I. INTRODUCTION

Southern Middlesex County, which contains more than one third of the land area in Middlesex County and 15 percent of total County population, was classified as rural in character in 1990. The South County is one of five study areas in the Middlesex County Transportation Plan. A map of the transportation study areas is on page 3 in Appendix 1.

Development activity has increased dramatically since then and most of South County is now classified as urban, according to the NJDOT map entitled, **Middlesex County Urban Area Boundary and Functional Classification,** dated August, 2009. This map is on page 2 in Appendix 1.

The significant growth in population and employment centers has led to a greater reliance on the automobile for local and regional trips, and a growing need for options such as fixed route public transit as well as fixed route and demand responsive paratransit services.

II. PURPOSE

The purpose of this study is to assess the level of transit services available in areas of southern Middlesex County that have experienced significant growth; to develop recommendations to address existing and future mobility needs; and to propose improvements to enhance transit services and reduce reliance on the automobile.

III. GOALS AND OBJECTIVES

The goal of this study is to provide safe and convenient mobility options in the rapidly developing yet underserved portions of southern Middlesex County for persons who do not drive or prefer to use public transit.

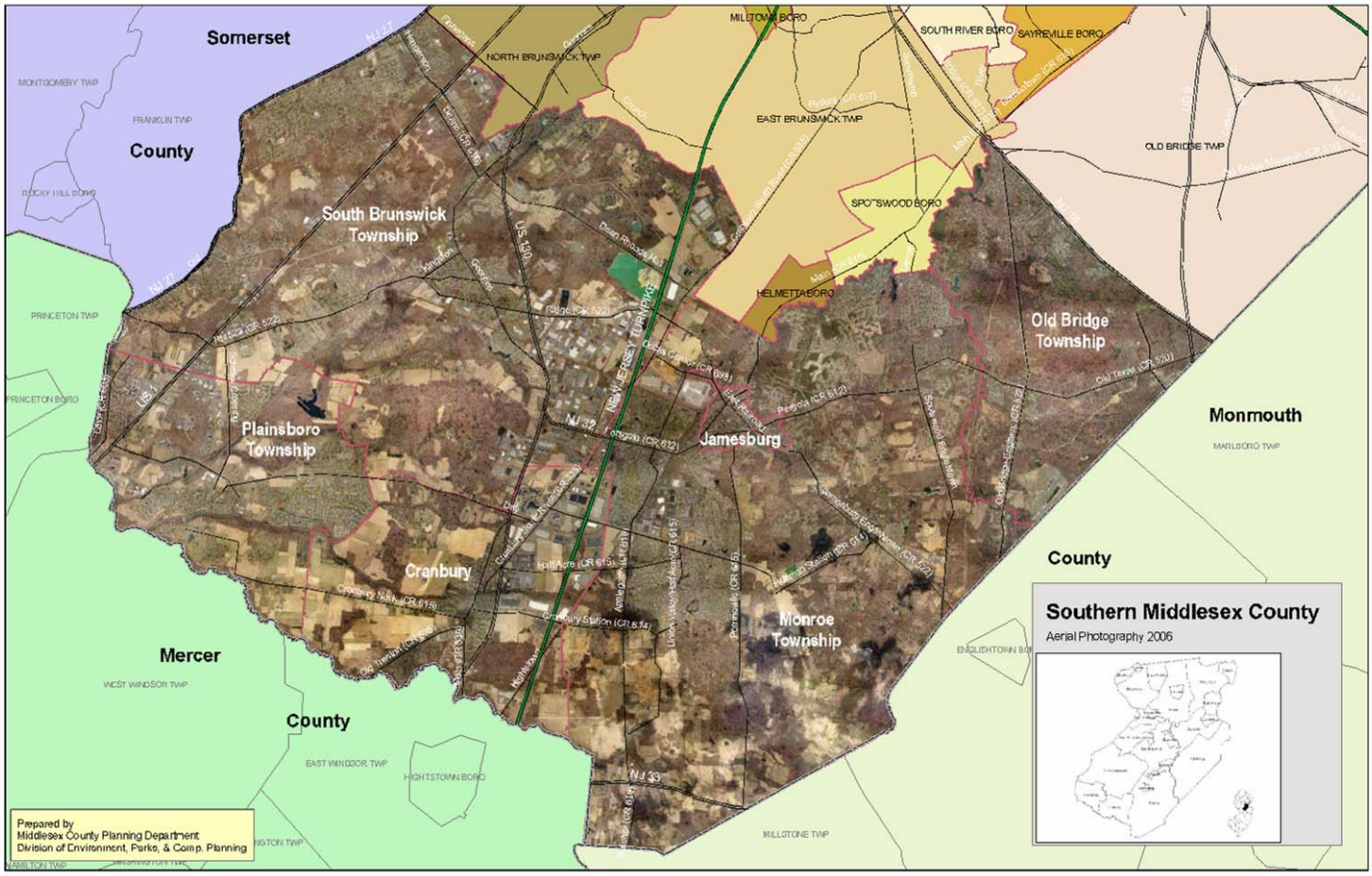
The objectives of this study are:

- To address needs, strategies and issues of the Regional Transportation Plan.
- To improve and enhance system coordination, efficiency and intermodal connectivity by seeking to provide and connect alternative transportation modes and improve the overall system.
- To reduce automobile trips in one of the major growth areas in Middlesex County.
- To provide better accessibility by non-motorized means by encouraging public transit alternatives, walking and bicycle trips.
- To improve accessibility for mobility impaired, low income, elderly and minority populations by making public transit and non-motorized modes of transportation more abundant and more convenient to use for persons who do not drive or cannot afford a personal automobile.

IV. DESCRIPTION OF THE STUDY AREA

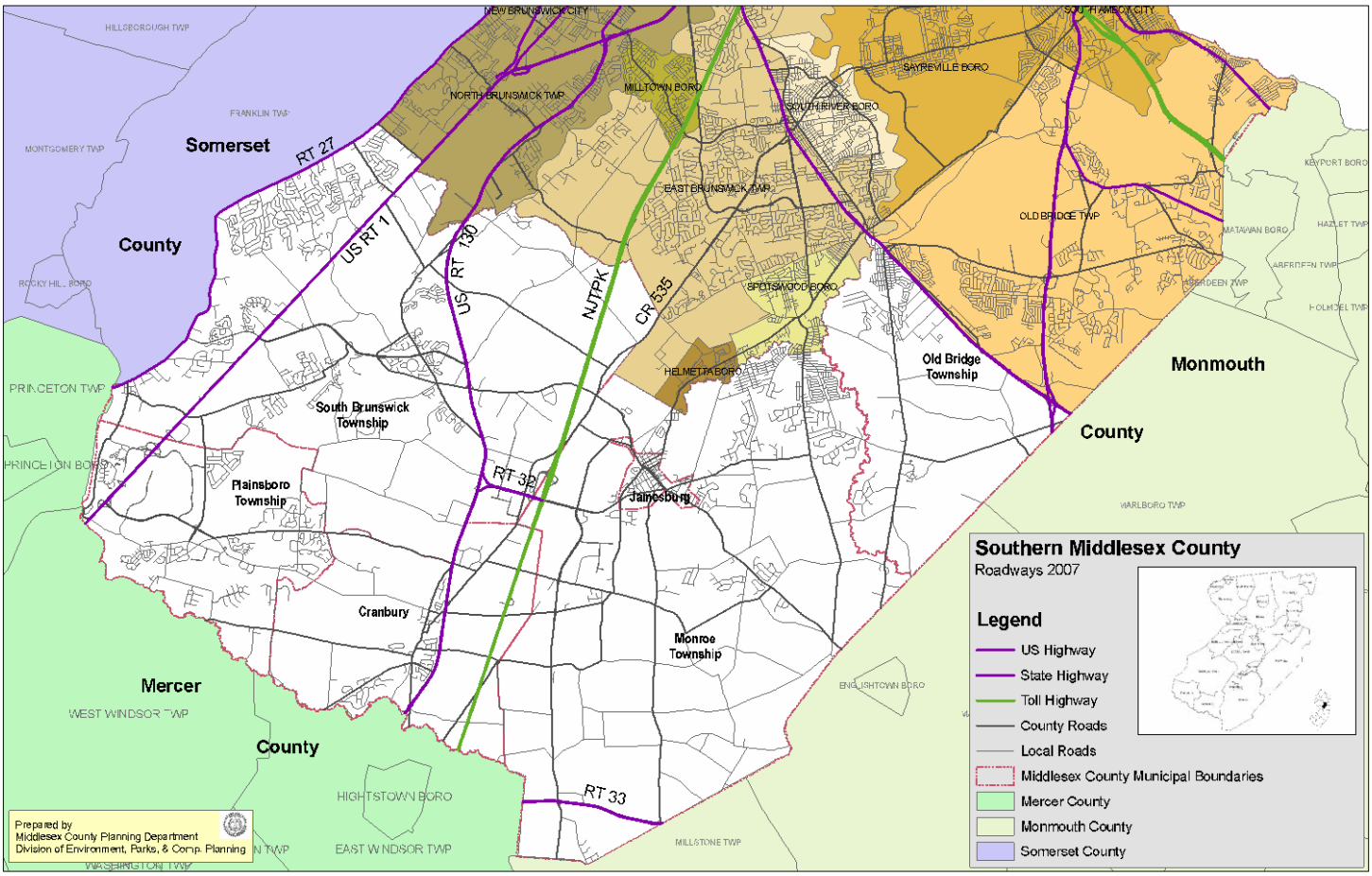
The South County Study Area , shown on Map 1, contains 116.5 square miles, which is 38 percent of Middlesex County. The Region is bound by West Windsor, East Windsor and Hightstown in Mercer County to the southwest; Princeton Township in Mercer County and Franklin Township in Somerset County to the west; Millstone and Manalapan Townships in Monmouth County to the southeast, Spotswood, Helmetta and North Brunswick to the north. The Region includes Cranbury, Monroe, Plainsboro and South Brunswick Townships, the Borough of Jamesburg, and the portion of Old Bridge Township situated south of Route 18.

MAP 1



The New Jersey Turnpike bisects the study area, which includes Exit 8A. This portion of the study area is important due to its location with respect to U.S. Route 130, State Route 32, and Middlesex County Route 535. This area is heavily congested, primarily with truck traffic, due to the great number of warehouses, the source of major conflicts between truck and automobile traffic generated by nearby residential developments. The roadway network is shown on Map 2.

MAP 2



Route 130, which parallels the Turnpike, bisects the western portion of the study area. Other major roadways in the study area include U.S. Route 1 and New Jersey Route 27 in the west; State Route 33 in the southern portion of Monroe Township and State Route 32. Major Middlesex County roadways include Routes 535, 522, 610, 612, 613, 614, 625 and 619. All but two roads in the study area are classified as urban principal and minor arterials, and urban collectors, according to the NJDOT map entitled**, "Middlesex County National Highway System Routes 2009**, dated October, 2008.

The New Jersey Turnpike is classified as an urban interstate and Routes 1, 27 and 130 are classified as urban freeways. This map is on page 4 in Appendix 1.

The Exit 8A area also includes a major park and ride facility on Route 130. This facility serves workers traveling by bus to Newark and New York City.

The New Jersey Turnpike Authority had proposed construction of Route 92, a critical east-west link to connect Route 1 with the Turnpike in the vicinity of Exit 8A; however, the status of Route 92 is dubious due to environmental constraints. This high speed link was intended to improve mobility and quality of life by limiting the amount of truck and automobile traffic on county and municipal roads. Improved east-west access continues to be needed in southern Middlesex County to accommodate anticipated growth in the region.

The Amtrak/New Jersey Transit Northwest Corridor rail line traverses Plainsboro and South Brunswick Townships; however, there is presently no access to rail service in southern Middlesex County south of New Brunswick/Jersey Avenue. The nearest train station is in the Princeton Junction section of West Windsor Township in Mercer County.

The study area has and continues to experience significant residential and non-residential growth. As noted on page 1, most of the study area is within the urban boundary, according to the above referenced NJDOT map entitled, **"Middlesex County Urban Area Boundary and Functional Classification."**. A small portion of Cranbury and most of Monroe were outside the urban boundary when this map was prepared.

The most intensely developed portion of the study area includes those sections of South Brunswick, Cranbury and Monroe at or in close proximity to Exit 8A.

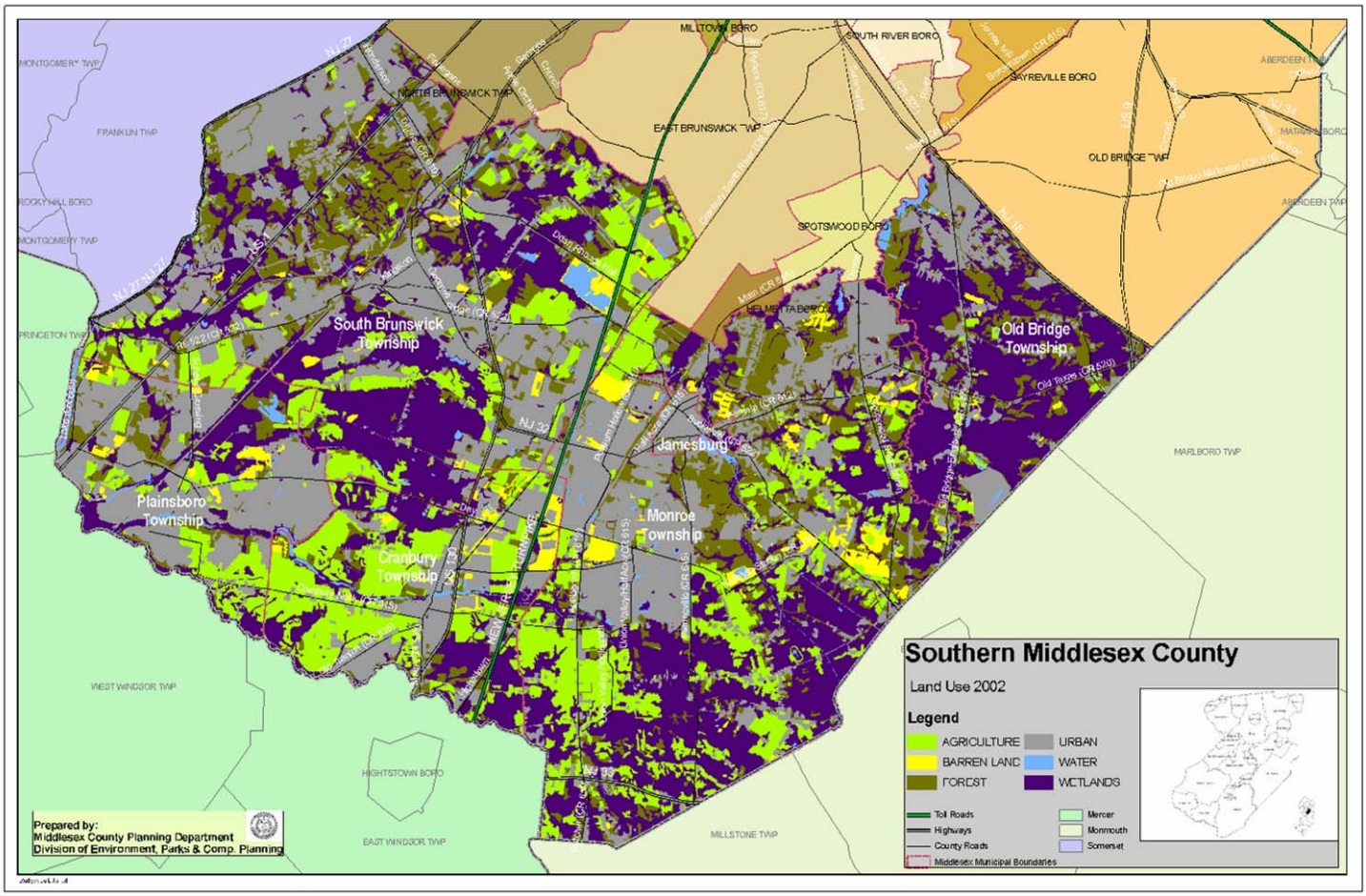
The area between Route 130 and the Turnpike, and areas along County Route 535 contain a great number of warehouses, which contribute to congestion by generating enormous amounts of truck traffic. These areas also provide potential local and regional job centers.

There were 27 office and industrial parks in the study area, according to a report entitled, **"Middlesex County,"** prepared by the Middlesex County Office of Economic Development in 2000. Eight are situated in Cranbury, two in Monroe, two in Plainsboro, one in Old Bridge and 14 in South Brunswick. There were 17 hotels and conference centers in the study area, according to this report, one in Cranbury, one in Monroe, three in Plainsboro and 12 in South Brunswick. All are employment and traffic generators.

Office and warehouse development is expected to continue, according to building permit data from the New Jersey Department of Community Affairs (DCA). This nonresidential development will contribute to congestion in the Region. Page 27 in Section VI of this report contains an analysis of the DCA building permit data.

The Exit 8A area east of the Turnpike is primarily residential and includes several large age restricted communities. The Borough of Jamesburg is fully developed. The northeastern section of Monroe Township contains pockets of isolated residential development, while the southern area is still rural in nature. Map 3, below, shows existing land uses in the study area.

MAP 3



There are pockets of residential development east of the Turnpike in South Brunswick, Plainsboro and Cranbury. These are served primarily by county and local roads. Plainsboro contains the Princeton Forrestal Center, a large office/laboratory development accessible from Route 1, which is heavily congested in this area.

The 160 acre former FMC site on Route 1 northbound will be developed in 2011 to accommodate the new Princeton Medical Center and nursing home. According to Pam Hersh, Princeton Medical Center Vice President for Government and Community Affairs. 1,700 current employees will transfer to the new location and 4,000 jobs are projected at buildout. This will add to the congestion on Route 1. Also, hospital and nursing home employees, many of whom will be low wage earners, and those who do not choose to drive, will require bus and shuttle service.

The study area includes a New Jersey State Plan-designated Village Center in Cranbury. This area also has a number of structures on the State and Federal Register of historic places.

Residential developments throughout the study area can best be described as isolated and, due to the dearth of public transit, accessible primarily by automobile. Bicycle and pedestrian facilities are limited and, in most cases, non-existent due to the nature of residential and non-residential development patterns and the characteristics of the roadway system.

Monroe and South Brunswick Townships will continue to experience significant residential development, leading the County in approved subdivision development applications, according to residential building permit data from the DCA, and a report entitled, "**2005 Development Activity and Decade in Review,"** prepared by the Middlesex County Planning Board Land Development Review Committee. This in turn is likely to result in an increase demand for adequate public transit facilities in this area of the County. Page 26 in Section VI of this report contains an analysis of the DCA residential building permit data.

Section VI. of this report includes a detailed demographic profile of the study area.

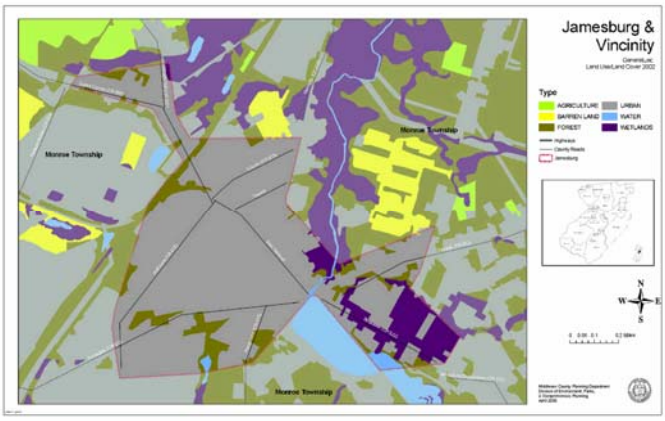
Study Area Municipalities

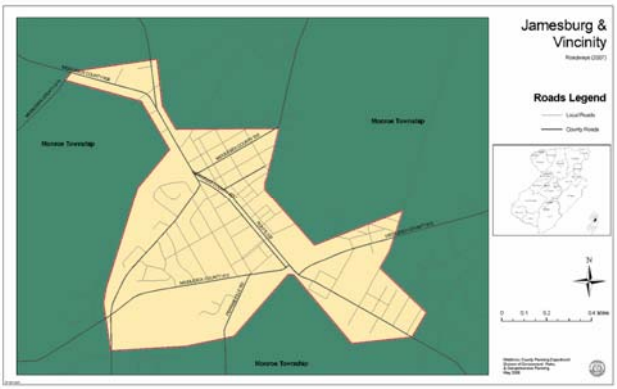
The Following are brief descriptions of each municipality in the study area:

Borough of Jamesburg

The Borough of Jamesburg, which has a total area of 0.9 square miles, is surrounded by Monroe Township and is in close proximity to New Jersey Turnpike Exit 8A, via Forsgate Drive (Middlesex County Route 612). Jamesburg is also traversed by Pergola Avenue (CR 612), Buckelew Avenue (CR 522), and Half Acre Road (CR 615). The borough is classified as an urban area, according to the map entitled, **"2000 Urban Area Boundary Middlesex County,"** dated June 16, 2003. Jamesburg is bisected by the Amboy Secondary/Freehold Secondary active freight rail line.

Below are an aerial photograph of Jamesburg and maps showing land uses and borough roads. Large scale aerials and maps of Jamesburg and the other municipalities in the study area are on pages 15 through 32 in Appendix 1.

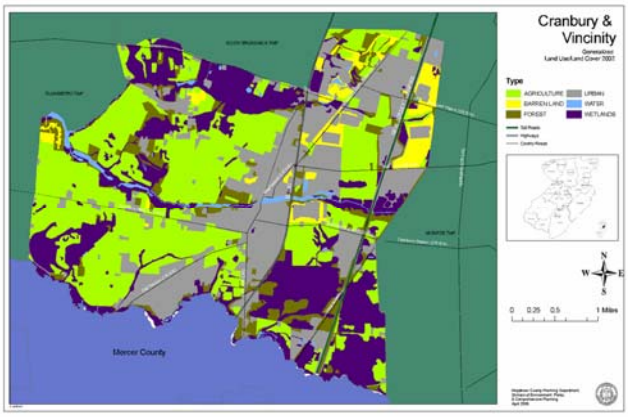




Cranbury Township

Cranbury Township has a total area of 13.5 square miles. Cranbury borders Plainsboro, Monroe and South Brunswick Townships in Middlesex County, East Windsor and West Windsor Townships in Mercer County. The downtown area of Cranbury is designated as a Historic District and is on the National Register of Historic Places. Most of Cranbury is classified as an urban area, according to the above referenced functional classification map. A portion of Cranbury is outside the urban area boundary. A four mile section of the New Jersey Turnpike traverses Cranbury and the township is in close proximity to Exit 8A. U.S. Highway 130 bisects the township. Cranbury is traversed by County Route 535, most of which parallels Route 130 and Cranbury Neck Road (CR 615), which is an east-west route; and Dey Road (CR 614).

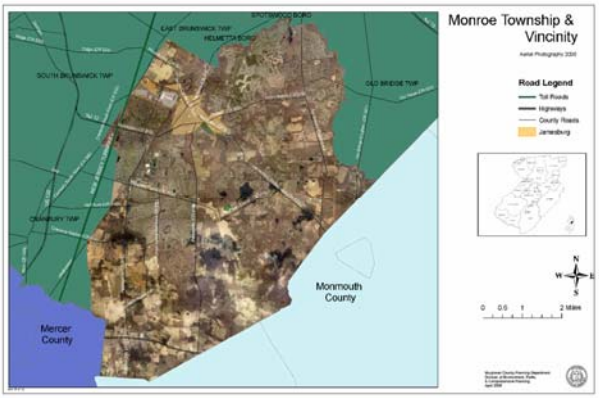
Below are an aerial photograph, land use and roadway maps of Cranbury.

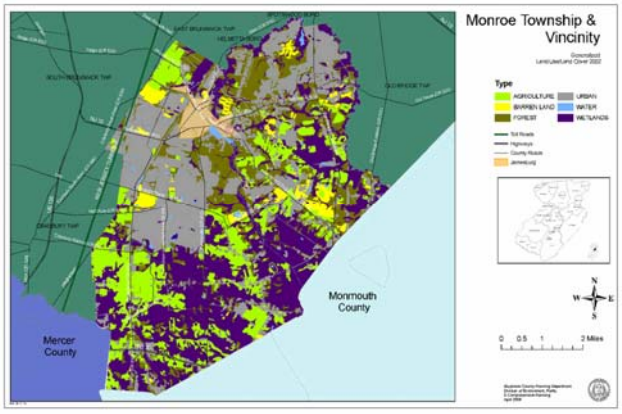


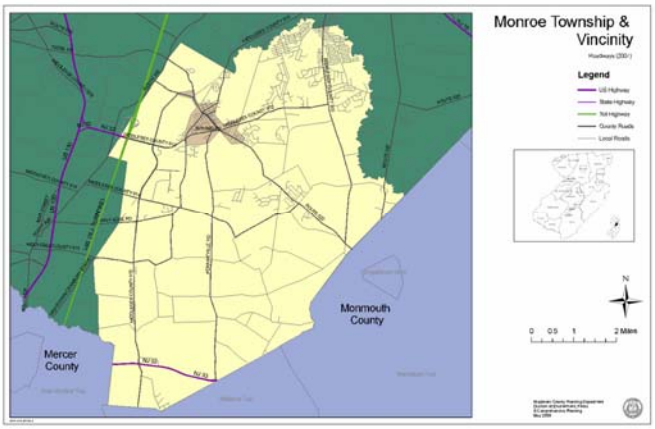
Monroe Township

Monroe Township has a total area of 42 square miles, the largest municipality in Middlesex County in land area. Monroe borders South Brunswick, Cranbury, East Brunswick and Old Bridge Townships, the Boroughs of Helmetta and Spotswood, and completely surrounds Jamesburg in Middlesex County. Monroe borders Manalapan and Millstone Townships in Monmouth County, and East Windsor Township in Mercer County. Most of Monroe is outside the urban area, and a small portion south of Jamesburg is classified as an urban area. New Jersey Turnpike Exit 8A is situated in Monroe Township, immediately east of NJ Route 32, which originates at Route 130 in South Brunswick. NJ Route 33 Secondary is situated in the southern portion of Monroe. The township is traversed by County Routes 522, 619, 527, 535, 612, 613 and 615.

Below are an aerial photograph, land use and roadway maps of Monroe.



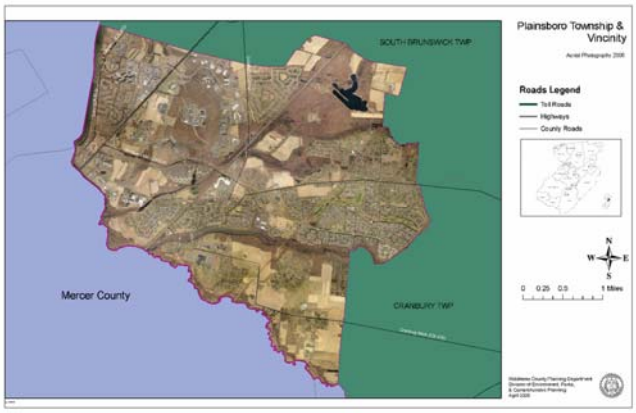


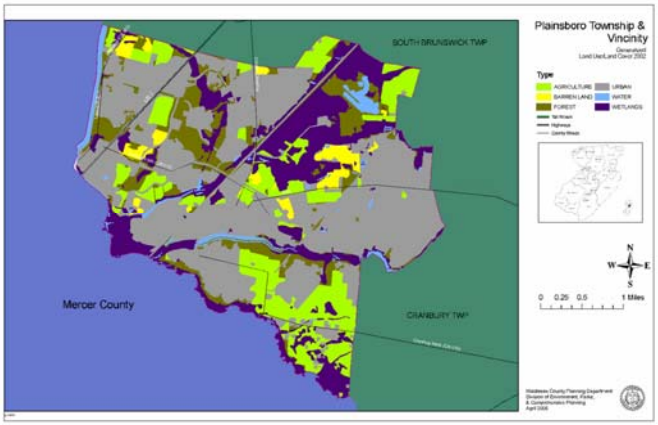


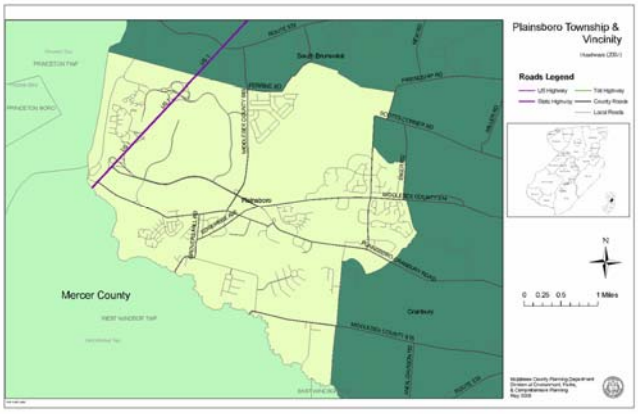
Plainsboro Township

Plainsboro has a total area of 12.2 miles. Plainsboro is bordered by Cranbury and South Brunswick Townships in Middlesex County and West Windsor and Princeton Townships in Mercer County. The Millstone River separates Plainsboro from West Windsor and Princeton Townships. Route 1 runs through the northwest section of Plainsboro. The township is traversed by Middlesex County Routes 614, 615 and 683. Plainsboro is entirely within the urban boundary area.

Below are an aerial photograph of Plainsboro and maps showing township land uses and roads.



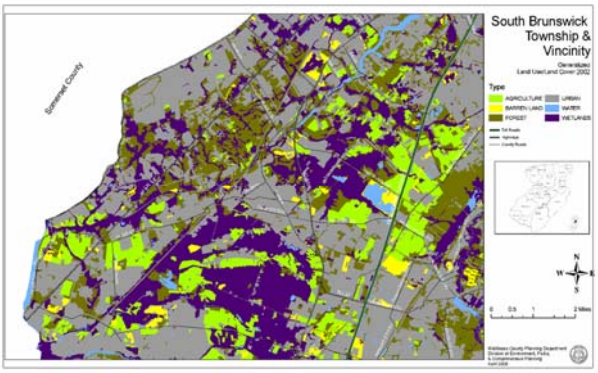




South Brunswick Township

South Brunswick Township has a total area of 41.1 square miles. The township is bordered by Plainsboro, Cranbury, Monroe, East Brunswick and North Brunswick Townships and the Borough of Helmetta in Middlesex County, by Princeton Township in Mercer County and by Franklin Township in Somerset County. A portion of the Village of Kingston is within South Brunswick. The New Jersey Turnpike runs through the eastern section of the township. NJ Route 32 provides access to Exit 8A in Monroe. The Exit 8A area is the location of a major employment center consisting of office and warehouse developments. The Exit 8A area also includes U.S. Route 130, which bisects the east central portion of South Brunswick, and Middlesex County Route 535, which runs along the western border. U.S. Route 1 runs through the western section of the township and NJ Route 27 runs along the western border between South Brunswick and Franklin Township. South Brunswick is traversed by Middlesex County Routes 522, 535, 610, 614, 618, 682, 679/697 and 683. The NJ Turnpike Exit 8A park and ride facility is located on Route 130 in South Brunswick. The township is entirely within the urban boundary area.

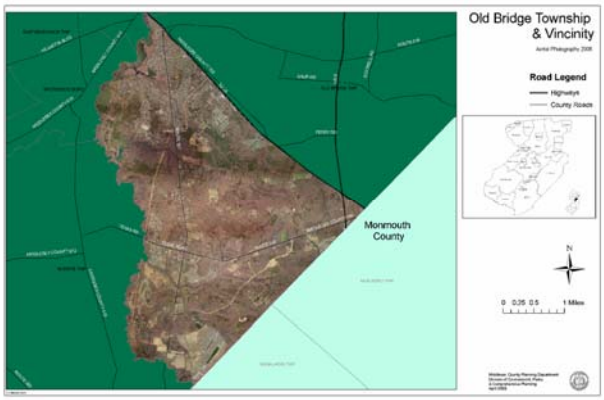
Below are an aerial photograph and maps showing land uses and roadways in the township.

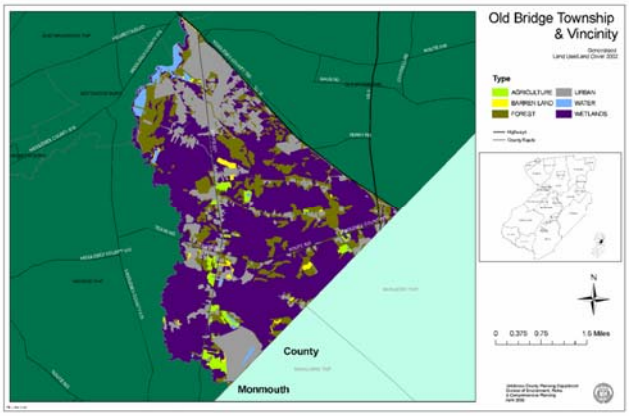


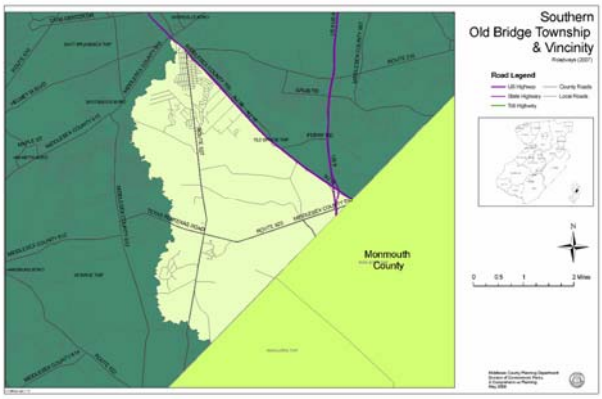
Old Bridge Township

The study area includes the portion of Old Bridge Township that lies south of NJ Route 18. This part of Old Bridge is bordered by Monroe Township, East Brunswick and the Borough of Helmetta in Middlesex County and by Manalapan and Marlboro Townships in Monmouth County. The Routes 9 and 18 interchange is located in this section of Old Bridge. The Township is traversed by Old Bridge Englishtown Road (CR 527) and Texas Road (CR 520). The northern section of this portion of Old Bridge is within the urban boundary area and the southern portion is outside the urban boundary area.

Below are an aerial photograph and maps showing land uses and roads in the section of Old Bridge south of Route 18.







As noted above, Appendix 1 contains large scale aerials, land use and roadway maps for each municipality.

Pages 16 through 31 in Section VI. include a detailed demographic profile of Cranbury, Jamesburg, Monroe, Plainsboro, South Brunswick, and the portion of Old Bridge within the study area.

Existing Transit Services

A variety of local, regional and long distance transportation services, from public and private organizations and businesses, are available in the study area, including fixed route public transit and demand responsive paratransit. There is no rail service in the study area. The nearest train stations are in Princeton Junction/West Windsor Township in Mercer County, Jersey Avenue and New Brunswick in Middlesex County. All are on the New Jersey Transit Northeast Corridor Rail Line.

Regularly scheduled fixed route bus service to Mid-Manhattan and Wall Street is available from Cranbury, Plainsboro and Monroe and from the NJ Turnpike Exit 8A Park and Ride facility in South Brunswick.

Local fixed route bus service is too limited and sparse to adequately serve the population in the existing disconnected residential developments within the study area. South County residents have little choice but to drive to nearby work, shopping, recreational and educational destinations.

Paratransit services, primarily for the elderly and disabled, are provided by Middlesex County and municipal government agencies in the Region. The Middlesex County Department of Transportation (MCAT) also provides reverse commute service from Perth Amboy and New Brunswick to employment centers in the Exit 8A area.

Section VII contains a detailed inventory and analysis of existing public transit bus and paratransit shuttle service in the study area.

V. IMPACT OF RELATED STUDIES, PROGRAMS AND PROJECTS

The following are planning studies, current and proposed projects that have a direct or indirect impact on this study:

- **Central New Jersey Route 1 Bus Rapid Transit (BRT) Conceptual Engineering and Right of Way Study**

NJ Transit has undertaken a study that examines the creation of a bus rapid transit system along the Route 1 Corridor in central New Jersey. The study area includes municipalities in Mercer and southern Middlesex Counties. The purpose of the study is to increase transit ridership and promote economic development in a region that is experiencing explosive population and employment growth, which in turn has led to increased traffic congestion. NJ Transit's consultants have completed an Alternatives Analysis Study for the Route 1 Corridor from Lawrenceville in Mercer County to South Brunswick in Middlesex County.

This project could provide potential connections with public and paratransit fixed route shuttle bus lines at transit nodes in the study area. Also, the Middlesex County Department of Planning has recommended that the BRT alignment be extended to New Brunswick, a major employment and transit center. An extended BRTwould also provide access to the proposed Transit Village on Route 1, the proposed Northeast Corridor train line in North Brunswick, and the proposed Greater New Brunswick BRT.

A map of the proposed BRT Study Area is on page 5 in Appendix 1.

- **<u>The Monmouth-Ocean-Middlesex (MOM) Rail Project</u>**

NJ Transit has proposed to extend commuter rail service from Lakewood in Ocean County via one of three alternative alignments: Red Bank in Monmouth County to Lakehurst in Ocean County, and Matawan in Monmouth County to Lakehurst. Both alignments would connect with the North Jersey Coast Line in Red Bank and Matawan. The third alternative would restore diesel commuter rail service in South Brunswick, Middlesex County, on the Northeast Corridor to Lakewood and Lakehurst in Ocean County. Middlesex County does not support this alignment. NJ Transit has prepared a Draft Environmental Impact Statement (DEIS) and a Travel Demand Forecasting Study on the three proposed alignments. The DEIS also includes proposals for feeder bus service to existing rail station and park and ride lots, and parking improvements.

This includes new express bus service from Toms River in Ocean County to New Brunswick, via Routes 9 and 18, with stops in Freehold Center and the Regal Cinema Park and Ride lot on Route 9 and Texas Road in Monmouth County. This facility is in close proximity to the southern portion of Old Bridge Township, in the South County study area. Middlesex County supports this project, which would provide expanded, more coordinated and efficient regional and local bus services in Southern Middlesex County. This is also consistent with park and ride and commuter bus or shuttle service between Old Bridge and New Brunswick recommended in the Middlesex County Department of Planning study entitled**, "Route 18 Corridor, Old Bridge Township, Pedestrian Safety, Transit Enhancement, Park & Ride and Commuter Shuttle Service."**

A map showing the proposed Toms River to New Brunswick express bus route is on page 6 in Appendix 1.

- **Comprehensive Traffic Safety Analysis and Study of Southern Middlesex County Final Technical Report**

This study, prepared by the URS Corporation, consultants for the Middlesex County Department of Planning, examines the roadway network around Exit 8A of the New Jersey Turnpike. The study includes a capacity analysis of existing and future traffic volumes, identifies existing and future deficiencies along key roadways and intersections in the 8A area, and recommendations for short and long term improvements to correct safety deficiencies. The URS report is relevant to the South County Transit Study because the recommendations include safety improvements to roadways used by existing public bus lines and paratransit shuttle services in the study area. A map of the URS report study area is on page 7 in Appendix 1.

It should be noted that Cranbury Township has proposed a new master plan road, Liberty Way, that would serve as a south connection between the Route 130 corridor and the Turnpike, through the middle of the warehouse area. A map of Liberty Way is on page 14 in Appendix 1.

- **Middlesex County (NJ): A Community Transit Stakeholder Coordination Plan and FTA (Federal Transit Administration) Human Services Interim Transportation Plan**

This plan, prepared by the Middlesex County Department of Transportation in Cooperation with Keep Middlesex Moving, addresses the growing demand for community transit and includes recommendations for funding, developing and implementing expanded services to meet this need.

The plan acknowledges that, while southern Middlesex has a lower population density than the rest of the County, the land availability and its regional transportation access has attracted a rapid growth of employment centers in Cranbury, Plainsboro and South Brunswick, increasing the demand for safe, efficient and affordable transit.
The plan also indicates that the growing senior citizen and aging baby boomer population in South County will also result in greater demand for community transit services.
The plan identifies key unmet needs and gaps and recommends short and long term strategies to expand and improve community transit mobility options for residents, including senior citizens, persons with disabilities, and persons who do not have access to private automobiles.

- **North Jersey Transportation Planning Authority Draft North Jersey Regional Coordinated Human Services Transportation Plan**

This plan consolidates county human services transportation coordination plans for all counties in the NJTPA region. The plan identifies regional and subregional needs and recommends metropolitan, suburban and rural area strategies to improve service delivery. The plan includes strategies to meet the needs of transportation dependent residents in suburban and rural areas in Middlesex County.

VI. DEMOGRAPHIC PROFILE

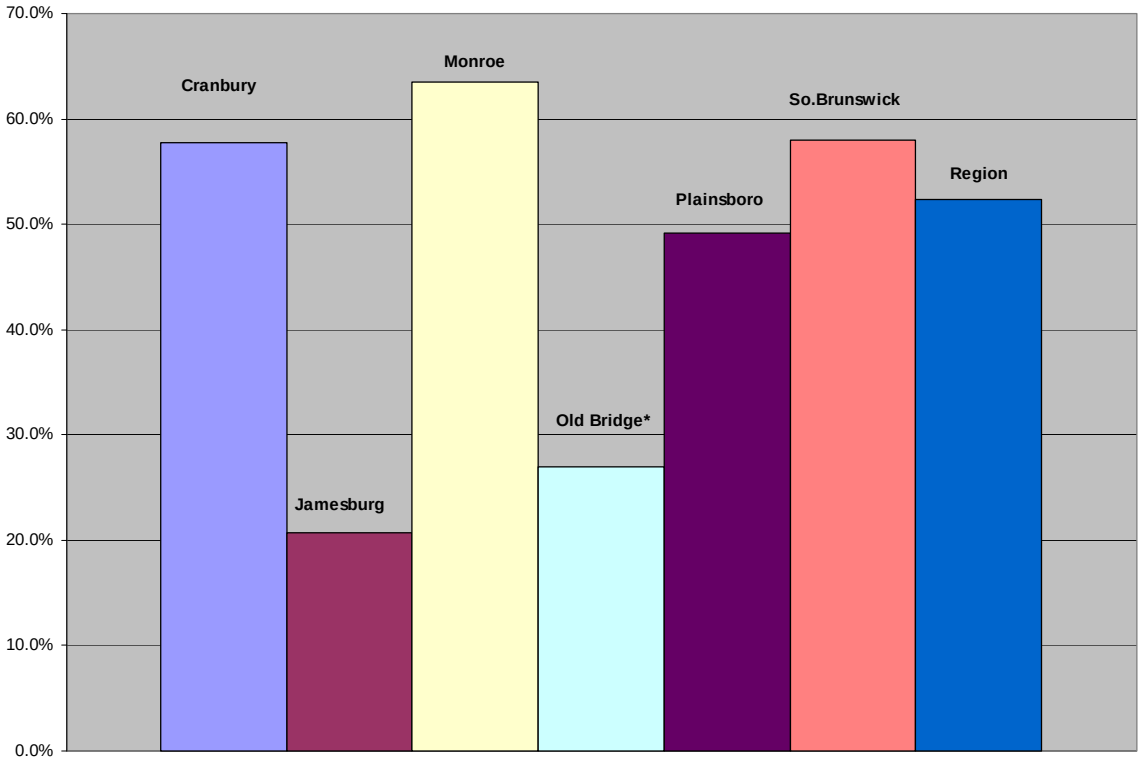
The study area in Southern Middlesex County has experienced significant growth in population, housing and employment during the past decade. This section of the South County Transit Study is a graphic analysis of demographic trends that illustrate this growth. These trends demonstrate the need for improved transportation services and support the recommendations in Section VIII of this study.

Population

Total South County population increased by slightly more than one third between 1990 and 2000, compared to a 12 percent increase for Middlesex County. The latest population estimates show that the South County grew by 24 percent between 2000 and 2007 and by 52.3 percent between 1990 and 2007 Total County population grew by just 5.1 percent between 2000 and 2007 and 17.4 percent between 1990 and 2007.Monroe, Cranbury, South Brunswick and Plainsboro experienced between 49 to 63 percent population growth during 1990 and 2007, as shown on Chart 1, below. The entire study area is shown as the Region on Chart 1.

CHART 1

POPULATION GROWTH 1990-2007



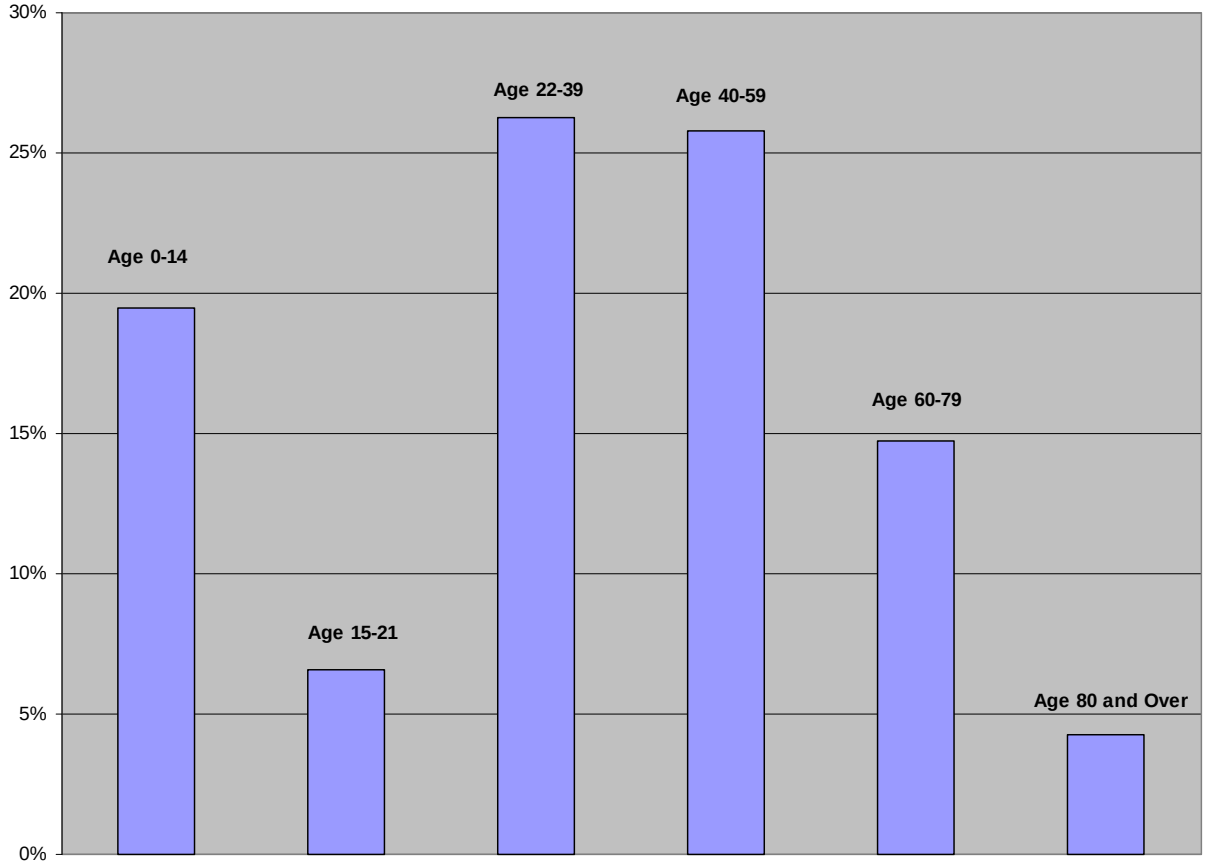
Source: 1990, 2000 and 2007 Census

Age

Median age for the study area increased from 36.6 to 39.7 between 1990 and 2000. Most of the population, about 26 percent, was between ages 22 and 59. The lowest age groups were 15-21 and 80 and over. Chart 2, below illustrates the age cohorts for the study area in 2000.

CHART 2

AGE GROUPS, 1990-2000

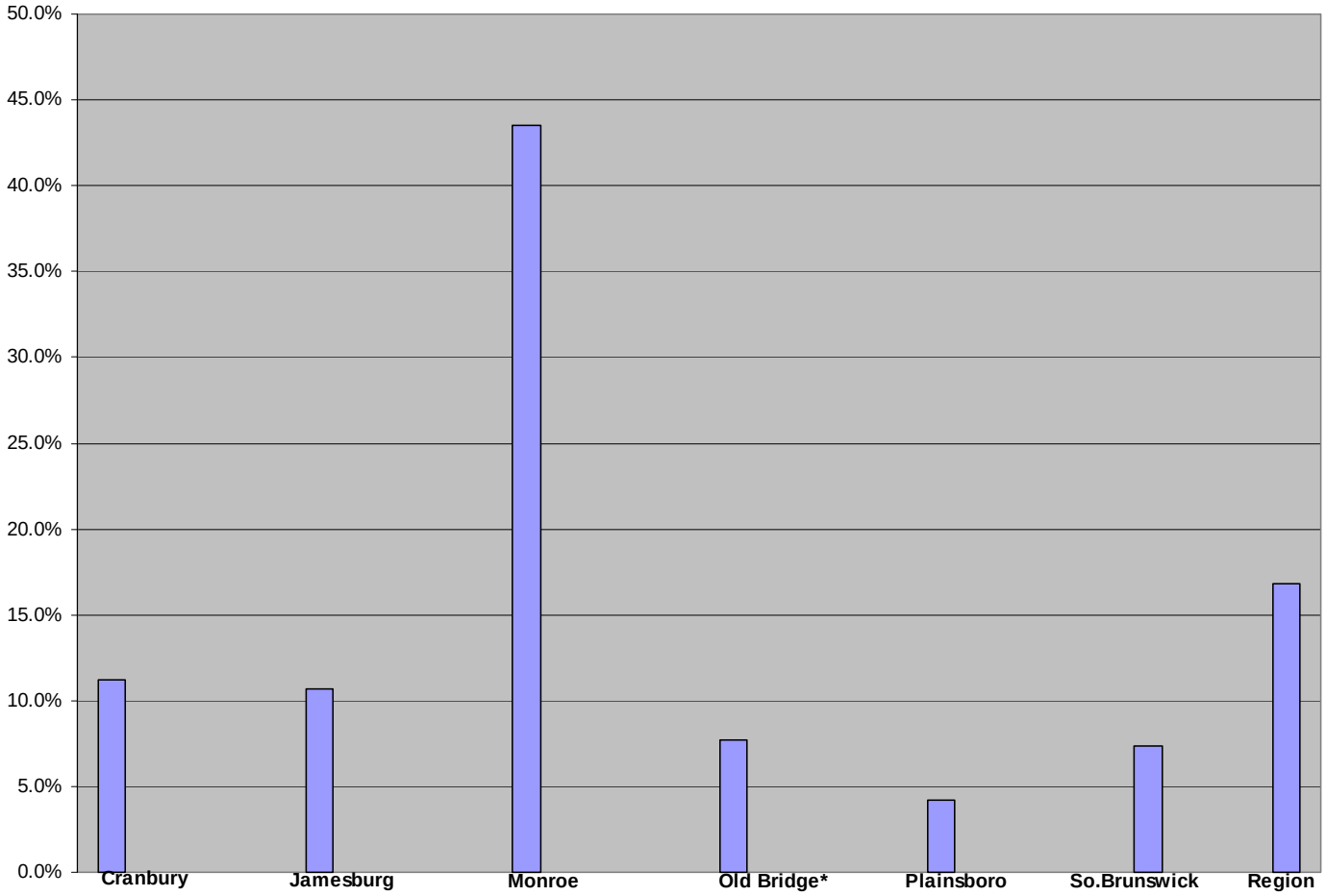


Source: 2000 U.S. Census

Median age in 2000 ranged from 33 in Plainsboro to 59 in Monroe. Chart 3, below shows the percentage of persons age 65 and over in the study area (shown as the Region on Chart 3) and in each municipality. Monroe had the most, about 43 percent, and Plainsboro the least, about four percent of persons 65 and over.

CHART 3

PERCENTAGE OF POPULATION AGE 65 AND OVER



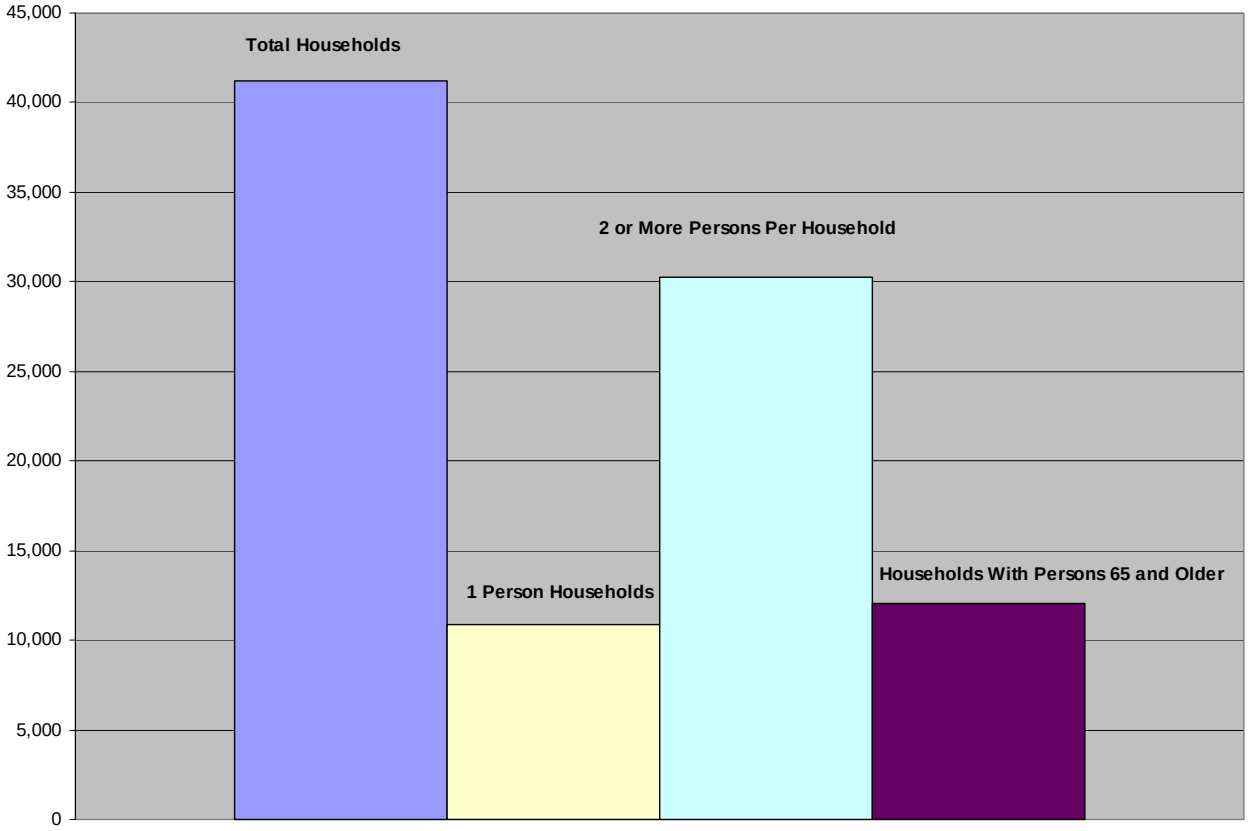
Source: 2000 U.S. Census

Households

Average household size for the study area in 2000 was 2.6 persons. More than three quarters of all households in the study area had two or more persons. Chart 4, below shows 2000 household data for the study area.

CHART 4

HOUSEHOLD CHARACTERISTICS



Source: 2000 U.S. Census

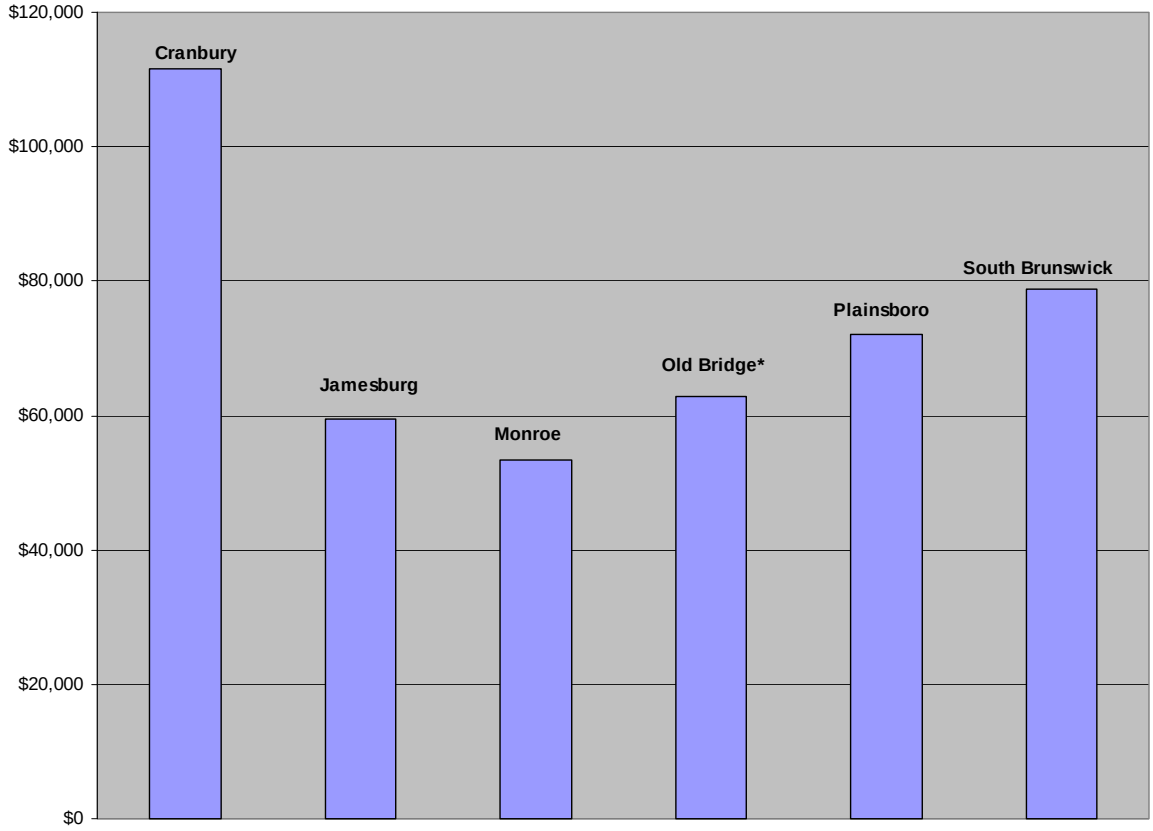
Cranbury, Old Bridge and South Brunswick had the greatest number of households with two or more persons. Monroe and Plainsboro had the greatest number of one person households. Monroe led the study area in the number of households with persons 65 years of age and over and households with persons over 75 years old.

Income

Cranbury Township, at $111,680, had the highest median household income in the study area, according to the 2000 Census. Monroe, at $53,206, and Jamesburg, at $59,461, had the lowest. Middlesex County median income in 2000 was $61,446. Median household income increased by 70 percent in Cranbury and by 54 percent in Plainsboro between 1990 and 2000. Chart 5, below shows median household income for all municipalities in the study area.

CHART 5

MEDIAN HOUSEHOLD INCOME



Source: 2000 U.S. Census

According to the 2000 Census, 3.3 percent of persons in the study area for whom poverty status was determined had incomes below the poverty level, compared with 6.6 percent in Middlesex County. Census tracts 77.02, 77.03 and 77.04 in Old Bridge, at 5.1 percent, had the greatest number of persons with incomes below the poverty level. Cranbury, at 1.6 percent, had the lowest.

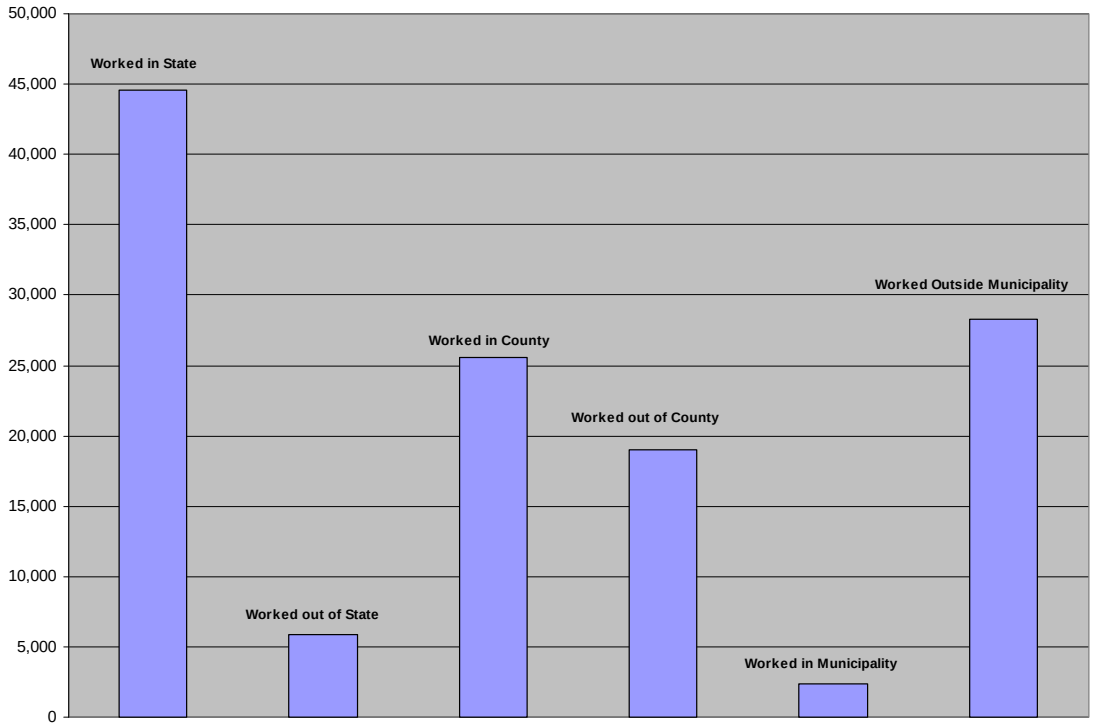
Thirteen percent of persons in the study area were disabled, according to the 2000 Census. There was no breakdown on types of disability. Monroe, at 20.4 percent, had the greatest number of disabled persons, followed by Jamesburg, at 17.2 percent.

2000 Census data show that 96.5 percent of workers 16 years of age and older the study area labor force in were employed and 3.5 percent were unemployed. Monroe, at 5 percent and Jamesburg, at 4.3 percent had the highest number of unemployed workers.

Chart 6, below shows place of work for workers 16 years of age and older in the study area in 2000. Most, 88 percent, worked in State, while 12 percent worked out of State. More than half worked in Middlesex County while just five percent worked in their municipality of residence.

CHART 6

NUMBER OF EMPLOYEES BY PLACE OF WORK



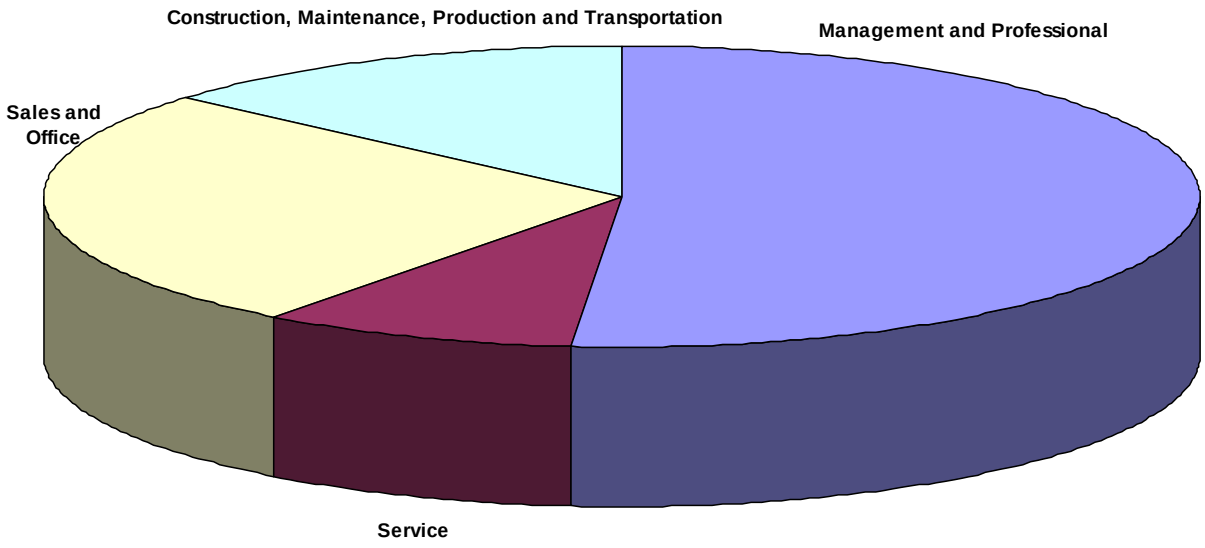
Source: 2000 U.S.Census

Occupations

Chart 7, below, shows occupations in the study area.

CHART 7

OCCUPATIONS



Source: 2000 U.S. Census

More than half of employed workers 16 years and over in the study area held management and professional occupations, according to the 2000 Census. More than one quarter had sales and office jobs Nearly 14 percent worked in construction, maintenance, production and transportation and 9 percent had jobs in the service sector. Plainsboro and Cranbury, at 69 and 60 percent respectively, had the greatest number of management and

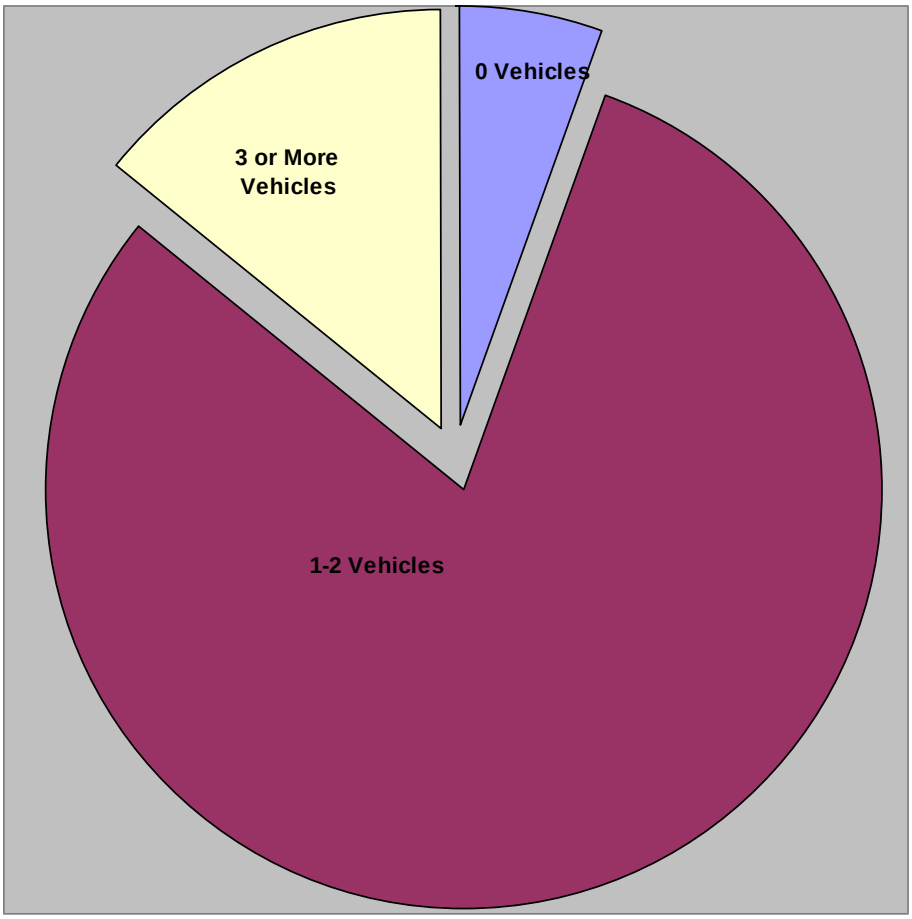
professional workers, while 30 percent of workers in Jamesburg, Monroe and the Old Bridge census tracts below Route 18 held sales and office jobs.

Automobile Ownership

Chart 8, below shows the number of automobiles per occupied household in the study area in 2000. Most households, slightly over 80 percent, had one to two vehicles while 6 percent had no vehicles and 14 percent had three or more vehicles.

CHART 8

AUTOMOBILE OWNERSHIP



Source: 2000 U.S. Census

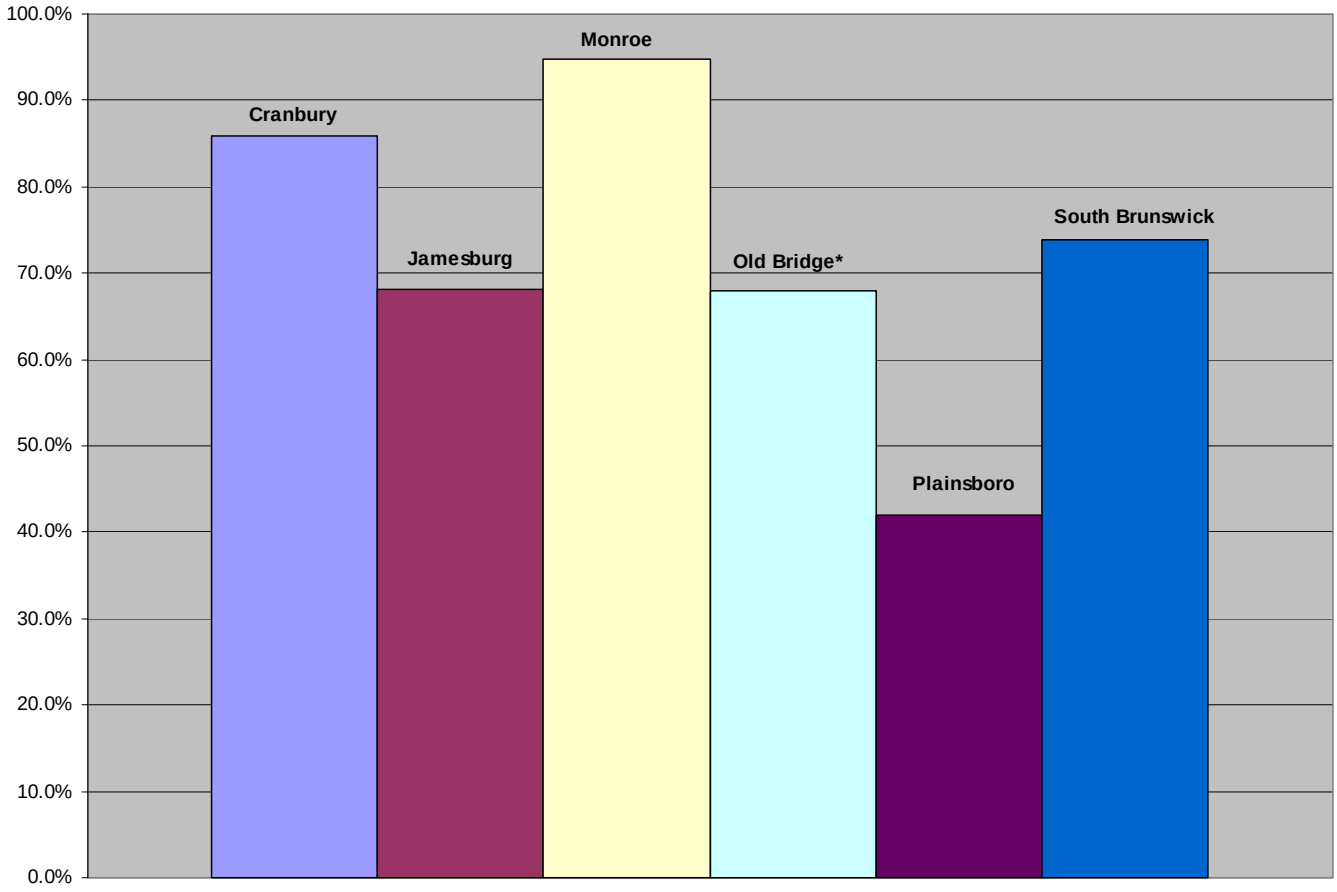
There were 10.7 percent of households in Jamesburg and 9 percent of households in Monroe with no vehicles. Nearly one quarter of households in Cranbury had three or more vehicles

Housing Characteristics

Nearly three quarters of all housing in the study area in 2000 were owner occupied single family detached and attached dwelling units. Monroe and Cranbury had the greatest number of owner occupied dwellings. Chart 9, below shows the percentage of owner occupied units in the South County municipalities.

CHART 9

OWNER OCCUPIED HOUSING

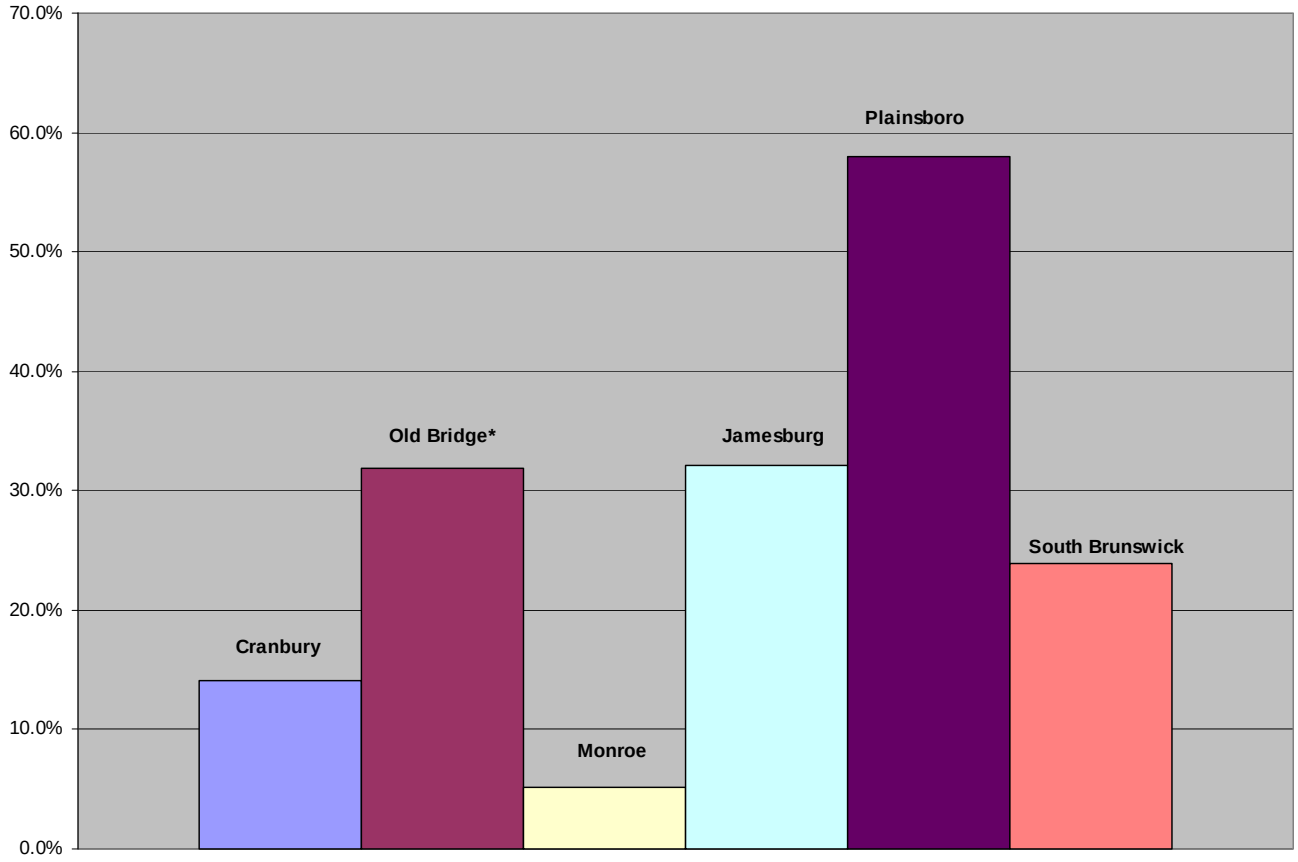


Source: 2000 U.S. Census

Slightly more than one quarter of all housing in the study area in 2000 were renter occupied. Nearly 60 percent of the dwellings in Plainsboro were renter occupied. Cranbury and Monroe had the fewest renter occupied units. Chart 10, below shows the percentages of renter occupied dwelling units in the South County municipalities.

CHART 10

RENTER OCCUPIED HOUSING



Source: 2000 U.S. Census

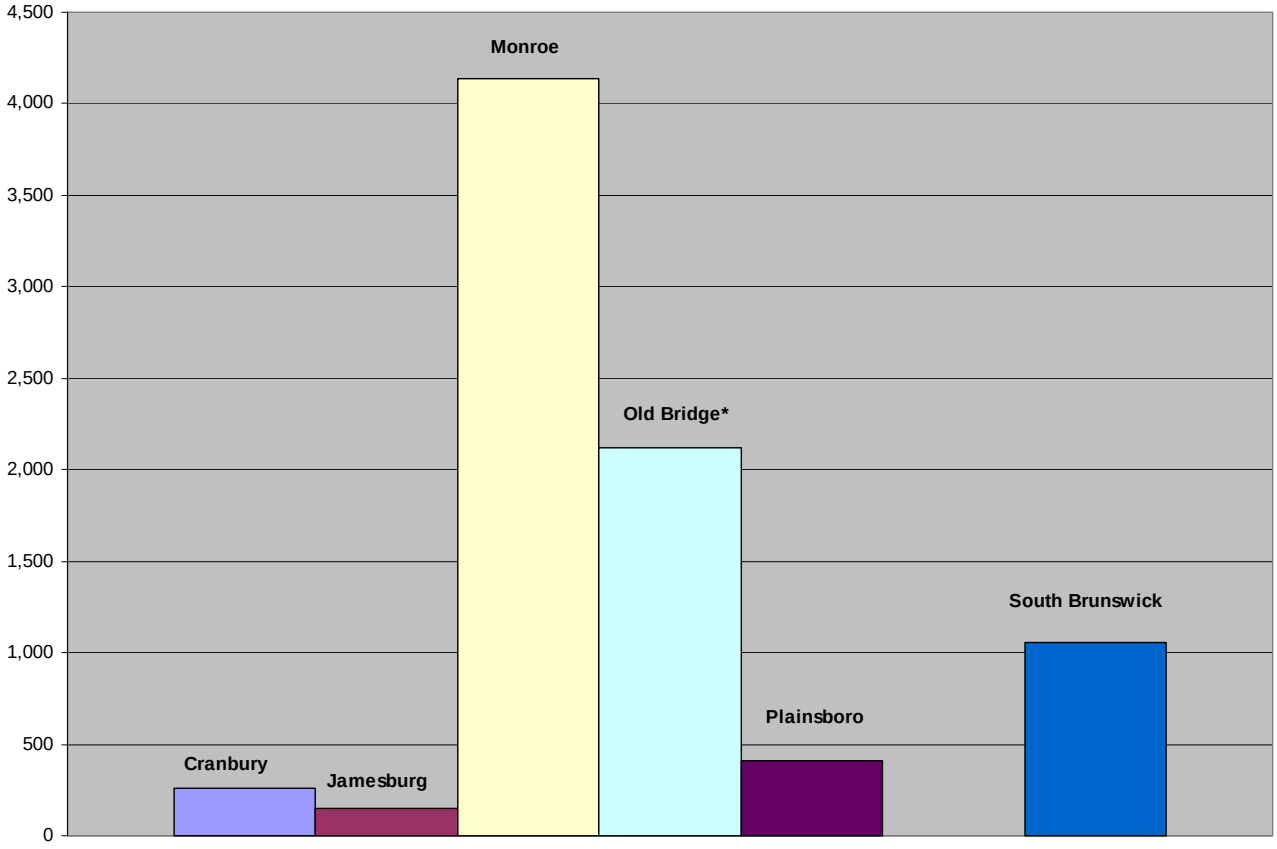
Development Activity

Development activity in the South County has outpaced the rest of Middlesex County. The study area accounted for nearly half of all dwelling units authorized by building permits in Middlesex County between 2000 and 2006, according to building permit data from the New Jersey Department of Community Affairs. Nearly 88 percent were for single family and the remainder for multifamily units.

Monroe had the greatest number of dwelling units authorized by building permits and Jamesburg the least, as shown on Chart 11, below.

CHART 11

DWELLING UNITS AUTHORIZED, 2000-2006

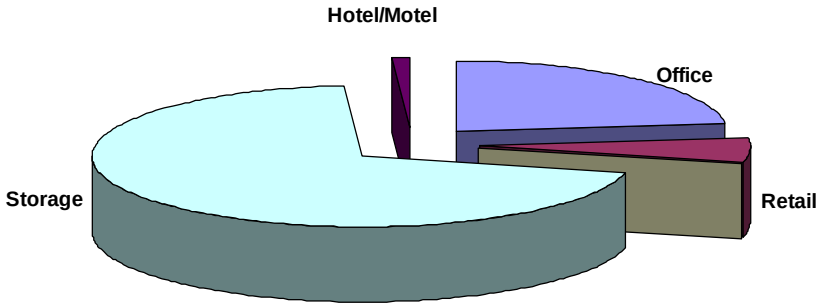


Source: New Jersey Department of Community Affairs

There was significant nonresidential development activity in the study area, according to building permit data from the New Jersey Department of Community Affairs. Nearly three quarters of the 9,685,459 square feet of nonresidential development authorized by building permits was for warehouse development (shown as "storage" in the data). Slightly less than one quarter of the permits were for office development. Chart 12, below shows development activity by category for nonresidential building permits authorized between 2004 and 2006.

CHART 12

NONRESIDENTIAL BUILDING PERMITS AUTHORIZED 2004-2006



Source: New Jersey Department of Community Affairs

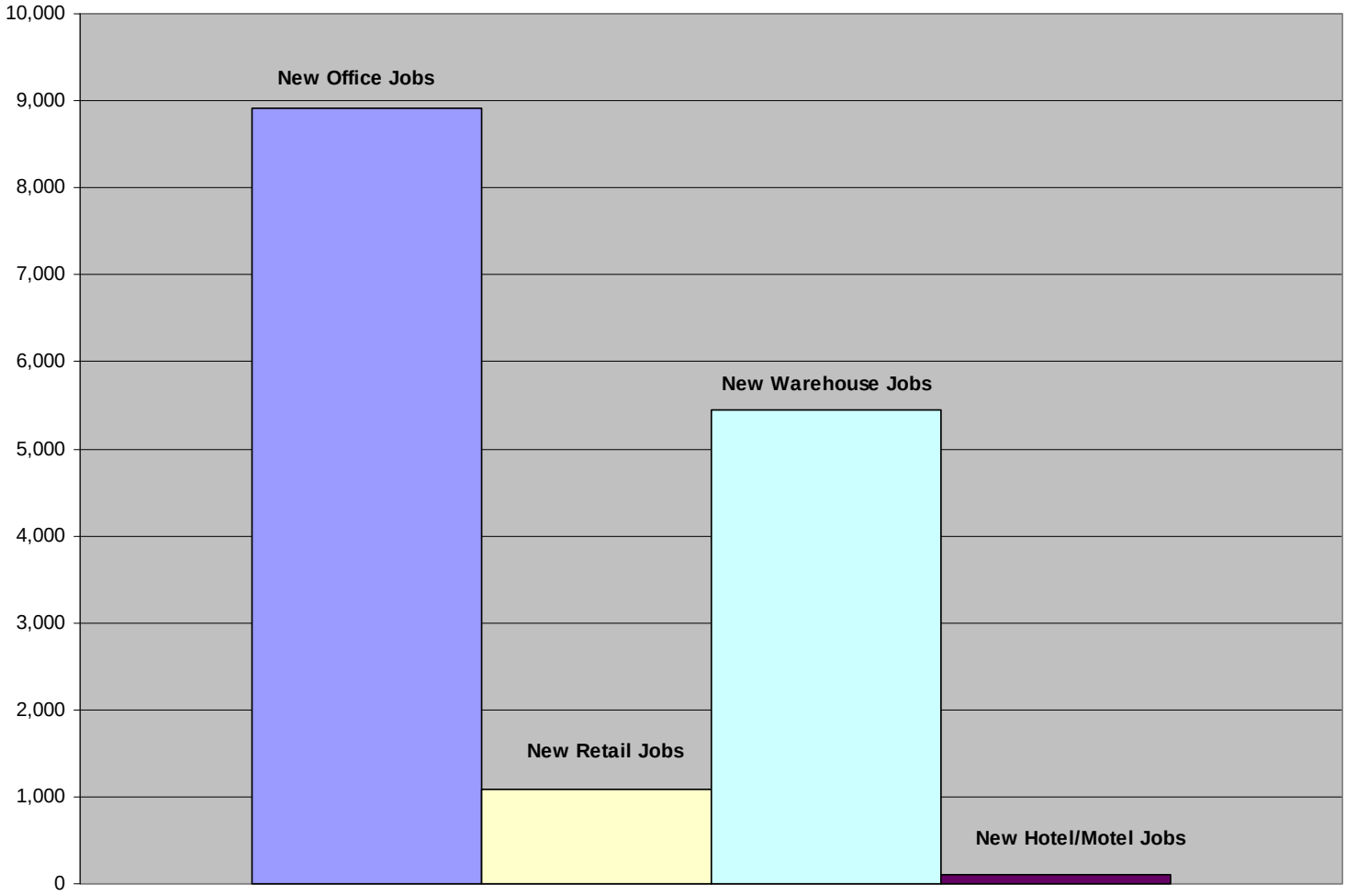
Nonresidential development was strongest in Monroe, with a total 1,831,277 square feet authorized by building permits between 2004 and 2006. Warehouse ("storage") development accounted for 1,625,845 square feet. Cranbury had a total of 1,602,681 square feet, half for warehouse and half for office development. Much of the warehouse and office development would be in the vicinity of Exit 8A of the New Jersey Turnpike.

New Jobs

New jobs are created as a result of nonresidential development. These new jobs, in turn, increase peak hour traffic volumes. A total of 15,555 potential new jobs would be created in the study area at buildout, based on the application of employment multipliers to the square footage of each development type.* New office and warehouse development accounted for most new jobs, shown on Chart 13, below.

CHART 13

JOBS GENERATED FROM NONRESIDENTIAL DEVELOPMENT

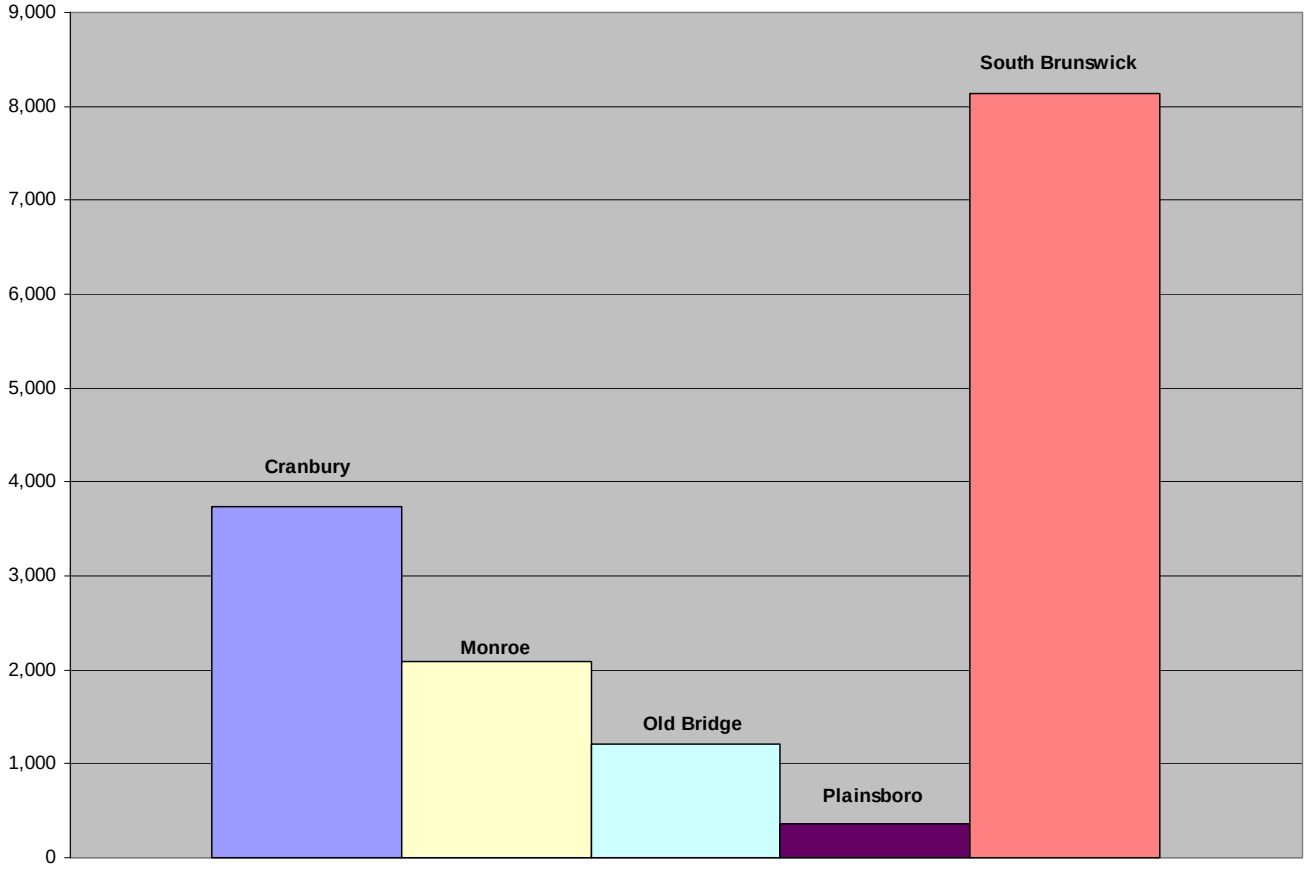


*Listokin, David et. A. New Jersey Demographic Multipliers: Profile of the Occupants of Residential and Nonresidential Development, Center for Urban Policy Research, Edward J. Bloustein School of Planning and Public Policy, Rutgers, the State University of New Jersey, New Brunswick, New Jersey (November 2006) Tables 11-D-1 thru 11-D-3, pp. 99-104.

Most of the new jobs, a total of 8,133, primarily office and warehouse, would be in South Brunswick Township, shown on Chart 14, below.

CHART 14

LOCATION OF NEW JOBS

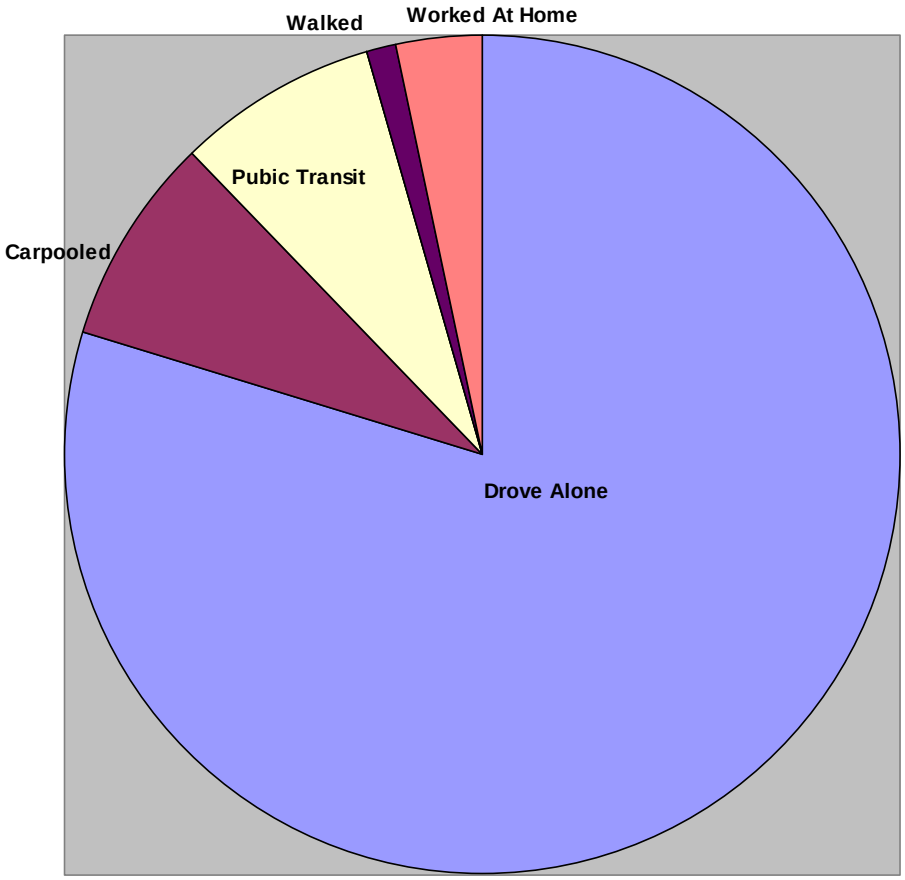


Journey to Work

Chart 15, below shows journey to work choices for workers 16 and over in the South County. The single occupancy vehicle was the primary means of transportation to work. Eighty percent of all workers 16 years of age and over drove alone to work. Eight percent carpooled and nearly eight percent used public transit. Three percent worked at home and slightly more than one percent walked. Just 0.2 percent bicycled to work.

CHART 15

TRIPS TO WORK CHOICES



Source: 2000 U.S. Census

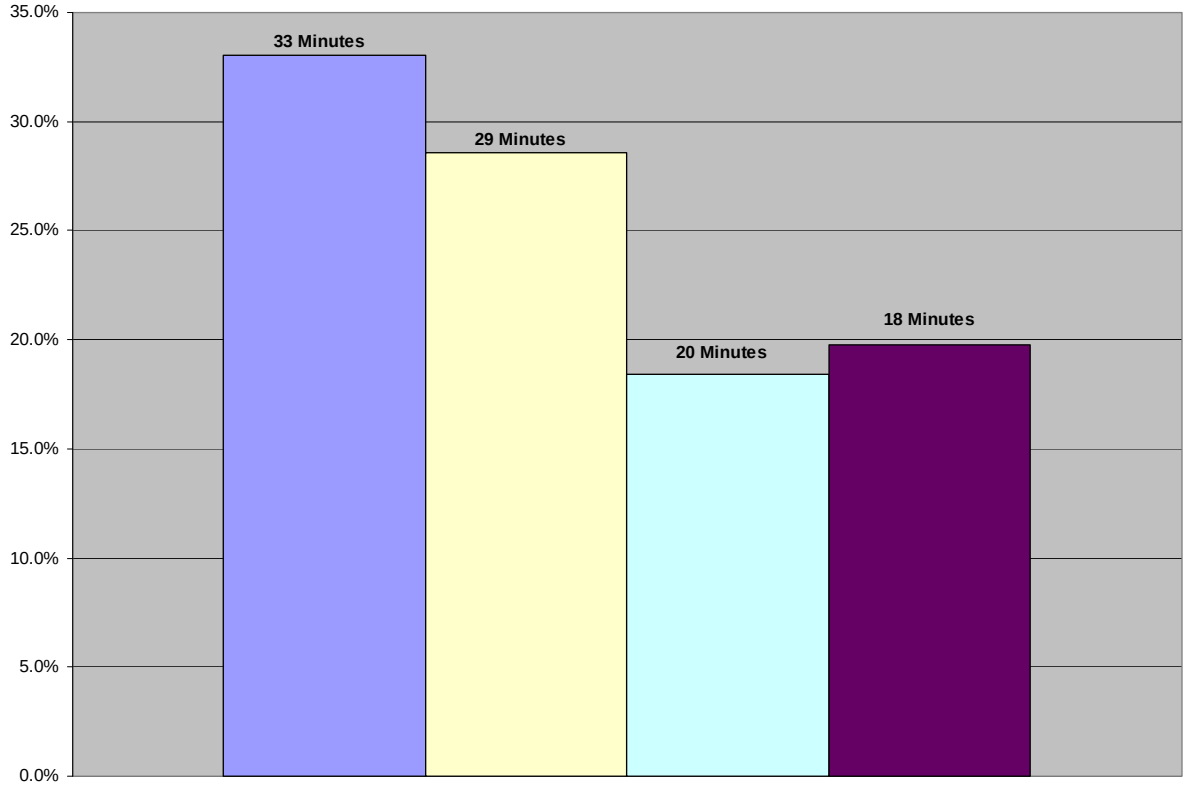
Fourteen percent of workers 16 and over in Jamesburg and 11 percent in the census tracts below Route 18 in Old Bridge carpooled. Plainsboro, at 12 percent, Cranbury at 10 percent and Old Bridge at 9 percent used public transit. Cranbury, at 5 percent and Monroe at 4 percent had the greatest number of persons who worked at home.

Of all workers 16 and over in the study area who used public transit, fifty one percent commuted to work by train and 49 percent traveled by bus. Plainsboro, at 73 percent, Cranbury at 69 percent, and South Brunswick at 49 percent had the greatest number of train commuters. Jamesburg, at 100 percent and Old Bridge at 99 percent had the greatest number of bus commuters.

The mean travel time to work in the study area was 34.5 minutes. The greatest number of workers 16 and over, 33 percent, traveled less than 20 minutes to work and 20 percent traveled more than an hour to work. Chart 16, below shows travel time in the Region.

CHART 16

MEAN TRAVEL TIME TO WORK



Source: 2000 U.S. Census

Tabulated data for the Demographic Profile are on pages 131 through 152 in Appendix 8.

VII. INVENTORY AND ANALYSIS OF EXISTING PUBLIC TRANSIT AND PARATRANSIT SERVICE

Fixed Route Public Transit Bus Service

Fixed Route public transit bus service is available in Cranbury, Jamesburg, Monroe, Plainsboro, South Brunswick and the section of Old Bridge south of Route 18. Most bus routes in the study area provide commuter service to New York City. Demand for this service has increased dramatically and has resulted in the expansion of the Bus Park and Ride Facility adjacent to Exit 8A of the New Jersey Turnpike. This facility now includes parking for 934 vehicles. Coach USA/Suburban Transit and Academy Bus lines provide service to New York City.

New York commuter buses that originate in Plainsboro stop at the Exit 8A Park and Ride lot. New York commuter buses also originate in Princeton, travel through West Windsor and East Windsor on Route 571, go north through Monroe on Applegarth Road, stop at the Exit 8A Park and Ride lot and terminate in New York. One scheduled New York route that serves several adult communities originates in Monroe and stops at this facility.

NJ Transit runs two New York commuter routes on the Eastern edge of the Region, serving Monroe and Old Bridge. One route, a variation of the 139 line, originates in Freehold in Monmouth County, enters Old Bridge Township on Middlesex County Route (CR)527), where it picks up New York bound commuters, then crosses Old Bridge on CR516 to join the Route 9 service.

The other NJ Transit route, a variation of the 138 line, originates in Spotswood, runs south, picking up New York bound commuters, and on to Texas Road (CR520), proceeds east to Route 9, north to Ferry Road and northbound Route 18 through Old Bridge along the eastern edge of the study area en route to Exit 9 of the NJ Turnpike and New York.

There are 95 NJ Transit bus stops in the study area, according to the **NJ Transit Bus Stop Inventory (BSI)** dated January 22, 2008. Shelters are provided at 27 of these stops. The Inventory shows 35 bus stops in Monroe Township, 22 on County Route 527 and one at Route 9 and Texas Road in the section of Old Bridge Township below Route 18; 24 stops in Plainsboro Township, and 13 in South Brunswick Township. Pages 45 through 51 in Appendix 2 are excerpts from the Inventory that contain detailed information on NJ Transit bus stops in the study area.

Coach USA/Suburban Transit operates service which originates in Princeton on the western edge of the study area, runs along New Jersey Route 27 in South Brunswick and terminates in New York. There are bus stops along Route 27 in the Village of Kingston and a 150 car park and ride facility in the Kendall Park section of South Brunswick Township. Bus commuters in the Franklin Park section of South Brunswick also use this facility. Other bus Park and Ride facilities in the Region include the Shopping Center on Henderson Road in South Brunswick, which has 20 commuter parking spaces, the Kendall Park Shopping Center, with 130 spaces,and the lot at Clearbrook on Applegarth Road, south of Cranbury Half Acre Road. This lot accommodates 98 vehicles. Monroe Township proposes to expand this facility by adding 83 new spaces. There is also the Monroe Park and Ride on Applegarth Road just north of Cranbury Half Acre Road, which has 141 existing spaces and 83 additional proposed spaces. This facility is also served by Coach USA/Suburban Transit. Coach USA/Suburban Transit bus schedules are in Appendix 3, pages 66-71.

Variations of this New York commuter route include express bus service which runs east on Finnegans Lane in South Brunswick to Route 1. The route then runs north to Exit 9 of the NJ Turnpike and terminates in New York. Other variations include bus service along Route 27 to New Brunswick, with a connection to the Northeast Corridor rail service, NJ Transit local buses and Rutgers University buses.

The **NJ Transit 600 Bus Line** serves the southwestern section of the study area, primarily points in Plainsboro Township. The 600 line runs from West State and Warren Streets in Trenton, with transfer points at the Trenton Train Station and the River Line, then along Route 1 with stops at Mercer and Quaker Bridge and Princeton Market Fair Malls, Carnegie Center, Canal Point, and the Princeton Junction Train Station in West Windsor. This portion of the route includes transfer points at Quaker Bridge and Princeton Market Fair. The 600 line continues from Princeton Junction into Plainsboro, with stops at Plainsboro Center, Princeton Meadows Shopping Center, Route 1 Connector, The Windrows at Princeton Forrestal Village and Princeton Forrestal Center. The 600 bus schedule is in Appendix 3, pages 63 through 65.

Ridership on the 600 Route increased by 19,315, or 7.6 percent between 2006 and 2007, according to NJ Transit. Ridership was 253,841 in 2006, and 273,158 in 2007.

The map entitled, **"Southern Middlesex County Transit Services – Existing,"** in Appendix 9 shows all existing public transit bus lines in the study area. The source of this map is the **2007 Middlesex County Transit Guide**. The map also shows fixed route paratransit bus service, operated by MCAT, all park and ride lots in the study area, the location of age restricted residential developments such as Roosmoor, Clearbrook and Concordia, and destinations such as shopping centers and community facilities.

Fixed Route and Demand Responsive Paratransit Shuttle Service

County Operated Service

Five County fixed route bus lines serve the study area. Three are operated by Middlesex County, one by Mercer County, and one by the Greater Mercer TMA.

Middlesex County Area Transit (MCAT) operates the following bus routes on a 60 minute frequency of service, Monday through Friday and every 120 minutes on Saturday.:

- **The New Brunswick-Jamesburg-8A Shuttle**, which provides fixed route service from Jamesburg to the Northeast Corridor train station in New Brunswick. This route includes the New Jersey Turnpike Exit 8A area, a major employment center, stops at the Rossmoor senior housing development in Monroe; Route 130/522 in South Brunswick, the North Brunswick Shopping Center and Wal-Mart in North Brunswick, New Street and Livingston Avenue, and the New Brunswick train station.

  There are three transfer points along this route, including:

  Jamesburg, where passengers can transfer to the MCAT Brunswick Square Mall shuttle.

  The North Brunswick Shopping Center, where passengers can transfer to the NJ Transit 811 and 814 bus line.

  The New Brunswick train station, where passengers can transfer to the MCAT Jersey Avenue Shuttle, and the NJ Transit 810, 811, 814, 815 and 818 bus lines.

  Ridership on the New Brunswick-Jamesburg-8A shuttle was 87,237 annual passengers in 2008, a monthly average of 7,270, or 291 daily passenger trips. Annual ridership increased by 68.1 percent from 2007 to 2008.

- **The Brunswick Square Mall-Monroe-Jamesburg Shuttle**, which provides fixed route service between Jamesburg and the Brunswick Square Mall in East Brunswick. This route includes stops at Clearwater Village in Spotswood, and stops in East Brunswick before reaching the Brunswick Square Mall.

This route has two transfer points:

Jamesburg, where passengers can transfer to the MCAT Jamesburg-8A shuttle.

The Brunswick Square Mall, where passengers can transfer to the NJ Transit 818 and 811 bus lines.

Ridership on the Brunswick Square Mall-Monroe-Jamesburg shuttle was 19,812 annual passenger trips in 2008, a monthly average of 1,651 passenger trips. Annual ridership decreased by 4.8 percent from 2007 to 2008.

- The MCAT **Brunswick Square Mall-South River-Old Bridge Shuttle** includes fixed route service to the portion of Old Bridge Township that is within the study area. This service runs from Birchwood along Maple Street, Birch Street, Jon Street and Mimi Road to Route 18.

  Ridership on the Brunswick Square Mall-Old Bridge shuttle was 21,442 annual passenger trips in 2008, with a monthly average of 1,786 passenger trips. Annual ridership increased by 45.1 percent from 2007 to 2008.

  MCAT schedules for the above mentioned routes are pages 53 through 55 in Appendix 3.

- Mercer County provides the **Route 130 Connections Shuttle Service** between Cranbury and South Brunswick Townships in Middlesex County to the NJ Transit train station in Hamilton Township, Mercer County. This route runs along Route 130 and is designed to increase access to jobs. The **Route 130 Connections** schedule is on pages 73 through 75 in Appendix 3.

- The Greater Mercer TMA operates **Train Link**, a shuttle service with a loop route between the Princeton Junction Train Station and Forrestal Village. This service is privately funded by seven major employers, including Black Rock Financial Company and Novo Nordisk in Forrestal Village.

  Ridership on Train Link was 30,672 in 2006, with a monthly average of 2,556, according to Sandra Billlhard of the Greater Mercer TMA. Ridership was 24,228 in 2007, a decrease of 6,444, or 21 percent. The 2007 monthly average was 2,019. Ridership between January and July, 2008 was 11,580, with a monthly average of 1,654. Based on the current trend, ridership for all of 2008 would be 19,850, which would represent a decrease of 4,378, or 10 percent.

  The **Train Link** schedule is on page 62 in Appendix 3.

Municipal Transportation Service

Monroe Township provides fixed route shuttle service to shopping centers, medical facilities and transportation centers in Princeton and Freehold. This service is available to all residents at no charge, regardless of age.

Two routes provide weekday shuttle service from the Monroe Community Center to the Freehold Raceway Mall in Freehold Township, Monmouth County, with stops at most senior citizen residential communities, local shopping centers, and the Centra State Medical Center in Freehold Township.

There are two shuttle routes from the Monroe Community Center to the Princeton Shopping Center in Princeton Township, Mercer County, with stops at the Concordia Shopping Center, most senior citizen communities, the East Windsor Town Center Plaza, the Northeast Corridor rail station at Princeton Junction, Palmer Square in the Borough of Princeton and the Princeton Medical Center. This route runs Sunday through Thursday.

Ridership on the Freehold shuttle was 5,207 in 2007, with a monthly average of 434, according to Amy Rutherford, Monroe Township Director of Transportation Ridership between January and October, 2008 was 5,127, with a monthly average of 591. Based on the current trend, ridership for all of 2008 would be 6,309, an increase of 1,102, or 21 percent.

Ridership on the Princeton shuttle was 3,321 in 2007, with a monthly average of 276. Ridership between January and October, 2008 was 2,936, with a monthly average of 294. Based on the current trend, ridership for all of 2008 would be 3, 524, an increase of 203, or eight percent.

Monroe also has an In-Town Shuttle for senior and disabled citizens. This shuttle, which runs on Tuesdays and Thursdays, has picks up passengers at the Greenbriar, Concordia, Ponds, Clearbrook and Rossmoor senior citizen communities and transports them to the municipal complex and to locations in Monroe and Jameburg, such as banks, restaurants, pharmacies and supermarkets.

Monroe Township contracts with MCAT to provide demand response curb to curb transportation service for elderly and disabled residents of Monroe, Cranbury and Plainsboro Townships and the Borough of Jamesburg.

Monroe shuttle schedules are in Appendix 3, pages 56 through 61.

South Brunswick Township provides weekday fixed route shuttle service to medical, nutrition, recreation, shopping, social and workplace facilities for senior citizens and disabled residents. Destinations include shopping centers in South Brunswick, North Brunswick, East Brunswick, the Freehold Raceway Mall, and the Quakerbridge Mall on Route 1 in Mercer County. Ridership in 2008 was 151 trips per day, according to South Brunswick Senior Citizen Director Christine Wildemuth.

South Brunswick Municipal Area Transport (SMART)

South Brunswick provides fixed route weekday commuter shuttle bus service to Northeast Corridor rail stations in Princeton Junction in West Windsor Township and Jersey Avenue in New Brunswick Township and the Exit 8A Bus Park and Ride Facility on Route 130. The route will include stops at the Community Center and several residential developments via New Road, Finnegans Lane and Route 1. A map of the South Brunswick Municipal Area Transit (SMART) route is on page 8 in Appendix 1.

Tabulated data on public transit and paratransit shuttle service are in Appendix 8, pages 151 and 152.

Old Bridge Township Community Shuttle

The Middlesex County Department of Transportation provides commuter shuttle service the bus stop at Throckmorton Lane/Ticetown Road and Route 9. Commuters are picked up at nine locations in the Sayrewoods section of the township. The shuttle runs from 5:15 to 7:45 a.m. and from 4:15 to 7:15 p.m.

The Old Bridge Commuter Shuttle Schedule is on page 72 in Appendix 3.

The Old Bridge Township Office on Aging operates fixed route transportation service for senior citizens and the disabled. Transportation service includes medical, nutritional, recreational, shopping and social trips.

It should be noted that Plainsboro Township had provided shuttle service to the Princeton Junction train station several years ago; however, that grant funded service is no longer available.

Photographs of existing transit services, routes, park and ride facilities and bus stops are in Appendix 4, pages 77 through 89.

Other Transportation Services

Access Link

NJ Transit provides complementary paratransit service via Access Link for passengers who are unable to use NJ Transit accessible bus service because of their disabilities. Access Link is available to all qualified passengers and will transport persons to and from any point within three quarters of a mile of local bus routes. The NJ Transit 600 route in the study area is complemented by Access Link.

Middlesex County Board of Social Services

The Middlesex County Board of Social Services Transportation Unit processes requests and contract services for transportation to medical appointments, housing assistance and administrative fair hearings. The service includes demand response trips and subscription trips to non-emergency medical appointments within Middlesex County and up to five miles into surrounding counties.

Atlantic City Bus Service

Bus service to Atlantic City is offered from various the Monroe Township Concordia Travel Shopping Center.

Taxi and Limousine Service

Taxi service in the study area is limited. Jamesburg is the only municipality where taxi service is available. One company provides all day taxi service and one company provides all day taxi and limousine service.

Cranbury has one company that provides limousine service.

Unofficial Transport

Many low income workers in the study area who cannot afford a car and do not have access to public transit travel to work in unofficial, unregulated van pools. At this point in time, the extent and number have not been quantified, but they are evident every day on study area roadways.

Bicycle and Pedestrian Facilities

Bicycle and pedestrian access to transit is limited due to the pattern of development and characteristics of major roadways in the study area. Nonresidential development is concentrated along major roadways in the NJ Turnpike Exit 8A area that generate heavy truck traffic. Similarly, the Princeton Forrestal Center office and laboratory development adjacent to Route 1 in Plainsboro is heavily congested. These areas are unsafe for bicyclists and pedestrians.

Residential developments in the study area are isolated and accessible primarily by automobile. Only Jamesburg is fully developed. Bicycle and pedestrian facilities in these locations are limited, even nonexistent, due to the nature of development and roadway characteristics.

The **"Middlesex County Bicycling Guide"** is a map that illustrates the characteristics of all major roadways in the county. Most of the county 500 and 600 roads in the study area are unsafe for bicyclists and pedestrians due to high speed limits, lack of shoulders and lack of sidewalks, according to the Guide and field inspections. Routes 1, 130, 32, 33 and 18 have six to twelve foot wide striped shoulders, but they are unsafe for bicyclists because of high volumes of traffic and high speed limits.

The **"Middlesex County Pedestrian & Bikeway Facilities Inventory on County Roads Including Sidewalk Study for 500 and 600 Numbered County Routes"** shows the location of sidewalks on county roads in the study area. According to this Inventory, sidewalks are limited and intermittent, constructed in sections where required by developers. Maps showing the location of sidewalks on county roads in the study area are on pages 9 through 11 in Appendix 1. These are excerpts from the Sidewalk Inventory.

There are sidewalks along the residential streets and in the downtown area of Jamesburg and in the Village of Cranbury.

There are bicycle facilities in the study area municipalities; however, most are situated on off road multiuse trails in parks and greenways. There are no bicycle racks at any of the commuter bus park and ride lots in the study area. There are bicycle routes on some local roads in Cranbury, Plainsboro and South Brunswick. These are intermittent and unconnected. Proposed bicycle and pedestrian facilities in the study area are shown on the map entitled, **"Middlesex County South County Study Area Proposed Bicycle-Pedestrian Projects"** This map, an excerpt from the **"Middlesex County Bicycle Pedestrian Plan"** is on pages 12 and 13 in Appendix 1. The proposals are based on municipal master plan recommendations. The County Plan recommends, as a long range goal, a connected bicycle network throughout the county.

It should be noted that Monroe Township has applied for funding, under the NJDOT Local Planning Assistance Program, to develop a two part bicycle and pedestrian plan that will include roadway and intersection improvements to safely accommodate bicyclists and pedestrians, and an off road network for bicyclists, pedestrians and equestrians.

Also, Plainsboro has been approved for funding through the NJTPA Transportation Improvement Priogram for traffic calming on Plainsboro Road. The project includes construction of a bus turnout and shelter, installation of sidewalks and enhanced pedestrian crossings.

South County Study Area Traffic Volumes

Traffic volumes have increased exponentially as a result of development activity in the study area and along major corridors outside the South County area. The greatest traffic volumes are along the NJ Turnpike in Monroe. Traffic volumes are high along the state and county roadways in the vicinity of NJ Turnpike Exit 8A, including Route 130 in Cranbury and South Brunswick, Route 32 in South Brunswick and Middlesex County Route 535 in Cranbury, Monroe and South Brunswick, according to **2006 NJDOT AADT Traffic Counts.** This area is heavily congested and truck traffic is a major concern.

Other roadways with increasing traffic volumes are the heavily congested Route 1 Corridor in Plainsboro and South Brunswick, Route 33 in Monroe, Route 27 in South Brunswick, Route 9 south of Route 18, in Old Bridge and County Routes 527 in Old Bridge and 614 in Cranbury and Plainsboro.

2005 AADT Traffic Volumes in the study area are shown on maps on page 40 and 41in Appendix 1. These are excerpts from the map entitled**, "New Jersey Department of Transportation 2005 AADT Middlesex County,"** on pages 40 and 41 in Appendix 1.

Tabulated 2006 AADT Traffic Volumes in the study area are in Appendix 6, pages 115 through 125.

South County Study Area Crash Data

Study area crash data for 2003-2006, compiled by NJDOT, are shown on pages 33 through 38 in Appendix 1. Crashes during this period are plotted on individual maps for each municipality. The greatest number of crashes occurred on the NJ Turnpike, Routes 1, 130, 32, 27 and 18. Middlesex County Routes 535, 527, 522 and 614 also had a significant number of crashes. South Brunswick had the greatest number of crashes, 5,113, followed by Monroe, with 2,257; Cranbury, with 1,682; Old Bridge, with 1,416; Plainsboro, with 966; and Jamesburg, with 330.

The NJDOT crash data show that South Brunswick had 12 fatalities during 2003-2006, including one pedestrian. Cranbury had eight fatalities; Monroe had four; Old Bridge had four, including one pedestrian; Plainsboro had one, including a pedestrian, and Jamesburg had one fatality, a pedestrian.

Data compiled by the New Jersey State Police show a total of 48 fatalities in the study area between 2002-2007. According to this report, most of the fatalities, 36, occurred on Middlesex County roads, 16 on state highways and six on the NJ Turnpike. Most fatalities, 56, were drivers or passengers; eight were pedestrians and two were bicyclists. Monroe, with 16, had the greatest number of fatalities during this period, followed by South Brunswick, with 12; Cranbury, with 10; Plainsboro, with six; Old Bridge and Jamesburg with two each. A table showing the State Police data on fatalities is in Appendix 8, page 150.

VII.. PUBLIC OUTREACH AND COMMUNITY INVOLVEMENT

The public outreach process began in the Spring of 2007 when staff introduced the proposal for the South County Study to the Middlesex County Transportation Coordinating Committee (TCC) and the Transit Subcommittee. It should be noted that representatives from transit providers and municipalities in the Study Area are members of the TCC.

The Transit Subcommittee, acting as the umbrella organization, guided the preparation of the study. The Subcommittee and the Middlesex County Department of Planning identified potential stakeholders in the Fall of 2007 and reached out to them in the Winter of 2007, introducing the study and inviting them to participate. This group of stakeholders served as the initial Technical Advisory/Oversight Committee for community outreach tasks

Stakeholders who participated included public transit providers, county and municipal shuttle service providers, and representatives from each municipality in the study area. The list of stakeholders is on pages 91 - 93 in Appendix 5.

During the first phase of the outreach process, the Technical Advisory Committee met on June 5, 2008 to identify additional stakeholders, identify resources and determine next steps. The expanded Technical Advisory Committee met on September 24, 2008. The group identified existing public, county and municipal transportation services and assessed the need to expand and improve service coordination in the study area. Craig Marshall, South Brunswick Township Planning Director, introduced the South Brunswick Municipal Area Residential Transit (SMART), the new municipal fixed route commuter shuttle service. Andrew Feranda, Cranbury Township Planning Consultant, introduced plans for a new master plan road in the warehouse area and the transit needs generated by employees. Additional information is in the meeting minutes on pages 94 through 103 in Appendix 5.

Planning staff worked closely with municipal representatives and transit providers, in person, by telephone and by email, continuing to assess ways to improve existing services and identify new routes to meet current and future needs.

Planning Department staff and representatives from the Technical Advisory Committee implemented the second phase of the community involvement process in the Fall of 2008, reaching out to municipalities and transit providers by attending meetings with professional staff, transit providers and consumers at municipal locations in the Study Area.

Middlesex County Planning Department staff and other stakeholders attended a meeting in Plainsboro on October 21, 2008, during which existing transit and future needs in the township were discussed. The Princeton Medical Center and related health services, including a nursing home, are relocating to Plainsboro, generating a great need for additional transportation services. Stakeholders who attended this meeting included

Plainsboro Planning Department staff; the Greater Mercer TMA, which operates shuttle service in the Forrestal Village section of Plainsboro; public transit and Middlesex County shuttle service providers; New Jersey Department of Transportation; and Princeton Medical Center representatives. Additional information is in the meeting minutes on pages 104 through 111 in Appendix 5.

Staff met with Councilwoman Barbara Carpenter on November 25, 2008, to discuss transportation needs in the Borough of Jamesburg. Councilwoman Carpenter discussed needs such as a bus or shuttle route from Jamesburg to the relocated Princeton Medical Center in Plainsboro; restoration of Suburban/Coach bus service to Jamesburg; shuttle service to bring residents to the public library; park and ride facilities in a section of Thompson Park, possibly shared with Monroe Township; and a new park and ride lot on property currently owned by Conrail.

Old Bridge representatives discussed transit needs in the southern portion of the township during a meeting with Middlesex County Department of Planning staff in the municipal building on January 21, 2009. Persons who attended included Sam Rizzo, Township Planner; James Cleary, Township Engineer; Richard Zipp, Middlesex County Transportation Coordinating Committee Vice Chairman and Old Bridge representative; and Steve Fittante, MCAT Director.

Messrs. Rizzo and Cleary said there are several isolated areas in Old Bridge that do not have access to transit, particularly persons who live in low and moderate income multifamily dwellings in the isolated areas, including the Woodhaven housing development at County Routes 527 and Texas Road.

Consumers are excellent sources in identifying transportation needs. Staff maintains contact with persons in the study area who use public transit and municipal shuttle services. A letter from a person who regularly uses public transit is on pages 112 and 113 in Appendix 5. The letter includes several suggestions to improve transit service in Plainsboro.

The Technical Advisory Committee and Planning Department staff, upon completing the community outreach process, developed short and long term recommendations designed to provide safe and convenient mobility options in the rapidly developing yet underserved portions of southern Middlesex County for persons who do not drive or prefer to use public transit.

Middlesex County Planning Department staff sent the Draft Short and Long Term Recommendations to all stakeholders, including NJTPA, on April 15, 2009. The stakeholders reviewed the Draft Recommendations with staff by phone and in person and provided comments and additions. The Final Recommendations are based on the input from and approval by all stakeholders.

IX. PROPOSED RECOMMENDATIONS

The proposed short and long term recommendations are intended to improve services in Southern Middlesex County where fixed route and paratransit facilities exist through expansion and better coordination.

The recommendations are based on input by representatives from municipalities in the Study Area, public and paratransit providers, TCC and Transit Subcommittee members, and other stakeholders.

The Demographic Analysis in Section VI. of this study supports the recommendations with a statistical profile that shows the need for improved transportation services in the Study Area and individual municipalities.

Short Term Recommendations

1. **Designate Transit Nodes**

   Based on existing and anticipated transit services to occur in the near future, the following locations in the study area should be designated as transit "nodes," or "hubs" which may serve as activity centers and transfer points for public bus and paratransit shuttle passengers. These include:

   - The Exit 8A Park and Ride lot on Route 130 in South Brunswick
   - The Princeton Medical Center in Plainsboro
   - The Plainsboro Plaza and Princeton Meadows Shopping Centers in Plainsboro
   - The Princeton Meadows Shopping Center in Plainsboro
   - The Monroe Municipal Complex
   - Rossmoor, Clearbrook and Concordia senior citizen residential communities in Monroe
   - The Southern Old Bridge area in the vicinity of the Routes 9 and 18 and Texas Road (CR 520) interchange and the Oasis Ford site.

   Future expansion of fixed route and/or paratransit services should also be directed to other activity centers in the Study Area, including:

   - The Village of Cranbury Town Center
   - The Borough of Jamesburg Town Center
   - The Monroe Township new Senior Center/Transportation Center
   - The Plainsboro Township Municipal Complex
   - The South Brunswick Municipal Complex
   - The Rossoor, Clearbrook and Concordia senior citizen residential communities in Monroe
   - The Concordia Shopping Center in Monroe
   - The Village of Kingston

2. **Consider the designation of an official commuter parking lot** at the Princeton Forrestal Center in Plainsboro, Plainsboro the Princeton Meadows Shopping Center or the Plainsboro Plaza Shopping Center in Plainsboro. Consider a commuter parking accommodation at the Concordia Shopping Center in Monroe.

3. **Create a new Middlesex County Department of Transportation (MCAT) all day route** from Veterans Park in Jamesburg to the NJ Transit Princeton Junction train station, with stops at the Monroe Township, Cranbury Township and Plainsboro Township Municipal Buildings and across from Plainsboro Village. This route would run during the morning and evening peak for Plainsboro commuters. The route would also meet the needs of transportation dependent populations. The new MCAT Jamesburg - Princeton Junction route should also provide service to the Princeton Medical Center and associated development.

   The new Princeton Medical Center and associated development in Plainsboro will generate a need for new and expanded bus and shuttle service from points north and south, east and west.

4. **Expand/realign the NJ Transit 600 Bus** Line from the west to provide service from Trenton and from the Princeton Junction rail station to the Princeton Medical Center in Plainsboro.

5. **Expand/realign the Mercer County TMA Train Link** shuttle from the Trenton and Princeton Junction rail stations to provide service to the Princeton Medical Center in Plainsboro and associated development.

6. **Expand/realign the South Brunswick Municipal Area Residential Transit (SMART)** shuttle to provide service to the Princeton Medical Center in Plainsboro.

7. **Expand the Monroe Township Freehold Routes A and B and Princeton Routes A and B shuttle routes** to provide service further west, including service to Princeton Medical Center in Plainsboro. Also, consider service to communities including Encore, Regency, Stonebridge, Renaissance on Route 33,Renaissance on Union Valley Road, the newly proposed senior community center on Halsey Reed Road, the Monroe Manor west of Butcher Road, and the Monroe Township designated affordable housing/mixed use site east of Applegarth Road, west of Perrineville Road and north of Route 33.

   Service should continue to be provided to the Monroe Park and Ride lot on Applegarth Road northbound side north of Cranbury Half Acre Road and the Park and Ride lot on Applegarth Road south of Cranbury Half Acre Road.

8. **KMM should work with and encourage** major employers in the Study Area to take advantage of existing federal / state tax incentives and Transit Subsidy Program. Also, encourage greater use of car pool and van pool service and/or shuttle services and transit linkages for their employees

9. **Municipalities should request NJ Transit for additional bus shelters** to be placed along routes with existing and/or proposed shuttle services in the study area. Municipalities may consider advertising revenues to defray the cost and maintenance of bus shelters installed by NJ Transit.

10. **Explore a uniform fare structure** to facilitate transfers from one bus route and carrier to another and to provide more seamless transit connections throughout the study area.

11. **Improve safety of "gypsy" vans** operating in the study area by providing incentives to their operators to legitimize their routes and to be integrated in the area's transit network.

12. **Explore through KMM, Mercer TMA and host municipalities the availability of the zipcar** at such locations as the Princeton Junction Train Station, the Princeton Station, and the Plainsboro Plaza Shopping Center in Plainsboro.

13. **Provide commuter bus and shuttle** service to the recently approved major subdivision east of Applegarth Road and south of Route 33 in Monroe.

14. **Extend shuttle service to the Woodhaven housing development** on County Routes 527 and Texas Road in Old Bridge.

15. **Support and advance** the alternative analysis recommendations of the Central New Jersey Route 1 Bus Rapid Transit (BRT) segments developed by the Central Jersey Transportation Forum BRT Subcommittee.

The Map entitled, **"Southern Middlesex County Transit Services – Proposed,"** in Appendix 9 shows recommended short term changes to existing public transit and shuttle routes in the study area.

Long Term Recommendations

1. **Provide safer and better bicycle accommodations /facilities** on route**s** connecting to transit centers and park and rid facilities. Such routes include Route 27 between Kingston and Finnegans Lane; Route 130 between CR 522 and CR 614; CR 522 between Route 1 and Route 130; and CR 614 between Route 1 and Route 130.

2. **Provide bicycle storage facilities** at the Exit 8A Park and Ride facility, The South Brunswick Municipal Complex; the Village of Kingston, the Village of Cranbury; the Princeton Forrestal Center in Plainsboro; the Plainsboro Municipal Complex; the Plainsboro Plaza and Princeton Meadows shopping centers in Plainsboro; and the Concordia Shopping Center in Monroe.

3. **Provide bus and shuttle service to the proposed North Brunswick Transit Village train station** on Route 1 in North Brunswick from study area existing and future services including MCAT, SMART, and the Route 1 Central Jersey BRT. MCAT could provide shuttle service to the Transit Village by rerouting an existing line such as the Exit 8A shuttle, or creating a new line.

4. **Provide shuttle linkages from designated transit nodes to the future Route 1 Corridor Central Jersey BRT.**

5. **Provide a south connection between the NJ Turnpike and the Route 130 Corridor via Liberty Way** as proposed in the Cranbury Township Master Plan and noted in Section I of this report. The new road could accommodate improved transit access to jobs in NJ Turnpike Exit 8A area as well as automobile and truck traffic generated by existing and proposed office and warehouse developments in this area. Bus or shuttle services that would include Liberty Way should be provided by rerouting existing lines or creating new route(s).

6. **Provide commuter bus or shuttle service to the recently approved major subdivision east of Applegarth Road and South of Route 33 in Monroe Township.**

The Map entitled, **"Southern Middlesex County Transit Services – Proposed,"** in Appendix 9 shows recommended long term changes to existing public transit and shuttle routes in the study area.

X. FUNDING

Federal and state funding sources are described in Appendix 7, pages 117 through 119.