

State Transportation Plan



Urban Transportation Supplement

Newark

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NEWARK
—
URBAN TRANSPORTATION
SUPPLEMENT
FUTURE ECONOMIC CONDITIONS,
EMPLOYMENT GROWTH CENTERS, AND
PUBLIC TRANSPORTATION REQUIREMENTS

NEWARK

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Prepared by:

Rutgers University, Center for Urban Policy Research

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Rutgers University, Center for Urban Policy Research

Principal Investigator:

Robert W. Burchell, Ph.D.
Emilie Schneider, Ph.D.

City Researchers:

Sean Thompson - Paterson
Emilie Schneider - Elizabeth
Gina Saff - Camden
Lawrence Newton - Newark
Daniel Kupper - Jersey City
Dariusz Jankowski - Atlantic City
Brian Bivans - Trenton

New Jersey Department of Transportation

William S. Beebe
James B. Lewis
Helene Rubin

New Jersey Transit

James Redeker
Pippa deCosson Woods
Glenn D. Newman - Intern

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The economic fortunes of Newark have followed the same pattern of older cities in large metropolitan areas throughout the northeastern United States. Since 1950, population, employment, and retailing in the surrounding suburbs have grown continuously at the expense of the city of Newark. According to the 1990 Census, the population of Newark was 275,221, signifying a loss of 54,027 residents during the last decade and nearly 165,000 over four decades.

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I. INTRODUCTION

State legislation (P.L. 1991 Chapter 481) approved January 18, 1992 mandates that the New Jersey Department of Transportation (NJDOT), in conjunction with NJ TRANSIT (NJT), prepare and submit to the Legislature an Urban Transportation Supplement to the State Transportation Plan. The supplement, to be updated every five years, is to identify and address transportation needs and issues of seven cities: Atlantic City, Camden, Elizabeth, Jersey City, Newark, Paterson, and Trenton, with a view to improving access into and out of these major urban centers. In particular, the legislation places emphasis on "the transportation problems of the state's inner-city residents who are employed by or who are seeking employment with employers located in suburban areas of the state."

Information on Newark for this report has been gathered from the U.S. Census, the New Jersey Transportation Plan, the NJ TRANSIT Capital Plan, county and local master and transportation plans, population and employment projections from the New Jersey Department of Labor, the State Development and Redevelopment Plan, numerous other forms of published data, and from personal interviews with Newark and Essex County professionals working in planning, transportation, economic development, and job placement or training.

Newark, the seat of Essex County, is the industrial and financial metropolis of New Jersey. It is also a major maritime port in the New York-New Jersey harbor complex and one of the largest air, rail, and truck transportation centers in the United States. World War I firmly entrenched Newark's position as an industrial center and laid the foundation for its future as an important port, the Port of Newark, which opened in 1918. Today the Port of Newark is the biggest container port in the United States. In 1929 Newark's airport was designated the eastern airmail terminal. The airport is now one of the busiest in the world. In 1935 a city subway was built. This allowed outer northern neighborhoods to be drawn closer to the core of the city. Since 1911 Newark has been linked to Manhattan by many forms of rail transit, allowing an easy commute between the two cities. These transportation and locational advantages fueled Newark's growth. In 1900 its population was 246,070. It grew to 442,337 by 1930 and stood at 438,776 in 1950.

The economic fortunes of Newark have followed the same pattern of older cities in large metropolitan areas throughout the northeastern United States. Since 1950, population, employment, and retailing in the surrounding suburbs have grown continuously at the expense of the city of Newark. According to the 1990 Census, the population of Newark was 275,221, signifying a loss of 54,027 residents during the last decade and nearly 165,000 over four decades.

2.

The airport, the port, and the area in the immediate vicinity of the rail link to New York combine to provide a strong employment base for the city. The Port of Newark/Elizabeth marine terminal—2,230 acres in size and containing three miles of ship berths—handles 100 million containers annually. Newark International Airport served 29 million passengers by 1986, and the Port Authority expects to serve about 45 million passengers annually by the year 2000. Manufacturing remains a major employer locally, although its importance has declined steadily. In tandem with this decline has been the rise of the services sector. The central business district of Newark is the largest single center of office employment in New Jersey. The rise in service employment has not, however, offset the general decline in Newark's employment opportunities and incomes.

Newark possesses an extensive transportation network. A comprehensive bus system, including both public and private carriers, provides mobility within the center city as well as allowing workers and shoppers to reach destinations in the suburbs and beyond. Highways, including the Garden State Parkway and the New Jersey Turnpike, two interstate highways and two federal highways, are in close proximity to the city and allow commuters and freight traffic access to the city or passage through the city to destinations in New York City to the east and suburban employment centers in western Essex and Morris counties. The city's highly developed transportation network has proven to be a mixed blessing for the city's economy. On the one hand, it has spurred the city's economic expansion; on the other, it has facilitated the entry of suburbanites to jobs held in the central city.

This report will document the jobs that remain available to residents of Newark and demonstrate that as manufacturing jobs shifted from Newark to the suburbs, a lower number of service jobs were created in the city. To the extent that the skills and training of Newark residents predispose them towards entry-level service, retail, and manufacturing employment, and to the degree that the first two of these are growing more in the suburbs, transportation-related problems of access to current and prospective suburban jobs compound the difficulty Newark residents face in getting and keeping a job. However, as the sections on demographics that follow will demonstrate, problems unrelated to transportation (such as lack of skills or cost and availability of child care) play a more significant role in both the initial and continued employment of Newark residents.

II. DEMOGRAPHIC PROFILE OF THE CITY'S POPULATION

This section examines the changes in population, households, age composition, and income level of Newark residents. The relevant demographic data are displayed in Tables 1-3.

A. Total During the period 1980-1990, Newark lost 54,027 residents. The city's population fell from 329,248 in 1980 to 275,221 in 1990, posting a decline of 16.4 percent. In the same period the city lost 20,034 households, or 18.1 percent, declining from 110,912 to 90,878 households. Average household size in the city remained steady at 2.93 persons per dwelling unit, as shown in Table 1. This contrasts markedly with the national and predominantly suburban trend toward decline in average household size, a pattern that has established itself over the past few decades with the growth of single-person households and those with a reduced number of children.

B. The population of Newark is getting older (Table 2). Residents over 65 years old made up 8.8 percent of the total in 1980 and 9.3 in 1990. There were fewer children and adolescents. Residents less than 5 years old constituted 7.9 percent of the total in 1990, a decline of 9.2 percent. In the same period, the number of residents between 5 and 19 years of age declined by 17.4 percent.

Median household income in Newark increased by 113.9 percent in the 1980-1990 period from \$10,118 to \$21,650. Average per capita income also posted an increase, rising from \$4,525 in 1980 to \$9,424 in 1990, or by 108.3 percent over the ten-year period. The percentage of population living under the poverty line fell from 32.8 in 1980 to 26.3 in 1990, which indicates a drop of 19.8 percent (Table 3). While these gains in income were on a par with increases occurring in both the state and nation as a whole, the aggregate levels of income in Newark are only one-half of the New Jersey average and two-thirds of the national average. Of the seven cities surveyed in the Urban Transportation Supplement, Newark's 1990 average household income is above that of only Camden and Atlantic City.

In brief, there are fewer people in Newark, a large proportion of its residents are relatively poor, and the population as a whole is becoming older. Thus, Newark residents' difficulty in finding and keeping jobs is compounded not only by their living at a distance from locations of current and prospective employment but also by low income, which denies many of them automobile access to these jobs.

III. LABOR FORCE PROFILE

This section examines Newark's employment dynamics for the period 1980 to 1990. It discusses the direction, magnitude, and consequences of the changes in the employed work force, the composition of jobs held by Newark residents, and the occupations in which they are engaged.

TABLE 1
POPULATION AND HOUSEHOLDS
IN NEWARK 1980-1990

<i>Population Indices</i>	<i>1980</i>	<i>1990</i>	<i>Change</i>	
			<i>Number</i>	<i>Percent</i>
Population	329,248	275,221	(54,027)	(16.4)
Household	110,912	90,878	(20,034)	(18.1)
Average Household Size	2.93	2.93	0	0

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

TABLE 2
AGE PROFILE OF THE POPULATION
IN NEWARK 1980-1990

<i>Age Cohorts</i>	<i>1980</i> <i>Percent</i>	<i>1990</i> <i>Percent</i>	<i>Change</i> <i>Percent</i>
<5 years	8.7	7.9	(9.2)
5 years to 19 years	29.3	24.2	(17.4)
20-64 years	53.2	58.6	10.2
Over 65 years	8.8	9.3	5.7
Median Age (years)	26.9	29.6	10.0

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

TABLE 3
INCOME AND POVERTY
IN NEWARK 1979-1989

<i>Income Indices</i>	<i>1979</i>	<i>1989</i>	<i>Change</i>	
			<i>Number</i>	<i>Percent</i>
Household Income	\$10,118	\$21,650	\$11,532	113.9
Per Capita Income	\$4,525	\$9,424	\$4,899	108.3
Percent Population Below Poverty Level	32.8	26.3	—	(19.8)

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

A. Total Employed

Between 1980 and 1990 the number of Newark residents having a job fell from 110,052 in 1980 to 105,553 in 1990, a decline of 4,499 (Table 4). Newark was the only city of the seven studied wherein resident employment decreased from 1980 to 1990. During the same period the city lost 54,027 residents and 20,000 households, which would indicate that job opportunities for the remaining residents should theoretically have increased by at least 15,000 during this period. However, the nearly 10 percent increase in resident unemployment in this period (see Table 6) indicates that this was not the case.

B. Employment by Industry

The most important source of resident employment in Newark is services. Nearly 28 percent of total employed residents in 1980 and 32.2 percent in 1990 held jobs in the services sector (Table 4). Manufacturing, while still a major source of employment, declined in significance during the 1980-90 period. Its share of total resident employment fell from 31.2 percent in 1980 to 20.6 percent in 1990. FIRE (finance, insurance, and real estate) and the public sector also declined in significance.

Wholesale trade and retail trade grew in significance; the former increased its share in total resident employment from 3.8 to 4.7 percent while the share of the latter moved from 10.3 to 12.8 percent of the total. Transportation also grew in significance, increasing its share from 6.6 percent to 8.5 percent. The shares of construction and agriculture in resident employment increased significantly during this period; nevertheless, these two sectors still constituted less than 10 percent of Newark's total resident employment in 1990.

C. Employment by Occupation

Over the years the jobs held by Newark residents have become less involved with production and more with management and services. While the two most common occupations of Newark residents are technical/sales and operators/laborers, the relative importance of these two occupational groups followed trends in the services and manufacturing industries. Although Newark lost an important retail employer, Macy's, technical/sales occupations grew from 26.7 percent of the total in 1980 to 30.6 percent in 1990 (Table 5). In contrast, the share of operators/laborers occupations in relation to the total fell from 33.8 percent to 26.5 percent during the same period. Meanwhile, managerial/executive jobs and services jobs increased in importance with the former rising from 12.3 to 14.1 percent of all occupations of Newark residents, and the latter rising from 16.7 to 17.9 percent.

TABLE 4

**RESIDENT EMPLOYMENT AND EMPLOYMENT
CHANGE BY SIC IN NEWARK 1980-1990**

<i>Resident Employment</i>			<i>Change</i>	
	<i>1980</i>	<i>1990</i>	<i>Number</i>	<i>Percent</i>
TOTAL EMPLOYMENT	110,052	105,553	4,499	(4.1)
	<i>1980 Percent</i>	<i>1990 Percent</i>		<i>Change Percent</i>
STANDARD INDUSTRIAL CLASSIFICATION (SIC)				
Manufacturing	31.2	20.6		(34.0)
Wholesale Trade	3.8	4.7		23.6
Retail Trade	10.3	12.8		24.0
Transportation	6.6	8.5		28.1
Communications and Utilities*	2.9	2.9		(0.9)
Services	27.6	32.2		16.7
Finance, Insurance, and Real Estate	6.8	6.7		(2.3)
Construction	4.1	6.4		55.8
Agriculture	0.1	0.7		598.8
Public Sector	6.5	4.5		(30.1)

Note: *Due to rounding the shares of Communication and Utilities in 1980 and 1990 appear the same despite a decline in significance.

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

TABLE 5
RESIDENT EMPLOYMENT BY OCCUPATION AND CHANGE
IN NEWARK 1980-1990

<i>Resident Employment</i>	<i>1980</i>	<i>1990</i>	<i>Change</i>	
			<i>Number</i>	<i>Percent</i>
TOTAL EMPLOYMENT	110,052	105,553	4,499	(4.1)
	<i>1980</i>	<i>1990</i>	<i>Change</i>	
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	
OCCUPATIONAL CATEGORY				
Managerial/Executive	12.3	14.1		14.6
Technical/Sales	26.7	30.6		14.6
Services	16.7	17.9		7.2
Farming	0.3	0.6		100.0
Precision Production/Crafts	10.2	10.3		1.0
Operators/Laborers	33.8	26.5		(21.6)

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

TABLE 6
RESIDENT UNEMPLOYMENT AND
CHANGE IN NEWARK 1980-1990

<i>City</i>	<i>Unemployment Level</i>		<i>Change</i>
	<i>1980</i>	<i>1990</i>	
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
NEWARK	13.4	14.7	9.7

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

8.

D. Unemployment Levels

Table 6 indicates that unemployment in Newark rose from 13.4 percent in 1980 to 14.7 percent in 1990, a 9.7 percent rate of increase. The absolute unemployment figure of 13.4 percent was far above both the New Jersey average of 6.6 percent and the national average of 6.7 percent in 1990.

E. Households Having Wage and Salary Income

The proportion of households in Newark reporting wage and salary income increased from 1979 to 1989 from 66.7 percent to 71.3 percent of all households. Essex County, in which Newark is located, posted an increase from 74.5 percent in 1979 to 77.3 percent in 1989 (Table 7). Thus, while Newark still has a lower percentage of households with wage and salary income than the county at large, this percentage has been growing faster for the city than for the surrounding county.

F. Household Automobile Ownership

The proportion of households in Newark having at least one automobile increased in the 1980-1990 period from 51.6 percent to 55.7 percent (Table 8). While this represents an increase of 7.9 percent in car ownership, almost half of the population of Newark in 1990 still do not have access to an automobile; this places a severe constraint on their ability to seek and hold jobs outside the city. Of the seven cities studied in the Urban Transportation Supplement, only Atlantic City has a lower automobile ownership rate than Newark.

IV. "AT-PLACE" EMPLOYMENT PROFILE

At-place employment represents the number of jobs within the physical bounds of the city of Newark. The covered employment discussed below includes all jobs covered by New Jersey Unemployment Insurance. Most public- and private-sector jobs are included in counts of covered employment.

This section examines the direction, size, and consequences of the changes in the magnitude and composition of employment opportunities available in the city of Newark during the 1980-1990 period. In particular, it discusses the implications of the differences between the jobs held by residents of Newark and employment opportunities that are available in the city.

TABLE 7

PERCENT OF HOUSEHOLDS HAVING
WAGE AND SALARY INCOME AND
CHANGE IN NEWARK 1979-1989

<i>Local Government</i>	<i>Households With Wage or Salary Income</i>		<i>Change Percent</i>
	<i>1979 Percent</i>	<i>1989 Percent</i>	
NEWARK	66.7	71.3	6.9
ESSEX COUNTY	74.5	77.3	3.8

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

TABLE 8

AUTOMOBILE OWNERSHIP AND
CHANGE IN NEWARK 1980-1990

<i>City</i>	<i>Percent of Households Having at Least One Automobile</i>		<i>Change Percent</i>
	<i>1980 Percent</i>	<i>1990 Percent</i>	
NEWARK	51.6	55.7	7.9

Source: U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1980, 1990.*

TABLE 9
"AT-PLACE"¹ EMPLOYMENT AND EMPLOYMENT
CHANGE IN NEWARK 1980-1990

Employment By Industry	Total		Change	
	1980	1990	Number	Percent
TOTAL	161,617	147,905	(13,712)	(8.5)
	1980	1990	Change	
	Percent	Percent	Percent	
STANDARD INDUSTRIAL CLASSIFICATION (SIC)				
Manufacturing	25.0	15.8	(36.9)	
Wholesale Trade	4.8	4.7	(3.3)	
Retail Trade	8.9	8.3	(7.0)	
Transportation	7.8	12.2	57.6	
Communications and Utilities	5.4	4.6	(15.2)	
Services	16.5	22.0	33.6	
Finance, Insurance, and Real Estate	10.1	8.8	(13.2)	
Construction	2.2	2.8	26.9	
Agriculture	0.0 ²	0.0 ²	(6.5)	
Public Sector	19.2	20.8	8.3	

Note: 1. "At place" employment statistics include private-sector covered employment and city and federal government covered employment recorded in September 1980 and September 1990.
2. Less than 0.05 per cent.

Source: New Jersey Department of Labor. *Covered Employment Trends*. 1980, 1990.

TABLE 10
RESIDENT AND "AT-PLACE"¹
EMPLOYMENT TOTAL AND BY SIC—1990
NEWARK

Employment By Industry	1990		Ratio of "At-Place" Employment to Resident Employment
	Resident Employment	"At-Place" Employment	
TOTAL	105,553	147,905	140.1
STANDARD INDUSTRIAL CLASSIFICATION (SIC)			
Manufacturing	21,770	23,348	107.2
Wholesale Trade	4,963	6,909	139.2
Retail Trade	13,498	12,268	90.9
Transportation	8,930	18,100	202.7
Communications and Utilities	3,037	6,832	225.0
Services	34,046	32,553	95.6
Finance, Insurance, and Real Estate	7,022	12,944	184.3
Construction	6,748	4,133	61.2
Agriculture	738	65	8.8
Public Sector	4,801	30,753	640.6

Note: 1. "At-place" employment statistics include private-sector covered employment and city and federal government covered employment recorded in September 1990.

Sources: New Jersey Department of Labor. *Covered Employment Trends*. 1990.
U.S. Department of Commerce, Bureau of Census. *U.S. Census of Population and Housing 1990*.

Table 10 also indicates that there were fewer jobs in retail trade, services, and construction in Newark than there were city residents holding jobs in these sectors. This implies that a proportion of those city residents must commute to suburban locations for work. Such discrepancy also implies that jobs for which a substantial number of city residents are qualified were not growing as fast within the city as they were in the suburbs.

B. In the Labor Area

Table 11 shows total at-place employment, which includes both private- and public-sector employment, and employment change in the Newark labor area from 1980 to 1990. In 1980 the Newark labor area¹ comprised Essex, Morris, Somerset and Union counties. In 1990 the labor area was redefined to comprise Essex, Morris, Sussex and Union counties. To allow direct comparison between the two years, Newark labor area statistics for 1980 are computed using the 1990 county grouping. Table 11 shows that from 1980 to 1990, total at-place employment increased by 8.0 percent from 825,918 to 892,076. The major sources of employment remain services, retail trade, manufacturing, and the public sector. However, the relative significance of the various sectors has changed over the decade.

Manufacturing employment, which declined from 26.6 percent of total employment in 1980 to 17.4 percent in 1990 (a drop of 34.5 percent), is the second most important employer in the labor area. The share of public-sector employment declined by less than one-half of one percent. Claiming 14.6 percent of total employment in 1990, this sector remains the third most important employer in the labor area over the 1980-1990 period.

As in the city of Newark, services has become the preeminent employment sector in the Newark labor area. Its share of total employment has grown from 20.5 percent in 1980 to 27.4 percent of the total (an increase of 33.7 percent) in 1990. This is the fastest rate of growth in relative importance among the various Standard Industrial Classification (SIC) groups.

Sectors that grew in significance include wholesale trade, which increased from 6.4 to 6.7 percent (a growth of 5.6 percent); retail trade, which grew from 13.1 percent to 13.5 percent (a growth of 2.7 percent); transportation, which increased from 4.5 percent to 5.1 percent (a growth of 12.8 percent); finance, insurance, and real estate, which grew from

¹ **Labor area or labor market area (LMA).** is a geographic area consisting of a central community and contiguous areas which are economically integrated into that community. Within a labor market area, workers can generally change jobs without relocating which makes jobs of a similar type mutually competitive. This is the definition of a labor market. The Bureau of Labor Statistics defines LMAs in terms of entire counties, except in New England where cities and towns are used. LMAs are categorized as either major, which are usually coterminous with a Metropolitan Statistical Area (MSA), or as small.

TABLE 11
 "AT-PLACE" EMPLOYMENT AND EMPLOYMENT CHANGE
 BY SIC IN THE NEWARK LABOR AREA¹ 1980-1990²

	1980	Total 1990	Change Percent
NEWARK LABOR AREA	825,918	892,076	8.0
	1980 Percent	1990 Percent	Change Percent
STANDARD INDUSTRIAL CLASSIFICATION (SIC)			
Manufacturing	26.6	17.4	(34.5)
Wholesale Trade	6.4	6.7	5.6
Retail Trade	13.1	13.5	2.7
Transportation	4.5	5.1	12.8
Communications and Utilities ³	3.1	3.1	(2.6)
Services	20.5	27.4	33.7
Finance, Insurance, and Real Estate	7.4	7.9	7.0
Construction	3.4	3.8	13.1
Agriculture	0.4	0.6	32.9
Public Sector ³	14.6	14.6	(0.3)

- Notes:**
1. 1990 county grouping (which includes Essex, Morris, Sussex, and Union counties) of Newark Labor Area is used to compute 1980 statistics.
 2. "At-place" employment statistics include private-sector covered employment and local, state, and federal government covered employment recorded in September 1980 and September 1990.
 3. Due to rounding the SIC percentages for Communication and Utilities and Public Sector appear the same for both 1980 and 1990 despite the decline in these two indicators in the 1980-1990 period.

Source: New Jersey Department of Labor. *Covered Employment Trends*. 1980, 1990.

TABLE 12
 ANNUAL SALARIES FOR DEMAND OCCUPATIONS
 ELIZABETH-NEWARK PMSA

Type of Employment	Annual Wage (\$)
MANUFACTURING OCCUPATIONS—EXAMPLES	
Drafter	32,110
Manufacturing Worker	25,272
Material Handler	21,299
Truck Driver, Heavy	21,817
Warehouseman	26,790
SERVICE OCCUPATIONS—EXAMPLES	
Accounting Clerk	22,386
Receptionist	17,316
Computer Operator	26,468
Secretary	27,222
Word Processor	21,164

Note: These data do not take into account overtime, premium pay, or shift differential.

Source: Trenton, New Jersey, NJDOL. *Regional Labor Market Review-Northern New Jersey Region*, July 1992.

7.4 percent to 7.9 percent (a growth of 7.0 percent); construction, which increased from 3.4 percent to 3.8 percent (a growth of 13.1 percent); and agriculture, which grew from 0.4 percent to 0.6 percent (a growth of 32.9 percent). The decline in relative importance of the communications and utilities sector in at-place employment was modest. This sector claims 3.1 percent of total at-place employment in the Newark labor area during the 1980-1990 period.

C. The Shift to the Services Sector—Implications for Income

In Newark and several of the other cities under study the loss in manufacturing jobs is partially compensated for by increased employment in the services sector. There is still an overall loss of income associated with this partial replacement. This is because manufacturing jobs are 10-20 percent higher in annual sector wages than the near-equivalent services jobs (see Table 12). Replacing a manufacturing job with a position in the services sector at the less-skilled level usually results in a net loss of income in the jurisdiction where this change is taking place.

V. EMPLOYMENT BASE AND EMPLOYMENT PROJECTIONS FOR THE CITY, COUNTY, AND LABOR AREA

The previous sections have profiled the population and labor force of Newark and described the jobs located within the city and in the surrounding labor area. This section provides projections of future jobs for the city of Newark, Essex County, and the Newark labor area. Subsections A, B, and C, which follow, examine the projections and discuss the projected changes in the composition of employment opportunities. Subsection D identifies the places within the labor area where employment opportunities in new and existing jobs are projected.

A. City

Total employment (private- and public-sector covered and uncovered employment) in the city of Newark in 1990 was 144,149, of which more than one-half was in the services sector (78,871 or 54.7 percent), and more than one-third was in basic employment² (54,183 or 37.6 percent). Retail jobs comprised only 7.7 percent of the total.

² *Basic employment* includes mining, construction, manufacturing, transportation, communication and utilities, and wholesale trade. *Services employment* includes finance, insurance, and real estate, business and repair services, personal services, entertainment and recreation services, professional and related services, and public administration. *Retail employment* consists of retail trade.

Total employment in the city of Newark is projected to decline during the 1990-2000 period from 144,149 to 133,601, or 7.3 percent. Basic employment will experience the largest decline, by 7,560 or 13.9 percent, while the services and retail sectors will fall by about 3.3 percent each. Table 13 identifies these changes. As a result, the relative significance of services and retail jobs will increase, from 54.7 to 57.1 percent for the former, and from 7.7 to 8.0 percent for the latter.

B. County

Total employment in Essex County in 1990 was 384,306, of which more than half (209,103 or 54.4 percent) was in the services sector, and about one-third (123,697 or 32.2 percent) was in the basic sector. The remainder, 51,504 or 13.4 percent, constituted retail employment.

Total employment in Essex County is projected to decline by 15,281, or 4.0 percent, over the 1990-2000 period. The basic sector will fall by 16,792 or 13.6 percent. Both retail and services employment will experience modest gains. Retail employment will increase during the 1990-2000 period by 986 or 1.9 percent, while services employment will increase by 543, or 0.3 percent. These data are presented in Table 14.

C. Labor Area

According to the U.S. Bureau of Labor Statistics total employment in the Newark labor area in 1990 was 937,600, of which almost half (49.2 percent) was in services jobs. Basic employment was still significant, constituting more than one-third of the total (36.7 percent). Retail employment made up only 14.0 percent of total employment. These data are shown in Table 15.

Between 1990 and 2000, total employment in the Newark labor area is projected to decrease to 924,100, or by 13,500 (1.4 percent) for the period. The changes in sectors of the economy will not be uniform, however. Basic employment is the sector that will experience decline, falling by 38,554, or 11.2 percent for the 1990-2000 period. On the other hand, services and retail jobs will increase both in absolute number and as a percentage of total employment. Workers in the services sector will increase by 18,741, or 4.1 percent, while retail employment will increase by 6,315, or 4.8 percent. Reflecting these changes, the services sector will become an even more significant source of employment, constituting 51.9 percent of total employment, up from 49.2 percent. Similarly, retail employment, while still third in significance, will increase its share of the total from 14.1 percent in 1990 to 15.0 percent by 2000. The share of basic employment will fall from 36.7 percent to 33.0 percent.

TABLE 13
"AT-PLACE" EMPLOYMENT AND PROJECTIONS
IN NEWARK 1990-2000
 (New Jersey State Development and Redevelopment Plan)

	<i>Total Employment</i>	<i>Basic Employment</i>	<i>Services Employment</i>	<i>Retail Employment</i>
1990	144,149	54,183	78,871	11,093
1995	136,387	48,828	76,760	10,797
2000	133,601	46,623	76,251	10,725
CHANGE 1990-2000				
NUMBER	(10,548)	(7,560)	(2,620)	(368)
PERCENT	(7.3)	(13.9)	(3.3)	(3.3)

Source: CUPR Projections: 1990-2000.

TABLE 14
"AT-PLACE" EMPLOYMENT AND PROJECTIONS
IN ESSEX COUNTY 1990-2000
 (New Jersey State Development and Redevelopment Plan)

	<i>Total Employment</i>	<i>Basic Employment</i>	<i>Services Employment</i>	<i>Retail Employment</i>
1990	384,306	123,679	209,103	51,504
1995	371,993	111,901	208,264	51,827
2000	369,025	106,887	209,646	52,490
CHANGE 1990-2000				
NUMBER	(15,281)	(16,792)	543	986
PERCENT	(4.0)	(13.6)	0.3	1.9

Source: CUPR Projections: 1990-2000.

TABLE 15
"AT-PLACE" EMPLOYMENT AND PROJECTIONS
IN THE NEWARK LABOR AREA¹ 1990-2000
 (New Jersey State Development and Redevelopment Plan)

	<i>Total Employment</i>	<i>Basic Employment</i>	<i>Services Employment</i>	<i>Retail Employment</i>
1990	937,600	343,943	461,286	132,370
1995	920,600	316,239	469,033	135,327
2000	924,100	305,389	480,027	138,685
CHANGE 1990-2000				
NUMBER	(13,500)	(38,554)	18,741	6,315
PERCENT	(1.4)	(11.2)	4.1	4.8

Note: 1. Labor area is a geographic area consisting of a central community and contiguous areas that are economically integrated into that community. Within a labor area, workers can generally change jobs without relocating. See discussion in text.

Source: CUPR Projections: 1990-2000.

Thus, conditions in the Newark labor area in the 1990-2000 period will be similar to those in Essex County: both services employment and retail employment will increase in relative significance while total employment will decline.

D. Job Growth and Employment Separations in the Newark Labor Area, 1993-2000, by Municipality

Another source indicating potential employment change affecting Newark residents is employment projections made by occupational category by the New Jersey Department of Labor, Division of Labor Market and Demographic Research. These are annual jobs added through growth in jobs and separations³ of others from the labor force. This is a particularly good set of data in that it partitions job growth by occupational category so that one can project the growth in *less-skilled*⁴ new jobs and job separations.

Combining this information with other data sets on job growth by municipality (for the job growth portion of the labor area data) as well as incidence of job location by municipality (for the job separation portion of the data) allows the projection of less-skilled new jobs and job separations by type for municipalities in the labor area. The municipalities are shown in Table 16; the methodology is described in the note at the end of the chapter.

Total job change in the Newark labor area shows a loss of 7,700 less-skilled jobs for the period 1993 to 2000. This involves job change in Union, Essex, Morris and Sussex counties and indicates the net difference between a loss of 19,000 manufacturing jobs and a growth of 11,300 service and retail jobs. On the other hand, job separations will cause 109,000 less-skilled job opportunities in the same area. This involves job separations amounting to 9,000 in manufacturing and 100,000 in retail and service industries.

The four counties that comprise the labor area show contrasting projections. As a county, Sussex's role in job growth or job separations in the labor area is almost negligible. In terms of less-skilled job growth from 1993 to 2000, Essex declines by 8,000, Union declines by 7,200, Morris grows by 6,200 and Sussex grows by 1,300—a net loss of 7,700 jobs. With respect to job opportunities secured through job separations, Essex evidences 47,000 separations during the seven-year period, Morris 29,900, Union 27,700, and Sussex 4,100, for a total of nearly 109,000 job separations.

³ Job openings include growth and separations. Growth refers to newly created jobs. The New Jersey Department of Labor, Division of Labor Market and Demographic Research, defines separations as openings created when people leave the labor force for reasons such as death, retirement, pregnancy, or other family reasons. Separations do not include movement from one job to another. New Jersey Department of Labor, Division of Labor Market and Demographic Research, *Employment Projections. Volume II: Occupational Outlook for New Jersey and Selected Areas. 1986-2000*. October 1988.

⁴ Less-skilled occupations include nonprofessional services, clerical, sales, operators, and laborers.

TABLE 16
LESS-SKILLED JOB GROWTH AND JOB OPPORTUNITIES THROUGH SEPARATIONS—1993-2000
NEWARK LABOR AREA¹

COUNTY	New Less-Skilled Jobs 1993-2000			Less-Skilled Separations ² 1993-2000			Total Less-Skilled Jobs and Separations ² 1993-2000			
	Basic	Retail	Services	Basic	Retail	Services	Basic	Retail	Services	Total ³
ESSEX COUNTY										
Belleville township	-376	-74	-131	122	448	889	-254	374	758	879
Bloomfield township	-771	-278	-280	203	872	982	568	594	701	727
Caldwell borough	-32	42	83	17	159	356	15	201	439	625
Cedar Grove township	-142	5	10	58	145	362	-84	150	373	438
City of Orange township	-147	23	59	100	300	851	-47	323	910	1,185
East Orange city	-448	-122	-730	87	268	1,795	-361	146	1,064	850
Essex Fells township	6	-1	-3	1	5	25	-4	1	22	22
Fairfield township	-217	167	242	588	731	1,183	370	898	1,425	2,693
Glen Ridge borough	-7	1	18	11	5	115	4	6	133	144
Irvington township	-360	-42	-83	135	388	858	-225	346	775	897
Livingston township	-375	181	258	71	1,574	2,505	-304	1,755	2,763	4,214
Maplewood township	-14	63	112	147	269	538	133	331	650	1,114
Millburn township	-206	377	302	64	1,549	1,385	-142	1,926	1,687	3,471
Montclair township	-210	60	163	43	566	1,715	-167	626	1,879	2,338
Newark city	-3,922	-212	-828	1,863	2,620	11,417	-2,059	2,408	10,588	10,938
North Caldwell	-13	-2	-32	2	5	71	-11	2	39	30
Nutley township	-784	30	45	285	325	549	-499	355	595	452
Roseland borough	-98	51	529	80	130	1,498	-18	181	2,027	2,190
South Orange city	-86	-25	-57	12	239	609	-74	215	552	693
Verona township	-28	83	119	39	246	396	11	329	515	855
West Caldwell township	-213	58	48	203	479	442	-10	538	490	1,017
West Orange township	-266	184	327	128	1,033	2,054	-138	1,218	2,382	3,461
TOTAL FOR ESSEX	-8,721	569	172	4,259	12,357	30,596	-4,462	12,926	30,768	39,232
MORRIS COUNTY										
Boonton town	-137	-17	-25	34	108	153	-103	91	128	116
Boonton township	-109	0	0	24	8	105	-85	8	104	27
Butler borough	-33	22	35	25	93	137	-8	115	172	279
Chatham borough	-67	18	40	28	131	284	-39	148	324	433
Chatham township	-25	15	22	7	92	124	-18	107	146	235
Chester borough	-21	83	82	7	202	189	-14	285	271	541
Chester township	-16	4	11	6	40	91	-10	44	101	136

TABLE 16 (continued)
LESS-SKILLED JOB GROWTH AND JOB OPPORTUNITIES THROUGH SEPARATIONS—1993-2000

COUNTY	NEWARK LABOR AREA ¹											
	New Less-Skilled Jobs				Less-Skilled Separations ²				Total Less-Skilled Jobs and Separations ²			
	1993-2000		1993-2000		1993-2000		1993-2000		1993-2000		1993-2000	
	Basic	Retail	Services	Total ³	Basic	Retail	Services	Total ³	Basic	Retail	Services	Total ³
SUSSEX COUNTY												
Andover borough	-13	16	62	64	7	41	150	198	-6	57	212	263
Andover township	-9	5	18	14	4	22	76	101	-5	26	94	115
Branchville borough	-19	12	92	85	5	32	235	272	-14	44	327	357
Byram township	-6	10	17	22	2	26	43	72	-3	37	60	94
Frankford township	-2	27	37	62	3	41	53	97	1	68	90	159
Franklin borough	-13	54	37	78	17	124	82	223	14	178	119	301
Fredon township	-2	3	6	7	2	6	11	19	0	9	17	26
Green township	-5	-1	-4	-10	1	3	11	16	-4	2	8	6
Hamburg borough	-51	0	1	-50	13	29	53	95	-38	29	54	45
Hampton township	-2	-2	-3	-7	0	14	17	31	-2	11	15	24
Hardyston township	2	20	15	38	5	37	26	67	7	57	41	105
Hopatcong borough	-4	22	34	52	6	54	78	139	2	76	112	190
Lafayette township	46	36	70	152	17	49	91	156	63	85	161	309
Montague township	-8	38	11	41	2	100	28	130	-6	138	40	172
Newton town	-54	133	239	319	27	362	614	1,004	-26	496	853	1,323
Ogdensburg borough	-5	3	3	1	2	17	15	34	-2	20	18	35
Sandyston township	-5	-3	-7	-14	1	3	7	10	-4	0	0	-4
Sparta township	21	85	200	306	30	157	348	535	51	242	548	841
Stanhope borough	-9	10	19	20	7	40	75	122	-2	49	94	141
Stillwater township	2	1	12	15	2	3	21	26	4	4	32	41
Sussex borough	-18	54	57	93	15	141	139	296	-2	195	196	389
Vernon township	-43	5	22	-16	10	75	289	375	-33	80	311	359
Walpack township	0	-2	0	-2	0	8	0	8	0	6	0	6
Wanage township	-1	14	22	35	8	37	53	97	6	51	74	132
TOTAL FOR SUSSEX	-198	541	961	1,305	186	1,419	2,516	4,122	-12	1,961	3,478	5,427

TABLE 16 (continued)
 LESS-SKILLED JOB GROWTH AND JOB OPPORTUNITIES THROUGH SEPARATIONS—1993-2000
 NEWARK LABOR AREA¹

COUNTY	New Less-Skilled Jobs 1993-2000			Less-Skilled Separations ² 1993-2000			Total Less-Skilled Jobs and Separations ² 1993-2000			
	Basic	Retail	Services	Basic	Retail	Services	Basic	Retail	Services	Total ³
UNION COUNTY										
Berkeley Heights town	-82	6	31	28	100	441	-55	106	472	524
Clark township	-362	-57	-88	70	357	457	-293	300	369	376
Cranford township	-323	-18	-43	85	574	1,149	-238	556	1,106	1,424
Fitzbeth city	-1,078	-10	-31	469	1,095	2,842	-609	1,085	2,812	3,288
F-anwood borough	-15	28	48	10	90	132	-5	118	180	294
Garwood borough	-79	28	12	31	203	74	-48	231	87	270
Hillside township	-408	-58	-91	84	301	392	-324	243	301	219
Kenilworth borough	-364	72	101	176	224	261	-188	296	363	471
Linden city	-2,032	-258	-416	287	689	919	-1,745	431	503	-812
Mountainside borough	-94	27	118	53	155	565	-41	182	683	824
New Providence borough	-393	-50	-344	54	171	978	-339	121	634	416
Plainfield city	-270	14	46	84	376	1,063	-186	389	1,109	1,312
Rahway city	-287	129	315	202	392	793	-85	521	1,108	1,544
Roselle borough	-247	-11	-24	53	153	285	-194	142	261	209
Roselle Park borough	5	63	97	26	166	211	31	229	308	568
Scotch Plains township	-61	7	17	16	191	388	-45	198	405	557
Springfield township	-186	65	109	81	679	942	-105	744	1,051	1,691
Summit city	-248	142	602	110	502	1,757	-139	645	2,359	2,865
Union township	-1,089	-96	-195	266	1,468	2,464	-823	1,372	2,269	2,819
Westfield town	-116	71	154	33	534	958	-83	605	1,112	1,635
Winfield township	0	0	-4	0	0	3	0	0	-1	-1
TOTAL FOR UNION	-7,730	94	416	2,217	8,421	17,074	-5,513	8,515	17,490	20,493
LABOR AREA TOTAL	-19,093	3,497	7,851	9,053	30,477	69,418	-10,040	33,974	77,269	101,203

Notes: 1. Labor area is a geographic area consisting of a central community and contiguous areas that are economically integrated into that community. Within a labor area, workers can generally change jobs without relocating. See discussion in text.

2. Separations are openings created when people leave the labor force for reasons such as death, retirement, pregnancy, or other family reasons. Separations do not include movement from one job to another. See discussion in text.

3. Numbers may not total exactly due to rounding.

Source: CUPR Projections: 1993-2000.

Projections of the municipal level also show sharp differences. As regards municipal locations of significant job loss, Newark will lose 5,000 less-skilled jobs, Linden will lose 2,700, Elizabeth, Union, East Orange and Bloomfield will lose about 1,300 each, and Nutley and New Providence 700 each. Clark and Hillside will each lose 500 jobs. Municipal locations of job growth will be Parsippany-Troy Hills at 1,800, and Millburn, Roseland, East Hanover, and Summit at 500 each.

With regard to separations (existing jobs that will become available), the largest job opportunities pertaining to these separations will be the locations of highest existing employment. These are Newark, evidencing 16,000 separations from 1993 to 2000; Morristown, with 5,500; Parsippany-Troy Hills, with 4,800; Elizabeth, with 4,400; and Livingston and Union, each with approximately 4,200 separations. Other significant less-skilled job separation locations at the 2,000-3,000 level each over the seven-year projection period are West Orange, Millburn, Bloomfield, East Orange, Fairfield, Montclair, Springfield, Linden, Clark, Hanover, and Florham Park.

Briefly, losses in less-skilled jobs are projected in a majority of municipalities where Newark residents currently work. However, because these municipalities are also sites of future job separations, they will provide new employment opportunities to residents of Newark.

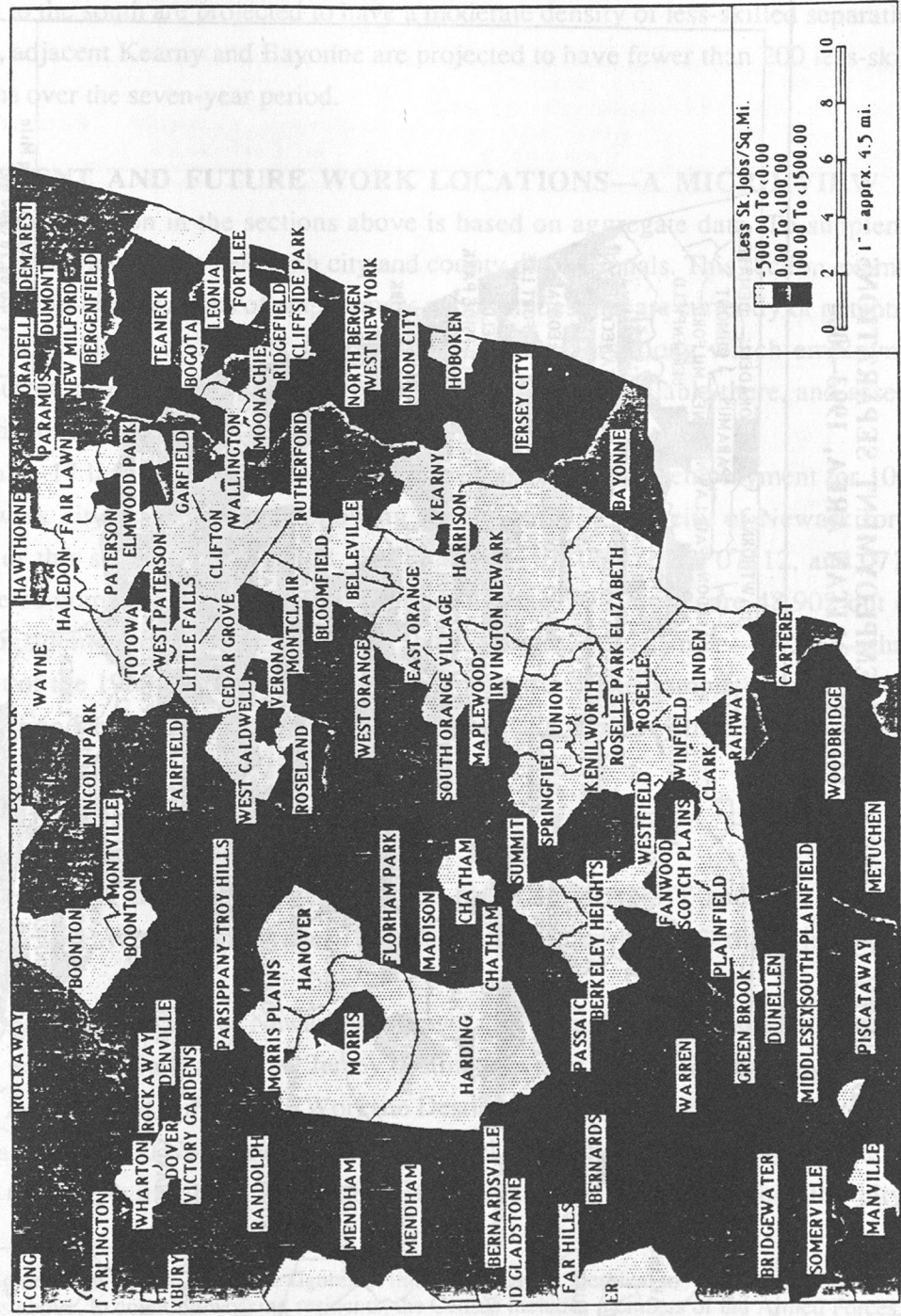
Table 16 lists the number of less-skilled job opportunities by municipality within the Newark labor area. From a transportation point of view, the density of these opportunities is important. Therefore, Map A displays the new less-skilled employment opportunities in terms of density per square mile, while Map B displays the less-skilled separations in terms of the number of jobs per square mile. Rather than showing all the municipalities in the labor area, these maps show the area within 12-15 miles of Newark.

Map A shows that the greatest densities of new less-skilled job growth will be in a band of communities from East Newark and Jersey City to the east, north through Secaucus, Weehawken, Union City, North Bergen, Cliffside, Carlstadt, and Fort Lee. The communities of Englewood, Ridgefield Park, Hackensack, Maywood, and Elmwood Park are also projected to have more than 100 new less-skilled jobs per square mile. In contrast, Newark, the adjacent communities of East Orange, South Orange Village, Irvington, and most of the communities directly north, south, and southeast of it, are projected to lose less-skilled jobs. West of Newark, most communities are projected to gain up to 100 jobs per square mile in 1993-2000.

Map B displays less-skilled job separations. Newark, the adjacent communities of East Newark, Harrison, East Orange, and Irvington, a band of communities north from Jersey City to Fort Lee, and communities 5-10 miles north of Newark including Paterson,

DENSITY OF NEW LESS-SKILLED EMPLOYMENT GROWTH IN THE NEWARK METROPOLITAN AREA, 1993-2000

MAP A



Source: Projections by Center for Urban Policy Research, Rutgers University, Spring 1993

Paramus, Hackensack, and Passaic are projected to gain more than 400 jobs per square mile. Most of the other communities north of Newark, many of those west of Newark, and Elizabeth to the south are projected to have a moderate density of less-skilled separations. However, adjacent Kearny and Bayonne are projected to have fewer than 200 less-skilled separations over the seven-year period.

VI. PRESENT AND FUTURE WORK LOCATIONS—A MICRO VIEW

The discussion in the sections above is based on aggregate data. To supplement these data, interviews were held with city and county professionals. This section examines suburban and in-city locations of employment opportunities that are currently or potentially available to residents of Newark. It identifies the corridors along which employment centers cluster, discusses the type of jobs that are or will be available there, and assesses the potential of these locations to provide jobs for Newark residents.

Table 17 lists municipalities, outside Newark, that provide employment for 100 or more Newark city residents. The following zip codes define the city of Newark for the purposes of this study: 07102, 07103, 07104, 07105, 07106, 07107, 07112, and 07114. Total reverse-commute work trips, as reported in the 1990 Census, are 48,902 out of a total city resident work force of 102,587. Table 17 represents a sample—29,661—that is 61 percent of the 1990 Census total reverse commute trips. This sample is based on 1989 NJDOT Origin/Destination Employment Data. The NJDOT survey data includes covered employment only.

A. City-to-Suburb and In-City Trips in Perspective

The data in this section were derived from NJ TRANSIT and Port Authority ridership surveys. Where appropriate, 1990 Census STF 3 preliminary travel information was utilized.⁵

Residents of the city of Newark who travel to work are split almost evenly between worksites within Newark and New Jersey destinations that are outside the city ("in-state reverse"). As indicated in Figure 1 (Worksite Destinations of Newark Residents), there are approximately 102,600 Newark residents who travel to work on a typical day according to the 1990 Census, with about 47 percent of the residents working within the city of

⁵ "Working residents" described in the figures in this section is not identical to "resident employment" in the tables above. In counting working residents, the Census includes members of the Armed Forces, but excludes people who had a job but did not work during the Census reference week. Conversely, in counting resident employment, the Census includes those with a job who were not at work during the reference week, but excludes members of the Armed Forces. For more complete descriptions, see the Census definitions of "Employment Status" and "Journey to Work."

TABLE 17

WORK LOCATIONS OF NEWARK RESIDENTS
IN-CITY AND REVERSE COMMUTES
1989

<i>County</i>	<i>Community</i>	<i>Percent Reverse Commute to Community</i>	<i>Percent Reverse Commute to County</i>
ATLANTIC			0.0 ¹
BERGEN			8.0
	07042 Carlstadt	0.7	
	07407 Elmwood Park	0.4	
	07073 East Rutherford	1.7	
	07601, 61 Hackensack	1.0	
	07071 Lyndhurst	0.5	
	07074 Moonachie	0.5	
	07652 Paramus	0.5	
	07662 Saddle Brook	0.4	
BURLINGTON			0.1
CAMDEN			0.2
CAPE MAY			0.0 ¹
CUMBERLAND			0.0 ¹
ESSEX			36.6
	07109 Belleville	3.3	
	07003 Bloomfield	4.1	
	07009 Cedar Grove	0.8	
	07017, 18 East Orange	3.5	
	07111 Irvington	4.2	
	07039 Livingston	2.6	
	07040 Maplewood	1.1	
	07042, 43 Montclair	1.2	
	07041, 78 Millburn	1.1	
	07110 Nutley	0.7	
	07050 Orange	1.9	
	07068 Roseland	0.5	
	07079 South Orange	1.0	
	07044 Verona	0.7	
	07006 West Caldwell- North Caldwell- Fairfield ²	6.6	
	07052 West Orange	3.6	

TABLE 17 (continued)

**WORK LOCATIONS OF NEWARK RESIDENTS
IN-CITY AND REVERSE COMMUTES
1989**

<i>County</i>	<i>Community</i>	<i>Percent Reverse Commute to Community</i>	<i>Percent Reverse Commute to County</i>
GLOUCESTER			0.0 ¹
GLOUCESTER-CAMDEN			0.0 ¹
08012	Washington-Gloucester Townships ²		
HUDSON			7.9
07029	East Newark	3.2	
07302, 03, 04, 05, 06, 07, 08, 10, 07311	Jersey City	2.1	
07047	North Bergen	0.5	
07094	Secaucus	1.4	
HUDSON-BERGEN			3.4
07032	Kearny-North Arlington ²		
HUNTERDON			0.1
MERCER			0.1
MIDDLESEX			5.7
08817, 20, 08837	Edison Township	0.9	
08902	North Brunswick	0.5	
08854	Piscataway	0.6	
07080	South Plainfield	0.6	
07001, 64, 67, 77, 95, 08830, 32, 08863	Woodbridge Township	1.4	
MONMOUTH			0.6
MONMOUTH-MIDDLESEX			0.0 ¹
07747	Matawan-Old Bridge ²		
MORRIS			7.9
07928	Chatham	0.5	
07936	East Hanover	0.9	
07932	Florham Park	0.7	
07921, 81	Hanover	0.7	
07960	Morristown-Morris Township ²	1.1	
07082	Montville	0.6	
07034, 54	Parsippany-Troy Hills	1.8	

TABLE 17 (continued)

**WORK LOCATIONS OF NEWARK RESIDENTS
IN-CITY AND REVERSE COMMUTES
1989**

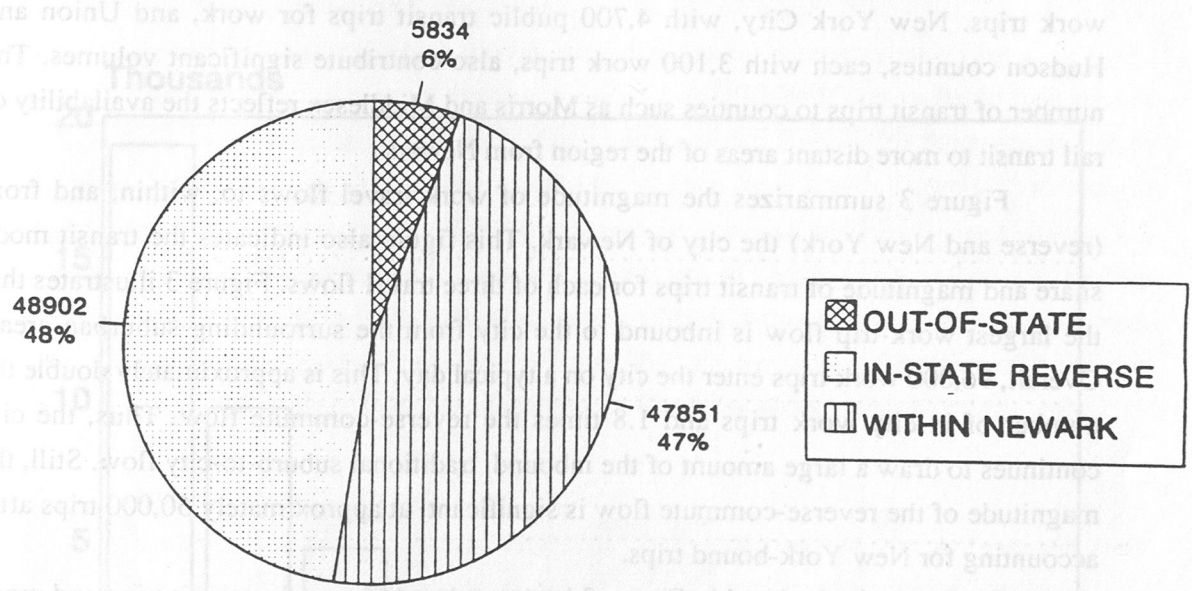
<i>County</i>	<i>Community</i>	<i>Percent Reverse Commute to Community</i>	<i>Percent Reverse Commute to County</i>
OCEAN			0.2
PASSAIC			4.7
07011, 12, 13, 14	Clifton	1.7	
07055	Passaic	0.8	
07501, 02, 04, 05, 13, 14, 24	Paterson	0.6	
07470	Wayne	1.0	
SOMERSET			1.7
08876	Branchburg-Somerville ²	0.4	
SOMERSET-UNION			0.6
07060, 63	Warren-Watchung- North Plainfield ²		
07060	North Plainfield	0.5	
SUSSEX			0.4
UNION			21.7
07922	Berkeley Heights	0.4	
07016	Cranford	0.8	
07201, 02, 06, 07, 08	Elizabeth	4.8	
07205	Hillside	2.7	
07033	Kenilworth	0.9	
07036	Linden	1.8	
07092	Mountainside	0.5	
07974	New Providence	0.4	
07065	Rahway	0.4	
07081	Springfield	1.3	
07901	Summit	1.2	
07083	Union	4.7	
WARREN			0.1

Notes: 1. 0.0 Reported reverse commute is less than 0.1%.

2. These jurisdictions, or portions of these jurisdictions, are included within this zip code.

Source: NJDOT 1989 ZIP Code Origin/Destination Data

FIGURE 1
WORKSITE DESTINATIONS OF NEWARK RESIDENTS
(Total Newark Working Residents—102,587)



Source: 1990 U.S. Census Data STF-3.

Newark. Reverse-commute destinations are slightly higher than in-city work trips (48,900 versus 47,900), while out-of-state trips, primarily to New York City, account for only 6 percent of the destinations of resident workers.

Figure 2 indicates the volume of work trips by destination using public transit for Newark residents. The graph illustrates the importance of Newark employment in generating transit ridership by Newark residents. More than 19,000 Newark residents use public transit for work trips within the city. This is followed by Essex County, with 9,700 work trips. New York City, with 4,700 public transit trips for work, and Union and Hudson counties, each with 3,100 work trips, also contribute significant volumes. The number of transit trips to counties such as Morris and Middlesex reflects the availability of rail transit to more distant areas of the region from Newark.

Figure 3 summarizes the magnitude of work travel flows to, within, and from (reverse and New York) the city of Newark. This figure also indicates the transit mode share and magnitude of transit trips for each of three travel flows. Figure 3 illustrates that the largest work-trip flow is inbound to the city from the surrounding suburban areas. Overall, 96,000 work trips enter the city on a typical day. This is approximately double the number of in-city work trips and 1.8 times the reverse-commute flow. Thus, the city continues to draw a large amount of the inbound, traditional suburb-to-city flow. Still, the magnitude of the reverse-commute flow is significant, at approximately 50,000 trips after accounting for New York-bound trips.

The scenario depicted in Figure 3 is somewhat different for transit trips and mode share. The number of transit trips is roughly comparable for in-city, inbound, and outbound trips, each around 20,000 trips. However, the mode share is approximately the same for in-city and reverse-commute trips, at 40 percent. This reflects the high degree of autoless households among Newark residents. In addition, the extensive transit service network makes both in-city and reverse commuting readily accessible. By contrast, the lowest transit share is represented by suburban, inbound work trips at 23 percent. This is due to the higher incomes and availability of autos to those commutes that are inbound work trips. In addition, certain areas, such as Bergen and Passaic counties, have low transit shares because of the lack of rail service to Newark. It should be noted that all transit shares in this report are for the entire city, including the Airport and other areas of the city outside the central business district (CBD). Thus, the suburb-to-CBD transit share is actually much higher than 23 percent—probably in the 30+ percent range, with a lower share to other parts of Newark.

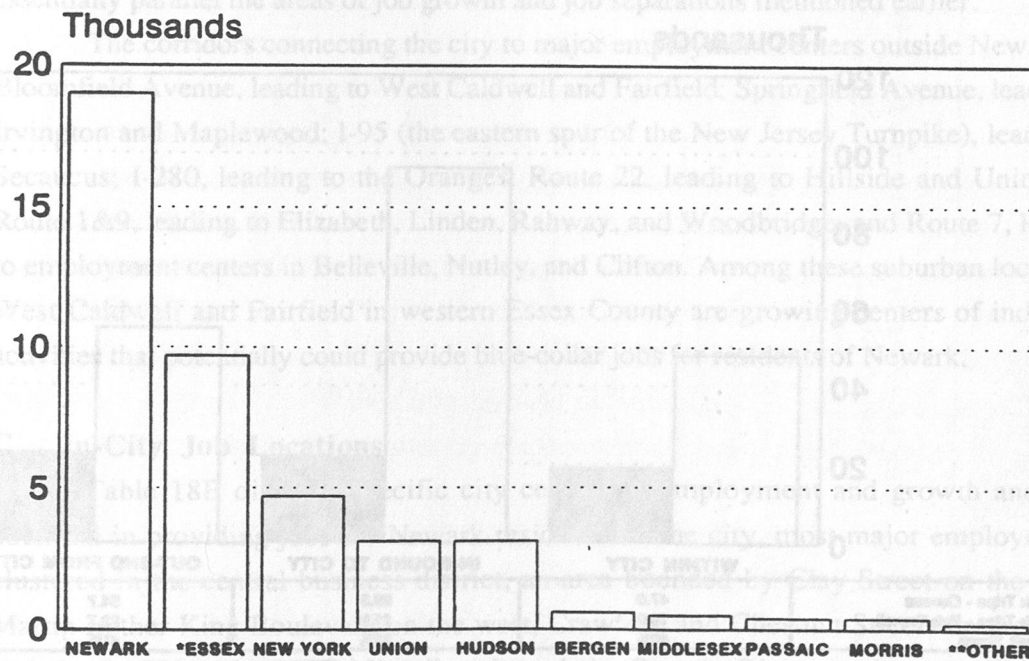
The traditional suburb-to-city commute has the lowest transit share and the highest number of potential new transit trips (75,000). The outbound or reverse commute is next in

size of potential new transit market with potential for 32,000 work trips. The high non-New York outbound transit share of 36 percent (41 percent with New York) indicates that this market has a reasonable amount of service and is attracting good transit usage.

FIGURE 2

**WORK TRIP DESTINATIONS OF NEWARK RESIDENTS
USING PUBLIC TRANSIT**

(Total Volume of Transit Commutes by Newark Residents—41,700)



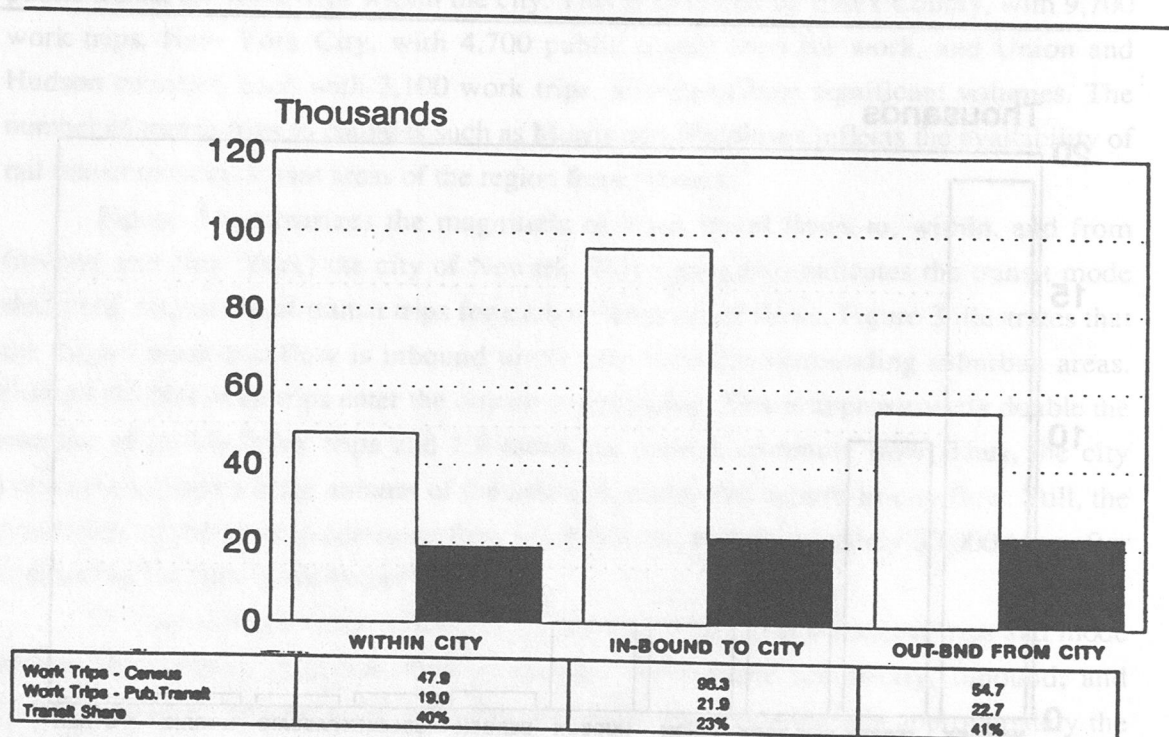
Notes: * Excludes Newark.
** Includes Somerset, Monmouth, and Mercer counties.

Source: 1990 NJ TRANSIT Rail, Bus, and PATH Ridership Surveys.

FIGURE 3

**TRANSIT SHARE OF WORK TRIPS
NEWARK METROPOLITAN AREA**

(1990 Census Data and Public Transit Surveys)



Notes: All figures are thousands of riders, except transit share, which is percent share.

Source: 1990 U.S. Census STF 3 Data; 1990 NJ TRANSIT Ridership Surveys.

size of potential new transit market with potential for 32,000 work trips. The high non-New York outbound transit share of 36 percent (41 percent with New York) indicates that this market has a reasonable amount of service and is attracting good transit usage.

B. Suburban Job Locations

Specific suburban centers of employment and growth and their potential in providing jobs for Newark residents are listed in Table 18A. These have been secured through field interviews and may represent an incomplete list. They do, however, essentially parallel the areas of job growth and job separations mentioned earlier.

The corridors connecting the city to major employment centers outside Newark are Bloomfield Avenue, leading to West Caldwell and Fairfield; Springfield Avenue, leading to Irvington and Maplewood; I-95 (the eastern spur of the New Jersey Turnpike), leading to Secaucus; I-280, leading to the Oranges; Route 22, leading to Hillside and Union; US Route 1&9, leading to Elizabeth, Linden, Rahway, and Woodbridge; and Route 7, leading to employment centers in Belleville, Nutley, and Clifton. Among these suburban locations, West Caldwell and Fairfield in western Essex County are growing centers of industrial activities that potentially could provide blue-collar jobs for residents of Newark.

C. In-City Job Locations

Table 18B displays specific city centers of employment and growth and their potential in providing jobs for Newark residents. In the city, most major employers are clustered in the central business district, an area bounded by Clay Street on the north, Martin Luther King Boulevard on the west, Crawford and Chestnut Streets on the south, and the PATH and AMTRAK railroads and the Passaic River on the east. The most significant destinations for workers are the 12th Street and West Market Street area where UMDNJ, UMDNJ Hospital, the Essex County Courthouse, and Essex County College are located; the Central Avenue area that houses NJIT, Rutgers University-Newark, and St. Michael's Medical Center; the Broad Street area south of Lafayette Street that is the location of the City Hall, police headquarters, the federal courts, post office, and the Peter Rodino Federal Building; the Broad Street area north of Central Avenue that includes the offices of First Fidelity, New Jersey Bell, Mutual Benefit Life, the library, and Broad Street Station; and the Raymond Boulevard-Gateway area east of Broad Street that houses the offices of PSE&G, NJ TRANSIT, and Blue Cross/Blue Shield, Seton Hall Law School, the State Office Building, Newark Legal and Communications Center, and Penn Station.

TABLE 18A
 SPECIFIC SUBURBAN SITES OF EMPLOYMENT
 AND EMPLOYMENT GROWTH FOR THE REVERSE COMMUTE
 NEWARK

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>Existing Employment or Growth Node</i>	<i>Site of Primarily Skilled or Less-skilled Employment</i>	<i>Potential for Jobs at Site</i>	<i>Potential for Center City Residents at Site</i>
<i>Existing, Growth, or Both</i>	<i>Skilled, Less-skilled, or Both</i>	<i>High, Moderate, or Low</i>	<i>High, Moderate, or Low</i>
<i>Corridors and Specific Locations</i>			
Bloomfield Avenue (to the Caldwells and Fairfield)			
Passaic Avenue	Both	High	High
Fairfield Avenue	Both	High	High
Springfield Ave. Corridor (to Irvington, Maplewood, Millburn, Springfield, Summit, and Livingston)			
Short Hills Mall	Less-skilled	Moderate	Low
Livingston Mall	Less-skilled	Moderate	Low
Route 95 Corridor (New Jersey Turnpike eastern spur to Secaucus)			
Harmon Meadow	Both	Low	Low
Route I-280 (to the Oranges)			
St. Mary's Hospital (outpatient clinic)	Both	High	Moderate
Hospital Center at Orange	Both	High	Moderate
St. Barnabas Hospital	Both	High	Moderate
Kessler Institute	Both	High	Moderate
East Orange General Hospital	Both	High	Moderate
Route 22 Corridor (to Hillside and Union)			
Hillside Industrial Park	Skilled	Moderate	Moderate
Route 1&9 Corridor (to Elizabeth, Linden, Rahway, and Woodbridge)			
Port Elizabeth	Skilled	Low	Low
Woodbridge Center Mall	Less-skilled	Low	Low
Route 7 Corridor (to Belleville, Nutley, and Clifton)			
ITT Office Complex	Skilled	Low	Low
Hoffman-La Roche Pharmaceutical Complex	Skilled	Low	Low

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

Hospitals are a growing source of both skilled and less-skilled employment for Newark residents. Due to their locations in the city on or near the main bus routes, they are accessible to residents of Newark, who can go to work on foot or by bus.

Educational institutions are also major employers of Newark residents. They are not growing sources of employment, however. Due to fiscal problems they have been forced to reduce their work forces through layoffs or attrition, which is also the case with the federal, state, and local government agencies that are located mainly along or near Broad Street and Raymond Boulevard.

Other major employers in Newark include public utilities companies and business service organizations, such as law firms, banks, and insurance and real estate companies. Like educational and governmental institutions, they have been forced to cut back on their operations and work force by economic conditions.

Two sites of employment often forgotten as in-city employment locations because of their peripheral locations are Newark Airport and Port Newark-Elizabeth. Newark Airport has over 6,000 jobs in airborne support alone. One-third to one-half can be filled by less-skilled employees. Port Newark-Elizabeth has 1,850 jobs in the Newark portion, and another 2,300 jobs in the Elizabeth portion, about two-thirds the level of employment of Newark Airport. Less-skilled employment opportunities comprise 40 percent of these jobs. These are both significant sites for employment of central city residents.

VII. THE EXISTING TRANSPORTATION NETWORK

The preceding sections have described the population, labor force, and job opportunities in Newark, Essex County, and the Newark labor area. The sections below describe in detail the transportation network serving the city of Newark and its environs.

The city of Newark is the hub of an extensive network of highways, bus routes, and rail lines. This section describes the existing major roads, rail transit, bus routes, and alternatives to rail and bus. The next two sections identify problems in the network that are related to the commute to work.

A. Roadways—City to Suburb

1. Major Arterials

Table 19A displays information related to the major interstate, state, and county roads in the Newark region. The major roads are also portrayed in Map C. The major interstate roads passing through this region are I-280, I-78, and I-95 (the New Jersey Turnpike).

TABLE 18B
 SPECIFIC CITY SITES OF EMPLOYMENT
 AND EMPLOYMENT GROWTH FOR THE IN-CITY JOURNEY TO WORK
 NEWARK

	A Existing Employment or Growth Node	B Site of Primarily Skilled or Less-skilled Employment	C Potential for Jobs at Site	D Potential for Center City Residents at Site
<i>Corridors and Specific Locations</i>	<i>Existing, Growth, or Both</i>	<i>Skilled, Less-skilled, or Both</i>	<i>High, Moderate, or Low</i>	<i>High, Moderate, or Low</i>
FIRE/Communications/Utilities				
First Fidelity	Existing	Both	Low	Low
Prudential	Existing	Both	Low	Low
Blue Cross/Blue Shield	Existing	Both	Low	Low
Mutual Benefit Life	Existing	Both	Low	Low
New Jersey Bell	Existing	Both	Low	Low
PSE&G	Existing	Both	Low	Low
Retail				
Broad Street	Existing	Less-skilled	Moderate	Moderate
Market Street	Existing	Less-skilled	Moderate	Moderate
Hospitals				
UMDNJ University Hospital	Existing	Both	High	Moderate
St. Michael's Medical Center	Existing	Both	High	Moderate
St. James Hospital	Existing	Both	High	Moderate
United Hospitals of Newark	Existing	Both	High	Moderate
Children's Hospital	Existing	Both	High	Moderate
Columbus Hospital	Existing	Both	High	Moderate
Beth Israel Hospital	Existing	Both	High	Moderate

TABLE 18B (continued)
 SPECIFIC CITY SITES OF EMPLOYMENT
 AND EMPLOYMENT GROWTH FOR THE IN-CITY JOURNEY TO WORK
 NEWARK

Corridors and Specific Locations	A	B	C	D
	Existing or Employment or Growth Node	Site of Primarily Skilled or Less-skilled Employment	Potential for Jobs at Site	Potential for Center City Residents at Site
	Existing, Growth, or Both	Skilled, or Less-skilled, or Both	High, Moderate, or Low	High, Moderate, or Low
County/City/State/Federal Government				
Peter Rodino Federal Building	Existing	Both	Low	Low
Federal Courts	Existing	Both	Low	Low
Post Office	Existing	Both	Low	Low
City Hall	Existing	Both	Low	Low
Police Headquarters	Existing	Both	Low	Low
State Office Building	Existing	Both	Low	Low
Colleges/Schools				
UMDNJ	Existing	Both	Moderate	Low
NIJT	Existing	Both	Moderate	Low
Rutgers University	Existing	Both	Moderate	Low
Seton Hall Law School	Existing	Both	Moderate	Low
Essex County College	Existing	Both	Moderate	Low
Essex County Technical HS	Existing	Both	Moderate	Low
Others				
Newark International Airport	Existing	Both	Moderate	Low
Newark Airport Business Center	Existing	Both	Moderate	Moderate
Newark Industrial Center	Existing	Both	Moderate	Moderate
Port of Newark and Elizabeth	Existing	Both	Low	Low
Performing Arts Center	Growth	Both	Moderate	High

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

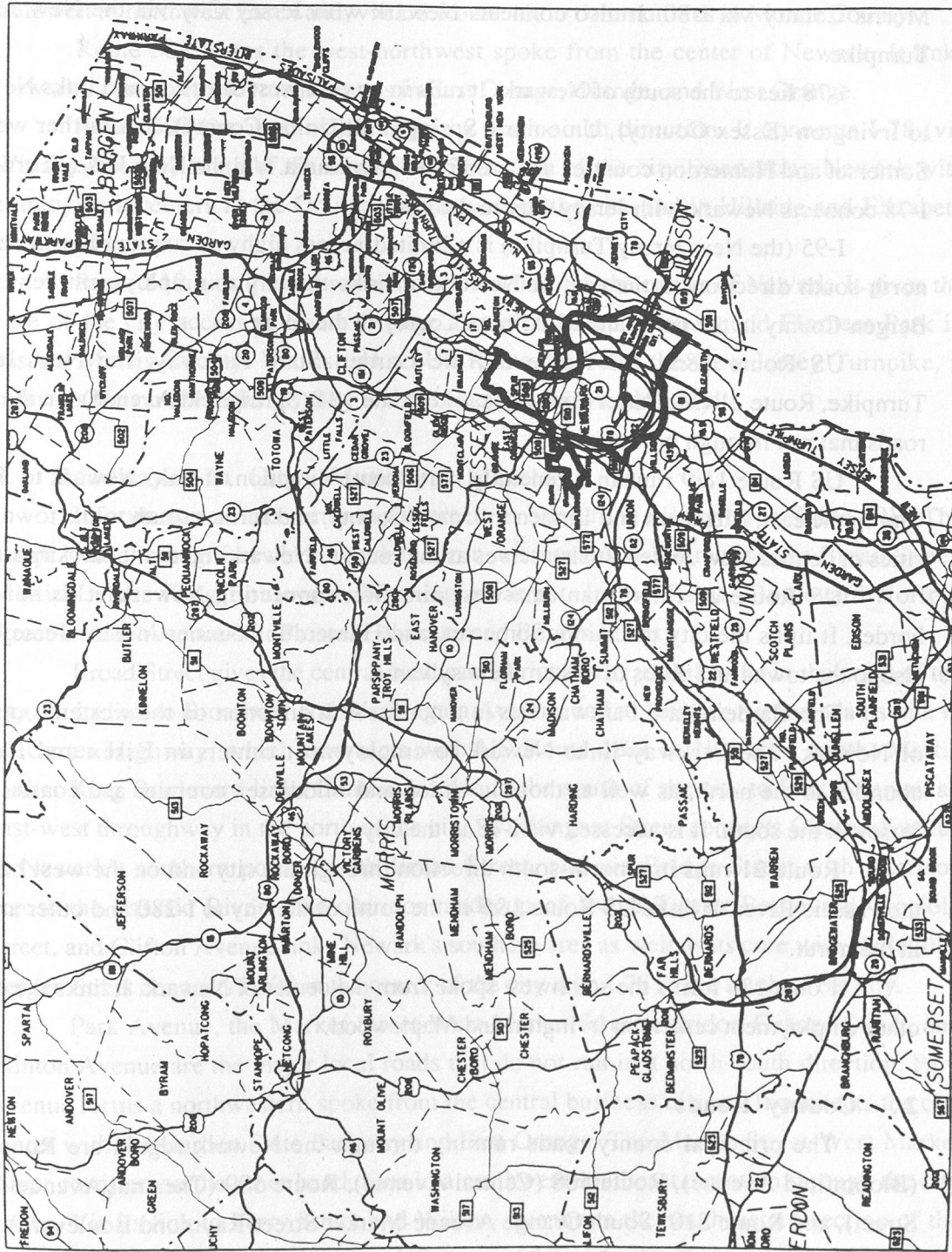
Source: New Jersey Department of Transportation

TABLE 19A
 THE EXISTING TRANSPORTATION NETWORK—ROADWAYS
 CITY TO SUBURB
 NEWARK

	<i>Location Relative to City</i>	<i>How City is Served</i>
STATE HIGHWAYS		
Route I-280	E-W (through city)	Links city to west Essex and Morris counties via Route 80, and to Jersey City via NJ Turnpike
Route I-78	E-W (south of city)	Links city to Somerset and Hunterdon counties, and to Jersey City via NJ Turnpike
Route I-95 (New Jersey Turnpike)	N-S (east of city)	Links city to Bergen County and Middlesex County
US Route 1&9	N-S (east of city)	Links city to central NJ and Jersey City
US Route 22	E-W (south of city)	Links city to Hunterdon County and eastern Pennsylvania
Garden State Parkway	N-S (west of city)	Links city to northern NJ and coastal southern NJ
Route 21 (McCarter Highway)	N-S (through city)	Links Route 1-9 south of the city to I-280, Belleville and Nutley in the north
Route 124 (Springfield Avenue)	SW spoke from center	Links city to Irvington and Maplewood
COUNTY ROADS		
Route 506 (Bloomfield Avenue)	NNW spoke from center	Links city to northwest Essex, Morris County, and Route 46
Route 508 (Central Avenue)	WNW spoke from center	Links city to western Essex and Morris counties
Route 509 (Grove Street-Chestnut Ave.)	N-S (west of city)	Links I-78 in the south via Winans Ave. to I-280 in the north via Sussex Ave.
Route 510 (So. Orange Ave.-Raymond Blvd.)	E-W (through city)	Links CBD to western Essex and Morris County

Source: CUPR, 1992.

MAP C
REGIONAL ROAD SYSTEM IN THE VICINITY OF NEWARK



Source: New Jersey Department of Transportation

I-280 is a limited-access highway that runs in an east-west direction through the center of the city. I-280 links Newark to West Orange and Roseland in West Essex, and to Morris County via I-80. It also connects Newark with Jersey City via the New Jersey Turnpike.

I-78 lies to the south of Newark. It runs in an east-west direction and links Newark to Irvington (Essex County), Union and Springfield (Union County), and farther west to Somerset and Hunterdon counties and eastern Pennsylvania. Via the New Jersey Turnpike, I-78 connects Newark with Jersey City in the east.

I-95 (the New Jersey Turnpike) is a limited-access highway running in a generally north-south direction to the east of Newark. It links the city to employment centers in Bergen County in the north and Middlesex County in the south.

US Route 1&9, US Route 22, the Garden State Parkway, the New Jersey Turnpike, Route 21 (McCarter Highway), and Route 124 (Springfield Avenue) are the state roads that run through Newark.

US Route 1&9 runs in a generally north-south direction. It links Newark to Jersey City in the east, Elizabeth and Linden in Union County, and further south to the towns and cities of central New Jersey. It also serves as the route to Newark International Airport.

US Route 22 runs in an east-west direction connecting Newark at its southern border. It links the city to Union, Somerset, and Hunterdon counties in New Jersey, and also to the towns and cities of eastern Pennsylvania.

The Garden State Parkway lies in a north-south direction on the western outskirts of Newark. The Parkway links Newark to employment centers in Essex and Passaic counties to the north, as well as those in Union and Middlesex counties and coastal New Jersey in the south. It is accessed via I-78 in the city.

Route 21 runs in a north-south direction through the city and on the west bank of the Passaic River. It links US Route 1&9 in the south of the city to I-280 and other arteries in the north.

Route 124 forms the southwest spoke from the center of Newark. It links the city to other employment centers in Irvington and Maplewood.

2. County Roads

The principal county roads running through the Newark region are Route 506 (Bloomfield Avenue), Route 508 (Central Avenue), Route 509 (Chestnut Avenue-Grove Street), and Route 510 (South Orange Avenue-Market Street-Raymond Boulevard). They also are displayed in Table 19A.

Route 506 forms the north-northwest spoke from the center of the city. It links the core of Newark to employment centers in Bloomfield, Montclair, Caldwell, and West Caldwell in northwest Essex and, via US Route 46, to communities in Morris County.

Route 508 forms the west-northwest spoke from the center of Newark. It links Newark's core to employment centers in East Orange, Orange, and West Orange.

Route 509 lies west of the city in a north-south direction. It connects I-78 (via Winans Avenue) south of the city with I-280 north of the city, connecting Newark with employment centers in the Oranges to the west of the city and in Hillside and Elizabeth south of the city.

Route 510 runs in an east-west direction through the center of Newark. It gives the core of the city access to South Orange as well as East Hanover and Florham Park in eastern Morris County. Via its link to US Route 1&9 and the New Jersey Turnpike, it connects Newark with Jersey City and the Hackensack Meadowlands.

B. Roadways—In City—Municipal Streets

Information on most municipal streets in Newark is displayed in Table 19B. The major local thoroughfares in Newark that run in a north-south direction are Broad Street, Martin Luther King Boulevard, Washington Street, Irvine Turner Boulevard-Norfolk Street-Clifton Avenue-Mt. Prospect Avenue, and Bergen Street.

Broad Street gives the central business district access to Belleville in the north of the city via its link to Broadway and Washington Avenue, and to Newark Airport via its link to McCarter Highway, which intersects with US Route 1&9 to Newark's south. Martin Luther King Boulevard links Clinton Avenue in the south of the city to Park Avenue, an east-west throughway in the north of the city. Washington Street connects Clinton Avenue in Newark's southern portion with Broad Street, and via Bridge Street with Harrison across the Passaic River. The corridor made up of Irvine Turner Boulevard, Norfolk Street, and Clifton Avenue links Newark's southern area as well as its core with Belleville. Bergen Street connects I-280 in the center of the city with I-78 in the south of the city.

Park Avenue, the Market Street-West Market Street corridor, Orange Street, and Clinton Avenue are the major local roads that do not run in a north-south direction. Park Avenue forms a northwestern spoke from the central business district. It connects the city center with the Garden State Parkway and East Orange. The Market Street-West Market Street corridor, on the other hand, runs in a northwest-southeast direction through the city center. Via its link to Ferry Street and Wilson Avenue in the southeastern section of the city, it connects the city's core with US Route 1&9 and with Doremus Avenue. In this manner, it gives the core access to Newark Airport and the Port of Newark and Elizabeth.

TABLE 19B
THE EXISTING TRANSPORTATION NETWORK: ROADWAYS
IN CITY
NEWARK

	<i>Location Relative to City</i>	<i>How City is Served</i>
MUNICIPAL STREETS		
Broad Street	N-S (through city)	Links CBD to Belleville and Nutley via Broadway and Washington Ave., and to Newark Airport and Port of Newark via McCarter Highway
Martin Luther King Boulevard	N-S (through CBD)	Links Clinton Ave. in the south with Park Ave. in the north
Washington Street	N-S (through CBD)	Links Clinton Ave. in the south to Broad St., and to Harrison via Bridge St.
Irvine Turner Boulevard-Norfolk Street-Clifton Avenue-Mt. Prospect Avenue	N-S (through city)	Links city center to Belleville
Bergen Street	N-S (through city)	Links city to I-280
Park Avenue	E-W (north of city)	Links city to Garden State Parkway and East Orange
Market Street-West Market Street	NW spoke from center	Links CBD to Penn Station, and to Newark Airport via US Route 1&9 and Port of Newark and Elizabeth via Doremus Avenue
Orange Street	E-W (through CBD)	Links CBD to East Orange
Clinton Avenue	Western spoke from center	Links city center to Irvington and Maplewood, and to US Route 1&9 via Chestnut Street

Source: CUPR, 1992.

Orange Street runs through Newark from east to west and links its central business district with East Orange. Clinton Avenue forms the western spoke from the center of Newark. It connects the center of the city with Irvington and Maplewood in the west and, via Chestnut Street, with US Route 1&9.

C. Rail Transit—City to Suburb

The major rail networks in the Newark region are the Morris and Essex lines, the Northeast Corridor Line, the Raritan Valley Line, and the North Jersey Coastline. Data on these railways are displayed in Table 20A, and depicted on Map D.

The Morris and Essex Lines

The Morris and Essex lines consist of the main line, which runs from Newark Broad Street Station to Netcong in Morris County in a northwest direction (after Summit); the Gladstone Branch, which runs from Summit to Gladstone in Somerset County east of Newark; and the Montclair Branch, which runs from Newark Broad Street Station to Montclair north of Newark. The main function of the Morris and Essex lines is to convey commuters from the towns and cities in Morris and Somerset counties to Newark and, through Newark, to New York City. These lines also allow people in Newark to commute to these towns and cities for employment. Using the Morris and Essex lines, and the Gladstone Branch, about 285 people reverse commute from Newark to their jobs in a day.

On the main line of the Morris and Essex lines, Dover may be considered the terminus for the reverse commute from Newark⁶. The first train leaves Newark Broad Street Station for Dover on weekdays at 6:44 AM. The last weekday train for Newark Broad Street Station leaves Dover at 12:39 AM. The frequency of service on this line is 25 minutes during peak hours and 60 minutes during off-peak hours. On weekends the frequency of service is 60 minutes.

The Northeast Corridor Line

Coming through the center of the Newark, the Northeast Corridor Line forms a spoke in a southwestern direction, the principal function of which is to transport commuters from the towns and cities of Mercer, Middlesex, and Union counties in Central Jersey to Newark and New York City. Its minor function is to allow residents of Newark

⁶ East Orange and Irvington are considered satellites of Newark. Trips from Newark to these two cities are not considered reverse commutes. In addition, trips to employment centers on a par with, or more significant than, Newark (such as New York City, Jersey City, Hoboken, Paterson, Trenton, and Philadelphia) are not considered reverse commutes.

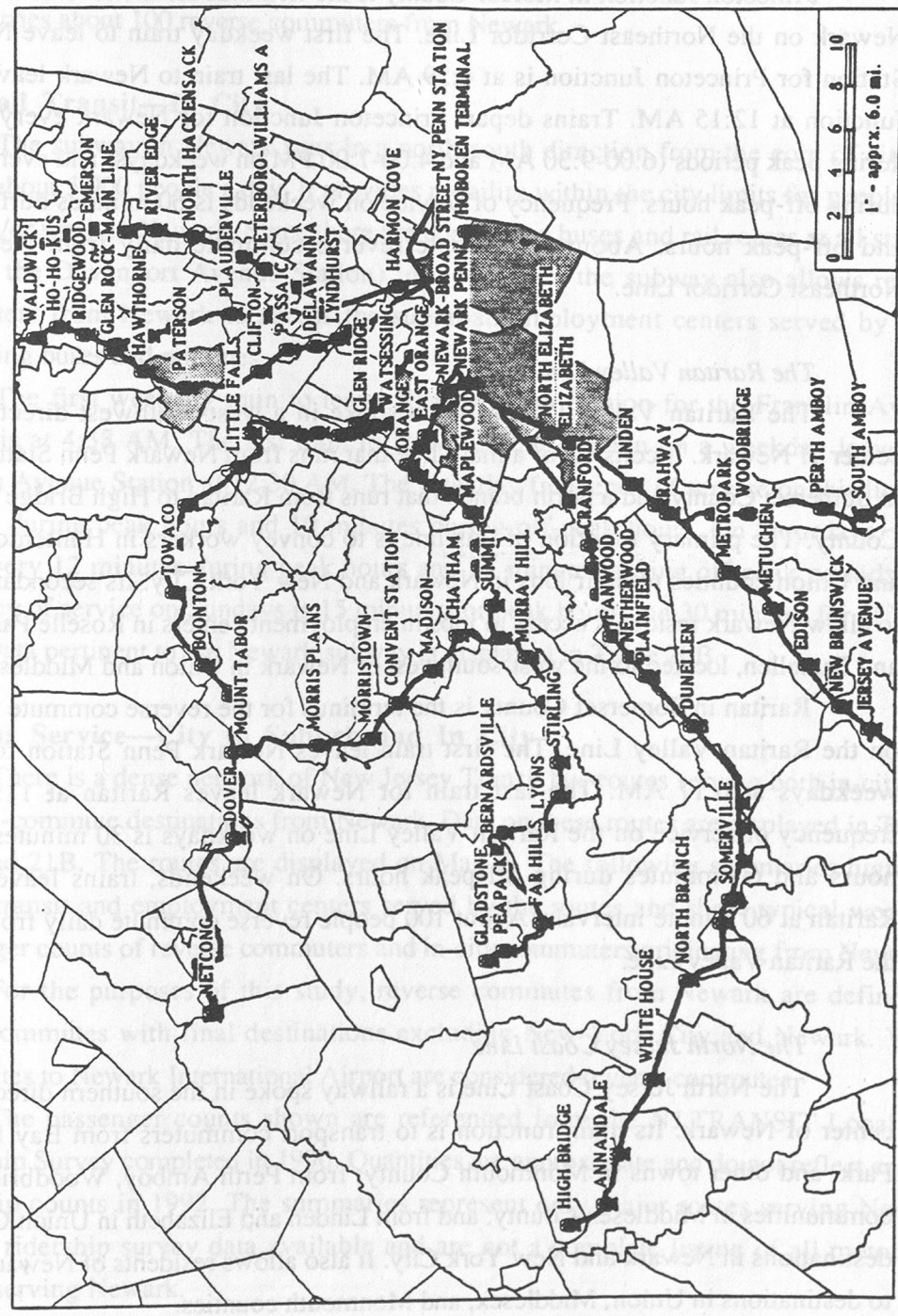
TABLE 20A
THE EXISTING TRANSPORTATION NETWORK: RAIL TRANSIT
CITY TO SUBURB
NEWARK

Rail Lines (List)	Destination Relative to City	No. of City Passengers Carried Daily (Reverse)	Major Employment Markets Served by This Line	Times of Service	Headway	Peak / Off-Peak
Morris and Essex Lines	NNW spoke from city center (New York City to the east and Short Hills, Basking Ridge and Gladstone on the Gladstone Branch; Morris Plains and Dover on the Morristown Line; and Bloomfield and Montclair on the Montclair Branch)	285	Short Hills Murray Hill Basking Ridge Morris Plains	Wkdy 6:44AM-12:39AM Sat 6:51AM-12:39AM Sun 7:51AM-12:39AM First train from Broad St. Station (Newark) to Dover Last train from Dover to Broad St. Station (Newark)	25 min 60 min 60 min	60 min 60 min 60 min
Northeast Corridor	SW spoke from city center (New York City to the east and Elizabeth, Metropark, Princeton and Trenton to the south)	100	Rahway Metropark Middlesex County	Wkdy 4:59AM-12:15AM Sat 5:24AM-11:40PM Sun 5:24AM-11:40PM First train from Newark Penn Station to Princeton Jct Last train from Princeton Jct. to Newark Penn Station	10 min 60 min 60 min	30 min 60 min 60 min
Raritan Valley Line	WSW spoke from city center (New York City to the east and Roselle Park, Plainfield, and Raritan to the WSW)	100	Roselle Park Plainfield	Wkdy 6:17AM-11:54PM Sat 7:59AM-10:55PM Sun 7:59AM-10:55PM First train from Newark Penn Station to Raritan Last train from Raritan to Newark Penn Station	30 min 60 min 60 min	60 min 60 min 60 min
North Jersey Coast Line	Southern spoke from city center (New York City to the east and Woodbridge, Red Bank, Asbury Park and Bay Head to the south)	100	Rahway Woodbridge Perth Amboy Red Bank	Wkdy 6:17AM-12:35AM Sat 7:09AM-12:35AM Sun 7:09AM-12:35AM First train from Newark Penn Station to Matawan Last train from Matawan to Newark Penn Station	10 min 60 min 60 min	60 min 60 min 60 min

Notes: Times and frequency of service for the reverse commute are determined on the basis of trips between Newark and the suburban location deemed to be the destination of the reverse commute; trips that stop short of this destination are not taken into account.

Source: New Jersey Transit

MAP D
NJ TRANSIT COMMUTER RAIL LINES IN THE NEWARK METROPOLITAN AREA



Source: NJ TRANSIT

to reverse commute to these counties, especially to employment centers in Linden, Metropark, Metuchen, and Edison.

Princeton Junction in Mercer County is the terminus for the reverse commute from Newark on the Northeast Corridor Line. The first weekday train to leave Newark Penn Station for Princeton Junction is at 4:59 AM. The last train to Newark leaves Princeton Junction at 12:15 AM. Trains depart Princeton Junction for Newark every ten minutes during peak periods (6:00-9:30 AM and 4:00-7:00 PM on weekdays) and every 30 minutes during off-peak hours. Frequency of service on weekends is 60 minutes during both peak and off-peak hours. About 100 people reverse commute daily from Newark on the Northeast Corridor Line.

The Raritan Valley Line

The Raritan Valley Line forms a spoke in a west-southwest direction from the center of Newark. It consists of a main line that runs from Newark Penn Station to Raritan in Somerset County and a north branch that runs from Raritan to High Bridge in Hunterdon County. The primary function of this line is to convey workers in Hunterdon, Somerset, and Union counties to their jobs in Newark and New York City. Its secondary function is to allow Newark residents access to jobs in employment centers in Roselle Park, Plainfield, and Dunellen, located to the west-southwest of Newark in Union and Middlesex counties.

Raritan in Somerset County is the terminus for the reverse commute from Newark on the Raritan Valley Line. The first train leaves Newark Penn Station for Raritan on weekdays at 6:17 AM. The last train for Newark leaves Raritan at 11:54 PM. The frequency of service on the Raritan Valley Line on weekdays is 30 minutes during peak hours and 60 minutes during off-peak hours. On weekends, trains leave Newark for Raritan at 60 minute intervals. About 100 people reverse commute daily from Newark on the Raritan Valley Line.

The North Jersey Coast Line

The North Jersey Coast Line is a railway spoke in the southern direction from the center of Newark. Its main function is to transport commuters from Bay Head, Asbury Park, and other towns in Monmouth County; from Perth Amboy, Woodbridge and other communities in Middlesex County; and from Linden and Elizabeth in Union County to their destinations in Newark and New York City. It also allows residents of Newark to commute to destinations in Union, Middlesex, and Monmouth counties.

The first train to leave Newark (at Raymond Plaza) for Matawan—the terminus for the reverse commute on this line—on a weekday is the 6:17 AM train. The last weekday

train for Newark leaves Matawan at 12:35 PM. The frequency of service on this line on weekdays is 15 minutes during peak hours and one hour during off-peak hours. On weekends, trains leave Newark for Matawan every hour. The North Jersey Coast Line daily carries about 100 reverse commuters from Newark.

D. Rail Transit—In City

The subway in Newark runs in a north-south direction from the core of city and carries about 5,900 people a day. It provides mobility within the city limits for people who live and/or work in Newark. Since there are connecting buses and rail routes at all stations (except the Davenport Avenue Station) in the system, the subway also allows reverse commuters from Newark to access the suburban employment centers served by these connecting buses and rail lines.

The first weekday train to leave Newark Penn Station for the Franklin Avenue Station is at 4:38 AM. The last train to Newark Penn Station on a weekday leaves the Franklin Avenue Station at 12:30 AM. The weekday frequency of service on this line is 4 minutes during peak hours and 10 minutes during off-peak hours. On Saturdays, trains leave every 12 minutes during peak hours and 15 minutes during off-peak periods. The frequency of service on Sundays is 15 minutes for peak hours and 30 minutes for off-peak hours. Data pertinent to the Newark subway is displayed in Table 20B.

E. Bus Service—City to Suburb and In City

There is a dense network of New Jersey Transit bus routes serving both in-city and reverse-commute destinations from Newark. Data on these routes are displayed in Tables 21A and 21B. The routes are displayed on Map E. The following summaries highlight major transit and employment centers served by the routes and show typical weekday passenger counts of reverse commuters and in-city commuters originating from Newark.

For the purposes of this study, reverse commutes from Newark are defined as work commutes with final destinations excluding New York City and Newark. Work commutes to Newark International Airport are considered reverse commutes.

The passenger counts shown are referenced from the NJ TRANSIT Local Bus Ridership Survey completed in 1990. Quantities are approximate and do not reflect current ridership counts in 1992. The summaries represent only major routes serving Newark having ridership survey data available and are not a complete listing of all motor bus routes serving Newark.

TABLE 20B
THE EXISTING TRANSPORTATION NETWORK: RAIL OR LIGHT-RAIL TRANSIT (WITHIN-CITY SYSTEMS)
IN CITY

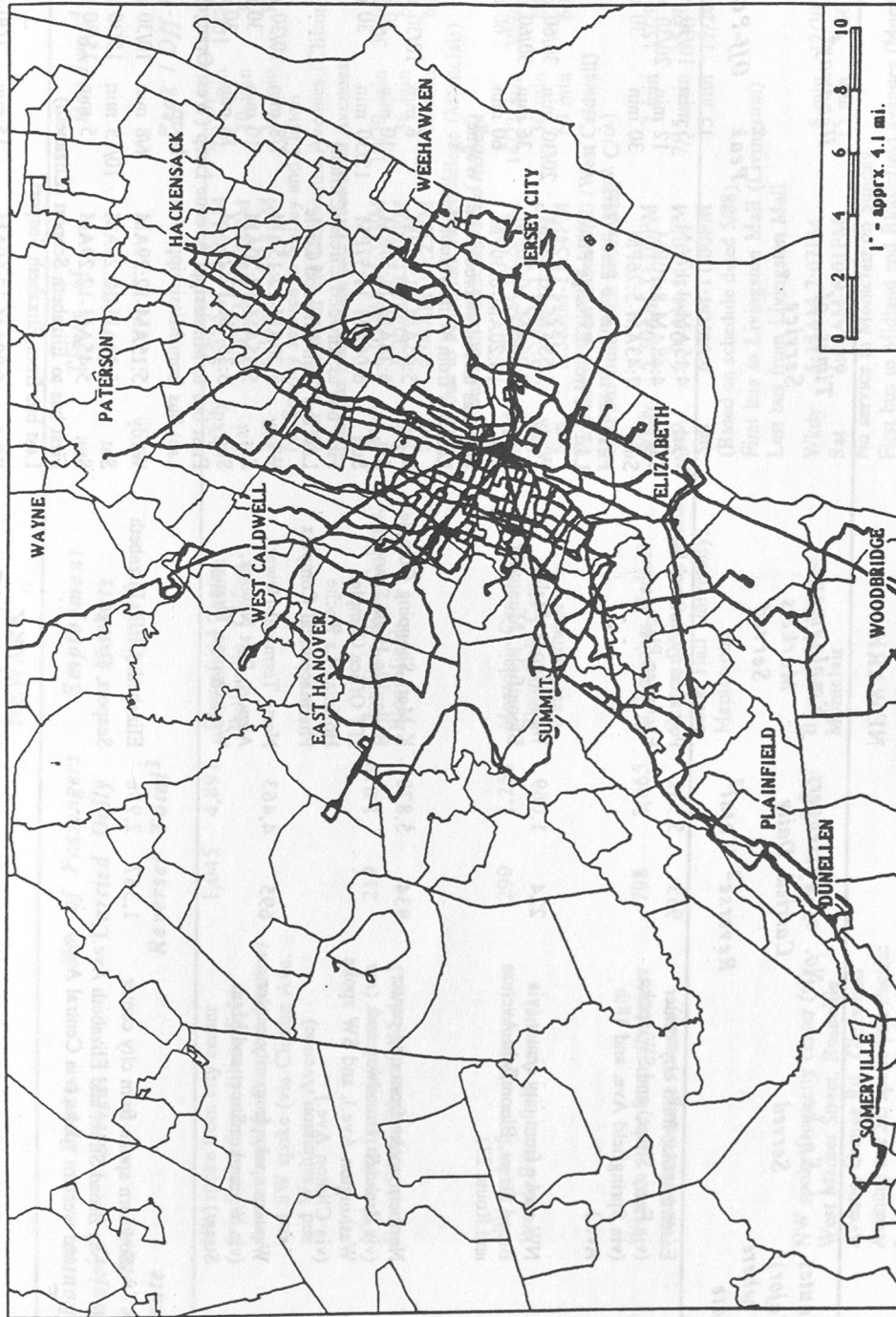
<i>Rail Lines (List)</i>	<i>Major Locations in City</i>	<i>No. of City Passengers Carried Daily</i>	<i>Daily Typical Destination in City</i>	<i>Times of Service¹</i>	<i>Headway</i>	<i>Off- Peak / Peak</i>
NEWARK						
NJ TRANSIT City Subway (Route 7)	Penn Station Broad Street Station Washington Street Station Warren Street Station Orange Street Station	5,904	PSE&G Prudential State Office Building Essex County College Essex County Court NJIT Rutgers University	Wkdy 4:38AM-12:30AM ² Sat 4:38AM-12:30AM Sun 5:15AM-12:30AM	2 min 12 min 15 min	7 min 15 min 30 min

Notes:

1. Times and frequency of service for the reverse commute are determined on the basis of trips between Newark and the suburban location deemed to be the destination of the reverse commute; trips that stop short of this destination are not taken into account.
2. The first train from Newark Penn Station is to Franklin Avenue Station (Newark.) The last train from Franklin Avenue Station is to Newark Penn Station.

Source: New Jersey Transit

MAP E
NJ TRANSIT BUS ROUTES IN THE NEWARK METROPOLITAN AREA



Source: NJ TRANSIT

TABLE 21A
THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE
CITY TO SUBURB

NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Spoke Served	No. of Passengers Carried Daily	Employment Markets Served	Times of Service	Headway ⁴	
					Peak	Off-Peak
1	Eastern spoke from city center (via Ferry Street) and SW spoke (via Springfield Ave. and 18th Ave.)	953	Port Kearny, Journal Square, Exchange Place	Wkdy 4:15AM-1:17AM Sat 4:48AM-8:10PM Sun 7:43AM-5:26PM First bus to Exchange Place (Jersey City) Last bus from Exchange Place	5 min 12 min 30 min	10/30 min 20/30 min 30 min
1 1	NW spoke from city center (via Broad Street, Bloomfield Avenue and Route 23)	224	Willowbrook Mall, Bloomfield, Montclair	Wkdy 5:55AM-10:16PM Sat 7:05AM-10:20PM Sun 10:20AM-6:30PM First bus to Willowbrook Mall (Wayne) Last bus from Willowbrook Mall	20/30 min 36 min 60 min	30/60 min 30/60 min 60 min
1 3	Northern spoke from city center (via Broad St. Broadway and Washington Ave.), and SW spoke (via Clinton Ave.)	934	K-Mart Shopping Complex Belleville High School ITT Office Complex Hoffman-La Roche Pharmaceutical Complex	Wkdy 5:05AM-11:56PM Sat 5:36AM-11:57PM Sun 6:06AM-11:57PM First bus to Allwood Circle (Clifton) Last bus from Allwood Circle	6 min 10 min 15/30 min	10/30 min 30 min 30 min
2 1	Western spoke from city center (via W. market Street and Main Street)	695	North Terminal-Newark Airport, Port Newark, West Orange, Orange	Wkdy 5:20AM-12:15AM Sat 5:35AM-12:20AM Sun 5:35AM-12:26AM First bus to Mississippi Avenue Loop (West Orange) Last bus from Mississippi Avenue Loop	7/8 min 10 min 15 min	10/30 min 30 min 30 min
2 4 Contract ⁵	Southern spoke from city center (via Broad Street and Elizabeth Ave.) and western spoke (via Central Ave.)	1,367	Elizabeth CBD, Elizabeth Seaport, Orange	Wkdy 5:15AM-12:29AM Sat 5:30AM-12:29AM Sun 5:45AM-12:29AM First bus to Elizabeth Seaport (Elizabeth) Last bus from Elizabeth Seaport	6/8 min 10/15 min 15 min	10/30 min 15/30 min 15/30 min
2 5	SW spoke from city center (via Springfield Ave.)	911	Newark Industrial Center Maplewood	Wkdy 5:00AM-12:50AM Sat 4:59AM-12:38AM Sun 5:00AM-12:43AM First bus to Maplewood Loop (Maplewood) Last bus from Maplewood Loop	15 min 7/15 min 15 min	7/30 min 30 min 30 min

TABLE 21A (continued)
 THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE
 CITY TO SUBURB
 NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Spoke Served	No. of Passengers Carried Daily	Employment Markets Served	Times of Service	Headway ⁴
		Reverse ² Total ³			Peak / Off-Peak
27	NW spoke from city center (via Broad Street Bloomfield Avenue and Mt. Prospect Avenue) and SW spoke (via Clinton Ave. and Washington Avenue)	1,045	Bloomfield Center Belleville, Clifton	Wkdy 5:25AM-10:08AM Sat 5:22AM-06:44PM Sun 6:36AM-12:18AM No Sunday service to Nutley and Clifton First bus to Main and Delaware Avenues (Clifton) Last bus from Main and Delaware Avenues	7/10 min 10/30 min 10 min 30 min 15 min 30 min
28	NW spoke from city center (via Broad Street, Bloomfield Ave.)	219	Montclair State College, Bloomfield	Wkdy 6:05AM-11:31PM Sat 6:20AM-11:30PM Sun 6:08AM-10:23PM First bus to Montclair State College (Montclair) Last bus from Montclair State College	19/30 min 30/60 min 36 min 60 min 60 min 60 min
29	NW spoke from city center (via Broad, Bloomfield Avenue)	290	Montclair Center, Bloomfield Center, West Caldwell	Wkdy 5:25AM-11:58PM Sat 5:50AM-11:59PM Sun 5:38AM-11:54PM First bus to West Essex Mall (West Caldwell) Last bus from West Essex Mall	14/22 min 30/60 min 36 min 60 min 60 min 60 min
31 Private ⁶	Western spoke from city center (via South Orange Avenue)	798	St. Barnabas Medical Center, Livingston Mall, Seton Hall University, Maplewood	Wkdy 5:30AM-11:00PM Sat 6:00AM-11:00PM Sun 6:00AM-11:00PM (Based on schedule dated 5/88) First bus to Livingston Mall (Livingston) Last bus from Livingston Mall	7 min 15/20 min 7/15 min 15/20 min 15 min 15/20 min
34	NW spoke from city center (via West Market Street, Roseville Avenue, Orange Rd., Glenwood Avenue) and SE spoke (via Pacific Street)	452	Bloomfield, Orange, Montclair	Wkdy 5:35AM-7:07PM Sat 6:08AM-6:01PM No service to Montclair on Sunday First bus to Midland and Bloomfield avenues (Montclair) Last bus from Midland and Bloomfield avenues	6 min 12/30 min 15 min 30 min

TABLE 21A (continued)
 THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE
 CITY TO SUBURB

NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Spoke Served	No. of Passengers Carried Daily	Employment Markets Served	Times of Service	Headway ⁴
37	E-W route through south ward (via Haynes Avenue, Elizabeth Avenue, Lyons Avenue, and Springfield Avenue, and Manor Drive)	240	Newark International Airport, Maplewood	Wkdy 5:10AM-11:15PM Sat 8:18AM-11:41PM No service on Sunday First bus to Airport Last bus to Airport	30 min 60 min 60 min
		421			
39	Northern spoke from center (via Broad St., Harrison Ave., and Kearny Ave.) and SW spoke (via Broad St., Elizabeth Ave., and Chancellor Ave.)	1,154	Harrison, Kearny	Wkdy 5:23AM-12:01AM Sat 5:12AM-12:25AM Sun 6:16AM-11:45PM First bus to Garden Terr. and Ridge Rd. (North Arlington) Last bus from Garden Terr. and Ridge Rd.	7 min 15/20 min 30 min 60 min
		4,450			
40	Northern spoke from city center (via Frank Rodgers Blvd., Davis Ave., and Belleville Tpke.) and SE spoke (via McCarter Hwy., Port St., and Corbin St.)	286	North Terminal- Newark International Airport, Kearny, Harrison, Port areas	Wkdy 6:40AM-6:00PM Sat 6:25AM-6:00PM No service on Sunday First bus to Ross Lane and River Road (Kearny) Last bus from Ross Lane and River Road	30 min 60 min 60 min
		455			
41	Western spoke from city center (via Orange St. and Park Ave.) and SW spoke (via Clinton Ave. and Chancellor Ave.)	373	Orange	Wkdy 6:20AM-11:15PM Sat 6:20AM-11:20PM Sun 8:26AM-11:51PM First bus to RR Place and Essex Avenue (Orange) Last bus from RR Place and Essex Avenue	5/15 min 30 min 30 min 35/60 min
		1,955			
44 Contract ⁵	Western spoke from city center (via Raymond Blvd., Central Ave., and Scotland Rd.)	442	Orange	Wkdy 5:40AM-11:58PM Sat 7:00AM-11:59PM Sun 7:10AM-10:50PM First bus to Orange Train Station (Orange) Last bus from Orange Train Station	10/20 min 30 min 70 min 70 min
		629			

TABLE 21A (continued)
 THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE
 CITY TO SUBURB
 NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Spoke Served	No. of Passengers Carried Daily	Employment Markets Served	Times of Service	Headway ⁴
		Reverse ² Total ³			Peak / Off-Peak
59	SW spoke from city center (via Broad St., Clinton Ave., Elizabeth Ave., Jersey St., and South Ave. through Cranford)	336	Elizabeth, Hillside, Cranford, Westfield (full length of route extends to Dunellen, Middlesex County)	Wkdy 5:56AM-7:15PM Sat 6:35AM-5:30PM No service on Sunday First bus to Washington and North avenues (Dunellen) Last bus from Washington and North avenues	13/17 min 30 min 30 min
62	Southern spoke from city center (via Broad St. and Route 1-9, Georges Ave., Roosevelt Ave., and State St.) and SW spoke (via Inman Avenue, Wood Avenue, and Route 1)	649	Airport Industrial Center Newark Intl. Airport Linden, Rahway, Woodbridge, Perth Amboy, Port Authority Industrial Center	Wkdy 5:40AM-10:45PM Sat 6:40AM-8:30PM Sun 9:10AM-6:10PM Sunday service to Woodbridge Center Mall; no Sunday service to Perth Amboy First bus to Smith St. and Davidson Ave. (Perth Amboy) Last bus from Smith St. and Davidson Ave.	15 min 30 min 60/75 min 75 min
65/66	SW spoke from city center (via Broad St., Clinton Ave., Elizabeth Ave., Morris Ave., Vaux Hall Rd., and Mountain Ave.)	376	Hillside, Union, Union County College, Springfield (full length of route extends to Bridgewater Commons in Somerville, Somerset County)	Wkdy 6:05AM-11:46PM Sat 7:03AM-11:50PM Sun 7:31AM-10:25PM First bus to Mountain and Morris Aves. (Springfield) Last bus from Mountain and Morris Aves.	4/24 min 30/60 min 20/30 min 60 min
70	Western spoke from city center (via Broad St., Clinion Ave., Avon Ave., Springfield Ave., Morris., JFK Pkwy., and South Orange Ave.)	539	Maplewood, Union, Short Hills Mall, Millburn, Springfield, Summit, Livingston, Livingston Mall Florham Park	Wkdy 5:35AM-11:46PM Sat 6:30AM-11:46PM No Sunday service from Newark First bus to River and Iris roads (Summit) Last bus from River and Iris roads	10 min 30 min 30/60 min 60/120 min
71	NW spoke from city center (via Raymond Blvd., Main St., Mt. Pleasant Ave., and Bloomfield Ave.)	112	Orange, West Orange, Livingston, Caldwell, West Caldwell, West Essex Mall	Wkdy 5:30AM-5:00PM Sat 7:15AM-7:00PM No service on Sunday First bus to Essex Mall (West Caldwell) Last bus from West Essex Mall	30 min 30/45 min 30/45 min 30/75 min

1. Only routes of public transit are shown. Actual routes may vary.
 2. Operates only on weekdays.
 3. Operates only on weekdays.
 4. Independently owned and operated by Penn East Transit, Inc.
 Source: New Jersey Transit

TABLE 21A (continued)
 THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE
 CITY TO SUBURB
 NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Spoke Served	No. of Passengers Carried Daily	Employment Markets Served	Times of Service	Headway ⁴
72	Northern spoke from city center (via Broad St., Bloomfield Ave., Broad St.-Bloomfield and Clifton, Main St.)	326	Belleville, Bloomfield, Nutley, Clifton, Paterson	Wkdy 6:05AM-11:10PM	25 min
				Sat 7:10AM-11:15PM	60 min
				Sun 9:17AM-11:15PM	60 min
				First bus to Broadway Terminal (Paterson) Last bus from Broadway Terminal	60 min
73	Western spoke from city center (via W. Market St., Main St., Northfield Ave., Livingston Ave., Mt. Pleasant Ave., and Eisenhower Pkwy.)	246	Orange, St. Barnabas Medical Center, West Orange, Livingston, Livingston Mall, Florham Park	Wkdy 5:30AM-9:55PM	7/15 min
				Sat 7:20AM-9:50PM	60 min
				No service on Sunday	
				First bus to Livingston Mall (Livingston) Last bus from Livingston Mall	60 min
74	Northern spoke from N. Newark (via Franklin Ave., Kingsland Ave., Passaic Ave., Main Ave.)	111	Belleville, Nutley, Passaic Clifton, Paterson	Wkdy 5:38AM-11:35PM	12/15 min
				Sat 6:47AM-11:35PM	20 min
				Sun 8:05AM-11:35PM	—
				First bus to Broadway Terminal (Paterson) Last bus from Broadway Terminal	—
76	Northern spoke from city center (via Broad St., Clay St., Passaic St., Belgrove Dr., Kearny Ave., Ridge Rd., Park Ave., Hackensack Ave., Polifly Rd., State St.)	402	Kearny, Lyndhurst, East Rutherford, Meadowlands District, Hackensack	Wkdy 6:50AM-11:31PM	10/15 min
				Sat 7:02AM-5:30PM	70 min
				Sun 10:35AM-5:35PM	120 min
				First bus to Hackensack bus transfer Last bus from Hackensack bus transfer	—
78	Eastern spoke from city center (via Broad St., I-280, NJ Tpk., Meadowlands Pkwy., County Ave., Polito Ave., and Wall St. West)	393	Harmon Meadow, Secaucus- Harmon Cove, Meadowview County Hospital, Lyndhurst Office Park	Wkdy 6:20AM-6:14PM	10/15 min
				No service on weekends	
				First bus to Secaucus-Harmon Cove Last bus from Harmon Cove	120 min

TABLE 21A (continued)
THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE
CITY TO SUBURB
NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Spoke Served	No. of Passengers Carried Daily	Employment Markets Served	Times of Service	Headway ⁴
		Reverse ² Total ³			Peak / Off-Peak
90	NS route (via Grove St.-Irvington, Springfield Ave., Watsessing Ave., Grove St.-East Orange, Franklin Ave.)	158	Bloomfield, Belleville	Wkdy 5:35AM-12:00AM Sat 6:30AM-12:00AM Sun 8:30AM-12:00AM First bus to Irvington Bus Terminal (Irvington) Last bus from Irvington Bus Terminal	20 min 20/60 min 30 min 60 min 90 min 60 min
94	N-S route (via Belleville Ave., Bloomfield Ave., Prospect St., Central Ave., Stuyvesant Ave., Clinton Ave., Springfield Ave., and Chestnut St.)	743	Belleville, Bloomfield, Union, Roselle Park, Roselle, Linden	Wkdy 5:35AM-10:00PM Sat 6:35AM-10:00PM Sun 8:45AM-9:20PM (Sunday service to Bloomfield) First bus to Wood and Elizabeth avenues (Linden) Last bus from Elizabeth and Wood avenues	7-8min 15/60 min 20 min 30/60 min 30 min —
99	N-S route (via Clifton Ave., Norfolk St., West Market St., Bergen St., S. Orange Ave., Irvine Turner Blvd., Bergen St., Maple St., and Ramsay Ave.)	589	Beth Israel Medical Center, Industrial Hospital, Hillside	Wkdy 4:57AM-11:50PM Sat 4:57AM-12:00AM Sun 6:27AM-12:00AM First bus to Chestnut and Ramsay avenues (Hillside) Last bus from Chestnut and Ramsay avenues	8/15 min 20/60 min 20/60 min 30/60 min 30 min 60 min
107	NW interstate route to New York (via Springfield Ave., Grove St., Lyons Ave., Elizabeth Ave., and Route 1 and 9) and West (via Clinton Ave., Irvington Ave., South Orange Ave., and Sloan St.)	NA	Newark International Airport, Maplewood, South Orange	Wkdy 4:50AM-1:50AM Sat 6:25AM-2:20AM Sun 7:00AM-1:10AM First bus to Newark International Airport (form Newark) Last bus from Newark International Airport	5/15 min 30/35 min 25/30 min 60 min 30 min 30 min

Notes: 1. Trip counts referenced from NJ TRANSIT Local Bus Ridership Survey—1990. Quantities are approximate and do not reflect current ridership counts in 1992. Table shows only major routes with ridership survey data available. This is not a complete listing of all motor bus routes serving Newark.

2. Reverse—"To Work" passenger trips by Newark residents to reverse-commute destinations (excluding Newark and New York). Commutes to Newark International Airport and Port Newark are included as reverse-commute destinations.

3. Total—Volume of passenger trips in outbound direction. (Includes commuters from all origins to all destinations, for all purposes.)

4. Headways shown are for main trunks only. Actual times to specific locations on variations from trunk may differ.

5. Operated by ONE Bus Inc. under contract with NJ TRANSIT.

6. Independently owned and operated by Penn Mall Transit Inc.

NA = Not available.

Source: New Jersey Transit

TABLE 21B
THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE (WITHIN-CITY ROUTES)
IN CITY
NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Avenue or Street Served	Number of Passengers Carried Daily In City ² Total ³	Employment Markets Served	Times of Service	Headway ⁴	Peak / Off-Peak
1	Market St., 15th Ave., 16th Ave., 18th Ave., Ferry St.	2,560 7,245	Newark CBD, UMDNJ Hospital, Essex County Court, Essex County College, Essex County Technical HS	Wkdy 5:35AM-12:20AM Sat 5:00AM-12:17AM Sun 8:58AM-11:43AM First bus from Manor Dr. (Ivy Hill) Last bus to Ivy Hill	6 min 12 min 20 min	10/30 min 15/20 min 30 min
5	Market St., Washington St., W. Kinney St., Spruce St.	563 2,223	Newark CBD, Essex Co. College, Essex Co. Courthouse, United Hosp. of Newark	Wkdy 5:30AM-11:42PM Sat 5:40AM-11:12PM Sun 7:17AM-7:10PM First bus to Penn RR Station Last bus from Penn RR Station	15 min 30 min 30/60 min	10/30 min 60 min —
7 (City Subway)	Warren St., Orange St., Branch Brook Park, Franklin Ave.,	1,572 8,318	Newark Subway, Newark CBD, Essex Co. Courthouse, Rutgers-Newark, NJIT	Wkdy 4:55AM-12:15AM Sat 4:55AM-12:15AM Sun 5:30AM-12:15AM First bus from Franklin Ave. Station Last bus from Franklin Ave. Station	2/4 min 13/17 min 30 min	10/30 min 15/30 min 15/30 min
11	Broad St., Broadway, Clinton Ave.	115 255	Peter Rodino Federal Bldg., Federal Courts, US Post Office, City Hall	Wkdy 3:58AM-12:57AM Sat 4:02AM-12:57AM Sun 4:58AM-12:57AM First bus to Irvington Bus Terminal Last bus from Irvington Bus Terminal	6 min 10 min 15/30 min	10/30 min 30 min 30 min
13	Northern spoke from city center (via Broad St., Broadway, and Washington Ave.), and SW spoke (via Clinton Ave.)	3,145 8,416	K-Mart Shopping, Complex Belleville High School ITT Office Complex Hoffman-La Roche Pharma- ceutical Complex	Wkdy 5:05AM-11:56PM Sat 5:36AM-11:57PM Sun 6:06AM-11:57PM First bus to Allwood Circle (Clifton) Last bus from Allwood Circle	6 min 10 min 15/30 min	10/30 min 30 min 30 min
21	West Market St., Market St., Ferry St., Pulaski St., Delancey St., Route 1 and 9	332 1,288	Newark CBD, Essex Co. Courthouse, Essex Co. Coll., UMDNJ Univ. Hosp., St. James Hosp.	Wkdy 5:20AM-12:42AM Sat 5:35AM-12:49AM Sun 5:35AM-12:53AM First bus to West Market and Martin Luther King Blvd. Last bus from West Market and Martin Luther King Blvd.	7/8 min 10 min 15 min	10/30 min 30 min 30 min

TABLE 21B (continued)

THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE (WITHIN-CITY ROUTES)
IN CITY

NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Avenue or Street Served	Number of Passengers Carried Daily In City ² Total ³	Employment Markets Served	Times of Service	Headway ⁴ Peak / Off-Peak
24 Contract ⁵	Central Ave., Broad St., Frelinghuysen Ave.	1,467 11,065	Newark CBD, Rutgers- Newark, NJIT	Wkdy 5:15AM-12:50AM Sat 5:18AM-12:50AM Sun 5:45AM-12:50AM First bus to Elizabeth City line Last bus from Elizabeth City line	6/8 min 10/30 min 10/15 min 15/30 min 15 min 15/30 min
25	Wilson Ave., Ferry St., Market St., Springfield Ave.	808 2,725	Newark CBD, Essex Co. Courthouse, Essex Co. Coll., Springfield Ave. Corridor	Wkdy 4:24AM-1:05AM Sat 4:31AM-1:35AM Sun 4:30AM-1:40AM First bus to Penn RR Station Last bus from Penn RR Station	5 min 7/30 min 7/15 min 30 min 15 min 30 min
27	Mt. Prospect Ave., Bloomfield Ave., Broadway, Broad St., Clinton Ave., W. Peddie St.	1,875 5,623	Newark CBD, City Hall, Peter Rodino Fed. Bldg., Fed. Courts, US Post Off.	Wkdy 4:52AM-1:11AM Sat 5:28AM-1:15AM Sun 5:49AM-1:10AM First bus to Broad and Chestnut streets Last bus from Broad and Chestnut streets	7/10 min 10/30 min 10 min 30 min 15 min 30 min
29	William St., Washington St., Broad St., Bloomfield Ave.	325 495	Newark CBD, Bloomfield Ave. Corridor, St. Michael's Medical Center, Columbus Hospital, City Hall	Wkdy 5:20AM-12:27AM Sat 5:50AM-5:30PM Sun 5:38AM-11:22PM First bus to Bloomfield and Roseville avenues Last bus from Bloomfield and Roseville avenues	14/22 min 30/60 min 36 min 60 min 60 min 60 min
31 Private ⁶	Market St., South Orange Ave.	1,829 7,688	Newark CBD, Essex Co. Courthouse, Essex Co. Coll., South Orange Ave.	Wkdy 5:42AM-10:00PM Sat 6:37AM-10:00PM Sun 6:37AM-10:00PM (Based on schedule dated 5/88) First bus to Penn RR Station Last bus from Penn RR Station	7 min 15/20 min 7/15 min 15/20 min 15 min 15/20 min

TABLE 21B (continued)
 THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE (WITHIN-CITY ROUTES)
 IN CITY

NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Avenue or Street Served	Number of Passengers Carried Daily In City ²	Total ³	Employment Markets Served	Times of Service	Headway ⁴	Peak / Off-Peak
34	South St., Pulaski St., Walnut St., McWhorter St., W. Market St., Roseville, 12th Ave.	997	2,741	Newark CBD, Essex Co. Courthouse, Essex Co. Coll., UMDNJ Univ. Hosp., St. James Hosp., Columbus Hosp., United Hosp. of Newark	Wkly 4:24AM-1:42AM Sat 4:30AM-1:42AM Sun 4:49AM-1:39AM First bus to Penn RR Station Last bus from Penn RR Station	6 min 15 min 30 min	12/30 min 30 min 30 min
37	Lyons Ave., Elizabeth Ave., Mecker Ave., Haynes Ave.	123	478	Newark International Airport	Wkly 5:10AM-11:15PM Sat 8:18AM-11:41PM No service on Sunday First bus to Airport Last bus from Airport	30 min 60 min 60 min	60 min 60 min
39	Broad St., Clinton Ave., Elizabeth Ave., W. Runyon St., Bergen St., Lyons Ave., Maple Ave., Chancellor Ave.	1,858	5,379	Newark CBD, City Hall Peter Rodino Fed. Bldg.	Wkly 5:24AM-11:53PM Sat 5:17AM-11:39PM Sun 6:30AM-11:53PM First bus to Newark Irvington City Line (Valley Fair) Last bus from Valley Fair	7 min 15/20min 30 min 60 min	15/30 min 30 min 60 min
41	Chancellor Ave., Elizabeth Ave., Clinton Ave., Broad St., Orange St., High St., 7th Ave., Park Ave., Roseville Ave.	400	1,233	Newark CBD, Peter Rodino Fed. Bldg., Fed. Courts, City Hall, Children's Hospital	Wkly 6:20AM-11:34PM Sat 6:40AM-11:39PM Sun 8:26AM-12:07PM First bus to Park Ave. Subway Station Last bus from Park Ave. Subway Station	5/15 min 30 min 30 min 35/60 min	30/45 min 30 min 30 min

TABLE 21E (continued)

THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE (WITHIN-CITY ROUTES)
IN CITY
NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Avenue or Street Served	Number of Passengers Carried Daily		Employment Markets Served	Times of Service	Headway ⁴	
		In City ²	Total ³			Peak	Off-Peak
44 Contract ⁵	Raymond Ave., Central Ave.	116	1,873	Newark CBD, NJIT, Rutgers-Newark, St. Michael's Medical Ctr.	Wkdy 5:38AM-11:30PM Sat 6:40AM-11:30PM Sun 6:52AM-11:30PM First bus to Penn RR Station Last bus from Penn RR Station	10/20 min 30 min 70 min	30 min 45 min 70 min
59	Park Pl., Broad St., Clinton Ave., Elizabeth Ave.	176	684	Newark CBD, Peter Rodino Fed. Bldg., City Hall	Wkdy 5:33AM-8:55PM Sat 6:03AM-7:15PM No service on Sunday First bus to Washington Park Last bus from Washington Park	13/17 min 30 min	30 min 30 min
62	Raymond Blvd., Broad St., Spring St.	302	1,476	Newark CBD, Peter Rodino Fed. Bldg., Fed. Courts, City Hall	Wkdy 4:43AM-12:00AM Sat 5:47AM-12:20AM Sun 5:16AM-11:12PM First bus to Penn RR Station Last bus from Penn RR Station	15 min 30 min 60/75 min	30/60 min 60/75 min 75 min
65/66	Washington St., Broad St., Clinton Ave., Elizabeth Ave.	163	465	Newark CBD, Peter Rodino Fed. Bldg., Fed. Courts, City Hall	Wkdy 5:58AM-12:10AM Sat 6:45AM-12:20AM Sun 6:50AM-11:38PM First bus to Washington Park and Broad St. Last bus from Washington Park and Broad St.	4/24 min 30/60 min 60 min	30 min 20/30 min 60 min
70	Raymond Blvd., Washington St., Broad St., Clinton Ave., Avon Ave.	256	1,117	Newark CBD, Peter Rodino Fed. Bldg., Fed. Courts, City Hall	Wkdy 5:32AM-10:40PM Sat 6:10AM-8:30PM No Sunday service in Newark First bus to Penn RR Station Last bus from Penn RR Station	10 min 30 min 60/120 min	30/60 min 60/120 min

TABLE 21B (continued)
 THE EXISTING TRANSPORTATION NETWORK: BUS SERVICE (WITHIN-CITY ROUTES)
 IN CITY

NEWARK

Bus Routes (List Major) ¹ Indicate where Private	Avenue or Street Served	Number of Passengers Carried Daily In City ² Total ³	Employment Markets Served	Times of Service	Headway ⁴ Peak / Off-Peak
99	Bloomfield Ave., Clinton Ave., 7th Ave., Martin Luther King Blvd. Orange St., Norfolk St., West Market St., Bergen St., South Orange Ave., Irvine Turner Blvd., Avon Ave., Bergen St., Lyons Ave., Maple Ave.	780 2,830	UMDNJ Univ. Hospital, Children's Hospital	Wkdy 4:57AM-11:50PM Sat 4:57AM-12:00AM Sun 6:27AM-12:00AM	8/15 min 20/60 min 20/60 min 30/60 min 30/120 min 60 min
107	Lyons Ave., Elizabeth Ave., Meeker Ave., Haynes Ave.	NA NA	NA	Wkdy 4:50AM-1:50AM Sat 6:25AM-2:20AM Sun 7:00AM-1:10AM	5/15 min 30/35 min 25/30 min 60 min 30 min 30 min
302	Broad Street Station, Penn Station, Airport (CTA)	NA NA	Airport Central Terminal, Marriott Hotel	Wkdy 6:17AM-2:27AM Sat 6:08AM-2:37AM Sun 6:08AM-2:37AM	20/30 min 30 min 30 min 30 min 30 min 30 min

- Notes: 1. Trips counts referenced from NJ TRANSIT Local Bus Ridership Survey—1990. Quantities are approximate and do not reflect current ridership counts in 1992. Table shows only major routes with ridership survey data available. This is not a complete listing of all motor bus routes serving Newark.
2. "In City"—one way "To work" passenger trips by Newark residents to destinations within Newark. (Note—commutes to Newark International Airport and Port Newark are not considered "in city" and are included as reverse-commute destinations for purposes of this study.)
3. "Total City"—total volume of passenger trips in within-city limits (includes commuters from all origins to all destinations, for all purposes).
4. Headways shown are for main trunks and apply to origins/destinations within Newark only. Actual times to specific locations on variations from trunk may differ.
5. Operated by ONE Bus Inc. under contract to NJ TRANSIT.
6. Independently owned and operated by Penn Mall Transit Inc.
 NA = Not available.

Source: New Jersey Transit

Route 1

Route 1 serves an eastern spoke from the city center to Jersey City via Ferry Street and a southwestern spoke via Springfield Avenue and 18th Avenue. Major employment centers served by the route include South Kearny, the Ironbound area of Newark, and the Newark central business district (CBD). Limited service off the main trunk is provided to major transit centers including Journal Square and Exchange Place.

Route 1 serves 953 Newark residents with reverse-commute destinations. Twenty-one percent have final destinations in Jersey City, 14 percent in Kearny, 10 percent in East Orange, 7 percent in Irvington, and 6 percent travel to Newark International Airport requiring subsequent bus transfers. The remaining reverse commuters report destinations primarily in Essex and Union counties requiring subsequent bus or rail transfers.

The route serves 2,560 Newark residents for work purposes with final destinations located in the city of Newark.

Route 5

Route 5 serves a southwestern spoke from the city center to East Orange via Washington Street, West Kinney Street, Spruce Street, 10th Street, and South 14th Street. Major employment centers served by the route include the Newark CBD and the Essex County Courthouse.

The route serves 276 Newark residents with reverse-commute destinations. The majority of the final destinations occur in Essex County with East Orange (36 percent), West Orange (9 percent), Montclair (8 percent), and Livingston (6 percent) reporting the largest share.

The majority of work commutes by Newark residents on Route 5 have destinations within the city of Newark (563).

Route 7 (Newark Subway)

The subway in Newark runs a north-south direction from the city center to the city line bordering Belleville. Since there are connecting buses and rail routes at all stations (except the Davenport Avenue Station) in the system, the subway also allows reverse commuters from Newark to access the suburban employment centers served by these connecting buses and rail lines.

The subway is situated along Warren Street and the western edge of Branch Brook Park before terminating at Franklin Ave. It serves major employment centers within Newark including the Newark CBD, Essex County Courthouse, Essex County College, Rutgers-Newark, and NJIT.

There are 959 reverse commuters from Newark served by the subway with final destinations including Belleville (23 percent), Bloomfield (11 percent), and Nutley (11 percent), among numerous other municipalities located primarily in Essex County.

A large percentage of Newark residents commuting on the Newark Subway have destinations within Newark (1,572).

Route 11

Route 11 serves a northwestern spoke from the city center to Wayne via Broad Street, Bloomfield Avenue, and Route 23. Major employment centers served by the route include Willowbrook Mall, Bloomfield, and Montclair.

Route 11 serves 224 Newark residents with reverse commutes with 45 percent traveling to Wayne and 29 percent to Bloomfield. The remaining final destinations are distributed among municipalities in Passaic and Essex counties.

Within Newark 115 work commutes are served.

Route 13

Route 13 serves a northern spoke from the city center to Clifton via Broad Street, Broadway, and Washington Avenue, as well as a southwestern spoke to Irvington via Clinton Ave. Major employment centers served by the route include Washington Avenue in Belleville and the ITT office complex and Hoffman-La Roche pharmaceutical complex in Clifton.

Route 13 serves 934 reverse commuters from Newark with final destinations in Belleville (30 percent), Irvington (15 percent), East Orange (11 percent), and Nutley (4 percent). Most of the remaining destinations are split among numerous municipalities in Essex County, requiring subsequent bus transfers.

Route 21

Route 21 serves a western spoke from the city center to West Orange via West Market Street and Main Street, and the municipalities of East Orange, Orange, and West Orange.

The route serves 695 reverse commuters from Newark with final destinations located primarily in East Orange (48 percent), Orange (20 percent), West Orange (14 percent), and Secaucus (6 percent). Note that trips to Secaucus require a subsequent bus transfer.

Within Newark, the route serves 332 work commutes by Newark residents.

Route 24

Route 24 is operated by ONE Bus Inc. under contract to New Jersey Transit. It serves a southern spoke from the city center to Elizabeth via Broad Street and Elizabeth Avenue and a western spoke to Orange via Central Avenue. Major employment centers served by this route include both the Newark and Elizabeth central business districts, Elizabeth Seaport, East Orange, and the city of Orange Township.

The route serves 1,367 reverse commuters from Newark with final destinations located primarily in East Orange (33 percent), Elizabeth (30 percent), and Orange (18 percent). The remaining final destinations are split among municipalities located in Union, Essex, and Middlesex counties, requiring subsequent bus or rail transfers.

Within Newark, 1,467 commutes by Newark residents are served.

Route 25

Route 25 serves a southwestern spoke from the city center to Maplewood via Springfield Avenue and provides limited service to Port Newark. It serves major employment centers including the Newark CBD, the Ironbound district, Port Newark, the Springfield Avenue corridor, Irvington, and Maplewood.

The route serves 911 reverse commuters from Newark with final destinations located primarily in Irvington (37 percent), Maplewood (11 percent), and Union (8 percent). The remaining trips are split among municipalities located in Hudson county including Secaucus and East Newark, Essex County including West Orange, and Middlesex County.

The route serves 808 Newark residents with destinations located in the city of Newark.

Route 27

Route 27 serves a northwestern spoke from the city center to Clifton via Broad Street, Bloomfield Avenue, Mt. Prospect Avenue, and Washington Avenue, as well as a southwestern spoke to the Irvington Bus Terminal via Clinton Avenue. The route serves major employment centers including the Newark CBD, the Peter Rodino Federal Building, Bloomfield Center, Belleville, and Nutley.

One thousand and forty-five reverse commuters from Newark are served by this route with destinations split among numerous municipalities in Essex County including Bloomfield (10 percent), East Orange (6 percent), Irvington (6 percent), Nutley (5 percent), and West Orange (2 percent), as well as other municipalities in Union and Hudson counties that require subsequent bus transfers.

One thousand eight hundred and seventy-five work commutes by Newark residents with destinations in the city of Newark are served by this route.

Route 28

Route 28 serves a northwestern spoke from the city center to Montclair State College in Montclair via Broad Street, Bloomfield Avenue, and Valley Road. It serves major employment centers including Bloomfield and Montclair.

The route serves 219 reverse commuters from Newark with the majority of final destinations split between Montclair (68 percent) and Bloomfield (18 percent).

Route 28 serves 37 work commutes by Newark residents within the city of Newark.

Route 29

Route 29 serves a northwestern spoke from the city center to West Essex Mall in West Caldwell with limited service extending further west to Parsippany. It serves major employment centers including the Newark CBD, the Bloomfield Avenue corridor, Montclair Center, Bloomfield Center, and West Essex Mall.

The route serves 290 reverse commuters from Newark with final destinations split among numerous municipalities within Essex County including Montclair (37 percent), Bloomfield (16 percent), West Caldwell (15 percent), and Verona (11 percent).

Route 29 serves 325 work commutes by Newark residents with final destinations within the city of Newark.

Route 31

Route 31 is independently owned and operated by Penn Mall Transit Inc. and serves a western spoke from city center to Florham Park via South Orange Avenue and Columbia Turnpike. Major employment centers served by the route include the Newark CBD, the South Orange Avenue corridor, St. Barnabas Medical Center, Seton Hall University, and Livingston Mall.

The route serves 798 reverse commuters from Newark with final destinations split among Livingston (24 percent), East Orange (9 percent), Jersey City (9 percent), Florham Park (7 percent), and Harrison in Hudson County (6 percent) in Hudson County requiring a subsequent bus transfer. In addition, a significant percentage reported final destinations in New York (35 percent).

The remaining reverse-commute destinations are distributed among municipalities in Essex, Middlesex, and Union counties that also require subsequent bus or rail transfers.

The route serves 1,829 work commutes by Newark residents with final destinations occurring within the city of Newark.

Route 34

Route 34 serves two northwestern spokes from the city center to Montclair and to Bloomfield via West Market Street, Roseville Avenue, Orange Road, and Glenwood Avenue, and a southeastern spoke to the East Ward of Newark via Pacific Street and South Street. Major employment centers served by the route include the Newark CBD, the Ironbound district, Essex County Courthouse, Bloomfield, Orange, and Montclair.

The route serves 452 reverse commuters from Newark with final destinations split among Orange (21 percent), East Orange (19 percent), Montclair (13 percent), and other municipalities in Essex, Hudson, and Union counties requiring subsequent bus transfers.

The route serves 997 work commutes by Newark residents with destinations located in the city of Newark.

Route 37

Route 37 is an east-west route from Newark International Airport to Irvington via Haynes Avenue, Elizabeth Avenue, Lyons Avenue, Springfield Avenue, and Manor Drive. Major employment and transit centers served by the route include Newark International Airport and Irvington.

The route serves 240 reverse commuters from Newark with final destinations located in Newark International Airport.

The route serves 123 work commutes by Newark residents having final destinations located in the city of Newark.

Route 39

Route 39 serves a northern spoke from the city center to North Arlington via Broad Street, Harrison Avenue, and Kearny Avenue, and a southwestern spoke to Irvington via Broad Street, Elizabeth Avenue, and Chancellor Avenue. Major employment centers served by the route include the Newark CBD, Harrison, and Kearny.

Reverse commuters from Newark served by the route total 1,154 with final destinations split among Kearny (18 percent), Irvington (16 percent), Millburn (9 percent), and Elizabeth (8 percent). Note that trips to Millburn and Elizabeth require subsequent bus transfers. Most of the remaining commutes are distributed among municipalities located in Essex, Hudson, Middlesex, and Union counties that also require subsequent bus transfers.

The route serves 1,858 work commutes by Newark residents having final destinations occurring in the city of Newark.

Route 40

Route 40 serves a northern spoke from the city center to Kearny via Frank Rodgers Boulevard, Davis Avenue, Elm Street, and Belleville Turnpike. It also serves a southeastern spoke to Port Newark via Port Street and Corbin Street and limited peak hour service to Port Elizabeth. Major employment centers served by the route include the Port areas, the North Terminal of Newark International Airport, the Newark CBD, Harrison, and Kearny.

The route serves 286 reverse commuters from Newark with most of the final destinations split among Newark International Airport (45 percent), Kearny (22 percent), and Harrison (7 percent).

The route serves 45 work commutes by Newark residents with final destinations occurring in the city of Newark.

Route 41

Route 41 serves a western spoke from the city center to Orange via Orange Street and Park Avenue and a southwestern spoke during peak periods to Irvington via Clinton and Chancellor avenues. Major employment centers served by the route include the Newark CBD, Children's Hospital, and the city of Orange Township.

The route serves 373 reverse commuters from Newark with final destinations located in Essex and Union counties including the municipalities of East Orange (43 percent), Orange (16 percent), Union (9 percent), Hillside (8 percent), and Newark International Airport (6 percent).

Within Newark, the route serves 400 work commutes by Newark residents.

Route 44

Route 44 is operated by ONE Bus Inc. under contract with New Jersey Transit. It serves a western spoke from the city center to Orange via Raymond Boulevard, Central Avenue, and Scotland Road. Major employment centers served by the route include the Newark CBD, St. Michael's Medical Center, East Orange, and the city of Orange Township.

A total of 442 reverse commutes to work from Newark are served by the route with final destinations occurring in East Orange (71 percent), Orange (18 percent), Hillside (5 percent), South Orange (3 percent), and Verona (3 percent).

The route serves 116 work commuters by Newark residents with final destinations occurring in the city of Newark.

Route 59

Route 59 serves a southwestern spoke from the city center to Dunellen via Broad Street, Clinton Avenue, Elizabeth Avenue, Jersey Street, and South Avenue through Westfield. Major employment centers served by the route include the central business districts of Newark and Elizabeth, and the municipalities of Hillside and Cranford.

Reverse commuters from Newark served by the route total 336 with a majority of final destinations distributed among Elizabeth (29 percent), Hillside (21 percent), Westfield (14 percent), and Cranford (12 percent).

Within Newark, the route serves 176 work commutes by Newark residents with destinations located in the city of Newark.

Route 62

Route 62 serves a southern spoke from city the center to Perth Amboy via Broad Street, US Route 1&9, St. George's Avenue, Roosevelt Avenue, and State Street, and a southwestern spoke to Woodbridge via Inman Avenue, Wood Avenue, and Green Street. In addition, service is provided to the Port Authority Industrial Park in Port Elizabeth. Major employment centers served by the route include the Airport Industrial Center, Newark International Airport, Port Elizabeth, the Elizabeth CBD, the Newark CBD, Linden, Rahway, Woodbridge, and Perth Amboy.

There are 649 reverse commuters from Newark served by the route with the majority of final destinations split among Newark International Airport (47 percent), Elizabeth (28 percent), Linden (7 percent), and Woodbridge (5 percent).

The route serves 302 work commutes by Newark residents with final destinations located in Newark.

Route 65/66

Route 65/66 serves a southwestern spoke from the city center to Somerville via Broad Street, Clinton Avenue, Elizabeth Avenue, Morris Avenue, Vaux Hall Road, and Mountain Avenue through Springfield. Major employment centers served by the route include the Newark CBD, Hillside, Union, and Springfield.

There are 376 reverse commuters from Newark served by the route with most of the final destinations occurring in Union (45 percent), Hillside (18 percent), Springfield

(11 percent), and Plainfield (9 percent). The remaining commutes occur in other municipalities located in Union and Somerset counties.

The route serves 163 work commuters by Newark residents with final destinations located in Newark.

Route 70

Route 70 serves a western spoke from the city center to Florham Park via Broad Street, Clinton Avenue, Avon Avenue, Springfield Avenue, Morris Avenue, JFK Parkway, and South Orange Avenue. Major employment centers served by the route include the Newark CBD, Maplewood, Union, Millburn, Summit, and Livingston.

Reverse commutes by Newark residents served by the route total 539 with final destinations distributed among municipalities in Essex, Union, and Morris counties including Millburn (30 percent), Summit (17 percent), Maplewood (12 percent), Livingston (8 percent), and Florham Park (4 percent).

The route serves 256 work commuters by Newark residents with final destinations occurring in Newark.

Route 71

Route 71 serves a northwestern spoke from the city center to West Caldwell via Raymond Boulevard, Main Street, Mount Pleasant Avenue, Roseland Avenue, and Bloomfield Avenue. Major employment centers served by the route include Orange, West Orange, Livingston, and West Caldwell.

The route serves 112 reverse commutes by Newark residents with final destinations split among Roseland (34 percent), West Orange (26 percent), Livingston (13 percent), Orange (13 percent), and West Caldwell (13 percent).

The route serves 41 Newark residents with final destinations located within the city of Newark.

Route 72

Route 72 serves a northern spoke from the city center to Paterson via Broad Street, Bloomfield Avenue, Broad Street (Bloomfield, Clifton), and Main Street. Limited peak service is provided to Allwood Road and Broad Street in Clifton, and River and Kingsland Roads also in Clifton. Major employment centers served by the route include Belleville, Bloomfield, Nutley, Clifton, and Paterson.

The route serves 326 reverse commutes by Newark residents with final destinations distributed between Bloomfield (44 percent), Paterson (26 percent), Clifton (9 percent),

and other municipalities in Passaic and Bergen counties, requiring subsequent bus transfers.

The route serves 31 Newark residents with final destinations located within the city of Newark.

Route 73

Route 73 serves a western spoke from the city center to Livingston via West Market Street, Main Street, Northfield Avenue, Livingston Avenue, Mount Pleasant Avenue, and Eisenhower Parkway. It also provides peak-hour service to Florham Park and Whippany. Major employment centers served by the route include Orange, St. Barnabas Medical Center, West Orange, and Livingston Mall.

The route serves 246 reverse commutes by Newark residents with the majority of final destinations occurring in Livingston (63 percent), Florham Park (19 percent), and West Orange (9 percent).

The route serves 19 Newark residents with final destinations located within the city of Newark.

Route 74

Route 74 serves a northern spoke from North Newark to Paterson via Franklin Avenue, Kingsland Avenue, Passaic Avenue, and Main Avenue. Major employment centers served by the route include Belleville, Nutley, Passaic, Clifton, and Paterson.

The route serves 111 reverse commutes by Newark residents with final destinations in Passaic (45 percent) and Belleville (25 percent).

The route serves 24 Newark residents with destinations located in the city of Newark.

Route 76

Route 76 serves a northern spoke from the city center to Hackensack via Broad Street, Clay Street, Passaic Street, Belgrove Drive, Kearny Avenue, Ridge Road, Park Avenue, Hackensack Avenue, Polifly Road, and State Street. It provides peak-hour service to Moonachie, Carlstadt, and Teterboro in the Meadowlands district via Murray Hill Parkway, Paterson Plank Road, Gotham Parkway, Moonachie Avenue, Railroad Avenue, and Industrial Avenue. Major employment centers served by the route include the Meadowlands district, Kearny, Lyndhurst, East Rutherford, and Hackensack.

The route serves 402 reverse commuters from Newark with final destinations located in numerous municipalities in Bergen County including East Rutherford (20

percent), Lyndhurst (17 percent), Hackensack (13 percent), Rutherford (12 percent), Carlstadt (12 percent), as well as Kearny (6 percent) in Hudson County.

The route serves a moderate number of work commutes (29) by Newark residents with final destinations in Newark.

Route 78

Route 78 serves an eastern spoke from the city center to Secaucus via Broad Street, I-280, the New Jersey Turnpike, Meadowlands Parkway, and County Avenue. It also provides peak-hour service to Lyndhurst Office Park via Polito Avenue, and Wall Street West. Major employment centers served by the route include the Harmon Meadows area, Harmon Cove, Riverside General Hospital, in addition to the Lyndhurst Office Park.

The route serves 393 reverse commuters from Newark with final destinations all occurring in Secaucus. Passenger counts to Lyndhurst are not available because the ridership survey was completed in 1990, before service to Lyndhurst was established.

A minimal number of work commutes within Newark (19) are provided by this route.

Route 90

Route 90 serves a north-south route providing service from Irvington to Belleville via Springfield Avenue, Grove Street, Watsessing Avenue, and Franklin Avenue. Major employment centers served by the route include Irvington, East Orange, Bloomfield, and Belleville as well as transit centers including the Franklin Avenue subway station and the Irvington bus terminal.

The route serves 158 reverse commuters from Newark with final destinations occurring in Irvington (53 percent) and East Orange (14) percent. Other final destinations are located in Passaic County.

The route serves 41 work commutes from Newark with final destinations occurring within the city.

Route 94

Route 94 serves a north-south route providing service from the Franklin Avenue subway station in north Newark to Linden via Belleville Avenue, Prospect Street, Central Avenue, Stuyvesant Avenue, and Chestnut Street. It also provides peak-hour service to Route 22 and Springfield Road in Union Township. Major employment centers served by the route include Belleville, Bloomfield, East Orange, Irvington, Union, Roselle Park, Roselle, and Linden.

The route serves 743 commutes by Newark residents with final destinations distributed among numerous municipalities in Union and Essex counties including East Orange (26 percent), Irvington (11 percent), Bloomfield (11 percent), Hillside (6 percent), Maplewood (6 percent), and Montclair (6 percent).

The route serves 104 work commutes by Newark residents with final destinations occurring in the city of Newark.

Route 99

Route 99 serves a north-south route providing service from North Newark to Hillside via Clifton Avenue, Norfolk Street, West Market Street, Bergen Street, South Orange Avenue, Irvine Turner Boulevard, Bergen Street, Maple Avenue, Hillside Avenue, and Ramsay Avenue. Major employment centers served by the route include Beth Israel Medical Center, University of Medicine and Dentistry of New Jersey (UMDNJ), and Hillside Township.

The route serves 589 reverse commutes by Newark residents with final destinations distributed among Hillside (43 percent), Orange (16 percent), Montclair (9 percent), and Irvington (9 percent). The remaining destinations are located in other municipalities in Essex County, all requiring subsequent bus transfers.

The route provides service to 780 commutes by Newark residents with final destinations located within the city.

Route 107

Route 107 is an interstate route providing service from the south ward of Newark to New York via Lyons Avenue, Elizabeth Avenue, Meeker Avenue, Haynes Avenue, and US Route 1&9, before terminating at the Port Authority Bus Terminal in New York. The route also provides intrastate service to South Orange via Grove Street, Springfield Avenue, Clinton Avenue, Irvington Avenue, Manor Drive, and South Orange Avenue.

Ridership data was not compiled for this interstate route in 1990 but estimates from fare-box counts compiled in March 1992 suggest that of the approximately 180 morning peak-period passengers boarding in Newark, 20 are reverse commuters deboarding either in Maplewood or South Orange.

Of the remaining 160 passengers boarding in Newark during morning peak time periods, 50 percent deboard in Newark and 35 percent deboard in New York.

F. Alternatives to Rail and Bus—City to Suburb

Transit alternatives to rail and buses in the Newark labor area are provided by the Essex County Department of Citizen Services, transportation management associations (TMAs), and employers. These are listed in Table 22A.

NJ TRANSIT assists the Essex County Department of Citizen Services in offering three types of bus services to three clienteles: the elderly, the indigent, and the mentally and physically handicapped. *Charter service* is for social and recreational trips. *Subscription service* is provided on fixed routes for people going to nutrition sites, rehabilitation therapy, and life-essential medical care. *Demand-responsive service*, which does not have predetermined routes but requires reservation 24 hours in advance, is for nonemergency medical trips.

MCRIDES is the TMA that serves five municipalities in Essex County: Millburn, West Caldwell, Fairfield, Roseland, and Livingston. It provides van pools and car pools to connect residential areas and transit nodes (bus and train stations) with employment centers in these municipalities. Newark residents who commute by bus to work in West Caldwell and Fairfield have access to this service.

Two hospitals, Greystone Hospital in Morristown (Morris County) and Lyons Veterans Hospital in Bernards Township (Somerset County), provide shuttle service for their employees. The shuttles link the important transit nodes in the area. Nates Transportation shuttles IRS employees back and forth between their former office in Newark and their new office located in Raritan Center (Edison).

Taxicabs are an expensive but readily available alternative to public rail and bus in the area. There are about 14 taxi companies that potentially can provide transportation service between Newark and its neighboring communities, such as Belleville, Irvington, South Orange, Harrison, and Kearny. In addition to these registered taxicabs, there are unlicensed cabs that potentially may enable residents of Newark to access destinations in outlying areas of the region. However, the high cost of taxicabs effectively rules out their use as a means of daily commute for most of the Newark-ridesharing labor force.

G. Alternatives to Rail and Bus—In City

Alternatives to public rail and bus in Newark are displayed in Table 22B. The three types of bus service provided by the Essex County Department of Citizen Services to the county are available to residents of the city. Expressly designed to serve the needs of the elderly, indigent, and handicapped, these bus services nevertheless are available to Newark residents who commute to work in the city.

TABLE 22A
THE EXISTING TRANSPORTATION NETWORK—ALTERNATIVES TO PUBLIC RAIL AND BUS
CITY TO SUBURB
NEWARK

	Who is Served	Approximate Number	Employment Markets Served	Times of Service	Frequency of Service
Essex County Department of Citizen Services Buses					
subscription service	elderly, physically, and mentally handicapped	NA	NA	NA	NA
demand-responsive service		NA	NA	NA	NA
charter service		NA	NA	NA	NA
MCRIDES					
	Suburbanites in Millburn, West Caldwell, Fairfield, Roseland, Livingston	NA	Millburn, West Caldwell, Fairfield, Roseland, Livingston	NA	NA
Greystone Hospital shuttle	Workers of Greystone Hospital	NA	Morristown and communities in eastern Morris County	NA	NA
Lyons Hospital shuttle	Workers of Lyons Veterans Hospital	NA	Bernards Township and communities in northern Somerset County	NA	NA
Nates Transportation	IRS employees	NA	Newark Raritan Center (Edison)	NA	NA
Taxicabs	Newark residents, reverse commuters from Newark, transients, and visitors to city	NA	Center of city, Harrison, Belleville, Irvington, The Oranges	NA	NA

Note: NA = Not available.

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

TABLE 22B
 THE EXISTING TRANSPORTATION NETWORK—ALTERNATIVES TO PUBLIC RAIL AND BUS
 IN CITY
 NEWARK

	Who is Served	Approximate Number	Employment Markets Served	Times of Service	Frequency of Service
Essex County Department of Citizen Services Buses					
subscription service	elderly, physically, and mentally handicapped	NA	NA	NA	NA
demand-responsive service		NA	NA	NA	NA
charter service		NA	NA	NA	NA
Taxicabs	Newark residents, transients, and visitors to city	NA	NA	NA	NA
Unlicensed Cabs	Newark residents, transients, and visitors to city	NA	NA	NA	NA

Note: NA = Not available.

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

Taxicabs are another alternative to public rail and bus. There are more than 10 taxicab companies stationed in Newark. The service they provide is readily available during day-time and working hours in most locations of the city. Unlicensed cabs are also available to serve the needs of those who live and work in Newark as well as those who pass through or visit the city. While the time and frequency of taxi service are flexible enough to accommodate early and late shifts, the high cost of the service makes it an impractical alternative to public rail and bus for Newark residents.

VIII. SYNTHESIS OF JOB GROWTH DATA AND EXISTING PUBLIC TRANSIT NETWORK.

Before turning to the challenges that confront NJ TRANSIT and NJDOT, it is helpful to merge the job opportunities data with the existing bus route network to help illustrate the information collected. Generally, a reasonable commute may be defined as anywhere in the vicinity of a city that can be reached in an hour. Using the job growth data contained in Section VI, municipalities with the greatest job growth potential within the 'reasonable commute' distance were mapped. These locations were then overlaid upon the existing bus route network detailed in Section VII. The criterion used to assess the existence of transit service is whether there is direct service. Table 23 and Map F illustrate where service appears to be rich and point out places where service opportunities exist. This illustration is a useful tool to help visualize the public transit route networks and locations where job growth is projected, helping to define an agenda for further study.

While these are locations where job growth is expected, the true potential for transit demand requires detailed study of specific employment locations, availability of existing services, and the potential for new services.

In addition to the job growth data, the interview data collected generally corroborate that these locations are identified as key for growth. The connection between economic projections and perceptions gathered through interviews allows NJ TRANSIT and NJDOT to work on an agenda for further study that will prove responsive to the specific transportation challenges discussed in the next section.

IX. TRANSPORTATION PROBLEMS—CITY TO SUBURB

Whether reverse commuters from the city of Newark use the automobile, bus, or train for their daily commute, they travel on one of the most extensive—and within the city, oldest—transportation networks in the nation. In order to ensure the economic vitality of New Jersey's cities, the state will continue to put a high priority on investing in the repair and upgrade of these urban systems. The Urban Transportation Supplement focuses on

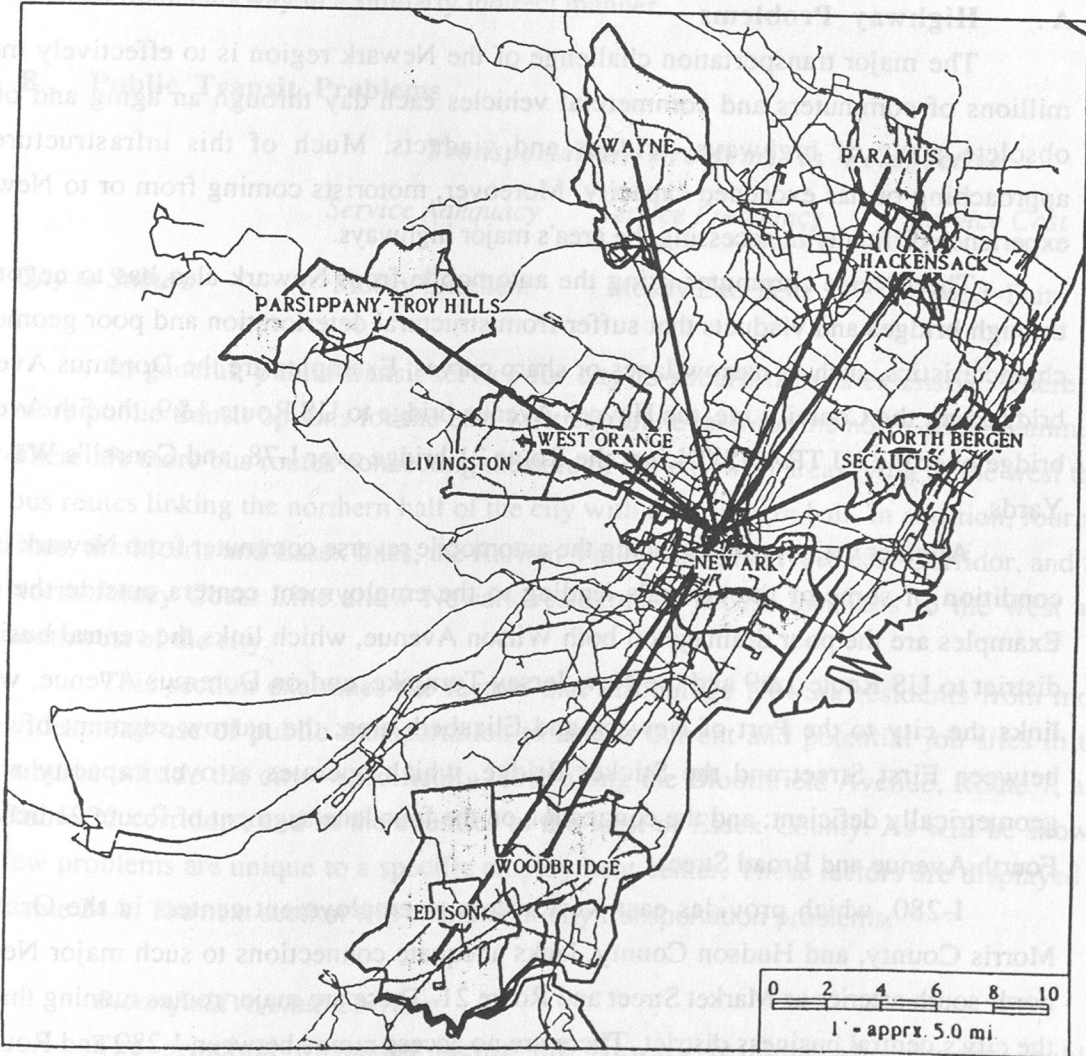
TABLE 23
MUNICIPALITIES WITH
GREATEST JOB GROWTH POTENTIAL
IN THE NEWARK AREA

Location	New Jobs	Job Separations	Total	Transit Service Yes/No
Woodbridge	7,350	7,269	14,619	Yes
Secaucus	7,312	5,686	12,998	Yes
Edison	3,042	7,733	10,775	Yes
Paramus	641	7,508	8,149	No
Hackensack	1,846	5,121	6,967	Yes
Parsippany-Troy Hills	1,801	4,823	6,624	Yes, Limited
Wayne	(1,420)	6,414	4,994	Yes
Livingston	64	4,149	4,213	Yes
North Bergen	1,112	2,625	3,737	Yes
West Orange	245	3,216	3,461	Yes

Note: Rows may not total exactly due to rounding.

Source: CUPR and NJ TRANSIT.

MAP F
EMPLOYMENT DESTINATION DESIRE LINES FOR
CENTRAL CITY RESIDENTS IN THE VICINITY OF NEWARK
(Overlaid on Existing Bus Routes)



Source: Projections of Less-Skilled Job Growth 1993-2000 by the Center for Urban Policy Research, Rutgers University, Spring 1993

transportation issues affecting urban centers with particular emphasis on the emerging need to expand suburban employment opportunities for city residents. The sections that follow outline the transportation problems reported in interviews with city and county professionals, and the strategies the New Jersey Department of Transportation (NJDOT) and NJ TRANSIT (NJT) will pursue to improve service to the city of Newark.

A. Highway Problems

The major transportation challenge of the Newark region is to effectively move millions of commuters and commercial vehicles each day through an aging and often obsolete array of highways, bridges and viaducts. Much of this infrastructure is approaching or has exceeded capacity. Moreover, motorists coming from or to Newark experience difficulty in accessing the area's major highways.

The reverse commuter using the automobile from Newark also has to negotiate through bridges and viaducts that suffer from structural deterioration and poor geometric characteristics, such as narrow lanes or sharp curves. Examples are the Doremus Avenue bridge over the Conrail Line, the Haynes Avenue bridge to US Route 1&9, the 5th Avenue bridge over the NJ TRANSIT Line, the Route 21 bridge over I-78, and Conrail's Waverly Yards.

Another major problem facing the automobile reverse commuter from Newark is the condition of some of the arterials leading to the employment centers outside the city. Examples are the poor drainage on both Wilson Avenue, which links the central business district to US Route 1&9 and the New Jersey Turnpike, and on Doremus Avenue, which links the city to the Port of Newark and Elizabeth area; the narrow segment of I-280 between First Street and the Stickel Bridge, which operates at over capacity and is geometrically deficient; and the congestion on the four-lane segment of Route 21 between Fourth Avenue and Broad Street.

I-280, which provides east-west access to employment centers in the Oranges, Morris County, and Hudson County, lacks adequate connections to such major Newark north-south arteries as Market Street and Route 21. These are major routes running through the city's central business district. There are no access ramps between I-280 and Route 21 to allow northbound traffic from Route 21 to travel west on I-280 and eastbound traffic from I-280 to travel west on Route 21. In addition, I-78, which links Newark to employment centers in Somerset and Hunterdon counties in the west and Hudson County in the east, is not connected to such major north-south arteries in the city as Route 509, Bergen Street, and Route 21.

The major county roads from the city center, such as Routes 506, 508, and 510, intersect but are not directly connected to the north-south Garden State Parkway, which links Newark to employment centers in Bloomfield (west Essex County) and Union County. In order to get on the Parkway from these roads, commuters have to use narrow local roads that run parallel to the Parkway. The major east-west arteries in the city center, such as the 18th Avenue-Spruce Street corridor and Clinton Avenue, are connected with the Garden State Parkway in a similarly indirect manner.

B. Public Transit Problems

Transportation Problems in Perspective

	<i>Service Adequacy</i>	<i>Service Frequency</i>	<i>Service Cost</i>
<i>City to Suburb</i>	Mostly Excellent	Mostly Excellent	Good-Fair

In general, public transit service for city-to-suburb trips is extensive. There are more public transit options for the east-west commute than for the north-south commute. There are more bus routes connecting the core of the city with areas lying to the west than bus routes linking the northern half of the city with the southern half. In addition, four rail lines, the Morris and Essex lines, the Raritan Valley Line, the Northeast Corridor, and the North Jersey Coast Line allow Newark residents to access locations to the west and southwest of the city.

This section examines the factors that discourage Newark residents from more widespread use of public transportation to access current and potential job sites in the suburbs outside the city—specifically those along the Bloomfield Avenue, Route 7, and Route 22 corridors, and in the counties to the west of Essex County. As will be shown, few problems are unique to a specific employment center. These factors are displayed in Table 24A. The next section will examine in-city transportation problems.

Bloomfield Avenue Corridor

The principal obstacles facing the Newark resident who chooses public transportation to access jobs in Fairfield, the Caldwells, and other locations in west Essex County at the end of the Bloomfield Avenue corridor are the cost of the commute, the length of the trip, and, at some periods, the infrequent nature of the bus service.

The commute to West Caldwell, on either Route 29 or Route 71, is a three-zone bus ride costing \$1.90 per trip. While still less expensive than owning and operating an

TABLE 24A
 LOCATIONS OF PROBLEMATIC
 TRANSPORTATION SERVICE—CITY TO SUBURB
 NEWARK—1992

<i>Location</i>	<i>Service Problems or Times</i>	<i>Population Affected</i>
Bloomfield Avenue Corridor (to West Caldwell)		
Fairfield, Caldwell, West Caldwell, Other locations in west Essex County	Cost of bus commute, length of bus commute, infrequent bus service, poor bus stop-workplace connection	Commuters from city center looking for or holding less-skilled jobs in these areas
Route 7 Corridor (to Nutley and Clifton)		
ITT Office Complex, Hoffman-La Roche Pharmaceutical Complex, Other locations in Nutley and Clifton	Length of bus commute, infrequent bus service, poor bus stop-workplace connection	Commuters from city center looking for or holding skilled jobs in these areas
Route 22 Corridor		
Hillside Industrial Park	Infrequent bus service no bus service after midnight	Blue-collar workers from Newark working on late shifts
Counties West of Essex County		
Morris County, Somerset County, Hunterdon County	No rail-bus link, infrequent peak-hour rail service, length of commute	Commuters from Newark looking or holding skilled jobs in these counties

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

automobile, the bus thus becomes an unattractive mode of commuting for residents of Newark, who may hold jobs in West Caldwell that are at minimum wage.

On average, the bus trip from Newark Penn Station to West Caldwell on Route 29 takes 40 minutes. The frequency of service of the bus on Routes 29 and 71 to the industrial area of Fairfield and West Caldwell is 15 minutes to half an hour. The combination of length of trip and needing to arrive at the bus stop early enough so that transportation is not missed results in long commuting periods.

Compounding these problems are the dispersed locations and the expansive layout of suburban office and industrial parks in West Caldwell, Fairfield, and Pine Brook. There may be no connecting bus service between a stop on the highway and a workplace. Where the workplace is within walking distance of the bus stop, the walk is likely to be long, poorly lighted, and without sidewalks.

Route 7 Corridor

Route 7 connects Newark with the ITT office complex, the Hoffman-La Roche pharmaceutical complex, and other employment centers in Nutley and Clifton. The transit-dependent Newark resident will have difficulty accessing jobs at these centers because of the length and infrequent nature of the bus service on the corridor.

The ride from Newark to Clifton on Route 13 can take 50 minutes from its origin (Clifton Avenue). From the CBD or the North Ward the trip is much quicker. The bus to Clifton and Nutley, on Route 13 and Route 27, runs every half-hour during peak hours. There is also the problem of indirect access to the workplace from highway bus stops on this corridor.

Route 22 Corridor

The major employment center on this corridor is the Hillside Industrial Park, which has less-skilled jobs that are potentially available to Newark residents.

The major transportation problems affecting this corridor are infrequent evening service and the lack of bus service in the late night hours, which would prevent Newark residents from working the late shifts at these centers. Buses on Routes 65, 66, and 99, which connect Newark with Hillside on the Route 22 corridor, stop running between midnight and 6 AM. In addition, buses on Route 99, which run at 10-minute intervals during peak hours, run only hourly after 8 PM.

New Jersey Counties West and Southwest of Essex County

Railway lines link Newark with Morris, Somerset, and Hunterdon counties lying to the west and southwest of Essex County. Newark residents who want to use rail service to access jobs in these counties have to deal with transfer complications caused by the absence or low frequency of the bus service that connects the suburban train station with employment centers in the surrounding area.

Another problem city-to-suburb commuters from Newark have to face is the fact that the schedules for the Essex and Morris lines and the Raritan Valley Line are prepared expressly to service the people who commute to their jobs in Newark and New York City from the outlying towns and cities of Morris, Somerset, and Hunterdon counties. Thus, inbound trains run regularly, at 10- to 15-minute intervals, during the morning peak hours whereas outbound trains run at about the same regularity during the afternoon peak hours. On the other hand, the morning outbound train and the afternoon inbound train, which serve city-to-suburb commuters, run at 40- to 60-minute intervals during peak hours.

X. TRANSPORTATION PROBLEMS—IN CITY

A. Highway Problems

The problems faced by Newark residents who drive to work in the suburbs (Table 24A) compound the difficulty confronting Newark residents who drive to work in the city. Where a local road is not properly connected to a regional highway, outbound traffic must use a number of less-convenient exits that require extensive use of local streets. The McCarter Highway and I-280 connection is a case in point. Furthermore, outbound traffic that is slowed by narrow major thoroughfares, bridges, and viaducts in deteriorating condition impede the flow of traffic on local streets. On top of this, the lack of downtown parking poses as much of a problem for resident workers as it does for commuters from outside Newark.

B. Public Transit Problems

Transportation Problems in Perspective

	<i>Service Adequacy</i>	<i>Service Frequency</i>	<i>Service Cost</i>
<i>In City</i>	Excellent	Excellent	Excellent

Public transportation within Newark is excellent. The bus system connects residential neighborhoods in Newark with all major employment centers in the central business district as well as in the outlying areas of the city. Most buses run regularly, at 7- to 10-minute intervals during peak hours. The first buses depart as early as 4:00 AM while the last buses leave as late as 1:00 AM, thus allowing Newark residents to use the bus to get to an early shift and return from a late shift. The weaker links in the system are the bus services to Newark International Airport and the Port Newark-Elizabeth area. Problems in these links are summarized in Table 24B.

Newark-Airport Link

The bus service to Newark International Airport runs infrequently and stops early in the evening, thus making it difficult for Newark residents who are transit-dependent to work on late shifts at the airport. Bus Route 62, which connects the central business district of Newark with Terminal A of the Airport, runs at 15-minute intervals during the morning peak hours and at 30-minute intervals during the afternoon peak. The service is available every hour after 7 PM, but ceases between midnight and 5 AM. Bus Route 37, which links the Newark central business district with North Terminal and Terminal A, runs at 30-minute intervals during the morning peak hours and every 40 minutes during the afternoon peak hours; it too runs only hourly after 7 PM, stops altogether around midnight, and resumes operation at 5 AM. Bus Route 302 operates 20 hours per day at 20- to 30-minute intervals. Monthly passes are available to airport employees for \$46.

Newark-Port Newark-Elizabeth Area Link

Bus service from Newark to the Port Newark-Elizabeth area is limited during the day and unavailable at night. As a result, transit-dependent residents of Newark cannot access jobs in this area. Similarly, buses on Route 40, which also links the Port area with the central business district of Newark, run every hour between 8:22 AM and 3:22 PM but cease operation between 6:25 PM and 5 AM.

XI. PROBLEMS OTHER THAN TRANSPORTATION

Transportation problems are not necessarily the only nor the most significant problems that compound the difficulty of linking the unemployed residents of Newark to the available jobs in and outside the city. Newark and Essex County professionals in transportation and urban economic development were asked to identify and assess the significance of specific obstacles that residents of Newark encounter in their attempt to secure employment within and outside the city. Specifically, they were asked about the

TABLE 24B
LOCATIONS OF PROBLEMATIC
TRANSPORTATION SERVICE—IN CITY
NEWARK—1992

<i>Location</i>	<i>Service Problems or Times</i>	<i>Population Affected</i>
Newark International Airport		
Terminal A, North Terminal	Infrequent bus service, night bus service on Airlink (Route 302)	Commuters from Newark working on late shifts
Port Industrial Area		
Port Newark	Limited day bus service	commuters from Newark holding blue-collar jobs

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

XI. PROBLEMS OTHER THAN TRANSPORTATION

Transportation problems are not necessarily the only nor the most significant problems that compound the difficulty of linking the unemployed residents of Newark to the available jobs in and outside the city. Newark and Essex County professionals in transportation and urban economic development were asked to identify and assess the significance of specific obstacles that residents of Newark encounter in their attempt to secure employment within and outside the city. Specifically, they were asked about the

relative importance of lack of skills, inadequate information about job opportunities, limitations imposed by personal history, the need for personal support, and lack of transportation.

The most serious obstacle identified is the lack or low level of skills among the unemployed. Next in terms of significance is the lack and high cost of day care for young children of parents who want to work. Unfavorable work history of the job seekers (e.g., criminal record or frequent job change) is the third most significant contributing factor to the unemployed's difficulty in finding a job. Ranking below this factor are the transportation problems that have been discussed in preceding sections. The least significant contributing factor is the unemployed's lack of knowledge about existing or future job opportunities. The factors contributing to unemployment are listed in Tables 25A and 25B.

Newark residents who have the most difficulty in finding a job are those who do not have such basic skills as reading and elementary mathematics, as well as technical skills that a particular occupation may require. The lack of skills per se is not the main obstacle in skills training, however. The unemployed, particularly as they age, find it difficult to adjust to the routine and discipline of a classroom, having been out of school for considerable periods of time. They have as much difficulty adjusting to the regimen of training as they do understanding the concepts.

Child care is of paramount concern to parents with young children who want to acquire a skill or go to work. Private for-profit child care is not readily available, due in part to the high cost of insurance; public day-care programs, often utilizing old schools as day-care centers, are limited in extent. As a result, available day care is expensive, costing between \$85 and \$120 a week. An added complication is the schedule of most day-care facilities; they tend to open too late for parents who work the morning shift and close too early for those who work at some considerable distance from the facilities. The lack of affordable day care has hampered the operation of REACH (Realizing Economic Achievement), a program that provides basic skills remedial training⁷.

Personal characteristics such as welfare dependence, long bouts of being unemployed, bad credit history, and prior police record contribute only marginally to the unemployed's difficulty in finding a job. Lack of knowledge about job opportunities has not been a significant factor either, mainly because city and county training programs—where the unemployed are being trained in basic and technical skills—are in close touch

⁷ Interview with Waltsie Lewis, Operations Program Service Manager, Mayor's Office of Employment and Training (MOET), Newark. 9/9/92.

TABLE 25A
 TRANSPORTATION IN THE
 CONTEXT OF OTHER PROBLEMS
 NEWARK—1992

Type of Problem	Importance
Inadequate Skills	High
Child Care	High
Prior Work History	Moderate
Transportation Insufficiency	Low
Communication of Work Opportunities	Low

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

TABLE 25B
 SPECIFIC PROBLEMS OTHER THAN TRANSPORTATION
 NEWARK—1992

Type of Problem	Description
Skills Training	Attendance problem, Short attention span induced by long absence from classroom environment
Child Care	Expensive and not readily available
Work Histories	Frequent job changes, Criminal records
Communication of Job Opportunities	Not significant, Prospective employers in close touch with vendors and employment and training agencies, Job-seekers older and more in tune with job market

Source: CUPR interviews with city and county planning, economic development, transportation, and social services professionals, Summer 1992.

with prospective employers in the region. In addition, an increasing proportion of the city's unemployed is made up of recently laid-off workers who are more mature and knowledgeable about job opportunities than the typical yet-to-enter-the-labor-force, young worker.

XII. TRANSPORTATION STRATEGIES

Since initiation of the New Jersey Transportation Executive Council (TEC) Local Outreach Program in September 1990, Essex County, the city of Newark, NJDOT, and NJ TRANSIT have been working together to structure a multimodal transportation strategy for improving the movement of people and goods from, through, and within Newark and the region. The strategies and planned improvements presented in this section represent achievement of the following NJDOT and NJ TRANSIT investment objectives for the city of Newark and the region.

1. Improve and preserve the existing system and enhance safety.
2. Improve access to the regional transportation network.
3. Improve highway operations and alleviate congestion.
4. Encourage greater use of public and nonstandard transportation.
5. Continue the TEC Outreach Program.
6. Implement traditional transit service strategies.
7. Advance nontraditional transit service strategies.
8. Implement major new transit initiatives.

A. Highways

By statute, the focus of this report is on reverse-commuting problems and opportunities. This relates primarily to public transportation (bus and rail) services. The Urban Transportation Supplement report is not intended to be a comprehensive detailed analysis and assessment of all cities' transportation infrastructure needs. However, Sections IX, X, and XII on existing highway problems and strategies, respectively, have been included to provide a view of the comprehensive approach being advanced to improve transportation in and around New Jersey's largest cities.

1. Improve and Preserve the Existing System and Enhance Safety

Rehabilitation and replacement of deficient bridges and viaducts will continue to be a top priority for state transportation investments. NJDOT will also continue to give very

high priority to resurfacing, rehabilitating, and reconstructing state highways. These improvements, which often include shoulder-widening, drainage, and minor geometric improvements, prolong the life of the facility and provide a smoother, safer, and often quicker journey. NJDOT will invest heavily in resurfacing during the five-year plan period, continuing a trend begun in Fiscal Year 1991. NJDOT's Pavement Management System, with the aid of sophisticated new testing equipment, will be used to develop a multiyear program of improvements for the most efficient investment of highway rehabilitation and reconstruction funding. Examples of projects planned for implementation in the period 1992 to 1997 include:

- Route 21—interim repairs to the bridge over I-78 and Conrail;
- US Route 1&9—bridge replacement over Oak Island Yard;
- US Route 1&9—replacement of the South Street viaduct over Waverly Yard and the replacement and rehabilitation of seven south bound bridges from Pulaski Skyway to Wilson Road;
- 13th Street Bridge replacement;
- Doremus Avenue Bridge reconstruction over Oak Island Yards;
- Haynes Avenue Bridge reconstruction from Frelinghuysen Avenue to US Route 1&9.

Longer-term proposals under study and development in NJDOT include:

- Route 21—bridge replacement over I-78 and Conrail;
- McClellan Street reconstruction and drainage improvements under the railroad bridge.

2. Improve Access to the Regional Transportation Network

The projects listed below will improve the connections between major local roads and the interstate and state highways. In various stages of planning, study and development, these projects will benefit the reverse commute by providing quicker access to the major highways that connect with the suburban employment centers.

- I-280—construction of ramp connection to Route 21;
- I-280, Phase 1—Newark Downtown Access Improvements program to widen First Street from Orange Street to West Market Street;
- I-280, Phase 2—construction of a boulevard from I-280 at First Street to the city street network;
- Route 21, construction of viaduct for direct access to I-78;

- I-78, construction of two new access ramps to West Peddie Street.

Port Authority of New York and New Jersey (PANYNJ), the New Jersey Turnpike Authority, and the Garden State Parkway Commission have major transportation facilities located in Newark. The PANYNJ and the Turnpike Authority are considering significant improvements to their facilities. Among them,

- expansion of the ramp connection from I-78, a North Avenue flyover, and revisions to many of the connections to state and local roads are projects being considered for the PANYNJ planned redevelopment of Newark International Airport; additionally,
- substantial expansion to the NJ Turnpike toll booth capacity at Interchanges 13A and 14 to accommodate the anticipated demand at the Newark International Airport is being studied.

3. Improve Highway Operations and Alleviate Congestion

Traditional means of addressing congestion through new highway construction, widening existing highways by adding new through lanes, and building interchanges to replace at-grade intersections are difficult and extremely expensive in dense urban areas. Stringent environmental restrictions and congestion costs are the primary reasons. State policy is to deemphasize investment in major capacity increases in favor of investment in system management and operational improvements.

Highway Operational Improvements

The term "system management" is given to investments that improve the operational sufficiency of existing transportation systems to move people and goods with little or no physical construction. Improvements in this broad category are typically much more "doable" than major capacity increases in terms of cost, environmental restrictions, right-of-way needs, community opposition, and time and money required for design.

The highway and local roadway operational activities listed below consist of relatively low-cost, small-scale improvements made to relieve spot congestion problems. In general, improvements to at-grade intersections constitute the largest number of jobs in this category. Others include improvements to existing grade-separated interchanges and the addition of center turning lanes.

- Route 21—operational improvements from Green Street to Gouvenour Street; also includes widening from 4 to 6 lanes;

- Penn Station, Newark—traffic management and circulation plan.

Traffic Management

Traffic flow can be substantially improved with the implementation of computerized traffic signal control systems. These projects "wire together" traffic signals in a corridor so that traffic signal timing patterns can be varied according to traffic conditions. Traffic engineers have found that improving the efficiency of signal systems can stretch a road's capacity by up to 25 percent without widening, thus yielding significant congestion relief and air-quality benefits for a modest cost. A high priority for installing such systems is the US Route 1&9 replacement of existing conventional traffic signals with computerized traffic signals on major segments.

In recent years there have been significant advances in the application of other new technologies to ease traffic congestion. Incident management and motorist advisory/diversion systems are under evaluation for their effectiveness in easing major congestion due to accidents on key roadway segments. NJDOT is currently developing the Metropolitan Area Guidance Information Control (MAGIC) system for the highway network leading to the Hudson River crossings into Manhattan.

The Newark Global Gateway Motorist Information System is a major component of the MAGIC program. Both goods and airport access are impacted by congestion and a lack of information about traffic conditions. The provision of information to motorists will significantly improve traffic flow in and out of the area.

4. Encourage Greater Use of Public and Nonstandard Transportation

The New Jersey Traffic Congestion and Air Pollution Control Act—the state response to the 1990 Federal Clean Air Act Amendments (CAAA)—is lending impetus to the efforts undertaken by the city of Newark to reduce automobile traffic in and through the city. A major component of these efforts is the encouragement of greater use of public transit and van and car pooling through the following strategies:

- Legislation mandating large employers statewide to increase ridesharing;
- Legislation allowing employers to give employees using transit a \$60 per month rebate;
- Transportation management associations (TMAs) assisting businesses to promote and coordinate employee ridesharing programs. Currently, while MCRIDES and the Meadowlink TMAs are active in Morris

County and the Hackensack Meadowlands, respectively. An urban TMA is being established for Essex and Union counties.

5. Continue the TEC Local Outreach Program

NJDOT and NJ TRANSIT staff will continue the annual outreach effort to give Newark officials the opportunity to submit their top transportation needs and current project priorities to NJDOT for possible project development and state funding. The process includes face-to-face dialogue with NJDOT and other transportation agencies' management and is considered a major opportunity for Essex County and city of Newark officials to gain direct access to the annual capital programming process.

B. Public Transit

Agenda Setting

Focusing attention on one transportation market, the reverse commute, helps set an agenda that targets improvements. The transportation problems discussed in Sections IX and X were reported in interviews with city officials, social service agencies, and practitioners in the employment search field. The interview sessions did identify some transportation problems in each of the cities; a common problem reported was the lack of adequate information about transit. One problem NJ TRANSIT is frequently asked to address is inadequate evening and Sunday bus service, which would connect Newark residents to services-sector jobs with nontraditional shifts in suburban areas. However, it is important to note that interviewees in each city did not rate "transportation insufficiency" as the major problem relative to gaining and keeping employment for city residents. In fact, "inadequate skills" was consistently noted as more critical, along with other factors such as current economic conditions, lack of adequate child care, and communication of work opportunities.

Before detailing the strategies that can best serve Newark, it is important to respond to the issue of cost and fares. The comparative costs between public transit and autos are predicated upon the cost of driving and the availability of an auto. Provided that a worker drives a car, suburban commuting rarely incurs major toll or parking costs. Therefore, the perceived out-of-pocket driving costs are low. Interviews raised the issue that transit fares seem high in comparison. However, the recent Comprehensive Energy Policy Act provides tax incentives to employers who subsidize employee fares. Employers can provide a tax-free benefit to their workers worth up to \$60 per month towards the purchase of a transit ticket. This benefit can significantly reduce, if not completely offset, the fare on

NJ TRANSIT bus services. For example, NJ TRANSIT's one-zone and two-zone monthly bus fares in North Jersey are \$41 and \$54. Many of the major suburban employment clusters outside the urban areas examined in the Urban Transportation Supplement can be reached by a one- or two-zone bus trip.

The issue of bus stop signs and shelters was also raised. Both in urban and suburban areas, bus stop signs and shelters are controlled by the local government and NJDOT (for code conformance). Another local responsibility is parking enforcement. When bus stops are designated but parking restrictions are not enforced, buses cannot exit traffic flow and use the bus stop zone, effectively undermining one of the important purposes of bus stops as a congestion-management tool. With greater movement for buses, traffic flows more smoothly and air quality improves. The other purpose served by bus stop signs and shelters, also reported by interviewees, is in the promotion of transit for both the regular rider as well as the non-user. This is an effective form of public communication about where routes go. Bus stops need to be designated and parking enforced so that buses can exit and enter the traffic flow, easing congestion, ensuring curbside access for passenger safety and accessibility, and providing an important promotion and visible reference for public transit, thereby improving communication about services.

Implementation of improvements to the existing service network and infrastructure described below requires that they be evaluated and subjected to rigorous review to prepare them for inclusion in NJ TRANSIT's operating and/or capital budgets. Annually, NJ TRANSIT seeks appropriations to meet its operating budget. Although recent pressures for NJ TRANSIT to reduce expense growth and cut costs are not central to this Urban Transportation Supplement, they are a limiting factor on the ability of NJ TRANSIT to implement projects.

Targeted Strategies

Tables 24A and 24B note locations or corridors and transportation problems reported through the interview process. The following project descriptions are organized into either traditional or nontraditional service strategies and major new initiatives.

6. Implement Traditional Transit Service Strategies

Traditional service strategies refer to those projects, large or small, that are designed to enhance the existing bus, rail and light-rail transportation network. Traditional service strategies concentrate on the basic building blocks used by all public transit providers.

Schedule improvements and service modifications are the result of a constant process that culminates in quarterly schedule changes. Traditional service strategies, in many cases, reflect service modifications through schedule changes—adjusting running time to meet worksite hours, extending service to meet closing hours at shopping malls, and so on.

Traditional Service Project Descriptions

Newark is privileged to have an extensive network of bus service, so pockets of demonstrated need for service are relatively small and are the subject of continual scrutiny by NJ TRANSIT. Much has been and can be accomplished by tailoring the service and resources already committed to the city to better serve the needs of riders who commute out of the city. Currently, reverse-commute destinations that are well served are in areas that have been traditional commutersheds for the city center, allowing NJ TRANSIT to provide quality service at relatively low cost, because buses are used in *both* directions, rather than only one. However, many of the identified needs are in locations not currently served by existing routes, or require service at times when existing schedules services cannot be easily matched to work shifts. Providing service to many of these locations will require additional funding. NJ TRANSIT remains committed to a continuous examination of the ridership patterns and schedules of current services to find ways to restructure service to better meet the needs of its riders and potential riders, including reverse commuters.

To improve the safety of commuters traveling on the existing system at night, NJ TRANSIT has implemented "Request a Stop" where a rider can request that the driver stop closer to their destination. Another recent program targeting the passenger and community safety is the TOP program—Transit on Patrol. Using the NJ TRANSIT bus radio system, all bus operators, supervisors or other personnel are asked to use the radio system to report suspicious behavior they may see on their buses or along their routes. The dispatch center calls the community police and relays the information. The program has been successful in reporting 390 incidents since October 1992.

Much of the problem for workers on second and third shifts may extend beyond the provision of service to the particular worksite since workers' homes are unlikely to be on that same route. If the *system* of service is not complete for these workers, the service remains unusable. Maintenance of a core level of service, so that connections can be made, is subject only to the constraint of funding.

Significant traditional bus service to highway corridors such as Route 22, however, will be difficult, if not impossible, to achieve due to natural and constructed barriers. These are caused by the design of the highway or the land uses surrounding it and effectively preclude a safe local transit operation.

7. Advance Nontraditional Transit Service Strategies

"Nontraditional service strategies" refers to a newly developed Suburban Initiatives program that is seeking new ways for transit to serve suburban travel needs without the constraints of standard bus and rail service alternatives. With the Federal Clean Air Act Amendments (CAAA) of 1990, the Suburban Initiatives program becomes an important component of compliance. The urban centers in the state of New Jersey are all in non-attainment zones. The requirement of the CAAA that employers of more than 100 staff must reduce single-occupant vehicle trips magnifies the importance of looking for transportation solutions for the work commute—traditional or nontraditional—peak direction or reverse commute. NJ TRANSIT, as an integral part of the solution, has made a commitment to a leadership role in defining nontraditional service strategies to help the state meet these mandates. In this role, NJ TRANSIT has a working approach which, in fact, is pertinent to many of the issues raised in this first Urban Transportation Supplement.

A. NJ TRANSIT is establishing a transportation management association (TMA) in the transit-rich areas of Essex and Union counties, covering the cities of Elizabeth and Newark. Since both private and public institutions employing 100 or more workers will be greatly affected by this legislation, its mission is to educate and assist the approximately 2,000 private and public employers to comply with the Employee Trip Reduction (ETR) program and to promote the use of mass transit. The urban TMA, aptly titled *TRANSIT PLUS+*, will work to develop and promote travel in multiple-occupant vehicles, with particular emphasis on transit. This will be accomplished by identifying transportation issues, advocating and implementing associated improvements, developing and promoting transit, developing strategies for parking management, gaining cooperation in influencing commuter travel behavior, and serving as the focus for travel strategies to and within the Essex and Union county areas.

B. NJ TRANSIT's Service Development team has begun a joint partnership with NJDOT to support the suburban TMAs. This special Suburban Initiatives program is now identifying the potential for nontraditional services within the service area of the TMAs. The TMA service areas include Burlington-Camden, Greater Princeton, the

Meadowlands, Middlesex, Monmouth, Morris, and Somerset and comprise a base of approximately 1,800 employers.

C. The Business Transit Alliance (BTA) is an outreach program to businesses through the state. The BTA assists companies located in areas where there is not a TMA. In addition to the traditional BTA services, such as Transit Days and Resources Centers, companies will be able to conduct ridesharing programs for car and van pools. With the help of the BTA, employers will be able to develop their compliance plans and implement ETR programs. There are approximately 2,700 private-sector companies with 100 or more employees in non-TMA service areas, and equally as many local, state, and federal agencies that will require special assistance for compliance with the Clean Air Act, for a total of more than 5,000 potential clients.

Nontraditional Service Project Descriptions

Route 46, Fairfield, West Caldwell Nontraditional Suburban Transit Project: NJ TRANSIT has received numerous requests for bus service from Newark and surrounding communities to small employers located in the Fairfield and West Caldwell areas. Because of their relatively small size, these employers cannot easily support bus service or other forms of ridesharing on their own. Estimates show that there would be insufficient ridership to cover the cost of a new transit service because most employees drive to work from dispersed origins.

Employers in the area include retail (American Way Mall) services (Premier Printing, realtors, employment firms, Monsen Engineering, Sir Speedy, West Caldwell Care Center, Commercial Computer Services, Inc., Ricoh Rubber, Folex); banks (Midlantic, Carteret, Chemical); auto dealers (Honda, Buick); institutions (Essex County Airport, PSE&G, Essex County College); and hotels (Sheraton).

Essex NJ TRANSIT is currently working with the West Essex Chamber of Commerce, Essex County, Morris County Rides (MCRIDES), and employers in the Fairfield/West Caldwell areas to design innovative new transit services for these western Essex County employment centers.

NJ TRANSIT is surveying area employees to determine origins and destinations, travel patterns, commute habits, and attitudes towards commuting. Employment levels and locations are being assessed. Focus groups with employers are also being conducted. This qualitative and quantitative data will form the basis for recommended transit options.

It is anticipated that these potential nontraditional transit services will address transit service problems in the Bloomfield Avenue corridor including the length of the bus commute and poor bus stop-workplace connections in the Fairfield/West Caldwell areas of western Essex County.

These innovative transit recommendations will provide new, less-expensive, smaller-scaled transit options to meet the demand for suburban travel. Instead of NJ TRANSIT's traditional fixed bus routes using 40-foot buses, these innovative options may include shuttles from bus stops on Bloomfield Avenue or area malls, smaller sized buses operating on fixed routes, "on request" route deviation services, expanded reverse commute services, demand-responsive routes, "dial-a-commute," shared ride services, subscription buses, van pools, and car pools.

NJ TRANSIT is preparing an operations plan (routes, schedules, staffing, hours and days of service, carrier resources, dispatching, vehicles), a management and administrative plan (staffing and the responsibilities of the public sector, private sector, and contractors), a financial plan (operating and capital costs, ridership and revenue estimates), and an implementation plan (assignment of responsibilities for all primary activities as well as support activities, such as marketing) for services in this corridor. The final recommendations are expected by the summer of 1993.

NJ TRANSIT is also working with employers in Morris County to develop potential nontraditional transit services. These employers include Warner Lambert, AT&T, BELLCORE (Bell Communications Research), Aetna, Morristown Memorial Hospital, and Nabisco. These services will likely be of benefit to Newark area residents.

For example, MCRIDES has identified the need for nontraditional transit shuttles from area train stations to major employment sites. These shuttles would provide service to the rail stations between Dover and Summit on the Morris and Essex rail line, including stations such as Mountain Lakes/Denville, Morris Plains, Morristown, Murray Hill, Convent Station, Madison, and Chatham. Employers and employment centers that would be served by this proposal include:

- Convent Station—JCP&L, Madison Avenue businesses, Morristown, Giralda Farms;
- Summit Station—Overlook Hospital, downtown Summit;
- Morristown Station—Morristown Memorial Hospital (downtown Morristown, Route 202 facility);
- Mountain Lakes/Denville—Morris Corporate Park;
- Murray Hill—AT&T.

The County of Somerset and the Ridewise of Raritan Valley Transportation Management Association (TMA) have identified several corridors in need of improved local transit service. Improvements in these corridors would likely benefit Newark area residents, as many of the anticipated improvements are being planned to complement existing service on the Raritan Valley Line. Specific sites being studied are as follows:

- Raritan Train Station—employers on Route 202, such as Roche Diagnostics in Branchburg Township;
- Raritan Train Station—employers along Route 22 such as Ethicon, Metropolitan Life, Merck;
- Raritan Train Station—employers along Route 202/206 North, particularly The Hills development site;
- Somerville—Downtown Somerville transit loop to connect to train and bus routes, provide downtown circulation, and provide access to major travel generators, including Somerset Medical Center, Bridgewater Commons Mall, and Raritan Valley Community College.

Meadowlink and EZ Rider: The Port Authority is sponsoring the EZ Rider project to provide computerized ride-matching and transit information to Newark International airport employers and tenants. Meadowlink (TMA) and NJ TRANSIT are also working directly with airport tenants and employees to improve the existing bus service.

TRANSIT PLUS+. The Essex-Union Transportation Management Association: NJ TRANSIT is now implementing TRANSIT PLUS+, the Essex-Union Transportation Management Association, which will be providing TMA services to all interested employers and employees in Essex and Union counties. The mission of the TMA is stated as follows: "We will provide services and expertise to deliver a full range of commuting alternatives with a dedicated, innovative team of professionals, responsive to the needs of Essex and Union employers."

The TMA will take direction from an advisory board composed of employers in the two counties. The TMA will feature transit information, personalized transit trip planning, transportation demand management, computerized car pool ride-matching, employer transportation coordinator training, transportation fares, Clean Air Act compliance plan assistance, educational workshops, and other TMA activities.

Newark residents working in Hudson County will also benefit from a new TMA now being formed to improve commuting to work sites located within Hudson County. This new TMA, being set up by the Hudson County Improvement Authority, will work

with employers located in Hudson County and with employees commuting to Hudson County.

8. Implement Major New Transit Initiatives

Major new initiatives are capital-intensive projects designed to improve the transportation infrastructure. These projects have all undergone extensive study and conceptual planning; some have been discussed for decades. These projects will provide travel time savings, new travel-pattern opportunities for all New Jerseyans, and will substantially improve the existing bus and rail network in the state. Some of the projects have the potential to open up new worksites for urban residents, improve ambient air quality by replacing vehicle trips with transit trips, and provide access to more job sites. In part, the projects are perceived as tools to support and enhance economic development in the targeted corridors.

The Kearny Connection will benefit Newark residents by providing direct rail service to midtown Manhattan from Essex, Morris, Somerset, and Union counties by linking the Morris & Essex Lines to the Northeast Corridor, reducing the commute to midtown Manhattan by 10 to 15 minutes. The project includes new track connection and rail yard expansion, and additional parking capacity to accommodate increased ridership.

The Secaucus Transfer, planned for the Hackensack Meadowlands, will provide access between Newark and central New Jersey, and Bergen, Hudson, Passaic, Orange, and Rockland counties. In addition, riders on the Bergen County, Main, Pascack Valley, and Port Jervis lines will be able to shorten their commute by transferring to Northeast Corridor Line trains rather than traveling to Hoboken to connect with PATH service into New York. The Secaucus Transfer will require extensive electrification, track additions, communications, signal, and structural work. A three-level station facility will be built to accommodate anticipated ridership.

Newark-Elizabeth Rail Link Options Study. Early in the project, NJ TRANSIT established a Technical Advisory Committee (TAC) to review and advise on the progress of work. It is expected that the project will provide benefits to Newark residents along the Newark City Subway, extending to Branchbrook Park. Direct airport service will open some job opportunities. It will save travel time and will create more frequent service for north Newark—the North Broad Street Station area. TAC agreed on six criteria to evaluate the alternatives. These criteria, listed below, provide some insight into the expected benefits:

- Transportation service benefits to areas not currently served by rail transit, including portions of downtown Newark and parts of Elizabeth, measured by new transit riders.
- Service benefits to air passengers, airport employees, other airport users and travelers to airport-related development in Airport City, Waverly Yards, and other locations around the airport, measured by new transit riders to the airport area.
- Travel time savings, reliability improvements, reduction in transfers and increased accessibility to existing bus and rail riders in the corridor, measured by total system ridership, travel time savings, increase in reliability, and change in daily transfers/passengers.
- Inducement of new development around rail link stations and creation of additional jobs at the airport and at other sites in the corridor, measured by projected square feet of development and number of new jobs.
- The financial feasibility of building the rail link project, considering both costs and potential funding sources, measured by capital cost, operating cost, and maintenance costs.
- The ability of the project to attract strong support from public agencies, the private sector, citizens, and the media.

XIII. SUMMATION

A. City's Role

Newark, once one of America's leading industrial cities, now faces an uncertain future—as do many other urban locations along the country's eastern seaboard that had developed a traditional manufacturing base. Over the years Newark has lost significance as a manufacturing center. This has been partly offset by the increase in the services industries. The proximity of Newark airport to downtown, and the airport's continuing and increasing importance, have played a significant role in shoring up the city's declining economy. The continuing importance of the Port of Newark–Elizabeth has also made a contribution in this regard. The city has also maintained its role as an important node for freight and vehicular traffic. While there are signs that Newark's fortunes have not bottomed out, they have nevertheless reached a very low level. As a consequence of this, unemployment remains above the average for New Jersey, while social indicators remain below the state average. It is clear that recovery, should it occur, will be a slow and

difficult process. Construction of the Performing Arts Center, the continuing development of the Gateway project, a planned project to develop parts of the waterfront (on the Passaic River), and plans to provide better transportation links to the airport should be important stimuli in this regard.

B. Dominant Demographic Trends

The city's population, measured in both absolute terms and by number of households, has declined over the past decade. There has, however, been an increase in crowding as measured by the number of persons per room, which signifies a combination of an absolute shortage of affordable housing for poor households and the increased poverty of the poorest sections of the population. While there are more people in the prime working age, the proportion of adolescents and children under 5 have declined. The proportion of elderly (over 65 years) has increased by 5.5 percent over the decade.

C. Dominant Characteristics of the Labor Force

A growing proportion of the city labor force holds jobs in service-producing sectors. Over the years the jobs held by Newark residents have become less involved with production and more with management and services. The two most common occupations of Newark residents are technical/sales and operators/laborers. The relative importance of technical/sales occupations has been growing while that of operators/laborers has been falling. Managerial/executive jobs and services jobs also have increased in significance.

D. Dominant Characteristics of "At-Place" Employment and the Difference Between Employment Characteristics of Resident and Worker Populations

The dominant trend in at-place employment in Newark mirrors the characteristics of resident employment. Manufacturing, while still significant, has declined in importance. Services, on the other hand, has grown into the predominant source of employment.

At-place employment in Newark differs from resident employment in several respects. There are now more jobs in manufacturing, wholesale trade, transportation, communications and utilities, and the public sector in Newark than there are Newark residents holding jobs in these sectors. On the other hand, there are fewer jobs in retail trade and construction in the city than there are city residents holding these jobs.

E. Employment Projections

The majority of employed Newark residents hold jobs within a five-mile radius of the city. The central business district of the city is a major concentration of employment

opportunities for city residents. Outside Newark, the city of Elizabeth in Union County is the most important destination for reverse commuters from Newark. Current suburban locations with potential employment opportunities for Newark residents are municipalities in west Essex and in Morris and Somerset counties.

Employment opportunities will become available to city residents mainly through job separations. The locations of highest employment potential are also the locations of highest existing employment, i.e., within the city of Newark, Elizabeth, west Essex County, and in the municipalities of neighboring Morris and Somerset counties.

F. Existing Transportation Network

The city of Newark is the beneficiary of an extensive transportation network that facilitates the movement of people and goods within the city and connects it with major population and employment centers in the northeastern region of the United States.

Numerous interstate highways and major state roads run along the edges of the city while other state roads and county roads link the core of the city to this network of national and state roads and to the regions lying beyond the state's boundaries. Within the city an extensive matrix of streets provides a framework for automobile movement in both north-south and east-west directions.

Four rail lines transport people to or through Newark on their way to New York City and simultaneously enable residents of the city to access jobs in a reverse commute in these outlying counties. The subway line in the city provides convenient transportation to and from the core of the city in a northerly direction.

Bus service is also extensive, especially in the east-west direction and within the city. Generally, commuters can use the bus system to gain easy access to the edges of the city, while transit movement to locations beyond a five-mile radius is more time-consuming. City-to-suburb bus commuting is restricted in certain locations due to service, frequency, or cost.

G. Transportation Problems

The primary transportation challenge of the Newark region each day is to move millions of commuters and commercial vehicles effectively through an aging and often obsolete array of highways, bridges, and viaducts. Much of this infrastructure is approaching or has exceeded capacity. Moreover, motorists coming from or to Newark experience difficulty in accessing the area's major highways. Examples of key problem areas are the Doremus Avenue bridge over the Conrail line; the Haynes Avenue bridge to US Route 1&9; poor drainage on Wilson Avenue, which links the central business district

to US Route 1&9 and the New Jersey Turnpike; and the narrow segment of I-280 between First Street and the Stickel Bridge. Locally, Newark residents cannot easily access I-280, which provides east/west service to employment centers in the Oranges, Morris County, and Hudson County.

Transit-dependent Newark residents who wish to access the more distant locations of less-skilled employment outside the city have to deal with complications caused by the cost and length of the bus trip from the core of the city. In addition, the absence of night bus service hinders working on late shifts at these locations. Those who use the rail service to reverse commute face complications caused by train schedules that are designed expressly for inbound commuters and also by suburban stations that lack bus service.

Within the city, Newark residents who want to access jobs at Newark International Airport and in the Newark-Elizabeth area face a similar set of problems: bus service to these locations is limited during the day and almost nonexistent during late-night shifts.

H. Problems Other than Transportation

Among factors contributing to the difficulty of linking the unemployed residents of Newark with jobs in the suburbs and within the city, transportation problems are not significant. The most serious obstacle to employment for Newark residents is their low level of basic and vocational skills. Next in terms of significance are the lack and high cost of day care for would-be working parents. An unfavorable work history of those seeking employment is the third most serious obstacle. The least-significant contributing factor is the unemployed's lack of knowledge about existing or future job opportunities.

I. Conclusion

The preparation of this Urban Transportation Supplement marks a beginning. The road and transportation infrastructure network will be extensively overhauled during the next decade and, in consonance with the New Jersey State Development and Redevelopment Plan, central city areas will receive high priority for these capital investments. Public transit deficiencies have been clearly defined; services designed to respond to these deficiencies are in active preparation. How much of this service materializes will be financially dependent and, in any event, will evolve over time as air quality mandates become more imminent and agreements are forged between public transit service providers and employers facing these mandates.

Other deficiencies demand non-financial solutions. The designation of bus stops requires more concerted, cooperative efforts between NJ TRANSIT, municipalities, and NJDOT, since stops must be agreed to by municipalities and NJDOT, and since parking

A METHODOLOGICAL NOTE ON LESS-SKILLED EMPLOYMENT GROWTH AND LESS-SKILLED JOB SEPARATIONS

LESS-SKILLED EMPLOYMENT GROWTH

Less-skilled employment growth for the period 1993–2000 is estimated by using projections for the year 2000 for the twenty largest occupational growth categories in a county or group of counties (Job Training Partnership Act [JTPA] labor areas) in 1986 and sifting from these occupations those that are typically less-skilled. Less-skilled occupations *would* include salespersons, janitors, parking-lot attendants, waiters and waitresses, stock clerks, factory workers, and so on. Less-skilled occupations *would not* include registered nurses, bookkeepers, cooks, accountants, teachers, sales representatives, truck drivers, and so on. Projections were undertaken for the following JTPA labor area county groups:¹

Atlantic and Cape May
Bergen and Passaic
Burlington and Camden
Cumberland, Gloucester, and Salem
Essex and Hudson
Hunterdon and Somerset
Mercer
Middlesex and Union
Monmouth and Ocean
Morris, Sussex, and Warren

These projections of less-skilled employment growth were obtained from occupational employment projections by the New Jersey Department of Labor (NJDOL) for each of the above geographical areas.²

In order to estimate less-skilled employment growth by individual county and ultimately by municipality within a county, the less-skilled share of all occupations was determined for a county or county group and this ratio applied to total employment projections also by county or county group undertaken by the Center for Urban Policy Research (CUPR) at Rutgers University. For instance, if CUPR determined that of the job growth of all occupations in Bergen and Passaic counties (from the NJDOL projections), less-skilled job growth constituted 60 percent, the 1990–2000 employment projection for each of these counties would be multiplied by 60 percent to obtain a figure for less-skilled employment. These would further be multiplied by 70 percent to account for the seven-year projection period (1993–2000) used for less-skilled employment as opposed to the ten-year projection period (1990–2000) used for total employment.

Less-skilled employment projections were assigned to municipalities by the municipalities' shares of county total employment growth over the period 1970 to 1990. If, for example, Paramus in Bergen County had 40 percent of the county's total employment growth from 1970 to 1990, it would receive 40 percent of the projected less-skilled employment for the county from 1993 to 2000.

Finally, less-skilled employment growth is divided into three categories (basic, retail, and services) according to the existing local distribution of these broad classification types in 1990. Thus, less-skilled employment growth is a fractional share of CUPR's projection of total employment growth. NJDOL's figures for less-skilled employment growth are not used directly because these projections are dated and reflect the much more generous estimates of employment growth typical of a state economy viewed in the mid- to late-1980s. Currently new projections are underway but as of April 15, 1993 are available only at the state level. CUPR's adaptation of these projections anticipates the change in magnitude of (lower) employment projections taking place in the 1993 versus the 1988 projections.

Currently, new NJDOL projections are underway. They are available only at the state level. They show considerably less annual employment growth (–25 percent) and significantly less annual job separations (–50 percent) than prior projections. These numbers are in keeping with the lower projections employed by CUPR in this analysis.

¹ These labor areas are slightly different from the ones used elsewhere in this report. Those labor areas used elsewhere are the New Jersey recognized labor areas. Occupational projections by NJDOL were already undertaken by the JTPA labor areas, thus limiting the choices available for aggregation.

² See New Jersey Department of Labor, *Employment Projections. Volume II: Occupational Outlook for New Jersey and Selected Areas 1986–2000* (Trenton, NJ: New Jersey Department of Labor, October 1988).

LESS-SKILLED JOB SEPARATIONS

Job separations (at the time of this study)³ involve departures from the labor force due to death, ill health, pregnancy, or for personal or undetermined reasons. Job separations are not those jobs that result from individuals moving up the ladder of employment and, through this, the release of jobs that other aspiring workers fill. They thus represent removal from the labor force as opposed to removal from a specific job title.

Job separations are more prevalent where the employment base is large. They are concentrated in the older central core areas of employment, the older close-in suburban areas, or the newer suburban nodes of office space, retail, or industrial development.

Less-skilled job separations are also predicted by occupation for the period 1993–2000. Job separations are determined from procedures recommended by the U. S. Department of Labor and are essentially a percentage share of existing employment at any one time. These types of occupational projections, also available from the New Jersey Department of Labor and found in the prior-listed source, are somewhat less subject to widescale variation than are the occupational employment-growth projections discussed previously.

Using a procedure similar to that discussed above, the less-skilled occupations were sifted from those occupations experiencing the most growth and their average *annual* number of separations tallied. This was multiplied by 7 for the seven-year projection period 1993–2000 and divided by two-thirds to account for all occupations, not just those experiencing the most growth.

Less-skilled employment separation projections are assigned to each municipality in a JTPA labor area according to the ratio of total employment of that municipality in 1990 to total employment in the JTPA labor area, also in 1990. Employment separations are divided among basic, retail, and services categories at the municipal level according to the existing distribution of these types of employment in the municipality in 1990. On a statewide base, the components of annual job openings, i.e., job separations and job growth, are in a ratio of about 2–3 to 1.

WHAT IS THE EFFECT OF JOB GROWTH VERSUS JOB SEPARATIONS?

Much of the above discussion leads to an obvious question: Which is more important—job growth or job separations? The answer is that they are both important for different reasons.

Job growth is the net new addition of jobs to an area. The demand for workers does not bring with it an associated supply of workers. Job separations are losses of workers currently filling job billets in an area with an essentially similar number of workers ready to enter the labor force to take their places. In this case, job demand brings with it an almost equal amount of job supply. Thus, in a labor area, if 1,000 workers leave the labor force due to separations, and labor demand grows by an additional 250 jobs, there is a potential for 1,250 job openings in this labor area. If the community has 500 unemployed and another 900 ready to enter the labor force, the 1,250 openings theoretically could be filled immediately, yet with some workers still remaining unemployed.

For the job aspirant in the central city, both types of employment opportunity are important. Job growth provides net new employment opportunities. Job separations provide few net new employment opportunities from a macro perspective but potentially significantly more opportunities from a micro perspective. The latter is true for the following reason. If the central city of a labor area contains most of the job openings in the form of *separations*, and suburban workers will not go into the central city for employment, this provides a tremendous supply of available jobs to urban workers. On the other hand, if most of the job *growth* is in the suburbs and must be accessed by automobile, even though these are net new jobs, the urban resident, in only 50–75 percent of the cases having an automobile, could be at a significant disadvantage. Thus, each type of job creates a potential for employment with biases towards and biases against different types of workers (urban versus suburban).

A SUBNOTE ON THE ATLANTIC CITY/CAPE MAY AND MERCER COUNTY LABOR AREAS

Both of these labor areas have low levels of less-skilled basic employment. In the Atlantic City/Cape May case, this is due to manufacturing being almost totally eclipsed by services (casino) employment. In the case of Mercer, most of the basic employment that remains is higher skilled. In both of these cases, there is a projection of zero job separations for the basic sector.

³ There are slight definitional changes underway for the 1993 occupational projections.

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