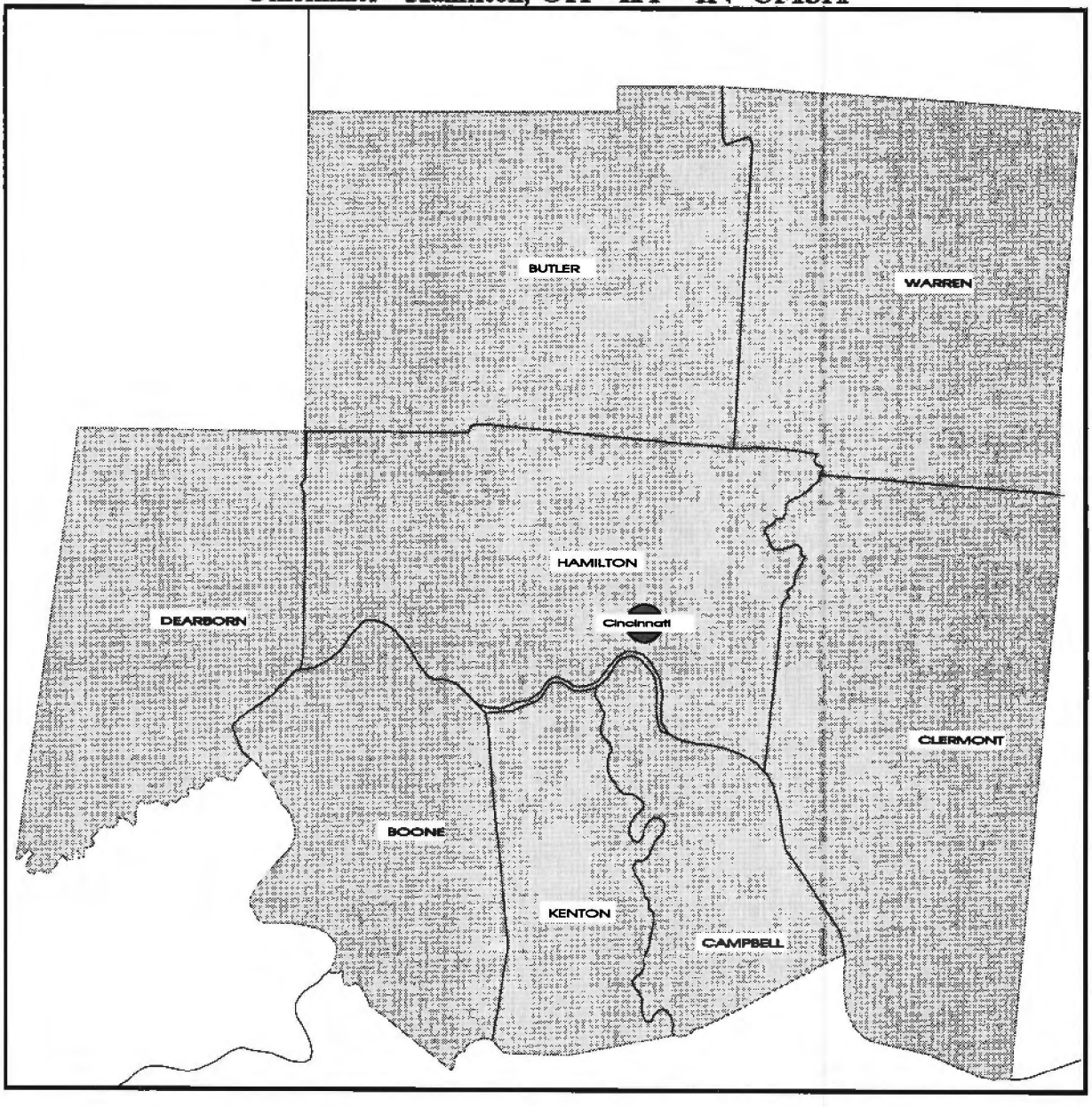
Vehicle Availability	
Total Household Vehicles	1,307,645
% 0 Vehicle Households	7.76
% 1 Vehicle Households	33.29
% 2 Vehicle Households	38.93
% 3+ Vehicle Households	20.03

General Indicators	
Population/Sq. Mile	410
Households/Sq. Mile	164
Workers/Sq. Mile, Areawide	
By Place of Residence	214
By Place of Work	217
Workers/Sq. Mile, Central County	
By Place of Residence	1,510
By Place of Work	2,442
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	169
By Place of Work	138
Workers/Household	1.31
Vehicles/Household	1.77
Vehicles/Worker	1.36
Workers/Vehicle	0.74

Central County
Denver, CO

Suburban Counties
Colorado:
- Adams
- Arapahoe
- Boulder
- Douglas
- Jefferson

Cincinnati - Hamilton, OH - KY - IN CMSA



Journey-to-Work Profile: Cincinnati-Hamilton, OH-KY-IN CMSA (1990)

Demographics and Land Area

Area Population	1,744,124
% Central County	49.67
% Suburban Counties	50.33
% Urban	85.09
% Rural	14.91
Total Households	652,333
Persons Per Household	2.61
Median Household Income	
Areawide	$30,979
Central County	$29,498
Suburban Counties	$32,440
Age Characteristics	
Median Age	32.20
% 15 Years or Less	24.01
% 65 Years or More	11.75
Square Miles	
Areawide Total	2,592
% Central County	15.72
% Suburban Counties	84.28

Workers

Living in Area	812,766
% of Population	46.60
% Male	53.60
% Female	46.40
Living in Central County	399,406
% Work Central County	89.23
% Work Suburban County	8.85
% Work Out of Area	1.92
Living in Suburban Counties	413,360
% Work Central County	34.94
% Work Same County	46.09
% Work Different County	12.70
% Work Out of Area	6.27

Journey-to-Work Flows

% Central-Central County	43.85
% Central-Suburban County	4.35
% Suburban-Central County	17.77
% Within Suburban County	23.44
% To Other Suburban County	6.46
% Work Out of Area	4.13

Travel Time

Mean (in minutes)	
Originating in:	
Area	22.11
Central County	21.55
Suburban Counties	22.65
Commute Length	
% Less Than 15 Minutes	26.49
% 15 - 29 Minutes	42.19
% 30 - 39 Minutes	17.28
% 40 - 59 Minutes	8.71
% 60 Minutes or More	3.24
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	24.57
% 7:00 AM - 8:29 AM	42.26
% 8:30 AM - 9:59 AM	10.46
% All Other Departures	20.62
% Worked at Home	2.10

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	736,585
% Travel by POVs	90.63
POV Drivers	687,070
% POV Drivers	84.53
POV Passengers	49,515
% POV Passengers	6.09
POV Occupancy	1.07

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	79.20
% Carpool	11.43
Transit	
% Bus	3.55
% Subway/Rail	0.01
% Taxi	0.10
Other	
% Motorcycle	0.07
% Walk	2.99
% Bicycle	0.10
% Other	0.46
% Work at Home	2.10

Vehicle Availability

Total Household Vehicles	1,100,494
% 0 Vehicle Households	11.66
% 1 Vehicle Households	31.73
% 2 Vehicle Households	38.47
% 3+ Vehicle Households	18.15

General Indicators

Population/Sq. Mile	673
Households/Sq. Mile	252
Workers/Sq. Mile, Areawide	
By Place of Residence	314
By Place of Work	318
Workers/Sq. Mile, Central County	
By Place of Residence	980
By Place of Work	1,274
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	189
By Place of Work	140
Workers/Household	1.25
Vehicles/Household	1.69
Vehicles/Worker	1.35
Workers/Vehicle	0.74

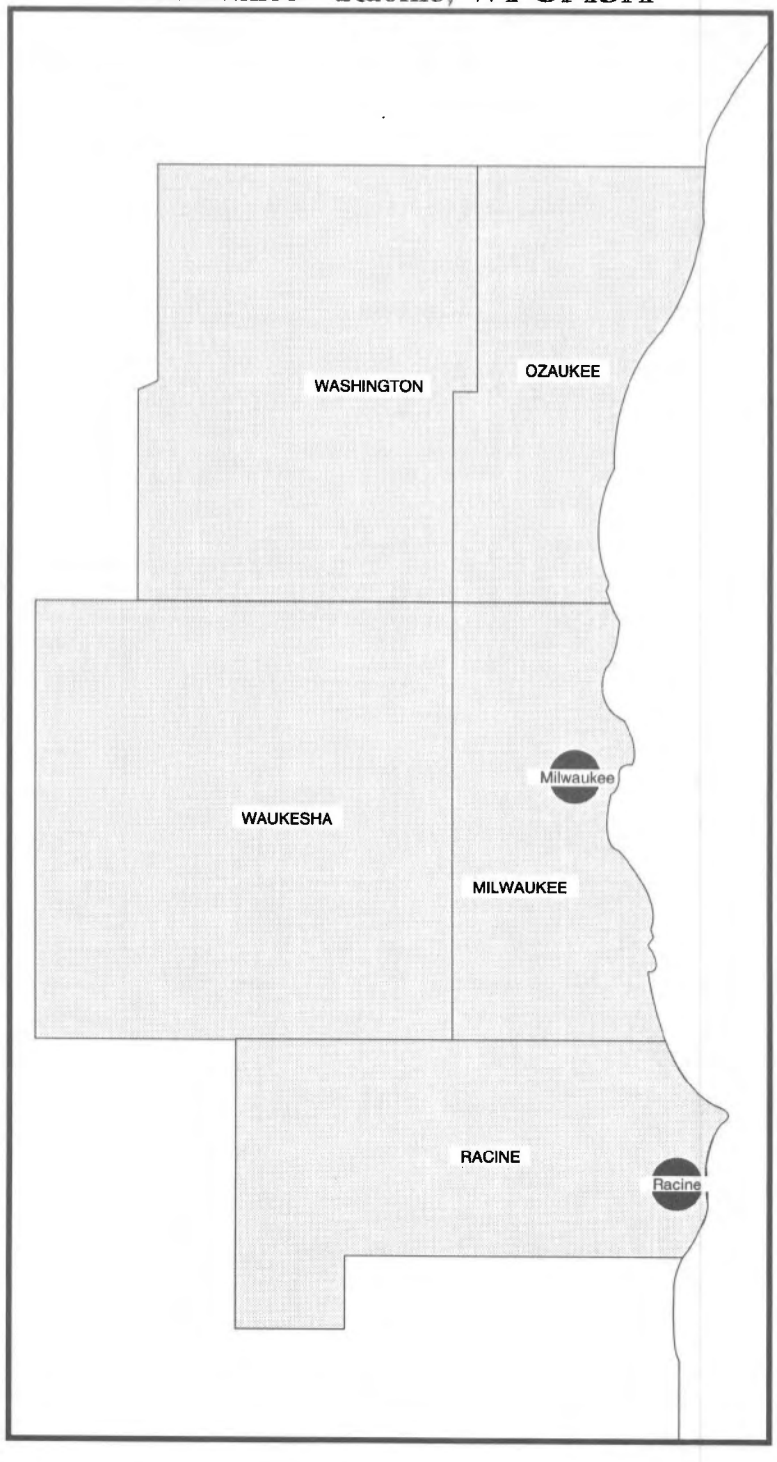
Central County
Hamilton, OH

Suburban Counties
Ohio:
- Clermont
- Warren

Indiana:
- Dearbon

Kentucky:
- Boone
- Campbell
- Kenton

Milwaukee - Racine, WI CMSA



Journey-to-Work Profile: Milwaukee-Racine, WI CMSA (1990)

Demographics and Land Area

Area Population	1,607,183
% Central County	59.69
% Suburban Counties	40.31
% Urban	89.57
% Rural	10.43
Total Households	601,967
Persons Per Household	2.61
Median Household Income	
Areawide	$32,359
Central County	$27,867
Suburban Counties	$39,010
Age Characteristics	
Median Age	32.70
% 15 Years or Less	23.78
% 65 Years or More	12.42
Square Miles	
Areawide Total	1,793
% Central County	13.47
% Suburban Counties	86.53

Workers

Living in Area	772,752
% of Population	48.10
% Male	53.10
% Female	46.90
Living in Central County	439,449
% Work Central County	86.22
% Work Suburban County	12.29
% Work Out of Area	1.49
Living in Suburban Counties	333,303
% Work Central County	27.82
% Work Same County	61.59
% Work Different County	5.82
% Work Out of Area	4.77

Journey-to-Work Flows

% Central-Central County	49.03
% Central-Suburban County	6.99
% Suburban-Central County	12.00
% Within Suburban County	26.56
% To Other Suburban County	2.51
% Work Out of Area	2.90

Travel Time

Mean (in minutes)	
Originating in:	
Area	19.96
Central County	19.70
Suburban Counties	20.30
Commute Length	
% Less Than 15 Minutes	32.27
% 15 - 29 Minutes	43.14
% 30 - 39 Minutes	13.61
% 40 - 59 Minutes	6.00
% 60 Minutes or More	2.74
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	28.84
% 7:00 AM - 8:29 AM	38.69
% 8:30 AM - 9:59 AM	8.28
% All Other Departures	21.95
% Worked at Home	2.24

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	680,827
% Travel by POVs	88.10
POV Drivers	636,119
% POV Drivers	82.32
POV Passengers	44,708
% POV Passengers	5.79
POV Occupancy	1.07

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	77.17
% Carpool	10.94
Transit	
% Bus	4.79
% Subway/Rail	0.03
% Taxi	0.06
Other	
% Motorcycle	0.12
% Walk	3.95
% Bicycle	0.28
% Other	0.43
% Work at Home	2.24

Vehicle Availability

Total Household Vehicles	955,540
% 0 Vehicle Households	13.41
% 1 Vehicle Households	33.88
% 2 Vehicle Households	37.66
% 3+ Vehicle Households	15.05

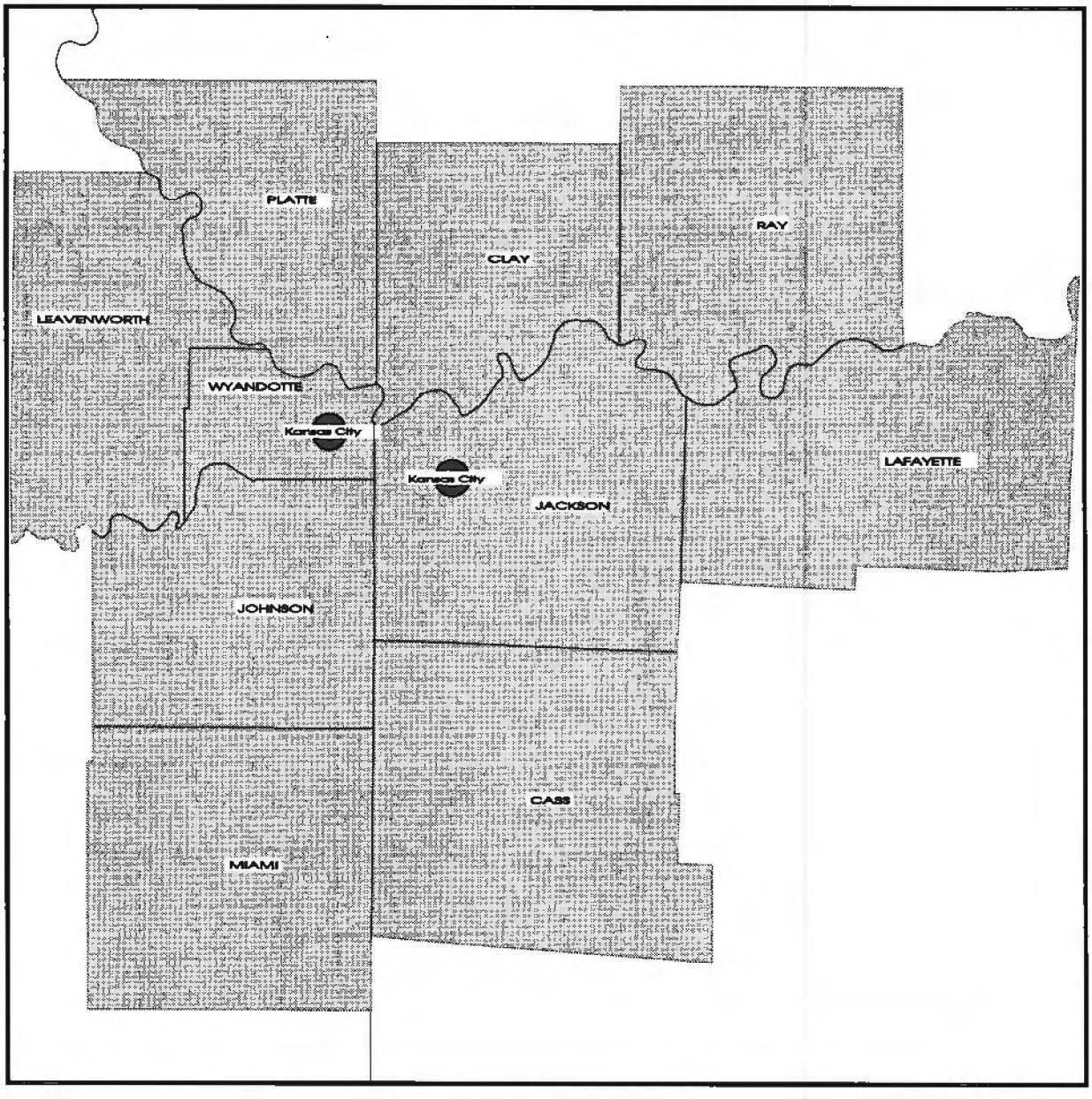
General Indicators

Population/Sq. Mile	896
Households/Sq. Mile	336
Workers/Sq. Mile, Areawide	
By Place of Residence	431
By Place of Work	436
Workers/Sq. Mile, Central County	
By Place of Residence	1,819
By Place of Work	1,986
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	215
By Place of Work	194
Workers/Household	1.28
Vehicles/Household	1.59
Vehicles/Worker	1.24
Workers/Vehicle	0.81

Central County
Milwaukee, WI

Suburban Counties
Wisconsin:
- Ozaukee
- Racine
- Washington
- Waukesha

Kansas City, MO - KS MSA



Journey-to-Work Profile: Kansas City, MO-KS MSA (1990)

Demographics and Land Area	
Area Population	1,566,280
% Central County	40.43
% Suburban Counties	59.57
% Urban	89.21
% Rural	10.79
Total Households	602,514
Persons Per Household	2.55
Median Household Income	
Areawide	$31,948
Central County	$27,853
Suburban Counties	$34,727
Age Characteristics	
Median Age	32.90
% 15 Years or Less	23.73
% 65 Years or More	11.61
Square Miles	
Areawide Total	4,988
% Central County	12.13
% Suburban Counties	87.87

Workers	
Living in Area	771,309
% of Population	49.20
% Male	52.90
% Female	47.10
Living in Central County	304,852
% Work Central County	79.68
% Work Suburban County	18.92
% Work Out of Area	1.40
Living in Suburban Counties	466,457
% Work Central County	25.03
% Work Same County	54.53
% Work Different County	17.87
% Work Out of Area	2.57

Journey-to-Work Flows	
% Central-Central County	31.49
% Central-Suburban County	7.48
% Suburban-Central County	15.13
% Within Suburban County	32.98
% To Other Suburban County	10.81
% Work Out of Area	2.11

Travel Time	
Mean (in minutes)	
Originating in:	
Area	21.44
Central County	22.02
Suburban Counties	21.05
Commute Length	
% Less Than 15 Minutes	27.87
% 15 - 29 Minutes	41.63
% 30 - 39 Minutes	17.04
% 40 - 59 Minutes	7.70
% 60 Minutes or More	3.00
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	25.47
% 7:00 AM - 8:29 AM	45.25
% 8:30 AM - 9:59 AM	8.63
% All Other Departures	17.88
% Worked at Home	2.77

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	712,685
% Travel by POVs	92.40
POV Drivers	660,713
% POV Drivers	85.66
POV Passengers	51,972
% POV Passengers	6.74
POV Occupancy	1.08

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	79.88
% Carpool	12.52
Transit	
% Bus	2.02
% Subway/Rail	0.01
% Taxi	0.10
Other	
% Motorcycle	0.09
% Walk	1.89
% Bicycle	0.10
% Other	0.61
% Work at Home	2.77

Vehicle Availability	
Total Household Vehicles	1,039,273
% 0 Vehicle Households	8.62
% 1 Vehicle Households	33.06
% 2 Vehicle Households	40.77
% 3+ Vehicle Households	17.56

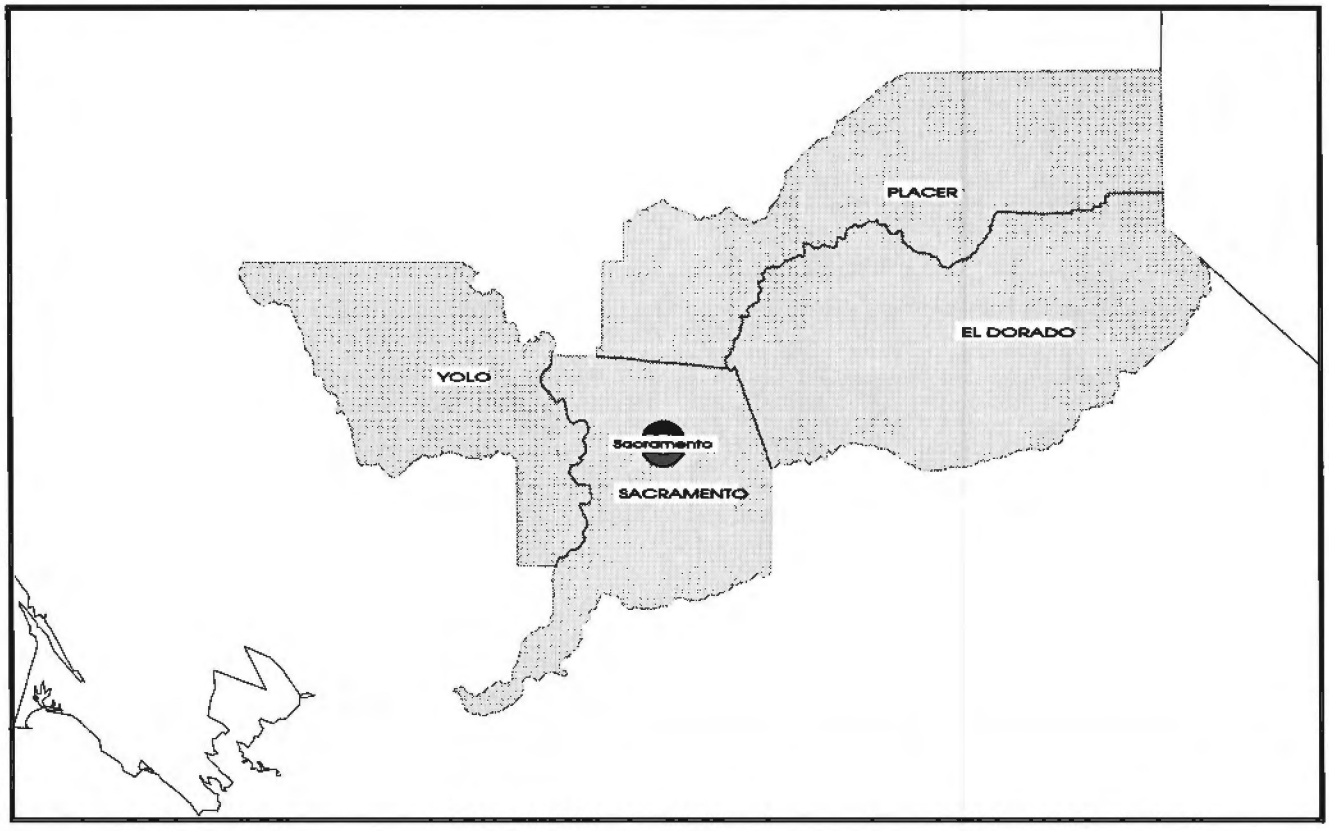
General Indicators	
Population/Sq. Mile	314
Households/Sq. Mile	121
Workers/Sq. Mile, Areawide	
By Place of Residence	155
By Place of Work	158
Workers/Sq. Mile, Central County	
By Place of Residence	504
By Place of Work	612
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	106
By Place of Work	95
Workers/Household	1.28
Vehicles/Household	1.72
Vehicles/Worker	1.35
Workers/Vehicle	0.74

Central County
Jackson, MO

Suburban Counties
Missouri:
- Cass
- Clay
- Lafayette
- Platte
- Ray

Kansas:
- Johnson
- Leavenworth
- Miami
- Wyandotte

Sacramento, CA MSA



Journey-to-Work Profile: Sacramento, CA MSA (1990)

Demographics and Land Area	
Area Population	1,481,102
% Central County	70.30
% Suburban Counties	29.70
% Urban	87.94
% Rural	12.06
Total Households	557,811
Persons Per Household	2.60
Median Household Income	
Areawide	$32,734
Central County	$32,297
Suburban Counties	$33,768
Age Characteristics	
Median Age	32.20
% 15 Years or Less	23.67
% 65 Years or More	10.75
Square Miles	
Areawide Total	5,094
% Central County	18.96
% Suburban Counties	81.04

Workers	
Living in Area	685,945
% of Population	46.30
% Male	54.00
% Female	46.00
Living in Central County	482,321
% Work Central County	88.07
% Work Suburban County	7.63
% Work Out of Area	4.30
Living in Suburban Counties	203,624
% Work Central County	28.60
% Work Same County	60.37
% Work Different County	9.13
% Work Out of Area	1.90

Journey-to-Work Flows	
% Central-Central County	61.93
% Central-Suburban County	5.36
% Suburban-Central County	8.49
% Within Suburban County	17.92
% To Other Suburban County	2.71
% Work Out of Area	3.59

Travel Time	
Mean (in minutes)	
Originating in:	
Area	21.80
Central County	21.73
Suburban Counties	21.97
Commute Length	
% Less Than 15 Minutes	29.05
% 15 - 29 Minutes	40.47
% 30 - 39 Minutes	15.40
% 40 - 59 Minutes	7.79
% 60 Minutes or More	4.19
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	26.99
% 7:00 AM - 8:29 AM	41.62
% 8:30 AM - 9:59 AM	10.01
% All Other Departures	18.26
% Worked at Home	3.11

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	609,800
% Travel by POVs	88.90
POV Drivers	559,310
% POV Drivers	81.54
POV Passengers	50,490
% POV Passengers	7.36
POV Occupancy	1.09

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	75.22
% Carpool	13.68
Transit	
% Bus	2.12
% Subway/Rail	0.24
% Taxi	0.04
Other	
% Motorcycle	0.46
% Walk	2.68
% Bicycle	1.81
% Other	0.64
% Work at Home	3.11

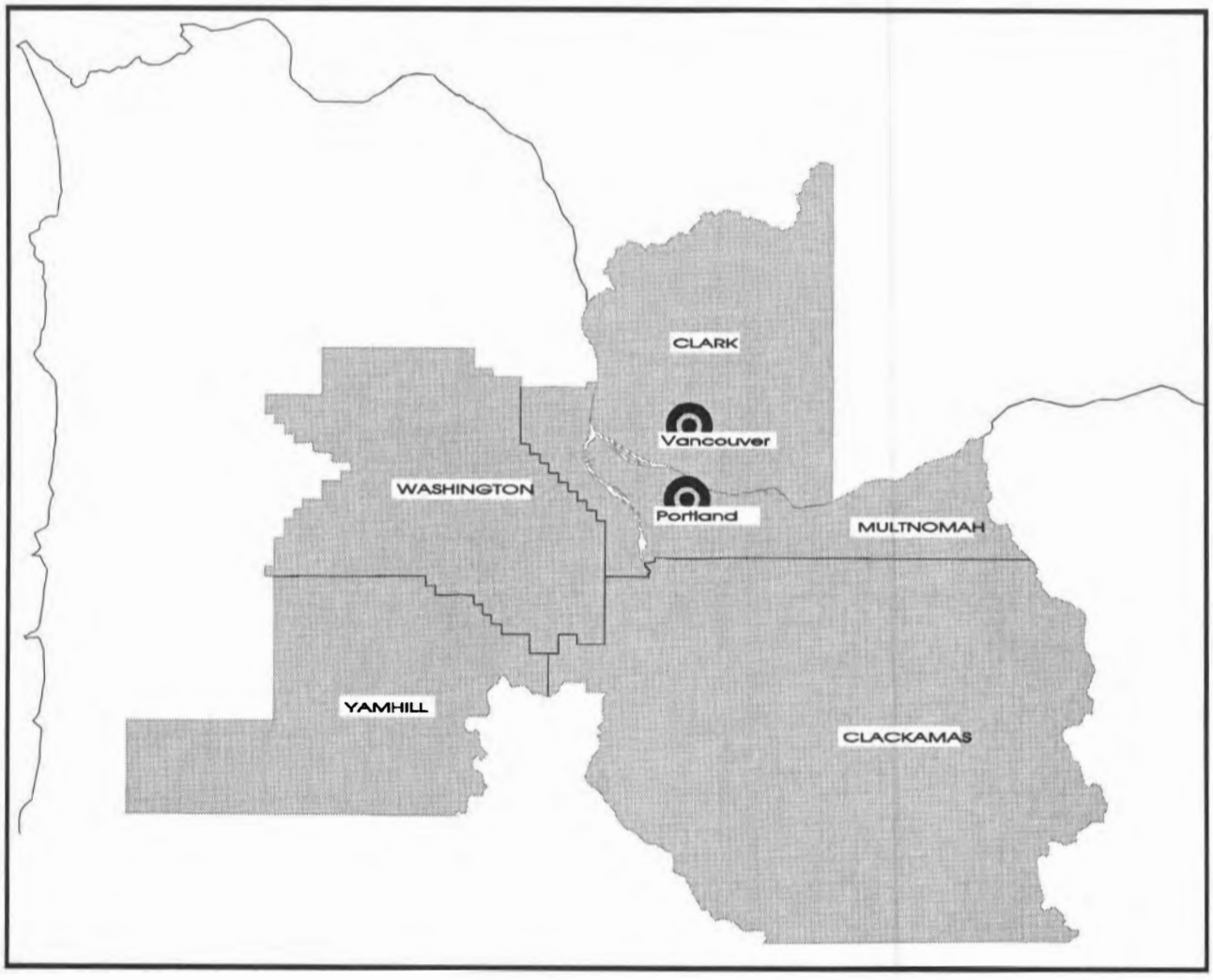
Vehicle Availability	
Total Household Vehicles	993,322
% 0 Vehicle Households	7.64
% 1 Vehicle Households	32.63
% 2 Vehicle Households	39.40
% 3+ Vehicle Households	20.33

General Indicators	
Population/Sq. Mile	291
Households/Sq. Mile	110
Workers/Sq. Mile, Areawide	
By Place of Residence	135
By Place of Work	133
Workers/Sq. Mile, Central County	
By Place of Residence	499
By Place of Work	520
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	49
By Place of Work	43
Workers/Household	1.23
Vehicles/Household	1.78
Vehicles/Worker	1.45
Workers/Vehicle	0.69

Central County
Sacramento, CA

Suburban Counties
California:
- El Dorado
- Placer
- Yolo

Portland - Vancouver, OR - WA CMSA



Journey-to-Work Profile: Portland-Vancouver, OR-WA CMSA (1990)

Demographics and Land Area	
Area Population	1,477,895
% Central County	39.51
% Suburban Counties	60.49
% Urban	84.68
% Rural	15.32
Total Households	576,083
Persons Per Household	2.52
Median Household Income	
Areawide	$31,070
Central County	$26,928
Suburban Counties	$33,775
Age Characteristics	
Median Age	33.80
% 15 Years or Less	23.12
% 65 Years or More	11.97
Square Miles	
Areawide Total	4,371
% Central County	9.96
% Suburban Counties	90.04

Workers	
Living in Area	724,532
% of Population	49.00
% Male	54.80
% Female	45.20
Living in Central County	286,600
% Work Central County	80.87
% Work Suburban County	17.54
% Work Out of Area	1.59
Living in Suburban Counties	437,932
% Work Central County	30.48
% Work Same County	57.82
% Work Different County	8.25
% Work Out of Area	3.45

Journey-to-Work Flows	
% Central-Central County	31.99
% Central-Suburban County	6.94
% Suburban-Central County	18.42
% Within Suburban County	34.95
% To Other Suburban County	4.99
% Work Out of Area	2.71

Travel Time	
Mean (in minutes)	
Originating in:	
Area	21.72
Central County	21.11
Suburban Counties	22.12
Commute Length	
% Less Than 15 Minutes	28.27
% 15 - 29 Minutes	40.91
% 30 - 39 Minutes	15.37
% 40 - 59 Minutes	7.98
% 60 Minutes or More	3.70
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	25.80
% 7:00 AM - 8:29 AM	41.83
% 8:30 AM - 9:59 AM	9.49
% All Other Departures	19.11
% Worked at Home	3.77

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	623,518
% Travel by POVs	86.06
POV Drivers	575,942
% POV Drivers	79.49
POV Passengers	47,576
% POV Passengers	6.57
POV Occupancy	1.08

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	73.78
% Carpool	12.28
Transit	
% Bus	5.22
% Subway/Rail	0.14
% Taxi	0.05
Other	
% Motorcycle	0.33
% Walk	3.27
% Bicycle	0.61
% Other	0.55
% Work at Home	3.77

Vehicle Availability	
Total Household Vehicles	1,009,431
% 0 Vehicle Households	8.80
% 1 Vehicle Households	32.26
% 2 Vehicle Households	39.53
% 3+ Vehicle Households	19.42

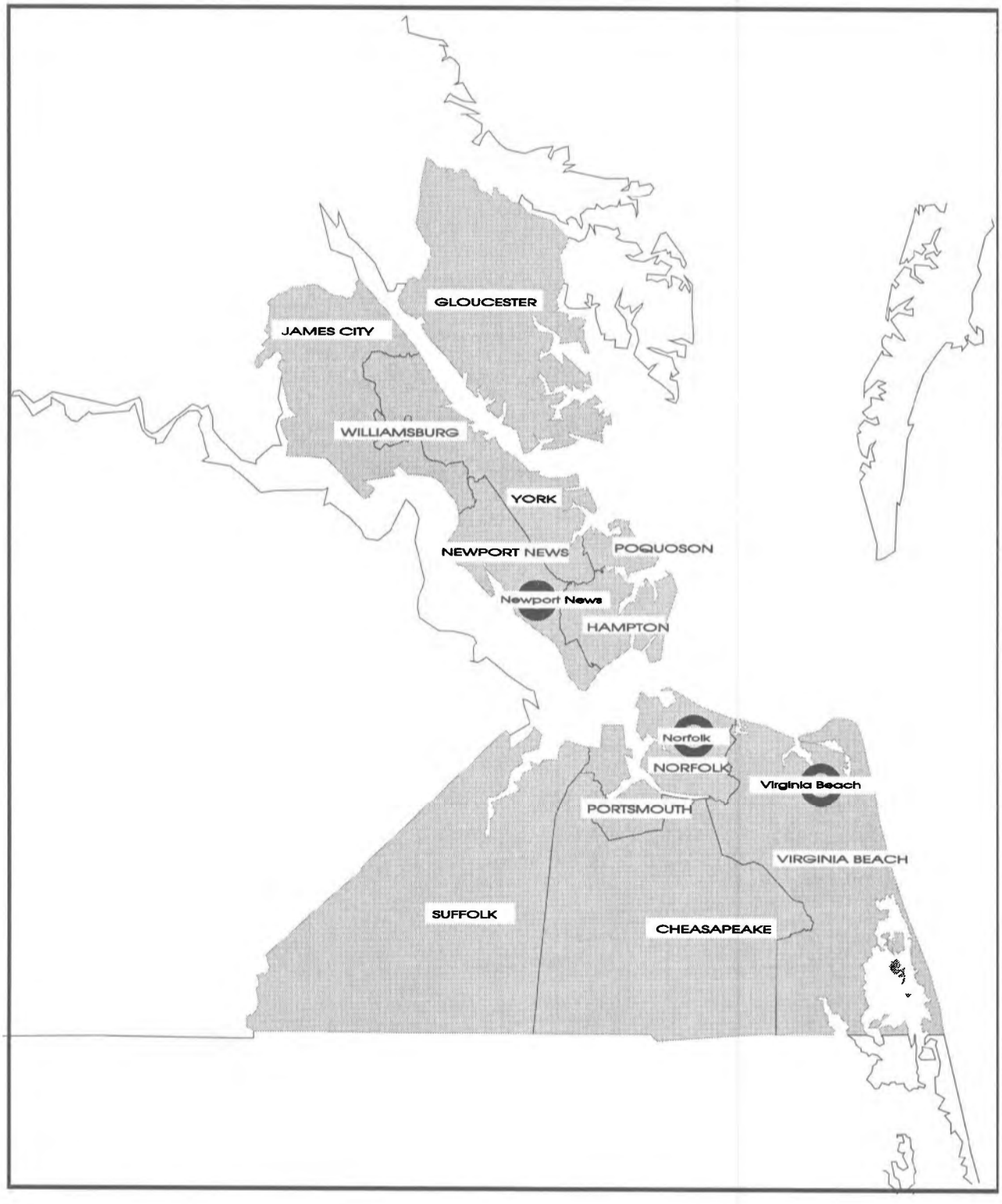
General Indicators	
Population/Sq. Mile	338
Households/Sq. Mile	132
Workers/Sq. Mile, Areawide	
By Place of Residence	166
By Place of Work	167
Workers/Sq. Mile, Central County	
By Place of Residence	658
By Place of Work	863
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	111
By Place of Work	90
Workers/Household	1.26
Vehicles/Household	1.75
Vehicles/Worker	1.39
Workers/Vehicle	0.72

Central County
Multnomah, OR

Suburban Counties
Oregon:
Clackamas
Washington
Yamhill

Washington:
Clark

Norfolk - Virginia Beach - Newport News, VA MSA



Journey-to-Work Profile: Norfolk-Virginia Beach-Newport News, VA MSA (1990)

Demographics and Land Area

Area Population	1,396,107
% Central City	18.71
% Suburban Counties	81.29
% Urban	94.77
% Rural	5.23
Total Households	494,145
Persons Per Household	2.69
Median Household Income	
Areawide	$30,841
Central City	$23,563
Suburban Counties	$32,516
Age Characteristics	
Median Age	29.70
% 15 Years or Less	23.89
% 65 Years or More	9.03
Square Miles	
Areawide Total	1,685
% Central City	3.19
% Suburban Counties	96.81

Workers

Living in Area	698,999
% of Population	50.10
% Male	58.00
% Female	42.00
Living in Central City	130,549
% Work Central City	77.23
% Work Suburban County	20.12
% Work Out of Area	2.66
Living in Suburban Counties	568,450
% Work Central City	18.34
% Work Same County	52.73
% Work Different County	23.91
% Work Out of Area	5.02

Journey-to-Work Flows

% Central-Central City	14.42
% Central-Suburban County	3.76
% Suburban-Central City	14.92
% Within Suburban County	42.88
% To Other Suburban County	19.44
% Work Out of Area	4.58

Travel Time

Mean (in minutes)	
Originating in:	
Area	21.63
Central City	20.58
Suburban Counties	21.83
Commute Length	
% Less Than 15 Minutes	26.03
% 15 - 29 Minutes	40.92
% 30 - 39 Minutes	16.39
% 40 - 59 Minutes	8.07
% 60 Minutes or More	3.25
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	31.96
% 7:00 AM - 8:29 AM	35.72
% 8:30 AM - 9:59 AM	9.73
% All Other Departures	17.25
% Worked at Home	5.34

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	607,168
% Travel by POVs	86.86
POV Drivers	553,267
% POV Drivers	79.15
POV Passengers	53,901
% POV Passengers	7.71
POV Occupancy	1.10

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	72.74
% Carpool	14.13
Transit	
% Bus	2.03
% Subway/Rail	0.03
% Taxi	0.12
Other	
% Motorcycle	0.27
% Walk	3.67
% Bicycle	0.52
% Other	1.15
% Work at Home	5.34

Vehicle Availability

Total Household Vehicles	829,469
% 0 Vehicle Households	9.90
% 1 Vehicle Households	33.58
% 2 Vehicle Households	40.02
% 3+ Vehicle Households	16.50

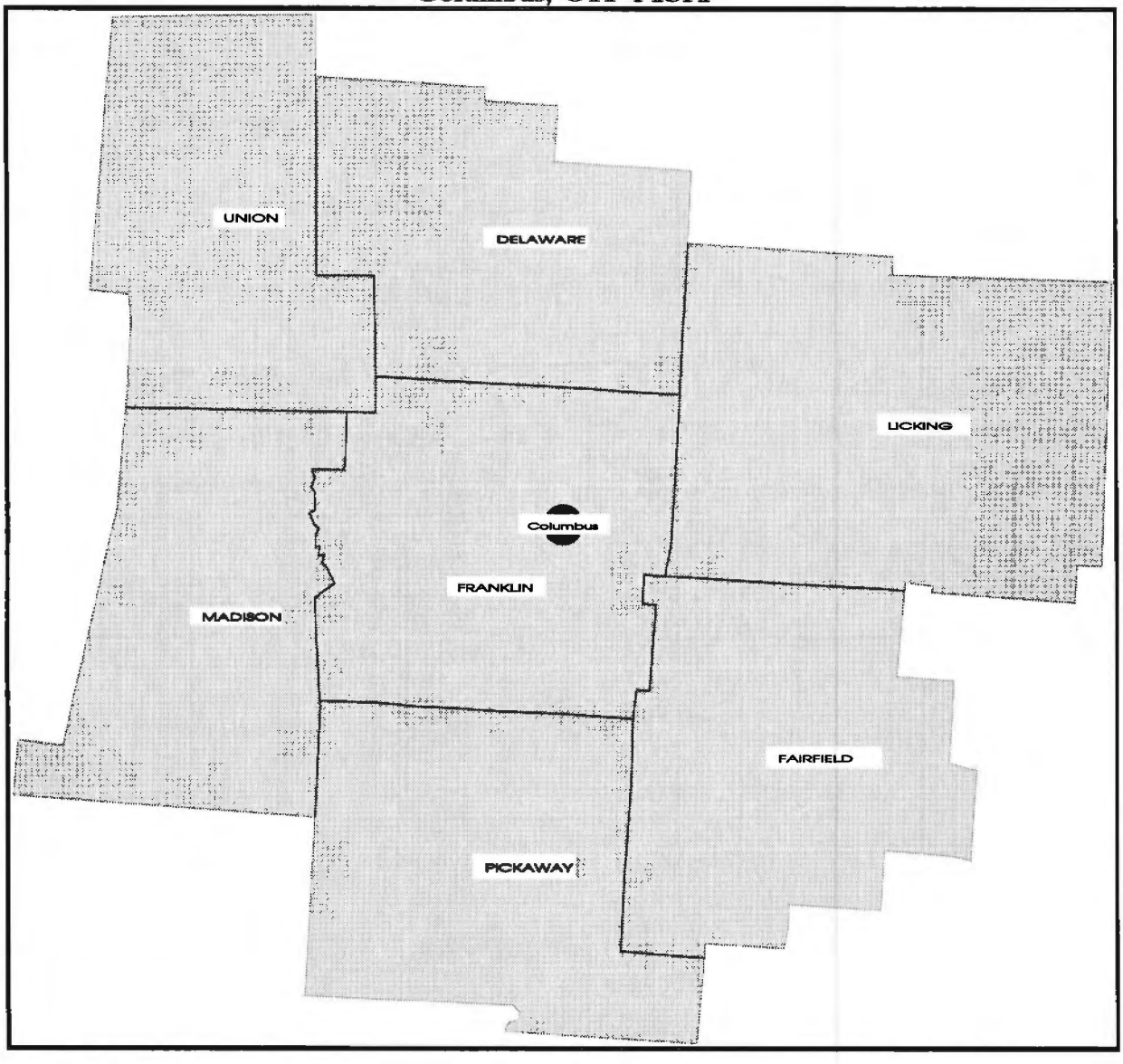
General Indicators

Population/Sq. Mile	829
Households/Sq. Mile	293
Workers/Sq. Mile, Areawide	
By Place of Residence	474
By Place of Work	442
Workers/Sq. Mile, Central City	
By Place of Residence	2,429
By Place of Work	3,859
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	410
By Place of Work	329
Workers/Household	1.41
Vehicles/Household	1.68
Vehicles/Worker	1.19
Workers/Vehicle	0.84

Central City
Norfolk City, VA

Suburban Counties
Virginia:
- Gloucester
- James City
- York
- Chesapeake City
- Hampton City
- Newport News City
- Poquoson City
- Portsmouth City
- Suffolk City
- Virginia Beach City
- Williamsburg City

Columbus, OH MSA



Journey-to-Work Profile: Columbus, OH MSA (1990)

Demographics and Land Area	
Area Population	1,377,419
% Central County	69.80
% Suburban Counties	30.20
% Urban	80.92
% Rural	19.08
Total Households	525,558
Persons Per Household	2.54
Median Household Income	
Areawide	$30,668
Central County	$30,375
Suburban Counties	$31,345
Age Characteristics	
Median Age	31.50
% 15 Years or Less	22.53
% 65 Years or More	10.00
Square Miles	
Areawide Total	3,579
% Central County	15.09
% Suburban Counties	84.91

Workers	
Living in Area	677,859
% of Population	49.20
% Male	53.40
% Female	46.60
Living in Central County	487,305
% Work Central County	95.24
% Work Suburban County	3.00
% Work Out of Area	1.76
Living in Suburban Counties	190,554
% Work Central County	37.57
% Work Same County	53.88
% Work Different County	3.21
% Work Out of Area	5.35

Journey-to-Work Flows	
% Central-Central County	68.47
% Central-Suburban County	2.16
% Suburban-Central County	10.56
% Within Suburban County	15.15
% To Other Suburban County	0.90
% Work Out of Area	2.77

Travel Time	
Mean (in minutes)	
Originating in:	
Area	21.24
Central County	20.34
Suburban Counties	23.55
Commute Length	
% Less Than 15 Minutes	27.91
% 15 - 29 Minutes	43.90
% 30 - 39 Minutes	15.60
% 40 - 59 Minutes	7.09
% 60 Minutes or More	3.19
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	24.40
% 7:00 AM - 8:29 AM	43.10
% 8:30 AM - 9:59 AM	10.01
% All Other Departures	20.19
% Worked at Home	2.31

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	616,342
% Travel by POVs	90.92
POV Drivers	575,641
% POV Drivers	84.92
POV Passengers	40,701
% POV Passengers	6.00
POV Occupancy	1.07

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	79.51
% Carpool	11.41
Transit	
% Bus	2.64
% Subway/Rail	0.01
% Taxi	0.09
Other	
% Motorcycle	0.09
% Walk	3.25
% Bicycle	0.24
% Other	0.45
% Work at Home	2.31

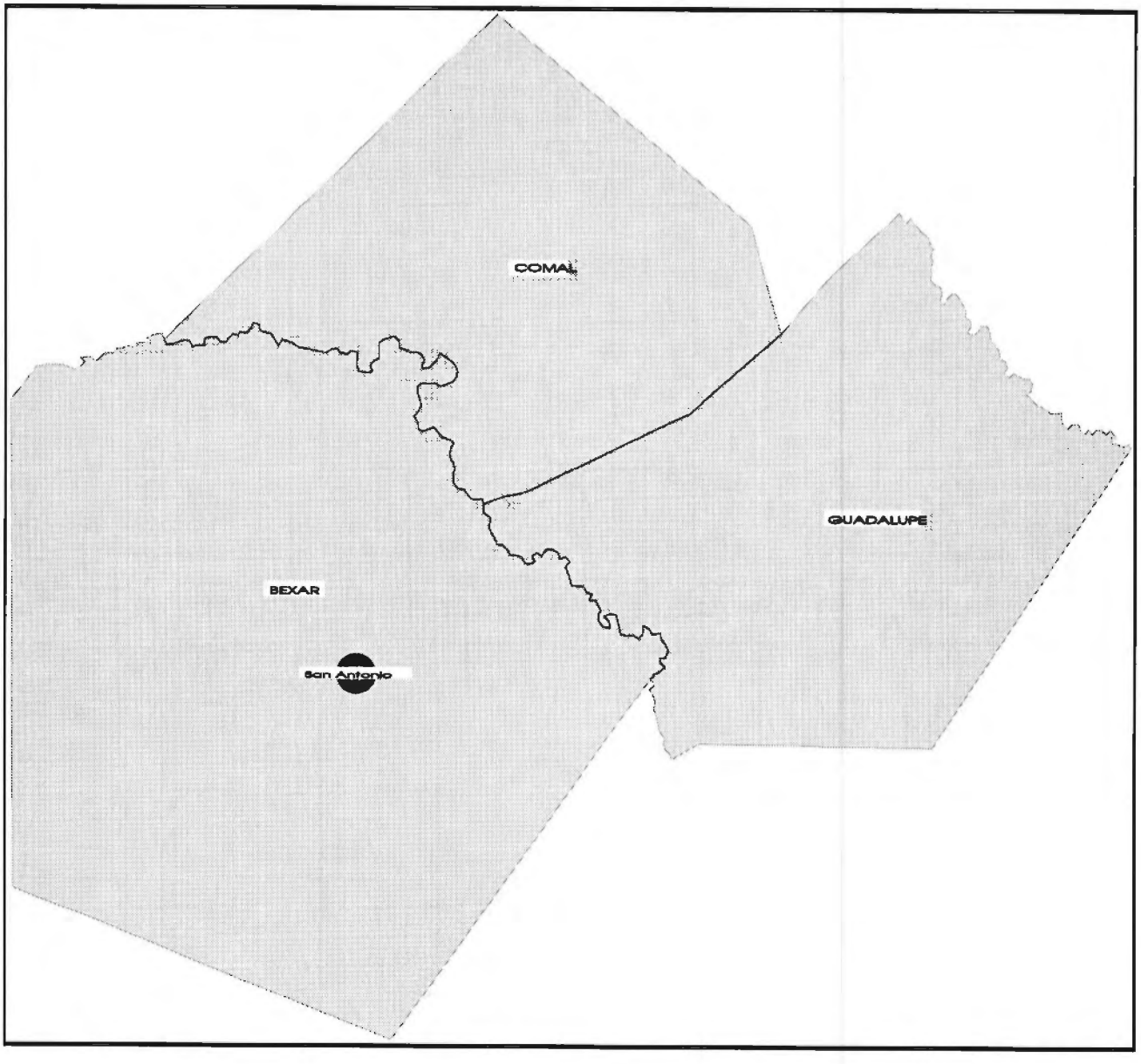
Vehicle Availability	
Total Household Vehicles	899,191
% 0 Vehicle Households	8.88
% 1 Vehicle Households	33.55
% 2 Vehicle Households	40.08
% 3+ Vehicle Households	17.49

General Indicators	
Population/Sq. Mile	385
Households/Sq. Mile	147
Workers/Sq. Mile, Areawide	
By Place of Residence	187
By Place of Work	196
Workers/Sq. Mile, Central County	
By Place of Residence	902
By Place of Work	1,031
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	59
By Place of Work	48
Workers/Household	1.29
Vehicles/Household	1.71
Vehicles/Worker	1.33
Workers/Vehicle	0.75

Central County
Franklin, OH

Suburban Counties
Ohio:
- Delaware
- Fairfield
- Licking
- Madison
- Pickaway
- Union

San Antonio, TX MSA



Journey-to-Work Profile: San Antonio, TX MSA (1990)

Demographics and Land Area	
Area Population	1,302,099
% Central County	91.04
% Suburban Counties	8.96
% Urban	91.21
% Rural	8.79
Total Households	451,731
Persons Per Household	2.82
Median Household Income	
Areawide	$26,092
Central County	$25,926
Suburban Counties	$27,778
Age Characteristics	
Median Age	30.30
% 15 Years or Less	25.90
% 65 Years or More	10.26
Square Miles	
Areawide Total	2,520
% Central County	49.49
% Suburban Counties	50.51

Workers	
Living in Area	569,149
% of Population	43.70
% Male	54.90
% Female	45.10
Living in Central County	516,606
% Work Central County	97.25
% Work Suburban County	0.58
% Work Out of Area	2.17
Living in Suburban Counties	52,543
% Work Central County	28.12
% Work Same County	55.07
% Work Different County	7.75
% Work Out of Area	9.05

Journey-to-Work Flows	
% Central-Central County	88.27
% Central-Suburban County	0.53
% Suburban-Central County	2.60
% Within Suburban County	5.08
% To Other Suburban County	0.72
% Work Out of Area	2.81

Travel Time	
Mean (in minutes)	
Originating in:	
Area	21.88
Central County	21.82
Suburban Counties	22.57
Commute Length	
% Less Than 15 Minutes	25.43
% 15 - 29 Minutes	44.29
% 30 - 39 Minutes	17.82
% 40 - 59 Minutes	6.49
% 60 Minutes or More	3.67
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	26.44
% 7:00 AM - 8:29 AM	43.69
% 8:30 AM - 9:59 AM	91.10
% All Other Departures	18.47
% Worked at Home	2.30

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	508,377
% Travel by POVs	89.32
POV Drivers	462,800
% POV Drivers	81.31
POV Passengers	45,577
% POV Passengers	8.01
POV Occupancy	1.10

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	74.56
% Carpool	14.76
Transit	
% Bus	3.61
% Subway/Rail	0.01
% Taxi	0.05
Other	
% Motorcycle	0.23
% Walk	3.58
% Bicycle	0.16
% Other	0.75
% Work at Home	2.30

Vehicle Availability	
Total Household Vehicles	736,958
% 0 Vehicle Households	10.02
% 1 Vehicle Households	36.70
% 2 Vehicle Households	37.78
% 3+ Vehicle Households	15.50

General Indicators	
Population/Sq. Mile	517
Households/Sq. Mile	179
Workers/Sq. Mile, Areawide	
By Place of Residence	226
By Place of Work	230
Workers/Sq. Mile, Central County	
By Place of Residence	414
By Place of Work	433
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	41
By Place of Work	31
Workers/Household	1.26
Vehicles/Household	1.63
Vehicles/Worker	1.29
Workers/Vehicle	0.77

Central County
Bexar, TX

Suburban Counties
Texas:
Comal
Guadalupe

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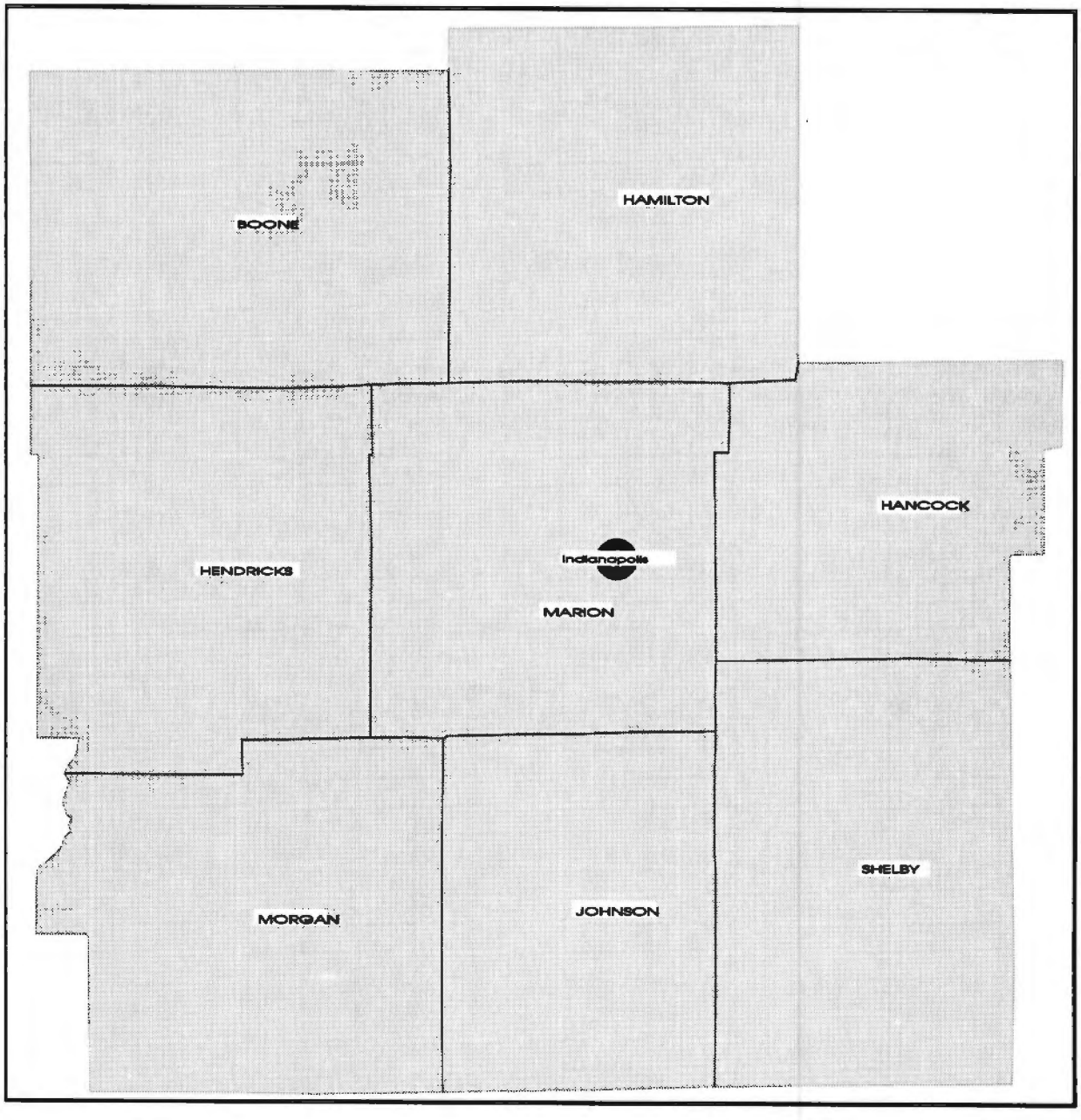
Indianapolis, IN MSA



Journey-to-Work Profile: Indianapolis, IN MSA (1990)

Demographics and Land Area

Area Population	1,249,822
% Central County	63.78
% Suburban Counties	36.22
% Urban	82.71
% Rural	17.29
Total Households	480,406
Persons Per Household	2.56
Median Household Income	
Areawide	$31,655
Central County	$29,152
Suburban Counties	$36,063
Age Characteristics	
Median Age	32.30
% 15 Years or Less	23.56
% 65 Years or More	11.11
Square Miles	
Areawide Total	3,071
% Central County	12.91
% Suburban Counties	87.09

Workers

Living in Area	624,971
% of Population	50.00
% Male	53.10
% Female	46.90
Living in Central County	396,584
% Work Central County	91.69
% Work Suburban County	6.28
% Work Out of Area	2.03
Living in Suburban Counties	228,387
% Work Central County	46.95
% Work Same County	43.68
% Work Different County	4.28
% Work Out of Area	5.12

Journey-to-Work Flows

% Central-Central County	58.18
% Central-Suburban County	3.98
% Suburban-Central County	17.16
% Within Suburban County	15.95
% To Other Suburban County	1.56
% Work Out of Area	3.16

Travel Time

Mean (in minutes)	
Originating in:	
Area	21.92
Central County	20.79
Suburban Counties	23.92
Commute Length	
% Less Than 15 Minutes	26.80
% 15 - 29 Minutes	42.79
% 30 - 39 Minutes	17.11
% 40 - 59 Minutes	7.44
% 60 Minutes or More	3.46
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	26.51
% 7:00 AM - 8:29 AM	43.84
% 8:30 AM - 9:59 AM	8.53
% All Other Departures	18.72
% Worked at Home	2.40

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	578,705
% Travel by POVs	92.60
POV Drivers	535,929
% POV Drivers	85.75
POV Passengers	42,776
% POV Passengers	6.84
POV Occupancy	1.08

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	79.74
% Carpool	12.86
Transit	
% Bus	1.95
% Subway/Rail	0.01
% Taxi	0.11
Other	
% Motorcycle	0.07
% Walk	2.17
% Bicycle	0.14
% Other	0.53
% Work at Home	2.40

Vehicle Availability

Total Household Vehicles	821,816
% 0 Vehicle Households	8.85
% 1 Vehicle Households	33.81
% 2 Vehicle Households	39.87
% 3+ Vehicle Households	17.47

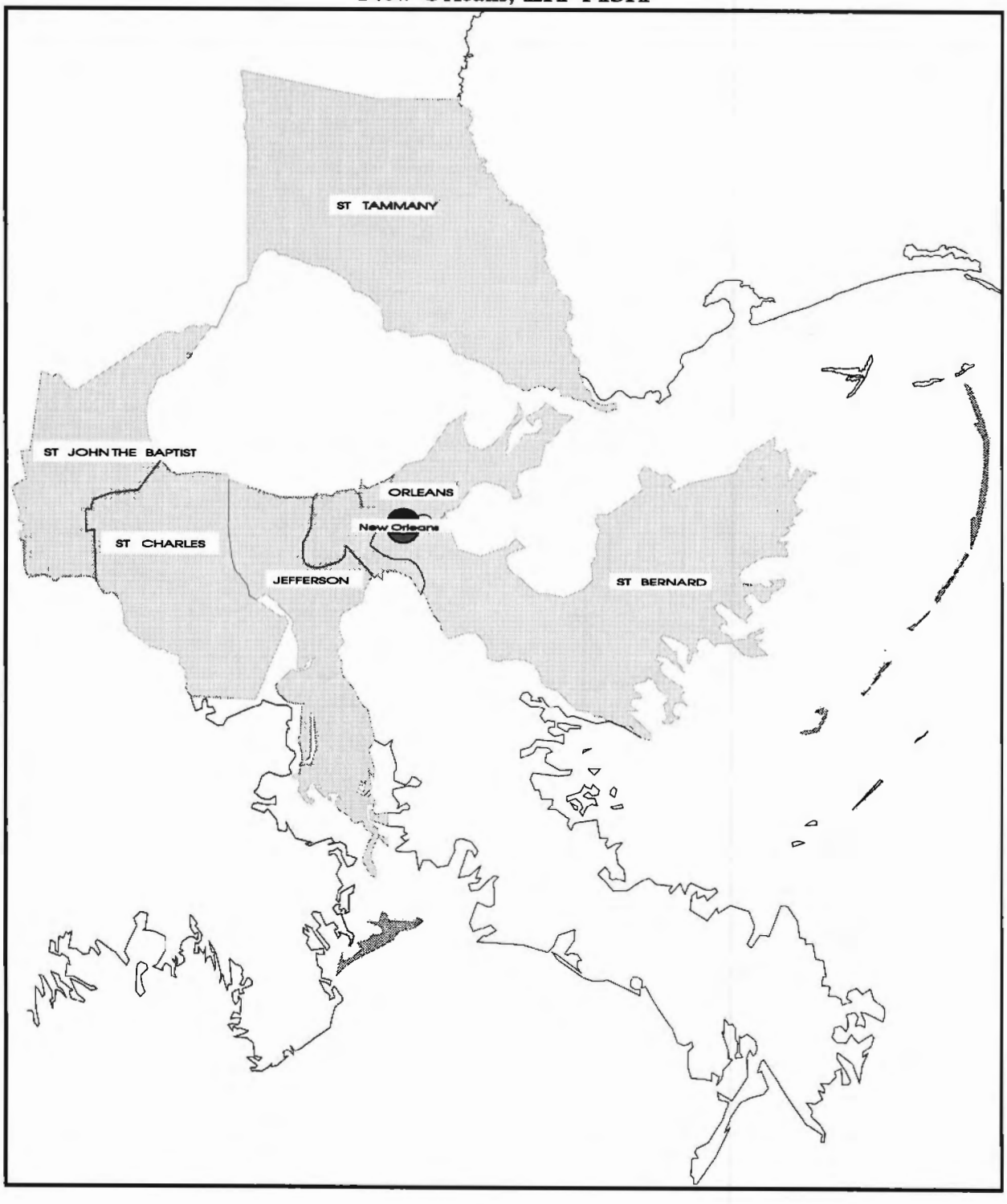
General Indicators

Population/Sq. Mile	407
Households/Sq. Mile	156
Workers/Sq. Mile, Areawide	
By Place of Residence	203
By Place of Work	210
Workers/Sq. Mile, Central County	
By Place of Residence	1,000
By Place of Work	1,251
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	85
By Place of Work	56
Workers/Household	1.30
Vehicles/Household	1.71
Vehicles/Worker	1.31
Workers/Vehicle	0.76

Central County
Marion, IN

Suburban Counties
Indiana:
- Boone
- Hamilton
- Hancock
- Hendricks
- Johnson
- Morgan
- Shelby

New Orleans, LA MSA



Journey-to-Work Profile: New Orleans, LA MSA (1990)

Demographics and Land Area	
Area Population	1,238,816
% Central County	40.11
% Suburban Counties	59.89
% Urban	93.16
% Rural	6.84
Total Households	454,417
Persons Per Household	2.67
Median Household Income	
Areawide	$24,442
Central County	$18,477
Suburban Counties	$28,438
Age Characteristics	
Median Age	31.80
% 15 Years or Less	24.99
% 65 Years or More	11.05
Square Miles	
Areawide Total	2,309
% Central County	7.82
% Suburban Counties	92.18

Workers	
Living in Area	514,726
% of Population	41.50
% Male	53.60
% Female	46.40
Living in Central County	186,926
% Work Central County	81.18
% Work Suburban County	16.33
% Work Out of Area	2.50
Living in Suburban Counties	327,800
% Work Central County	28.25
% Work Same County	57.77
% Work Different County	8.67
% Work Out of Area	5.31

Journey-to-Work Flows	
% Central-Central County	29.48
% Central-Suburban County	5.93
% Suburban-Central County	17.99
% Within Suburban County	36.79
% To Other Suburban County	5.52
% Work Out of Area	4.29

Travel Time	
Mean (in minutes)	
Originating in:	
Area	24.36
Central County	23.67
Suburban Counties	24.76
Commute Length	
% Less Than 15 Minutes	24.05
% 15 - 29 Minutes	39.15
% 30 - 39 Minutes	18.73
% 40 - 59 Minutes	9.80
% 60 Minutes or More	6.54
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	27.86
% 7:00 AM - 8:29 AM	41.75
% 8:30 AM - 9:59 AM	10.97
% All Other Departures	17.70
% Worked at Home	1.72

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	443,696
% Travel by POVs	86.20
POV Drivers	400,395
% POV Drivers	77.79
POV Passengers	43,301
% POV Passengers	8.41
POV Occupancy	1.11

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	70.97
% Carpool	15.31
Transit	
% Bus	6.86
% Subway/Rail	0.01
% Taxi	0.29
Other	
% Motorcycle	0.17
% Walk	3.10
% Bicycle	0.50
% Other	1.06
% Work at Home	1.72

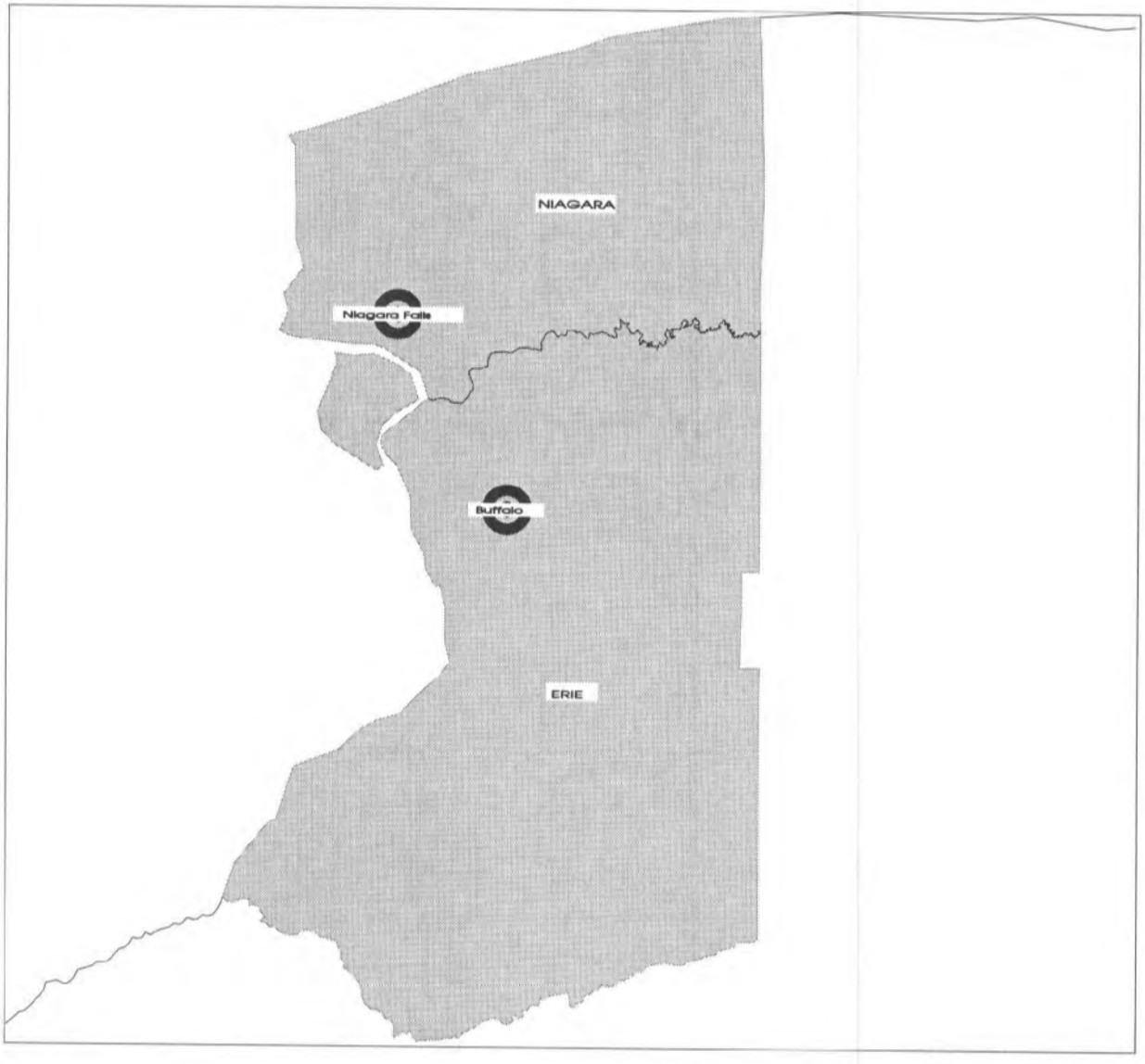
Vehicle Availability	
Total Household Vehicles	638,839
% 0 Vehicle Households	18.19
% 1 Vehicle Households	37.30
% 2 Vehicle Households	33.71
% 3+ Vehicle Households	10.79

General Indicators	
Population/Sq. Mile	537
Households/Sq. Mile	197
Workers/Sq. Mile, Areawide	
By Place of Residence	223
By Place of Work	222
Workers/Sq. Mile, Central County	
By Place of Residence	1,035
By Place of Work	1,380
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	154
By Place of Work	124
Workers/Household	1.13
Vehicles/Household	1.41
Vehicles/Worker	1.24
Workers/Vehicle	0.81

Central County
Orleans Parish, LA

Suburban Counties
Louisiana:
- Jefferson Parish
- St. Bernard Parish
- St. Charles Parish
- St. John the Baptist Parish
- St. Tammany Parish

Buffalo - Niagara Falls, NY CMSA



Journey-to-Work Profile: Buffalo-Niagara Falls, NY CMSA (1990)

Demographics and Land Area	
Area Population	1,189,288
% Central County	81.44
% Suburban County	18.56
% Urban	85.44
% Rural	14.56
Total Households	460,707
Persons Per Household	2.51
Median Household Income	
Areawide	$28,084
Central County	$28,005
Suburban County	$28,431
Age Characteristics	
Median Age	34.70
% 15 Years or Less	21.13
% 65 Years or More	15.18
Square Miles	
Areawide Total	1,568
% Central County	66.64
% Suburban County	33.36

Workers	
Living in Area	531,122
% of Population	44.70
% Male	53.10
% Female	46.90
Living in Central County	432,883
% Work Central County	94.58
% Work Suburban County	3.00
% Work Out of Area	2.42
Living in Suburban County	98,239
% Work Central County	24.71
% Work Same County	72.63
% Work Out of Area	2.66

Journey-to-Work Flows	
% Central-Central County	77.09
% Central-Suburban County	2.44
% Suburban-Central County	4.57
% Within Suburban County	13.43
% Work Out of Area	2.46

Travel Time	
Mean (in minutes)	
Originating in:	
Area	19.43
Central County	19.71
Suburban County	18.21
Commute Length	
% Less Than 15 Minutes	33.47
% 15 - 29 Minutes	42.57
% 30 - 39 Minutes	14.28
% 40 - 59 Minutes	5.51
% 60 Minutes or More	2.33
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	20.89
% 7:00 AM - 8:29 AM	42.29
% 8:30 AM - 9:59 AM	12.88
% All Other Departures	22.09
% Worked at Home	1.85

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	468,941
% Travel by POVs	88.29
POV Drivers	437,442
% POV Drivers	82.36
POV Passengers	31,499
% POV Passengers	5.93
POV Occupancy	1.07

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	77.09
% Carpool	11.20
Transit	
% Bus	4.06
% Subway/Rail	0.39
% Taxi	0.25
Other	
% Motorcycle	0.05
% Walk	4.38
% Bicycle	0.21
% Other	0.52
% Work at Home	1.85

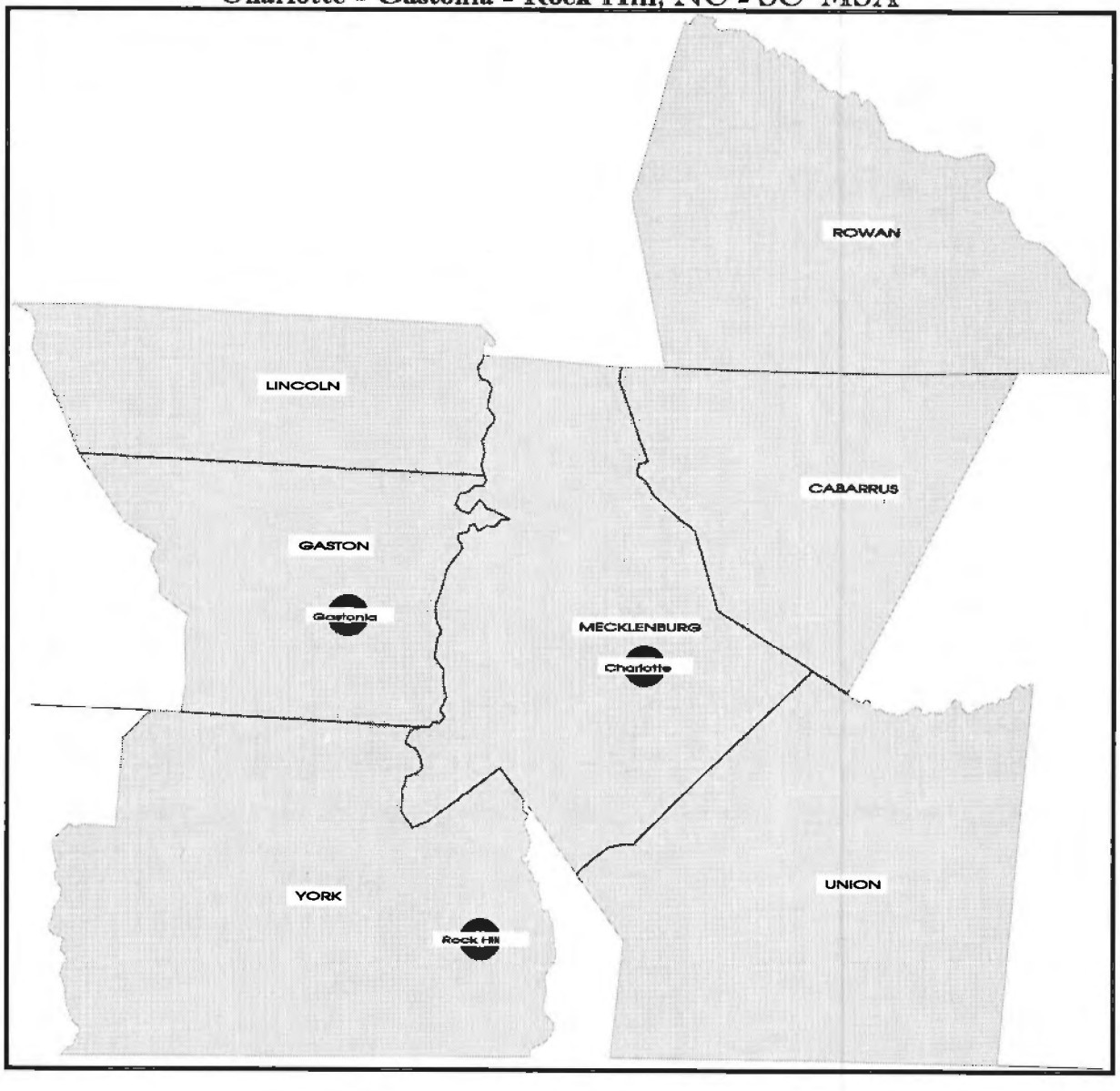
Vehicle Availability	
Total Household Vehicles	676,505
% 0 Vehicle Households	16.30
% 1 Vehicle Households	37.19
% 2 Vehicle Households	33.99
% 3+ Vehicle Households	12.52

General Indicators	
Population/Sq. Mile	758
Households/Sq. Mile	294
Workers/Sq. Mile, Areawide	
By Place of Residence	339
By Place of Work	340
Workers/Sq. Mile, Central County	
By Place of Residence	414
By Place of Work	428
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	188
By Place of Work	165
Workers/Household	1.15
Vehicles/Household	1.47
Vehicles/Worker	1.27
Workers/Vehicle	0.79

Central County
Erie, NY

Suburban County
New York:
Niagara

Charlotte - Gastonia - Rock Hill, NC - SC MSA



Journey-to-Work Profile: Charlotte-Gastonia-Rock Hill, NC-SC MSA (1990)

Demographics and Land Area

Area Population	1,162,093
% Central County	44.01
% Suburban Counties	55.99
% Urban	68.71
% Rural	31.29
Total Households	440,458
Persons Per Household	2.58
Median Household Income	
Areawide	$31,126
Central County	$33,830
Suburban Counties	$29,001
Age Characteristics	
Median Age	32.70
% 15 Years or Less	22.02
% 65 Years or More	10.92
Square Miles	
Areawide Total	3,379
% Central County	15.61
% Suburban Counties	84.39

Workers

Living in Area	604,856
% of Population	52.00
% Male	53.50
% Female	46.50
Living in Central County	277,227
% Work Central County	93.40
% Work Suburban County	4.13
% Work Out of Area	2.46
Living in Suburban Counties	327,629
% Work Central County	22.10
% Work Same County	65.23
% Work Different County	6.65
% Work Out of Area	6.03

Journey-to-Work Flows

% Central-Central County	42.81
% Central-Suburban County	1.89
% Suburban-Central County	11.97
% Within Suburban County	35.33
% To Other Suburban County	3.60
% Work Out of Area	4.39

Travel Time

Mean (in minutes)	
Originating in:	
Area	21.61
Central County	22.06
Suburban Counties	21.24
Commute Length	
% Less Than 15 Minutes	27.90
% 15 - 29 Minutes	40.96
% 30 - 39 Minutes	17.21
% 40 - 59 Minutes	8.80
% 60 Minutes or More	3.25
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	26.83
% 7:00 AM - 8:29 AM	43.92
% 8:30 AM - 9:59 AM	8.73
% All Other Departures	18.63
% Worked at Home	1.88

Privately Owned Vehicles (POVs)
(Includes Drive Alone and Carpool)

Workers Travel by POVs	564,043
% Travel by POVs	93.25
POV Drivers	516,599
% POV Drivers	85.41
POV Passengers	47,444
% POV Passengers	7.84
POV Occupancy	1.09

Journey to Work by Mode

Privately Owned Vehicles	
% Drive Alone	78.76
% Carpool	14.49
Transit	
% Bus	1.69
% Subway/Rail	0.01
% Taxi	0.14
Other	
% Motorcycle	0.10
% Walk	2.07
% Bicycle	0.13
% Other	0.72
% Work at Home	1.88

Vehicle Availability

Total Household Vehicles	793,989
% 0 Vehicle Households	8.65
% 1 Vehicle Households	30.39
% 2 Vehicle Households	39.51
% 3+ Vehicle Households	21.44

General Indicators

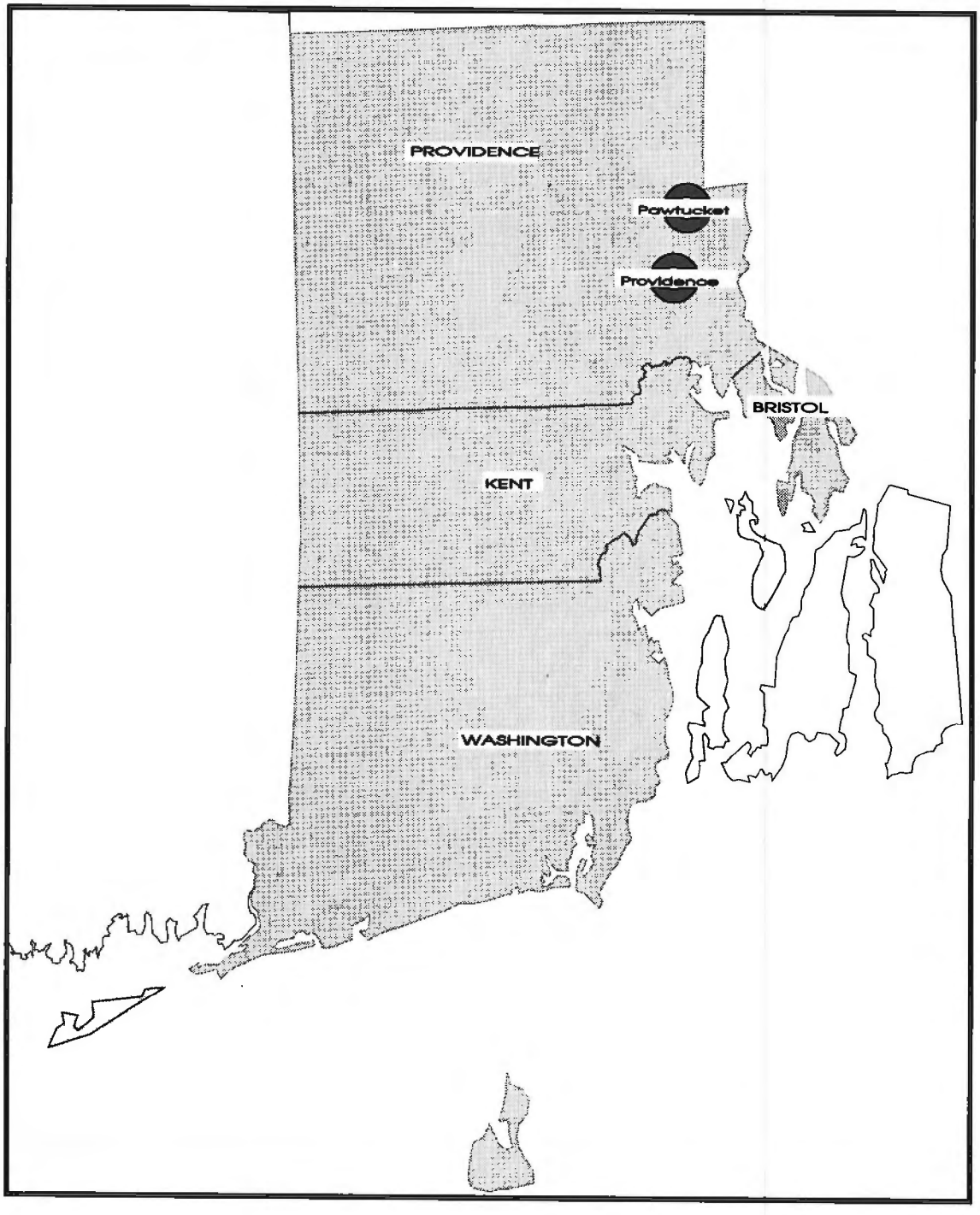
Population/Sq. Mile	344
Households/Sq. Mile	130
Workers/Sq. Mile, Areawide	
By Place of Residence	179
By Place of Work	186
Workers/Sq. Mile, Central County	
By Place of Residence	526
By Place of Work	674
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	115
By Place of Work	96
Workers/Household	1.37
Vehicles/Household	1.80
Vehicles/Worker	1.31
Workers/Vehicle	0.76

Central County
Mecklenburg, NC

Suburban Counties
North Carolina:
- Cabarrus
- Gaston
- Lincoln
- Rowan
- Union

South Carolina:
- York

Providence - Pawtucket - Fall River, RI - MA CMSA (NECMA)



Journey-to-Work Profile: Providence-Pawtucket-Fall River, RI-MA CMSA (1990)

Demographics and Land Area	
Area Population	1,141,525
% Central County	14.08
% Suburban Counties	85.92
% Urban	87.09
% Rural	12.91
Total Households	428,869
Persons Per Household	2.57
Median Household Income	
Areawide	$31,857
Central County	$22,147
Suburban Counties	$33,448
Age Characteristics	
Median Age	34.00
% 15 Years or Less	20.37
% 65 Years or More	15.07
Square Miles	
Areawide Total	1,081
% Central County	1.71
% Suburban Counties	98.29

Workers	
Living in Area	544,668
% of Population	47.70
% Male	52.60
% Female	47.40
Living in Central County	276,405
% Work Central County	77.50
% Work Suburban County	8.92
% Work Out of Area	13.58
Living in Suburban Counties	159,666
% Work Central County	28.42
% Work Same County	50.91
% Work Different County	7.52
% Work Out of Area	13.16

Journey-to-Work Flows (calculated using NECMA definition)	
% Central-Central County	49.12
% Central-Suburban County	5.66
% Suburban-Central County	10.40
% Within Suburban County	18.68
% To Other Suburban County	2.75
% Work Out of Area	13.43

Travel Time	
Mean (in minutes)	
Originating in:	
Area	19.65
Central County	16.97
Suburban Counties	20.03
Commute Length	
% Less Than 15 Minutes	36.24
% 15 - 29 Minutes	39.87
% 30 - 39 Minutes	11.90
% 40 - 59 Minutes	6.42
% 60 Minutes or More	3.82
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	25.07
% 7:00 AM - 8:29 AM	43.51
% 8:30 AM - 9:59 AM	10.94
% All Other Departures	18.73
% Worked at Home	1.75

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	495,377
% Travel by POVs	90.95
POV Drivers	458,997
% POV Drivers	84.27
POV Passengers	36,380
% POV Passengers	6.68
POV Occupancy	1.06

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	78.62
% Carpool	12.33
Transit	
% Bus	1.90
% Subway/Rail	0.28
% Taxi	0.04
Other	
% Motorcycle	0.05
% Walk	3.37
% Bicycle	0.16
% Other	0.48
% Work at Home	1.75

Vehicle Availability	
Total Household Vehicles	559,226
% 0 Vehicle Households	10.99
% 1 Vehicle Households	34.83
% 2 Vehicle Households	37.36
% 3+ Vehicle Households	16.82

General Indicators	
Population/Sq. Mile	1,056
Households/Sq. Mile	397
Workers/Sq. Mile, Areawide	
By Place of Residence	404
By Place of Work	381
Workers/Sq. Mile, Central County	
By Place of Residence	14,972
By Place of Work	15,452
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	150
By Place of Work	119
Workers/Household	1.27
Vehicles/Household	1.30
Vehicles/Worker	1.03
Workers/Vehicle	0.97

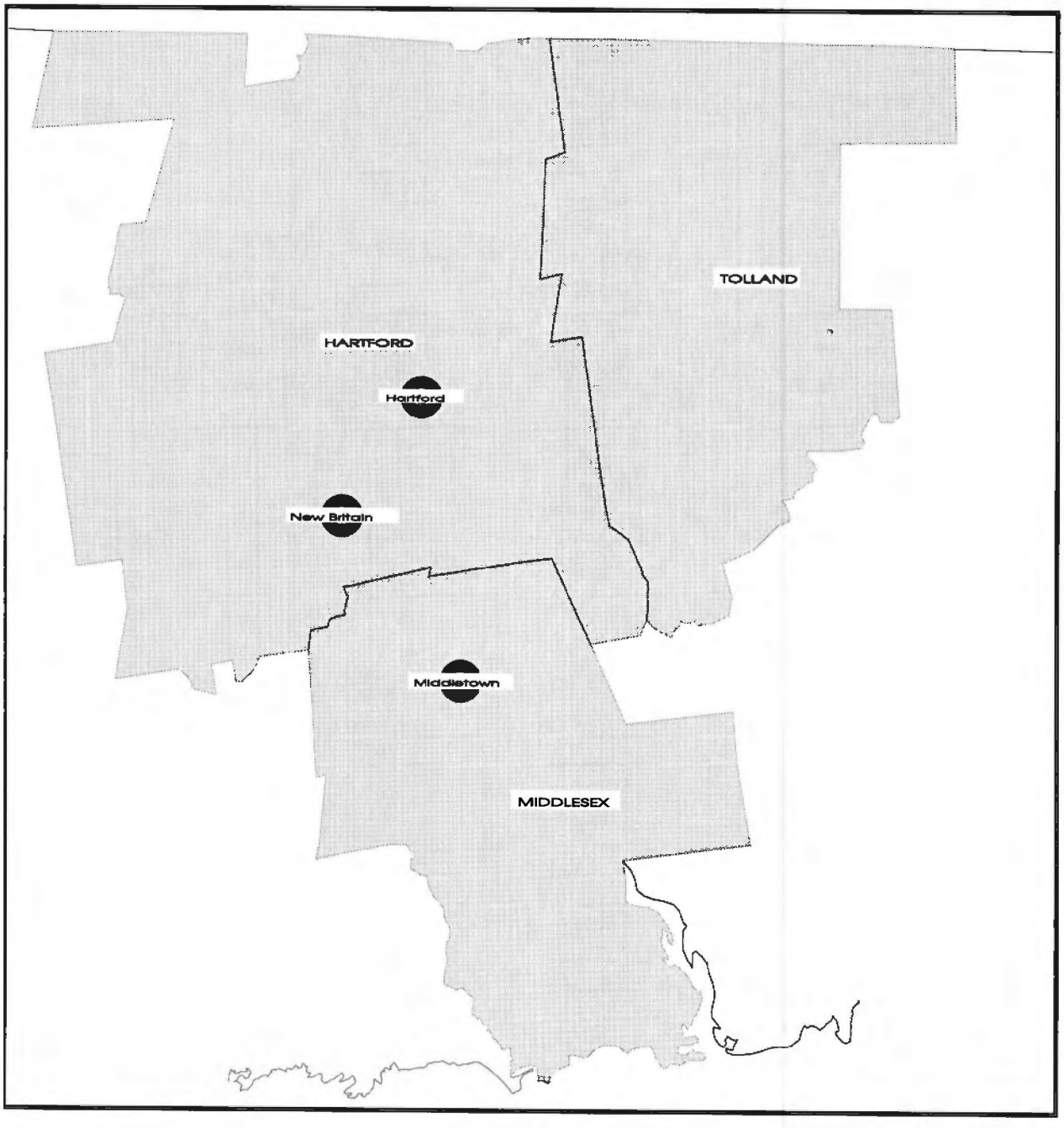
Central City, Central County
Providence City, Providence County, RI

Suburban Counties
CMSA
Rhode Island:
- Bristol
- Kent (pt.)
- Newport (pt.)
- Washington (pt.)

Massachusetts:
- Bristol (pt.)
- Norfolk (pt.)
- Worcester (pt.)

NECMA
Rhode Island:
- Bristol
- Kent
- Washington

Hartford - New Britain - Middletown, CT MSA (NECMA)



Journey-to-Work Profile: Hartford-New Britain-Middletown, CT CMSA (1990)

Demographics and Land Area	
Area Population	1,085,895
% Central County	12.87
% Suburban Counties	87.13
% Urban	80.26
% Rural	19.74
Total Households	411,507
Persons Per Household	2.56
Median Household Income	
Areawide	$41,440
Central County	$22,140
Suburban Counties	$44,290
Age Characteristics	
Median Age	34.30
% 15 Years or Less	20.34
% 65 Years or More	13.32
Square Miles	
Areawide Total	1,430
% Central County	1.21
% Suburban Counties	98.79

Workers	
Living in Area	561,969
% of Population	51.80
% Male	52.70
% Female	47.30
Living in Central County	432,836
% Work Central County	90.45
% Work Suburban County	3.30
% Work Out of Area	6.25
Living in Suburban Counties	147,393
% Work Central County	36.72
% Work Same County	48.08
% Work Different County	0.72
% Work Out of Area	14.48

Journey-to-Work Flows (calculated using NECMA definition)	
% Central-Central County	67.47
% Central-Suburban County	2.46
% Suburban-Central County	9.33
% Within Suburban County	12.21
% To Other Suburban County	0.18
% Work Out of Area	8.34

Travel Time	
Mean (in minutes)	
Originating in:	
Area	20.60
Central County	19.27
Suburban Counties	20.75
Commute Length	
% Less Than 15 Minutes	30.55
% 15 - 29 Minutes	40.87
% 30 - 39 Minutes	15.86
% 40 - 59 Minutes	8.26
% 60 Minutes or More	2.51
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	26.23
% 7:00 AM - 8:29 AM	45.20
% 8:30 AM - 9:59 AM	10.41
% All Other Departures	16.22
% Worked at Home	1.95

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	509,307
% Travel by POVs	90.63
POV Drivers	474,640
% POV Drivers	84.46
POV Passengers	34,667
% POV Passengers	6.17
POV Occupancy	1.07

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	79.38
% Carpool	11.29
Transit	
% Bus	3.56
% Subway/Rail	0.05
% Taxi	0.05
Other	
% Motorcycle	0.08
% Walk	3.04
% Bicycle	0.16
% Other	0.49
% Work at Home	1.95

Vehicle Availability	
Total Household Vehicles	707,480
% 0 Vehicle Households	10.48
% 1 Vehicle Households	31.13
% 2 Vehicle Households	39.94
% 3+ Vehicle Households	18.46

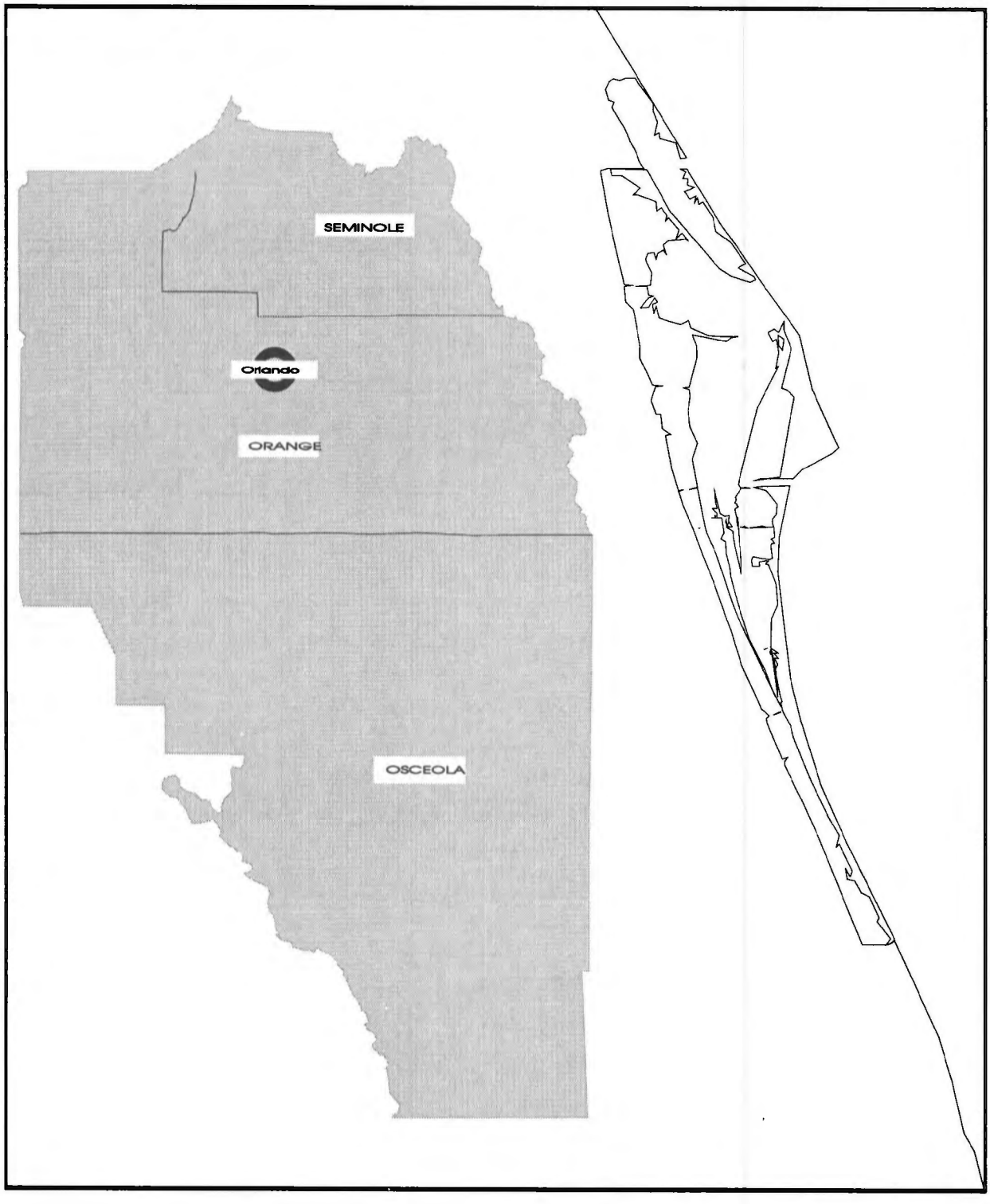
General Indicators	
Population/Sq. Mile	759
Households/Sq. Mile	288
Workers/Sq. Mile, Areawide	
By Place of Residence	406
By Place of Work	439
Workers/Sq. Mile, Central County	
By Place of Residence	25,013
By Place of Work	29,060
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	104
By Place of Work	89
Workers/Household	1.37
Vehicles/Household	1.72
Vehicles/Worker	1.26
Workers/Vehicle	0.79

Central City, Central County
Hartford City, Hartford County, CT

Suburban Counties
CMSA
Connecticut:
- Litchfield (pt.)
- Middlesex (pt.)
- New London (pt.)
- Tolland (pt.)

NECMA
Connecticut:
- Middlesex
- Tolland

Orlando, FL MSA



Journey-to-Work Profile: Orlando, FL MSA (1990)

Demographics and Land Area	
Area Population	1,072,748
% Central County	63.15
% Suburban Counties	36.85
% Urban	90.35
% Rural	9.65
Total Households	402,519
Persons Per Household	2.60
Median Household Income	
Areawide	$31,230
Central County	$30,252
Suburban Counties	$32,906
Age Characteristics	
Median Age	32.10
% 15 Years or Less	21.77
% 65 Years or More	10.88
Square Miles	
Areawide Total	2,538
% Central County	35.76
% Suburban Counties	64.24

Workers	
Living in Area	557,448
% of Population	52.00
% Male	54.80
% Female	45.20
Living in Central County	356,271
% Work Central County	89.12
% Work Suburban County	7.81
% Work Out of Area	3.08
Living in Suburban Counties	201,177
% Work Central County	44.79
% Work Same County	50.10
% Work Different County	0.95
% Work Out of Area	4.16

Journey-to-Work Flows	
% Central-Central County	56.95
% Central-Suburban County	4.99
% Suburban-Central County	16.16
% Within Suburban County	18.08
% To Other Suburban County	0.34
% Work Out of Area	3.47

Travel Time	
Mean (in minutes)	
Originating in:	
Area	22.88
Central County	22.37
Suburban Counties	23.79
Commute Length	
% Less Than 15 Minutes	24.41
% 15 - 29 Minutes	39.84
% 30 - 39 Minutes	19.96
% 40 - 59 Minutes	10.36
% 60 Minutes or More	3.48
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	25.74
% 7:00 AM - 8:29 AM	43.53
% 8:30 AM - 9:59 AM	10.25
% All Other Departures	18.53
% Worked at Home	1.95

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	509,215
% Travel by POVs	91.35
POV Drivers	469,606
% POV Drivers	84.24
POV Passengers	39,606
% POV Passengers	7.10
POV Occupancy	1.08

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	78.08
% Carpool	13.28
Transit	
% Bus	1.42
% Subway/Rail	0.02
% Taxi	0.10
Other	
% Motorcycle	0.43
% Walk	3.46
% Bicycle	0.62
% Other	0.65
% Work at Home	1.95

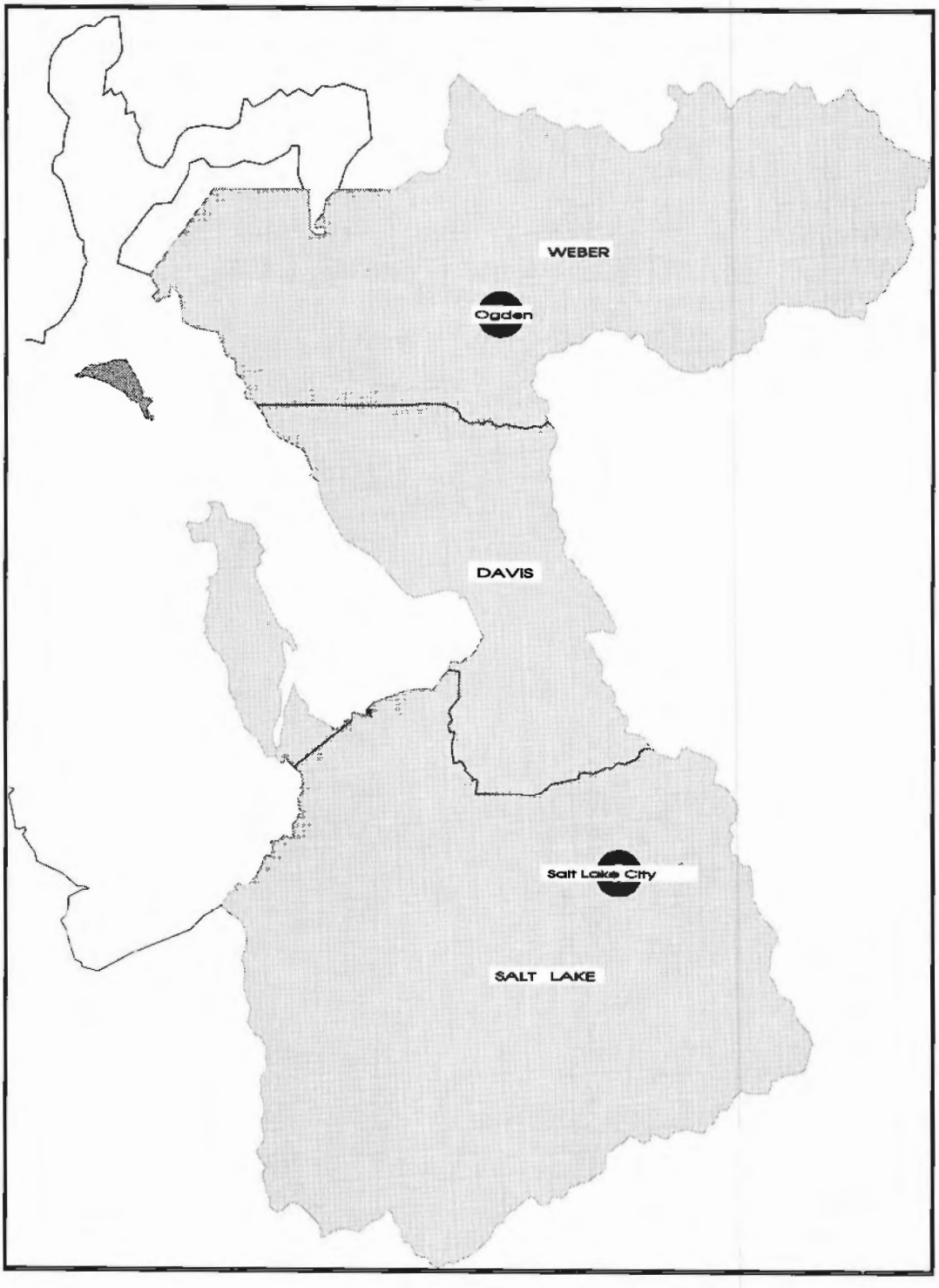
Vehicle Availability	
Total Household Vehicles	688,507
% 0 Vehicle Households	6.64
% 1 Vehicle Households	35.86
% 2 Vehicle Households	41.70
% 3+ Vehicle Households	15.81

General Indicators	
Population/Sq. Mile	423
Households/Sq. Mile	159
Workers/Sq. Mile, Areawide	
By Place of Residence	220
By Place of Work	231
Workers/Sq. Mile, Central County	
By Place of Residence	393
By Place of Work	483
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	123
By Place of Work	90
Workers/Household	1.38
Vehicles/Household	1.71
Vehicles/Worker	1.24
Workers/Vehicle	0.81

Central County
Orange, FL

Suburban Counties
Florida:
Osceola
Seminole

Salt Lake City - Ogden, UT CMSA



Journey-to-Work Profile: Salt Lake City-Ogden, UT MSA (1990)

Demographics and Land Area	
Area Population	1,072,227
% Central County	67.71
% Suburban Counties	32.29
% Urban	98.40
% Rural	1.60
Total Households	347,121
Persons Per Household	3.04
Median Household Income	
Areawide	$30,882
Central County	$30,149
Suburban Counties	$32,419
Age Characteristics	
Median Age	27.50
% 15 Years or Less	32.29
% 65 Years or More	8.44
Square Miles	
Areawide Total	1,617
% Central County	45.59
% Suburban Counties	54.41

Workers	
Living in Area	479,338
% of Population	44.70
% Male	55.40
% Female	44.60
Living in Central County	329,238
% Work Central County	93.10
% Work Suburban County	3.59
% Work Out of Area	3.31
Living in Suburban Counties	150,100
% Work Central County	18.50
% Work Same County	62.54
% Work Different County	15.71
% Work Out of Area	3.26

Journey-to-Work Flows	
% Central-Central County	63.95
% Central-Suburban County	2.47
% Suburban-Central County	5.79
% Within Suburban County	19.58
% To Other Suburban County	4.92
% Work Out of Area	3.29

Travel Time	
Mean (in minutes)	
Originating in:	
Area	19.81
Central County	20.15
Suburban Counties	19.08
Commute Length	
% Less Than 15 Minutes	31.27
% 15 - 29 Minutes	44.91
% 30 - 39 Minutes	12.75
% 40 - 59 Minutes	4.94
% 60 Minutes or More	3.03
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	24.85
% 7:00 AM - 8:29 AM	41.17
% 8:30 AM - 9:59 AM	10.28
% All Other Departures	20.60
% Worked at Home	3.10

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	432,770
% Travel by POVs	90.28
POV Drivers	396,396
% POV Drivers	82.70
POV Passengers	36,374
% POV Passengers	7.59
POV Occupancy	1.09

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	76.30
% Carpool	13.99
Transit	
% Bus	2.94
% Subway/Rail	0.01
% Taxi	0.02
Other	
% Motorcycle	0.30
% Walk	2.32
% Bicycle	0.51
% Other	0.51
% Work at Home	3.10

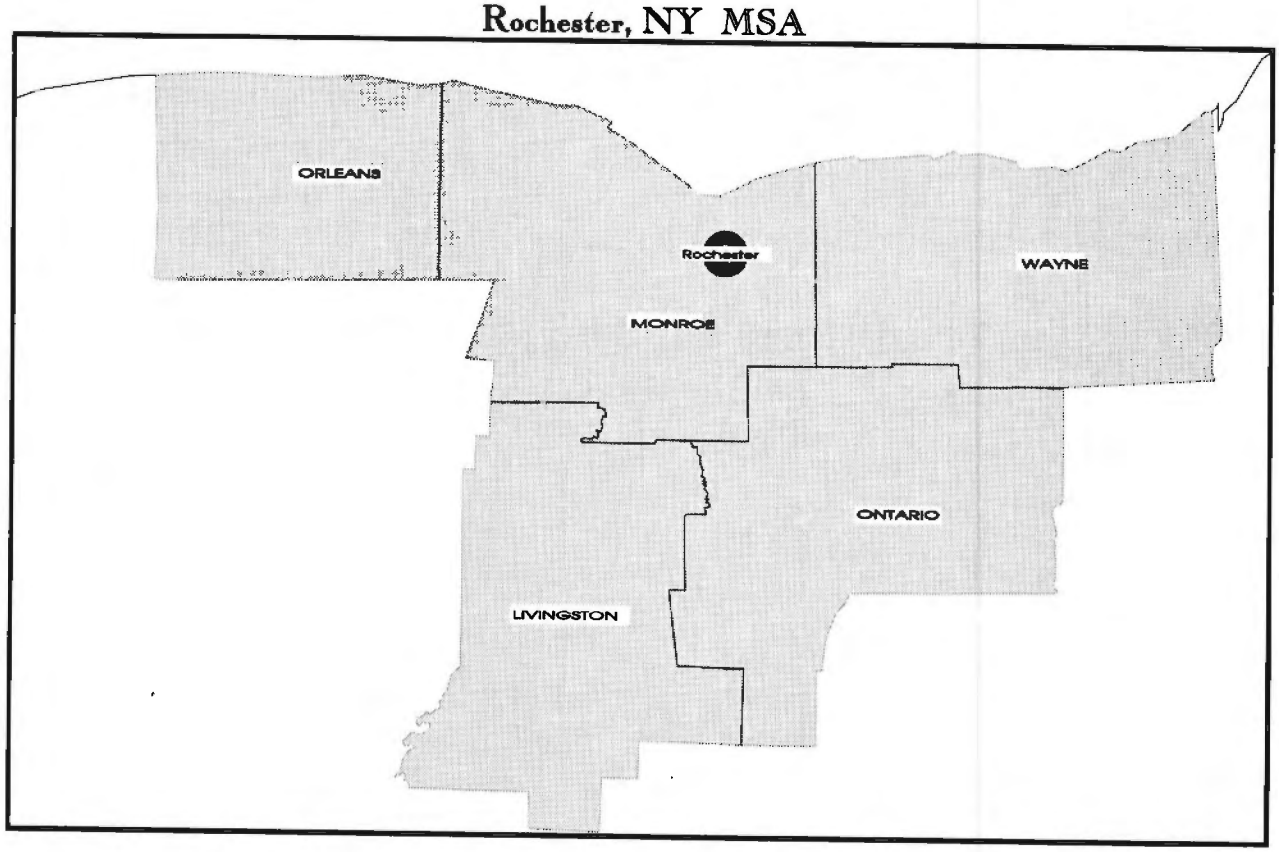
Vehicle Availability	
Total Household Vehicles	651,669
% 0 Vehicle Households	6.07
% 1 Vehicle Households	29.46
% 2 Vehicle Households	42.08
% 3+ Vehicle Households	22.39

General Indicators	
Population/Sq. Mile	663
Households/Sq. Mile	215
Workers/Sq. Mile, Areawide	
By Place of Residence	296
By Place of Work	297
Workers/Sq. Mile, Central County	
By Place of Residence	446
By Place of Work	471
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	171
By Place of Work	152
Workers/Household	1.38
Vehicles/Household	1.88
Vehicles/Worker	1.36
Workers/Vehicle	0.74

Central County
Salt Lake, UT

Suburban Counties
Utah:
Davis
Weber

Rochester, NY MSA



Journey-to-Work Profile: Rochester, NY MSA (1990)

Demographics and Land Area	
Area Population	1,002,410
% Central County	71.23
% Suburban Counties	28.77
% Urban	70.58
% Rural	29.42
Total Households	374,856
Persons Per Household	2.58
Median Household Income	
Areawide	$34,234
Central County	$35,337
Suburban Counties	$31,504
Age Characteristics	
Median Age	32.90
% 15 Years or Less	22.52
% 65 Years or More	12.39
Square Miles	
Areawide Total	2,932
% Central County	22.49
% Suburban Counties	77.51

Workers	
Living in Area	481,467
% of Population	48.00
% Male	53.20
% Female	46.80
Living in Central County	347,088
% Work Central County	96.67
% Work Suburban County	2.08
% Work Out of Area	1.25
Living in Suburban Counties	134,379
% Work Central County	32.03
% Work Same County	56.23
% Work Different County	4.53
% Work Out of Area	7.20

Journey-to-Work Flows	
% Central-Central County	69.69
% Central-Suburban County	1.50
% Suburban-Central County	8.94
% Within Suburban County	15.70
% To Other Suburban County	1.27
% Work Out of Area	2.91

Travel Time	
Mean (in minutes)	
Originating in:	
Area	19.73
Central County	18.67
Suburban Counties	22.48
Commute Length	
% Less Than 15 Minutes	32.74
% 15 - 29 Minutes	42.74
% 30 - 39 Minutes	12.94
% 40 - 59 Minutes	6.44
% 60 Minutes or More	2.70
Time Workers Leave Home	
% 5:00 AM - 6:59 AM	25.43
% 7:00 AM - 8:29 AM	42.25
% 8:30 AM - 9:59 AM	10.98
% All Other Departures	18.91
% Worked at Home	2.43

Privately Owned Vehicles (POVs) (Includes Drive Alone and Carpool)	
Workers Travel by POVs	430,132
% Travel by POVs	89.34
POV Drivers	400,707
% POV Drivers	83.23
POV Passengers	29,425
% POV Passengers	6.11
POV Occupancy	1.07

Journey to Work by Mode	
Privately Owned Vehicles	
% Drive Alone	77.73
% Carpool	11.61
Transit	
% Bus	3.11
% Subway/Rail	0.01
% Taxi	0.07
Other	
% Motorcycle	0.05
% Walk	4.34
% Bicycle	0.22
% Other	0.43
% Work at Home	2.43

Vehicle Availability	
Total Household Vehicles	615,534
% 0 Vehicle Households	11.17
% 1 Vehicle Households	33.94
% 2 Vehicle Households	38.99
% 3+ Vehicle Households	15.89

General Indicators	
Population/Sq. Mile	342
Households/Sq. Mile	128
Workers/Sq. Mile, Areawide	
By Place of Residence	164
By Place of Work	168
Workers/Sq. Mile, Central County	
By Place of Residence	526
By Place of Work	592
Workers/Sq. Mile, Suburban Counties	
By Place of Residence	59
By Place of Work	45
Workers/Household	1.28
Vehicles/Household	1.64
Vehicles/Worker	1.28
Workers/Vehicle	0.78

Central County
Monroe, NY

Suburban Counties
New York:
- Livingston
- Ontario
- Orleans
- Wayne

Appendix A

CHANGES IN MSA/CMSA COUNTY LIST, 1974-1983

1. **New York-Northern New Jersey-Long Island, NY-NJ-CT**[1]
   - Bridgeport-Milford, CT PMSA
     - Fairfield County (pt.)
     - New Haven County (pt.)
   - Danbury, CT PMSA
     - Fairfield County (pt.)
     - Litchfield County (pt.)
   - Norwalk, CT PMSA
     - Fairfield County (pt.)
   - Stamford, CT PMSA
     - Fairfield County (pt.)
   - Hunterdon County, NJ
   - Morris County, NJ
   - Ocean County, NJ
   - Sussex County, NJ
   - Orange County, NY

2. **Los Angeles-Anaheim-Riverside, CA**
   - No Change

3. **Chicago-Gary-Lake County, IL-IN-WI**
   - Grundy County, IL
   - Kendall County, IL

4. **San Francisco-Oakland-San Jose, CA**
   - Santa Cruz County

5. **Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD**
   - Cumberland County, NJ

6. **Detroit-Ann Arbor, MI**
   - Monroe County

7. **Boston-Lawrence-Salem, MA-NH**[2]
   - Nashua, NH PMSA
     - Hillsborough County (pt.)
     - Rockingham County (pt.)
   - Salem-Gloucester, MA PMSA

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[1] In this report, we do not use any data from the New England portion of the New York City CMSA. References above are provided for information only.

[2] New England CMSA must be reviewed in detail at the partial county level in order to insure accuracy.

Essex County (pt.)

8.	**Washington, DC-MD-VA** Calvert County, MD Frederick County, MD Stafford County, VA	**Removed Counties**
9.	**Dallas-Fort Worth, TX**	Hood County Wise County
10.	**Houston-Galveston-Brazoria, TX** No Change	
11.	**Miami-Fort Lauderdale, FL** No Change	
12.	**Atlanta, GA** Barrow County Cowetta County Spaulding County	
13.	**Cleveland-Akron-Lorain, OH** No Change	
14.	**Seattle-Tacoma, WA** No Change	
15.	**San Diego, CA** No Change	
16.	**Minneapolis-St Paul, MN-WI** Isanti County, MN	
17.	**St. Louis, MO-IL** Jersey County, IL	
18.	**Baltimore, MD** Queen Anne's County	
19.	**Pittsburgh-Beaver Valley, PA** Fayette County	
20.	**Phoenix, AZ**	
21.	**Tampa, FL** Hernando County	

		Removed Counties
22.	**Denver-Boulder, CO**	Gilpin County
23.	**Cincinnati, OH-KY-IN**	Butler County, OH
24.	**Milwaukee-Racine, WI** No Change	
25.	**Kansas City, MO-KS** Lafayette County, MO Leavenworth, KS Miami County, KS	
26.	**Sacramento, CA** El Dorado County	
27.	**Portland-Vancouver, OR-WA** Yamhill County, OR Clark County, WA	
28.	**Norfolk-Virginia Beach-Newport News, VA**[3] Gloucester County James City County York County Chesapeake city Hampton city Newport News city Norfolk city Poquoson city Portsmouth city Suffolk city Virginia Beach city Williamsburg city	
29.	**Columbus, OH** Licking County Union County	
30.	**San Antonio, TX** No Change	
31.	**Indianapolis, IN**	Madison County

[3] Indicated that this MSA or CMSA was added to the ranks of metropolitan areas over one million population.

Removed Counties

32. **New Orleans, LA**
    - St. Charles Parish
    - St. John the Baptist Parish

33. **Buffalo-Niagara Falls, NY**
    - No Change

34. **Charlotte-Gastonia-Rock Hill, NC-SC**[4]
    - Cabarrus County, NC
    - Gaston County, NC
    - Lincoln County, NC
    - Mecklenburg County, NC
    - Rowan County, NC
    - Union County, NC
    - York County, SC

35. **Providence-Pawtucket-Fall River, RI-MA**[5]
    - Pawtucket-Woonsocket-Attleborro, RI-MA PMSA
        - Providence County, RI (pt.)
        - Bristol County, MA (pt.)
        - Norfolk County, MA (pt.)
        - Worcester County, MA (pt.)

36. **Hartford-New Britain-Middletown, CT**[6]
    - Bristol PMSA
        - Hartford County (pt.)
        - Litchfield County (pt.)
    - Hartford PMSA
        - Hartford County (pt.)
        - Litchfield County (pt.)
        - Middlesex County (pt.)
        - New London County (pt.)
        - Tolland County (pt.)
    - Middletown PMSA
        - Middlesex County (pt.)
    - New Britain PMSA
        - Hartford County (pt.)

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[4] Indicated that this MSA or CMSA was added to the ranks of metropolitan areas over one million population.

[5] New England CMSA must be reviewed in detail at the partial county level in order to ensure accuracy.

[6] New England CMSA must be reviewed in detail at the partial county level in order to ensure accuracy.

		Removed Counties
37.	**Orlando, FL**[7]	
	Orange County	
	Osceola County	
	Seminole County	
38.	**Salt Lake City-Ogden, UT**[8]	
	Davis County	
	Salt Lake County	
	Weber County	
39.	**Rochester, NY**[9]	
	Livingston County	
	Monroe County	
	Ontario County	
	Orleans County	
	Wayne County	
44.	**Dayton-Springfield, OH**[10]	

[7] This MSA or CMSA was added to the ranks of metropolitan areas with over one million in population.

[8] This MSA or CMSA was added to the ranks of metropolitan areas with over one million in population.

[9] This MSA or CMSA was added to the ranks of metropolitan areas with over one million in population.

[10] MSA no longer has a population over one million.

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Appendix B

LIST OF ALL COUNTIES IN METROPOLITAN AREAS – 1983 GEOGRAPHY (Note: * = central county)

1. **New York-Northern New Jersey-Long Island, NY-NJ-CT**

New Jersey
- Bergen
- Essex
- Hudson
- Hunterdon
- Middlesex
- Monmouth
- Morris
- Ocean
- Passaic
- Somerset
- Sussex
- Union

New York
- Bronx
- Kings
- Nassau
- * New York
- Orange
- Putnam
- Queens
- Richmond
- Rockland
- Suffolk
- Westchester

2. **Los Angeles-Anaheim-Riverside, CA**

California
- Orange
- * Los Angeles
- Ventura
- Riverside
- San Bernardino

3. **Chicago-Gary-Lake County,IL-IN-WI**

Illinois
- * Cook
- DuPage
- Grundy
- Kane
- Kendall
- Lake
- McHenry
- Will

Indiana
- Lake
- Porter

Wisconsin
- Kenosha

4. **San Francisco-Oakland-San Jose, CA**

California
- Alameda
- Contra Costa
- Marin
- Napa
- * San Francisco
- San Mateo
- Santa Clara
- Santa Cruz
- Solano County
- Sonoma County

5. **Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD**

New Jersey
- Burlington
- Camden
- Cumberland
- Gloucester
- Salem
- Mercer

Pennsylvania
- Bucks
- Chester
- Delaware
- Montgomery
- * Philadelphia

Delaware
- New Castle

Maryland
- Cecil

6. **Detroit-Ann Arbor, MI**

Michigan
- Lapeer
- Livingston
- Macomb
- Monroe
- Oakland
- St. Clair
- Washtenaw
- * Wayne

7. **Boston-Lawrence-Salem, MA-NH**

Massachusetts
- Miscellaneous Towns/Cities
- * Boston City

New Hampshire
- Miscellaneous Towns/Cities

8. **Washington, DC-MD-VA**

* District of Columbia

Maryland
- Calvert
- Charles
- Frederick
- Montgomery
- Prince Georges

Virginia
- Arlington
- Fairfax
- Loudoun
- Prince William
- Stafford
- Alexandria City
- Fairfax City
- Falls Church City
- Manassas City
- Manassas Park City

9. **Dallas-Fort Worth, TX**

Texas
- Collin
- * Dallas
- Denton
- Ellis
- Johnson
- Kaufman
- Parker
- Rockwall
- Tarrant

10. **Houston-Galveston-Brazoria, TX**

Texas
- Brazoria
- Fort Bend
- Galveston
- * Harris
- Liberty
- Montgomery
- Waller

11. **Miami-Fort Lauderdale, FL**

Florida
- Broward
- * Dade

12. **Atlanta, GA**
    - Barrow
    - Butts
    - Cherokee
    - Clayton
    - Cobb
    - Cowetta
    - Dekalb
    - Douglas
    - Fayette
    - Forsyth
    - * Fulton
    - Gwinnett
    - Henry
    - Newton
    - Paulding
    - Rockdale
    - Spaulding
    - Walton

13. **Cleveland-Akron-Lorain, OH**
    Ohio
    - Portage
    - Summit
    - * Cuyahoga
    - Geauga
    - Lake
    - Lorain
    - Medina

14. **Seattle-Tacoma, WA**
    Washington
    - * King
    - Pierce
    - Snohomish

15. **San Diego, CA**
    California
    - * San Diego

16. **Minneapolis-St Paul, MN-WI**
    Minnesota
    - Anoka
    - Carver
    - Chisago
    - Dakota
    - * Hennepin
    - Isanti
    - Ramsey
    - Scott
    - Washington
    - Wright

    Wisconsin
    - St. Croix

17. **St. Louis, MO-IL**
    Illinois
    - Clinton
    - Jersey
    - Madison
    - Monroe
    - St. Clair

    Missouri
    - Franklin
    - Jefferson
    - St. Charles
    - St. Louis
    - * St. Louis City

18. **Baltimore, MD**
    Maryland
    - Anne Arundel
    - Baltimore
    - Carroll
    - Harford
    - Howard
    - Queen Anne's
    - * Baltimore City

19. **Pittsburgh-Beaver Valley, PA**
    Pennsylvania
    - * Allegheny
    - Beaver
    - Fayette
    - Washington
    - Westmoreland

20. **Phoenix, AZ**
Arizonia
* Maricopa

21. **Tampa, FL**
Florida
Hernando
* Hillsborough
Pasco
Pinellas

22. **Denver-Boulder, CO**
Colorado
Adams
Arapahoe
Boulder
* Denver
Douglas
Jefferson

23. **Cincinnati, OH-KY-IN**
Indiana
Dearbon
Kentucky
Boone
Campbell
Kenton
Ohio
Clermont
* Hamilton
Warren

24. **Milwaukee-Racine, WI**
Wisconsin
* Milwaukee
Ozaukee
Racine
Washington
Waukesha

25. **Kansas City, MO-KS**
Kansas
Johnson
Leavenworth
Miami
Wyandotte
Missouri
Cass
Clay
* Jackson
Lafayette
Platte
Ray

26. **Sacramento, CA**
California
El Dorado
Placer
* Sacramento
Yolo

27. **Portland-Vancouver, OR-WA**
Oregon
Clackamas
* Multnomah
Washington
Yamhill
Washington
Clark

28. **Norfolk-Virginia Beach-Newport News, VA**
Virginia
Gloucester
James City
York
Chesapeake City
Hampton City
Newport News City
* Norfolk City
Poquoson City
Portsmouth City
Suffolk City
Virginia Beach
Williamsburg City

29. **Columbus, OH**
Ohio
Delaware
Fairfield
* Franklin
Licking
Madison
Pickaway
Union

30. **San Antonio, TX**
Texas
* Bexar
Comal
Guadalupe

31. **Indianapolis, IN**
Indiana
Boone
Hamilton
Hancock
Hendricks
Johnson
* Marion
Morgan
Shelby

32. **New Orleans, LA**
Louisiana
Jefferson Parish
* Orleans Parish
St. Bernard Parish
St. Charles Parish
St. John the Baptist Parish
St. Tammany Parish

33. **Buffalo-Niagara Falls, NY**
New York
* Erie
Niagara

34. **Charlotte-Gastonia-Rock Hill, NC-SC**
North Carolina
Cabarrus
Gaston
Lincoln
* Mecklenburg
Rowan
Union
South Carolina
York

35. **Providence-Pawtucket-Fall River, RI-MA**
Massachusetts
Miscellaneous Towns/Cities
Rhode Island
Miscellaneous Towns/Cities
* Providence City

36. **Hartford-New Britain-Middletown, CT**
Connecticut
Miscellaneous Towns/Cities
* Hartford City

37. **Orlando, FL**
Florida
* Orange
Osceola
Seminole

38. **Salt Lake City, UT**
Utah
Davis
* Salt Lake
Weber

39. **Rochester, NY**
New York
Livingston
* Monroe
Ontario
Orleans
Wayne

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