

MORRIS COUNTY MASTER PLAN

Circulation Element



ADOPTED:
March 5, 1992

Morris County Master Plan

CIRCULATION ELEMENT

Prepared by:
Morris County Department of Planning and Development
Division of Transportation Management
In cooperation with:
Morris County Planning Board

Adopted:
March 5, 1992

Cover photo:
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The County of Morris would like to express its appreciation to the following officials who were in office while this Element was being developed:

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RESOLUTION

WHEREAS, the Morris County Planning Board is charged with the responsibility of adopting a master plan for the physical development of the County; and

WHEREAS, planning for transportation facilities and services is a vital part of the master planning process; and

WHEREAS, extensive transportation planning has been done in past years by the Morris County Planning Board and the Morris County Board of Transportation, however, such previous planning never reached a stage of comprehensiveness at any one time to meet the standards needed to become an element of the County Master Plan; and

WHEREAS, a comprehensive draft "Circulation Element" was completed by the Morris County Board of Transportation in 1991 and distributed to all Morris County municipalities and other interested parties for their review; and

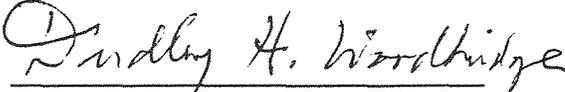
WHEREAS, the Morris County Planning Board held an informal meeting on November 25, 1991 for municipal officials and held an official public hearing on December 12, 1991 to receive comments on this draft Element; and

WHEREAS, all comments were reviewed by the Planning Board at its regular meeting on February 7, 1992 and modifications made in the text and tables in accordance with the Planning Board's determinations;

NOW THEREFORE BE IT RESOLVED that the Morris County Planning Board hereby adopts the "Circulation Element" of the Morris County Master Plan, dated March, 1992; and

BE IT FURTHER RESOLVED that copies of the "Circulation Element" be distributed to the Morris County Board of Chosen Freeholders, to municipal governing bodies and planning boards, the State Planning Commission and other appropriate State agencies, and be made available to the general public.

I hereby certify that this is a true copy of a Resolution adopted by the Morris County Planning Board at its regular meeting held on March 5, 1992.


Dudley H. Woodbridge, Planning Director

CHAPTER ONE

Executive Summary

Morris County, located in the north-central region of New Jersey, is midway between New York City and Pennsylvania. Families and businesses have been attracted to Morris County because of access to major interstate highways, available real estate, natural beauty, recreational opportunities, overall economic strength, a high quality of life, and its location in a major metropolitan area.

The construction of Interstates 80, 280, and 287, combined with the availability of large parcels of vacant land, resulted in the rapid and extensive development during the 1970's and 1980's. Along with the growth in employment and housing, traffic congestion has substantially increased on all roadways in Morris County. The dispersion of major employers and housing and the inability of the existing transit system to

adjust to the new commutation patterns has increased dependency on the automobile as the primary mode of transportation within the county.

Many local, county, state, and interstate road systems have reached or are approaching capacity levels. Although widening or roadway completion projects for I-80, I-287, and NJ 24 are currently planned or underway, it is not feasible nor financially practical to increase the capacity to adequately meet the demands of the continually increasing traffic volumes.

In addition to the increase in traffic congestion, a worsening of air quality has occurred. To address this potentially severe health risk, the 1990 Clean Air Act Amendments require specific actions to decrease air pollution caused by vehicular emissions. Non-compliance with the

legislation will result in loss of federal highway funding.

In Morris County, many agencies, both public and private, are involved in various aspects of planning and providing for transportation or roadway improvements. As a means to coordinate transportation policies and improvements among private, local, and regional agencies, this Circulation Element has been developed. It is the first circulation plan adopted by the Morris County Planning Board. The integration of transportation as an element of the Morris County Master Plan is also important because of the relationship and dependency between transportation and land use.

Chapters 2 and 3 of the Circulation Element include a history of transportation in the county from the earliest roads to the present, the need for establishing the Morris County Division of Transportation Management, and an explanation of the organization framework of transportation planning. Chapter 4, **The Transportation Network**, provides a comprehensive review of systems and services including transit, roadways/bridges, and goods movement. Factors affecting transportation decisions such as historical patterns of development, existing land use, employment, population, and housing growth are discussed. The chapter further describes Morris County's transportation planning process which includes the development of the county's transportation computer model.

Recommendations for the future of transportation in Morris County are detailed in Chapter 6. The plan's recommendations are directed at all levels of government, the private sector, and any individuals or organizations involved with transportation in Morris County. The policies and proposals support the goals and objectives. In order to effectuate the plan, short range proposals

for 1995 and long range proposals for 2010 are outlined, as well as, a description of the means to implement them. The chapter concludes with a list of road and bridge improvements categorized by the related policy proposals of transportation system management, safety, operating efficiency, and existing facilities.

The Appendix to the Circulation Element contains the detailed descriptions and data supporting the main text which includes public transportation, highway route description, functional classification of roadways, traffic counts, land use, and environmental concerns.

The Circulation Element concisely identifies and addresses transportation issues in Morris County and recommends a coordinated multi-faceted approach in dealing with transportation problems into the twenty-first century. The proposals generally recommend encouraging the use of innovative transportation system management strategies, maintaining and improving existing transportation facilities and infrastructure, and improving the accessibility and efficiency of public transportation.

The 1990 Clean Air Act Amendments will provide the major impetus for the implementation of many of the specific recommendations. However, the cost of realizing the plan's recommendations are far greater than the funding available for these transportation projects. Cooperation among all levels of government and the private sector is necessary to achieve the goals of the plan.

The Morris County Division of Transportation Management has worked closely with the Morris County Planning Board, the Morris County Engineer's Office, the 39 municipalities within the county, citizens groups, Morris 2000, and many others in the development and writing of this plan.

CHAPTER TWO

Historical Perspective

Transportation has played a significant role in the growth and development of Morris County since the county was chartered by the King of England in 1739. An early economic stimulus in Morris County was the mining of iron ore found in the hills near Dover and Rockaway. The county quickly became one of the largest iron ore mining regions in America. As the county prospered, the need for efficient transportation rose. (see Figure II-1).

Before the advent of modern technology, travel was so time-consuming and arduous that trips were only taken when necessary and seldom for pleasure. With few exceptions the roads were footpaths and the only modes of travel were horseback and walking.

The first stage coach in the county began operating about 1798. It ran from Morristown to Jersey

City where there was a ferryboat to Manhattan. The coach traveled from Morristown on Tuesdays and Fridays, returning on Wednesdays and Saturdays. It stopped in Madison, Chatham, and Newark and took most of the day to make the onerous trip. The need for better roads was met during the first half of the nineteenth century by private companies that built toll roads.

In 1801 when the Morris Turnpike was chartered, it connected Morristown with Elizabethtown, now Elizabeth. The toll free "Shunpike" was built parallel to this toll road by those who wanted to shun the pike. Other turnpikes in the county soon followed including in 1804, the Union Turnpike; in 1806 the Paterson-Hamburg Turnpike, the Newark-Mount Pleasant Turnpike, and the Washington Turnpike; in 1809 the Parsippany-Rockaway Turnpike; and in 1811

the Newark-Morris Turnpike. Portions of all of these turnpikes exist today as part of the federal, state, or county roadway network.

During the nineteenth century, the economic vitality of the region depended in large part on the efficient movement of coal, iron ore, and produce. The Morris Canal was opened in 1831 to transport coal from Pennsylvania to towns in the east. The canal originated at the Delaware River near Phillipsburg and proceeded across northern New Jersey through Morris County to Jersey City. The presence of the canal bolstered the economy of the region and communities developed along its banks. In 1924, service was discontinued on the Morris Canal, made obsolete over the years by the railroads.

Railroads provided a faster means of transportation. They enabled the wealthy to live in the county and commute to their jobs in the cities. By 1838, trains were carrying passengers and freight between Newark and Morristown and by 1848, the line was extended to Dover. Over the next 50 years branches were built to serve the iron mines, farms, and residents throughout the county.

The first trolley operation began in 1904 in Dover. Named the Morris County Traction Company, it constructed trolley lines to Lake Hopatcong, Ledgewood, Wharton, Rockaway, Denville, Mountain Lakes, Boonton, Morris Plains, Morristown, Madison, and Chatham, continuing east to Newark and Elizabeth. Trolley service was discontinued and replaced with buses in 1928 as the automobile became the dominant mode of local transportation.

By the 1950's, mobility had become a high priority for the federal government. To further the economic development of the country and to improve mobility for national defense purposes, the Federal-Aid Highway Act of 1956 was established to build a national system of interstate and defense highways. Three interstate highways directly serve Morris County. Interstate 80, begun in 1959 and completed in 1973, connects Morris County with Pennsylvania in the west and, via a link with I-95, to New York City and

New England. I-280 was completed in 1974 and serves the Newark area from I-80 in Parsippany. The first section of I-287 was opened in 1957 and the balance is scheduled for completion in 1994. Currently I-287 runs from Edison in Middlesex County to Montville in Morris County. When completed, it will extend north to the New York State Thruway in Suffern, New York. Figure II-2 depicts the existing transportation network.

MCDOTM

The Morris County Division of Transportation Management (MCDOTM) grew out of a need for comprehensive, long range management and planning of transportation systems for the county. The initial stimulus for establishing the division can be traced to a decision in 1958 by the Delaware, Lackawanna & Western Railroad to discontinue passenger rail service in northern New Jersey. These service cuts were successfully fought by Morris County. The Morris County Board of Public Transportation was established in 1961 as a permanent advisory board on rail transit issues.

During the next decade, bus transit became increasingly important and in 1970 the county began to sponsor bus routes. To manage the expanding bus system as well as the rail passenger system, the Board of Public Transportation hired its first staff member in 1972. The Board was further expanded in 1982, with the transfer of transportation planning functions from the Morris County Planning Board to the newly created Morris County Department of Transportation Management. At this time the Board of Public Transportation officially became the Board of Transportation to reflect its involvement with other modes of transportation. In 1990 the department became a division of the Department of Planning and Development as part of a county reorganization.

The mission of the MCDOTM is to provide Morris County with a comprehensive approach to transportation management, addressing the mobility needs of the entire county. The

Morris County Early Turnpikes, Canal, and Railroads

LEGEND

- Turnpikes*
- ++++ Primary Railroads
- Secondary Railroads
- Morris Canal

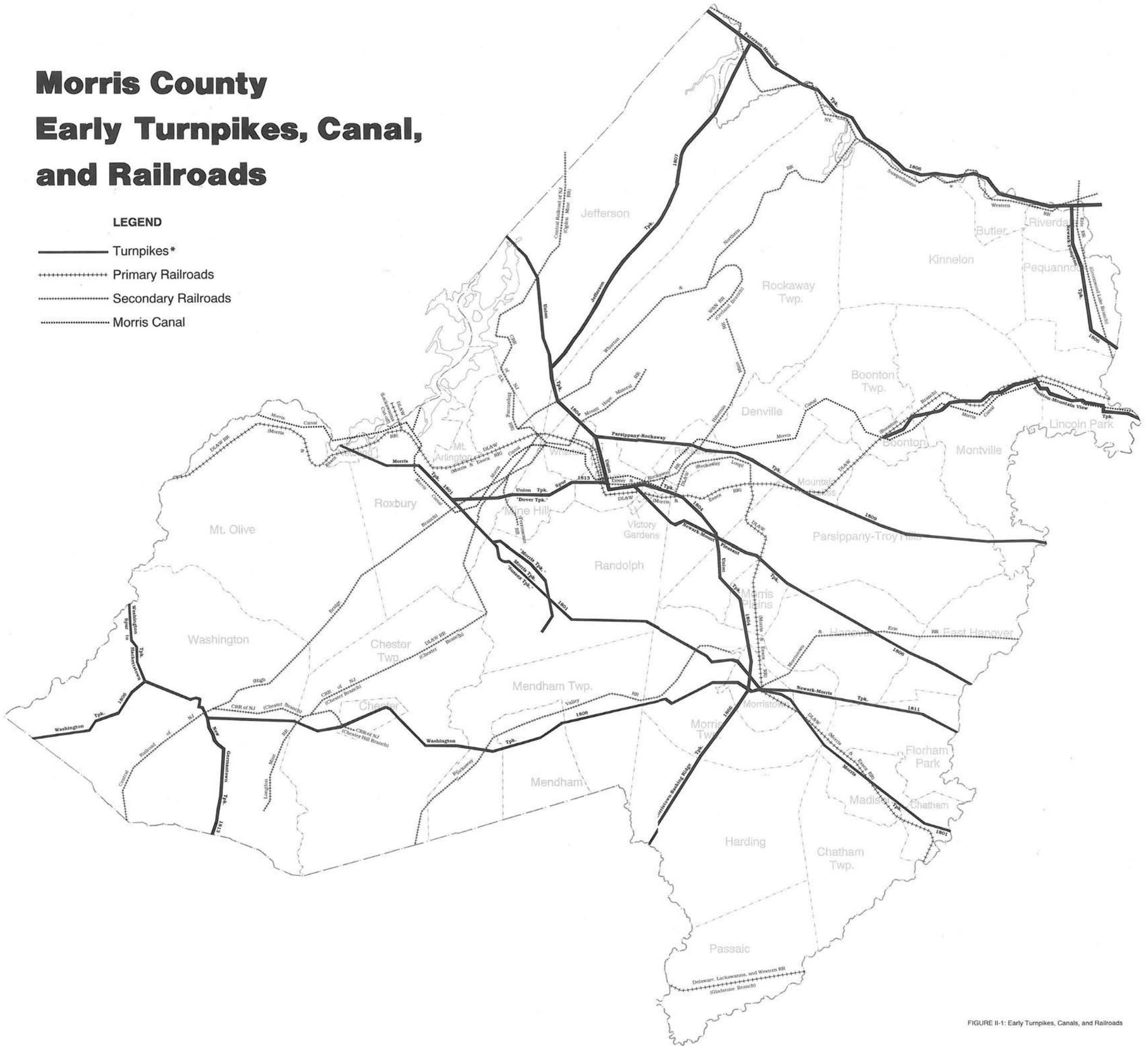


FIGURE II-1: Early Turnpikes, Canals, and Railroads

division's concerns include the preservation of the existing transportation network through maintenance and rehabilitation, the management of transportation systems to ensure maximum efficiency, and the proper planning of new systems and facilities. The division operates the Morris Area Paratransit System, sponsors the Morris County Metro bus service, administers freight operation on two county-owned railroads, and manages with the assistance of Morris County Rides, Inc., the county employee vanpool program. This was the first consolidation of county transportation planning, management, and operations in New Jersey.

To identify the changing demands of the transportation system, MCDOTM has undertaken several studies, including the following:

Morris County Air Quality Plan for Mobile Source Emissions, 1983: This report was part of the Air Quality Plan administered by the Tri-State Regional Planning Commission to guide the county towards meeting the United States Environmental Protection Agency's guidelines in the 1977 Clean Air Act Amendments.

Transportation Update, 1985: This report was a revision and update of the Transportation Plan of 1978. It provided a comprehensive analysis of the transportation conditions. It was not a policy document, but an inventory of existing conditions and strategies for improving transportation.

Identification and Stimulation of Transit Users, 1985: This Urban Mass Transportation Administration (UMTA) Section 8 study identified the need for improving transit in Morris County and made recommendations for developing new routes and marketing strategies to attract new riders. Local transit ridership has increased in Morris County each year since this study was completed, in contrast to other areas of the state where ridership losses continue.

Park and Ride Feasibility Study, 1987: This UMTA Section 8 report evaluated the existing park and ride lots in the county and included recommendations for locating new lots and improving existing lots. Some of the proposed lots

have been built and others are still being considered.

Lackawanna Cut-off Right-of-Way Use and Extension Study, 1989: This UMTA Section 8 study, co-sponsored with Sussex County, analyzed the need to preserve this 28 mile abandoned railroad right-of-way for future transportation use, ridership potential, physical condition, operating alternatives, and included a preservation plan for the right-of-way. This study served as the catalyst for New Jersey's first "rail bank" legislation and funding became available in July of 1991.

New York, Susquehanna, & Western Railway Corridor Feasibility Study, 1991: This UMTA Section 8 study, co-sponsored with Bergen, Passaic, and Sussex Counties, examined the feasibility of improving mobility in the congested New York, Susquehanna, & Western Railway Corridor. Two important recommendations made were the improvement of bus service and the institution of commuter rail service within the next ten years. An implementation study is now proposed by the four counties.

Morris County Rail Station/Parking Lease Acquisition Study, 1991: This MCDOTM study examined the feasibility and costs of acquiring from NJ Transit some or all of the commuter rail station facilities in the county. It was recommended that the county not assume responsibility for the stations.

The Morris County Circulation Element of the Morris County Master Plan

Although numerous studies and reports have been developed by the MCDOTM, until now, no comprehensive plan existed to guide the development of an efficient transportation system throughout the county. This Circulation Element was created to coordinate transportation planning into the next century for the state, county, and Morris County's municipalities.

Morris County Existing Transportation Network

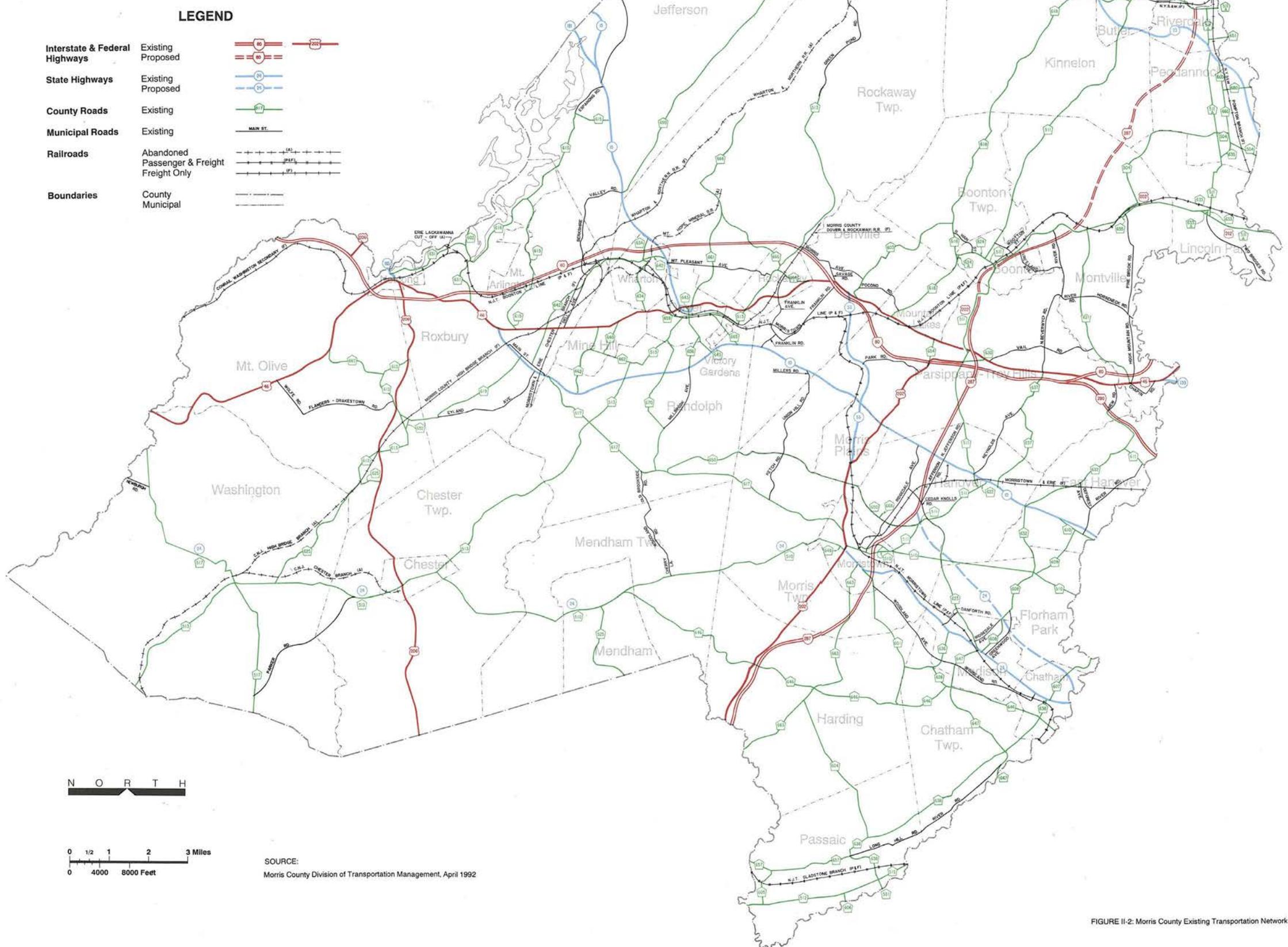


FIGURE II-2: Morris County Existing Transportation Network

CHAPTER THREE

Organizational Framework

The organizational framework of governmental and private entities involved in transportation planning must be examined. Their legal mandates, the funding currently available for transportation projects, and transportation-related legislation all affect the formulation of transportation policy.

The Transportation Alliance

The planning of a safe and efficient transportation system in Morris County requires the interaction of all levels of government and with the private sector. The county coordinates its planning functions with the New Jersey Department of Transportation, the North Jersey Transportation Coordinating Council, NJ Tran-

sit, other counties, the 39 municipalities in the county, and the private sector.

Since each participant in the planning process has its own strategies and policies, coordination is critical. In order to understand the present functional organization through which transportation projects are planned, funded, and implemented, the framework of transportation planning and funding will be examined first.

Background

The major impetus for early efforts of comprehensive transportation planning at the regional and local level was federal funding. In order to receive federal funding, the Federal-Aid Highway Act of 1962 required a cooperative, continuing, and comprehensive planning process, the "3-C" process, among state and local

agencies for highway construction projects in urban areas. The "3-C" process is at the regional level and requires specific organizational arrangements to ensure coordination and cooperation between planning agencies at different governmental levels.

Transportation planning was further promoted by the 1973 Highway Act which established Metropolitan Planning Organizations (MPO) as the regional agencies responsible for preparing comprehensive plans for both regional roads and transit improvements. The comprehensive plans required for federal funding consist of a long range plan for transit and highway improvements, a five year Transportation Improvement Program (TIP), which was derived from the long range plan, and an annual element. In addition, Transportation System Management (TSM) plans, which set forth the best management strategies for existing transit and highway facilities, are developed by the MPO at the regional level.

The following section identifies the public and private entities involved in transportation planning in Morris County and describes their basic responsibilities.

United States Department of Transportation

The United States Department of Transportation (USDOT) was created in 1966 to provide a focal point for coordinated federal transportation policies. Within the USDOT are the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). FHWA is responsible for the administration of the Federal-Aid Highway Program. The FTA was created in 1968 as the Urban Mass Transportation Administration (UMTA) and renamed in 1992. FTA is responsible for mass transit capital and operating programs, technical studies, and other related public transportation services.

New Jersey Department of Transportation

The New Jersey Department of Transportation (NJDOT) is responsible for managing and guiding the state transportation network. Although federal and state highways comprise a small portion of the total road miles in the county, they carry a substantial amount of traffic. In addition to designing, constructing, and maintaining the state and federal highway system, NJDOT is involved in most transportation policy issues affecting the county. NJDOT also has responsibility for the operation of traffic control devices, goods movement, transportation planning, ridesharing, and other transportation programs.

New Jersey Transit

New Jersey Transit (NJ Transit) is a public corporation created by the state to build, operate, and maintain public transit in New Jersey. NJ Transit operates three rail lines in Morris County: the Morristown Line, the Boonton Line, and the Gladstone Branch. It also operates five commuter bus lines and financially assists, along with the county, eight Morris County Metro bus lines. NJ Transit also prepares short and long range plans for system improvements and capital programming.

North Jersey Transportation Coordinating Council

The North Jersey Transportation Coordinating Council (NJTCC) is the Metropolitan Planning Organization (MPO) for northern New Jersey. The 1973 Federal Highway Act designated MPOs as the agencies responsible for preparing comprehensive transportation plans for highway and transit. MPOs are also responsible for coordinating transportation and land use planning efforts, conducting planning studies, determining the allocation of resources, and resolving conflicts that may arise among agencies within the region. These functions are critical when various public and private entities are involved

in different aspects of transportation planning, funding, and improvements.

The NJTCC is responsible for initiating and developing plans on a regional basis and for assisting member agencies with obtaining the requisite funding for their planning programs. They coordinate state, county, municipal, and transit agency activities with other public bodies and the private sector.

The NJTCC draws on all levels of government, citizen groups, and transportation providers to develop coordinated plans. There are 19 voting members on the council, including representatives from 12 northern New Jersey counties, the Commissioner of NJDOT, the Director of NJ Transit, the cities of Newark and Jersey City, a citizen representative, a representative from the Governor's Office, and a representative from the Port Authority of New York and New Jersey.

Morris County Government

The county is responsible for the construction, operation, and maintenance of the county road and bridge system. It is also responsible for master plans, intersection improvements, bridge and road inspections, engineering improvements, and reviewing development plans.

The Morris County Division of Transportation Management (MCDOTM) is responsible for transportation planning, rail freight service, the Morris County Metro (MCM) bus system, the Morris Area Paratransit System (MAPS), site plan review, securing state and federal funds, municipal coordination, technical studies, and development of the county's Transportation Improvement Program/Capital Transportation Program (TIP/CTP).

The MCDOTM is additionally responsible for developing and completing the annual Subregional Transportation Planning (STP) Program. This program is developed in conjunction with NJTCC in support of the "3C" transportation planning process.

Municipalities

The 39 municipalities in Morris County are responsible for the construction, operation, and maintenance of local streets. In addition to these responsibilities, municipalities also develop master plans, review and approve development applications, and coordinate with other levels of government. The State of New Jersey has empowered the municipalities to zone for land use and perform land use planning, which has a direct impact on traffic congestion.

Private Sector

The private sector plays a vital role in continuing the viability of the county's transportation network and has made contributions to the county's transportation system in several ways, including off-tract roadway improvements, developing transportation management strategies such as car and vanpooling, making financial contributions to transportation management associations, providing transit services to Manhattan and Newark, and providing taxi and limousine services.

Funding

Transportation improvements such as road construction, lane widening, bridge construction and repair, resurfacing, intersection and safety improvements, and train, bus, and van replacement, have large costs associated with them. Financial assistance, therefore becomes critical, and the availability of funding will often determine the feasibility of an improvement project. Morris County relies on several sources of funding to help finance the costs of planning, public transportation, and county roadway and bridge projects to prevent the dire consequences of deferred maintenance.

Transit Funding

Federal Transit Administration (FTA) funding is obtained by the county to assist with the operation of the Morris County Metro bus system. The county also receives funding from the State of

New Jersey to operate the urban and rural bus service within the county. The county's contribution to the operation amounts to approximately \$225,000 annually. Total subsidies for the Morris County Metro system range from \$1 to \$1.5 million annually.

The Morris Area Paratransit System (MAPS), a countywide coordinated special services transportation system, is funded primarily through the Senior Citizen and Disabled Resident Transportation Assistance Program. This funding program appropriates 7.5 percent of the casino revenue taxes to special transportation services, 25 percent goes to NJ Transit, and 75 percent to the 21 counties in the state. Morris County receives approximately \$600,000 a year from this source. The county government contributes approximately \$135,000 to MAPS on an annual basis. Donations from riders are also received to help defray expenses.

Highway Funding

The TIP/CTP is a five-year program of planned transportation improvements required by the US government for use of federal funds. The TIP/CTP is developed by the county annually to reflect proposed county projects. The projects are described by limits of the project, year, cost, and type of work. The TIP/CTP must be endorsed annually by the Board of Chosen Freeholders, the NJTCC, the NJDOT, and the FHWA. However, inclusion of a project on the TIP/CTP does not ensure implementation.

Several sources of funding are used to finance road improvement projects. These include an annual allotment of State Aid of \$1.56 million, other state allocations, county funds, and federal bridge and road funding, such as the Bridge Replacement and Rehabilitation program.

Although the county contributes to and receives a substantial amount of funding each year, the needs of the transportation system far outweigh the available funds. The development of an adequate and continuous funding source is imperative for the system to remain safe and efficient.

Transportation Planning Funding

Morris County receives funds from several sources including FTA, formerly UMTA, and FHWA to perform transportation planning functions. These funds are matched by the county. The county has received (UMTA) Section 8 funding for technical feasibility studies including the recently completed *Lackawanna Cut-off Right-of-Way Use and Extension Study* and the *New York, Susquehanna & Western Railway Corridor Feasibility Study*.

The Morris County Division of Transportation Management also performs transportation planning functions as part of the federally financed Subregional Transportation Planning Program. Under this program, the county conducts annual monitoring, evaluation, and planning of the transportation system.

Legislative

Several transportation-related legislative measures have been enacted during the last five years at the state and federal levels, while others are still pending. On the state level, legislation has dealt with access and management of the state's highway network, while federal legislation has addressed environmental and transit accessibility. Counties and municipalities are often directly responsible for implementing legislative mandates and therefore must incorporate additional requirements within their transportation planning programs.

Federal Legislation

Recent federal legislation has centered around improving air quality from mobile source emissions and the accessibility of the disabled to the transportation network.

Clean Air Act Amendments of 1990

On November 14, 1990 President Bush signed into law the Clean Air Act Amendments of 1990 (the Act). These amendments are designed to significantly exceed the 1977 Clean Air Act Amendments in curbing the three major threats

to the nation's environment: acid rain, urban air pollution, and toxic air emissions. Relating specifically to transportation, the Act requires the development of a State Implementation Plan (SIP) which details the methods of compliance required by the Act.

The Act establishes acceptable levels for ozone and carbon monoxide. Regions are classified by level of existing air pollution ranging from "Marginal" to "Extreme" for ozone, and "Moderate" to "Serious" for carbon monoxide. All of northern New Jersey, including Morris County, is categorized as "Severe 2" for ozone and "Moderate" for carbon monoxide.

Each category has its own timetable to reach attainment levels. Northern New Jersey must reach carbon monoxide attainment by November 1995 and ozone attainment by 2007. The Act has suggested a series of transportation control measures to assist the regions in reaching attainment by these deadlines.

There are several technological requirements including cleaner operating cars, higher inspection standards and maintenance, cleaner operating buses and trucks, and oxygenated fuels. Along with these requirements there are 16 transportation control measures, including improved public transit, programs for high occupancy vehicles, and implementation of transportation management strategies.

Americans with Disabilities Act

The Americans with Disabilities Act of 1990 (ADA) governs the accessibility of buses, rail equipment and stations, and paratransit services. This Act's primary goal is to provide accessible public transportation for people with disabilities.

An accessibility plan from every transit system is required by January 1992. This plan must include a six-year budget, details of paratransit services to be provided, and an implementation schedule. For rail transit systems, the regulations require that by June 1993 all key stations be renovated to make them accessible to people

with disabilities. The criteria defining a key rail station include

- Stations where passenger boardings exceed average station boarding by at least 15 percent;
- Transfer stations on a rail line or between rail lines;
- Major interchange points with other transportation modes;
- Terminus stations, unless close to another accessible station;
- Stations serving major activity centers.

Although public buses and vans are subject to the ADA, Morris County provided service will not be significantly affected by the regulations. Since 1987, the county has been served by MAPS and it currently operates according to the provisions of the Act. Furthermore, two of the thirteen MCM buses are wheelchair lift-equipped and are dispatched to the various routes as warranted.

Intermodal Surface Transportation Efficiency Act of 1991

This legislation will provide funding over the next five years for a wide array of programs ranging from road and bridge work to transit operation and maintenance. States would be given flexibility in deciding how the federal funds are spent.

This Act will coordinate many of the air quality improvement measures required in the 1990 CAAA. This legislation intends to preserve existing infrastructure, relieve congestion, coordinate land use and transportation projects, provide better access to transportation facilities and airports, improve transit, preserve existing right-of-ways, enhance freight movement and increase system management techniques.

Under this Act, the Transportation Improvement Program (TIP), which is a project prioritization and financial plan, will be updated every two years rather than annually as it had been in the past. Increased public participation is also required in the new TIP process.

State Legislation

Recent state legislation has included the NJDOT-proposed TRANSPLAN legislative package and the State Development and Redevelopment Plan. The TRANSPLAN package included three bills to help coordinate development on the transportation network. The State Highway Access Management Act and the Transportation Development District (TDD) Act have been enacted into law and the Municipal-County Planning Partnership Amendments still awaits legislative action. This bill would enable evaluation of major development projects on a regional rather than only on the municipal level. The bill would also encourage development in areas where adequate transportation facilities exist.

State Highway Access Management Act

The State Highway Access Management Act of 1989 was created to help manage access to state highways, based on the principle that access to state highways should not interfere with traffic. The Act requires the NJDOT to classify each state highway segment according to its function and environment. The Act also attempts to balance the need for providing reasonable access with maximizing mobility on the highways and to ensure that desired travel speeds can be maintained.

To fulfill the Act's requirements, a series of six access levels were established. The access levels dictate the allowable turning movements along highway segments. The levels range from Access Level 1 with no access from streets or driveways to Access Level 6, the least restrictive, with access limited only by edge clearance, corner clearance, and safety considerations.

This Act is also designed to give local governments the ability to influence roadway levels of performance through land use decisions. The Access Code enables municipalities and NJDOT to jointly develop an access management plan to design all access on a highway segment.

Transportation Development District

Transportation Development District (TDD) legislation, the second of the three part

TRANSPLAN legislation developed by NJDOT, allows for the creation of special financing districts to provide a funding mechanism to meet regional transportation needs. The legislation has developed standards to evaluate the need for establishing a TDD. The four standards to be used in forming a TDD are:

- Growth in population or employment of 10 percent in three of the last five years for three adjoining municipalities.
- Local traffic growth resulting from new development exceeding 50 percent over five years.
- Commercial/Industrial/Office development exceeding 1,000,000 square feet per square mile over five years.
- Projected population or employment growth exceeding 20 percent in ten years.

Currently no region of the county falls within the established criteria for developing a TDD. Until the legislation is revised with less restricting standards, it is highly unlikely that any TDDs will be established in Morris County.

State Planning Act

The State Planning Act of 1985 established the 17 member State Planning Commission (SPC), representing various public and private interests whose primary function is the creation of a State Development and Redevelopment Plan (SDRP) to replace the 1980 State Development Guide Plan. Areas for growth, limited growth, agriculture, open space conservation, and "other appropriate designations that the commission may deem necessary" (N. J. S. A. 52:18A-200) are required to be identified in the plan.

The Interim Plan has established 20 statewide transportation policies as guides for state, county, and local agencies. The essential element of these policies is to "improve transportation systems by coordinating transportation and land use planning; integrating transportation systems; developing and enhancing alternative modes of transportation; and recognizing the impacts of transportation invest-

ments on land development and redevelopment, economic development, and travel and tourism.” The policies emphasize the promotion of public transit and pedestrian modes of transportation, as opposed to the automobile, through land use planning and the attainment of the air quality standards set forth in the Clean Air Act Amendments of 1990. Interpretation of these policies and the subsequent implementation of them rests predominately with the county and municipal governments.

New Jersey Traffic Congestion and Air Pollution Control Bill

This pending legislation would require at a minimum that each employer of 100 or more people in states which are in severe non-attainment areas for ozone to increase average vehicle occupancy in commuting trips between home and the workplace during peak travel periods by not less than 25 percent above the average vehicle occupancy (AVO) for all such trips in the area.

The NJDOT will establish by regulation a Travel Demand Management Program which would re-

quire employers employing 100 or more people at one location in highly polluted and congested areas of the State to undertake at least a biennial survey of the commutation patterns of their employees and to prepare a compliance plan.

To achieve the reduction, employees would be encouraged to rideshare, use public transit, work a flextime schedule, ride bicycles, and even walk when possible.

A-4131 of 1991 Legislation

This pending legislation would provide an increase from the present \$21 to \$75 per month of exclusion from state gross income for certain employer-provided transportation benefits. These benefits include: commutation tickets, tokens, fare cards, and transit passes; or the employer may operate or subsidize the operation of vanpools or subscription buses. The bill is intended to benefit both the employer and the employee. The bill is intended to reduce traffic congestion and improve air quality by to encourage employees to leave their cars at home.

CHAPTER FOUR

The Transportation Network

The mission of Morris County government with respect to transportation is to provide the residents and workers in the county with a comprehensive approach to transportation management. The county's concerns include the preservation of the existing transportation network through maintenance and rehabilitation, the management of transportation systems to ensure maximum efficiency, and the proper planning of new systems and facilities. In planning and developing the county's transportation future, the entire transportation network must be evaluated.

Summary of Systems and Services

Transit

The transit system performs a critical function in providing an alternative means of transportation to the single occupancy vehicle to residents and workers in Morris County. Without the transit system, the roadways would be even more congested and many people would have no means of transportation. Transit in Morris County can be divided into two categories: regional services and local services. Regional bus service is only

provided to points east of Morris County. It is provided by NJ Transit and four private companies: Lakeland Bus Lines, Community Coach, and Evergreen Lines to New York City and Penn Mall Transit to Newark.

In addition to five bus routes, NJ Transit also provides commuter rail service on three lines serving Morris County. The rail lines terminate in Hoboken, where there are connections to Manhattan.

Local transit service in Morris County includes Morris County Metro (MCM), three municipal bus routes, and paratransit systems. The MCM service consists of eight bus routes throughout the county with four operating on regular headways throughout the day.

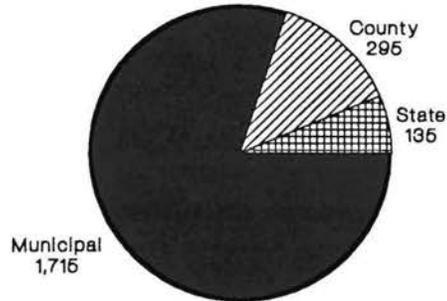
Morris County is served by a transportation management association (TMA), Morris County Rides, Inc. It was established in 1986 to assist commuters in forming car and vanpools.

The Morris Area Paratransit System (MAPS) was created by the county in 1987 to serve seniors and disabled residents who cannot be served by transit. Most municipalities within the county also provide limited transportation service to seniors; however, few provide transportation to the disabled.

Roadways

Morris County is traversed by 2,145 miles of federal, state, county, and municipal roads. The State of New Jersey, through the New Jersey Department of Transportation (NJDOT), is responsible for maintaining all federal and state highways in the county except for portions of US 202 and NJ 24. The federal and state roads total 135 miles or 6 percent, county roads make up 295 miles or 14 percent, and the remaining 1,715 miles, or 80 percent, are municipal roadways. Chart IV-1 summarizes the jurisdiction of the highway system in the county.

Chart IV-1
Roadway Mileage by Jurisdiction
in Morris County, 1990



Source: MCDOTM and NJDOT, 1990.

Goods Movement

The efficient movement of goods is essential for the county's economy. Although the private sector is primarily responsible for the goods movement, industry relies on government to ensure an adequate transportation system.

Trucks are the dominant mode of freight transportation in Morris, carrying approximately 90 percent of all freight. Rail freight service in the county is provided by Conrail, the New York, Susquehanna & Western Railway, and the Morristown & Erie Railway. The county has responsibilities in rail freight since the Board of Chosen Freeholders purchased two rail lines and leased them to a short line operator in 1986.

Aviation

Aviation is a component of the transportation network in Morris County. It includes all forms of air transportation from helicopters to commercial airlines. Two regional public airports and one private airport provide corporate, private, and charter air service. Morristown Airport in Hanover Township is the largest airport in the county. Lincoln Park Airport in Lincoln Park is used by small passenger planes. The private airport is owned by Breed Corporation and is located in Boonton Township. There are also 18 heliport and helistop facilities located in the county, which are only for private, corporate, emergency, or official use.

Bicycle and Pedestrian Modes

Bicycle and pedestrian modes are also important components of the transportation network. The reduction of vehicle emissions and traffic congestion, the savings of energy, and the health benefit to the individual are just some of the advantages. Morris County has several bicycle and pedestrian paths serving the county, complementing the roadway system.

State of the Transportation System

In addition to the network of roads, buses, railroads, airports, and pedestrian and bicycle paths, Morris County's transportation network includes all other systems and support facilities. Most of the components of the transportation system are presented in Figure IV-1. The service characteristics, usage, and condition of each component are discussed in this section.

Public Transportation

Rail

Historically, passenger rail transportation has contributed substantially to the transportation network and development patterns in Morris County. Today, passenger rail transportation still provides a faster, more convenient, safer, and less polluting means of commuting.

Service Characteristics

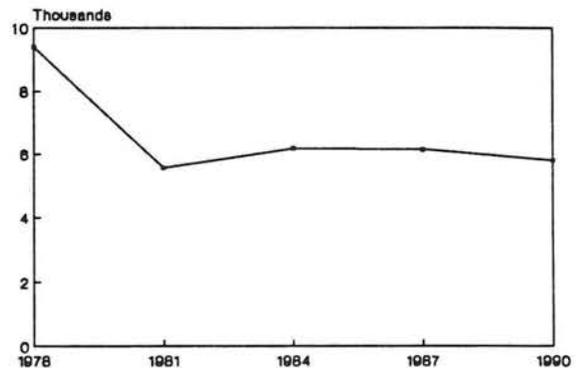
Passenger rail service in Morris County is provided by NJ Transit on three lines. The Morristown Line and the Gladstone Branch have electrically powered trains and the Boonton Line has diesel locomotive powered trains. Weekday service consists of 78 eastbound trains and 84 westbound trains serving 17 rail stations in Morris County. Table IV-1 on page 16 lists each rail station, number of eastbound trains, frequency of service, and the monthly fare for unlimited service to Hoboken. Train service on the Morristown Line and the Gladstone Branch, once out of the county, includes stops at Summit and Newark, and terminates in Hoboken.

Boonton Line trains have intermediate stops by-passing Newark and terminating at Hoboken. At Hoboken, passengers destined for New York City must transfer to Port Authority Trans Hudson (PATH) trains, ferry boats, or express buses.

Usage

During the 1970's, passenger rail transportation carried approximately 9,000 daily commuters in Morris County. Although the routes of the commuter rail system have not changed, ridership during the 1980's has fallen substantially. Chart IV-2 shows the number of eastbound boardings in Morris County has dropped from 9,395 in 1978 to 5,791 in 1990, a 35 percent decrease.

**Chart IV-2
Eastbound Boardings
at Morris County Stations**



Source: NJ Transit, 1990.

Several factors have contributed to the decline in ridership over the last decade, including aging and unreliable rail equipment, fare increases, inauguration of competing bus lines, changing employment patterns, limited or reduced parking at some stations, higher parking fees, and increased automobile use.

The changing employment pattern in the region has had a significant impact on rail ridership. Traditionally, commuters from the suburbs traveled to employment centers such as lower Manhattan, which is reflected in the provision of rail service to that section of New York City. As employment centers have moved to the suburbs

**Table IV-1
Passenger Rail Service Characteristics**

Station	Span of Eastbound Service			Frequency of Weekday Service			Monthly Fare to Hoboken (in dollars)	1990 Daily Ridership
	Weekday	Saturday	Sunday	Number of One-way trips	Peak Headway in minutes	Midday Headway in minutes		
Morristown Line								
Dover	5:00am-12:39am	5:39am-12:39am	7:39am-12:39am	40	15	60	179.00	773
Denville	5:07am-12:45am	5:45am-12:45am	7:45am-12:45am	34	15	60	179.00	315
Mount Tabor	5:09am-12:47am	5:46am-12:47am	7:46am-12:47am	29	15	60	179.00	92
Morris Plains	5:14am-12:52am	5:52am-12:52am	7:52am-12:52am	31	15	60	179.00	479
Morristown	5:18am-12:56am	5:56am-12:56am	7:56am-12:56am	39	15	30	175.00	978
Convent	5:22am-12:59am	5:59am-12:59am	7:59am-12:59am	38	15	30	171.00	632
Madison	5:26am-1:02am	6:02am-1:02am	8:02am-1:02am	39	15	30	161.00	751
Chatham	5:30am-1:05am	6:05am-1:05am	8:05am-1:05am	38	15	30	147.00	644
Boonton Line								
Netcong	5:40am-7:42am	No Service	No Service	5	30	No Service	186.00	116
Landing	5:47am-7:49am	No Service	No Service	5	30	No Service	186.00	92
Dover	5:59am-7:59am	No Service	No Service	9	15	No Service	179.00	159
Denville	6:05am-7:29am	No Service	No Service	4	30	No Service	179.00	12
Mt Lakes	6:10am-8:08am	No Service	No Service	6	30	No Service	175.00	81
Boonton	6:13am-8:13am	No Service	No Service	6	30	No Service	175.00	63
Towaco	6:19am-8:17am	No Service	No Service	6	30	No Service	161.00	99
Lincoln Park	6:24am-11:32pm	No Service	No Service	8	30	2*	147.00	182
Gladstone Branch								
Millington	6:18am-12:30am	7:36am-11:36pm	7:36am-11:36pm	19	15	60	175.00	154
Stirling	6:21am-12:34am	7:39am-11:39pm	7:39am-11:39pm	21	15	60	175.00	124
Gillette	6:23am-12:38am	7:42am-11:42pm	7:42am-11:42pm	18	15	60	171.00	97

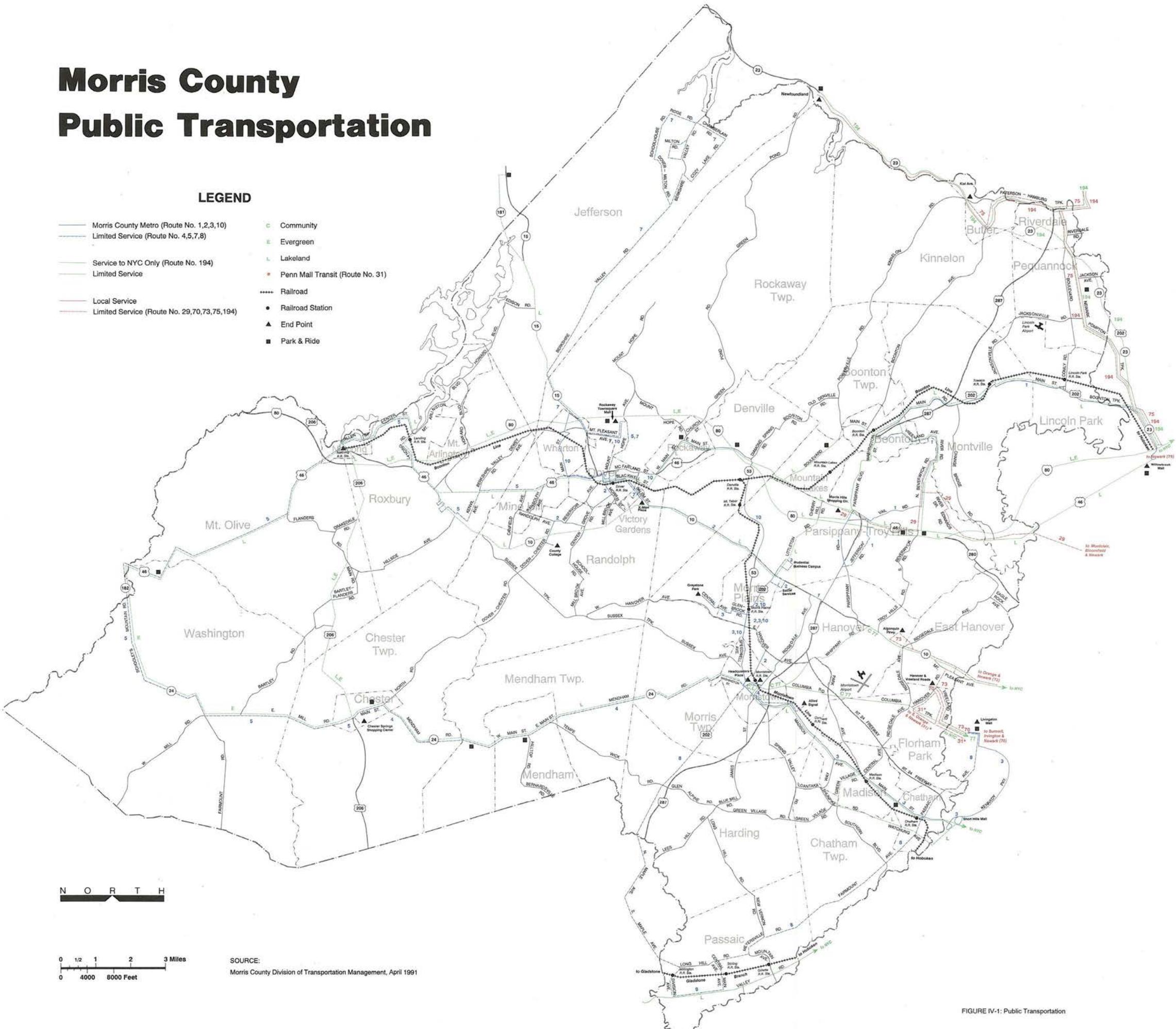
* 2 trains operate at 4:35pm and 11:32pm

Source: MCDOTM, April 1991.

Morris County Public Transportation

LEGEND

- Morris County Metro (Route No. 1,2,3,10)
- Limited Service (Route No. 4,5,7,8)
- Service to NYC Only (Route No. 194)
- Limited Service
- Local Service
- Limited Service (Route No. 29,70,73,75,194)
- Community
- Evergreen
- Lakeland
- Penn Mall Transit (Route No. 31)
- Railroad
- Railroad Station
- End Point
- Park & Ride



N O R T H

0 1/2 1 2 3 Miles
0 4000 8000 Feet

SOURCE:
Morris County Division of Transportation Management, April 1991

FIGURE IV-1: Public Transportation

and have become increasingly scattered along highway corridors, existing passenger rail transit has not been able to serve the new commuter demands because of its fixed routes.

Condition

The public's use of passenger rail transportation depends on safe, convenient, frequent, cost-effective, clean, and reliable service. If the system is compromised in any way, even temporarily, a loss in ridership is certain to occur. Aging and unreliable rail equipment contributed significantly to ridership losses during the late 1970's and early 1980's. A 500 million dollar modernization of the Morristown Line and Gladstone Branch began during the late 1970's. This project upgraded the electric power system, replaced antiquated passenger cars, and rehabilitated all stations along the lines. The project suffered through years of delay, but was finally completed in 1984. These improvements, combined with a booming economy in the 1980's, helped to stabilize ridership. Since then the rail system on-time performance has consistently been over 90 percent.

NJ Transit has also suffered from ridership losses because of several large increases in the commutation fares. From 1967 to 1990, increases in rail fares have exceeded inflation by approximately 48 percent.

Approximately 450 station parking spaces have been eliminated, contributing to the loss of ridership over the last 15 years. There are now fees for parking at all Morris County stations except for the Landing/Lake Hopatcong station in Roxbury. Although the parking fees are relatively low, the cumulative cost of commuting to New York City by train has made passenger rail generally more expensive than bus.

Bus

Growth in Morris County has increased the need for improved bus transportation. Buses provide a valuable service by reaching into growing areas and by complementing the existing rail system. Bus service in Morris County is primarily of two types: express service to New York City and

local service within Morris and to neighboring counties. These services are provided by several bus lines shown in Figure IV-1 following page 15.

Service To New York City

Service Characteristics

There are seven routes serving the county, including one by NJ Transit, four by Lakeland, and one each by Community Coach and Evergreen. The type and extent of service provided on each route is shown in Table IV-3 on the next page.

Most buses operate seven days a week and on 60 minute headways during the off-peak hours. Service during peak periods is more frequent, as often as every 10 minutes. The estimated monthly fare is based on distance traveled, and as of September, 1991, ranged from \$177.00 at Parsippany to \$256.00 at Washington Township to the Port Authority Bus Terminal. The bus service to Manhattan is provided at a competitive cost to rail and at a lower cost than the automobile. Most New York City bound buses do not provide intra-county or intra-state service.

Usage

Express buses carry approximately 7,000 passengers each weekday from Morris County. As shown in Table IV-2, ridership over the past five years has remained relatively stable.

**Table IV-2
New York City Service
Average Weekday Riders**

Carrier	1985	1990
NJ Transit (Route #194)	not available	1,310
Lakeland (All routes)	4,998	5,420
Community (Route #77)	220	203
Pocono/Evergreen	not available	120

Source: MCDOTM, April 1991.

Express bus ridership achieved the greatest gains while the Morristown rail line was undergoing major rehabilitation. During this disruptive work, many train riders switched to the buses. Even after the rail improvements were com-

**Table IV-3
New York City Bus Service Characteristics**

Route	Span of Eastbound Service			Frequency of Weekday Service			Estimated Monthly Fare (in dollars)
	Weekday	Saturday	Sunday	Number of One-Way Trips (eastbound)	Peak Headway in Minutes	Midday Headway in minutes	
NJ Transit							
194	5:50am-10:13pm	6:35am-10:10pm	6:35am-10:10pm	21	15	120	174.00
Lakeland Bus Lines							
24	5:30am-10:00pm	7:00am-10:00pm	8:00am-10:00pm	28	30	60	211.00
46	5:30am-11:30pm	6:00am-11:30pm	7:00am-11:30pm	34	15	60	211.00
78	6:33am-7:33pm	7:33am-7:33pm	7:33am-7:33pm	14	30	60	226.00
80	5:30am-9:35pm	9:00am-9:35pm	9:00am-8:35pm	21	10	60-180	177.00
Community Transit Lines							
77	6:00am-10:45pm	8:45am-10:45pm	8:45am-10:45pm	18	30	60	184.00
Pocono/Evergreen Lines							
Evergreen	5:45am-6:20am	No Service	No Service	2	30	No Service	256.00

Source: MCDOTM, September 1991.

pleted, many former rail commuters stayed with the bus.

Condition

Because buses travel on the roadway system, they are subject to delays due to road congestion. The use of the exclusive bus lane at the Lincoln Tunnel, however, reduces traffic delays at the congested Hudson River crossing. It is one of the most successful high occupancy vehicle lanes in the nation, although it has reached capacity. The commuting time to the New York City Port Authority Bus Terminal from the eastern Morris County border averages 40 - 60 minutes.

One primary inconvenience of bus service is that many potential riders do not live near a bus route. These riders must drive to a bus stop. For this reason, the availability of parking along the bus

routes is an important factor for many bus passengers. Most of the park and rides for bus commuters in Morris County charge no fees. Of the seven routes, four have designated park and ride lots within the county. These lots are identified in the Park and Ride section of this report starting on page 21.

Local Service

Service Characteristics

Local buses provide service within Morris County and to neighboring counties. This service is characterized by frequent stops to enable passengers to board or alight anywhere along the route. NJ Transit and Penn Mall Transit provide peak hour service between Newark and eastern Morris County; Morris County Metro (MCM) provides the only county-wide bus service; and the municipalities of Morristown, Morris Township, and Parsippany-Troy Hills provide

**Table IV-4
Local Bus Service Characteristics**

Route	Origin	Destination	Span of Service		Frequency of Weekday Service			Monthly Fare (in dollars)
			Weekday	Saturday	Number of One-Way Trips	Peak Headway (in minutes)	Midday Headway (in minutes)	
NJ Transit								
29	Parsippany	Newark	5:34am-7:34pm	No Service	13	50 - 60	No Service	76.00
70	Newark	Florham Park	5:40am-7:34am	No Service	10	10	No Service	69.00
73	Newark	Florham Park	5:30am-8:10am	No Service	18	15	No Service	69.00
75	Butler	Newark	6:15am-7:25pm	No Service	3	30	No Service	86.00
Penn Mall Transit								
31	Newark	Florham Park	5:30am-4:30pm	No Service	10	30	No Service	1.75*
Morris County Metro								
1	Morristown	Willowbrook Mall	6:40am-5:30pm	9:00am-5:30pm	11	40 - 50	60 - 90	69.00
2	Morristown	CCM	6:35am-5:40pm	No Service	12	60	60	64.00
3	Greystone Hospital	Livingston Mall	6:25am-5:15pm	9:15am-5:15pm	12	55	60	54.00
4	Chester	Morristown	7:00am-5:21pm	No Service	3	110	No Service	1.90*
5	Long Valley	Rockaway Mall	9:35am (Mon, Wed only)	No Service	1	No Service	No Service	1.90*
7	Jefferson	Rockaway Mall/ K-Mart Plaza	10:15am (Tues, Fri only)	No Service	1	No Service	No Service	1.90*
8	Millington	Livingston Mall/ Morristown	9:30am (Thurs only)	No Service	1	No Service	No Service	1.55*
10	Morristown	Rockaway Mall	6:45am-5:20pm	7:45am-5:35pm	12	60	60	64.00
Colonial Coach								
76	Local Loop Service		8:45am-3:46pm	8:45am-3:46pm	6	60	60 - 120	free
77	Local Loop Service		8:45am-4:45pm	8:45am-4:45pm	5	90	150	free
Parsippany Transit								
-	Local Loop Service		9:00am-3:00pm	No Service	6	60	60	free

* One -Way Daily Fare
Source: MCDOTM, April 1991.

town-wide service. See Table IV-4 on the preceding page.

NJ Transit and Penn Mall Transit provide peak-hour-only service between Newark and Morris County on five routes. Three of these, NJ Transit #70, #73, and Penn Mall Transit #31, serve commuters who reside in Essex County and are employed in Florham Park.

The most extensive service within Morris County is provided by MCM with most routes originating or terminating at Headquarters Plaza in Morristown. Four of the eight routes provide service on regular headways throughout the day and operate five or six days a week. The other four routes serve rural areas of the county with the MCM #4 operating during weekday peak periods only. The remaining three routes operate off-peak one or two days per week.

Morristown and Morris Township operate Colonial Coach and Parsippany Troy-Hills operates Parsippany Transit. These buses charge no fare and run on fixed routes within the municipalities during off peak hours. Colonial Coach operates Monday through Saturday and Parsippany Transit from Monday through Friday.

Usage

In 1990 approximately 325,000 passenger trips were made within Morris County on MCM. As shown on Table IV-5, the general trend in MCM ridership since 1985 has been upward on the daily routes, but downward on the four rural routes.

**Table IV-5
Morris County Metro
Average Weekday Riders**

Carrier	1985	1990
MCM (Routes 1, 2, 3, 10)	950	1,127
MCM (Routes 4, 5, 7, 8)	209	90

Source: MCDOTM, April 1991.

Employment and retail growth in Morris County has contributed to ridership increases on the daily routes. Since nearly 50 percent of all trips on MCM daily routes are work-based, it is likely

that employment growth in Morris County has contributed to the MCM ridership increases. Approximately 17 percent of trips on MCM daily routes are for shopping and it is likely that retail growth has increased MCM ridership.

In contrast, the rural MCM routes have experienced ridership losses over the past five years. This is largely the result of funding cuts by Urban Mass Transportation Administration (UMTA) in 1986 which resulted in a 50 percent service reduction.

Condition

Unlike the bus riders destined for New York City, most local bus riders are transit dependent. To maintain and attract new riders, it is especially important that bus service be inexpensive, reliable, convenient, visible, and have an effective information distribution system.

Local bus fares are based on the distance traveled. Although fares range from \$1.00 to \$2.90 one way, it is still less expensive than operating a car. In addition, discounted fares are available for senior citizens, students, disabled residents, rail commuters, and monthly commuters.

Like the express buses, local buses are vulnerable to traffic congestion, and may experience delays. Since nearly half of MCM urban bus trips and nearly all NJ Transit and Penn Mall Transit trips are work-based, it is important that these buses operate on schedule.

Visibility of bus service and the installation of bus shelters are important in maintaining ridership and attracting new riders. Signs and shelters along bus routes increase the visibility of the service. However, there are few bus signs in Morris County and none provide schedule or route information.

Another important consideration in local bus service is the transfer time between routes. Transfers usually occur at Headquarters Plaza in Morristown. However, the waiting time between the routes ranges between 20 and 60 minutes.

Morris Area Paratransit System

The Morris Area Paratransit System (MAPS) was formed in April 1987 as a special transportation service for senior citizens and disabled residents in Morris County. The service is funded by state casino tax revenues and the Morris County Board of Chosen Freeholders. It is managed and operated by the MCDOTM.

MAPS operates a fleet of 42 vehicles consisting of small buses, vans, and station wagons with 18 equipped with wheelchair lifts. Service is offered to people over 60 years old and disabled people over 18 years old who have no transportation alternative. MAPS provides transportation for employment, medical, social services, day care, shopping, recreational, nutritional, and educational purposes.

MAPS serves the county from five regional offices, shown on Figure IV-2. Call-in times and services hours vary among the regions but all trips must be scheduled 48 hours in advance. In general, service is limited to eight hours on weekdays with evening and weekend trips available on a limited basis for groups.

In 1990, MAPS provided 112,131 trips totalling 662,486 miles. This represents 12,131 more trips than provided in 1989, a 12 percent increase, and 23,925 more trips than in 1988, a 27 percent increase over two years. Employment trips account for the largest proportion of MAPS trips at 33 percent, followed by medical and daycare trips, with each representing 18 percent of the total trips. Trip purposes have remained relatively constant over time.

Park and Ride Facilities

The Morris County Park and Ride Feasibility Study, conducted by MCDOTM in 1987, surveyed existing park and ride facilities within the county and recommended improvements. Park and ride facilities include those serving bus, rail, and carpool/vanpools. Morris County has 29 official park and ride facilities, 17 of which are located at rail stations and 12 near major highways. In addition to the official park and rides in the county, there are many unofficial facilities

on privately-owned land. These unofficial lots have not been included in Table IV-6 on the next page. Each site was surveyed for usage, capacity, access, safety, and overall condition.

Table IV-6 contains a listing of facilities by municipality, location, number of parking spaces, transit lines served, and parking fees.

Roadways and Bridges

Roadways

Since World War II, a major impetus for growth in Morris County was the development of the major highway system which increased the accessibility to the county from the New York City metropolitan area. As a suburbanizing area, the county's economic and residential development is highly dependent on the roadway system.

Service Characteristics

The three interstate highways in the county are designed for high speeds with access limited to interchanges. Portions of NJ 10, NJ 15, and NJ 23 are high speed roadways with partial access. Many of the other federal and state roadways, such as US 46, US 202, and NJ 24, have relatively low speeds and have full access. The county roadways are typically two lanes and relatively low speed with full access. Municipal roadways are primarily designed for local access and as a feeder system. The service characteristics of the major roadways in Morris County are summarized in Table IV-7 on page 23.

Some missing links and capacity expansions to the highway system are currently being completed. I-80 is being widened to eight lanes from Wharton to Parsippany. I-287 is being completed from Montville to the New York State Thruway. Both are anticipated to be completed in 1994. NJ 24 Freeway is under construction from its current terminus near Kennedy Parkway in Essex County to I-287 in Hanover and is scheduled for completion in 1992. Even with these major capacity improvements to the roadway system, congestion during the peak periods will still occur.

**Table IV-6
Park and Ride Facilities**

Location	# of spaces	Transit Lines Served	Parking Fee
Boonton Town Boonton Rail Station	42	Boonton Line	Yes
Chatham Borough Chatham Rail Station PSE&G, NJ 24	331 35	Morristown Line, Lakeland, MCM #3 Lakeland, MCM #3	Yes Yes
Chester Borough St. Lawrence Catholic Church	75	MCM #4	No
Denville Savage Road Denville Rail Station Mount Tabor Rail Station	100 96 43	Lakeland, MCM #10 Morristown Line, MCM #10, Boonton Line Morristown Line, MCM #10	Yes Yes Yes
Dover Dover Rail Station	663	Morristown Line, Boonton Line, Lakeland, MCM #2, 10	Yes
Lincoln Park Lincoln Park Rail Station	196	Boonton Line	Yes
Madison Madison Rail Station	521	Morristown Line, Lakeland, MCM #3	Yes
Mendham Township Ralston Fire House	35	MCM #4	No
Montville Towaco Rail Station	112	Boonton Line	Yes
Morris Plains Morris Plains Rail Station	220	Morristown Line	Yes
Morristown Morristown Rail Station	186	Morristown Line	Yes
Morris Township Convent Rail Station	462	Morristown Line	Yes
Mountain Lakes Boulevard Mountain Lakes Rail Station	24 82	Lakeland Boonton Line	Yes
Netcong Netcong Rail Station	117	Boonton Line	Yes
Parsippany Baldwin Road Beverwyck Road	175 260	Lakeland, NJT 29 Lakeland, NJT 29	No No
Passaic Millington Stirling Gillette	84 31 65	Gladstone Branch Gladstone Branch Gladstone Branch	Yes Yes Yes
Pequannock Municipal Building	20	NJT 75/194	No
Rockaway Borough Municipal Lot #1	90	Lakeland, MCM #10	Yes
Rockaway Township Rockaway Townsquare Mall Lakeland Bus Lines Terminal	200 175	Lakeland, MCM #10 Lakeland	No No
Roxbury Lake Hopatcong Rail Station	50	Boonton Line	No
Washington Township US 46 west of Reservoir Road	100	Lakeland	No

Source: MCDOTM, 1990.

Morris Area Paratransit System Service Regions

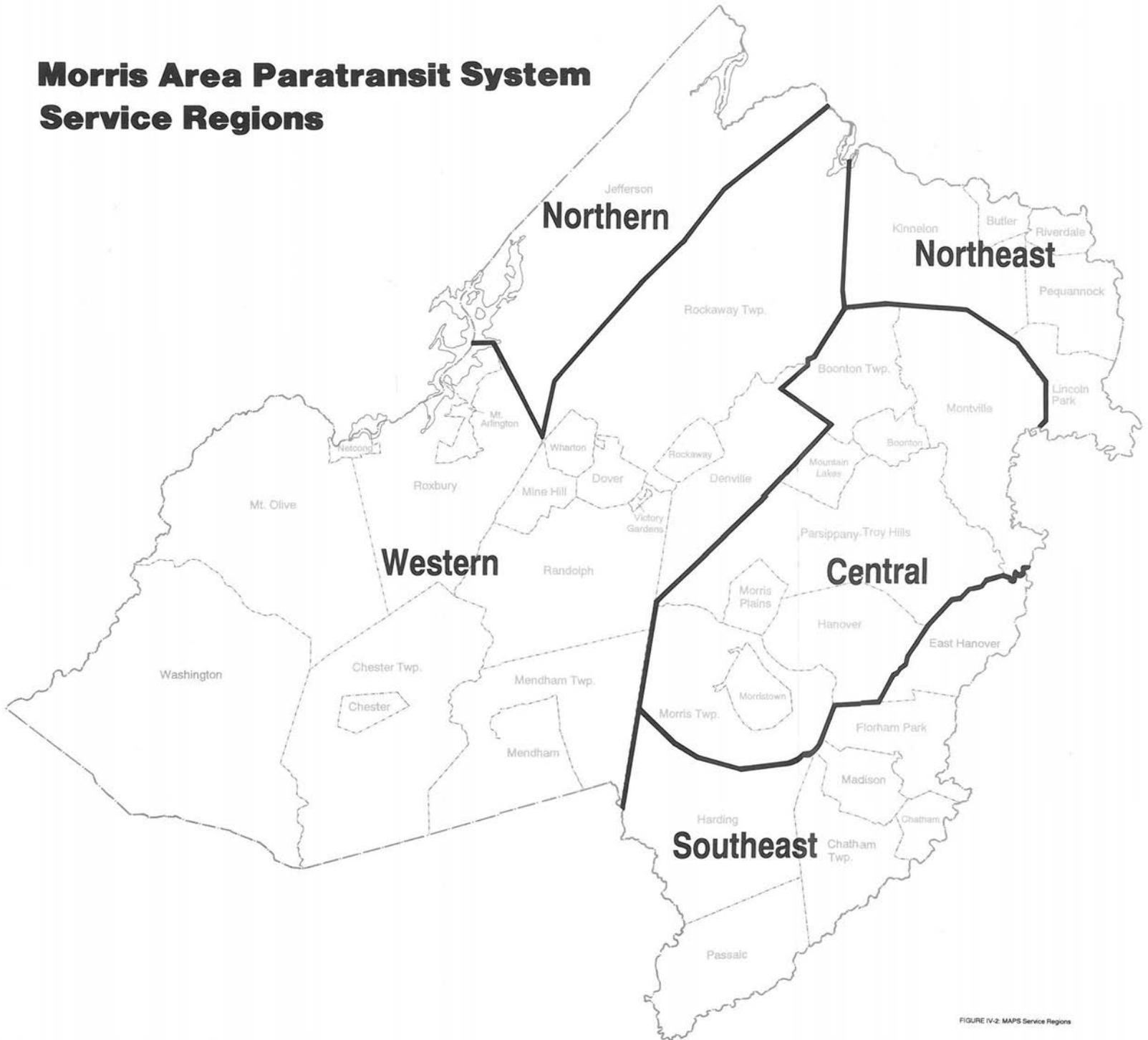


FIGURE IV-2: MAPS Service Regions

**Table IV-7
Road System in Morris County
Service Characteristics**

Roadway	Length	Access	Speeds	Orientation
Interstate				
I-80	25.2	●	●	E/W
I-280	3.3	●	●	E/W
I-287	17.1*	●	●	N/S
Federal				
US 46	30.0	○	●	E/W
US 202	9.0**	○	●	N/S
US 206	13.2***	○	●	N/S
State				
NJ 10	17.1	●/○	●/○	E/W
NJ 15	9.0	○/○	●/○	N/S
NJ 23	8.5	●	●	N/S
NJ 24	7.4	○	○	E/W
NJ 53	4.7	○	○	N/S
NJ 124	0.1	●	●	E/W
NJ 159	0.3	●	●	E/W
NJ 181	1.7	○	●	N/S
NJ 183	1.0	○	○	N/S
County				
Mileage	295.0	○	○/○	
Municipal				
Mileage	1715.0	○	○	

- * The 6.5 mile section under construction not included in this figure
- ** Includes only portions maintained by NJDOT
- *** The 1.4 mile portion on I-80 is not included

ACCESS	SPEEDS
● Limited	● High (50 mph and over)
● Partial	● Medium (35 mph - 50 mph)
○ Full	○ Low (35 mph and under)

Source: MCDOTM, 1991.

There are two ways in which Morris County's roads are commonly classified: by function and by funding eligibility. The functional classification system categorizes roads by their primary function, such as arterials, collectors or local access, and by whether they are urban or rural as designated by the U. S. Census.

Roads are also classified according to funding eligibility, using the Federal Aid Highway System. Federal funding is provided to roads which emphasize or support national, regional, interurban, and urban travel. Within the Federal Aid Highway System are most federal and state highways and approximately 20 percent of county and municipal roadways.

Usage

Much of the development in the county has centered around I-80, I-287, US 46, NJ 10, and NJ 23. The convenient access and availability of land have made these corridors attractive for development. However, as these corridors rapidly developed, the roadway system has been unable to keep pace with the increasing traffic volumes.

Traffic volumes on many roadways have been increasing at a rate of 2 - 5 percent per year, resulting in increased travel times, capacity problems, diversion of traffic from highways to local roads, increased air pollution, and additional resources having to be diverted to highway construction. During 1988 there were approximately 7 million daily vehicle miles of travel (VMT) on roadways in Morris County. According to NJDOT, the VMT statewide has increased by approximately 18 percent from 1975 to 1987.

Condition

A safe and efficient roadway system is vital for the continued economic health of Morris County. The following evaluation of the system is focused primarily on capacity deficiencies on the major roadways. Figure IV-3 presents the county's areas of congestion problems.

Table IV-8 on the next page identifies the 10 intersections in Morris County that had the highest number of accidents in 1987. Ledgewood Circle has had the highest number of traffic accidents in the county during recent years. Congested roads and intersections contribute to the high number of accidents, although few accidents are fatal because of slow moving traffic.

**Table IV-8
Top 10 Accident Spots
in Morris County, 1987**

Location	Number
Ledgewood Circle, Roxbury	73+
NJ 23 and Kinnelon Road, Butler	41
US 46 and Mount Hope Avenue, Dover	40
US 46 and I-287 ramp, Parsippany	34
US 46 and Baldwin Road, Parsippany	33
US 46 and Beverwyck Road, Parsippany	33
NJ 15 and Berkshire Valley Road, Jefferson	31
US 46 and New Road, Parsippany	29
US 46 and Sussex Street, Dover	27
US 46 and Hook Mountain Road, Parsippany	26

+ Accident figures of township police may be higher because local statistics are kept for accidents that occur in a wider circumference around the circle. The state figure is based on accidents occurring at the circle.

Source: NJDOT, 1990.

Roadway Bridges

Bridges are a vital link in the transportation network, providing uninterrupted movement over natural or man-made barriers. However, if they cannot adequately accommodate traffic, they decrease the efficiency of the network. Many of the bridges in Morris County are old and have insufficient lane, weight, or height capacity. Table IV-9 indicates the number of bridges in Morris County by jurisdiction. Jurisdiction indicates the agency responsible for maintaining the structure.

**Table IV-9
Roadway Bridges by Jurisdiction**

NJDOT	NJ Transit	Morris County	Municipal	Total
319	19	585	Unknown	923

Source: Morris County and NJDOT, 1990.

In addition, new concerns have emerged that place constraints on the type and extent of improvements that can be made. Environmental impacts must be considered, and in some cases there is interest in preserving older bridges for their historical significance.

Bridges over 20 feet in length are included in the Highway Bridge Replacement and Rehabilitation Program, which is managed and funded by the state and federal government. As of 1990, the costs for rehabilitation and repair of county maintained bridges greater than 20 feet in length is estimated at 40 million dollars, as shown in Table IV-10. The Morris County Engineering Department reported there are 40 county maintained bridges in the 5 to 20 foot class and 41 bridges greater than 20 feet that are in need of replacement.

**Table IV-10
Bridge Maintenance Inventory
For Morris County**

County Maintained Bridges Greater than 20 Feet	
Type of work needed	Cost in Millions
Repair	\$11.39
Replacement	28.67
TOTAL	\$40.05
County Maintained Bridges 5 to 20 Feet	
Type of Work Needed	Cost in Millions
Repair	\$6.00
Replacement	18.00
TOTAL	\$24.00

Source: Morris County Engineering Department, 1990.

Figure IV-4 shows the 81 county-maintained bridges in need of replacement.

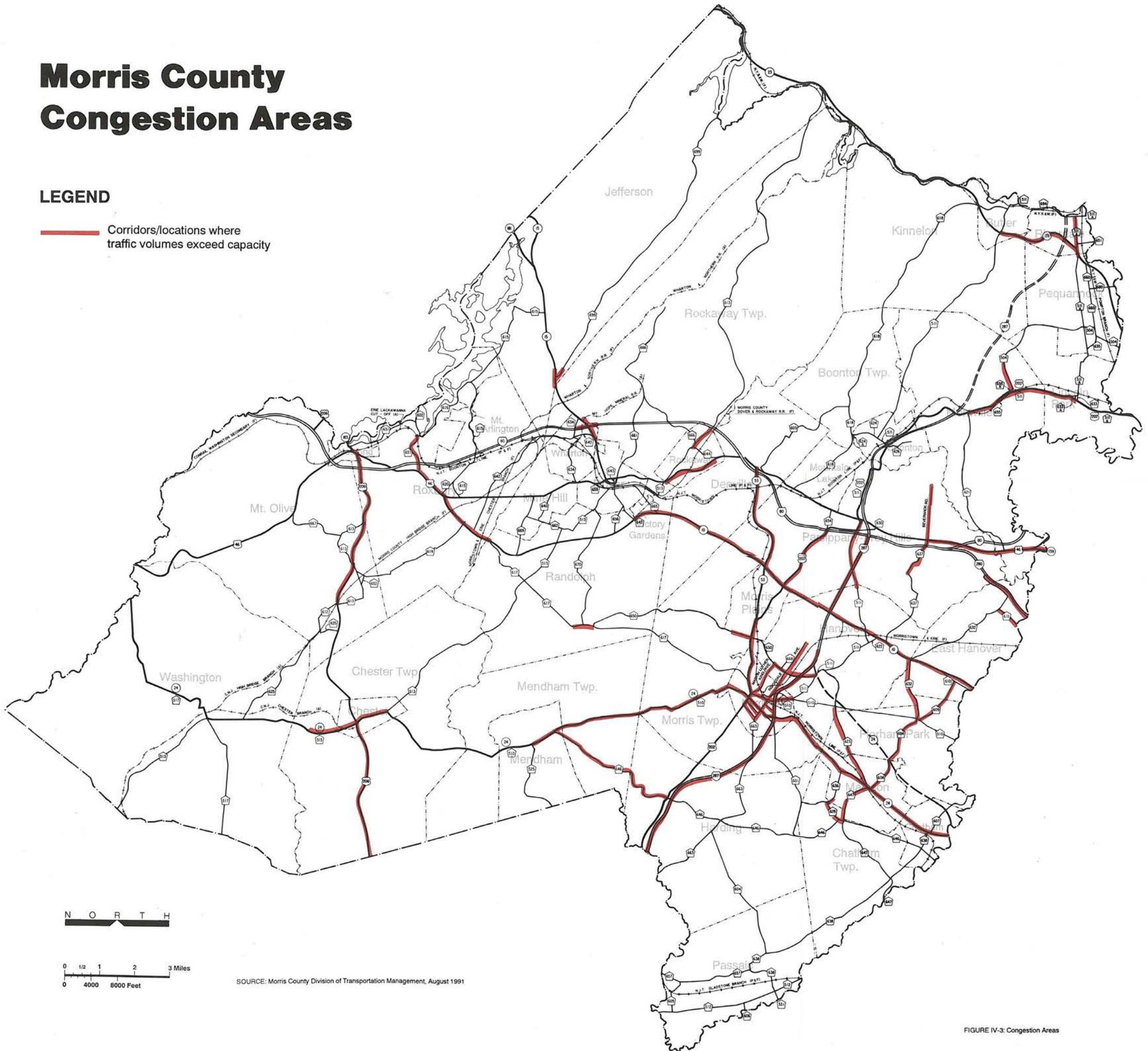
Goods Movement

The goods movement industry is a major user of the transportation network in Morris County and throughout the state. Because of the county's extensive transportation network and proximity to markets, this industry is key to its economy. Trucks are the dominant mode of freight transportation in Morris County, carrying approximately 90 percent of all freight moved. However, rail freight also plays a vital role. Goods movement in Morris County consists of

Morris County Congestion Areas

LEGEND

 Corridors/locations where traffic volumes exceed capacity



SOURCE: Morris County Division of Transportation Management, August 1991

FIGURE IV-3: Congestion Areas

two types: overhead and originating/terminating. Overhead freight only passes through the county, while originating/terminating traffic either begins or ends its trip within the county.

Truck Freight

The extensive highway system in Morris County has been a factor in the amount in truck traffic to and through Morris County over the last 20 years. Trucks have benefitted from the technological advances during the 1970's and 1980's with stronger suspensions, better tires, and light materials, allowing them to transport heavier loads more efficiently.

Several major motor freight carriers are located in Morris County, including Tredway Express in Boonton, Consolidated Freightways and Roadway Express in Mount Arlington, United Parcel Service in Parsippany, and Yellow Freight Systems in Rockaway Township and Montville. These motor freight carriers move goods within and outside the county.

It is necessary to plan for the continued growth of trucking in and through the county. The added truck volumes and the delays caused by congestion and an inadequate transportation network for extensive freight traffic are issues that need to be continually addressed.

Rail Freight

Morris County is served by three freight railroads. Conrail, a large carrier with operations in twelve states, provides freight service on all of the NJ Transit-owned lines in Morris County. The New York, Susquehanna & Western (NYS&W) Railway, a medium-sized regional railroad, provides freight service over two lines in Morris County. The main line of the NYS&W skirts the northern border of the county for 14 miles from Riverdale through Jefferson. The NYS&W's Pompton Industrial Track serves Riverdale and Pequannock. The Morristown and Erie Railway (M&E), a short-line operation based in Morristown, provides freight service over 26 miles of track on four different rail lines in Morris County including the Whippany Line, the Chester Branch, and the county-owned lines

of the Dover & Rockaway Branch and High Bridge Branch.

The majority of rail freight moving through Morris County is primarily container freight on the NYS&W. In 1988, through traffic on the NYS&W main line was 25,000 railcars transporting 50,000 intermodal containers. Additionally, 7,200 freight cars were transported through the county in 1988 and originating/terminating traffic amounted to 4,700 loaded freight cars serving 31 firms in the county.

Freight traffic originating or terminating in Morris County can be separated into commodity groups. Table IV-11 shows the commodities carried on the 4,700 originating or terminating rail cars in 1988. Of these cars, 43 percent carried building materials and 29 percent carried materials for manufacturing. These figures do not include truck or container traffic operating over rail lines in other parts of the state with a non-rail origin or destination in Morris County. Due to Conrail's policy of customer privacy, this information was unavailable. There is virtually no outgoing rail freight from Morris County.

**Table IV-11
Commodity Mix For Rail Freight
Traffic Originating or Terminating
in Morris County, 1988**

Commodity Group	# Rail Cars	Percent
Building Materials	2,021	43
Materials for Manufacturing	1,364	29
Warehouse Goods	657	14
Plastics	470	10
Oils and Chemicals	188	4
Total	4,700	100

Source: MCDOTM, 1989.

Air Freight

There is no air freight service located at the airports within Morris County. The predominant air cargo facilities in the region are Newark International Airport, Kennedy International Airport, and La Guardia Airport. Table IV-12

shows the tonnage of domestic and international freight originating or terminating at these three airports in 1987. Altogether, 1.56 million tons of air cargo were handled. Kennedy Airport, the largest air freight terminal, transported 908,000 tons of international freight and 275,000 tons of domestic freight. Newark Airport is the largest domestic air freight terminal, transporting 310,000 tons of freight, and is a primary hub for overnight freight.

Table IV-12
Air Cargo Activities at the
Regional Airports, 1987
(thousands of tons)

Airport	Domestic	International	Total
Newark	310	15	325
Kennedy	275	908	1,183
La Guardia	53	1	54
Total	638	924	1,562

Source: National Strategic Transportation Planning Case Study for the New York Metropolitan Area.

Although these three major airports are outside of Morris County, they are an important link to the county's economy. Convenient highway access to these airports is essential to ensure the economic well-being of county businesses that depend on air freight transportation. The extension of the NJ 24 Freeway into Morris County to connect with I-287 will greatly facilitate airport access.

Marine Freight

Although there are no marine ports within Morris County, marine freight is vital to the economy of the county. Port Newark and Port Elizabeth, located approximately 20 miles east of Morris County, are among the nation's largest importers of containerized freight. The containers can either be shipped by rail or by truck to their final destination. The 50,000 containers shipped through Morris County on the NYS&W in 1988 originated or terminated at these ports. Contain-

ers and goods are also delivered by truck directly to or from Morris County by way of these ports.

The Foreign Trade Zone

A major destination of international goods from the regional air and marine ports is the Foreign Trade Zone in Mount Olive Township. The Foreign Trade Zone is a designated business district where import duties on merchandise can be deferred, reduced or eliminated.

This Foreign Trade Zone, one of only three in the state, is a 310 acre section of the 670 acre International Trade Center Industrial Park. The Foreign Trade Zone site has excellent accessibility to the regional air and marine terminals because of its direct access to I-80. In addition, the Conrail freight rail line bisects the industrial park. The success of the Foreign Trade Zone and the International Trade Center represents the advantages of efficient freight transportation in industrial location.

Aviation

Morristown Airport, located on Columbia Turnpike in Hanover Township is capable of handling airplanes as large as the Boeing 727 and 737. The Morristown Airport has two 150 foot wide paved runways 4,000 and 6,000 feet long and its control tower operates from 7 am to 10:30 pm. There are 325 aircraft currently based at Morristown Airport. Table IV-13 on the next page displays the number of flights over the last six years.

Lincoln Park Airport is located on Jacksonville Road in Lincoln Park and operates 24 hours a day. It is equipped with a 3,000 foot paved runway used by small passenger planes. In 1991, there were 180 aircraft based at the Lincoln Park Airport. Table IV-13 shows the number of flights by year.

Table IV-13
Number of Arriving
and Departing Flights
(in thousands)

	1985	1986	1987	1988	1989	1990
Morristown	172	220	241	249	219	253
Lincoln Park	n/a	144	170	180	180	180

Source: Morristown Airport Office and FAA, 1991.

The one private airport in the county, owned and operated by the Breen Corporation, is located in Boonton Township. Two other airports in Morris County, Flanders Valley Airport in Mount Olive and Hanover Airport in East Hanover, have been closed since the mid 1980's.

In addition to airports, there are 18 heliports and helistops in the county. A heliport is a facility used for the landing and takeoff of helicopters along with auxiliary facilities such as hangers, parking, maintenance, and fueling facilities. A helistop is a facility for landing and takeoff of helicopters without any auxiliary facilities. None of the 18 facilities is for public use. Twelve are private, of which six are located at hospitals or national guard armories.

Traffic Mitigation

Ridesharing is often cited as the most practical alternative to the single occupant vehicle commutation in suburban areas. Organized ridesharing through carpool and vanpool programs helps reduce energy consumption, vehicular traffic, vehicular emissions, parking demands, and commuting costs.

According to a 1989 survey conducted by the MCDOTM, of 371 major employers representing approximately 22,500 employees in the NJ 24 corridor in Morris County, only 6 percent of the employees used public transit, 6 percent used carpools, and 1.5 percent used vanpools. The survey also indicated that only 40 companies have employees participating in carpools and 10 have employees using vanpools. The low

amount of participation is despite four years of on-going efforts by the county and the transportation management association in this portion of the county.

Transportation Management Association

Morris County Rides, Inc. (MC RIDES) is a transportation management association (TMA) operating within Morris County. It was incorporated in November 1986, with the major objectives being to establish car and vanpools, to establish and coordinate shuttle services, to provide a computerized rideshare matching system, and to promote transportation management strategies. It is a non-profit, private organization assisting both employees and employers from within and outside Morris County.

Bicycle and Pedestrian Transportation

In Morris County, the bicycle is used primarily for recreation. Currently the four public bikeways are in Hedden Park in Dover, Mine Hill, and Randolph; the Loantaka Brook Reservation in Harding, Chatham Township, and Morris Township; Patriot's Path in Morris Township; and the Traction Line Recreational Trail in Morristown and Morris Township. Although these bikeways are primarily used for recreation, the latter two have potential for use in commuting to work.

Patriot's Path is a large network of bicycle and pedestrian trails that, when completed, will extend from Washington to East Hanover and provide connections to existing trails in Hunterdon and Essex Counties. Not all sections of the path are paved, although it is likely to provide opportunities for use in commuting to businesses located in the communities of Morristown and Whippany, and along Hanover and Speedwell Avenues.

The Traction Line Recreation Trail follows a former trolley line that runs between Convent Station and Washington's Headquarters in Morristown. The 3.4 mile trail is paved and makes an ideal route for bicycle commuters from Mad-

ison and the Convent Station area who are employed in Morristown.

Low density development patterns, long commuting distances, hilly terrain, and narrow pavements have generally limited the viability of bicycle and pedestrian commuting in the county.

Other Factors Affecting Transportation Decisions

Transportation is a dynamic network of systems that provides mobility for people as well as goods and it is constantly influencing and being influenced by the land use around it. Therefore, it is important to view transportation in a comprehensive way, considering all aspects and the possible outcomes of any alteration of the network. Beyond the existing transportation system and land use patterns, there are other factors which must be considered in the decision-making process. These factors include the economic vitality of the county, environmental constraints and concerns, the State Development and Redevelopment Plan, and evolving policies of the state and local governments regarding transportation.

Historical Patterns of Development

The character of Morris County was molded by three distinct historical processes. The first was the agrarian development of the county which reflects a pattern of small villages surrounded by farms and estates. This type of development is still evident in the southwestern municipalities as well as Harding Township.

Industrial development in the county started with iron mining, which led to the construction of both the Morris Canal and the growth of railroads. The result was the emergence of towns such as Boonton, Butler, Dover, Rockaway, and Wharton.

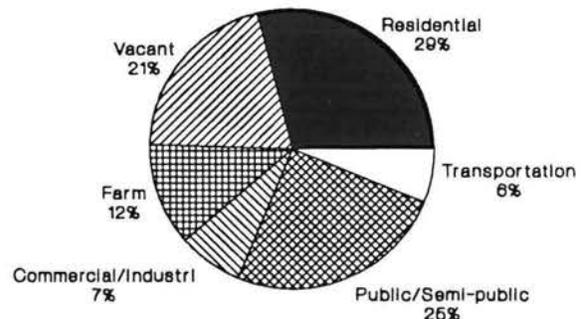
The third historical process has been suburbanization, which began in the mid-nineteenth century. The railroad can be directly linked to the development of communities such as Chat-

ham Borough, Madison, Morristown, Morris Plains, Morris Township, Denville, and Stirling as bedroom communities. Since World War II, almost all the growth in Morris County has been suburbanization resulting from Morris County's location in a growing metropolitan area and the ability to use the automobile as the primary mode of transportation.

Existing Land Use

Residential development is the largest land use in Morris County with approximately 88,870 acres or 29 percent of the total area of the county, as shown in Chart IV-3. Most of the residential development is concentrated in the eastern portion of the county around the major transportation corridors of I-80, US 46, NJ 10, US 202, the eastern portions of NJ 23 and NJ 24, and the central portion of I-287. Away from these transportation corridors, especially in the southwestern and northwestern sections of the county, residential uses become more scattered.

Chart IV-3
Land Use, 1990



Source: Morris County Planning Board, 1990.

Commercial and industrial development, comprising 22,800 acres or 7.4 percent of the county, has also primarily occurred along the major transportation corridors. Large office parks and retail centers have developed along major highways; for example, the Rockaway Townsquare Mall along I-80 and the Prudential Business Campus along NJ 10. Figure IV-5 shows the

location of the large commercial and industrial developments according to trip generation rates.

Public and semi-public uses are the second largest land use, comprising 77,100 acres or over 25 percent of the total area of the county. The largest areas of public/semi-public lands are: the US Army Armament Research and Development Command - Picatinny Arsenal, the federal Great Swamp National Wilderness Refuge in the southeast, the state's Black River Wildlife Management Area and the Hacklebarney State Park, and the county's Black River Park in the southwest, and the Newark and Jersey City watershed properties in the north.

Vacant land comprises approximately 63,500 acres or 21 percent of the county while farm land constitutes approximately 36,100 acres or 12 percent of the total area. The larger tracts of vacant land are located primarily in the north-central and northwestern sections of the county where severe topographical and environmental constraints have limited development on a large scale. Farmland is concentrated in the southwestern region of the county where agriculture is still the predominant land use.

Transportation uses, which include all street and highway right-of-ways, railroad right-of-ways and stations, and supporting facilities such as maintenance yards, comprise 19,100 acres or 6.4 percent of the county. The more intensely developed municipalities along the major transportation routes in the eastern section of the county have higher percentages of their total area in transportation uses.

The relationship between transportation facilities and land development patterns is a primary consideration in determining transportation policy. Travel patterns are largely a function of regional land use patterns. The development of land creates new travel demands and, consequently, a need for improved transportation facilities. Likewise, the pattern for land use is influenced by the regional transportation system. Improvements to the transportation system make land more accessible, thereby influencing loca-

tional decisions. Land development attracts vehicle trips and roadways attract development.

Significant new development is and will most likely continue occurring in the northern, western, and southwestern portions of the county where developable land, namely farm and vacant land, is available. Because of the general lack of sewer and water systems and the distance from major highways, the development will probably consist of large lot single-family residential subdivisions. The impact of continued large lot residential development in the more rural portions of the county on the existing transportation system will be increased commuting times, limited or no mass transit due to low densities, degradation of air quality, and increased energy cost.

Development on the remaining vacant parcels and redevelopment will continue in the eastern half of Morris County. This development, because of high land values, will be higher in density and intensity. Headquarters Plaza in Morristown and the proposed Hartz Mountain mixed-use project in East Hanover are examples of current higher intensity redevelopment and development in eastern Morris County. The effect of the intense development and redevelopment in this section of the county will be to add traffic to the already congested roadways with few major roadway improvements being possible due to costly right-of-way acquisition and high construction cost.

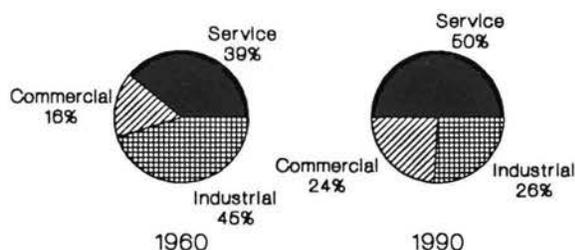
Employment Growth

The economic boom in the Northeastern United States during the 1980's has caused a significant change in land use and travel patterns. The availability of prime real estate with access to New York City and the attractiveness of the suburban lifestyle have been the most influential factors on development in Morris County over the last decade. The influx on companies from neighboring urban regions to the Morris County area has contributed to suburban sprawl and the suburb-to-suburb commute.

The number of people employed in the county, regardless of residence, has increased by approximately 40 percent from 1980 to 1990. During the same time period the county's population increased by three percent. This represents an increase of over 60,000 employees, from 152,902 employed in 1980 to 213,123 in 1990, according to the New Jersey Department of Labor. The increase in the number of employees in Morris County has had a substantial impact on the transportation network.

By industry type, the largest employment increases have occurred in the service sector, as shown in Chart IV-4. Income levels have increased as the shift in employment to the service sector has occurred. As income levels increase, the number of trips generated by a household increase.

**Chart IV-4
Employment by Industry Type
1960 and 1990**



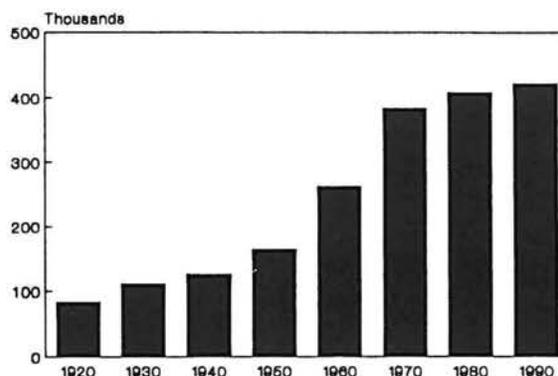
Source: N.J. Department of Labor and US Census, 1960 and 1990.

Population and Housing Growth

Morris County's 1990 population, according to the U. S. Census, was 421,353. Although the population has increased sharply over the last 70 years, the rate of increase has slowed during the last two decades, as shown in Chart IV-5. Between 1920 and 1950, the population increased steadily at approximately 2.5 percent per year, growing by 81,677 people over 30 years. During the next 20 years from 1950 to 1970, the growth rate nearly tripled to over 6.5 percent per year when the population increased by almost

220,000 people. During the past two decades, from 1970 to 1990, the increase has slowed radically to approximately 0.5 percent per year. The 20 year increase from 1970 to 1990 amounted to 38,000 people. However, this slowing growth rate does not mean the demand for transportation services is slowing. Other factors, such as the number of jobs as well as the number and size of households, have a direct impact on the type and extent of transportation services in demand.

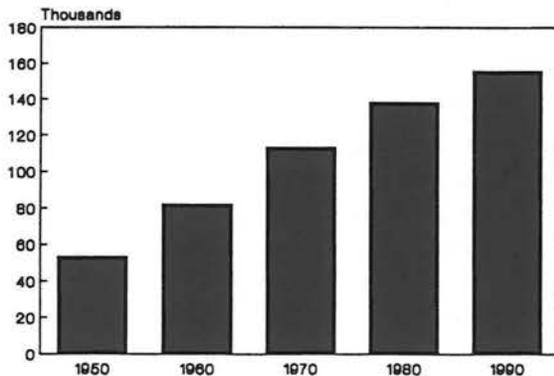
**Chart IV-5
Population Growth
1920 - 1990**



Source: US Census.

In 1990, Morris County had 155,745 dwelling units according to the US Census, an increase of over 100,000 units since 1950. The increase in dwelling units is shown in Chart IV-6. Between 1980 and 1990, there was an increase of 17,753 housing units while the population increased by only 13,723 persons. The increase in the number of households has had a significant impact on increasing traffic congestion. As the number of households increase, the amount of trips increase accordingly.

**Chart IV-6
Dwelling Units
1950 - 1990**



Source: US Census.

Nearly 75 percent of the population of Morris County resides in municipalities whose area covers about 40 percent of the total area; these municipalities are concentrated in the eastern and central portions of the county. Population density is lowest in the north, west, and southern portions of the county where significant development has not occurred because of environmental constraints, distance from the major population centers and transportation network, and/or low density land use policies. The municipalities with the highest population densities are mostly the older, smaller communities with well-defined centers. Population densities are shown on Figure IV-6.

Transit Challenges

As the demands on the transportation system increase, it is necessary to ensure that an efficient and effective transit system is available. Morris County has focused on solving several problem areas to meet the system's needs. These needs include:

- Improve parking availability;
- Expand or develop transit service in areas of high unmet demand or in rapidly growing corridors;

- Expand service beyond the peak period and for reverse commutes;
- Develop direct service via passenger rail from Morris County to midtown Manhattan and to Newark;
- Provide cost effective transit services to meet the demand;
- Maintain and improve the paratransit services.

Highway and Bridge Challenges

The increased use of the road network combined with the aging facilities and decreased funding has caused the county to place a greater priority on the maintenance of existing facilities than on construction of new facilities. Even with the available funding to the county, there are still many unmet transportation needs. To achieve an efficient and safe highway system, the county's transportation plan must be coordinated with the municipalities, NJDOT, NJ Transit, and the NJTCC. Morris County government is focusing on several problem areas to maintain and improve the roadway system such as:

- Improve hazardous and congested traffic locations;
- Improve existing facilities before concentrating on new construction;
- Integrate the roadway system with existing and proposed transit systems;
- Improve air quality and reduce vehicular miles traveled;
- Encourage sound and logical land use planning;
- Improve roadway and bridge capacity where demand warrants.

Goods Movement Challenges

As the amount of goods moved through Morris County continues to increase, it is necessary to plan for the continued growth of this activity. The increased truck volume on the roadways is one of the most visible impacts of this growth.

The county currently only prohibits trucks from traveling on county roadways when there is a safety issue.

The county needs to continue monitoring freight operations within the county. Continued coordination with operators also provides advance warning of future rail line abandonment proposals.

As the demands on the transportation system grow, the need for an efficient and effective network increases. Morris County is focusing on several strategies, including:

- Strategic land use planning to encourage industrial sites adjacent to rail lines;
- Continued monitoring of rail line abandonment proposals;
- Improvement of inadequate height and weight capacities on bridges;
- Placement of proper signage for bridges with inadequate limits.

Morris County Transportation Planning Process

Transportation planning has become more technical as the complexity of the transportation network has increased. Governmental agencies and consultants have developed transportation computer software models based on a common process. In the 1960's FHWA and FTA developed a model called the Urban Transportation Planning System (UTPS). This model has become the standard and the basis for present day models.

The Transportation Model

A computerized transportation model TRANPLAN is used by Morris County to examine the present and potential future traffic conditions in the county. The travel demand model provides estimates of highway traffic and transit use based on data that describes the densities and types of development, socio-economic conditions and the transportation networks in

Morris County. The model can be used to forecast future traffic conditions that result from anticipated population and employment growth. Furthermore, the model can forecast the changes in traffic levels due to the introduction of improved roadways or new transportation services.

The travel demand methodology adopted for Morris County was selected to satisfy two criteria. First, the model had to be capable of providing the necessary traffic projections for the future, and second, the model had to be consistent with the structure and database of the North Jersey Regional Model being developed by NJDOT.

The TRANPLAN model is a modified version of the very successful Florida Standard Urban Transportation Model Structure (FSUTMS). It has the four traditional model components: trip generation, trip distribution, modal split, and trip assignment.

Internal Zone System

In developing the model, the county was partitioned into 95 internal zones. Each zone represents a census tract or a portion of a census tract. The zone boundaries are generally consistent with the larger North Jersey Model zonal system. Therefore, data projected for the larger regional model can be disaggregated into the smaller county zones. Thirty-two external zones were created to account for trips that have an origin or destination outside the county.

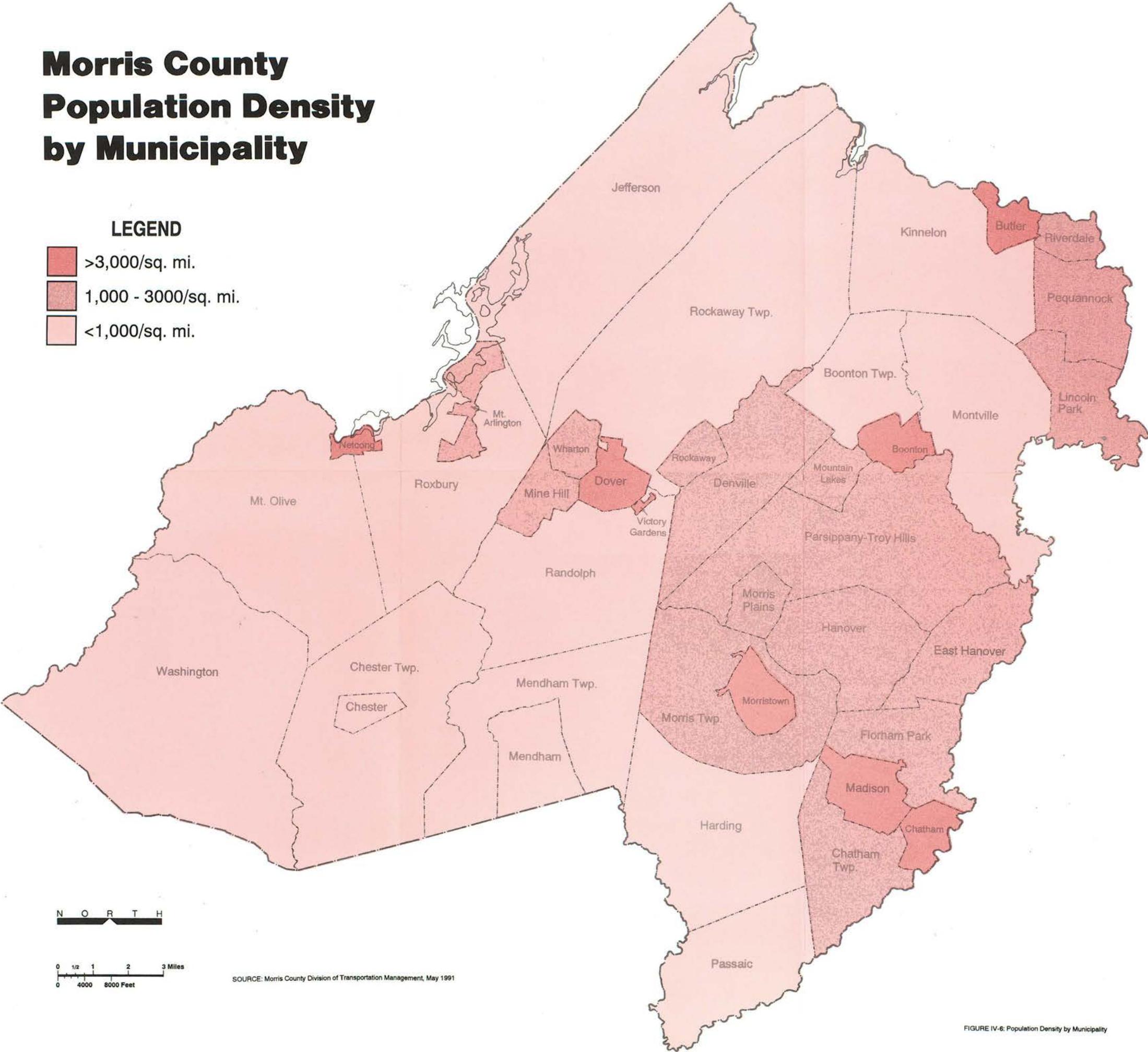
After the zonal system was defined, socioeconomic data required by the trip generation portion was collected or developed. The trip generation program requires the socioeconomic data for each zone to calculate daily person trips for a specific zone. The data consisted of population by income and employment by Standard Industrial Classifications.

The employment data were aggregated into three general classifications: industrial, commercial, and service. The industrial classification includes agriculture, mining, manufacturing, and construction. The commercial sector includes wholesale and retail, while the service classifica-

Morris County Population Density by Municipality

LEGEND

- >3,000/sq. mi.
- 1,000 - 3000/sq. mi.
- <1,000/sq. mi.



N O R T H

0 1/2 1 2 3 Miles
0 4000 8000 Feet

SOURCE: Morris County Division of Transportation Management, May 1991

FIGURE IV-6: Population Density by Municipality

tion contains transportation, financial, governmental, and service codes. In addition, school enrollment for each zone was collected. Special generators were identified to account for large trip attractors such as the Rockaway Townsquare Mall. Estimates of external trips destined to either Morris County or to other areas were developed.

Each zone was defined to be one of four area types: Central Business District, Urban, Suburban or Rural. The area type definitions are consistent with the North Jersey Regional Model.

The Transportation Network

The transportation network replicates the travel characteristics of both the highway and public transit systems. Both highway and transit networks are coded as a series of links and nodes. For the highway network, links represent roadway segments between nodes, usually intersections. For the transit network, links describe the service available between nodes. Nodes in the transit network usually represent locations where access is permitted.

Highway Network

In the highway network, each link in the network is coded as one of seven facility types, which are similar to functional classifications. The facility type definitions were adopted from the regional model. The link characteristics for facility type, area type, distance, and number of lanes were coded manually. Speeds and capacities for the links were assigned as a function of area type and facility type.

Transit Network

The development of the transit network required consideration of the travel patterns associated with the two distinct trip markets: trips that remain within the county and trips destined to areas outside the county. These two distinct markets exhibit different characteristics in the choice of transit service. Local trips are accessed by walking, while a majority of trips destined to areas outside the county are made by either walking or driving an automobile.

Separate transit networks were constructed for each transit market. The network serving trips within the county includes the local bus and rail lines accessible only by walking. The network developed for trips destined to areas outside the county, including local and express bus routes, and rail lines, have both walk and auto access.

Travel times and distances were coded for each bus and rail link. These values were derived from existing schedules and existing highway travel times. Access links describing the walk and auto connections to the various transit routes were also coded.

Through Trip Estimation and Distribution

It was necessary to input to the computer model the estimates of trips with both origin and destinations outside the county, referred to as external-external (EE) trips and estimates of trips with either an origin or destination within the county, known as internal-external (IE) trips.

The through trips were estimated as a percent of the daily intercounty traffic obtained from traffic counts. Approximately 15 percent of the total daily intercounty vehicle trips were assumed to be EE trips. This percent was estimated based on knowledge of the study area size and the major through routes such as I-80 and I-287. The distribution of these trips was limited to the interstate highways and other major routes.

Transit EE trips were determined using daily ridership counts and boarding locations. A majority of the EE transit trips are on bus, as the western terminus of the rail passenger service is within the county.

IE trips were estimated by travel mode. The EE trips were subtracted from the total intercounty vehicle trips with the remaining being counted as IE vehicle trips.

Total daily IE transit trips were provided by MCDOTM and NJ Transit. IE transit trips comprise only 2.9 percent of the total IE trips. A survey conducted by NJ Transit in the 1980's was used to allocate these trips to the network.

Trip Generation

The trip generation program provides estimates of daily intracounty trips for six trip purposes. These purposes consist of Home-based Work, Home-based Shopping, Home-based Social/Recreation, Home-based Other, Non Home-based, and Truck/Taxi. The trip generation module develops trip productions and attractions for each zone by trip purpose. Trip productions for home-based purposes are calculated using individual trip rates based on persons per dwelling unit and income class.

Trip attractions for the home-based purposes are a function of total employment, school enrollment, and the number of dwelling units. For non-home based trips and truck/taxi trips, the trip attraction rate is used to calculate both production and attraction trip rates.

Modal Split

The modal split program allocates the total trips within the study area to each of the available travel modes. The travel modes include drive alone, driver plus one passenger, driver plus two or more passengers, and a single transit mode. The modal split program evaluates three trip purposes separately: home-based work trips, home-based nonwork trips, and non home-based trips. The modal split does not evaluate external-internal or truck/taxi trips.

Data required for this process include the observed number of trips for each of the modes broken down by trip purpose. The transit ridership figures were obtained from MCM and NJ Transit. Although it was found that total transit trips account for less than 0.2 percent of all internal trips, transit trips provide an important function within the county. The auto-occupancy rates for the home-based work trips were obtained from the 1980 Census. The auto occupancy rates for the other trip purposes were obtained from the Nationwide Personal Transportation Study Report developed by the US Department of Transportation.

Assignment and Evaluation

The assignment and evaluation program is designed to prove the model's ability to replicate observed traffic volumes and transit ridership. The highway assignment is a process of loading all trips into several iterations and revising the minimum path after each iteration. Equilibrium is established when no alternative path can be found that further reduces travel time.

The statistics generated by the assignment model reflect the cumulative effects of each model component and all the assumptions included in the model development. The assignment routine provides an approximation of actual roadway congestion and may, therefore, produce assignment routings which differ from the perceived minimum path. Furthermore, the assignment routine loads total estimated trips to the highway network which includes only a portion of the actual total road network. This usually results in a minor system-wide overassignment of traffic, as computer-generated traffic counts are slightly higher than observed traffic counts.

Summary of Computer Outputs and their Applications

The analysis performed by the model is part of the transportation network evaluation task. The output of this task has provided a list of locations in the transportation network where improvements will be recommended for evaluation within the Short and Long Range Transportation Plans. The network evaluation focused primarily on identifying capacity deficiencies on major roadways and transit lines.

The model will also enable the MCDOTM to complete indepth analyses of proposed developments and traffic impacts and analyze the impacts on the county transportation network from new road improvement projects.

Current Transportation Studies and Projects

To meet future challenges in Morris County, several feasibility studies are currently underway to identify the most efficient and effective programs for the coming years. In addition, several improvement projects are awaiting construction. Responsibilities for these studies and projects include the New Jersey Department of Transportation, NJ Transit, Morris County and surrounding counties, and municipalities.

Rail

Kearny Connection: This track connection, in Kearny, will provide direct train service from Morris County to Penn Station, New York City via the Northeast Corridor Line.

Montclair Connection: This track connection will link the Boonton Line with the Montclair Branch at Bay Street in Montclair. It will give Boonton Line passengers direct access to downtown Newark as well as transfers to the Morristown Line trains for service to Penn Station, New York City via the Kearny Connection.

Secaucus Transfer: This planned passenger transfer station, on the Northeast Corridor at the intersection of the Main, Bergen, and the Pascack Valley Lines, will enable passengers to access multiple rail lines including the Morristown Line via the Kearny Connection.

Lackawanna Cut-off: The counties of Morris, Warren, and Sussex, the NJDOT, the North Jersey Transportation Coordinating Council, and NJ Transit have studied and recommend the preservation of this right-of-way for future transportation use. The Lackawanna Cut-off is a 28.5 mile former railroad right-of-way between Port Morris, Roxbury and the Delaware Water Gap near Columbia, Warren County. The restoration of rail service on the Lackawanna Cut-off would potentially alleviate I-80 traffic congestion, according to the study's findings.

New York, Susquehanna & Western Railway (NYS&W): Currently the NYS&W freight line parallels NJ 23 and NJ 208 through Bergen,

Morris, Passaic, and Sussex Counties. The proposed passenger rail service would operate from the vicinity of Newfoundland to Hawthorne, Passaic County, where it would connect with NJ Transit's Main Line to Hoboken. The new passenger service on the NYS&W could potentially alleviate traffic congestion along the NJ 23 and NJ 208 corridors.

Train Storage Yard Improvement Study: This NJ Transit Study will examine ways to increase yard capacity at Dover, Gladstone, and Port Morris to support service on the Kearny Connection.

Bus

Enhancement of Bus Transit Ridership and Facilities in Morris County: This study examined the feasibility of increasing transit use by improving transit information and amenities. The study also identified new locations for bus stops.

Roadways and Bridges

Morris County TRANPLAN Update: This project will update the county's computer model with the 1990 Census data, 1990 boundary traffic counts, and with information from NJDOT's North Jersey Transportation Model. This update will enable the county to refine the zonal system and further calibrate its computer model, permitting the county to perform more detailed transportation planning including analysis capacity, transit improvements, site plan review, and facility locations.

Trip Generation Rates: This MCDOTM project will develop a compendium of trip generation rates based on typical northern New Jersey office, commercial, retail, and residential development. This information is needed by transportation planners and municipal planning board members for more accurate estimates of traffic impacts of proposed developments. Northern New Jersey is a somewhat unique area where accurately predicting traffic impacts of new developments may be difficult. This project will develop local Morris County trip generation rates.

Bridge Inspections: Every two years, bridges over 20 feet in length are inspected for condition and capacity limitations. This is a federally mandated program monitored by NJDOT. Eighty percent of the cost is funded by the federal government and the remaining 20 percent is funded by the County of Morris.

I-80/I-287 High Occupancy Vehicle Lanes Feasibility Study: The purpose of this NJDOT study was to evaluate High Occupancy Vehicle (HOV) lane design concepts on the I-80 and I-287 freeway corridors to determine if the lanes and strategies will increase the number of persons, not vehicles, using those roadways. The

study included interviews with motorists, area employers, and others.

NJ 24 Freeway Connector Roads: This NJDOT study is underway and will determine the need for the connector road in Madison to the NJ 24 Freeway while design work is being considered on the Chatham Connector.

Morris and Essex Park & Ride Study: This NJ Transit study is part of the Kearny Connection project and will identify several locations along the Morris and Essex Line for parking expansion.

Additional information pertaining to this chapter
may be found in the Appendix.

CHAPTER FIVE

Goals, Objectives, and Policies

The development of the transportation plan gives Morris County the ability to review the state of the county's transportation system and determine its future. It requires the integration of the transportation network within the existing institutional framework. In order to guide the plan, goals and objectives were developed in a cooperative effort with municipalities and various Morris County agencies. They are consistent with state and the county's master plan elements.

To achieve the goals and objectives, it was necessary to develop policies. The implementation of policies are supported by both the short term, 1995, and long term, 2010, proposals.

Goals and Objectives

The Morris County Planning Board and the Morris County Division of Transportation Management share the common goal of providing the residents and businesses of the county with a comprehensive approach to transportation management. This Circulation Element provides standardized guidance to all levels of government. While each level has its own authority, there is a need for uniformity and better coordination. This need emphasizes the value of a coordinated circulation element.

Goal I. To ensure that adequate public transportation is available in Morris County.

Objectives:

- A. To support and encourage efficient, reliable, safe, and convenient passenger rail service.
- B. To ensure efficient, reliable, safe, and convenient bus service.
- C. To ensure that paratransit service meets the needs of senior and disabled residents.
- D. To develop adequate park and ride facilities.

Goal II. To maintain an efficient and safe roadway system.

Objectives:

- A. To develop alternatives to capacity expansion.
- B. To improve safety.
- C. To improve operating efficiency.
- D. To complete missing links.

Goal III. To maintain the efficient movement of goods.

Objectives:

- A. To promote safe and efficient truck travel.
- B. To promote safe and efficient transport of freight by rail.

Goal IV. To support aviation services in Morris County.

Objectives:

- A. To preserve and maintain the existing network of airports and heliports.
- B. To mitigate the adverse impacts of air travel on county residents.

Goal V. To create, encourage, and coordinate innovative traffic mitigation strategies and programs.

Objectives:

- A. To ensure safe and convenient bicycle and pedestrian facilities, promote flexible working hours and other transportation demand management strategies.
- B. To encourage transportation system management solutions on roadways.
- C. To plan and implement the appropriate transportation control measures of the Clean Air Act Amendments of 1990.
- D. To efficiently utilize capacity.

Goal VI. To promote a coordinated, comprehensive, and cooperative transportation planning process.

Objectives:

- A. To continue the Subregional Transportation Planning Program.
- B. To continue to acquire special transportation planning funds available through the state or federal government.
- C. To integrate land use and transportation planning.

Policies and Proposed Recommendations

The development of the short and long term proposals requires coordination and prioritization of municipal, county, and regional needs. To meet the great demand of transportation needs with limited resources, the proposals herein are both comprehensive and cost effective. The proposed programs and improvements are dynamic and can be modified to meet changes in social, economic, and environmental conditions. The policies and recommended proposals will help guide the county in making the best choices to preserve and improve its transportation system.

Public Transportation - Rail

POLICY #1 Preserve, maintain, and improve NJ Transit's passenger rail facilities.

Comment: Rail station facilities need to be improved to meet the public's requirements for safety and comfort. Sufficient parking must be provided for automobiles and bicycles. Maintenance of the passenger rail system is essential to attracting and keeping riders.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Improve the Denville passenger rail station.</p>	<p>Improve access to the Landing/Lake Hopatcong passenger rail station.</p>
<p>Expand rail parking facilities at the Chatham, Morristown, and Morris Plains stations.</p>	<p>Investigate methods to reduce or eliminate parking fees in an effort to increase ridership.</p>
<p>Install trail blazer signs throughout the county to better assist motorists in locating stations.</p>	<p>Establish an adequately funded capital improvement program for the repair and replacement of facilities.</p>
<p>Comply with the Americans with Disabilities Act (ADA).</p>	<p>Relocate the diesel-powered train storage facilities from Dover to the Port Morris section of Roxbury.</p>
<p>Conduct annual inspections of all station facilities in the county and encourage NJ Transit to correct any inadequacies or deficiencies.</p>	<p>Develop new rail stations at the following locations on the Boonton Line:</p> <ul style="list-style-type: none"> ●Howard Boulevard and I-80 in Mount Arlington. ●West Dewey Avenue in Wharton.
<p>Acquire by NJDOT the abandoned Lackawanna Cut-off right-of-way.</p>	<p>Construct the Kearny Connection, which will provide direct service from Morris County to Penn Station, New York.</p>
<p>Establish equitable parking fees to residents and non-residents at railroad facilities.</p>	<p>Construct the Montclair Connection, which would link the Boonton Line with the Montclair Branch at Bay Street in Montclair.</p>
<p>Encourage municipalities and NJ Transit to install bicycle storage facilities at selected stations.</p>	<p>Construct the Secaucus Transfer, a passenger transfer station on the Northeast Corridor at the intersection of the Main, Bergen, and Pascack Valley Lines. This station would link Morris County lines with the Northeast Corridor via the Kearny Connection.</p>
<p></p>	<p>Encourage NJ Transit to implement a "bike on rails" program.</p>

IMPLEMENTATION:

NJ Transit is primarily responsible for evaluating and implementing most of these proposals. The county and municipal governments should encourage and work with NJ Transit to improve and maintain the 17 railroad stations in Morris County.

Public Transportation - Rail

POLICY # 2 Maintain, improve, and extend passenger rail service.

Comment: Improving and extending the passenger rail system is essential to maintaining and attracting riders. Inauguration of new passenger rail service will improve regional mobility.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
Improve express service from Morris County to Newark and Hoboken.	Continue maintenance on the rail lines and equipment.
Improve and increase reverse commuter service on the Morristown Line.	Implement passenger rail service on the New York, Susquehanna, & Western Railway (NYS&W) through the counties of Morris, Bergen, and Passaic.
Continue efforts to improve on-time performance.	Extend the Boonton Line passenger service from the Netcong rail station to Hackettstown via the International Trade Center in Mount Olive.
Extend the Boonton Line passenger service from the Netcong station to the International Trade Center in Mount Olive by providing reverse commuter service.	Implement passenger service on the Lackawanna Cut-off from the Port Morris section of Roxbury, where the cut-off connects with the NJ Transit's Boonton Line, to the New Jersey-Pennsylvania state line.
Maintain fares at equitable levels.	

IMPLEMENTATION:

Primary responsibility for these proposals lies with NJ Transit. The county will continue efforts to improve NJ Transit service.

Public Transportation - Bus

POLICY # 3 Maintain and improve bus facilities throughout the county.

Comment: Improvements to the bus facilities are needed to increase ridership by enabling passengers to safely and conveniently use the bus lines.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Install bus shelters at the following locations:</p> <ul style="list-style-type: none"> ● NJ 23 S at Meadtown Shopping Center, Butler ● Main St at Division Ave., Chatham Boro ● Blackwell St at Bergen St, Dover ● US 46 betw. Elk Ave and St Mary's St (Dover General Hospital), Dover ● Blackwell St at S Salem St, Dover ● Ridgedale Ave opposite the Occupational Training Center, Hanover ● NJ 24 EB east of Waverly Place, Madison ● NJ 24 WB west of Central Avenue, Madison ● Main Rd at Taylortown Rd, Montville ● River Rd at Church Ln, Montville ● Littleton Rd near Caldor, Morris Plains ● Madison Ave at Canfield Ave, Morris Twp ● Speedwell Ave at Headquarters Plaza, Morristown ● South St at Hamilton Rd (Kings), Morristown ● Vail Rd at Baldwin Rd, Parsippany ● Valley Rd at Pathmark Supermarket, Passaic Twp ● Newark-Pompton Tpk at W Franklin Ave, Pequannock ● E Main St at Beach St, Rockaway Boro ● W Main St between Lakeside Drive and Wall St, Rockaway Boro ● Rockaway Townsquare Mall park and ride, Rockaway Twp ● US 46 at Jamesway Shopping Center, Rockaway Twp ● Center St at Lakeside Blvd, Roxbury <p>Designate official bus stops and equip all stops and shelters with signage, schedules and fare information.</p>	<p>Enhance the bus terminal at Headquarters Plaza in Morristown to enable passengers to wait safely and be protected from the weather.</p> <p>Identify future bus stops and shelter locations.</p>

IMPLEMENTATION:

The county and municipalities will cooperatively work with NJ Transit and federal agencies to install bus shelters at the above locations.

Public Transportation - Bus

POLICY # 4 Maintain, improve, and expand bus service.

Comment: Service adjustments will improve ridership, safety, and connections between routes. Adding service hours and frequency of service will increase ridership and revenues.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Conduct annual ridership surveys on MCM bus routes to determine if service and route modifications are warranted.</p> <p>Increase marketing efforts for MCM using local news media, schedule distribution, and on-board notices.</p> <p>Modify schedules to better coordinate connections between bus routes.</p> <p>Establish direct service to Newark International Airport via an appropriate park and ride facility.</p> <p>Maintain fares at equitable levels.</p>	<p>Increase the weekday frequency of service and hours of operation on MCM urban routes and the NJ Transit 194 route.</p> <p>Establish MCM bus service on Saturdays and Sundays on all urban routes.</p> <p>Change MCM routes, specifically including: MCM # 1 - Service to West Belt Mall in Wayne. - Service to the Prudential Business Campus in Parsippany.</p> <p>Inaugurate bus service on the following routes:</p> <ul style="list-style-type: none"> ● Dover to Parsippany via US 46 ● Parsippany to Willowbrook Mall via US 46 ● Morristown to Livingston Mall via Whippany ● Budd Lake to Rockaway Townsquare Mall via Succasunna <p>Develop a multi-modal transit center in eastern Morris County including park and ride, park and fly, and inter/intra-state bus service. Integrate with rail service if feasible.</p>

IMPLEMENTATION:

Adequate and stable funding sources will be sought to expand and improve bus routes. Plans will be developed to coordinate and improve bus service.

Public Transportation - Paratransit

POLICY # 5 Improve transportation services for senior and disabled residents.

Comment: The ability to provide service to those unable to use conventional modes extends transportation equity and stimulates economic growth. Improving paratransit services to the seniors and disabled will increase independence and reduce isolation.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Coordinate existing municipal, agency, and regional paratransit service for both non-profit and for-profit organizations to take advantage of existing equipment and expertise.</p> <p>Provide information and referral on paratransit and other transportation services for seniors and the disabled.</p> <p>Maintain MAPS service at the existing level.</p> <p>Comply with the Americans with Disabilities Act.</p> <p>Increase total trips provided by MAPS service by increasing productivity through routing and scheduling improvements as well as through increased funding.</p>	<p>Encourage municipalities without services to assess demands and implement paratransit systems to better serve their residents if needed.</p> <p>Increase the number of drivers and vehicles to provide additional service, especially during peak usage trips.</p> <p>As demand warrants, provide additional off-peak and weekend service as funding becomes available.</p>

IMPLEMENTATION:

Continued and increased funding should be provided by casino revenue taxes and local government support. Modifications to the system may be needed because of the Americans with Disabilities Act.

Public Transportation - Paratransit

POLICY # 6 Maintain the quality of paratransit services.

Comment: The maintenance of service will continue to enable more people to reach employment centers and receive medical services.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
Replace MAPS vehicle fleet on a rotating basis with a portion being replaced annually. Maintain ongoing driver training programs in passenger assistance, sensitivity, and defensive driving.	Continue preventive maintenance and replacement of vehicles. Develop a long term, adequately funded capital program.

IMPLEMENTATION:

Maintenance of service may require additional funding through casino revenues, local governments, private donations, and fares.

Public Transportation - Park and Ride Facilities

POLICY # 7 Expand existing and develop new park and ride facilities.

Comment: The construction of adequate parking facilities in conjunction with transit, carpools, and vanpools can be valuable in alleviating peak hour traffic congestion.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Construct new park and ride lots at the following locations:</p> <ul style="list-style-type: none"> ● I-80 and Howard Boulevard, Mount Arlington with access to the NJ Transit's Boonton Line and interstate buses. ● Lakeland Bus terminal in Rockaway Township. <p>Expand the existing NJDOT park and ride lot at Beverwyck Road and US 46 in Parsippany.</p> <p>Monitor existing park and ride facilities annually to assess future demands.</p> <p>Install trail blazer signs for all park and ride facilities.</p> <p>Install bicycle storage facilities at selected park and ride locations.</p>	<p>Construct new park and ride lots at the following locations:</p> <ul style="list-style-type: none"> ● NJ 23 and I-287 interchange. ● NJ 24 Freeway and I-287 interchange. ● NJ 24 Freeway and the proposed Madison and Chatham connector roads. <p>Provide park and ride facilities in areas of expanded rail service such as the International Trade Center and Hackettstown.</p> <p>Provide adequate parking when a facility has a multi-modal function.</p>

IMPLEMENTATION:

The county will work closely with state and local officials to seek endorsement and adequate funding for construction and maintenance of park and ride lots. The county will also seek to locate new park and ride lots on government owned land to reduce the cost.

Roadways and Bridges

POLICY # 8 Encourage the elimination of on-street parking in congested areas during the peak periods.

Comment: Elimination of on-street parking during the peak periods will alleviate spot congestion in specific areas. In addition, elimination of on-street parking will increase the safe operation, improve air quality, and facilitate traffic through intersections. This effort may also result in alternative parking scenarios.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Work with the affected municipalities and business communities to initiate parking restrictions and facilitate the free flow of traffic during the peak periods.</p> <p>Encourage municipalities to install bicycle parking facilities in downtown business districts.</p>	<p>Assist municipalities and businesses in conducting feasibility studies to develop alternatives to on-street parking during peak periods in the following areas:</p> <ul style="list-style-type: none">● NJ 24 through the centers of Madison and Chatham Borough.● Center of Rockaway Borough.● Specific congested areas in Butler.● Specific congested areas in Morristown.● Specific congested areas in Dover.

IMPLEMENTATION:

Politically, this can be a very controversial policy. Justification of such programs are needed to be presented to the business community. This policy requires extraordinary public information and outreach efforts. It must involve developers, the business community, and elected officials. Implementation could occur quickly, although realistically it may have a long timeframe.

Roadways and Bridges

POLICY # 9 Relieve spot congestion.

Comment: Improving various intersections throughout the county will decrease spot congestion and improve air quality.

SHORT TERM PROPOSALS

- Improvements proposed through 1995 include:
- Loantaka Way and Shunpike Rd. intersection in Chatham Township and Madison.
 - Hook Mountain Rd./Chapin Rd./US 46 intersection in Montville.
 - I-80 from NJ 15 to Cherry Hill Rd. through Wharton, Rockaway Borough, Rockaway Township, Denville, and Parsippany. This is a capacity improvement to be completed in 1994.
 - NJ 24 and Hilltop Rd. in Mendham.

LONG TERM PROPOSALS

Relieve spot congestion and improve air quality through implementation of 40 operating efficiency improvement projects listed on Table V-2 starting on page 61.

IMPLEMENTATION:

The state and county must work cooperatively with municipalities to continue to identify and fund construction in areas where spot congestion occurs.

Roadways and Bridges

POLICY # 10 Encourage the completion of the roadway system.

Comment: The missing links in the roadway system place a burden on the existing roadway network. Completion of the missing highway links and connector roads will alleviate the local roads of unnecessary traffic congestion.

SHORT TERM PROPOSALS

Construct missing links in the roadway system in the county, specifically:

- I-287 from its present terminus in Montville to the New York State Thruway, scheduled for completion in 1994.
- I-80 crossover from westbound local to express lanes in Parsippany.
- NJ 24 Freeway from Kennedy Parkway to I-287, scheduled for completion in 1992.

LONG TERM PROPOSALS

Construct missing links to complete the roadway system including:

- Chatham Connector between the existing NJ 24 in Chatham to the NJ 24 Freeway.
- Study the feasibility of making the western interchange of I-80 and U.S. 46 a full interchange in Denville.
- Madison Connector between the existing NJ 24 in Madison and the NJ 24 Freeway.
- I-280 and New Rd. westbound ramps in Parsippany.
- Acquire municipal section of Green Pond Rd. (CR 513) in Rockaway Township.
- Complete missing interchange links at I-80 and NJ 15 in Wharton.
- Garden State Parkway northbound to I-78 westbound.

Support a feasibility study, including environmental analysis, of extending NJ 24 Freeway west of I-287.

IMPLEMENTATION:

A multi-agency effort is required to implement these missing links. Some projects may be controversial because of environment concerns or roadway location. Funding is a critical issue.

Roadways and Bridges

POLICY # 11 Improve the safety of the roadway system.

Comment: High accident locations need to be continually monitored to determine necessary improvements. Roadway deficiencies such as traffic circles, sharp curves, and insufficient sight distance contribute to high accidents rates and should be improved.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Improve the safety of travel on roadways within the county through implementation of the 32 safety-related improvement projects listed in Table V-1, shown on page 59.</p> <p>Monitor accident locations to determine future needs.</p> <p>Review roadway improvement projects to identify possible concurrent improvements for non-motorized transportation.</p> <p>Install bicycle-safe bridge expansion joints and storm sewer grates on roadway improvement projects, where applicable.</p>	<p>Improve the safety of travel on roadways within the county through implementation of the 39 safety-related improvement projects listed in Table V-2, shown on page 61.</p> <p>Continue to monitor accident locations to determine future needs.</p>

IMPLEMENTATION:

A multi-agency approach is needed to seek adequate funding levels to address and improve the safety inadequacies.

Roadways and Bridges

POLICY # 12 Evaluate, maintain, and improve existing facilities before considering construction of new facilities.

Comment: Maintenance of the existing roadway network is necessary to ensure the network will continue to function and provide adequate circulation. Maintenance and improvement to the existing infrastructure will require less costly future expenditures.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Construct the 39 capital projects to improve and maintain existing facilities prior to the construction of new facilities. A complete listing of projects for the short term can be found in Table V-1, shown on page 59.</p> <p>Conduct bi-annual bridge and roadway inspections.</p> <p>Include the addition of bicycle lanes in the design of roadway and bridge reconstruction projects, where applicable.</p> <p>Include the paving of shoulders for bicycle and pedestrian use for roadway resurfacing projects, where feasible.</p>	<p>Construct the 68 capital projects to improve and maintain existing facilities prior to the construction of new facilities. A complete listing of projects for the long term can be found in Table V-2, shown on page 61.</p> <p>Monitor infrastructure to determine future needs.</p>

IMPLEMENTATION:

Inspection of bridges is the responsibility of the county and state governments. Prioritization of projects is necessary since funding is limited. Adequate funding for infrastructure improvements from all levels of government is necessary. Some projects may be controversial because of environmental or other concerns.

Goods Movement - Truck Freight

POLICY # 13 Maintain safe and efficient truck travel throughout the county.

Comment: Truck traffic movements in some locations may be legally restricted due to excessive grades or curves, bridge weight limitations, and insufficient height or weight clearances.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Identify major truck routes and existing or future roadway features that are unsafe or limit the passage of trucks.</p> <p>Support legislation prohibiting increases in truck sizes and weight limits, especially the proposed triple-trailer legislation.</p> <p>Increase the number of roadside inspections of large vehicles.</p> <p>Increase the monitoring of the truck self-inspection program.</p> <p>Increase enforcement of motor vehicle violations by trucks and other large vehicles.</p>	<p>Correct the roadway deficiencies.</p> <p>Construct truck climbing lanes on roadways as needed.</p> <p>Continue monitoring legislation.</p>

IMPLEMENTATION:

Requires cooperation from the trucking industry and state agencies.

Goods Movement - Rail Freight

POLICY #14 Support goods movement on railroads.

Comment: Increasing the availability of rail freight can alleviate truck traffic on roadways. The use of rail freight may be a more economical mode of transporting large amounts of materials and will result in a longer life for road surfaces and bridges.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Construct a connection in Wharton to permit better access to the county-owned Dover & Rockaway Railroad from the NJ Transit Boonton Line.</p> <p>Improve marketing efforts to attract rail customers along the Dover & Rockaway and the High Bridge Branch. Some opportunities include the former Lock Joint property in Wharton, the Ivex plant in Rockaway Township, and the county recycling depot in Dover.</p> <p>Maintain and up-grade the county-owned rail lines.</p> <p>Encourage the continuation of service and rail use on the New York, Susquehanna & Western Railway (NYS&W), the Morristown and Erie, and Conrail.</p> <p>Preserve freight service where feasible.</p>	<p>Continue to preserve freight service where feasible.</p> <p>Restore rail freight service on the county-owned portion of the High Bridge Branch and on the NYS&W Pompton Industrial Branch, when feasible.</p>

IMPLEMENTATION:

Requires land use policies which encourage industries to locate adjacent to existing freight lines. A multi-agency private/public partnership should be promoted.

Aviation

POLICY #15 Support continued operation of the county's airport and helicopter facilities.

Comment: The aviation industry contributes to the county's economic well-being. Continued operation of these facilities will positively impact the county's future.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Monitor any proposed changes in county aviation facilities and services.</p> <p>Encourage mitigation of noise pollution.</p> <p>Ensure all safety regulations are obeyed at air facilities.</p>	<p>Continue monitoring the county's aviation facilities.</p>

IMPLEMENTATION:

Aircraft operation may be controversial due to noise. Requires a multi-agency approach with public information and outreach.

Traffic Mitigation

POLICY #16 Develop and encourage the use of traffic mitigation strategies.

Comment: Traffic mitigation strategies include transportation system management (TSM), transportation demand management (TDM), and traffic control measures (TCM) which can increase the person-carrying capacity of the roadways and possibly defer the need to widen roadways. A reduction in travel times and vehicle miles of travel as well as improvement to air quality are the benefits. TSM techniques include flexible or staggered work hours, left turn lanes, lane stripings, and high occupancy vehicle lanes.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
Comply with the 1990 Clean Air Act Amendments.	Develop high occupancy vehicle (HOV) lanes and strategies where feasible.
Reduce peak hour traffic by encouraging businesses to use TDM strategies.	Develop shuttles to and between transit stops when stations are beyond walking distances to destinations.
Assist municipalities to incorporate traffic mitigation techniques into the development review process.	Monitor transportation system for future TSM needs.
Develop a roadway construction contract provision that would specifically limit construction to off-peak hours where warranted.	Continue to explore new methods to coordinate and integrate bus and rail systems.
Continue working with transportation management associations.	Construct the 34 transportation system management projects listed on Table V-2, shown on page 61.
Construct the four transportation system management projects listed on Table V-1, shown on page 59.	Continue meeting regulations established by the Clean Air Act Amendments of 1990.
Coordinate and integrate bus and rail systems.	Coordinate with state and local agencies in the development of traffic mitigation strategies.
Update and revise the 1977 Bikeway Element of the Morris County Master Plan.	

IMPLEMENTATION:

Public outreach and education is necessary. Adequate funding is essential.

Traffic Mitigation

POLICY #17: Reduce vehicular energy consumption

Comment: The reduction of vehicular energy consumption will result in improved air quality and improved economic vitality in reducing dependence on foreign oil resources.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Reduce Vehicle Miles Travelled (VMT) through travel demand management techniques.</p> <p>Encourage land uses which reduce energy consumption.</p> <p>Encourage use of alternative modes of transportation as opposed to the single occupancy vehicle.</p> <p>Support non-vehicular oriented development.</p>	<p>Support new technologies which make roadways and vehicles more efficient.</p> <p>Support development of alternative fuels.</p>

IMPLEMENTATION:

Public outreach and education is necessary. The primary responsibility for implementing these proposals is under the jurisdiction of the federal and state governments.

Transportation Planning

POLICY #18 Continue planning efforts in striving for an efficient transportation network.

Comment: Comprehensive, coordinated, and continuous planning is required at the county and municipal levels to assure the transportation network is improved and expanded to meet the growing needs of the county.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Update the county's transportation demand model with the 1990 Census statistics.</p> <p>Improve the county's efforts to solicit public input on transportation issues.</p> <p>Continue the Subregional Transportation Planning Program including public participation, traffic counts, development of the Transportation Improvement Program (TIP), and other efforts.</p> <p>Continue transportation planning efforts.</p> <p>Support regional transportation committees to coordinate policies and ordinances between municipalities.</p>	<p>Reexamine and revise, if necessary, the county's Circulation Element every six years.</p> <p>Continue adequate MCDOTM staff and resources to appropriately manage the dynamic transportation requirements.</p>

IMPLEMENTATION:

The county should actively obtain transportation funds from state and federal sources for continued planning efforts. Multi-agency cooperation is required.

Land Use

POLICY #19 Coordinate sound land use and transportation planning.

Comment: Benefits derived from coordinated transportation and land use planning include higher transit ridership, higher auto occupancy rates, improved air quality, and reduced traffic congestions.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Continue reviewing proposed major subdivisions and site plans for transit and transportation impacts.</p> <p>Include transit stops in the development of employment and residential centers.</p> <p>Encourage development near existing transit system routes and facilities.</p> <p>Encourage limitations on parking.</p> <p>Preserve right-of-ways for future transportation use.</p> <p>Review subdivisions and site plans to ensure that they are designed with consideration to bicycle and pedestrian access.</p>	<p>Ensure the transportation system is adequate to support development.</p> <p>Encourage mixed-use development.</p> <p>Encourage infill development.</p> <p>Encourage controlled growth in developing areas as well as established areas of the county in accordance with the State Development and Redevelopment Plan.</p> <p>Promote integration of adequate transportation with proposed developments.</p>

IMPLEMENTATION:

Private sector involvement is necessary. Multi-agency cooperation is required. This should be done in coordination with the State Development and Redevelopment Plan.

Legislation

POLICY #20 Monitor and respond to legislative proposals which impact transportation.

Comment: Legislation directly affects transportation systems and should be reviewed for their impacts.

SHORT TERM PROPOSALS	LONG TERM PROPOSALS
<p>Monitor, analyze, and make recommendations concerning legislative proposals and disseminate information to municipalities, freeholders, and state and federal legislative representatives.</p> <p>Promote joint meetings between all levels of government to discuss and recommend a position on applicable legislation.</p>	<p>Continue monitoring and responding to applicable transportation legislative proposals.</p>

IMPLEMENTATION:

Morris County should continue to support legislation that provides funding for the transportation system and is consistent with the goals, objectives, and policies of this plan.

**Table V-1
Five Year Plan For Roads and Bridges**

MUNICIPALITY	LOCATION	NEED	ESTIMATED COST IN \$	POLICY IMPLEMENTATION				
				Transportation System Management	Safety	Operating Efficiency	Missing Link	Existing Facility
BOONTON TOWN	* Morris Ave bridges over the Rockaway River	Bridge replacement	1,278,000		●			●
CHATHAM TWP	* Loantaka Way (CR 636) and Shunpike Rd (CR 628)	Intersection improvement	1,300,000	●	●	●		
	+ Shunpike Rd (CR 646) between Noe Ave and Green Village Rd (CR 646)	Resurfacing	480,000					●
CHESTER BORO	+ NJ 24 (CR 510) between Ironia Rd and North Rd (CR 513)	Roadway reconstruction	600,000		●			●
CHESTER TWP	+ Dover-Chester Rd (CR 513) between Ironia and Black River	Roadway reconstruction	600,000		●			●
	+ Old Mill Rd bridge over Burnett Brook	Deck replacement	210,000		●			●
	+ NJ 24 (CR 510) between Ironia Rd and North Rd	Roadway reconstruction	600,000		●			●
DENVILLE	* I-80 E of Beaver Brook to Parsippany Rd	Widen to 8 lanes, noise walls and bridge decks	64,000,000			●		●
HARDING	+ Tempe Wick Rd (CR 646) between US 202 and Corey Lane	Resurfacing	420,000					●
	+ Green Village Rd (CR 646) bridge over Silver Brook	Reconstruction	360,000		●			●
JEFFERSON	+ Berkshire Valley Rd (CR 699) between Knoll Rd and Lake Swannoa	Roadway reconstruction	160,000		●			●
	+ Edison Rd (CR 615) between Espanong Rd and NJ 15	Resurfacing	280,000					●
	+ Ridge Rd bridge over Russia Brook	Reconstruction	225,000		●			●
KINNELON	* I-287	6 lane highway construction	41,210,000				●	
	+ Kinnelon Rd (CR 618) between Fayson Lakes and NJ 23	Resurfacing	510,000					●
LINCOLN PARK	Ryerson Rd bridge over Beaver Brook	Deck replacement	225,000		●			●
MADISON	+ Green Village Rd (CR 647) between NJ 24 and Shunpike Rd (CR 646)	Resurfacing	242,000					●
	* Loantaka Way (CR 636) and Shunpike Rd (CR 628)	Intersection improvements	1,300,000	●	●	●		
	+ Shunpike Rd (CR 646) between Noe Ave and Green Village Rd (CR 646)	Resurfacing	480,000					●
MENDHAM BORO	NJ 24 and Hilltop Rd (CR 525)	Signal timing		●		●		
MENDHAM TWP	+ Tempe Wick Rd (CR 646) between US 202 and Corey Lane	Resurfacing	420,000					●
	+ NJ 24 (CR 510) between Ironia Rd and North Rd (CR 513)	Roadway reconstruction	600,000		●			●
MONTVILLE	* US 46, Hook Mountain Rd, and Chapin Rd	Construction of jughandles	1,500,000	●	●	●		
	* I-287	6 lane highway construction	41,210,000				●	
	+ Changebridge Rd (CR 621) between Horseneck Rd and US 46	Resurfacing	530,000					●
	+ Main Rd (US 202) between Changebridge Rd (CR 621) and Barney Rd	Roadway reconstruction	400,000		●			●
	+ Horseneck Rd bridge over Passaic River	Deck replacement	260,000		●			●
MORRIS TWP	+ W Hanover Ave (CR 650) between Lake Rd and Raynor Rd	Resurfacing	420,000					●
MT ARLINGTON	+ Howard Blvd (CR 615) north of I-80	Roadway reconstruction	675,000		●			●
MOUNT OLIVE	+ Flanders-Netcong Rd (CR 613) between US 206 and Corey Ln	Roadway reconstruction	376,000		●			●
	+ Drakestown Rd bridge over Tribuary Raritan River	Bridge reconstruction	500,000		●			●

MUNICIPALITY	LOCATION	NEED	ESTIMATED COST IN \$	POLICY IMPLEMENTATION				
				Transportation System Management	Safety	Operating Efficiency	Missing Link	Existing Facility
MOUNT OLIVE	+ Bartley Rd (CR 612) between US 206 and River Rd	Roadway reconstruction	180,000		●			●
NETCONG	+ Waterloo Valley Rd bridge over Musconetcong River	Bridge reconstruction	715,000		●			●
PARSIPPANY	+ Troy Rd bridge over Troy Brook	Bridge replacement	560,000		●			●
	+ ParsIPPany Blvd (CR 511) between Intervale and US 46	Roadway reconstruction	505,000		●			●
	* US 46 and Baldwin Rd intersection	Construction of jughandles	2,400,000	●	●			
	+ Edwards Rd bridge over Whippany River	Bridge reconstruction	265,000		●			●
	* I-80 WB	Crossover lanes from local to express lanes	840,000	●				
PASSAIC	+ Valley Rd (CR 512) between Northfield Rd and Passaic River	Resurfacing	200,000					●
	+ Division Ave (CR 605) between Valley Rd (CR 512) and Long Hill Rd (CR 657)	Resurfacing	230,000					●
	+ New Vernon Rd (CR 604) between Meyersville Rd (CR 638) and Black Brook	Resurfacing	250,000					●
PEQUANNOCK	* I-287	6 lane highway construction	41,210,000				●	
	+ Jacksonville Rd (CR 504) between Sunset Rd and Boulevard (CR 511A)	Resurfacing	300,000					●
	+ Jacksonville Rd (CR 504) between Square Pl and W Parkway	Drainage Ditch	850,000		●			
	+ Jackson Ave (CR 680) between Newark-Pompton Tpk (CR 660) and NJ 23	Resurfacing	150,000					●
RANDOLPH	+ Dover-Chester Rd (CR 513) between Sussex Tpk (CR 617) and Ironia Rd	Roadway reconstruction	250,000		●			●
	+ Millbrook Ave bridge over Mill River	Bridge reconstruction	385,000		●			●
	+ Dover-Chester Rd (CR 513) between Ironia and Black River	Roadway reconstruction	600,000		●			●
RIVERDALE	* I-287	6 lane highway construction	41,210,000				●	
ROCKAWAY BORO	+ E Main St (CR 644) bridge over Rockaway River	Bridge reconstruction	900,000		●			●
ROXBURY	+ Landing Rd (CR 631) bridge over railroad	Bridge reconstruction	477,000		●			●
WASHINGTON	+ Stephenburg Rd bridge over Musconetcong River	Bridge reconstruction	560,000		●			●
	+ North Four Bridges Rd bridge over South Branch of Raritan River	Bridge replacement	420,000		●			●
	+ Naughtright Rd bridge over Stony Brook	Bridge replacement	165,000		●			●

* Listed in the FY 1991-1995 Morris County's Transportation Improvement Program (TIP)
 + Listed in the FY 1990-1995 Morris County's Six Year Capital Program

**Table V-2
Long Range Identification of Roadway and Bridge Needs**

MUNICIPALITY	LOCATION	NEED	POLICY IMPLEMENTATION					
			Major Capacity Increase	Transportation System Management	Safety	Operating Efficiency	Missing Link	Maintain Existing Facility
BOONTON TOWN	Powerville Rd (CR 618), Elcock Ave, and West Main St	Geometric improvements			●			●
	* Fanny Rd Bridge over NJ Transit Boonton Line	Replacement						●
BOONTON TWP	* I-287 between I-80 and US 202	Widen to 6 lanes, widen structures	●			●		●
	Powerville Rd (CR 618) and Rockaway Valley Rd	Intersection improvements			●			
	Powerville Rd (CR 618), Elcock Ave, and West Main St	Geometric improvements			●			●
	+ Powerville Rd (CR 618) bridge over Rockaway River	Reconstruction						●
	+ Rockaway Valley Rd bridge over Branch Stony Brook	Reconstruction						●
BUTLER	Boonton Ave (CR 511) and Kiel Ave/Main St	Improve signing and striping		●	●			
	NJ 23 and Boonton Ave (CR 511)	Provide left turn phase, minor widening		●		●		
CHATHAM BORO	NJ 24 and Fairmount Ave (CR 638)	Evaluate after NJ 24 Freeway Completion		●		●		
	* Chatham Connector to NJ 24 Freeway	Roadway construction	●				●	
CHATHAM TWP	Shunpike Rd (CR 646), Green Village Rd, (CR 646) and Southern Blvd (CR 647)	Widening EB Shunpike Rd for right turn lane		●				
	Shunpike Rd (CR 646) between Green Village Rd (CR 646) and Loantaka Way (CR 636)	Roadway reconstruction						●
CHESTER BORO	NJ 24 and US 206	Capacity improvements	●			●		●
	NJ 24 and North Rd (CR 513)	Widen NJ 24 WB and North Rd WB		●				●
	NJ 24 between North Rd (CR 513) and US 206	Improve channelization and signs						●
	US 206 between I-80 and Somerset County line	Roadway reconstruction	●					
CHESTER TWP	Furnace Rd bridge over the Black River	Additional lane						●
	US 206 between I-80 and Somerset County line	Replacement	●					
DENVILLE TWP	* NJ 10 and NJ 53	Additional lane						
	NJ 53 between NJ 10 and US 46	Diamond intersection construction						
	+ Openaki Rd bridge over Den Brook	Widen to two lanes each direction	●			●		
	* NJ 10	Reconstruction						●
	+ Diamond Spring Bridge over Trib Rockaway River	Intersection improvements	●		●	●		
DOVER TOWN	* Blackwell Street bridge over NJ Transit Boonton Line	Reconstruction						●
	* US 46 bridge over NJ 15 and Rockaway River	Replacement						●
	US 46 and Mount Hope Ave (CR 661)	Replacement						
	Mount Hope Ave (CR 661)	Delayed green; left turn lanes both directions		●	●			
	US 46 between Perry St and Warren St	Capacity limitation, truck traffic		●	●			
EAST HANOVER	Ridgedale Ave (CR 632) at the Hanover airport	Coordination of signals		●				
	NJ 10 and Ridgedale Ave (CR 632)	Straighten roadway			●			
		Intersection improvements				●		●

POLICY IMPLEMENTATION

MUNICIPALITY	LOCATION	NEED	POLICY IMPLEMENTATION					
			Major Capacity Increase	Transportation System Management	Safety	Operating Efficiency	Missing Link	Maintain Existing Facility
EAST HANOVER	Ridgedale Ave (CR 632) between Eagle Rock and Edwards Rd in Parsippany	Widen to 4 lanes	●					
	NJ 10 to County Line	Intersection improvements	●					●
	Troy Rd bridge over the Whippany River	Replacement						●
	Ridgedale Ave (CR 632) and Cedar St	Further Study						
	* Mt. Pleasant Ave bridge	Replacement						●
FLORHAM PARK	I-280	Widen to 3 lanes per direction from I-80 to Eisenhower Parkway	●					
	NJ 10 and River Rd	Widen NB River Rd to 2 lanes	●			●		
	Ridgedale Ave (CR 608) and Greenwood Ave	Channelization and improve geometrics		●		●		
	Hanover Ave (CR 509), Ridgedale Ave, (CR 632) and Columbia Tpk (CR 510)	Improve striping and prohibit left turns from NB Hanover Ave		●				
	* East Madison Connector to NJ 24 Freeway	Roadway construction	●					●
HANOVER TWP	* Chatham Connector to NJ 24 Freeway	Roadway construction	●					●
	Columbia Turnpike (CR 510)	Median divider			●			
	NJ 24 Freeway Extension	West of I-287	●					●
	Hanover Ave (CR 650) and Ridgedale Ave	Intersection improvements; turning and signal phasing		●	●	●		
	Eden Lane bridge over the Whippany River	Replacement						●
HARDING	* NJ 10	Intersection improvements; loop ramp, widen left turn slots				●		
	Columbia Tpk (CR 510) and Park Ave (CR 623)	Redesign and construct intersection				●		●
	Columbia Tpk (CR 510)	Median Divider			●			
	+ Parsippany Rd (CR 511) bridge over Whippany River	Reconstruction						●
	E Hanover Ave (CR 650) and Martin Luther King Ave	Widen EB approach for left turn lane replace signal		●	●			
JEFFERSON TWP	E Hanover Ave (CR 650) and Ridgedale Ave	Widen NB approach for double left turn; reset signal phasing		●				
	NJ 10 and Jefferson Rd	Realign NB Jefferson Rd				●		●
	US 202 and Tempe Wick Rd (CR 646)	Widen EB and NB approaches				●		●
	* I-287 between I-78 and NJ 24	Widen to 6 lanes	●					●
	+ Spring Valley Rd (CR 601) between James St and Loantaka Way	Roadway reconstruction						●
JEFFERSON TWP	Van Buren Rd bridge over the Silver Brook	Replacement						●
	Blue Mill Rd (CR 663) bridge over the Silver Brook	Replacement						●
	NJ 15 and Berkshire Valley Rd (CR 699)	Widen Berkshire Valley within median; add second left turn lane	●		●	●		
	NJ 15 and Berkshire Valley Rd (CR 699)	Grade Separated Interchange	●		●	●		
	Berkshire Valley Rd (CR 699), Ridge Rd, and Chamberlain Rd	Upgrade signalization to include		●				

POLICY IMPLEMENTATION

MUNICIPALITY
MORRIS PLAINS

LOCATION

* E Hanover Ave bridge over NJ Transit line
US 202 and Hanover Ave (CR 650)

NEED

Replacement
Add RT lane to NB US 202; modify
signal for left turn phase on Hanover

MORRIS TWP

W Hanover Ave (CR 650) from Lake Rd to US 202
NJ 24 and Kahdena Rd

Widen to 2 lanes per direction
Intersection needs realignment and/or
signalization; signal at Dellwood Rd

Kitchell Rd bridge over the Loantaka Brook
Washington Valley Rd bridge over the Whippany River
Inamere Rd Bridge over the Whippany River
Sussex Tpk (CR 617) and Raynor/Mt Pleasant Rd
US 202 and Harter Rd

Replacement
Replacement
Replacement
Improve sight distance for SB Raynor
Signalization and left turn lane for
Harter Rd

Columbia Tpk
NJ 24 Freeway Extension
E Hanover Ave (CR 650) and Martin Luther King Ave

Median Divider
West of I-287

E Hanover Ave (CR 650) and Ridgedale Ave

Widen EB approach for left turn lane
replace signal
Widen NB approach for double left
turn; reset signal phasing

* I-287 between I-78 and NJ 24

Widen to 6 lanes

+ Lake Rd bridge over Branch Whippany River

Reconstruction

MORRISTOWN

* I-287 between I-78 and NJ 24
NJ 24 and Mill St

Widen to 6 lanes

NJ 24 and US 202

Evaluate after NJ 24 Freeway
Completion

NJ 24 and James St (CR 663)

Evaluate after NJ 24 Freeway
Completion

NJ 24 and South St

Evaluate after NJ 24 Freeway
Completion

Woodland Ave and South St (NJ 24)

Signalization and widening of EB NJ
24 to provide left turn lane

Columbia Tpk (CR 510) and Whippany Rd (CR 511)
Ridgedale Ave and Morris St (CR 510)

Redesign and construct intersection
Install signals

* I-287 between I-78 and NJ 24

Widen to 6 lanes

Center Ave bridge over the Whippany River
Lake Rd bridges (2) over the Whippany River

Replacement
Replacement

MT ARLINGTON
MOUNT OLIVE

I-80 EB and Howard Blvd (CR 615)
US 206 and Main St (CR 613)

Signalize exit ramps
Widen NB US 206 to 2 lanes; widen
WB Main to 2 lanes; replace signals

Waterloo Vly Rd bridge over Musconetcong River

Reconstruction

* US 206 from Ledgewood Rd to Central RR

Resurface, Widen to 12' lanes,
climbing lanes

Major Capacity Increase	Transportation System Management	Safety	Operating Efficiency	Missing Link	Maintain Existing Facility
					●
	●	●	●		
●			●		
	●	●			
					●
					●
		●			
	●				
		●			
●				●	
	●	●			
					●
●	●	●			
					●
		●			●
●			●		
					●
●		●			

MUNICIPALITY	LOCATION	NEED	POLICY IMPLEMENTATION					
			Major Capacity Increase	Transportation System Management	Safety	Operating Efficiency	Missing Link	Maintain Existing Facility
MOUNT OLIVE	US 206, Bartley Flanders Rd (CR 613) and Bartley Rd (612)	High Bridge Branch RR needs additional height clearance; Intersection improvements						●
	US 206 between I-80 and Somerset County Line	Additional lane	●					
MOUNTAIN LAKES	Drakestown Rd bridges (3) over the S Branch Raritan	Replacement						●
	US 46	Widen to 3 lanes per direction	●			●		
NETCONG	Bank St bridge over the Musconetcong River	Replacement						●
PARSIPPANY	Littleton Road (US 202)	Capacity improvements	●			●		
	US 46 and New Rd	Intersection needs improvements				●		
	US 46, New Road and Hook Mntn Rd	Signal timing between New Rd and Hook Mountain Rd is necessary		●				
	US 46 between I-80 and Bloomfield Ave, Fairfield	Widen to 3 lanes using existing median	●					
	I-80 Local	Widen local to 3 lanes per direction	●			●		
	I-80 Express	Widen express to 4 lanes per direction	●			●		
	I-80 between US 46/I-280 and the Passaic River	Widen to 4 lanes per direction	●			●		
	I-80 and Cherry Hill Rd (CR 654)	Add direct access to Cherry Hill Rd NB I-80 EB; realign existing ramps			●			●
	I-287	Close Smith Road Ramps; Widen and add additional I-80 and I-287 Ramps	●	●		●		
	I-280	Widen to 3 lanes per direction from I-80 and Eisenhower Parkway	●					
	I-280 and New Rd	Add westbound ramps				●	●	
	Parsippany Rd (CR 511) and I-287	Widen bridge over I-287 and improve in the exit ramps from I-287			●	●		
	* I-287 between I-80 and US 202	Widen to 6 lanes, widen structures	●					
	* I-80 between Beverwyck Rd and I-280	Resurfacing						●
	NJ 53 between NJ 10 and US 46	Widen to two lanes each direction	●			●		
	US 46 and Beverwyck Rd	Widen NB Beverwyck Rd for right turn		●				
	+ Edwards Rd bridge over Whippany River	Reconstruction						●
	+ Vail Rd bridge over Rockaway River	Reconstruction						●
PASSAIC	+ Plainfield Rd bridge over Passaic River	Reconstruction						●
	+ Mountain Ave bridge	Reconstruction						●
PEQUANNOCK	NJ 23 and Jackson Ave (CR 680)	Intersection proposed as an overpass	●					
RANDOLPH	* NJ 10	Intersection improvements	●		●	●		
	* Sussex Tpk	Reconstruction of roadway	●		●			●
RANDOLPH	NJ 10 and County College of Morris	Improved access		●				
RIVERDALE	Newark-Pompton Tpk (CR 511A) and Riverdale Rd	Signalization		●	●			
	NJ 23 and Newark-Pompton Tpk (CR 511A)	Grade separated intersection	●					
	NJ 23 and Cutlass Rd	Intersection improvement		●	●			

POLICY IMPLEMENTATION

MUNICIPALITY	LOCATION	NEED	POLICY IMPLEMENTATION					
			Major Capacity Increase	Transportation System Management	Safety	Operating Efficiency	Missing Link	Maintain Existing Facility
RIVERDALE	Paterson-Hamburg Tpk (CR 694) between Newark-Pompton Tpk (CR 511A) and the County line (W)	Widen to two lanes each direction	●					
	* NJ 23 from Windbeam Rd to Cutlass Rd	Widen to 3 lanes southbound	●					
	NJ 23 and Newark-Pompton Tpk (CR 511A)	Evaluate after I-287 completion						
ROCKAWAY BORO	US 46 and E Main St (CR 644)	Upgrade signs, new signals, right turn arrows		●				
	US 46 between Denville and Dover Main St (CR 513) and Wall St (CR 513)	Widen to two lanes each direction	●			●		
	Intersection improvements			●	●	●		
ROCKAWAY TWP	Mount Hope Ave (CR 661) south through Dover	Capacity limitations, truck traffic		●	●			
	Mount Hope Ave (CR 661) and I-80	On-ramp from SB Mt Hope Ave to EB I-80			●			
	US 46 and W Main St (CR 513)	Upgrade signs and new striping		●	●			
	Green Pond Rd (CR 513) bridge over Hibernia Bk	Reconstruction						●
	Mount Hope Ave (CR 661)	Capacity improvements	●			●		
	Green Pond Rd (CR 513)	Widened and realigned to reduce the curves			●			
ROXBURY	Landing Rd (CR 631) and Mt Arlington Blvd (CR 616)	Improve signalization and channelization		●	●			
	* US 206 from Ledgewood Rd to Central RR	Resurface, Widen to 12' lanes, climbing lanes	●		●			
	* Ledgewood Circle	Intersection improvements	●		●	●		
	Hillside Ave (CR 619) and Main Rd	Intersection improvements		●	●			
	* NJ 10	Intersection improvements	●		●			
	US 206 and Gold Mine Rd	Signalization and jughandles		●	●			
WASHINGTON TWP	Long Valley Bypass center of town	Bypass	●		●	●		
	Middle Valley Rd bridge over the S Branch Raritan	Replacement						●
	Schooley's Mountain (CR 517) bridge over S Branch Raritan	Replacement						●
	W Valley Brook Rd bridge over the S Branch Raritan	Replacement						●
	NJ 24, Fairmount Ave (CR 517) and W Mill Rd (513)	Signalization		●		●		
	NJ 24 bridge over Musconetcong River	Replacement						●
	US 46 bridge over Millrace Branch	Replacement						●
	Fairmount Ave (CR 517) bridge	Replacement						●
WHARTON	I-80 and NJ 15	Construction of ramp to allow direct access from NJ 15NB to I-80 WB	●		●	●		

* currently listed in the FY 1991-1995 Morris County Transportation Improvement Program (TIP)
 + currently listed in the FY 1990-1995 Morris County's Six Year Capital Program

CHAPTER SIX

Conclusion

The development of the Circulation Element of the Morris County Master Plan has been a cooperative effort among many levels of government, private entities, and citizens groups. The completion of this document marks the first time Morris County has an officially adopted Circulation Element of the county Master Plan.

The comprehensive approach to transportation management developed in this Circulation Element provides guidance to all levels of government.

As the county moves through the 1990's, it is becoming increasingly important to bridge the gap between the road building era of the earlier decades and the transportation management strategies to be used in the future. As environmental issues, restrictions on land and rights-of-way, limited funding, and political pressures

build, transportation officials must be prepared to lead the way with alternatives to the single occupancy vehicle. The need to efficiently move people instead of cars has become the issue of the 1990's.

The federal Clean Air Act Amendments of 1990 will have a tremendous impact on the travel options of the next decade. As officials strive to meet the strict standards and deadlines contained in the Act, the transportation network users will be required to change their travel habits. The changing of existing travel patterns to meet the requirements of the Clean Air Act Amendments and the needs of the county will be the impetus of legislation and funding through the next decade. Although by the turn of the century transportation problems will not be resolved, the policies and recommended proposals in this plan

will structure the framework to solve the problems in the future.

The policies contained in this plan will guide the county over the next five years and beyond. The balanced approach recommended in this document can only be achieved through a continuing, comprehensive, and cooperative effort by the public and private sectors.

The goals in this plan include providing adequate public transportation, maintaining an efficient and safe roadway system, and using traffic mitigation strategies for Morris County. These goals

will help focus efforts to meet the recommended short and long term proposals.

However, if the present pattern of development continues without developing a more efficient transportation network, none of the present or proposed improvements to the system will substantially alleviate severe congestion and degradation in air quality. If the high quality of life which is desired by the residents and businesses of Morris County is to be achieved, future land use changes must be made to alter the current trends.

Public Transportation

Rail

There are 17 rail stations in Morris County and they are owned by either NJ Transit, the municipalities where they are located, or by the private sector. Several of the station parking lots have been turned over to a municipal parking authority

or to Park America Inc., a private company, for lot management and maintenance. All of the stations were evaluated in the spring of 1990 by the Morris County Division of Transportation Management (MCDOTM). Table A-1 denotes the facilities available at each of the stations.

**Table A-1
Passenger Rail Station, 1990**

	Stations		Parking						
			Lots			Spaces		Cost in dollars	
	Owner	Lessee	Num.	Owner	Lessee	Used	Total	Annual	Daily
Morristown Line									
Chatham	NJT	None	4	Muni.	None	320	331	125.00	1.50
Madison	NJT	None	1 3	NJT Muni.	Park America None	375	521	100.00	1.00
Convent Station	Muni.	None	4	Muni.	None	266	462	96.00	.50
Morristown	NJT	None	3 2	NJT Muni.	Muni. None	155	186	300.00	1.50
Morris Plains	NJT	None	2 1	NJT Muni.	Park America Park America	180	220	180.00	1.00
Mt. Tabor	NJT	None	2	NJT	Muni.	21	43	110.00	1.00
Denville	Private	None	2	NJT	Park America	75	96	192.00	1.00
Dover	NJT	Muni.	11	Muni.	Muni.	355	663	60.00	1.00
Gladstone Branch									
Gillette	NJT	Muni.	1	NJT	Muni.	44	65	48.00	.50
Stirling	NJT	Muni.	1	NJT	Muni.	17	31	48.00	.50
Millington	NJT	Muni.	1	NJT	Muni.	48	84	48.00	.50
Boonton Line									
Lincoln Park	NJT	None	2	NJT	Park America	54	196	120.00	1.00
Towaco	NJT	None	4	NJT	Park America	46	112	120.00	1.00
Boonton	NJT	None	2	Muni.	None	26	42	120.00	.50
Mountain Lakes	Muni.	None	2	Muni.	None	40	82	5.00	n/a
Landing	NJT	None	1	NJT	None	44	50	free	free
Netcong	NJT	None	1	NJT	Park America	54	117	120.00	1.00

Source: NJ Transit, 1990; and MCDOTM, 1990

**Table A-2
Morris County Metro Survey
1990 Results**

Morris County Metro

A survey of Morris County Metro (MCM) passengers was conducted in 1990 to establish a ridership profile and determine what could be done to improve bus service. Survey results for the daily bus routes, MCM 1, 2, 3, 4, and 10, are shown in Table A-2.

Surveys were conducted on Tuesdays and Wednesdays for one month to provide week-to-week consistency. A total of 1,171 passengers were surveyed.

The results of the daily bus routes survey indicate most riders:

- use the bus for work trips;
- use the bus five times per week or more;
- do not have access to a car;
- are within walking distance of their origin and destination.

Some of the MCM passengers transfer from a train or another bus before boarding and, likewise, transfer to a train or another bus after alighting. This indicates that well-timed connections between modes are important to many riders.

The rural non-daily bus routes are MCM 5, 7, and 8. Because these routes operate only once or twice per week, there was not a representative sample size to tabulate the findings in the same manner as daily bus routes. However, based on those surveyed, it was determined that these buses are primarily used for shopping trips by the elderly. There is some added ridership during the summer by school-aged children. The majority of the riders are female and they do not have access to automobiles.

Purpose of Trip	Percent
Work	48.3
Other	21.4
Shopping	17.2
School	6.9
Visit	4.5
Doctor	1.7
Mode to bus	
Walk	82.4
Bus	6.7
Dropped off	5.3
Train	3.7
Drive	1.1
Other	0.8
Mode from bus	
Walk	86.9
Bus	6.2
Dropped off	2.8
Train	2.0
Other	1.5
Drive	0.6
Weekly Trips Taken	
Over 10	10.3
5 to 10	50.4
1 to 4	31.8
Under 1	7.5
Car available	
No	81.6
Yes	18.4
Sex	
Female	51.4
Male	48.6
Age	
under 18	2.6
18 - 24	22.6
25 - 44	41.6
45 - 64	15.2
Over 64	18.0

Source: MCDOTM, March 1990

Bus Shelters and Stops

The listing of proposed bus shelters and stops was developed from several sources, including the 1990 Evaluation and Route Analysis of Morris County Metro Bus Service, the municipality's input, and MCDOTM field survey data. The initial listing of proposed locations is shown in Table A-3. Each of these locations was evaluated

for adequate right-of-way, safety, ridership demand, and impact on surrounding land uses.

Locations recommended by the MCDOTM for shelter installation are shown on Policy # 3 on page 41. The locations recommended for shelter installation meet the requirements set forth by NJ Transit and have little negative impact on surrounding land uses.

**Table A-3
Potential Bus Shelter and Stop Locations**

Municipality	Location	Transit Routes
Boonton	Main St opposite Post Office	Lakeland
Butler	NJ 23 S at Meadtown Shopping Center	NJ Transit 75, 194
Chatham Boro	Main St at Fairmount Ave	MCM 3, Lakeland
	Watchung Ave at Lafayette Ave	Lakeland
	Main St at Division Ave	MCM 3, Lakeland
Chatham Twp	Shunpike Rd at Noe Ave	Lakeland
	Hickory Pl at Apartments	Lakeland
Dover	Blackwell St at S. Salem St (at Senior Housing)	MCM 2
	Blackwell St at Morris St	MCM 2, 10, Lakeland
	US 46 between Elk Ave and St Mary St (Dover General Hospital)	MCM 2
	Blackwell St at Bergen St	MCM 2, 10, Lakeland
Florham Park	Columbia Tpk at Ridgedale Ave	Community 77
Hanover	Ridgedale Ave opposite the Occupational Training Center	MCM 1
Kinnelon	NJ 23 S at North Gate Rd (Smoke Rise)	NJ Transit 75, 194
Madison	Main St EB east of Waverly Pl	MCM 3, Lakeland
	Main St WB west of Central Ave	MCM 3
Montville	Main Rd at Taylortown Rd	MCM 1, Lakeland
	River Rd at Church Ln	MCM 1
	US 46 W at Pine Brook Rd	NJ Transit 29
Morris Plains	Littleton Rd near Caldor	MCM 2, 10
	Speedwell Ave N of Hanover Ave	MCM 2, 3, 10
Morris Township	Madison Ave E at Canfield Ave	MCM 3, Lakeland
Morristown	Speedwell Ave at Headquarters Plaza	All MCM, Lakeland, Community
	South St at Hamilton Rd (Kings Supermarket)	MCM 3, Lakeland
Parsippany	N Beverwyck Rd at Mara Rd	MCM 1, NJ Transit 29, Lakeland
	Vail Rd at Baldwin Rd	MCM 1
	Prudential Business Campus (4 Campus Dr)	MCM 1
Passaic	Valley Rd at Pathmark Supermarket	Lakeland
Pequannock	Newark-Pompton Tpk at Jackson Ave	NJ Transit 75, 194
	Newark-Pompton Tpk at Sunset Rd	NJ Transit 75, 194
	Newark-Pompton Tpk at Jacksonville Rd	NJ Transit 75, 194
	Newark-Pompton Tpk at W Franklin Ave	NJ Transit 75, 194
Randolph	Quaker Church Rd W of Center Grove Rd	MCM 2
	Sussex Tpk at Millbrook Ave	None
Rockaway Boro	W Main St opposite Wall St	MCM 10, Lakeland
	W Main St and W New St	MCM 10, Lakeland
	W Main St between Wall St and Lakeside Dr	MCM 10
	E Main St and Beach St	MCM 10, Lakeland
Rockaway Twp	Rockaway Townsquare Mall Park and Ride	Lakeland
	US 46 at Jamesway Shopping Center	MCM 10, Lakeland
Roxbury	Center St at Lakeside Blvd	Lakeland
Wharton	Main St and Sterling St	MCM 10

Source: MCDOTM, 1991

Morris Area Paratransit System

Table A-4 shows the number of passenger trips provided in the five Morris Area Paratransit System (MAPS) regions since its first full year of service in 1988. Each region experienced a fairly steady increase in the number of trips provided. Since 1988, there has been an overall increase of 27 percent in the number of trips.

**Table A-4
MAPS Trips By Region**

Region	Number of Trips			% Change 1988-1990
	1988	1989	1990	
Northern	8,083	10,122	10,542	30.4
Northeast	22,160	23,771	26,521	19.7
Central	13,160	13,884	16,347	24.2
Southeast	15,900	17,061	18,868	18.7
Western	29,220	35,479	40,170	37.5
Total	88,523	100,317	112,448	27.0

Source: MCDOTM, 1990

Trip Purpose

The primary purposes of trips provided by MAPS in 1990 are shown in Chart A-1. Employment at sheltered workshops and worksites was the predominant purpose of trips provided. Although rides to educational facilities represent the smallest percent of trips provided, these trips have increased significantly since MAPS began operation.

MAPS Passenger Profile

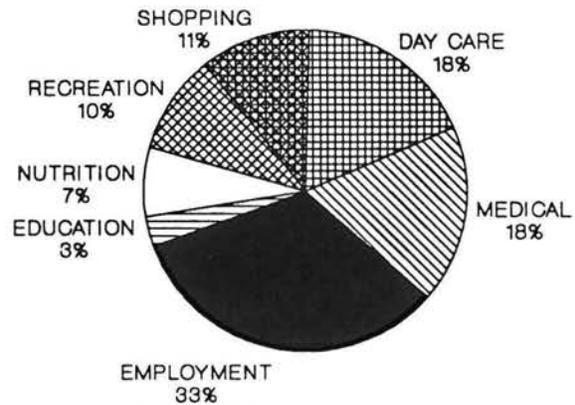
Over the past four years, the profile of the MAPS passenger has remained relatively constant. Approximately 60 percent of the passengers are seniors and 40 percent are disabled as shown in Table A-5.

**Table A-5
MAPS Passenger Profile**

Year	Number of Passengers		
	Seniors	Disabled	Total
1990	69,098	44,811	112,448
1989	61,428	38,889	100,317
1988	52,878	35,645	88,523
1987	44,034	20,252	64,286

Source: MCDOTM, 1990

**Chart A-1
MAPS System
Trip Purpose**



Source: MCDOTM, 1990

Roadways and Bridges

Roadways

Morris County's road network is a complex system designed to transport people and goods safely and efficiently. Roads can be characterized in several ways. The most basic classifications are by government jurisdiction, function, geometric characteristics, and service characteristics.

Functional Roadway Classification

All roads in Morris County are grouped into a functional classification system which categorizes roads by their primary function, such as arterial, collector, or local access, and by whether they are urban or rural. The following describes the functional classification system for roadways in Morris County.

Rural Principal Arterial: Multi-lane roadway with controlled access connecting major urban centers. Generally a part of the interstate system or a freeway.

Rural Minor Arterial: Multi-lane or single lane roadway with partially controlled access with relatively high speeds linking cities and larger towns.

Rural Major Collector: Single lane route not served by a higher classification of roadway. Links significant traffic generators with routes of a higher classification and may serve as an intracounty corridor.

Rural Minor Collector: Single lane route designed to bring traffic from local trip generators into isolated rural areas.

Urban Principal Arterial: Multi-lane roadway with controlled access serving major centers of activity in urban areas. Carries the largest amount of urban traffic.

Urban Minor Arterial: Multi-lane roadway with partially controlled access accommodating trips of moderate length with a lower level of travel mobility than a principal arterial.

Urban Collector Street: Multi-lane or single lane roadway which collects residential or employ-

ment-based traffic and channels it into the arterial system.

Urban Local Street: Single lane facility offering the lowest level of mobility. It permits direct access from various land uses to higher order facilities.

Level of Service

Level of Service (LOS) is a qualitative measurement based on vehicle operating speed, travel time, traffic interruptions, safety, and driving comfort on a roadway. Level of Service is described by a letter scale from A to F, with "A" representing the best conditions and "F" representing the worst.

Roads are typically designed for LOS B or C, but often operate at a lower Level of Service during peak periods. Roads and intersections that operate at a poor Level of Service not only decrease the efficiency of the transportation network, but they can also increase accident rates and air pollution. The following describes the characteristics of the six Levels of Service.

LOSA: Condition of free flow with low volumes and high speeds. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. On freeways, average travel speeds near 60 mph generally prevail.

LOS B: Zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed. On freeways, speeds of over 57 mph are maintained.

LOSC: Still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. Average travel speeds on freeways are still over 54 mph.

LOS D: Approaches unstable flow. Speed and freedom to maneuver are severely restricted.

Small increases in traffic flow will generally cause operational problems at this level. Average travel speeds on freeway are 46 mph.

LOS E: Represents operating conditions at or near the capacity of the highway. Freedom to maneuver within the traffic stream is extremely difficult. Any incident can be expected to produce a serious breakdown with extensive queuing. Average travel speeds on freeways are approximately 30 mph.

LOS F: Describes forced flow operation at low speeds, where volumes are above theoretical capacity. Operations within the queue are characterized by stop-and-go waves and are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Freeway traffic moves at under 30 mph.

Roadway Characteristics

The following describes the functional, jurisdictional, and geometric characteristics of Morris County's interstate, federal, and state highways, as well as county and municipal roads.

Interstate Highways

There are three interstate highways in Morris County: I-80, I-280, and I-287. They are dualized principal arterials characterized by limited access with speed limits of 55 mph. All are grade separated and access is controlled with entrance and exit ramps to minimize the effects of merging vehicles on traffic flow. The interstates are built to the highest standards of the highways with design speeds of 70 mph.

I-80

Interstate 80 bisects the county in an east-west direction, providing access between New York City and the Delaware Water Gap. From Passaic County to I-280/US 46, I-80 has three lanes in each direction. From I-280/US 46 to I-287, there are two local lanes and three express lanes in each

direction. West of I-287, the highway is currently being widened to four lanes in each direction to NJ 15 in Wharton. From there to the Warren County line, I-80 consist of three lanes each way.

I-280

Interstate 280 connects I-80 in Parsippany to I-95 in Newark via a northwest-southeast route. It runs approximately 3.3 miles through Morris County with two lanes in each direction. It has two exits in the county, at I-80/US 46 and at New Road in Parsippany.

I-287

Interstate 287 connects the Garden State Parkway in Middlesex County with US 202 in Montville. I-287 has two lanes in each direction from Somerset County to just south of Morristown. From Morristown to the future interchange with the NJ 24 Freeway in Hanover, it has three lanes, and from this future interchange to NJ 10, there are four lanes in each direction. North to I-80/US 46 it reverts to three lanes, and north of I-80 to its current terminus at US 202 in Montville, I-287 is two lanes in each direction. It is currently being extended northward with three lanes in each direction, and it will connect with the New York State Thruway in 1994. New interchanges along I-287 in the county are planned for NJ 23 and the Paterson-Hamburg Turnpike in Riverdale.

Federal Highways

Morris County is served by three other federally numbered highways: US 46, US 202, and US 206. These highways vary widely in structure and function, ranging from two-lanes to multi-lane divided highways. They also have numerous types of interchanges, mostly at-grade, and many areas with full access. These roads are normally designed for high volumes of traffic, and speed limits are usually determined by the density of roadway access points and the grade and curvature of the road.

US 46

US 46 crosses central Morris County, connecting Warren County to the west and Essex County to the east. It enters Morris County in Washington Township as a two-lane rural minor arterial with a 35 mph speed limit. It then expands to four lanes with a 50 mph speed limit. From Mount Olive to Roxbury, US 46 is an urban minor arterial with four lanes and speed limits between 40 and 50 mph although for a short section in Netcong, it narrows to two lanes. At the Ledgewood Circle where it meets NJ 10, US 46 becomes an urban principal arterial. It continues east through Roxbury, Mine Hill, Dover, Rockaway Township, Rockaway, Denville, Mountain Lakes, Parsippany, Montville, and into Essex County. US 46 alternates between two and four lanes (35-45 mph) from the Ledgewood Circle to I-80 in Denville. East of I-80, it is a four-lane divided highway with a 50 mph speed limit.

US 202

US 202 connects Morris County with Somerset County to the southwest and with Passaic County to the northeast. US 202 serves as a principal arterial through nine municipalities in the county. It enters the county in Harding from the south as a rural major collector with two lanes and a 50 mph speed limit. It continues northeast through Morris Township and Morristown, where the speed limit decreases to 25 mph. In Morristown, US 202 splits into two, two-lane, one-way streets—Market Street northbound and Bank Street southbound—creating a wedge-shaped block. It then becomes a two-lane one-way road around the Morristown Green with two lanes for turning traffic. It continues north as a two-lane urban principal arterial. From Morris Township to NJ 53 in Morris Plains, US 202 is an urban minor arterial with two lanes and a 30 mph speed limit. It continues northeast paralleling I-287 through Parsippany, Boonton, and Montville, and then

east through Lincoln Park to Passaic County. For a short section through Montville and through Lincoln Park, it is a four lane road.

US 206

US 206 crosses the western part of Morris County, from Somerset County to Sussex County. It has fewer intersecting streets than US 202, allowing generally higher speeds. US 206 enters Morris County in Chester Township and continues north through Chester Borough and to the Mount Olive line as a two-lane rural major collector with a 50 mph speed limit. For a short section in Chester Borough, US 206 is a four-lane urban minor arterial with a 50 mph speed limit. It becomes a divided four-lane highway when it connects with I-80 in northern Mount Olive. US 206 and I-80 are combined for approximately 1.5 miles westward where US 206 splits north from I-80 into Sussex County.

State Highways

There are seven state highways in Morris County, five providing north-south access and two providing east-west access. Like the federal highways, state highways vary widely in terms of function and geometric characteristics. The state roads normally serve regional or inter-county trips.

NJ 10

NJ 10 runs for 17.7 miles through Morris County from Ledgewood Circle in Roxbury through East Hanover. It ends at I-280 in Orange, Essex County. It is primarily a four-lane, divided urban principal arterial with a 50 mph speed limit. NJ 10 has an additional lane in each direction between Mount Pleasant Turnpike and Parks Road in Denville, and an additional lane in each direction for a short stretch west of I-287 in Hanover. There is also a segment of NJ 10 between Parsippany Road (CR 511) and Algonquin Parkway with a reduced speed limit of 40 mph.

NJ 15

NJ 15 is primarily a four-lane divided highway connecting Sussex County with central Morris County. This highway provides access to I-80 and US 46.

From its terminus in Dover to just before I-80 in Wharton, NJ 15 is an urban arterial with speed limits increasing from 25 mph to 40 mph. North of I-80, NJ 15 is a divided rural minor arterial with two to four lanes in each direction. The speed limit is 55 mph north of I-80 except for a 1.5 mile stretch north of Berkshire Valley Road where NJ 15 passes through a more urbanized area and the speed limit drops to 50 mph and 40 mph. North of Edison Road, it is a freeway to a point north of Sparta in Sussex County.

NJ 23

NJ 23, in the northeast corner of Morris County, connects Morris with Sussex County to the northwest and Passaic County to the northeast. It is a four-lane, divided principal arterial north of the I-287 interchange and six lanes south of the interchange. NJ 23 enters Pequannock from Passaic County in the east, and continues northwest through Riverdale, Butler, and Kinnelon. I-287 will connect with NJ 23 in Riverdale. East of I-287, NJ 23 is predominantly urban with speed limits from 40 to 50 mph. Northwest of Kinnelon, NJ 23 travels along the northern border of Rockaway Township and Jefferson before entering Sussex County. This section of the road is more rural, with speed limits of 55 mph.

NJ 24

NJ 24 crosses the southern portion of Morris County, connecting Washington Township in the west to Chatham Borough in the east. This two-lane roadway serves as the main thoroughfare in Chester and Chester Township, Mendham and Mendham Township, Morristown, Morris Township, Madison, and Chatham Borough. West of the Green in Morristown, NJ 24 is county maintained. East of the Green, NJ 24 functions as an urban principal arterial, except where it passes through Morris Township and northwestern Madison where it serves as a minor arterial street. East

of Morris County, NJ 24 is a freeway ending at I-78 in Union County. An extension of the NJ 24 Freeway, to be opened in 1992, will connect the existing NJ 24 Freeway in Essex County, circumvent north around Madison, Chatham, and Morristown, and connect with I-287 in Hanover.

NJ 53

NJ 53 is approximately 4.7 miles long. It connects I-80 and US 46 in Denville with US 202 in Morris Plains. It is a two-lane, urban minor arterial with speed limits ranging from 30 mph in Denville to 45 mph where it terminates at US 202.

NJ 124

The portion of NJ 124 in Morris County is approximately 0.1 miles long and is the connection between NJ 24 and the Rt 24 Freeway beyond the County's borders.

NJ 159

NJ 159 runs from US 46 in Montville to the county border for a distance of 0.3 miles. NJ 159 is two lanes by direction with a 45 mph speed limit.

NJ 181

NJ 181 parallels NJ 15, connecting NJ 15 and Lake Hopatcong in Jefferson with NJ 15 about two miles north of Sparta, Sussex County. Through Morris County, NJ 181 is primarily a two-lane minor arterial street with a 40 mph speed limit.

NJ 183

NJ 183 proceeds north from US 206 at the US 206/I-80 interchange in Roxbury through Netcong to US 206 in Stanhope in Sussex County. It travels north as a four-lane divided highway to the Netcong Circle. It then narrows to two lanes and its speed limit decreases from 50 mph to 30 mph as it crosses into Sussex County.

County Roads

There are 76 county roads which account for 14 percent of the total roadway miles in Morris County. These roads function primarily as collector and arterial streets as shown in Table A-6.

All county roads are represented by a three-digit number. Roads that cross the county line begin

**Table A-6
County Roadway Functional Classifications**

Route#	From	To	Functional Classification
202	Passaic Co Line, Lincoln Park	US 46, Parsippany	Minor Arterial Street
202	US 46, Parsippany	NJ 53, Morris Plains	Urban Principal Arterial
504	Passaic Co Line, Pequannock	Main Rd (CR 655A), Montville	Minor Arterial Street
510	Essex Co Line, Florham Park	The Green, Morristown	Urban Principal Arterial
510	The Green, Morristown	Picatinny Rd, Morris Twp	Minor Arterial Street
510	Picatinny Rd, Morris Twp	Mendham Twp Line (East)	Rural Major Collector
510	Mendham Twp Line (East)	Mendham Boro Line (West)	Minor Arterial Street
510	Mendham Boro Line (West)	North Rd (CR 513), Chester Boro	Rural Major Collector
511	Columbia Tpk (CR 510), Morris Twp	Boonton Twp Line (South)	Minor Arterial Street
511	Boonton Twp Line (South)	NJ 23, Butler	Collector Street
511	NJ 23, Butler	Main St, Butler	Minor Arterial Street
511A	Passaic Co Line, Lincoln Park	Passaic Co Line, Riverdale	Minor Arterial Street
512	Somerset Co Line, Passaic Twp	Union Co Line, Passaic Twp	Minor Arterial Street
513	Hunterdon Co Line, Washington Twp	Ironia-Mendham Rd, Randolph	Rural Major Collector
513	Ironia-Mendham Rd, Randolph	Calais Rd, Randolph	Minor Arterial Street
513	Calais Rd, Randolph	Morris Tpk, Randolph	Rural Major Collector
513	Morris Tpk, Randolph	Hibernia Post Office, Rockaway Twp	Minor Arterial Street
513	Hibernia Post Office, Rockaway Twp	NJ 23, Jefferson	Rural Major Collector
517	Hunterdon Co Line, Washington Twp	Warren Co Line, Washington Twp	Rural Major Collector
525	Main St (CR 510), Mendham Boro	Somerset Co Line, Mendham Boro	Minor Arterial Street
531	Valley Rd (CR 512), Passaic Twp	Somerset Co Line, Passaic Twp	Minor Arterial Street
601	Madison Ave (NJ 24), Morristown	Kitchell Rd, Morris Twp	Minor Arterial Street
601	Kitchell Rd, Morris Twp	Green Village Rd (CR 646), Harding	Rural Major Collector
602	Center St (CR 631), Roxbury	Sussex Co Line, Roxbury	Minor Arterial Street
603	Broadway, Denville	Powerville Rd (CR 618), Boonton Twp	Collector Street
604	Lees Hill Rd (CR 663), Passaic Twp	Meyersville Rd (CR 638), Passaic Twp	Rural Minor Collector
605	Valley Rd (CR 512), Passaic Twp	Basking Ridge Rd (CR 657), Passaic Twp	Collector Street
606	Valley Rd (CR 512), Passaic Twp	Union Co Line, Passaic Twp	Minor Arterial Street
607	Main St (NJ 24), Chatham Boro	Essex Co Line, Florham Park	Minor Arterial Street
608	Main St (NJ 24), Madison	Columbia Tpk (CR 510), Florham Park	Minor Arterial Street
609	Columbia Tpk (CR 510), Florham Park	Mt Pleasant Ave (CR 610), East Hanover	Minor Arterial Street
610	NJ 10, East Hanover	Essex Co Line, East Hanover	Collector Street
611	Ridgedale Ave (CR 632), East Hanover	Essex Co Line, East Hanover	Minor Arterial Street
612	Bartley Rd (CR 625), Mount Olive	US 206, Mount Olive	Rural Major Collector
613	US 206, Mount Olive	Flanders Rd (CR 667), Mount Olive	Minor Arterial Street
613	Flanders Rd (CR 667), Mount Olive	US 206, Mount Olive	Collector Street
615	US 46, Roxbury	NJ 15, Jefferson	Minor Arterial Street
616	Landing Rd (CR 631), Roxbury	Howard Blvd (CR 615), Mt Arlington	Collector Street
617	Speedwell Ave (US 202), Morristown	Mt Freedom Ave, Randolph	Minor Arterial Street
617	Mt Freedom Ave, Randolph	Ironia-Succasunna Rd, Randolph	Rural Major Collector
617	Ironia-Succasunna Rd, Randolph	NJ 10, Roxbury	Minor Arterial
618	US 46, Mountain Lakes	Valley Rd, Boonton Twp	Minor Arterial street
618	Valley Rd, Boonton Township	Kinnelon Line (South)	Rural Major Collector
618	Kinnelon Line (South)	Boonton Ave (CR 511), Butler	Minor Arterial Street
619	Main St, Roxbury	Main Rd (CR 613), Mount Olive	Minor Arterial Street
621	US 46, Montville	Horseneck Rd, Montville	Minor Arterial Street
621	Horseneck Rd, Montville	Whitehall Rd (CR 655), Montville	Collector Street
622	NJ 10, Hanover	Parsippany Rd (CR 511), Hanover	Minor Arterial Street
623	Whippany Rd (CR 511), Hanover	Ridgedale Ave, Madison	Urban Principal Arterial
624	Powerville Rd (CR 618), Boonton	Boonton Ave (CR 511), Boonton	Minor Arterial Street
624 Alt	Powerville Rd (CR 618), Boonton	Main St (CR 624A), Boonton	Minor Arterial Street
625	US 206, Mount Olive	NJ 24 (CR 513), Washington Twp	Rural Major Collector

Route#	From	To	Functional Classification
628	Loantaka Way (CR 636), Chatham Twp	Green Village Rd (CR 646), Chatham Twp	Minor Arterial Street
631	NJ 183, Netcong	US 46, Roxbury	Minor Arterial Street
632	Columbia Tpk (CR 510), Florham Park	US 46, Parsippany	Minor Arterial Street
633	Boonton Tpk (US 202), Lincoln Park	Comly Rd (CR 511A), Lincoln Park	Minor Arterial Street
633 Alt	Main St (CR 633), Lincoln Park	Boonton Tpk (CR 202), Lincoln Park	Minor Arterial Street
634	US 46, Wharton	NJ 15, Wharton	Minor Arterial Street
635	Newark-Pompton Tpk (CR 504), Pequannock	Boulevard (CR 511A), Pequannock	Collector Street
636	NJ 24, Madison	Spring Valley Rd (CR 601), Chatham Twp	Minor Arterial Street
637	NJ 10, Hanover	Perrine Rd, Hanover	Collector Street
637	Perrine Rd, Hanover	US 46, Parsippany	Minor Arterial Street
638	NJ 24, Chatham	Central Ave, Chatham Twp	Minor Arterial Street
638	Central Ave, Chatham Twp	Valley Rd (CR 512), Passaic Twp	Collector Street
640	US 46, Mine Hill	Randolph Ave (CR 662), Mine Hill	Collector Street
642	Main St, Roxbury	Hercules Rd, Roxbury	Minor Arterial Street
642	Hercules Rd, Roxbury	Wharton Line	Major Collector Street
642	Wharton Line	NJ 15, Wharton	Minor Arterial Street
643	US 46, Dover	NJ 10, Dover	Minor Arterial Street
644	US 46, Rockaway	Wall St (CR 513), Rockaway	Minor Arterial Street
646	NJ 24/CR 510, Mendham Boro	US 202, Harding	Minor Arterial Street
646	US 202, Harding	Spring Valley Rd (CR 601), Harding	Rural Minor Collector
646	Spring Valley Rd (CR 601), Harding	Union Co Line, Chatham Boro	Minor Arterial Street
647	NJ 24, Madison	Union Co Line, Chatham Twp	Minor Arterial Street
648	Washington St (NJ 24/CR 510), Morristown	Ann St, Morristown	Minor Arterial Street
650	Sussex Tpk (CR 617), Randolph	Whippany Rd (CR 511), Morris Twp	Minor Arterial Street
651	Newark-Pompton Tpk (CR 511A), Riverdale	Passaic Co Line, Riverdale	Minor Arterial Street
652	Hillside Ave (CR 619), Mt Olive	Main Rd (CR 613), Mount Olive	Collector Street
654	US 202, Parsippany	US 46, Parsippany	Minor Arterial Street
655	Main Rd (US 202), Montville	Firehouse Rd (US 202), Montville Twp	Collector Street
655 Alt	Main Rd (US 202), Montville	Jacksonville Rd (CR 504), Montville Twp	Minor Arterial Street
656	Morris St (CR 643), Dover	NJ 10, Randolph	Minor Arterial Street
657	Meyersville Rd (CR 638), Passaic Twp	Somerset Co Line, Passaic Twp	Minor Arterial Street
659	US 46, Dover	Prospect St (CR 513), Dover	Minor Arterial Street
660	Passaic Co Line, Pequannock	Jacksonville Rd (CR 504), Pequannock	Minor Arterial Street
661	US 46, Dover	Mt. Hope Rd (CR 666), Rockaway Twp	Collector Street
662	Dover-Chester Rd (CR 513), Randolph	Canfield Rd (CR 669), Mine Hill	Collector Street
663	NJ 24, Morristown	I-287, Morris Twp	Minor Arterial Street
663	I-287, Morris Twp	Long Hill Rd (CR 604), Harding	Minor Collector Street
663	Long Hill Rd (CR 604), Harding	Somerset Co Line, Harding	Collector Street
665	NJ 10, Randolph	Blackwell St (CR 513), Dover	Minor Arterial Street
666	Wall St (CR 513), Rockaway	Snake Hill Rd, Rockaway Twp	Collector Street
667	US 46, Mount Olive	Netcong-Flanders Rd (CR 613), Mount Olive	Minor Arterial Street
668	North of East Hanover Ave (CR 650), Hanover		Collector Street
669	US 46, Mine Hill	NJ 10, Randolph	Minor Arterial Street
670	Reservoir Ave (CR 513), Dover	Lawrence Rd, Randolph	Minor Arterial Street
670	Lawrence Rd, Randolph	Millbrook Ave/Schoolhouse Rd, Randolph	Rural Minor Collector
670	Millbrook Ave/Schoolhouse Rd, Randolph	Sussex Tpk (CR 617), Randolph	Minor Arterial Street
680	Newark-Pompton Tpk (CR 660), Pequannock	Passaic Co Line, Pequannock	Minor Arterial Street
694	Newark-Pompton Tpk (CR 511A), Riverdale	Passaic Co Line, Bloomingdale	Minor Arterial Street
699	NJ 15, Jefferson	Passaic Co Line, Jefferson	Rural Major Collector

Source: MCDOTM, 1988

with the number 5, for example CR 525 (Hilltop Road), and roads that begin and end within Morris County begin with the number 6. Length, geometric features, and service characteristics on county roads vary widely, ranging in length from 0.1 miles (West Main Street in Boonton CR 624A) to 33.5 miles (Dover-Chester Rd/Green Pond Rd., CR 513).

Municipal Roads

There are 1,705 miles of municipal roads in the county, representing about 80 percent of all roads. The streets of these 39 municipalities function as local roads or as collectors. However, like county roads, municipal roads vary widely in terms of geometric and service characteristics. Many municipal roads are narrower than county roads and often have no shoulders or adjacent buffers. These characteristics make travel difficult for large vehicles and necessitate slower travel speeds.

Traffic congestion on federal, state, and county roads has led to increased use of many municipal roads, primarily those in urban areas and those that run between arterials and major collectors.

Traffic Counts

Data on the volume of highway traffic within Morris County is available from several sources, including the MCDOTM, NJDOT, and certain municipalities. Together these counts provide an accurate measurement of traffic volumes on all major roadways in the county.

Traffic counts were taken by the Morris County Engineering Department until 1979. The MCDOTM has been responsible for conducting and maintaining annual traffic volume data since 1985 as seen in Table A-7.

Traffic counts, by MCDOTM, have been conducted at nearly 300 locations. Key sites have been surveyed annually to establish a baseline growth factor for tracking overall traffic. Sites are selected for traffic counts on the basis of 1979 traffic count locations, existing congestion, areas of anticipated future development, location of future road improvements, and areas of public concern.

Automatic traffic recorders are used to record 24-hour traffic volumes during the spring and fall months for a minimum period of 48 hours. The morning peak traveling hour coincides with work and school trips between 7:00 to 9:00 am. Evening peak hour takes place between 4:00 to 6:00 pm.

**Table A-7
TRAFFIC COUNT SUMMARY, 1979 - 1990**

MUNICIPALITY	ROAD NAME	ROAD #	LOCATION	24 HOUR WEEKDAY TRAFFIC VOLUMES							PEAK HOUR	
				1979	1985	1986	1987	1988	1989	1990	AM	PM
Boonton	Fanny Rd	Mun	W of Morris Ave	7,414	-	-	10,922	7,611	-	-	680	736
Boonton	Fanny Rd	Mun	E of Morris Ave	-	-	-	-	9,191	-	8,362	1,002	843
Boonton	Main St	511	@ RR bridge	14,186	-	-	15,933	-	-	-	1,234	1,275
Boonton	Morris Ave	Mun	N of Fanny Rd	-	-	-	-	3,638	-	-	321	286
Boonton	Myrtle Ave	202	S of Woonton St	9,979	-	-	-	10,630	-	-	1,245	832
Boonton	Myrtle Ave	202	@ Montville Town line	6,173	-	-	-	-	-	7,416	559	839
Boonton	W Main St	624	E of Hawkins Rd	7,770	-	-	-	11,504	-	-	783	1,049
Boonton Twp	Boonton Ave	511	@ Boonton Town line	3,924	-	-	10,174	6,485	6,157	-	715	627
Boonton Twp	Powerville Rd	618	N of Valley Rd	2,142	-	-	-	-	4,326	-	564	497
Boonton Twp	Powerville Rd	618	N of N Main St	7,728	7,371	-	-	-	-	9,321	1,032	981
Boonton Twp	Powerville Rd	618	@ Boonton Town line	8,181	-	-	-	9,689	-	-	993	957
Butler	Boonton Ave	511	S of NJ 23	8,023	-	-	11,870	-	-	-	1,092	1,133
Butler	Boonton Ave	511	N of NJ 23	5,654	-	-	-	-	6,145	-	602	560
Butler	Kiel Ave	618	500'E of NJ 23	11,816	-	10,014	-	-	-	-	651	799
Butler	Kiel Ave	618	E of Decker Rd	-	-	-	-	-	9,595	-	-	-
Butler	Main St	Mun	@ W Passaic Co line	6,501	-	-	7,851	-	-	-	767	619
Butler	Main St	Mun	@ E Passaic Co line	12,048	-	-	-	12,656	-	12,309	720	1,128
Butler	Park Pl	511	200'E of Main St	17,323	-	19,145	-	-	-	-	1,468	1,526
Butler	NJ 23	23	N of Kinnelon Rd	-	-	-	34,488	-	-	-	2,761	3,005
Chatham	Fairmount Ave	638	500'SW of Watchung Ave	6,983	-	-	8,116	-	-	-	623	656
Chatham	Fairmount Ave	638	NE of Watchung Ave	7,058	-	-	-	-	8,239	-	653	677
Chatham	Watchung Ave	646	500'W of Fairmount Ave	12,276	-	-	-	16,309	-	-	1,674	1,755
Chatham Twp	Green Village Rd	646	@ Harding Twp	4,450	-	-	6,878	7,303	-	-	835	780
Chatham Twp	Loantaka Way	636	S of Shunpike Rd	5,710	-	-	-	8,700	-	-	1,120	1,096
Chatham Twp	Passaic St	647	@ Union Co line	8,130	-	-	-	12,422	-	12,145	1,237	1,290
Chatham Twp	Shunpike Rd	628	100'E of Loantaka Way	9,903	-	12,340	-	15,113	-	-	1,660	1,644
Chatham Twp	Southern Blvd	647	100'W of Noe Ave	11,495	-	12,890	-	-	13,611	-	1,531	1,543
Chatham Twp	Southern Blvd	647	N of River Rd	10,929	-	-	-	-	13,364	-	1,295	1,498
Chester	Main St	513	W of Mendham Rd (NJ24)	13,682	-	-	-	-	17,497	-	1,518	1,568
Chester	Mendham Rd	510	@ Chester Twp line	10,477	-	14,046	14,411	14,659	-	-	1,309	1,528
Chester	NJ 24	513	@ Chester Twp line	9,128	-	-	-	-	-	15,534	1,275	1,513
Chester Twp	Mendham Rd	510	@ Mendham Twp line	8,274	-	-	-	-	12,448	-	1,249	1,355
Chester Twp	North Rd	513	@ Randolph line	3,826	12,743	-	-	-	-	-	853	994
Chester Twp	North Rd	513	@ Chester Boro line	5,962	-	8,330	-	8,669	-	-	752	855
Chester Twp	US 206	206	@ Somerset Co line	-	-	-	-	-	-	19,781	1,856	1,802
Denville	Diamond Spring Rd	603	@ Rockaway River	13,144	-	-	17,057	-	-	-	1,327	1,469
Denville	Old Denville Rd	603	@ Boonton Twp line	875	-	-	-	1,075	-	-	86	115
Denville	Pocono Rd	Mun	E of St Clare's Hospital	-	-	-	-	-	7,088	-	497	895
Denville	Pocono Rd	Mun	W of St Clare's Hospital	6,234	-	-	-	-	8,890	-	583	1,067
Dover	Blackwell St	513	500'E of Salem St	11,718	-	-	7,891	-	-	-	509	685
Dover	Center Grove Rd	670	@ Randolph Twp line	5,483	-	-	-	6,791	-	-	465	592
Dover	Millbrook Ave	656	@ Randolph Twp line	2,112	-	3,420	3,713	3,431	-	-	321	320
Dover	Morris Ave	643	@ Randolph Twp line	4,094	4,965	-	5,747	-	-	-	678	675
Dover	Morris Ave	643	@ RR crossing	9,143	-	9,458	14,707	-	-	-	1,072	1,527
Dover	Mt Hope Ave	661	@ Rockaway Twp line	6,788	-	-	-	13,561	-	-	889	1,324
Dover	Prospect St	513	@ RR overpass	8,201	-	-	-	11,090	-	-	784	979

MUNICIPALITY	ROAD NAME	ROAD #	LOCATION	24 HOUR WEEKDAY TRAFFIC VOLUMES							PEAK HOUR	
				1979	1985	1986	1987	1988	1989	1990	AM	PM
Dover	Reservoir Ave	513	@ Randolph line	3,837	-	-	-	-	-	4,980	419	434
Dover	W Blackwell St	659	E of US 46	7,704	-	-	-	-	10,608	-	849	879
East Hanover	Eagle Rock Ave	611	@ Essex Co line	10,467	-	-	20,149	15,897	-	16,880	1,952	1,665
East Hanover	Eagle Rock Ave	611	200' W of River Rd	7,270	-	9,591	-	-	11,253	-	1,160	1,093
East Hanover	Edwards Rd	632	@ Parsippany line	7,178	-	-	10,739	11,510	-	-	1,073	1,103
East Hanover	Mt Pleasant Ave	610	100' E of Hanover Rd	10,467	-	-	14,889	15,268	-	-	1,347	1,644
East Hanover	Ridgedale Ave	632	S of NJ 10	11,567	-	15,303	-	17,675	-	-	1,490	1,585
East Hanover	Ridgedale Ave	632	200' N of Eagle Rock Ave	7,178	-	9,542	-	-	-	-	960	890
East Hanover	Ridgedale Ave	632	N of NJ 10	12,014	-	15,984	-	13,884	-	-	1,167	1,227
Florham Park	Hanover Rd	609	S of Vreeland Rd	-	-	-	-	-	12,492	-	1,115	1,175
Florham Park	Hanover Rd	609	@ E Hanover line	10,766	15,365	15,830	17,003	-	-	-	1,696	1,789
Florham Park	Park Ave	623	500' S of Columbia Tpke	17,803	-	18,596	17,730	18,798	-	-	2,272	1,970
Florham Park	Passaic Ave	607	@ Essex Co line	5,826	-	-	-	6,197	-	5,889	520	603
Florham Park	Ridgedale Ave	608	@ Madison line	5,986	-	-	-	9,724	-	-	787	983
Florham Park	Ridgedale Ave	608	200' N of Greenwood Ave	11,809	-	-	14,146	-	-	-	1,284	1,449
Florham Park	Ridgedale Ave	632	@ E Hanover line	11,567	-	-	-	16,727	-	-	1,347	1,576
Florham Park	Ridgedale Ave	608	S of Brooklake Rd	10,814	-	-	-	15,345	-	-	1,222	1,406
Florham Park	S Orange Ave	510	@ Essex Co line	21,116	-	-	33,056	31,850	-	32,230	3,355	3,172
Hanover	Columbia Tpk	510	E of Park Ave	17,751	23,347	25,883	-	29,531	-	-	3,018	3,087
Hanover	E Hanover Ave	650	100' W of Ridgedale	17,722	-	-	23,029	-	-	-	2,121	2,065
Hanover	E Hanover Ave	650	@ County Library	12,270	-	-	-	16,402	-	-	1,761	1,754
Hanover	Mt Pleasant Ave	Mun	E of Foodtown	-	-	-	-	4,471	-	-	301	432
Hanover	Whippany Rd	511	NE of Eden Lane	12,531	14,992	-	-	-	-	17,342	1,654	1,724
Hanover	Whippany Rd	622	200' S of NJ 10	9,943	-	11,242	-	-	12,908	-	1,291	1,288
Harding	Blue Mill Rd	663	W of Sandspring Rd	-	-	-	-	-	9,039	-	1,327	1,118
Harding	Glen Alpine Rd	646	W of Blue Mill Rd	3,697	-	-	-	-	7,905	-	918	1,038
Harding	James St	663	@ Morris Twp line	2,631	-	-	-	6,089	-	-	973	810
Harding	Lee's Hill Rd	663	@ Somerset Co line	2,310	-	-	-	4,383	-	4,644	599	582
Harding	Long Hill Rd	604	@ Passaic Twp line	2,633	-	-	-	-	4,995	-	1,017	640
Harding	Spring Valley Rd	601	@ Morris Twp line	3,948	-	-	-	5,896	-	-	732	712
Harding	Tempe Wick Rd	646	@ Mendham Twp line	3,768	-	8,001	7,848	-	-	-	1,070	1,146
Jefferson	Berkshire Valley Rd	Mun	500' S of NJ 15	3,307	-	-	6,817	-	-	-	963	673
Jefferson	Berkshire Valley Rd	699	500' N of NJ 15	5,327	-	7,902	8,346	8,861	-	-	1,027	851
Jefferson	Berkshire Valley Rd	699	@ Passaic Co	8,954	-	-	11,122	-	-	-	944	1,074
Jefferson	Berkshire Valley Rd	699	N of Legion Rd	-	-	-	-	-	8,220	-	531	733
Jefferson	Edison Rd	615	500' W of NJ 15	6,981	-	-	6,300	6,143	-	-	342	626
Jefferson	Espanong Rd	615	S of Edison Rd	4,422	-	-	-	5,501	-	-	501	485
Jefferson	Green Pond Rd	513	S of NJ 23	2,488	-	-	-	-	-	4,012	468	349
Jefferson	Ridge Rd	Mun	@ Sussex Co line	3,005	-	-	-	-	4,038	-	433	384
Jefferson	NJ 15	15	NB S of Berkshire Valley Rd	-	-	-	23,766	26,219	-	-	1,142	3,281
Jefferson	NJ 15	15	SB N of Berkshire Valley Rd	-	-	-	19,143	21,652	-	-	2,611	1,155
Jefferson	NJ 15	15	@ Sussex Co line mp 8.4	-	-	-	-	-	-	28,374	2,805	2,822
Jefferson	NJ 181	181	@ Sussex Co line mp 2.4	2,812	-	-	-	-	-	3,012	259	247
Jefferson	Weldon Rd	Mun	S of Mahlon Dickerson Park	-	-	-	-	-	-	2,377	246	196
Kinnelon	Boonton Ave	511	N of Brook Valley Rd	-	-	-	-	-	9,412	-	1,244	1,180
Kinnelon	Boonton Ave	511	1000' N of Fayson Lakes Rd	5,649	-	-	-	8,228	-	-	852	876
Kinnelon	Cutlass Rd	Mun	1000's of NJ 23	-	-	-	1,642	-	-	-	205	171
Kinnelon	Kinnelon Rd	618	@ Boonton Twp line	2,884	-	-	-	4,298	-	-	603	500
Kinnelon	Kinnelon Rd	618	100' N of Maple Lake Rd	9,156	-	-	11,270	-	-	-	1,032	1,031
Kinnelon	Kinnelon Rd	618	1000' N of Fayson Lakes Rd	6,141	-	-	8,930	8,849	-	-	1,276	1,096

MUNICIPALITY	ROAD NAME	ROAD		24 HOUR WEEKDAY TRAFFIC VOLUMES							PEAK HOUR	
		#	LOCATION	1979	1985	1986	1987	1988	1989	1990	AM	PM
Lincoln Park	Beaver Brook Rd	Mun	500' N of Bridgewater Ln	-	-	-	-	2,722	-	-	199	298
Lincoln Park	Boonton Tpk	202	@ Passaic Co line	15,025	-	-	20,304	21,813	-	20,356	1,536	1,717
Lincoln Park	Comly Rd	511A	N of Boonton Tpk	-	-	-	-	-	7,377	-	445	648
Lincoln Park	Comly Rd	511A	100' N of Bog and Vly	11,665	-	-	9,433	-	-	10,221	721	1,096
Lincoln Park	Pine Brook Rd	Mun	200'S of US 202	1,921	-	-	-	-	2,933	-	216	252
Lincoln Park	Riverview Dr	Mun	200'S of US 202	-	-	-	-	-	500	-	35	68
Lincoln Park	Skyline Dr	Mun	200'S of US 202	-	-	-	-	-	1,355	-	120	124
Lincoln Park	Susquehanna Ave	Mun	200'S of US202	-	-	-	-	-	1,194	-	86	124
Madison	Central Ave	608	NE of Main St	4,775	-	-	-	-	-	4,201	394	430
Madison	Green Village Rd	647	500' S of Kings Rd	6,619	-	-	-	8,870	-	-	835	879
Madison	Loantaka Way	636	W of NJ 24	5,246	-	-	-	-	6,728	-	756	846
Madison	Main St	24	W of Greenwood Ave	-	-	-	-	22,429	-	-	1,377	1,433
Madison	Park Ave	623	@ Florham Park line	12,464	14,918	15,000	14,756	-	15,765	-	1,524	1,389
Madison	Park Ave	623	200'NW of Ridgedale Ave	15,521	-	-	15,921	-	-	-	1,547	1,404
Mendham	Bernardsville Rd	525	@ Somerset Co line	2,649	-	-	-	-	-	3,695	442	384
Mendham	Hilltop Rd	525	500'S of Main St	3,897	-	-	6,704	6,886	-	-	707	828
Mendham	Mendham Rd	510	1000' W of Hilltop Rd	14,123	-	-	-	16,718	-	-	1,468	1,713
Mendham	Tempe Wick Rd	646	W of Cold Hill Rd	3,203	-	-	-	-	4,177	-	496	361
Mendham Twp	Mendham Rd	510	W of Roxiticus Rd	10,174	-	12,027	13,538	13,837	-	-	1,303	1,462
Mendham Twp	Mendham Rd	510	200'E of Cold Hill Rd	12,063	-	12,869	12,346	12,286	-	-	1,238	1,141
Mendham Twp	Mendham Rd	510	@ Morris Twp line	9,548	-	-	-	12,241	12,037	-	1,415	1,158
Mendham Twp	Tempe Wick Rd	646	W of Corey Lane	3,434	-	-	-	-	-	5,818	789	595
Mine Hill	Canfield Ave	669	@ Randolph line	1,924	2,400	-	-	3,134	-	-	275	350
Mine Hill	Canfield Ave	669	S of US 46	3,270	-	-	-	-	5,811	-	615	527
Mine Hill	Hurd St	Mun	N of Oak St	-	-	-	-	476	-	-	40	5 4
Mine Hill	Randolph Ave	640	500'S of US 46	2,571	-	-	-	2,929	-	-	223	287
Mine Hill	Randolph Ave	662	@ Randolph line	3,251	-	-	4,863	-	-	-	622	512
Mine Hill	Randolph Ave	662	E of Canfield Ave	2,456	-	-	-	-	-	4,106	551	407
Mine Hill	Randolph Ave	640	N of Indian Falls Rd	2,192	-	-	-	2,472	-	-	220	237
Mine Hill	US 46	46	W of Randolph Ave	-	-	-	-	16,064	-	-	1,184	1,233
Mine Hill	US 46	46	W of Canfield Ave	-	-	-	-	18,775	-	-	1,644	1,530
Montville	Boonton Ave	511	@ Kinnelon line	4,794	-	8,009	-	7,849	-	-	1,046	912
Montville	Changebridge Rd	621	N of Miller's Rd	3,787	5,459	-	-	6,736	-	-	630	590
Montville	Changebridge Rd	621	200'S of Horseneck Rd	5,896	-	10,600	-	-	-	11,019	864	1,129
Montville	Changebridge Rd	621	N of I-80	10,505	-	-	-	-	15,456	-	1,316	1,462
Montville	Main Rd	202	@ Lincoln Park line	12,988	-	-	-	13,086	-	-	1,163	1,262
Montville	Main Rd	202	W of River Rd	-	-	-	-	-	6,896	-	603	787
Montville	Main Rd	202	500'E of Changebridge Rd	14,944	-	-	22,635	21,463	-	-	2,165	2,102
Montville	Whitehall Rd	655	W of Pine Brook Rd	6,332	-	-	-	-	7,254	-	668	774
Morris Plains	E Hanover Ave	650	1000'E of Speedwell Ave	18,124	-	-	-	22,512	-	-	2,411	2,092
Morris Plains	Littleton Rd	202	500'S of NJ 10	11,661	-	16,383	18,015	19,317	-	-	1,485	1,676
Morris Plains	Littleton Rd	202	1000' N of NJ 53	16,134	-	-	-	16,850	-	-	1,503	1,305
Morris Plains	W Hanover Ave	650	W of Speedwell Ave	14,757	-	19,842	17,383	-	19,968	-	1,837	1,867
Morris Plains	W Hanover Ave	650	W of Lake Valley Rd	12,766	-	-	-	-	-	18,744	2,178	1,938
Morris Twp	Columbia Tpk	510	500'W of Park Ave	18,974	22,763	26,996	19,567	22,114	-	-	2,296	2,153
Morris Twp	James St	663	N of Spring Brook Rd	3,196	-	-	-	-	6,140	-	640	718
Morris Twp	Ketch Rd	Mun	S of W Hanover Ave	2,076	-	-	-	-	-	2,794	256	299
Morris Twp	Park Ave	623	500'N of Columbia Tpk	16,383	18,914	19,949	19,126	20,370	-	-	2,418	2,324
Morris Twp	Raynor Rd	Mun	S of W Hanover Ave	1,406	-	-	-	-	-	2,178	225	230
Morris Twp	Sussex Ave	617	@ Morristown line	7,789	15,139	16,542	-	10,786	-	-	1,185	1,035

MUNICIPALITY	ROAD NAME	ROAD		24 HOUR WEEKDAY TRAFFIC VOLUMES							PEAK HOUR	
		#	LOCATION	1979	1985	1986	1987	1988	1989	1990	AM	PM
Morris Twp	Sussex Ave	617	@ Randolph line	7,434	14,056	10,028	-	10,161	-	-	1,205	995
Morris Twp	Sussex Ave	617	500'E of Gaston Rd	7,178	10,326	-	-	-	-	11,246	1,085	1,122
Morris Twp	W Hanover Ave	650	W of Ketch Rd	8,357	-	-	-	-	-	15,531	1,938	1,686
Morris Twp	Whippany Rd	511	N of Columbia Tpk	12,321	-	-	-	-	9,680	-	1,086	1,146
Morris Twp	Whippany Rd	511	N of E Hanover Ave	14,484	-	-	-	-	-	18,743	1,928	2,067
Morristown	Lafayette Ave	510	W of Whippany Rd	12,591	-	-	-	-	-	15,231	1,000	1,971
Morristown	Mendham Rd	510	@ Morris Twp line (w)	13,451	-	16,019	16,091	-	-	-	1,600	1,421
Morristown	Morris St	510	100'W of Elm St	21,678	-	-	29,180	-	-	-	2,171	2,407
Morristown	Morris St	510	100'W of Lafayette Ave	-	-	-	-	34,763	-	-	2,739	2,825
Morristown	Morris St	510	W of Columbia Rd	10,272	-	-	-	-	-	14,649	2,021	1,081
Morristown	NJ 24	24	E of Normandy Pkwy	-	-	-	-	26,924	-	-	2,235	2,269
Morristown	Spring Valley Rd	601	@ Morris Twp line	4,066	-	-	-	-	8,475	-	1,043	800
Mountain Lakes	Boulevard	618	200'N of US 46	10,242	-	-	11,653	12,150	-	11,887	977	1,003
Mountain Lakes	Boulevard	618	N of Glen Rd	-	-	-	-	12,711	-	-	946	1,148
Mountain Lakes	Boulevard	618	@ Boonton Town line	14,184	-	-	-	12,013	-	11,922	915	1,087
Mountain Lakes	Morris Ave	Mun	S of Fanny Rd	-	-	-	2,014	2,071	-	-	237	169
Mt Arlington	Howard Blvd	615	500'N of Mt Arlington Blvd	3,742	-	-	-	7,129	-	-	688	642
Mt Arlington	Howard Blvd	615	100'S of RR	6,999	-	11,922	12,383	12,114	-	-	1,247	1,075
Mt Arlington	Howard Blvd	615	N of Oneida Ave	4,615	6,967	-	-	-	-	6,137	453	546
Mt Arlington	Howard Blvd	615	N of Stierli Ct	6,299	-	-	-	-	8,841	-	669	831
Mt Olive	Bartley Flanders Rd	612	200'W of US 206	3,634	-	-	5,470	-	-	5,236	384	532
Mt Olive	Bartley Flanders Rd	613	500'E of US 206	4,021	-	-	7,391	6,907	-	-	600	717
Mt Olive	Drakesdale Rd	613	W of US 206	1,578	-	-	-	-	2,181	-	209	197
Mt Olive	Flanders Rd	667	500'W of Drakesdale Rd	2,036	-	-	3,454	3,367	-	-	412	337
Mt Olive	Hillside Ave	619	200'W of Emmans Rd	7,653	-	-	11,590	-	-	-	1,068	1,092
Mt Olive	Main Rd	613	NW of Park Rd	943	-	-	-	-	1,884	-	185	200
Mt Olive	Main Rd	613	500'N of Hillside Ave	5,348	-	7,382	-	-	-	-	700	525
Mt Olive	Main Rd	613	500'N of Ironia Rd	4,829	-	-	7,930	6,833	-	-	613	679
Mt Olive	Mt Olive Rd	667	500'E of US 46	4,046	-	-	5,020	-	-	-	401	433
Mt Olive	Netcong Flanders Rd	613	S of Flanders Rd	2,308	-	-	-	4,169	-	-	503	418
Mt Olive	Netcong Rd	649	500'W of US 46	2,713	-	-	3,788	-	-	-	229	387
Mt Olive	Park Rd	652	S of Hillside Ave	4,375	-	-	-	-	5,895	-	510	629
Mt Olive	US 46	46	W of Wolfe Rd	-	-	-	-	20,052	-	-	1,471	1,573
Mt Olive	Sand Shore Rd	Mun	N of Smithtown Rd	1,000	-	-	-	2,492	-	-	164	264
Netcong	Ledgewood Ave	183	@ Sussex Co line mp .95	-	-	-	-	-	-	19,340	1,259	1,625
Netcong	Allen St	631	500'E of US 206	7,787	-	-	6,539	-	6,098	-	415	535
Netcong	Main St	Mun	500'N of Maple Ave	7,993	-	-	-	8,424	-	-	541	630
Parsippany	N Beverwyck Rd	Mun	N of US 46	17,883	-	-	18,896	-	-	-	1,321	1,635
Parsippany	Cherry Hill Rd	654	S of US 46	12,467	26,204	27,143	18,282	-	-	-	1,838	1,775
Parsippany	Cherry Hill Rd	654	1000'N of Littleton Rd	13,770	-	-	22,916	-	-	-	2,436	2,598
Parsippany	Koch Rd	Mun	N of W Hanover Ave	2,944	-	-	-	-	-	4,795	660	547
Parsippany	Littleton Rd	202	300'S of Park Rd	18,311	25,030	24,693	25,363	25,295	-	-	1,792	2,531
Parsippany	Littleton Rd	202	W of Parsippany Rd	12,601	-	-	-	-	16,238	-	1,461	1,477
Parsippany	Littleton Rd	202	200'N of NJ 10	12,691	21,062	19,040	19,683	20,940	-	-	1,654	1,770
Parsippany	New Rd	Mun	N of US 46	-	-	-	18,891	-	-	-	1,664	1,754
Parsippany	New Rd	632	S of US 46	-	-	-	24,832	25,745	-	-	2,189	2,164
Parsippany	Parsippany Rd	511	@ Hanover line	11,454	-	10,986	13,273	-	-	-	1,381	1,476
Parsippany	Parsippany Rd	511	N of I-287	15,376	-	16,903	-	-	19,736	-	1,564	1,584
Parsippany	Parsippany Blvd	202	300'N of Littleton Rd	14,061	17,790	-	15,944	-	-	-	1,222	1,435
Parsippany	Parsippany Blvd	202	@ Boonton line	2,596	3,648	-	-	-	2,890	-	181	399

MUNICIPALITY	ROAD NAME	ROAD		24 HOUR WEEKDAY TRAFFIC VOLUMES							PEAK HOUR	
		#	LOCATION	1979	1985	1986	1987	1988	1989	1990	AM	PM
Parsippany	S Beverwyck Rd	637	@ Hanover line	7,120	8,420	-	-	7,643	-	-	848	973
Parsippany	S Beverwyck Rd	637	200'S of US 46	17,412	-	20,413	18,916	-	-	-	1,573	1,557
Parsippany	S Beverwyck Rd	637	N of Reynolds Rd	8,757	-	-	-	-	-	13,430	1,651	1,422
Passaic	Basking Ridge Rd	657	@ Somerset Co line	6,564	-	-	-	-	-	6,820	766	703
Passaic	Division Ave	605	@ RR crossing	4,409	-	4,792	-	-	3,532	-	410	365
Passaic	Long Hill Rd	657	E of Central Ave	3,269	5,751	4,267	-	-	-	5,532	573	623
Passaic	Long Hill Rd	657	W of Central Ave	4,873	-	-	-	-	5,744	-	645	623
Passaic	Mountain Ave	638	300'N of Valley Rd	2,909	-	-	4,658	-	-	-	669	519
Passaic	Mountain Ave	531	@ Somerset Co line	5,242	-	-	-	-	-	8,437	908	818
Passaic	Stirling Rd	606	@ Somerset Co line	8,610	-	-	-	-	-	9,419	877	1,000
Passaic	Valley Rd	512	@ Union Co line	11,575	-	-	-	-	-	9,981	519	916
Passaic	Valley Rd	512	500' W of Plainfield Rd	16,528	17,170	15,822	-	-	-	16,057	1,186	1,514
Passaic	Valley Rd	512	1000'E of Morristown Rd	11,820	-	-	-	12,709	-	-	848	1,148
Passaic	Valley Rd	512	@ Somerset Co line	6,800	-	-	-	-	-	8,474	742	805
Pequannock	Boulevard	511a	N of Jacksonville Rd	7,493	-	-	-	10,388	-	-	1,007	1,116
Pequannock	Jackson Ave	680	200'E of Turnpike	9,020	-	-	-	-	10,200	-	706	837
Pequannock	Jackson Ave	680	@ Passaic Co line	9,234	-	-	-	-	-	16,454	1,306	1,506
Pequannock	Jacksonville Rd	504	@ Lincoln Park line	5,320	-	-	8,609	9,350	-	-	1,114	1,030
Pequannock	Lincoln Park Rd	635	E of Boulevard	2,717	-	-	-	-	-	4,609	323	398
Pequannock	Mountain Ave	Mun	200' W of Boulevard	-	-	-	-	1,988	-	-	178	166
Pequannock	Newark-Pompton Tpk	660	N of Jackson Ave	8,657	10,589	-	-	-	-	-	621	896
Pequannock	Newark-Pompton Tpk	660	N of Hopper Ave	-	-	-	-	-	7,766	-	566	705
Pequannock	Newark-Pompton Tpk	660	N of Jacksonville Rd	14,439	20,122	-	-	-	-	16,321	1,288	1,612
Pequannock	Newark-Pompton Tpk	504	S of Jacksonville Rd	14,439	-	-	-	15,394	-	-	1,218	1,487
Pequannock	Newark-Pompton Tpk	504	@ Passaic Co line	15,130	-	-	-	-	-	17,934	1,578	1,726
Pequannock	W Parkway	Mun	300'N of Jacksonville Rd	-	-	-	-	4,061	-	-	380	458
Randolph	Center Grove Rd	670	N of Quaker Church Rd	5,647	-	14,085	-	-	-	8,720	719	724
Randolph	Center Grove Rd	670	N of NJ 10	-	-	-	-	-	13,137	-	913	1,225
Randolph	Center Grove Rd	670	S of Fords Rd	-	-	-	-	-	-	13,107	1,177	1,240
Randolph	Center Grove Rd	670	N of Lawrence Rd	-	-	-	-	-	-	6,436	592	575
Randolph	Dover-Chester Rd	513	200'N of NJ 10	5,813	15,396	12,448	8,124	8,560	-	-	730	813
Randolph	Dover-Chester Rd	513	200'S of Sussex Tpk	6,130	-	-	8,510	-	-	8,487	714	773
Randolph	Dover-Chester Rd	513	100'S of Calais Rd	6,390	-	-	9,895	10,026	-	-	853	994
Randolph	Dover-Chester Rd	513	200'N of Sussex Tpk	5,042	-	-	8,821	9,383	-	9,465	1,043	804
Randolph	Dover-Chester Rd	513	200'S of NJ 10	8,261	10,193	10,535	-	-	12,551	-	1,125	1,092
Randolph	Millbrook Ave	670	S of Schoolhouse Rd	6,259	-	-	-	-	-	9,057	755	837
Randolph	Millbrook Ave	670	200'N of Sussex Tpk	6,124	-	7,673	8,517	-	-	-	748	726
Randolph	Salem St	665	@ Victory Gardens line	14,254	-	-	17,737	-	-	-	1,311	1,552
Randolph	Schoolhouse Rd	670	W of Millbrook Ave	2,727	-	-	-	-	4,199	-	462	363
Randolph	Sussex Ave	617	E of Millbrook Ave	12,678	19,425	20,059	20,563	20,964	-	21,238	1,982	1,833
Randolph	Sussex Ave	617	200' W of Dover-Chester Rd	7,338	-	-	10,446	11,063	-	11,262	1,063	1,116
Randolph	Sussex Ave	617	200'E of Dover-Chester Rd	7,436	-	-	9,858	-	-	-	924	1,026
Randolph	Sussex Ave	617	200' W of Millbrook Ave	10,993	-	14,019	15,210	-	-	-	1,352	1,476
Randolph	Sussex Ave	617	E of W Hanover Ave	7,319	11,255	10,825	12,316	12,470	-	-	1,217	1,048
Randolph	Sussex Tpk	617	E of Calais Rd	10,993	-	-	-	-	17,244	-	1,410	1,783
Randolph	Sussex Tpk	617	W of Calais Rd	7,716	-	-	-	-	-	10,676	868	1,131
Randolph	W Hanover Ave	650	1000'W of Shongum Rd	5,499	-	-	-	8,982	-	-	1,066	917
Randolph	W Hanover Ave	650	W of Radtke Rd	6,238	-	-	-	-	-	8,378	933	787
Riverdale	Newark-Pompton Tpk	511a	N of NJ 23 circle	19,690	32,653	-	-	-	-	-	1,555	2,977
Riverdale	Newark-Pompton Tpk	511a	N of Federal Pl	-	-	-	-	-	23,108	-	1,714	1,792

MUNICIPALITY	ROAD NAME	ROAD #	LOCATION	24 HOUR WEEKDAY TRAFFIC VOLUMES							PEAK HOUR	
				1979	1985	1986	1987	1988	1989	1990	AM	PM
Riverdale	Paterson-Hamburg Tpk	694	@ Passaic Co line (W)	18,939	-	-	23,178	-	-	23,177	1,915	1,738
Riverdale	Paterson-Hamburg Tpk	511a	@ Passaic Co line (E)	22,392	-	-	-	26,810	-	27,542	1,944	2,138
Riverdale	Riverdale Rd	651	@ Passaic Co line	7,896	-	-	-	8,312	-	8,701	745	928
Rockaway	Church St	513	N of Mt Hope Rd	8,221	-	-	-	7,971	-	-	632	593
Rockaway	E Main St	644	500' W of US 46	5,638	-	-	-	-	7,979	-	713	908
Rockaway	Main St	513	100' W of Wall St	17,166	-	-	18,479	-	-	-	1,534	1,477
Rockaway	W Main St	513	N of US 46	10,934	-	-	-	-	13,662	-	1,025	1,138
Rockaway Twp	Green Pond Rd	513	100' N of Hibernia Ave	18,000	-	-	17,830	-	-	-	1,246	1,717
Rockaway Twp	Green Pond Rd	513	@ Intertech site	7,805	-	-	12,022	-	-	-	1,215	1,128
Rockaway Twp	Green Pond Rd	513	N of Meridan Rd	7,789	8,302	-	-	9,014	8,435	-	874	742
Rockaway Twp	Green Pond Rd	513	1000' N of I-80	8,039	-	-	19,847	19,574	-	-	1,996	1,789
Rockaway Twp	Mt Hope Ave	661	500' S of I-80	9,239	-	-	27,690	-	-	-	1,578	2,517
Rockaway Twp	Mt Hope Ave	661	S of Mt Hope Rd	3,581	4,178	-	-	-	-	-	455	574
Rockaway Twp	Mt Hope Rd	666	@ Rockaway Boro line	6,669	-	-	-	-	11,214	-	1,216	1,049
Rockaway Twp	Mt Hope Rd	666	N of Mt Hope Ave	2,302	4,406	-	-	-	-	-	641	658
Rockaway Twp	Mt Pleasant Ave	Mun	500' E of NJ 15	-	-	-	22,805	-	-	-	1,814	1,859
Rockaway Twp	NJ 15	15	N of Mt Pleasant Ave	-	-	-	-	24,601	-	-	2,227	2,011
Rockaway Twp	NJ 15	15	S of Mt Pleasant Ave	-	-	-	19,858	-	-	-	1,571	1,750
Roxbury	Berkshire Valley	642	S of Dell Ave	2,882	-	-	-	6,868	-	-	608	738
Roxbury	Emmans Rd	Mun	N of Carey Rd	1,372	-	-	-	1,546	-	-	101	204
Roxbury	Eyland Ave	Mun	S of Condit St	6,586	-	-	-	10,073	-	-	1,037	908
Roxbury	Hillside Ave	619	100' S of NJ 10	8,743	-	-	9,923	10,214	-	-	776	970
Roxbury	Kenvil Ave	642	100' N of Main St	5,785	-	-	6,707	-	-	-	473	694
Roxbury	Lakeside Blvd	607	@ Sussex Co line	19,882	-	-	23,081	-	-	23,599	1,772	1,995
Roxbury	Landing Rd	631	N of Shippenport Rd	21,015	-	-	-	-	22,380	-	1,707	1,817
Roxbury	Landing Rd	631	500' N of I-80	8,564	-	21,519	-	-	-	-	1,688	1,706
Roxbury	Mt Arlington Blvd	616	1000' N of Shippenport Rd	12,635	-	16,418	-	11,256	-	-	711	929
Washington	Bartley Rd	625	S of Coleman's Rd	2,607	-	-	-	-	3,274	-	333	307
Washington	Bartley Rd	625	@ Mt Olive line	2,457	3,507	-	-	-	-	3,956	358	418
Washington	Fairmount Rd	517	@ Hunterdon Co line	2,703	-	-	-	-	-	6,544	993	748
Washington	NJ 24	517	@ Springtown Rd	4,886	-	10,579	10,503	-	-	-	1,021	1,026
Washington	NJ 24	517	@ Warren Co line	5,387	-	-	-	9,152	-	9,704	733	827
Washington	NJ 24	513	@ Chester Twp line	7,006	-	11,725	11,988	12,470	-	-	1,098	1,305
Washington	NJ 24	517	500' S of Pleasant Grove	4,744	-	-	-	10,266	-	-	909	1,050
Washington	US 46	46	E of East Ave mp 22.4	-	-	-	-	-	-	19,777	1,324	1,646
Washington	West Mill Rd	513	@ Beacon Hill	4,156	-	4,077	-	-	3,906	-	361	387
Wharton	Dewey Ave	642	200' W of NJ 15	7,497	-	-	10,952	10,850	-	-	984	879
Wharton	Dewey Ave	642	W of Central Ave	3,734	-	-	-	-	7,109	-	887	680
Wharton	Main St	634	100' S of I-80	11,046	-	-	-	13,885	-	-	1,450	1,084
Wharton	Main St	634	N of US 46	8,594	7,456	-	-	8,357	-	-	657	707
Wharton	Main St	634	100' N of I-80	14,096	-	-	14,987	-	-	-	1,981	1,185
Wharton	Main St	634	100' S of NJ 15	-	-	-	-	-	-	7,036	588	725
Wharton	Main St ramp 15NB	NJ	N of Jackson Ave	-	-	-	-	-	-	6,117	1,234	471
Mansfield Twp	NJ 57	57	W of Newburg Rd mp 19.5	-	-	-	-	-	-	12,126	871	979
West Milford	NJ 23	23	S of Doremus Rd mp 24.0	-	-	-	-	-	-	24,603	2,408	2,166

Source: MCDOTM, 1990

Bridges

Approximately 61 percent of all bridges in New Jersey were built prior to 1959, and 36 percent were built before 1939. Older bridges were not designed to accommodate high volumes of traffic, nor the size of today's vehicles, consequently problems arise in safety and efficiency.

One problem with older bridges is that many were not built with the clearance standards of today's trucks. Trucks are built as high as 13.5 feet, while older bridges may have a clearance of only 10 or

11 feet. Alternate, less efficient routes must be taken to bypass these low structures. As shown in Table A-8, there are 31 low overpasses in Morris County providing less than a 13.5 foot clearance.

Bridge heights were obtained by direction through observation of posted signs. Bridge height restrictions may change directionally due to several factors including sloping grades and bridge design.

TABLE A-8
Bridge Height Restrictions
less than 13' 6"

Roadway Name	Location of Clearance Restriction	Municipality	North or East Bound Height	South or West Bound Height
Hillside Ave	By Dempster Rd	Chatham Boro	11' 10"	11' 10"
Fairmount Ave (CR 638)	Beginning of Highway	Chatham Boro	12' 2"	12' 2"
Watchung Ave (CR 646)	By Girard Ave	Chatham Boro	11' 4"	11' 4"
River Rd	By Lackawanna Ave	Chatham Boro	12' 0"	12' 0"
S Passaic Ave	S of Main St	Chatham Boro	11' 0"	11' 0"
Washington Ave	Just off Main St	Chatham Boro	11' 4"	11' 4"
E Main St/NJ 53	Near Station Plaza	Denville	12' 10"	12' 10"
Franklin Rd	By Estling Lake	Denville	12' 3"	NP
River Rd	N of Lincoln St	East Hanover	11' 0"	11' 0"
Elm St	Between Park Ave & West St	Madison	11' 6"	11' 2"
Green Ave/Waverly Pl	Off Main St/Station	Madison	11' 3"	11' 0"
Kings Rd	E of Madison Station	Madison	11' 3"	11' 0"
Green Village Rd (CR 646)	Just off Main St	Madison	12' 0"	NP
NJ 24	At James Park	Madison	13' 7"	12' 9"
Whitehall Rd (CR 655)	Near Towaco	Montville	11' 0"	11' 0"
Taylorstown Rd	Between 202 & W Lake Dr	Montville	12' 6"	12' 6"
US 202	West of Towaco	Montville	13' 6"	13' 6"
Valhalla Rd	Between Fox & Edward	Montville	13' 9"	13' 9"
US 202	S of NJ 53	Morris Plains	13' 0"	13' 8"
			13' 2"	13' 1"
Punch Bowl Rd	N of Old Turnpike Rd	Morris Twp	12' 7"	12' 7"
Cory Rd	E of US 202	Morristown	12' 0"	12' 0"
Martin Luther King Blvd	N of Park	Morristown	12' 6"	12' 6"
Morris Ave(CR 510)	By Morristown Station	Morristown	13' 0"	13' 0"
Midvale Rd	Between Romaine & Woodland	Mountain Lakes	11' 6"	11' 6"
US 206	Between CR 612 & CR 613	Mount Olive	13' 4"	13' 4"
NJ 183	Overpass at US 46	Netcong	12' 7"	12' 7"
Berkshire Valley Rd	Between I-80 & Dewey Ave	Roxbury	NP	13' 0"
Allen St (CR 631)	Near Lake Musconetcong	Roxbury	11' 0"	11' 0"
Berkshire Valley Rd(CR 642)	West of Dell Ave	Roxbury	11' 5"	11' 5"
Mill Rd	N of Dewey Ave.	Roxbury	9' 6"	NP

Source: MCDOTM, Bridge Survey, 1989

NP - Not Posted

Aviation

Regional Airports

The number of flights for Morris County's two regional airports have been provided by the New Jersey Department of Transportation as shown in Table A-9. Included are the number of aircraft based at each facility and the number of local and scheduled itinerant flights. Morristown Airport is the base for several corporate jet aircraft.

Table A-9
General Aviation Operations, 1988

Airport	Based Planes	Number of Flights		
		Local	Itinerant	Total
Lincoln Park	190	150,000	29,700	179,700
Morristown	336	135,559	102,821	238,380

Source: NJDOT, Office of Aviation, 1990.

Heliport and Helistop Facilities

There are 18 state licensed heliport and helistop facilities in operation in Morris County, as listed in Table A-10. The federal government maintains heliport facilities at the U. S. Army Armament Research and Development Command - Picatinny Arsenal.

A heliport is a facility used for the landing and takeoff of helicopters with auxiliary facilities such as hangars, parking, maintenance, and fueling equipment.

A helistop does not have the auxiliary facilities and can be located either at ground level or on a structure.

None of the 18 heliports and helistops are for public use. Twelve are at corporate or personal locations and six are located at hospitals or national guard armories.

Table A-10
Heliport and Helistop Facilities

Lic. Num.	Name/Location	Usage
H-11	Ballymere Helistop, Chatham	Private
24	Chilton Memorial Helistop, Pequannock	Official/Emergency
343	Evans Helistop, Parsippany	Private
87	Florham Park Helistop, Florham Park	Private
298	Hagerty Helistop, Harding	Private
232	Hideaway Farm Heliport, Chester	Private
81	Hopatcong Helistop, Roxbury	Official
56	Leesport Heliport, Harding	Private
36	Longo Heliport, Deaville	Private
200	Morristown Memorial Helistop, Morristown	Official/Emergency
223	National Guard Dover Army Helistop, Dover	Official
245	National Guard Morristown Army Helistop, Morristown	Official
156	National Guard Riverdale Army Helistop, Riverdale	Official
274	Prudential Helistop, Florham Park	Private
376	Prudential Helistop, Parsippany	Private
424	Trade Zone Helistop, Mt. Olive	Private
310	Warner-Lambert Heliport, Morris Plains	Private
431	WRNJ Radio New Jersey Heliport, Washington	Private

Source: NJDOT, Office of Aviation, 1990

Land Use

Morris County is predominately residential in character. Despite substantial development during the last decade, the county has retained much of its rural character. A total of 32 percent of the land remains undeveloped of which 11.4 percent is agriculture and 20.6 percent vacant. This figure does not include parks, recreational land, or other publicly-owned open space.

The greatest intensity of commercial and industrial land use is in the eastern and central portions of the county where the transportation network is the most extensive. The emerging pattern is one of increased residential development in the west serving employment centers in the east. Land use figures for 1990 are shown in Table A-11.

Table A-11
Morris County Land Use in Acres, 1990

Municipality	Residential	Commercial/ Industrial	Public/Semi- Public	Farm	Vacant	Transportation	Total
Boonton	606	138	407	20	107	296	1,574
Boonton Twp	2,621	117	568	1,335	664	294	5,599
Butler	672	168	128	0	155	217	1,340
Chatham	690	108	342	2	134	280	1,556
Chatham Twp	2,081	210	2,222	352	816	308	5,989
Chester	261	275	116	126	115	80	973
Chester Twp	4,649	351	5,380	6,406	1,559	510	18,855
Denville	2,988	736	944	762	2,006	607	8,043
Dover	764	236	387	0	121	266	1,774
East Hanover	1,223	1,021	1,022	228	1,293	458	5,245
Florham Park	1,585	1,145	833	48	893	274	4,778
Hanover	1,882	1,437	1,050	19	1,346	1,148	6,882
Harding	4,184	97	5,401	2,187	853	388	13,110
Jefferson	3,980	709	11,190	783	9,746	698	27,106
Kinnelon	3,938	124	2,419	140	5,299	455	12,375
Lincoln Park	1,227	562	1,118	91	1,112	375	4,485
Madison	1,381	261	538	0	118	375	2,673
Mendham	1,759	181	371	1,098	236	214	3,859
Mendham Twp	5,595	165	2,407	1,643	1,306	346	11,462
Mine Hill	514	52	335	78	830	120	1,929
Montville	4,418	1,095	1,206	1,738	2,895	787	12,139
Morris Plains	722	372	220	0	126	228	1,668
Morris Twp	4,359	1,026	3,052	151	675	825	10,088
Morristown	796	268	439	0	139	300	1,942
Mount Arlington	455	103	636	0	509	157	1,860
Mount Olive	3,498	1,203	4,128	2,999	6,663	1,619	20,110
Mountain Lakes	729	104	753	0	125	145	1,856
Netcong	221	75	49	0	55	84	484
Parsippany	4,510	2,191	5,500	199	1,855	2,038	16,293
Passaic	2,445	326	3,267	437	933	360	7,768
Pequannock	1,773	483	891	254	762	405	4,568
Randolph	4,728	892	2,313	1,240	3,349	979	13,501
Riverdale	407	255	56	0	449	189	1,356
Rockaway	516	323	205	0	108	208	1,360
Rockaway Twp	4,060	3,073	12,010	902	8,147	850	29,042
Roxbury	3,742	2,123	3,116	704	2,921	1,280	13,886
Victory Gardens	60	11	2	0	0	15	88
Washington	8,432	553	1,935	12,137	4,589	775	28,421
Wharton	399	227	151	26	451	150	1,404
MORRIS COUNTY	88,872	22,796	77,103	36,103	63,464	19,104	307,442

Source: Morris County Planning Board, 1990

Employment Travel

Employment

A survey conducted by the MCDOTM in 1989 concentrated on the southeastern area of Morris County, as shown in Table A-12. This survey was directed to employers to obtain information on their work hours, travel modes, and traffic management strategies. Approximately one-third, or 371, of the companies responded. This sample represented approximately 22,000 employees.

Other surveys conducted around the same time by the MCDOTM were directed toward individual companies or smaller geographic areas, and they represented approximately 1,000 employees. The focus was on work hours, travel times and distances, mode choices, and personal habits of commuting.

The combination of surveys revealed a profile of the typical employee and employer. In 1989, approximately 86 percent of all employees were driving alone to work, while the transit share of the journey to work was less than 6 percent. This figure for drive alone is up 15 percent from the 1970 and 1980 Census Journey to Work data. The 1979 gas crisis may have skewed the 1980 journey to work mode choice. The high 1989 figure may be attributed to low gasoline prices and the general economic boom of the 1980's.

**Table A-12
Journey to Work**

Travel Mode	1970	1980	1989
Drive Alone	73.4%	70.8%	85.8%
Rideshare	9.8	18.8	8.0
Transit	7.3	4.3	5.9
Walk	5.3	3.6	n/a
Work at Home	2.1	1.6	n/a
Other	2.1	0.9	0.3
Total	100%	100%	100%

Source: US Census, 1970 and 1980; MCDOTM, 1989

Travel Time to Work Site

As travel patterns change, travel times will correspondingly change, and traffic congestion and air quality will worsen as a result of the dispersion of housing and employment location patterns. Surveys conducted in 1989 of several smaller corporations indicated that approximately 73 percent of employees were traveling over twenty minutes to work each day. The 1980 Census indicated that approximately 55 percent travel over twenty minutes to work. Travel times are shown in Table A-13.

**Table A-13
Travel Time to Work for
Morris County Residents**

Travel Time (minutes)	1980	1989
Less than 10	14.5%	8.1%
10 - 19	30.4	19.3
20 - 29	19.6	24.8
30 - 44	18.7	25.5
45 or more	16.8	22.3
Total	100%	100%

Source: U.S. Census, 1980; and MCDOTM, 1989

Population and Housing Growth

Population Growth

Population change from 1970 to 1990 is shown in Table A-14. The growth since 1970 has been strongest in the western part of the county. Mount Olive, Washington Township, and Randolph experienced the greatest increases in population, both in amount and percent change.

Fifteen municipalities, mostly in the eastern part of the county, experienced population losses. Parsippany, Chatham, and Pequannock had the

greatest loss of residents, while Mountain Lakes, Chatham, and Riverdale had the highest percentage of decline.

Although transportation demand still remains greatest in the eastern and central portions of the county, this shift in population indicates an increasing demand for transportation facilities in the rural areas of western Morris.

**Table A-14
Population Change 1970 to 1990**

MUNICIPALITY	1970	1980	1990	POPULATION CHANGE 1970 - 1990	PERCENT CHANGE 1970 - 1990
Boonton	9,261	8,620	8,343	-918	-9.9%
Boonton Twp	3,070	3,273	3,566	496	16.2%
Butler	7,051	7,616	7,392	341	4.8%
Chatham	9,566	8,537	8,007	-1,559	-16.3%
Chatham Twp	8,093	8,883	9,361	1,268	15.7%
Chester	1,299	1,433	1,214	-85	-6.5%
Chester Twp	4,265	5,198	5,958	1,693	39.7%
Denville	14,045	14,380	13,812	-233	-1.7%
Dover	15,039	14,681	15,115	76	0.5%
East Hanover	7,734	9,319	9,926	2,192	28.3%
Florham Park	9,373	9,359	8,521	-852	-9.1%
Hanover	10,700	11,846	11,538	838	7.8%
Harding	3,249	3,236	3,640	391	12.0%
Jefferson	14,122	16,413	17,825	3,703	26.2%
Kinnelon	7,600	7,770	8,470	870	11.4%
Lincoln Park	9,034	8,806	10,978	1,944	21.5%
Madison	16,710	15,357	15,850	-860	-5.1%
Mendham	3,729	4,899	4,890	1,161	31.1%
Mendham Twp	3,697	4,488	4,537	840	22.7%
Mine Hill	3,557	3,325	3,333	-224	-6.3%
Montville	11,846	14,290	15,600	3,754	31.7%
Morris Plains	5,540	5,305	5,219	-321	-5.8%
Morris Twp	18,135	18,486	19,952	1,817	10.0%
Morristown	17,662	16,614	16,189	-1,473	-8.3%
Mount Arlington	3,590	4,251	3,630	40	1.1%
Mount Olive	10,394	18,748	21,282	10,888	104.8%
Mountain Lakes	4,739	4,153	3,847	-892	-18.8%
Netcong	2,858	3,557	3,311	453	15.9%
Parsippany	55,112	49,868	48,478	-6,634	-12.0%
Passaic	7,393	7,275	7,826	433	5.9%
Pequannock	14,350	13,776	12,844	-1,506	-10.5%
Randolph	13,296	17,828	19,974	6,678	50.2%
Riverdale	2,729	2,530	2,370	-359	-13.2%
Rockaway	6,383	6,852	6,243	-140	-2.2%
Rockaway Twp	18,955	19,850	19,572	617	3.3%
Roxbury	15,754	18,878	20,429	4,675	29.7%
Victory Gardens	1,027	1,043	1,314	278	27.9%
Washington	6,962	11,402	15,592	8,630	124.0%
Wharton	5,535	5,485	5,405	-130	-2.3%
MORRIS COUNTY	383,454	407,630	421,353	37,899	9.9%

Source: U.S. Census, 1970, 1980, 1990

Housing Growth

Dwelling unit change from 1970 to 1990 is shown in Table A-15. Since 1970, there has been an increase of almost 40,000 units, or 34 percent, in Morris County.

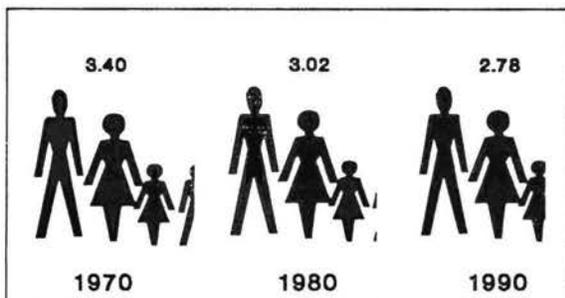
Housing growth has been strongest in the western part of the county. Mount Olive and Washington Township experienced the greatest increase in units by both amount and percent change. Other municipalities in the western part of the county with significant increases in the number of dwelling units were Randolph and Roxbury.

Households

Directly correlated to transportation demand is the number of households. While population has increased by slightly less than 10 percent since 1970, the number of households in the county has increased by nearly 35 percent, from 109,823 in 1970 to 148,751 in 1990.

This dramatic increase in the number of households relative to the change in population reflects the county's declining household size, from 3.40 persons per household in 1970 to 2.78 in 1990 as shown in Chart A-2. This means more households with fewer occupants, which in turn affects travel patterns. With an increasing number of households spread over a larger geographic area, the volume of trips generated will increase accordingly.

Chart A-2
Household Size in Morris County



Source: U.S. Census 1970, 1980, and 1990

Household Income

The gap between the median household income for Morris County and for the State of New Jersey has been widening over the years. In 1969, the median household income in Morris County was 23.7 percent greater than in the state as a whole, compared to a 34.3 percent difference in 1979, and a 45.1 percent difference in 1986. It is likely that the reason for this widening gap in household income is the general economic growth of the New York metropolitan region during the 1980's which has helped stimulate corporate business growth within Morris County. More trips will be produced as a result of rising incomes.

Motor Vehicle Registration

The county's increasing population and median household income since the 1970's has led to a significant increase in the number of motor vehicles registered.

There were approximately 182,000 passenger vehicles registered in Morris County in 1970. By 1980, the number had risen to 230,000 and to 289,000 by 1988. This represents a 59 percent increase over 18 years, and a jump in the number of cars per household from 1.65 in 1970 to about 2.00 in 1988.

Considering that the number of persons per household has declined, these figures indicate a significant increase in automobile use by Morris County residents.

**Table A-15
Dwelling Unit Change 1970 to 1990**

MUNICIPALITY	1970	1980	1990	DWELLING UNIT CHANGE 1970 - 1990	PERCENT CHANGE 1970 - 1990
Boonton	2,953	3,130	3,234	281	9.5%
Boonton Twp	975	1,110	1,299	324	33.2%
Butler	2,110	2,632	2,750	640	30.3%
Chatham	3,089	3,225	3,154	65	2.1%
Chatham Twp	2,561	3,051	3,729	1,168	45.6%
Chester	405	491	492	87	21.5%
Chester Twp	1,202	1,586	1,997	795	66.1%
Denville	4,178	4,776	5,059	881	21.1%
Dover	4,907	5,106	5,355	448	9.1%
East Hanover	2,018	2,614	3,112	1,094	54.2%
Florham Park	2,045	2,399	2,969	924	45.2%
Hanover	2,955	3,606	3,882	927	31.4%
Harding	1,000	1,140	1,464	464	46.4%
Jefferson	5,429	6,240	7,115	1,686	31.1%
Kinnelon	2,061	2,381	2,903	842	40.9%
Lincoln Park	2,555	2,668	4,020	1,465	57.3%
Madison	4,865	4,997	5,564	699	14.4%
Mendham	988	1,589	1,777	789	79.9%
Mendham Twp	1,086	1,495	1,712	626	57.6%
Mine Hill	1,031	1,129	1,273	242	23.5%
Montville	3,122	4,129	5,126	2,004	64.2%
Morris Plains	1,589	1,843	1,965	376	23.7%
Morris Twp	5,047	6,142	7,388	2,341	46.4%
Morristown	6,579	6,782	7,061	482	7.3%
Mount Arlington	1,389	1,667	1,470	81	5.8%
Mount Olive	3,317	6,942	8,529	5,212	157.1%
Mountain Lakes	1,183	1,201	1,268	85	7.2%
Netcong	890	1,362	1,396	506	56.9%
Parsippany	16,549	17,715	18,960	2,411	14.6%
Passaic	2,100	2,389	2,804	704	33.5%
Pequannock	3,828	4,226	4,385	557	14.6%
Randolph	4,547	6,246	7,240	2,693	59.2%
Riverdale	814	859	872	58	7.1%
Rockaway	1,932	2,393	2,355	423	21.9%
Rockaway Twp	5,800	6,794	7,477	1,677	28.9%
Roxbury	4,688	5,938	6,799	2,111	45.0%
Victory Gardens	290	4,15	543	253	87.2%
Washington	2,200	3,574	5,125	2,925	133.0%
Wharton	1,755	2,010	2,122	367	20.9%
MORRIS COUNTY	116,032	137,992	155,745	39,713	34.2%

Source: U.S. Census, 1970, 1980, 1990

Environmental Concerns

Air Quality

All vehicles that burn fossil fuels contribute to air pollution, and the link between air quality and health is irrefutable. The two primary pollutants attributed to mobile sources are carbon monoxide (CO) and ozone.

Carbon monoxide builds up in areas where cars are idling and air is stagnant. Because of this, CO is often a problem in urban areas where traffic is congested and buildings trap the polluted air. Breathing CO can cause nausea, dizziness, headache, vision impairment, slowed reaction time and, in high concentrations, even death.

Ozone, the other major pollutant resulting from mobile sources, is formed when hydrocarbons and nitrogen oxides (both emitted from automobile engines) interact in sunlight. Ozone is one ingredient of smog and can cause coughing, chest soreness, decreased resistance to infection, and eye irritation. Ozone levels, affected by heat and sunlight, are highest on summer afternoons.

Although motor vehicles built today emit fewer pollutants than those built in the 1960's and 1970's, in urban areas cars and trucks still account for almost half of the emissions of hydrocarbons and nitrogen oxides, and up to 90 percent of carbon monoxide. This is because rapid growth in the number of motor vehicles on roadways and increases in vehicle miles driven have offset emission reductions.

To reduce mobile source pollutants, action has been taken by the federal, state and county governments. The U.S. Environmental Protection Agency (USEPA) has developed National Ambient Air Quality Standards (NAAQS) for both CO and ozone, as well as other pollutants. These standards are based on studies that measure the effects of various levels of exposure to these pollutants and are used to:

- a) measure air quality in light of established public health standards,
- b) warn the public of possible health risks, and
- c) serve as a reference for measuring air quality changes.

The standard for CO is 9 parts per million (ppm) maximum eight-hour average. The standard for ozone is 0.12 ppm maximum daily one-hour average. The State of New Jersey has adopted these standards for both CO and ozone.

As part of the 1977 Amended Clean Air Act, the USEPA developed Reasonably Available Control Measures to encourage state and local governments to take action to reduce pollution. In 1982 the New Jersey State Implementation Plan (revised in 1983) laid out several strategies by which New Jersey was to attain the standards for CO and ozone. As part of the State Implementation Plan, Morris County was required to develop its own "Air Quality Plan for Mobile Source Emissions". Ridesharing (including carpools and vanpools), flexible and staggered work hours, road and intersection improvements, public transportation improvements, development of park and ride lots, and the identification of air quality projects in the Transportation Improvement Plan (TIP) are all measures being encouraged or directly implemented by Morris County demonstrating "reasonable further progress" in achieving the NAAQS for CO and ozone.

Carbon Monoxide

In the 1983 "Morris County Air Quality Plan For Mobile Source Emissions", the areas in the county with the most severe CO problems (hotspots) were identified. To determine hotspots, local and county officials were polled on what they considered to be likely hotspots. These areas were then analyzed using air pollution computer models to determine if the CO exceeded the EPA standard. Intensity of traffic congestion, degree of CO, population at risk and other variables were studied if the standard was exceeded. The following intersections were determined to be Morris County's highest priority CO hotspots.

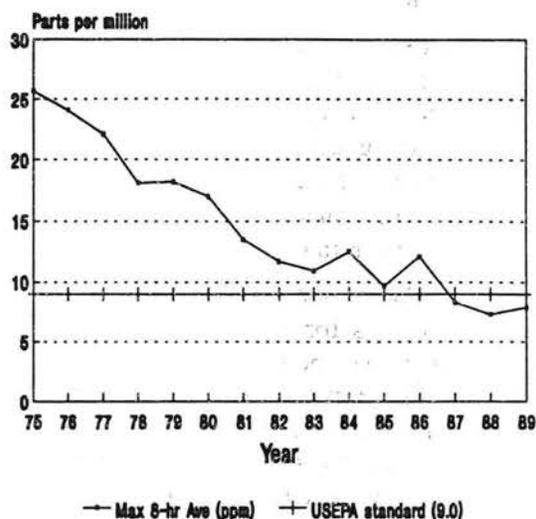
- Washington Street (NJ 24/CR 510) and Schuyler Place, Morristown;
- South Street (NJ 24) and Madison Avenue, Morristown;
- Morris Street (CR 510) between Spring Street and East Park Place, Morristown;
- South Street (NJ 24) and Elm Street, Morristown;
- Speedwell Avenue (US 202) and Spring Street, Morristown;
- NJ 10 and Ridgedale Avenue (CR 632), East Hanover;
- US 46 and New Road, Parsippany;
- US 46 at Chapin and Hook Mountain Roads, Montville;
- US 46 and North Beverwyck Road, Parsippany;
- NJ 10 and US 202, Parsippany;
- NJ 10 and River Road, East Hanover.

A CO monitor has been operational on a Washington Street building in central Morristown since 1975. The levels of CO recorded there have been gradually dropping, as shown in Chart A-3. No violations of the USEPA standard have been recorded at this monitor since 1986.

Improved pollution control devices and the replacement of older vehicles with new vehicles has

been primarily responsible for the reductions in CO levels. Further efforts, however, will be necessary to keep these levels down as growth in the region continues.

Chart A-3
Carbon Monoxide Level
Morristown Monitor



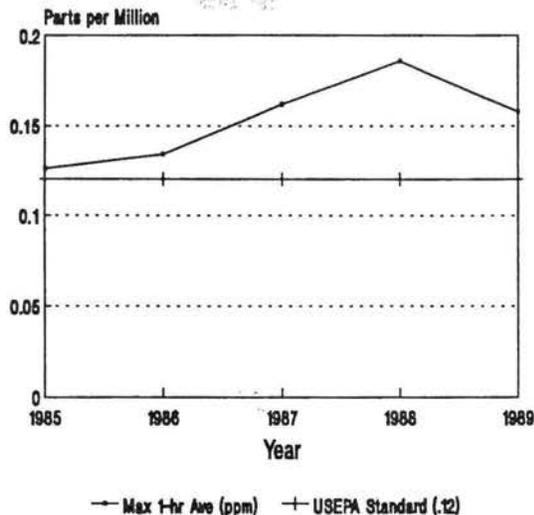
Source: NJ DEP Annual Air Quality Reports

Ozone

The only ozone monitor for Morris County is in Chester Township at the Bell Communications Research and Engineering Center. Chart A-4 shows ozone levels since 1985. The USEPA standard is 0.12 ppm (maximum one-hour average) and has been exceeded every year. The highest levels were recorded in 1988 due to the unusually hot summer.

Ozone readings tend to be more erratic than CO because they are strongly affected by weather patterns, such as wind, temperature, and sunlight. For this reason ozone levels are often more a factor of regional rather than local conditions. Therefore, unlike CO, the ozone problem can only be addressed regionally.

Chart A-4
Ozone Levels
Chester Monitor



Source: NJ DEP Annual Air Quality Reports

1990 Clean Air Act Amendments

The Clean Air Act Amendments (CAAA) were signed into law on November 15, 1990. The Act places strict nationwide standards on allowable ozone and CO levels. The USEPA has defined regions which do not meet the allowable levels as "nonattainment" areas. Morris County is in the New York-New Jersey-Connecticut region which has been classified as a "Severe 2" ozone nonattainment region with ozone levels exceeding standards by 58 to 133 percent. CO levels in the region have been classified as "Moderate 2" nonattainment, exceeding standards by more than 40 percent.

The ultimate goal of the CAAA is for all states to reach full attainment of the clean air standards by 2010. The CAAA will require each state to develop a State Implementation Plan by November 15, 1992 that will bring them into compliance with its clean air standards. The New York-New Jersey-Connecticut region must meet several attainment deadlines to reach this goal. All "Severe 2" ozone nonattainment regions must reduce

emissions of volatile organic compounds, the primary source of ozone, by 15 percent by 1997 and 3 percent each year thereafter. These reductions will bring the region into compliance with the CAAA by 2007. "Moderate 2" CO nonattainment regions must be in full compliance by 1995. To reach these goals, a list of 16 Transportation Control Measures for New Jersey has been developed. They are as follows:

- Public transit - system/service improvements;
- HOV lanes;
- Employer-based transportation demand management strategies;
- Trip reduction ordinances;
- Traffic flow improvements - improved system operation;
- Park and ride lots;
- Auto restricted zones;
- Programs for ridesharing and paratransit;
- Provisions for non-motorized or pedestrian travel on existing network;
- Bicycle facilities;
- Extended idling controls;
- Programs to reduce emissions for extreme cold start conditions;
- Flex-time, staggered/alternative work hours;
- Single occupancy vehicle reduction by special traffic generators;
- Non-motorized travel paths;
- Voluntary removal of old (pre-1980) vehicles from fleet.

The development of the State Implementation Plan, as mandated by the CAAA, will be a cooperative planning effort through all levels of the public and private sector. The State Implementation Plan development process will be assigned to a policy level body called the State Certified Organization which will direct both the stationary and mobile source elements of air quality plan-

ning. The transportation air quality planning will be under the jurisdiction of the Statewide Transportation Air Quality Planning Organization. Under this organization, there are three Regional Transportation Air Quality Planning Organizations. Morris County will be a participant in the

statewide organization and one of the regional organizations. The county is also charged with the responsibility to work with the municipalities in the county, to develop and implement specific Transportation Control Measures.

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