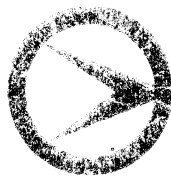


95
1764
1791

New Jersey Transportation Plan

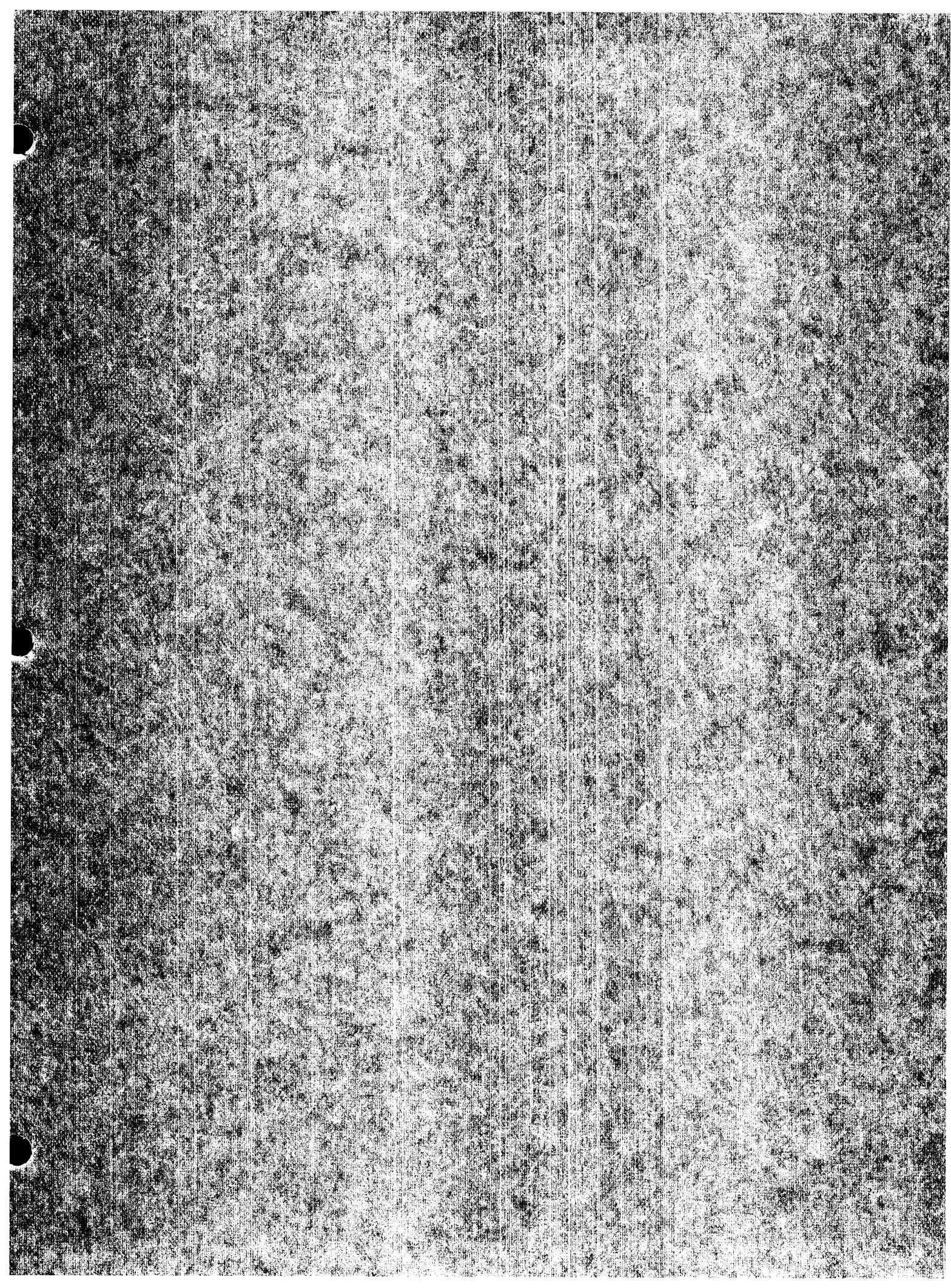


Surface Passenger Transportation Element

DRAFT

New Jersey State Library

NEW JERSEY DEPARTMENT OF TRANSPORTATION



NEW JERSEY TRANSPORTATION PLAN

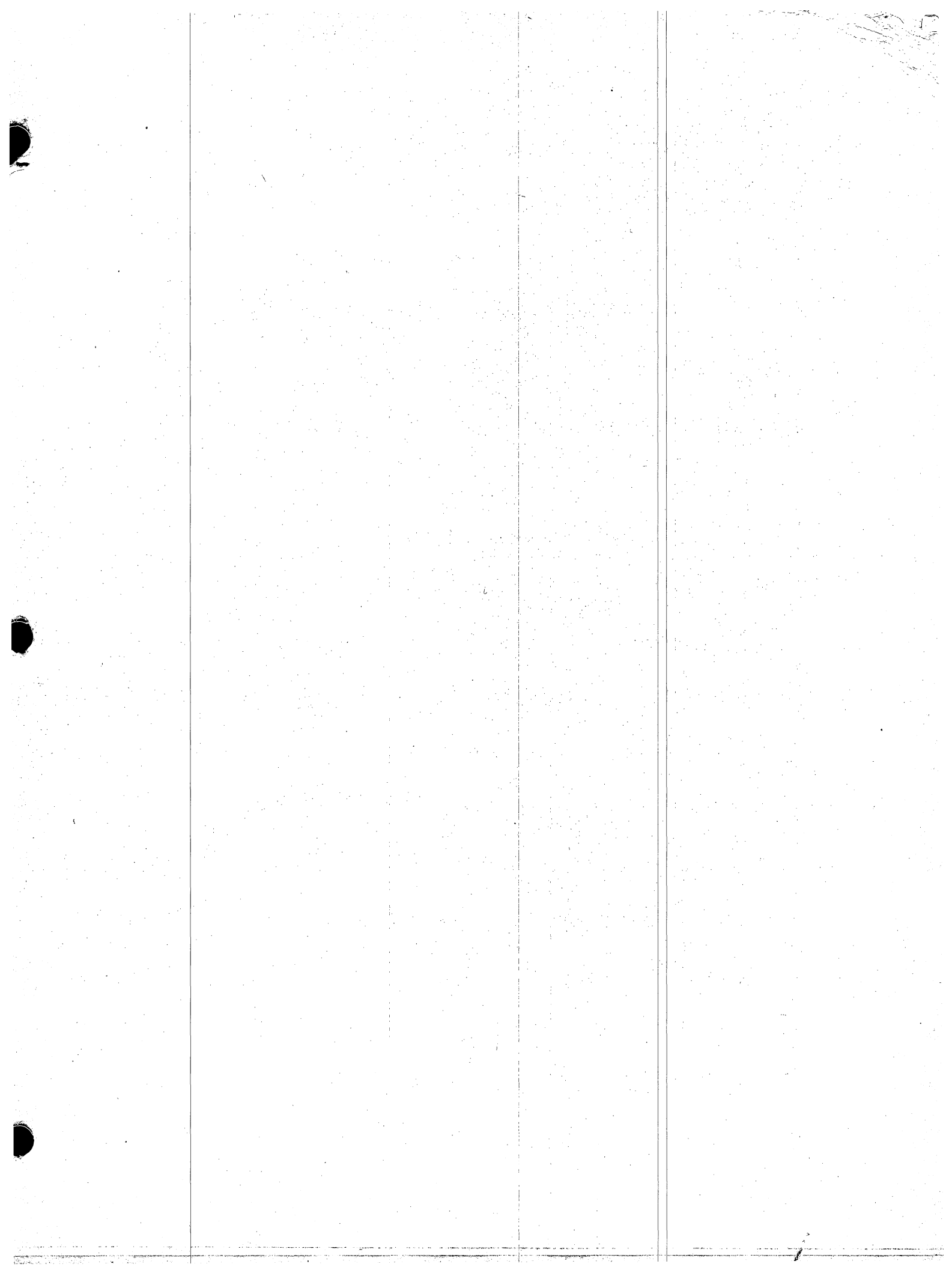
SURFACE PASSENGER TRANSPORTATION ELEMENT

DRAFT

NEW JERSEY DEPARTMENT OF TRANSPORTATION

New Jersey State Library

September, 1979



Prepared by

NEW JERSEY DEPARTMENT OF TRANSPORTATION

in cooperation with

US DEPARTMENT OF TRANSPORTATION



LOUIS J. GAMBACCINI
COMMISSIONER

STATE OF NEW JERSEY

DEPARTMENT OF TRANSPORTATION

1035 PARKWAY AVENUE
TRENTON, N. J. 08625

To the Citizens of New Jersey:

I am pleased to present New Jersey's draft Transportation Plan -- a plan for the 1980's. It is a draft document which reflects the dramatic changes since the last plan in 1972 in terms of demographic factors, greater social and environmental awareness, and limitations on land development, energy and financial resources. It is a view of the future based on the realities of the present, and will serve as the Department of Transportation's guide in implementing programs and projects.

We are in a period of rapid transition away from the big road building booms of the 1950's, 1960's and early 1970's which were marked by low energy costs and extensive growth in new construction. We must now concentrate our limited financial resources more on improving long-neglected existing transportation facilities -- road, bridge, rail and bus -- rather than on brand new roads which are costly and may not be energy efficient or environmentally desirable.

As we concentrate on this program of repair, rehabilitation and replacement, we must also develop better skills and techniques for guiding growth in directions that we can afford and which will aid in the solution rather than exacerbate problems such as declining cities and limited and expensive energy.

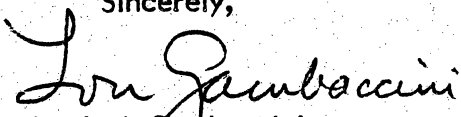
In order to ensure maximum public involvement in the plan, we have deviated from past practice by publishing the plan first in draft form by sections. As each section is developed, it will be distributed in each county to the public for review and comment. Comments made during this review process will be used in preparing the final version of the plan for publication.

The first section, which follows, discusses some of the major issues facing transportation planners today and the goals, objectives and policies which will serve as the basis for transportation plans and programs.

The short and long-range elements of the plan are currently under development and should be available for review during the fall of this year. The publication of this material will complete the surface passenger element of the plan and enable us to move on to other transportation issues and modes.

Your careful review of the attached material is invited. I hope you will be as critical and objective as practical, for, perhaps, together we can resolve those issues so vital to New Jersey's transportation system and the State's future growth and development.

Sincerely,


Louis J. Gambaccini
Commissioner of Transportation



TRANSPORTATION PLAN

TABLE OF CONTENTS

	<u>PAGE</u>
I. INTRODUCTION-----	I
A. Statement of the Plan-----	4
B. State's Current Role in Transportation-----	5
1. State Government in New Jersey-----	5
2. The State Transportation Agency-----	8
3. The Transportation Planning Process-----	11
4. State Transportation Programs-----	21
5. Funding Transportation-----	29
C. Transportation Inventory-----	39
1. Highways-----	39
2. Passenger Rail-----	48
3. Bus-----	66
II. GUIDELINES FOR DECISION-----	70
A. Major Issues-----	70
1. Transportation, Land Use and Energy-----	70
2. Social Issues-----	76
3. The Economic Situation-----	83
4. Air Quality-----	94
5. Other Environmental Issues-----	102
6. Funding Transportation-----	109
B. Future Growth and Development-----	126
C. Goals and Objectives-----	130
1. Transportation - Social Goal-----	134
2. Transportation - Economic Goal-----	135
3. Transportation - Environmental Goal-----	135
4. Transportation - Land Use Goal-----	135
5. Transportation - Energy Goal-----	137
6. Transportation Program Goals-----	138
-Inter-City Transportation Goal-----	138
-Urban Transportation Goal-----	139
-Rural Transportation Goal-----	139
D. Program Policy Statements-----	141
1. Introduction-----	141
2. Public Survey-----	141
3. Transportation Services-----	143
-Railroad Services-----	144
-Bus Services-----	147

TABLE OF CONTENTS (Cont'd)

		<u>PAGE</u>
	-Paratransit-----	150
	-Highways and Streets Program-----	152
	-Ridesharing Programs-----	159
	-Bicycle Facilities and Programs-----	161
	-Pedestrian Services-----	164
	-Railroad Station Facilities-----	166
	-Bus Passenger Facilities-----	169
	-Park-and-Ride Program-----	171
III.	SHORT RANGE PLAN-----	Under Way
	A. Capital Improvement Plan	
	B. Maintenance & Operations	
	C. Funding	
IV.	LONG RANGE PLAN-----	Under Way
	A. Future Growth and Development (Quantitative)	
	1. Demographic	
	2. Land Use	
	3. Demand Indicators	
	B. The Transportation Plan	
	1. Long Range Transportation Alternatives	
	-Zero Petroleum Growth	
	-Reduced Petroleum Supplies	
	2. Year 2000 Plan	
	-Public Transportation Services	
	-Highway Services	
	-Intermodal Facilities	
	C. Funding Alternatives	
V.	FUTURE PROGRAMS-----	Under Way
	A. Aviation - Passenger	
	B. Goods Movement	
	-Air Freight	
	-Rail Freight	
	-Pipelines	
	-Waterways	
	-Trucking	
	C. Waterways - Passenger	
VI.	THE PROCESS-----	Under Way

ILLUSTRATIONS

<u>FIGURE</u>	<u>PAGE</u>
1. The Executive Branch of State Government.....	6
2. NJDOT Organization Chart.....	9
3. New Jersey Urban Area Planning Study Agencies.....	15
4. Operating State Highway Map.....	41
5. Status of the Interstate System.....	51
6. Railroad Passenger Service - 1950, 1979.....	54
7. Commuter Rail System Map.....	56
8. Port Authority Trans-Hudson Map.....	62
9. Port Authority Transit Corporation Map.....	63
10. Newark City Subway Map.....	65
11. Regular Route Bus Fleet Age Distribution.....	68
12. Urbanized Areas - 1950, 1975.....	72
13. Transit Modes Suited to Downtown Size.....	77
14. Unemployment Rate.....	85
15. Carbon Monoxide Monitoring Sites.....	96
16. Ozone Monitoring Sites.....	98
17. Coastal Area Facility Review Act - Regulated Zone.....	104
18. Environmentally Sensitive Lands.....	106
19. Comparative Trends: Lane-Miles, Daily Vehicle-Miles, Linear-Miles.....	110
20. Vehicles Per Mile of Road.....	111
21. Comparison of FY'68 and FY'79 Appropriations.....	113
22. Rail and Bus Operating Subsidies.....	115
23. Appropriations vs. Constant Dollars.....	116
24. Percent of Transportation Revenues Returned to Transportation Uses.....	121
25. Percentage of General State Fund Devoted to Transportation.....	122
26. Disposition of New Jersey State Highway User Taxes.....	123
27. Developing Transportation Program Policies.....	131

TABULATIONS

<u>TABLE</u>	<u>PAGE</u>
1. Apportionments of Federal-aid Highway Funds	31
2. Federal Highway Funding Programs	32
3. Federal Funds for Public Transportation	36
4. New Jersey Highway Mileage by System	40
5. Comparison of Highway Systems - Selected States	43
6. Comparison of Highway Travel Density - Selected States	44
7. Functional Classification	45
8. 1975 Daily Vehicle-Miles of Travel Per Lane-Mile	49
9. Comparison of State and US Urban and Rural Mileage by State, Federal-aid, and Nonfederal Aid Systems	52
10. 1977 Commuter Rail Passenger Service	57
11. Inventory of New Jersey-Owned Commuter Rail Equipment	60
12. New Jersey Rapid Rail Transit Systems	60
13. Inventory of Equipment Purchased for Elderly and Handicapped Program	69
14. Transit Modes Related to Residential Density	75
15. Elderly and Handicapped by County	80
16. Percent and Number of Families with Incomes Less Than Poverty Level	81
17. Poverty Status in 1969 of New Jersey Families	82
18. Interim Policy Population Projections	88
19. Per-Capita Personal Income	91
20. Components of Residential Population Change by County	92

I. INTRODUCTION

The Transportation Act of 1966 which created the New Jersey Department of Transportation stipulates that the Commissioner of Transportation shall: "develop, from time to time revise and maintain a comprehensive master plan for transportation development." The Act recognizes that a plan of this type by its nature cannot be fixed or unalterable but must be assessed with the realization that as the State's needs and objectives change, so must the transportation plans and programs change to meet those needs and objectives.

Since the passage of the Transportation Act, the Department published two Master Plans, one in 1968 and the most recent in 1972. However, many things have changed since 1972 which require that the current plan be updated. Major changes have occurred in the state of the State, certain issues affecting transportation development have emerged or become more prominent and the process of determining and implementing transportation projects and programs has changed.

New Jersey is at a crossroads in its economic growth and development. Where it once was a major center for industrial and commercial activities, it has over the past few decades lost much of its economic strength to other regions of the country. However, to the State's credit, New Jersey has fared better than other states in the Northeast. It has emerged from the worst national recession in a generation stronger than any other state in the region and its economy appears to be on the road to recovery.

This period, however, has led to a certain instability in the growth patterns of such indicators of transportation demand as population, employment, income, industry and markets. These factors are beginning to deviate from long-term trends and demographers themselves are unsure if what is happening is only a short-term deviation or whether it is the forerunner of new trends. Gasoline availability and cost, changing space needs, and environmental values are having an effect on the trends of the last several decades. Consequently, demographers are becoming increasingly sensitive about projecting specific growth patterns. Instead, they are turning to alternative development patterns which are tied in to certain "what-if" situations. It has been the practice of late to develop these alternative development patterns on trends based on goal or policy decisions.

Consequently, it is becoming increasingly difficult to project the State's future transportation needs. The instability of those demographic factors which are traditionally utilized in determining transportation demand makes it highly uncertain as to what type of

community the transportation system must serve in the future. In addition to the uncertainty of demographic factors, there is much happening to cloud the future as it relates to energy resources, social needs, economic needs, environmental needs and last, but not least, the amount of financial resources available to meet the capital and operating expenses necessary to meet our mobility requirements of the future.

While there is great uncertainty, some recent developments have occurred which begin to form an embryonic concept of future growth and development. The Department of Community Affairs has published its draft State Development Guide Plan, the New Jersey Department of Energy published an Energy Master Plan, the Department of Environmental Protection has drafted a Coastal Management Program, and the State recently published its State Implementation Plan to meet Federal air quality standards. In addition, Governor Byrne identified some of New Jersey's major challenges in his second inaugural address. Among the major issues noted were the development of the Hudson River waterfront and the Meadowlands, preservation of the Pine Barrens, successful offshore drilling and preservation of our beaches. Governor Byrne further noted that one great frontier remains: the inner frontier of our urban cities.

The strengthening of New Jersey's inner cities will require concerted effort and sacrifice on many fronts. Population growth and economic investment must be concentrated in the urban areas. To that end, Governor Byrne has committed his administration to invest its capital and structure its policies to make urban living more attractive. If the cities are not made as healthy and attractive as the rest of New Jersey, then all other achievements may be threatened.

A sound transportation system is critical to New Jersey's development plans, because one of the basic needs of our society is the efficient movement of people and goods. If such service is not available in New Jersey, then people and jobs will move to other areas of the nation where such service is available.

Finally, the process of determining and implementing transportation plans and programs has undergone considerable change. In the past, transportation requirements have generally been based on the traditional needs-type approach; i.e., inventory what you already have, determine what you need and then construct what is missing. This approach gave little regard to the true social, environmental and economic costs of constructing such projects. This is not to imply that such a situation was created willingly, but rather an admission of ignorance of the true values held by society.

As with any science, the transportation industry is in a continual learning process and must be flexible enough to change with the needs of the people it serves.

Governmental transportation planning agencies are doing much to seek out those needs. More and more we are seeing a concerted effort to involve the several publics in the complete process of planning and constructing transportation systems.

The New Jersey Department of Transportation has devoted much of its energy to soliciting more public involvement in all phases of transportation development. The past few years have seen the development and strengthening of mechanisms for achieving as high a degree of community involvement as possible in the planning, design and construction of transportation projects. However, the study of citizen involvement is a whole science in itself and much remains to be done if our transportation systems are to be truly geared to our mobility needs and desires.

The preceding gives an indication of why transportation planners are finding it increasingly difficult to project transportation needs into the distant future. Before adequate plans can be developed, certain issues must be resolved. What will the State's population be in 10, 20 or 30 years -- and how will it be distributed? Will we see the rebirth of our older cities or will we see continued suburban sprawl? How will the energy situation develop over the long term? Will we see new forms of energy come into prominence? Finally, how much is the public willing to pay for the mobility it has grown accustomed to? These are all questions that need to be answered in preparing a truly responsive transportation plan. For such a plan should reflect the concept that: A transportation system should be developed to serve as an integral part of a grand development scheme, not to lead development in a haphazard manner.

A. STATEMENT OF THE PLAN

In its endeavor to produce an updated Transportation Plan, the Department is deviating from the past practice of publishing a plan in complete and final form. Instead, the Statewide Transportation Plan will be developed through an evolutionary process and within a framework of considerable coordination.

The final plan will be based on a series of preliminary documents which will be released to the various publics for review and comment as they are developed. The flow of material is structured to address the more critical transportation issues first, so that policy-makers will have the necessary background for making decisions vital to the growth and development of the State.

This first publication will generally follow the format outlined in the Table of Contents. However, its primary focus will be on surface passenger transportation. Chapter I will basically state where we are in transportation today. Chapter II will present some of the more important critical issues and goals, objectives and program policy statements which will provide the basis for development of the plan. Chapter III identifies a short range plan of critical needs while Chapter IV addresses the longer range (Year 2000) needs. Chapter V will present a brief discussion of those additional elements of the plan which will be addressed and published at later dates. Finally, Chapter VI will identify the process of transportation decision-making and recommendations for improvement.

The process of communicating with the public in developing the plan has already begun. In February of this year, the Department distributed a questionnaire concerning the development of goals and objectives to legislative leaders, county and municipal officials, metropolitan planning organizations and special interest citizen groups. The response to this material is being utilized in formulating preliminary transportation plans and programs.

The intent of the total process is to maximize citizen involvement in the development of the plan. In addition to mailing out material for review, plans are being formulated to hold public meetings or workshops on various elements of the plan. Perhaps in this manner, we can resolve those issues so vitally important to a truly responsive and effective transportation systems plan.

B. STATE'S CURRENT ROLE IN TRANSPORTATION

In our society there are several basic functions, such as Health Care, Education, Police and Fire Protection, Environmental Protection and Transportation Services, which are essential to the development and maintenance of a healthy and progressive climate for the citizens. The performance of such functions can be undertaken either by private enterprise or by government. In some instances, the burden of fulfilling these essential needs falls largely on government.

One instance where governmental participation is considerable is in the provision of transportation services. The scope and cost of providing such services, and the far reaching secondary effects of transportation on our everyday activities dictate that government be deeply involved in the planning, construction, maintenance and operation of such services for all segments of our society.

New Jersey's role in transportation dates back to the late 1600's when the General Assembly of the Province of East Jersey passed its first Public Roads Act. Since that time, State Government in New Jersey has become a primary force in promoting transportation facilities and programs for its citizens.

It is important to note, however, that the construction and maintenance of transportation facilities, and the provision and operation of transportation services is not the sole responsibility of State Government. Rather, it is a joint effort involving numerous governmental bodies and several transportation and port authorities. In addition to the State, these include: twenty-one counties, five hundred-sixty seven municipalities and several autonomous authorities.

I. STATE GOVERNMENT IN NEW JERSEY

Transportation, while of major significance, is only one factor in the quest to achieve the good things in life for the people of New Jersey. However, transportation can serve as a major infrastructure for achieving these ends. Transportation development should promote orderly economic growth and physical development and should enhance the environmental, social and aesthetic values of the State as part of the function of providing mobility for people and goods. This mandates that transportation activities should be coordinated with all other activities directed at preparing plans for the welfare of the citizens of New Jersey.

As indicated in Figure I, State Government in New Jersey is composed of 19 Departments which are charged with the responsibility of performing specific functions which

THE EXECUTIVE BRANCH OF STATE GOVERNMENT

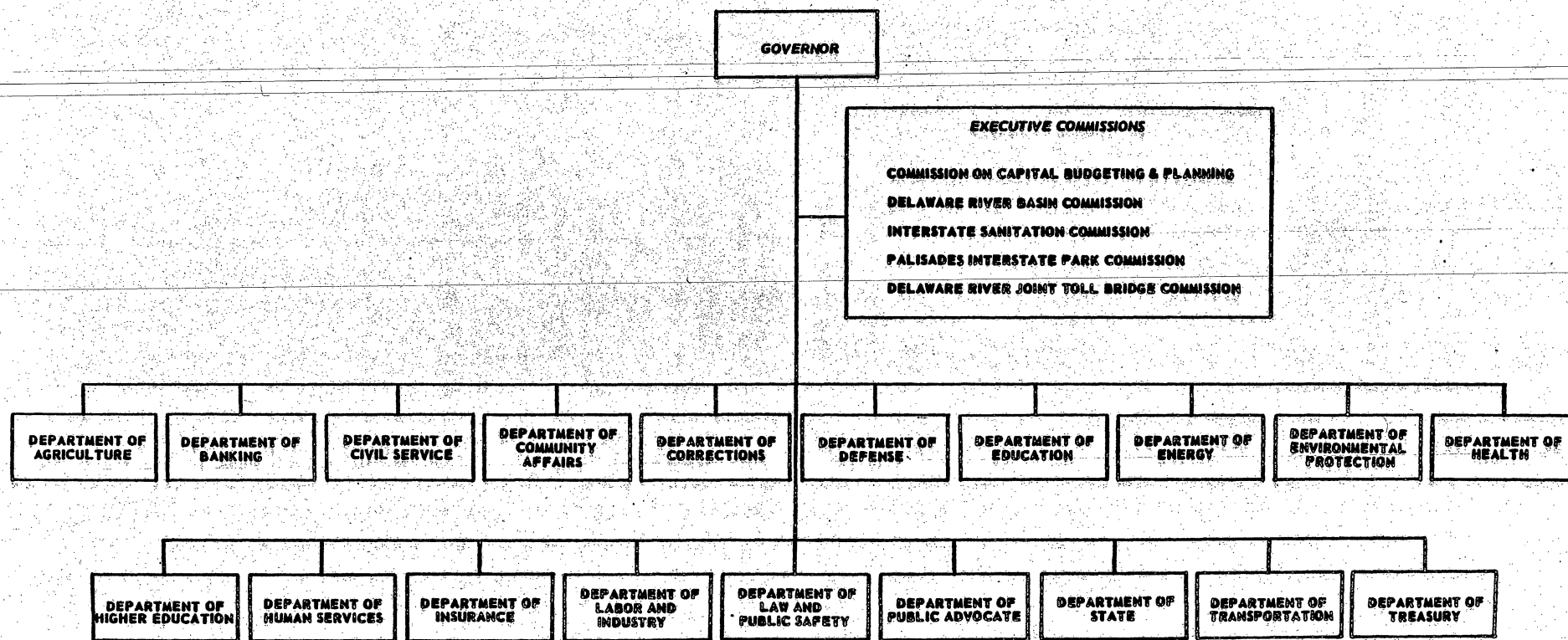


FIGURE 1

are intended to fulfill the needs of the citizens of the State. While these agencies all have the common goal of providing the essentials for New Jersey's citizens, the goals of individual Departments in many instances may conflict with those of another. Consequently, conflicting policies may co-exist when striving to achieve the desired end.

This potential for conflict was recognized by Governor Byrne when he created the Office of Policy and Planning in July, 1978. This office, which reports directly to the Governor, was created to assist in the analysis of major policy decisions and improve coordination of planning among state agencies. Among the more specific functions of this unit are:

- Monitor major Department activities to assure consistency with the Governor's policies and priorities.
- Advise the Governor on major policy issues and potential emerging problems.
- Prepare or review the Governor's major policy statements.
- Expedite completion of programs or projects supported by the Governor.
- Conduct basic research for the development of new policy initiatives.
- Present potential policy initiatives and developments to the Cabinet.
- Coordinate major State planning programs.
- Mediate and resolve inter-agency conflicts.
- Coordinate and staff the Governor's Economic Affairs Cabinet.
- Initiate, coordinate, and monitor major economic development policy issues.
- Oversee implementation of recommendations of the Governor's Jobs Conference and urban policy.
- Conduct research related to economic planning.

Consequently, the Governor's Office of Policy and Planning serves in the important role of developing major State policy as well as monitoring and coordinating major State programs.

To further coordinate the State's planning activities, the Cabinet Development Policy and Projects Committee was created by Governor Byrne in early 1979. This committee consists of commissioners of various State departments who meet frequently to discuss and analyze major issues affecting New Jersey and to suggest policy strategy to resolve these issues. The Governor's Office of Policy and Planning assists the Governor's Cabinet Committee by acting as a technical advisor.

2. THE STATE TRANSPORTATION AGENCY

Evolution of the State agency responsible for the development of transportation systems and services began as early as 1891, when the legislature designated the President of the State Board of Agriculture to be the Administrator of Roads. Under the Public Roads Act of 1894 he became the Commissioner of Public Roads. Numerous changes in organization and responsibilities occurred over the years until the New Jersey Department of Transportation was created by Legislative action effective July 1, 1966. This action enabled New Jersey to become the first state in the continental United States to adopt the concept of an integrated approach to all transportation problems. The New Jersey Department of Transportation absorbed the functions of the State Highway Department, the Division of Railroad Transportation and the Bureau of Aeronautics which was transferred from the then Department of Conservation and Economic Development.

The Commissioner of Transportation is given the authority to organize the Department as he may deem necessary. Since its creation in 1966, the Department has undergone a number of organizational changes in its endeavor to cope with the everchanging process of providing transportation facilities and services. Figure 2 identifies the current organizational make up of the Department.

In the words of the Act which created the Department, the intent was "to establish the means whereby the full resources of the State can be used and applied in a co-ordinated and integrated manner to solve or assist in the solution of the problems of transportation; to promote an efficient integrated and balanced transportation system for the State; to prepare and implement comprehensive plans and programs for transportation development in the State; and to co-ordinate the transportation activities of State agencies, State-created public authorities, and other public agencies with transportation responsibilities within the State." This charge, in essence, embodies the essential role of the State. Its purpose is to develop programs which, when carried out, avoid duplication and conflict in the State's total transportation system and assure the taxpayer that the State will realize a maximum return for its transportation investment.

The Act specifically directs the Commissioner to assume the following responsibilities:

- Develop, from time to time revise and maintain a comprehensive master plan for all modes of transportation development, with special emphasis on public transportation.

**NEW JERSEY
DEPARTMENT OF TRANSPORTATION**



**FUNCTIONAL
ORGANIZATION CHART
JULY 1979**

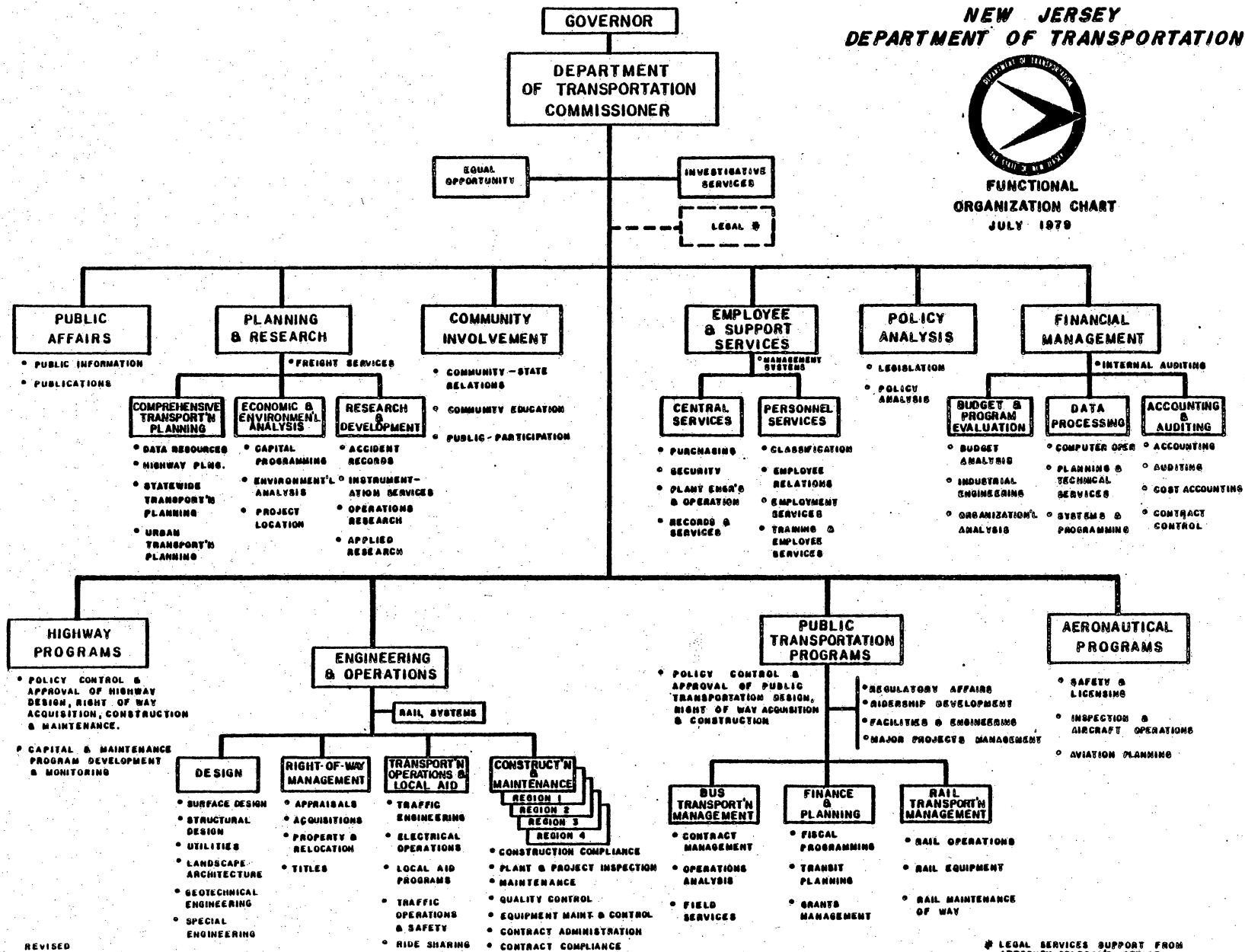


FIGURE 2

- Develop and promote programs to foster efficient and economical transportation services in the State.
- Prepare plans for the preservation, improvement and expansion of the public transportation system, with special emphasis on the coordination of transit modes and the use of rail rights-of-way, highways and public streets for public transportation purposes.
- Enter into contracts with the New Jersey Transit Corporation for the provision and improvement of public transportation services.
- Coordinate the transportation activities of the Department with those of other public agencies and authorities.
- Cooperate with interstate commissions and authorities, State department, councils, commissions and other State agencies, with appropriate Federal agencies, and with interested private individuals and organizations in the coordination of plans and policies for the development of air commerce and air facilities.
- Make an annual report to the Governor and the Legislature of the Department's operations, and render such other reports as the Governor shall from time to time request or as may be required by law.
- Promulgate regulations providing for the charging of and setting the amount of fees for certain services performed by and permits issued by the Department, including but not limited to the following:
 - Providing copies of documents prepared by or in the custody of the Department
 - Aeronautics permits
 - Right-of-Way permits
 - Traffic signal control systems.
- Plan, design, construct, equip, operate, improve and maintain a railroad, subway, street traction or electric railway for the purpose of carrying freight in this State or between points in this State and points in other states.

Within these duties and organizational structure, the Department's role in transportation is one of planning, coordinating, constructing, maintaining and operating essential transportation facilities and services and administering transportation programs.

3. THE TRANSPORTATION PLANNING PROCESS

Transportation planning has basically evolved from a simplified highway needs study approach to a comprehensive multi-modal process. Perhaps no other area of the transportation sector has changed in magnitude and scope as much as the process which determines transportation needs.

Prior to the early 1960s, the needs study approach was the basic planning tool. This approach basically encompassed a concept which determined the adequacy of the State's highway system by comparing the system to acceptable service levels and determining where improvements were needed. This approach was one of reaction and paid little attention to the social, economic and environmental impacts of highway construction or to the long-range potential for energy and funding resources.

As time progressed, it became increasingly evident that transportation planning was becoming more influenced by issues outside the primary mission of the agencies responsible for providing transportation services. Examples of these issues include: land-use, energy conservation, environmental quality, modal coordination and integration, needs of the elderly and handicapped and community involvement. Consequently, the transportation planning process had to be revised to integrate these issues into the planning process to ensure that planning projects effectively reflected the consideration of these important issues.

The Federal-Aid Highway Act of 1962 and the Urban Mass Transportation Act of 1964 stipulated that all projects in urban areas of 50,000 or more population be based on a comprehensive, cooperative and continuing (3-C) transportation planning process. This action significantly laid the groundwork for a comprehensive transportation planning process that involved all levels of government and to a lesser degree, the private operators of public transportation.

Further impetus for comprehensive statewide transportation planning at the State level came with the creation of the New Jersey Department of Transportation in 1966. This action led to an improved planning process as it centralized within one Department, for the first time, the planning activities and responsibilities for all modes of passenger transportation. Subsequent organizational changes have expanded the planning process to accommodate the ever-growing scope of social, economic and environmental concerns which must be considered in the planning of transportation facilities and programs.

Statewide transportation planning is also typified by the 3-C planning process and has as its purpose, to assimilate local and regional transportation plans and to develop

both short-range and long-range programs responsive to the State's goals and policies. The process is designed to be undertaken in conjunction with other statewide planning in such related areas as land-use, the economy, energy and the social and physical environment. The desired product is the creation of a transportation plan which will be the basis for private and governmental actions.

a. Comprehensive

The comprehensive aspect of the planning process requires that the full range of human aspirations be considered in the identification and evaluation of transportation problems and needs, and in the development of plans and programs which would satisfy those problems and needs.

The process determines the interrelationship between the State's socio-economic characteristics and activity, its travel behavior and transportation system. After thorough analysis of present conditions and identification of transportation problems of regional and statewide significance, future needs are established. These needs are based on a series of forecasts which include population, employment, labor force, income, etc. These forecasts are tied to estimates and locations of future land-use in the categories of residential, commercial, industrial, open space and park development. Other factors requiring consideration are air quality, energy resources and financial availability.

Several planning activities are currently under way which provide significant input to the Department's statewide planning effort. Examples of such activity includes:

- Road Inventory and Mapping
- Urban Transportation Planning Studies
- Speed and Traffic Service Studies
- Photologging
- Annual Traffic Counting Program
- Federal-aid Route Realignment
- Statewide Goods Movement Study
- Statewide Bus Study
- Air Quality Studies
- Highway Performance Monitoring System Study

- New Jersey Rail Equipment Maintenance Facility Study
- Rail Station and Bus Terminal Modernization Study
- Fare Collection Equipment and Fare Zone Rationalization
- Financing and Operating Rail Park-and-Ride Facilities
- New Jersey Bus Maintenance Facilities Study
- Transportation Systems Management
- Energy Contingency Planning
- New Jersey Paratransit - A Study of Taxis in New Jersey

b. Cooperative

Since transportation planning requires the full consideration of all aspects of the human environment, it is essential that the planning effort be undertaken in an atmosphere of considerable cooperation and coordination. Consequently, the transportation planning process involves many bodies of government at the State, county and local levels, as well as numerous public authorities, interstate commissions and interested private individuals and organizations.

The process is characterized by a constant flow of information among the various participants with regard to activities and decision-making within their respective units. This communication gives insight to the various planning determinations which, in the aggregate, provide a profile of statewide activities, needs and demands.

A legislative vehicle which provides all the various governmental agencies having environmental and jurisdictional responsibility with knowledge that a particular Federally funded project is underway is the A-95 Project Notification and Review System. This procedure requires interdepartmental communication and was initiated by the Federal Office of Management and Budget. The reasoning behind the establishment of this review system is the reduction in conflicts in plans of the many agencies.

(1) Other State Departments

The Department's plans are developed through close cooperation with other State Departments. Population and other socio-economic projections are obtained from the New Jersey Department of Labor and Industry. The preservation of environmentally sensitive areas such as parklands, Wetlands, CAFRA and the Pinelands, as well as the identification of air and water quality problem areas, are

coordinated through the New Jersey Department of Environmental Protection. Coordination is also maintained with the New Jersey Department of Community Affairs which authored the State Development Guide Plan for land use development.

(2) Metropolitan Planning Organizations

Currently, there are seven urbanized areas in the State where the requirements of section 134 of the Federal Aid Highway Act of 1962 apply. These areas are represented by six Metropolitan Planning Organizations (MPOs) which are designated by the Governor as the agency responsible for carrying out the transportation planning process (see Figure 3).

In New Jersey, the MPOs cover a total area which encompasses about 85% of the population of the State. The MPOs vary widely in size and character from the complex multi-state/county agency of the Tri-State Regional Planning Commission to several smaller agencies which cover only a portion of one county.

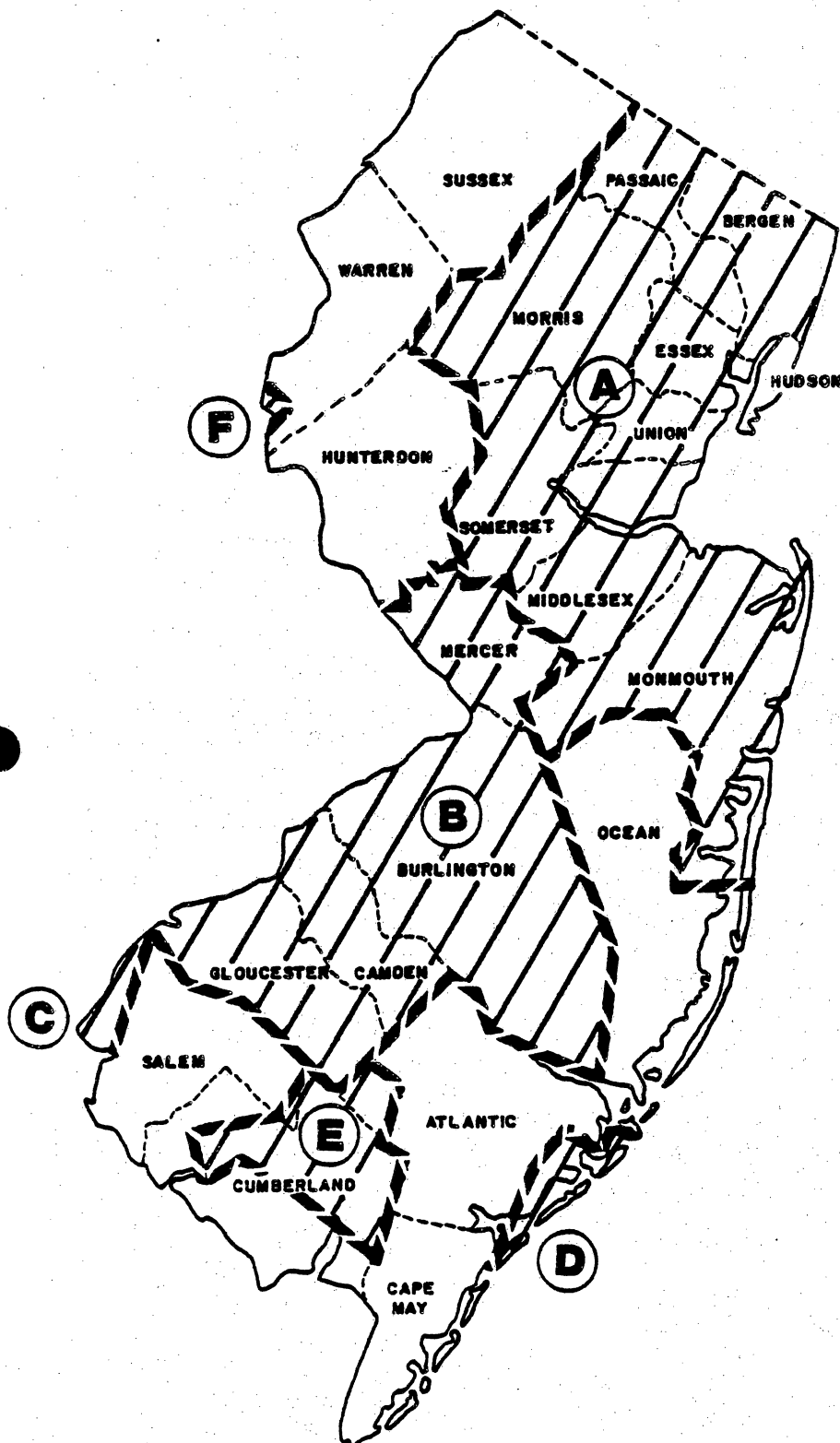
Among the requirements of the Act is a mandate that the process be a coordinated effort between Federal, State and local officials. The Act and implementing regulations define specific roles and responsibilities which are to be assumed by each participant in the planning process.

The Metropolitan Planning Organization in each urbanized area has been organized to prepare area-wide plans on behalf of their member counties and cities. Policy and technical advisory committees are usually appointed by these agencies to carry out their work and fulfill Federal-aid requirements. Policy committees generally include elected officials (or their designated representatives) at the State, county and municipal levels.

The Federal agencies involved are also represented in a non-voting capacity. Technical guidance and identification with the local character of the area is provided by technical advisory committees. In addition to technicians representing the various local governments, their membership can involve representatives of transit operators, other planning agencies and in some instances, representatives of special interest groups and citizen representation.

The day-to-day activities in the two largest areas (Tri-State and Delaware Valley Regional Planning Commissions) are carried out by independent Commission staffs located in New York City and Philadelphia, respectively. Technical work in the other four MPOs is performed jointly by New Jersey Department of Transportation and local staff. To supplement the technical work of the MPOs while at the same time providing a more detailed analysis of local needs, subregional transpor-

NEW JERSEY URBAN AREA PLANNING STUDY AGENCIES



- A. Tri-State Regional Planning Commission - TSRPC (Also area for the Northeast N J Transportation Coordinating Committee NENJTCC)
- B. Delaware Valley Regional Planning Commission - DVRPC
- C. Wilmington Metropolitan Area Planning Coordinating Council (Salem County Urban Area Transportation Study) - WILMAPCO
- D. Atlantic City Urban Area Transportation Study - ACUATS
- E. Cumberland County Urban Area Transportation Study - CCUATS
- F. Phillipsburg Urban Area Transportation Study - PUATS

FIGURE 3

tation planning units have been established within each MPO. These units have been formed essentially along county jurisdictional lines and are staffed by county personnel.

An outgrowth of the subregional planning concept is the formation of Transportation Coordinating Committees (TCCs) for subregional planning groups. These committees in effect serve as advisory groups to the subregional planning units and county governments by providing a forum for local governmental officials as well as private operators, interest groups and citizens to discuss transportation issues. The Tri-State Regional Planning Commission has expanded this concept by forming a regional Northeast New Jersey Transportation Coordinating Committee. This committee, which contains representation from all of the New Jersey counties included in the Tri-State region, serves, by delegation, as an extension of the Tri-State Commission on issues which affect New Jersey.

(3) Authorities and Commissions

New Jersey has several authorities and commissions which are either directly responsible for the construction and maintenance of transportation facilities or for the development of specifically defined geographic areas which will impact the transportation system. Cooperation with these agencies is essential to the overall development of a statewide transportation plan.

With the exception of the Palisades Interstate Park Commission, those agencies which directly administer transportation facilities were created by statute as bodies politic and corporate and as such are independent bodies with the power to issue bonds to support projects of valid public purpose as provided in their respective statutes. They are not, in any way, subject to the direct control, direction or leadership of the Commissioner of Transportation. However, the Governor, by law, is granted veto power over several of the agencies' actions and looks to the Transportation Commissioner for advice in performing this function.

The New Jersey Turnpike Authority was created by the State Legislature in 1948. Its primary function was to build a 118 mile turnpike from the Delaware Memorial Bridge, connecting Delaware and New Jersey, to the George Washington Bridge, connecting New York and New Jersey. Construction of the initial designated section began in 1949 and ended in early 1952 when the turnpike was opened to traffic. Subsequent additions included an eight mile spur from the vicinity of Newark Airport to the Holland Tunnel (1956), a spur connecting the turnpike in the vicinity of Bordentown with the Pennsylvania Turnpike (1956), and a ten mile westerly spur to Route 46 in Ridgefield (1970).

The New Jersey Highway Authority was created by the State Legislature in 1952. Its primary function was to complete the construction of the proposed Route 4 Parkway, which has since been changed to the Garden State Parkway, from Paramus to Cape May. Because of earlier legislation, four small sections of the original designated Parkway were constructed by the State Highway Department. These sections remain toll-free today under the jurisdiction of the Department of Transportation.

The entire length of the originally designated Parkway was opened in July 1955. In 1956, the Authority entered into an agreement with the New York State Thruway Authority for the construction of a link between the two toll facilities. In August, 1957, a nine mile extension from Paramus to Suffern was opened.

The New Jersey Expressway Authority was created by the State Legislature in 1962. This Authority was created to construct the Atlantic City Expressway from Route 42 at Turnersville in Camden County to its eastern terminus in Atlantic City. The Expressway, which spans a distance of 44 miles, was completed on July 31, 1965.

The Palisades Interstate Park Commission was established by compact between the states of New York and New Jersey in 1937. The Commission administers the Palisades Interstate Park which extends along the west shore of the Hudson River from Fort Lee, New Jersey into New York State. A major toll-free thoroughfare, the Palisades Interstate Parkway, goes through the Park and is administered by the Commission.

The Delaware River Joint Toll Bridge Commission was established in 1934 by agreement between New Jersey and Pennsylvania. This Commission was created to take over operation of joint State-owned bridges north of the Pennsylvania Railroad Bridge at Trenton. In addition, the Commission was authorized to construct new bridges. In 1947, a supplemental agreement enlarged the Commission's jurisdiction to include the area as far south as the boundary line between Mercer County and Burlington County. The Commission was authorized to replace existing bridges at such locations as it might determine and to construct necessary approach highways. A supplemental compact in 1953 authorized the Commission to construct and operate Port and Terminal facilities north of the Philadelphia-Bucks County Line.

The district of jurisdiction in New Jersey includes all of Sussex, Warren, Hunterdon and Mercer Counties plus that part of Burlington County north of the Rancocas Creek.

The Commission presently operates 18 bridges, 5 of which are toll bridges and the remainder of which are free.

Burlington County Bridge Commission - The Burlington County Bridge Commission was created when the Burlington-Bristol Bridge Company purchased the outstanding stock

of the Tacony-Palmyra Bridge Company. Subsequently, the Burlington-Bristol Bridge Company was bought by the Burlington County Bridge Commission in October of 1948, created by an act of the New Jersey Legislature. The Commission owns and operates two interstate toll bridges, namely the Burlington-Bristol Bridge, connecting Burlington, New Jersey with Bristol, Pennsylvania; and the Tacony-Palmyra Bridge, connecting Tacony, Pennsylvania with Palmyra, New Jersey.

Cape May County Bridge Commission - The Cape May County Bridge Commission was created by an act of the New Jersey Legislature in February of 1934. The Commission presently operates eight facilities in Cape May County: five toll drawbridges, one free drawbridge and two fixed bridges.

Delaware River and Bay Authority - The States of Delaware and New Jersey entered into a compact in 1961 creating the Delaware River and Bay Authority. The Authority was created as a body politic and an agency of Government of both States.

The purposes for its creation are the planning, financing, construction and operation of crossings with appropriate connections between the two States, across the Delaware River or Bay at any location south of the boundary line between Delaware and Pennsylvania as extended across the Delaware River to New Jersey. Also the planning, financing, construction and operation of any transportation or terminal facilities within those same areas is a concern of the Authority.

The facilities operated by this Authority include the Delaware Memorial Bridge and the Cape May-Lewes Ferry.

Port Authority of New York and New Jersey - The Port of New York Authority finds its origins in the Interstate Compact of 1921, "For the Creation of the Port of New York District and the Establishment of the Port of New York Authority for the Comprehensive Development of the Port of New York."

Under the bi-state compact, the Port Authority is charged with two major responsibilities: "To purchase, construct, lease and/or operate any terminal or transportation facility within said (port) district and to promote the commerce of the port and to protect it from inequitable transportation charges and practices."

The Port District covered by the compact lies within boundaries located by connecting specific points of known latitude and longitude. The District includes all or parts of 9 counties in northeastern New Jersey.

Transportation facilities currently owned and operated by the Authority includes:

Airports and Heliports

- John F. Kennedy International Airport

- Newark International Airport
- La Guardia Airport
- Teterboro Airport
- Port Authority-West 30th Street Heliport
- Port Authority - Downtown Heliport

Marine Terminals

- Elizabeth - Port Authority Marine Terminal
- Port Newark
- Hoboken - Port Authority Marine Terminal
- Brooklyn - Port Authority Marine Terminal
- Erie Basin - Port Authority Marine Terminal
- Port Authority Grain Terminal and Columbia Street Pier

Rail Facilities

- Port Authority Trans-Hudson (PATH) System

Terminals

- The World Trade Center
- Port Authority Bus Terminal
- Port Authority Building
- New York Union Motor Truck Terminal
- Newark Union Motor Truck Terminal

Tunnels and Bridges

- George Washington Bridge
- Bayonne Bridge
- Goethals Bridge
- Outerbridge Crossing
- Holland Tunnel
- Lincoln Tunnel

Delaware River Port Authority - The Delaware River Port Authority was created in 1951 by compact between the Commonwealth of Pennsylvania and the State of New Jersey. It replaced the Delaware River Joint Commission which originated in 1932.

The "Port District" includes the counties of Delaware and Philadelphia in Pennsylvania and the counties of Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean and Salem in New Jersey.

The facilities currently operated by the Delaware River Port Authority include:

- Walt Whitman Bridge
- Benjamin Franklin Bridge
- Lindenwold-Philadelphia Rapid Transit Line (PATCO)
- Betsy Ross Bridge
- Commodore Barry Bridge

Hackensack Meadowlands Development Commission - The Hackensack Meadowlands Development Commission was created by the New Jersey Legislature in 1969 by the passage of the Hackensack Meadowlands Reclamation and Development Act and was given the responsibility for regulating development within the Hackensack Meadowlands District. The District consists of 19,730 acres of largely undeveloped tidal salt meadow and marsh and takes in parts of 14 municipalities (Carlstadt, East Rutherford, Little Ferry, Lyndhurst, Moonachie, North Arlington, Ridgefield, Rutherford, South Hackensack, and Teterboro in Bergen County and Jersey City, Kearny, North Bergen and Secaucus in Hudson County).

Pinelands Commission - The Pinelands Commission, created in June, 1979, by the New Jersey Legislature, is charged with preparing for the pinelands area a comprehensive management plan which will strive to preserve and maintain the essential character of the existing pinelands environment, protect and maintain the quality of surface and ground waters, promote the continuation and expansion of agricultural and horticultural uses, discourage piecemeal and scattered development and encourage appropriate patterns of compatible residential, commercial and industrial development, in or adjacent to areas already utilized for such purposes.

c. Continuing

Transportation planning is a process which operates in an everchanging atmosphere. Data on which planning is based as well as the mechanics of the process itself are

constantly changing. Therefore, once a transportation plan is developed, the planning process does not come to a halt.

Long-range planning, at best, can only approximate future development. Therefore, in order to keep abreast of the State's activities and to maintain its transportation plan, an orderly, continuing planning procedure is followed. Basically, the process consists of two parts which are distinct but closely related, i.e. surveillance and evaluation.

Surveillance is the observation of current or emerging parameters which may affect the plan as well as the use of the transportation system. In addition, the planning process must be closely monitored for its effectiveness and possible revision because of newly adopted Federal or State policies. Finally, transportation planning must keep abreast of ongoing research efforts and possible changes in the state-of-the-art of moving people and goods.

Evaluation is the process of quantifying the implications of the surveillance phase as well as the responsiveness of the plan to accomplishing its mission.

4. STATE TRANSPORTATION PROGRAMS

The New Jersey Department of Transportation administers numerous programs which address the needs for surface transportation. The following provides a brief synopsis of the purpose and content of these programs.

a. Highways and Streets

The Department of Transportation is generally responsible for highways of interstate, statewide and regional significance. Through its various functional units, the Department plans improvements to existing facilities or proposes new ones, designs or administers design contracts, administers construction contracts and operates and maintains all legislated state highways. In addition, the Department reviews and approves plans of local government for construction of local roads receiving Federal and State aid.

New Jersey has an excellent highway safety record to maintain. For the past four years, New Jersey has led the US as the safest state when considering highway fatalities per hundred million vehicle miles of travel. Highway safety is a major concern of the Department because it mirrors the performance and dependability of the highway system. Highway safety is a function of the design, construction, maintenance and operation of highways.

(I) State Highways - Construction

There are currently over 2200 miles of highway and streets in the State Highway System. The majority of funds for highway construction and improvement comes from Federal-funding programs. Consequently, the highway system is stratified into various funding systems which form the basis for the highway construction program. These systems include the Federal-Aid Interstate, Consolidated Primary, Urban System, Rural Secondary, and non-Federal aid roads. Although some of these systems include other than State highways, the programs are administered by the State Department of Transportation.

Interstate System

The basic National System of Interstate and Defense Highways was established in the Federal Aid Highway Act of 1956. The original system was limited to 40,000 miles nationwide. However, the system was subsequently expanded to its current total of 42,500 miles.

The intent of the system was to establish a network of routes of highest importance to the nation, which interconnect as directly as practicable the principal metropolitan areas, cities and industrial centers, including important routes into, through and around urban areas, serve the national defense and, to the greatest extent possible, connect at suitable border points with routes of continental importance in Canada and Mexico.

The designated Interstate System in New Jersey presently totals 416.8 miles. However, certain segments of the system are controversial and are being studied for possible de-designation. The 1978 Surface Transportation Act specifies that all environmental impact studies must be completed by September 30, 1983. The act also specifies that the uncompleted portions of the Interstate System, as well as substitution highway or public transit projects, must be under contract for construction or construction must have commenced by September 30, 1986.

Consolidated Primary System

The Federal-Aid Consolidated Primary Highway System (FAP) consists of connected main roads important to interstate, statewide and regional travel, and includes rural arterial routes and their extensions into or through urban areas. This system was authorized by the Federal-Aid Highway Act of 1976 by combining the previously authorized Rural Primary, Urban Extension and Priority Primary into one system. The majority of State highways in New Jersey are on the Primary System.

Urban System

The Federal Aid Urban System (FAUS) was first authorized by the Federal-Aid Highway Act of 1970. The system was modified and extended by the Federal-Aid Highway Act of 1973. This system consists of high traffic volume arterial and collector routes serving the major centers of activity in urban areas of the State. The majority of routes on the Urban System are under county or municipal jurisdiction, but a number of State highways serving urban areas are also included.

Rural Secondary

The Rural Secondary System was first authorized as the Federal-Aid Secondary System (FAS) in 1944. Its definition was modified in the Federal-Aid Highway Act of 1973 to apply only in rural areas. This system consists of important intra-county rural routes which link the smaller rural communities with the Consolidated Primary System. Although there are some State highways included, the majority of routes on this system come under county jurisdiction.

100% State

Although every effort is made to maximize the use of Federal funds in accomplishing highway improvements in New Jersey, there are unavoidable instances in which needed improvements are not eligible for Federal aid.

These may be small-scale projects which do not warrant the administrative cost of securing Federal aid or which are too urgent to postpone while the complex project development process necessary to qualify for Federal aid is undertaken. They may also be individual projects, or specific features of larger Federal-aid projects, which do not qualify for Federal participation, but which are needed due to specific circumstances unique to each project.

(2) Operation and Maintenance of State Highways

The Department of Transportation is responsible for the maintenance and improvement of roads and bridges including snow removal and ice control; the maintenance and installation of all devices used for the guidance, control, regulation and safety of traffic on the highway system; servicing and installing traffic signals, highway lighting, directional and regulatory signs; application and maintenance of pavement markings; operating and servicing the equipment on movable bridges; and purchasing and maintaining the vehicle fleet.

Roadway Resurfacing Projects

Each year, a pavement priority list is prepared by the Bureau of Maintenance. Each project on the list is ranked according to its present condition. The following factors, in order of importance, are used to arrive at the final condition rating of a roadway resurfacing project:

- the number of accidents that have occurred on the given roadway section in the past year.
- a structural rating based on the condition of the pavement as determined by inspection.
- the pavement roughness.
- the skid numbers of the given roadway section based on tests performed by the Division of Transportation Operations and Local Aid.

The number of projects on the pavement priority list that are resolved each year is determined by the funds allocated to the resurfacing program. Because of limited funds, roadway resurfacing projects have been deferred, and the New Jersey Department of Transportation now has a large backlog of such projects.

Bridge Repair and Replacement

The bridge repair and replacement program is one that has taken on increased significance in recent years. New Jersey has over 2200 bridges on its State Highway System, many of which were constructed prior to World War II. Consequently many of these bridges are in need of replacement or rehabilitation.

The problem of unsafe bridges is not unique to New Jersey. This was recognized by Congress when it established a special bridge repair and replacement program under the Federal-Aid Highway Act of 1970. This program has been extended and amplified in subsequent revisions to the Highway Act.

In addition to bridges on the State Highway System, the Department of Transportation is responsible for 518 railroad bridges on its commuter railroad system and on rail lines acquired under the 900-day option.

(3) Highway Safety

This program category includes all projects funded from the smaller, special purpose Federal-aid apportionments and allocations.

These projects are of a diverse nature and are usually for localized, small-scale improvements. Some examples of the Federal-aid categories included in this portion of the program are:

- Safer Off-System Roads: This program provides a limited amount of Federal funds for projects for the construction, reconstruction and improvement of toll-free roads which are not on any Federal-Aid system.
- Elimination of Roadside Obstacles: This program provides Federal funds for projects on any Federal-Aid system except Interstate, for the elimination or shielding of roadside obstacles which may constitute a hazard to vehicles and to pedestrians.
- High Hazard Locations: This program provides Federal funds for projects on any Federal-Aid system except Interstate for the reduction of hazards at locations having a demonstrated high-accident experience or potential. Projects may include intersection improvements, modification of roadway cross-sections, pavement skid treatments and alignment changes.
- Rail/Highway Crossings (Safety): This program provides Federal funds for the improvement of rail/highway crossings through installation of signs and markings, installation of train-activated warning devices, crossing illumination, crossing surface improvements and separations or relocation to eliminate grade crossings.

(4) Bicycle Transportation and Pedestrian Walkways

This program provides for the construction of bikeways and pedestrian walkways and provides an alternate mode of transportation and/or recreational opportunities on selected routes. The Department utilizes the Federal funds available for independent bikeways and walkway projects along Federal-Aid highways. Projects requested by local officials are usually funded by Urban System funds, designated for their urbanized areas.

In addition to the program of independent projects, bikeways and walkways will be included as incidental items of construction on future highway improvement projects whenever such facilities might serve as adjuncts or parts of the regional bicycle and pedestrian travel network.

(5) Local Government Aid

New Jersey has approximately 30,000 miles of roads under the jurisdiction of the county and municipal governments. Only 7,000 miles are currently eligible for Federal aid.

Prior to 1974, the Department administered a State Aid Road Program which has since been discontinued for lack of funds. Since that time, the only significant outside source of financial support to counties and municipalities has come from Federal-aid and State matching funds.

The most significant programs administered by the New Jersey Department of Transportation, which provide financial aid for the improvement and reconstruction of local roads, are the Urban Systems Program and the Rural Secondary Program. The State Department of Transportation administers these programs in accordance with Federal legislation and must review and approve all plans for construction.

b. Public Transportation

The Department of Transportation has a program to maintain and improve the State's public transportation services. The program provides operating assistance funds to bus companies and the commuter railroads to maintain existing levels of service. A far-reaching program of capital improvements involving purchase of new buses and commuter rail equipment is underway. Railroad rights-of-way are being acquired, tracks and signals upgraded, and several lines are to be fitted with increased electric power capacity.

Safety and convenience to the public is recognized in this program. Included are new parking facilities for bus and rail riders, elimination or improvement of hazardous grade crossings, and the redesign of terminals and stations to provide accessibility for the elderly and handicapped.

(1) Operations and Maintenance Program

The Department administers a program to provide funds to private bus operators and the Consolidated Rail Corporation (ConRail) for essential public transportation services. In 1979 this program amounted to over \$140 million in State and Federal grants to maintain transit services.

The New Jersey Transit Corporation may contract with any transit operator for specific routes, frequency of service and fare charged. Maintenance of State-owned equipment and facilities by the operators is also covered by contract. The Corporation may authorize new services to meet the changing travel needs of the public.

In order to manage these transit operations efficiently, there is a program to standardize accounting practices among the carriers. A method to accurately monitor passenger trends in order to respond quickly to shifts in travel patterns is under development. The marketing of transit services is now begun in the Department. All programs include the active participation of the public as advisors to management of these increasingly vital transportation services.

(2) Bus Program

The Department continues to purchase new transit and suburban buses in order to replace the aging equipment of the State's private operators. Shortly, the State will own over 2800 buses representing 75% of the buses operated by the carriers. These vehicles are air-conditioned to improve comfort and encourage the use of public transportation service.

In order to insure that these buses are maintained properly, maintenance facilities will be modernized. New fare collection equipment will be installed in buses which will provide more accurate accounting of receipts.

Transit and commuter buses will be equipped with two-way radios. This will greatly assist the dispatching of vehicles and provide an added measure of security for drivers and patrons.

(3) Commuter Railroad Program

The State purchased from ConRail, railroad property used for commuter rail service. These properties include active passenger rail rights-of-way and stations, and excess properties not needed for freight service.

An extensive program of track and bridge upgrading is under way in order to bring the commuter lines up to standard operating speeds. Stations are being refurbished, and will be made more easily accessible for the elderly and handicapped.

New commuter cars and locomotives are being acquired. The commuter cars will all be air-conditioned and have higher seating capacity in order to move more people comfortably with fewer cars than are operated today.

The Morris and Essex and North Jersey Coast Lines will have the electric power system increased to 25,000 volts in order to permit the operation of these trains on the AmTrak Northeast Corridor. Track connections linking parallel lines will be constructed to provide greater access of trains to downtown Newark and New York City.

(4) Park-and Ride Program

In an effort to respond to the increased demand for parking facilities the Department is taking a more aggressive role in the expansion of existing park and-ride lots, as well as the establishment of new commuter parking facilities. This effort is aimed at diverting auto trips to mass transit, achieving fuel conservation, improving air quality, and rationalizing land development.

New Jersey has a number of park-and-ride facilities throughout the State serviced by both commuter rail and bus systems. Pooling does occur at various locations along State highway and interchanges. Also some pooling occurs at transit park-and-ride locations.

The responsibility for ownership and operation of park-and-ride facilities is defined on an individual basis. These facilities are owned and operated by a wide range of public and private entities.

The present fiscal climate limits State involvement in parking facilities to those Federal programs that permit the use of funds for that purpose. Consequently, the Department's role is basically limited to analyzing, coordinating and processing proposals for the expansion or construction of park-and-ride facilities.

(5) Paratransit Programs

The Department acquires station wagons and vans for non profit organizations to transport the elderly and handicapped. These State-owned vehicles are leased to organizations certified to provide these services.

A new program is underway to provide equipment and operating financial assistance for public transportation services operating in rural areas of the State. Private transit companies and paratransit operators will be encouraged to expand their services to reach potential riders that today are totally dependent on the automobile.

(6) Reduced Fare Program

This program provides for reduced fares on all interstate bus and rail routes and most routes into adjacent states to senior citizens 62 years or older and handicapped persons under the age of 62 to maintain their mobility. The hours of the program are weekdays, 9:30 am to 4 pm and from 7 pm to 6 am; Saturdays, Sundays and State Holidays, all day. There is also a special fare schedule for transfers. On transfers of 10 to 25 cents, half the transfer fare is charged; for 5 cent transfers, no transfer fare is charged. This program is funded from 100% State funds.

(7) Ridesharing Program

The Ridesharing Program was initiated in 1974 as part of the Emergency Highway Energy Conservation Act. The initial effort was a demonstration program for the purpose of conserving fuel, decreasing traffic congestion during rush hours, improving air quality and enhancing the use of existing highways and parking facilities. It is now a continuing program financed with funds administered through the Federal Highway Administration.

The program includes such measures as providing carpooling opportunities to the elderly and handicapped, systems for locating potential riders and informing them of convenient carpool opportunities, acquiring vehicles appropriate for carpool use, designating existing highway lanes as preferential carpool highway lanes, providing related traffic control devices, and designating existing facilities for use as preferential parking for carpools.

The Department is charged with the responsibility of educating, initiating, promoting and coordinating ridesharing activities with other agencies and potential users. New Jersey has the highest number of vanpools currently operating in the US and is considered nationally an innovative state in vanpooling. To date, over 300 companies have expressed an interest in the program. Forty-five companies have established vanpool programs with an additional 50 to 60 companies actively considering the idea.

5. FUNDING TRANSPORTATION

The funding of transportation programs is a complex issue and any effort to discuss the State's role in this process should be presented in the context of what part the State plays in the total funding picture.

There are many contributors to the funding of transportation: Federal-aid, State legislative appropriations, general obligation bonds, tolls, fares and/or a combination of these. Other governing bodies in the State (county and municipal) participate in the funding of transportation, but these are generally for systems under their respective jurisdictions.

a. Highways

There is some distinction to be made between highway improvement programs and highway funding programs. Improvement programs generally are categorized by similar types of work (reconstruction, drainage, bridge repair, etc.) and could be funded from

numerous funding programs. Highway funding programs generally are applicable to specific highway systems (Consolidated Primary, Urban Systems, 100% State, etc.) and various types of work are eligible for these funds. Therefore, a program may be comprised of more than one fund and a fund may be used in more than one program. The following sections discuss funding in terms of the fund source.

Federal Highway Programs

By far, the primary source of funds for highway and street programs in New Jersey comes from the Federal government. Since 1916, the Federal government has distributed substantial funds among the states for highways. These amounts increased considerably when the National Highway Trust Fund was created in 1956. Apportionment of Federal-Aid Highway funds to New Jersey over the past several years for the major highway programs is shown in Table 1.

Federal highway funds are generally allocated to the states by program category based on specific and sometimes complex formulae. However, there are some instances where specific funding programs are discretionary and are distributed on an application basis. For the Interstate system, apportionments are determined by need for funds to complete the system in each state.

To be eligible for Federal highway funds, a facility must generally be on a designated Federal-Aid Highway System and meet specific deficiency criteria. The principal systems are the Interstate System, Consolidated Primary, Federal-Aid Urban and Rural Secondary Systems. There has, in recent years, been some attempt at the Federal level to provide Federal funds for off-systems improvements. However, these funds are generally for bridges, low-cost safety-type improvements, transit and paratransit.

With a few exceptions, the Federal Government does not pay for the entire cost of constructing or improving Federal-aid highways. Federal funds are normally "matched" with State and/or local government funds to account for the necessary dollars to complete the project. Table 2 identifies the major Federal-funding programs and the Federal share of payment.

Congress recognizes that, in some cases, it is impossible to arrive at the correct amount of funds for each program within a state. Consequently, in order to provide the states with some flexibility in meeting their highway needs, Federal law permits transfers to be made among certain program funds.

Of significant importance in recent years are the provisions for certain types of transit and paratransit in some categorical Federal highway funds. This provision got its

TABLE 1

APPORTIONMENTS OF FEDERAL-AID HIGHWAY FUNDS

NEW JERSEY

1957-1979

FEDERAL FUNDS APPORTIONED (fiscal year)	INTERSTATE	PRIMARY	URBAN	SECONDARY	RURAL PRIMARY	URBAN SYSTEMS	RURAL SECONDARY	PRIORITY PRIMARY	TRANS- ITION QUARTER	CONSOL- IDATED PRIMARY
1957	\$ 25.663	\$4.828	\$ 8.968	\$1.622	\$ --	\$ --	\$ --	\$ --	\$ --	\$ --
1958	37.236	5.481	8.357	1.719	--	--	--	--	--	--
1959	47.909	6.127	8.563	1.747	--	--	--	--	--	--
1960	80.496	5.463	9.857	1.905	--	--	--	--	--	--
1961	57.666	4.545	9.825	1.889	--	--	--	--	--	--
1962	70.080	4.818	9.669	2.007	--	--	--	--	--	--
1963	62.402	6.036	9.960	2.181	--	--	--	--	--	--
1964	66.588	5.873	10.038	2.014	--	--	--	--	--	--
1965	68.799	6.074	10.250	2.108	--	--	--	--	--	--
1966	71.710	5.927	10.608	1.951	--	--	--	--	--	--
1967	76.929	5.933	10.581	1.960	--	--	--	--	--	--
1968	87.540	5.995	10.624	1.994	--	--	--	--	--	--
1969	97.691	5.730	10.608	2.483	--	--	--	--	--	--
1970	108.898	6.593	11.639	2.201	1.006	--	0.335	--	--	--
1971	108.345	6.616	11.580	2.228	1.010	--	0.339	--	--	--
1972	100.700	6.829	11.559	2.426	1.042	4.909	0.369	--	--	--
1973	111.893	8.758	11.559	1.456	1.042	4.909	0.370	--	--	--
1974	69.728	--	12.005	--	7.875	31.108	2.865	2.472	--	--
1975	83.328	--	12.779	--	7.875	31.821	2.969	4.995	--	--
1976	82.558	--	12.419	--	8.607	31.906	3.295	7.413	30.235	--
1977	86.425	--	--	--	--	32.152	2.901	--	--	24.142
1978	89.056	--	--	--	--	32.152	2.881	--	--	24.098
1979	69.449	--	--	--	--	32.234	3.489	--	--	22.243

Note: All amounts in millions of dollars

Source: NJDOT

TABLE 2
FEDERAL HIGHWAY FUNDING PROGRAMS

<u>FUND</u>	<u>FEDERAL SHARE (%)</u>
ADVANCED RIGHT OF WAY	Var
BIKEWAY PROGRAM	75
BRIDGE REPLACEMENT	80
CONSOLIDATED PRIMARY (FAP)	75
DEFENSE ACCESS	Var
ECONOMIC GROWTH CENTER HIGHWAYS	75
ELIMINATION OF ROADSIDE OBSTACLES	90
EMERGENCY RELIEF	75 or 100
HIGH HAZARD LOCATIONS	90
HIGHWAY PLANNING RESEARCH	80
INTERSTATE (FAI)	90
JUNKYARD CONTROL	75
LANDSCAPE	100
METROPOLITAN PLANNING	80
OFF-SYSTEM ROADS	70
PAVEMENT MARKINGS	100
PUBLIC WORKS	100
RAIL HIGHWAY CROSSINGS	90
RURAL SECONDARY (FAS)	75
SAFER ROADS	90
SAFER ROADS-OFF SYSTEM	75
TRAFFIC SIGNAL DEMONSTRATION PROGRAM	100
URBAN SYSTEMS (FAUS)	75

Source: FWHA

start with the Federal-Aid Highway Act of 1973 and has been expanded in the 1978 Surface Transportation Act.

Legislative Appropriation

New Jersey's highways and streets program receives some of its funding through annual appropriations by the Legislature from the general funds of the State Treasury. In recent years, these funds have generally been directed to provide the match for Federal highway programs and to fund certain specific projects which do not qualify for Federal-aid. New Jersey has been unable to match all of the Federal money it is eligible for since 1975. For Fiscal Year 1979, the total State appropriation for the Highway Program is \$67.5 million.

New Jersey is one of only a few states that follow the policy of financing its highways from general fund appropriations. Most states have adopted a policy of earmarking all, or a substantial share, of the funds collected from motor fuel taxes, registration fees, drivers' licenses and similar charges for highway purposes to their respective highway or transportation programs. New Jersey currently collects about \$580 million per year in highway user taxes. Approximately 57% of this total (\$334 million) is returned to transportation use.

Although the State has provided some measure of financial assistance to local governments for road building since 1891, current state aid statutes were enacted in 1946. Although these statutes remain as the primary State aid programs, State aid, in general, has been discontinued since 1974. In recent years, the State's contribution to local road building efforts has generally been limited to providing the local matching share for some of the Federal-Aid Highway programs.

In recognition of the need for the best investment of the State's limited resources, the New Jersey Commission on Capital Budgeting and Planning was created in November 1975. This commission is an integral part of the State's budgetary process by acting in an advisory role to the Governor and Legislature. The Commission is charged with preparing the State's Annual Capital Improvement Plan and recommending the means by which capital projects should be funded. The Commission's recommendations to the Legislature form the basis of annual appropriations or other funding methods.

Bond Financing

Bond financing has played a part in the financing of transportation programs in the State. Bond issues in New Jersey must be approved by the voters in a general election. Prior to 1968, New Jersey sold several relatively small issues of State highway construc-

tion bonds. In 1968 the Transportation Bond Issue provided \$640 million for transportation programs, \$440 million for highways and \$200 million for public transportation.

The Legislature has approved a Transportation Bond Issue to be voted on in November, 1979. The proposal is for \$475 million, \$245 million for State highways and \$150 million for public transportation and \$80 million for local roads.

Toll Revenues

Highway toll facilities generate a sizeable amount of revenue in the State. These facilities are under the jurisdiction of the following authorities and commissions: the New Jersey Turnpike Authority, New Jersey Highway Authority, New Jersey Expressway Authority, Port Authority of New York and New Jersey, Delaware River Port Authority, Delaware River Joint Toll Bridge Commission, Delaware River and Bay Authority, Burlington County Bridge Commission and Cape May County Bridge Commission.

In total, these agencies accumulated approximately \$350 million in highway related revenues for 1977. However, these revenues are generally not available to public use facilities as they are dedicated to the construction, maintenance, operation and payment of debt service on construction bonds for facilities within their respective areas of jurisdiction.

b. Public Transportation

Government involvement in the financing of public transportation programs is relatively recent. In fact, the decade of the 1960s can be identified as the time when many transit properties went from private to public ownership. In keeping with the role of government, it was also a period when the primary objective of public transit switched from profit-making to that of providing community service similar to fire and police protection.

As with highways, the primary sources of public transit funds comes from Federal and State sources, with a limited amount coming from local governing bodies.

Federal Public Transit Programs

The Federal Government is the primary source of a variety of funds available to the public transit sector. The major funding source is the Urban Mass Transportation Administration (UMTA). The UMTA programs are generally available for capital expenditures, operating subsidies, planning and evaluation, research and demonstration, and miscellaneous programs. To a lesser extent, the Federal Highway Administration provides funds which can be used for capital improvements for public transportation (principally Federal-Aid Interstate and Urban System funds).

A significant difference between most Federal highway programs and public transit programs is that the former are generally allocated on a formula basis to the individual states whereas the latter are generally distributed to any number of applicants on a discretionary basis through grant application.

As with Federal highway programs, most Federal public transit programs require some measure of "local" match. The required match can come from State, county, municipal or public authority resources.

The following summarizes the Federal funding programs for public transportation. Table 3 shows the amount of monies New Jersey has been granted over the past several years from the major public transit funding programs.

UMTA Programs

- . UMTA Section 3 - A Grant Program for capital improvements to public transportation facilities in urban areas. Federal-local matching provisions are 80-20. These funds are available on a discretionary basis.
- . UMTA Section 5 - A formula based program for capital assistance and/or operating assistance projects in urbanized areas. Federal-local matching provisions are 80-20 for capital projects and 50-50 for operating assistance.
- . UMTA Section 6 - A Grant Program for research development and demonstration projects in all phases of urban mass transportation. Federal-local matching provisions are 80-20.
- . UMTA Section 8 - A program for planning and technical feasibility studies which is distributed on both a formula and grant basis (formula—cities having a population over 200,000; grant—cities having a population less than 200,000). Federal-local matching provisions are 80-20.
- . UMTA Section 16b(2) - A Grant Program to provide for the needs of the elderly and handicapped in urbanized areas. Only private non-profit organizations are eligible. Federal-local matching provisions are 80-20 utilizing UMTA Section 3 funds.

TABLE 3
FEDERAL FUNDS FOR PUBLIC TRANSPORTATION
NEW JERSEY
1965 - 1979

(in millions of dollars)

Fiscal Year	UMTA Section 3 (a) (e)	UMTA Section 5 (b) (e) (f)	Urban Systems (c) (g)	Interstate Transfers (d) (g)
1965	\$ 4.3	\$ --	\$ --	\$ --
1966	6.3	--	--	--
1967	0.0	--	--	--
1968	0.0	--	--	--
1969	0.0	--	--	--
1970	18.7	--	--	--
1971	1.0	--	--	--
1972	0.0	--	--	--
1973	43.8	--	--	--
1974	254.6	--	0.0	0.0
1975	0.0	13.1	0.0	0.0
1976	0.0	17.9	0.0	0.0
1977	54.8	25.6	0.0	0.0
1978	0.0	35.6	0.040	0.0
1979	0.0	52.7 (Projected)	0.369	0.0

(a) Urban Mass Transportation Act of 1964
as amended, Section 3 (49 USC 1602)

(b) Urban Mass Transportation Act of 1964
as amended, Section 5 (49 USC 1604)

(c) Federal-Aid Highway Act of 1973 (23 USC 142)

(d) Federal-Aid Highway Act of 1973 (23 USC 103)

(e) Refers to year of grant approval

(f) All of these monies to date have been granted for operating assistance

(g) Refers to authorized transfers only

Source: NJDOT

- UMTA Section 18 - A Grant Program which provides for public transportation services in small urban or rural areas. The Federal-local match provisions are 80-20 for capital items and 50-50 for operating costs.

FHWA Programs

- Section 142 - A Grant Program to encourage highway related projects which will further the use of bus mass transportation systems as well as a second category to encourage projects which will develop or improve public mass transit facilities or equipment. Federal-local matching provisions are 75-25.
- Section 147 - A demonstration Grant Program to encourage the development, improvement and use of public transportation systems in rural areas. Federal-local provisions are 100% Federal.
- Urban Interstate and transit substitution - A provision now allows states to substitute mass transportation projects for controversial and unwanted Interstate sections in urbanized areas over 50,000 population. The Federal-local matching provisions for such transfers are 85-15.
- Urban Systems (FAUS) - A provision allows the use of FAUS funds for public transit and paratransit projects. The Federal-local matching provisions are 75-25.

Legislative Appropriation

State Government in New Jersey plays a significant part in the funding of the State's public transportation systems and programs. This involvement began in 1961, when the State initiated a modest program of financial assistance to the commuter rail lines. Since that time, the State has assumed a heavy financial burden of owning and operating most of the State's commuter rail system and providing equipment and operating assistance to many of the State's bus operations.

Since the Transportation Bond Issue was passed in 1968, very little State money (other than Bond) has been legislated for capital improvements. The majority of legislated appropriations for public transit have gone toward the operation and maintenance of

existing rail and bus service. The State Legislature appropriated \$66.8 million for that purpose for Fiscal Year 1979.

Bond

As noted previously in the Section on Highway Funding, the 1968 Transportation Bond Issue provided \$200 million for improvements to the public transportation system. These monies have generally served as the primary source of State funds for capital improvements to the public transit system for the last decade. These transit monies have been virtually exhausted as less than \$48.5 million remains but is committed to public transit projects.

Fare Revenues

Transportation revenues are derived from fares charged on the State's public transit system of bus, commuter rail and rapid rail services. These revenues generally have been insufficient to cover the full cost of capital, maintenance and operations needs and have been augmented with funds from other sources. The State's bus and commuter rail system, as well as the Newark City subway, receive operating subsidies from annual State legislative appropriations. The PATH and PATCO rapid rail system's losses are offset by general revenues from the Port Authority of New York and New Jersey and the Delaware River Port Authority, respectively.

TRANSPAC

A recent innovation in funding public transit improvements in New Jersey developed through an agreement between the New Jersey Department of Transportation, the Port Authority of New York and New Jersey and the Urban Mass Transportation Administration. This agreement concerned a unique method of funding a \$600 million New Jersey statewide mass transit capital improvement program to preserve and improve existing bus and railroad passenger service.

The funds for this ambitious program, which is the single largest mass transit program in New Jersey's history, will come from two sources: \$120 million from the bridge and tunnel tolls collected by the Port Authority of New York and New Jersey and \$480 million Federal funding from the Urban Mass Transportation Administration.

C. TRANSPORTATION INVENTORY

New Jersey has an extensive, complex system of highways, rail and bus routes. Its population density, industrial activity, recreation opportunities and proximity to large metropolitan areas place great importance and demand on all of its transport modes. Consequently, the state of the State is closely related to the state of the transportation system.

I. HIGHWAYS

The first movement toward formalizing roads in New Jersey came in 1673 when the General Assembly of the Province of East Jersey passed its first Public Roads Act. Since that time, numerous additional acts and funding arrangements have occurred which have allowed the State, counties, municipalities and numerous public agencies to construct roadways in the State.

The State Highway System found its beginnings in 1912. At that time, the State Legislature recognized the need for an integrated system of State-built highways and consequently directed the State Highway Commission to establish a network of State Highway Systems which was not to exceed 1500 miles. Five years later, the Legislature spelled out the nucleus of today's State Highway System by designating 15 routes as the system.

Although the highway and street system in New Jersey had an apparently early beginning, the impetus for road building really occurred during the years following World War I. During that time, the automobile was coming into wider use, and the need for more and better highways grew. With the ever increasing dependence on the automobile and consequent need for driving space, the highway and street system in the State has grown significantly over the years.

System Extent and Jurisdiction

The highway system in New Jersey has grown to a reported total in 1978 of 33,077 miles. This network is divided into several general administrative groups: the State Highway System, county roads, municipal streets, toll roads and bridges, State forest, park and institutional roads and finally, National Park roads.

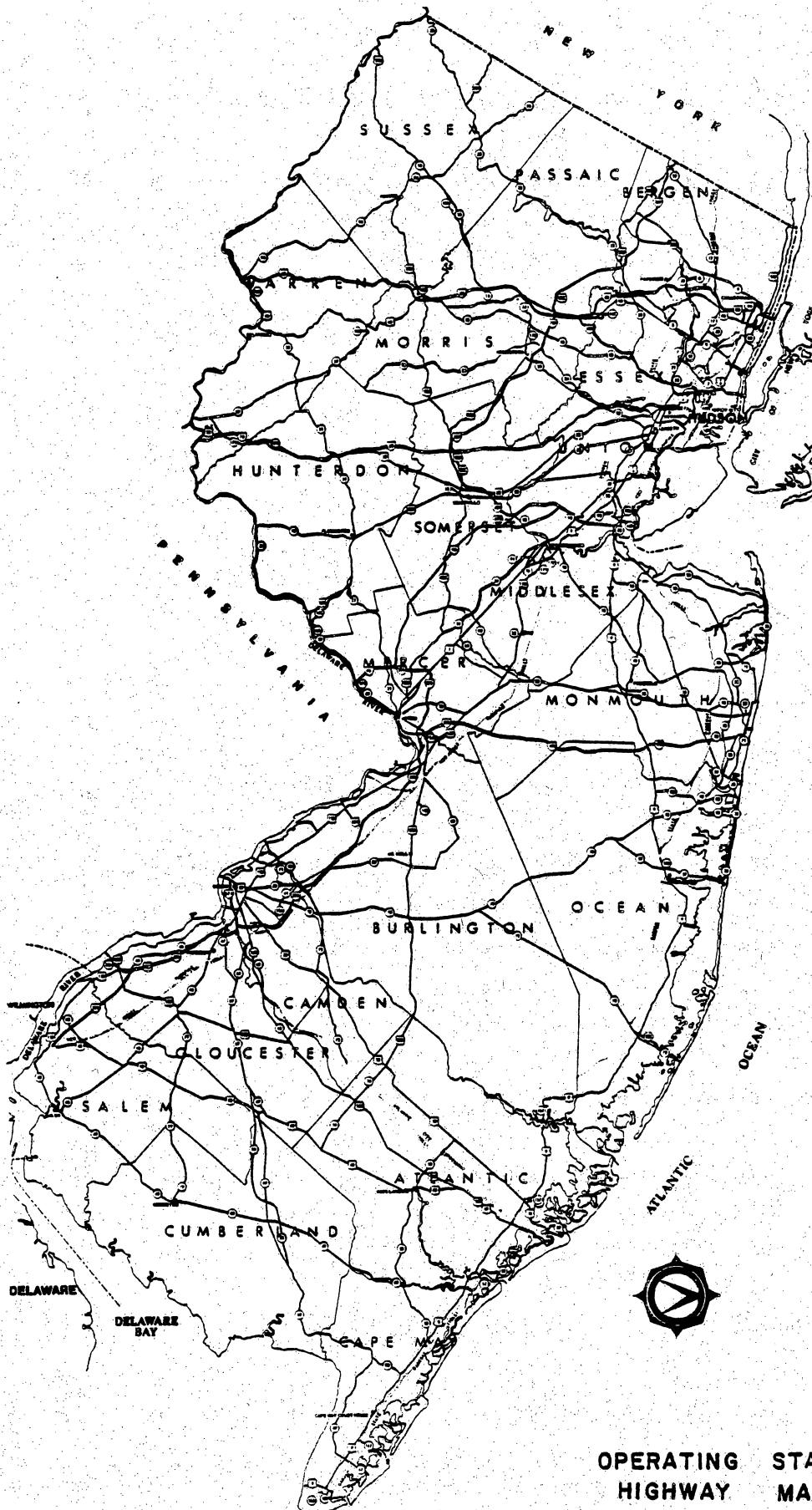
Table 4 details New Jersey's total road and street system by jurisdictional responsibility as well as county distribution. Figure 4 shows those highway facilities under state

TABLE 4
NEW JERSEY HIGHWAY MILEAGE BY SYSTEM*
as of JANUARY 1, 1978

	<u>County</u>	<u>State Hwys</u>	<u>County</u>	<u>Municipal</u>	<u>NJ</u>	<u>Garden</u>	<u>AC</u>	<u>Toll &</u>	<u>Total</u>
		<u>Operating</u>	<u>Roads</u>	<u>Roads</u>	<u>TPK</u>	<u>State Pkwy</u>	<u>Expwy</u>	<u>Others</u>	<u>Operating</u>
	Atlantic	146	368	1353	0	20	29	5	1921
	Bergen	102	445	2166	2	14	0	19	2748
	Burlington	153	499	1412	30	6	0	1	2101
	Camden	100	385	1238	9	0	14	3	1749
	Cape May	78	190	612	0	24	0	7	911
	Cumberland	84	551	585	0	0	0	0	1220
	Essex	59	225	1325	6	10	0	0	1625
	Gloucester	132	401	744	17	0	1	2	1297
	Hudson	26	119	431	44	0	0	4	594
	Hunterdon	114	253	781	0	0	0	0	1148
	Mercer	104	171	913	12	0	0	1	1201
	Middlesex	133	316	1546	27	8	0	1	2031
	Monmouth	187	397	1951	0	29	0	0	2564
	Morris	148	308	1717	0	0	0	0	2173
	Ocean	131	619	1565	0	36	0	0	2351
	Passaic	47	237	919	0	7	0	0	1210
	Salem	83	355	411	8	0	0	1	858
	Somerset	111	231	897	0	0	0	0	1239
	Sussex	111	301	850	0	0	0	1	1263
	Union	65	181	1152	7	2	0	1	1408
	Warren	103	251	605	0	0	0	3	962
	Total	2217	6803	23173	132	156	44	49	32574
						State Forest, Parks, Institutional Roads			490
							National Parks		13
							Total		33077

*in center-line miles

Source: NJDOT
 Transportation Planning & Research
 Bureau of Data Resources



OPERATING STATE
HIGHWAY MAP

FIGURE 4

jurisdiction. These are generally facilities of statewide or regional significance, carrying the higher volumes of traffic and longer distance trips.

Although extensive, New Jersey's highway and street system is relatively small when compared to other states. Table 5 provides a facilities density comparison between New Jersey and other selected states, as well as with the nationwide average. The indication is that New Jersey has significantly less miles per capita than is available to highway users in many other states and only one quarter of the nationwide average.

The intensity of use of New Jersey's system, however, is another matter. For the same comparisons, Table 6 indicates that the density of daily highway travel in the state is significantly higher than other states and approximately four times the nationwide average. In short, New Jersey has the most intensely utilized highway system in the nation. This of course, is not to be unexpected in a state which is the most densely populated in the nation, has relatively low miles per capita, has approximately 93% of all person-trips occurring by the automobile and has the ninth-highest number of automobile registrations in the nation.

Functional Classification

Functional classification is the assignment of roads and streets to various systems according to the character of service provided by each facility in its relationship to the total network. Although various functional systems have been devised, the systems fall into the two basic categories of "Access" and "Mobility". Access is provided by those facilities which provide accessibility to the land adjacent to the roadway. Mobility is provided by those roadways which connect the trip terminals. Rarely, however, do facilities serve either of these single functions. Almost all facilities serve as a compromise between these two extremes of service. Therefore, functional classification can be defined as a grouping of facilities into systems which describe the degree to which each group serves the two basic functions.

The New Jersey Department of Transportation has adopted the hierarchy of functional systems proposed by the Federal Highway Administration for use in the designation of Federal-Aid Highway systems, effective July 1, 1976. Table 7 details the current array of all functional systems in the state by urbanized, small urban and rural areas.

The extent to which New Jersey's highway system is utilized can also be exemplified through functional classification concepts. Relatively long average trip lengths, and the need for high operating speeds characterize the arterial facilities, while access roads and

TABLE 5
COMPARISON OF HIGHWAY SYSTEMS
SELECTED STATES
1976

<u>State</u>	<u>Total</u> <u>Center Line Miles</u>	<u>Center Line Miles</u> <u>Per 1000 Residents</u>
Florida	98,094	11.7
Illinois	133,559	11.9
NEW JERSEY	33,126	4.5
New York	109,419	6.1
Pennsylvania	116,880	9.9
South Carolina	61,294	21.6
US	3,857,356	18.0

Source: Highway Statistics 1976, FHWA
Table M-1, Pg. 95

TABLE 6
COMPARISON OF HIGHWAY TRAVEL DENSITY
SELECTED STATES
1976

<u>State</u>	<u>Center Line Miles</u>	<u>Total Daily Travel</u>	<u>Avg. Daily Travel Per Mile</u>
Florida	98,094	176,690,411	1801
Illinois	133,559	176,463,014	1321
NEW JERSEY	33,126	137,208,219	4142
New York	109,419	186,197,260	1701
Pennsylvania	116,880	191,147,945	1635
South Carolina	61,294	15,076,712	246
US	3,857,356	3,860,720,548	1001

Source: Highway Statistics, 1976
Tables VM-2, Pg. 31; M-1, Pg. 95

TABLE 7 FUNCTIONAL CLASSIFICATION* - Miles of Highway in New Jersey

URBANIZED

FUNCTIONAL SYSTEM	COUNTY TOTAL	INTERSTATE	PRINCIPAL ARTERIALS** 1	2	3	OTHER PRINCIPAL ARTERIALS*** 4	5	6	MINOR ARTERIALS	COLLECTORS	LOCAL
COUNTY											
ATLANTIC	695	0	18	0	0	2	34	16	74	57	494
BERGEN	2804	26	44	0	0	33	0	130	337	284	1950
BURLINGTON	962	17	15	5	0	0	46	36	124	63	656
CAMDEN	1469	18	15	3	0	0	47	46	215	143	982
CAPE MAY	97	0	2	0	0	2	1	5	13	6	68
CUMBERLAND	439	0	14	3	0	0	10	0	86	59	267
ESSEX	1642	26	21	1	0	5	2	98	194	158	1137
GLOUCESTER	667	9	12	4	0	0	14	22	99	45	462
HUDSON	616	22	10	0	0	3	0	34	102	56	389
HUNTERDON	0	0	0	0	0	0	0	0	0	0	0
MERCER	941	27	15	0	2	13	23	32	165	70	594
MIDDLESEX	1494	24	29	5	0	29	21	44	175	128	1039
MONMOUTH	1609	0	20	12	0	7	4	56	144	181	1185
MORRIS	1426	39	0	17	0	8	12	68	243	149	890
OCEAN	1029	0	15	0	0	10	25	46	74	90	769
PASSAIC	1090	12	14	0	10	12	0	70	150	91	731
SALEM	119	4	1	0	0	0	5	0	15	14	80
SOMERSET	900	36	0	0	0	6	33	9	130	93	593
SUSSEX	0	0	0	0	0	0	0	0	0	0	0
UNION	1442	20	12	3	0	6	11	36	175	117	1062
WARREN	146	2	1	0	0	3	1	4	16	10	109
TOTAL	19587	282	258	53	12	139	289	752	2531	1814	13457

* "FEDERAL AID HIGHWAY ACT OF 1973" - FEDERAL AID SYSTEMS REALIGNMENT - SEC. 148(d) - "FEDERAL-AID SYSTEM REALIGNMENT SHALL BE BASED UPON ANTICIPATED FUNCTIONAL USAGE IN THE YEAR 1980 OR A PLANNED CONNECTED SYSTEM."

** PRINCIPAL ARTERIALS (OTHER FREEWAYS AND EXPRESSWAYS)

1- CONNECTING LINK OF RURAL PRINCIPAL ARTERIALS

2- CONNECTING LINK OF RURAL MINOR ARTERIALS

3- OTHER

*** OTHER PRINCIPAL ARTERIALS

4- CONNECTING LINK OF RURAL PRINCIPAL ARTERIAL

5- CONNECTING LINK OF RURAL MINOR ARTERIAL

6- OTHER

Source: NJDOT; Effective July 1, 1976

TABLE 7 FUNCTIONAL CLASSIFICATION* - Miles of Highway in New Jersey (Cont'd)

SMALL URBAN

FUNCTIONAL SYSTEM	COUNTY TOTAL	INTERSTATE	PRINCIPAL ARTERIALS**			OTHER PRINCIPAL ARTERIALS***			MINOR ARTERIALS	COLLECTORS	LOCAL
			1	2	3	4	5	6			
COUNTY											
ATLANTIC	120	0	4	0	0	0	15	0	16	13	72
BERGEN	0	0	0	0	0	0	0	0	0	0	0
BURLINGTON	52	0	0	0	0	0	1	0	17	7	27
CAMDEN	0	0	0	0	0	0	0	0	0	0	0
CAPE MAY	0	0	0	0	0	0	0	0	0	0	0
CUMBERLAND	111	0	0	0	0	0	8	0	22	9	72
ESSEX	0	0	0	0	0	0	0	0	0	0	0
GLOUCESTER	0	0	0	0	0	0	0	0	0	0	0
HUDSON	0	0	0	0	0	0	0	0	0	0	0
HUNTERDON	0	0	0	0	0	0	0	0	0	0	0
MERCER	61	0	5	0	0	4	6	0	9	8	29
MIDDLESEX	26	0	0	0	0	3	2	0	7	0	14
MONMOUTH	137	3	3	0	0	5	3	3	16	6	98
MORRIS	0	0	0	0	0	0	0	0	0	0	0
OCEAN	0	0	0	0	0	0	0	0	0	0	0
PASSAIC	0	0	0	0	0	0	0	0	0	0	0
SALEM	22	0	0	0	0	0	2	0	3	4	13
SOMERSET	0	0	0	0	0	0	0	0	0	0	0
SUSSEX	112	0	0	0	0	0	4	1	32	11	64
UNION	0	0	0	0	0	0	0	0	0	0	0
WARREN	73	0	0	0	0	1	5	0	6	3	58
TOTAL	714	3	12	0	0	13	46	4	128	61	447

* SEE NOTE ON BOTTOM OF PAGE 45

*** OTHER PRINCIPAL ARTERIALS

** PRINCIPAL ARTERIALS (OTHER FREEWAYS AND EXPRESSWAYS)

1- CONNECTING LINK OF RURAL PRINCIPAL ARTERIALS

4- CONNECTING LINK OF RURAL PRINCIPAL ARTERIALS

2- CONNECTING LINK OF RURAL MINOR ARTERIALS

5- CONNECTING LINK OF RURAL MINOR ARTERIALS

3- OTHER

6- OTHER

Source: NJDOT; Effective July 1, 1976

TABLE 7 FUNCTIONAL CLASSIFICATION* - Miles of Highway In New Jersey (Cont'd)

FUNCTIONAL SYSTEM	COUNTY TOTAL	RURAL					
		INTERSTATE	PRINCIPAL ARTERIALS	MINOR ARTERIALS	MAJOR COLLECTORS	MINOR COLLECTORS	LOCAL
COUNTY							
ATLANTIC	1115	0	28	95	107	147	738
BERGEN	0	0	0	0	0	0	0
BURLINGTON	1120	8	21	89	194	92	716
CAMDEN	394	0	14	18	36	55	271
CAPE MAY	750	0	25	72	123	35	495
CUMBERLAND	761	0	0	34	122	79	526
ESSEX	0	0	0	0	0	0	0
GLOUCESTER	816	8	28	55	190	22	513
HUDSON	0	0	0	0	0	0	0
HUNTERDON	1219	20	40	24	182	124	829
MERCER	255	9	18	9	57	39	123
MIDDLESEX	725	0	26	16	56	94	533
MONMOUTH	1036	12	37	57	145	95	690
MORRIS	710	12	1	26	81	90	500
OCEAN	1145	10	23	63	152	96	801
PASSAIC	170	0	6	0	39	13	112
SALEM	707	5	7	54	119	59	463
SOMERSET	500	20	9	10	88	27	346
SUSSEX	1233	1	26	74	161	143	828
UNION	0	0	0	0	0	0	0
WARREN	768	27	17	43	98	100	483
TOTAL	13424	132	326	739	1950	1310	8967

*SEE NOTE ON BOTTOM OF PAGE 45

Source: NJDOT; Effective July 1, 1976

streets generally require relatively low operating speeds, and provide for trips of short duration. Table 8 indicates that with the exception of the Interstate system, which is yet to be completed, New Jersey's functional systems carry significantly more travel than those of most other states in addition to exceeding the nationwide average.

Federal-Aid Systems

The majority of funds for highway construction and/or improvements are provided through Federal Highway funding programs. To qualify for most Federal-Aid programs, facilities must be on a particular class of Federal-Aid Highway System; i.e. Federal-Aid Interstate, Consolidated Primary, Federal-Aid Urban and Rural Secondary. The Federal-Aid Highway Act of 1976 required that all Federal-Aid Highway systems be redesignated based on functional classification concepts. This action was accomplished through the cooperative action of Federal, State, county and municipal officials.

Figure 5 gives the current status of the Interstate System in New Jersey. Table 9 describes the extent of the Federal-aid systems in New Jersey, as well as a comparison with the nationwide total of all Federal-aid systems.

2. PASSENGER RAIL

Contrary to the growth in highways, passenger rail service in New Jersey has shown a steady decline in both facilities and service.

The extent to which passenger rail service has deteriorated in the State since its peak years is indicated in Figure 6. In 1950, all but one of New Jersey's 21 counties had rail service as the system totalled 1100 route miles. The system has since deteriorated to serve only 15 counties with a total mileage of less than 500 miles.

Currently, the system consists of 495 route miles of commuter rail service, carrying approximately 145,000 passengers per day as well as almost 33 miles of rapid transit service carrying approximately 190,000 passenger per day.

Commuter Rail

Commuter rail service got its beginning in New Jersey in the early 19th century with the first scheduled service being provided by the Camden and Amboy Railroad Transportation Company. Since that time, service and facilities grew steadily and seemed to reach a high point of activity during World War II. However, rail service generally began to decline after the war as more people shifted to the automobile, bus and airplanes for their transportation needs.

TABLE 8

1975 DAILY VEHICLE MILES OF TRAVEL PER LANE MILE

TOTAL URBAN AREAS

State	Interstate 1975	Other Prin Art 1975	Minor Arterial 1975	Major Collector 1975	Minor Collector 1975
Alabama	4784	5358	3743	2883	1705
Arizona	6979	2582	4270	2664	1438
Arkansas	5368	3812	3212	1590	713
California	10516	9642	4663	2856	1665
Colorado	6445	4194	3847	2261	1240
Connecticut	9175	4973	4604	3803	1724
Delaware	9457	0	5504	3469	2018
District of Columbia	11589	10465	5613	4116	2811
Florida	5570	4809	3667	2431	1117
Georgia	11134	4208	3915	3078	2051
Hawaii	10617	7842	6142	4507	2676
Idaho	2945	3000	3608	2233	1557
Illinois	10643	6439	4936	3385	2356
Indiana	6972	3021	4095	2632	1205
Iowa	4348	0	2692	1565	848
Kansas	4078	3636	2997	1811	909
Louisiana	6763	4706	4050	2985	1307
Maine	3852	2462	4189	2403	1270
Maryland	10688	6678	5676	4104	1977
Michigan	6716	4920	4863	3041	1671
Minnesota	10597	6247	3842	3002	1852
Mississippi	5015	1707	3108	2042	836
Missouri	6641	5211	3228	2139	1104
Montana	1147	0	3151	1518	1073
Nebraska	6979	6290	3348	2017	1035
Nevada	5372	3979	4366	2668	1720
New Hampshire	4324	4770	4636	2847	1310
NEW JERSEY	7178	9094	7286	4581	2574
New Mexico	4429	0	3056	2066	1410
North Carolina	7443	4467	3851	2251	1060
North Dakota	1901	0	3045	2165	1330
Ohio	7682	4288	3865	3157	2199
Oklahoma	6122	3159	2681	2510	783
Oregon	5614	7409	3795	2655	1620
Pennsylvania	8032	5255	5571	3651	1839
South Dakota	2192	3297	2702	1454	1552
Tennessee	9375	4718	3548	2734	1557
Texas	7105	6457	2818	1973	1081
Utah	6072	6202	3621	2809	2157
Vermont	3440	2238	3423	3264	808
Virginia	7674	5771	5126	3584	1882
Washington	7824	4385	3250	2057	1171
West Virginia	4548	3993	4378	2894	1599
Wisconsin	9078	4700	3788	2750	1132
Wyoming	1962	2193	2616	2098	1381
Puerto Rico	0	7151	7363	4433	2991
National	7871	6467	4190	2802	1574

Sources: Nat'l. Hwy. Inventory and Performance Summary, FHWA, Dec. 1977

TABLE 8 (Cont'd)

1975 DAILY VEHICLE MILES OF TRAVEL PER LAND MILE

RURAL

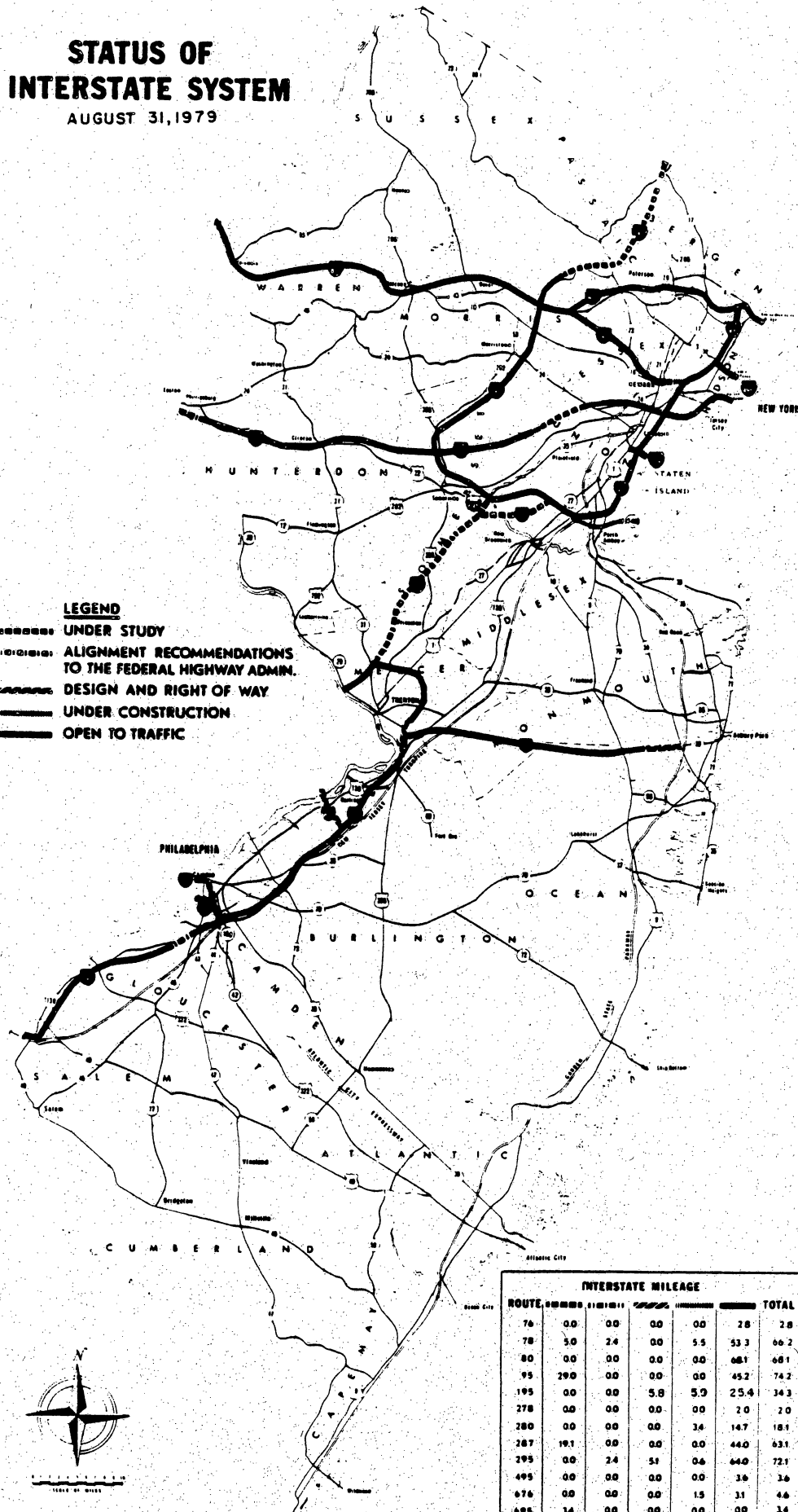
State	Interstate 1975	Other Prin Art 1975	Minor Arterial 1975	Major Collector 1975	Minor Collector 1975
Alabama	2056	1656	1058	470	152
Arizona	1947	1360	871	540	68
Arkansas	2975	1533	822	311	52
California	3029	2683	1052	821	479
Colorado	1821	1292	869	309	85
Connecticut	5299	2937	2035	1280	698
Delaware	7371	3387	1645	998	242
Florida	2339	1717	1290	564	203
Georgia	5803	1798	1211	573	172
Hawaii	4396	6295	1682	744	555
Idaho	1421	794	483	354	82
Illinois	2753	1193	1395	451	115
Indiana	3572	2560	1803	483	86
Iowa	2317	1322	659	201	48
Kansas	1511	1072	518	127	38
Louisiana	2750	1979	1670	711	266
Maine	2033	1662	1047	491	209
Maryland	5526	3449	2358	1181	395
Michigan	3019	1886	1341	495	244
Minnesota	2163	1158	640	210	84
Mississippi	1984	1655	953	276	125
Missouri	2969	1538	864	224	145
Montana	756	669	295	89	43
Nebraska	1950	894	501	105	37
Nevada	1258	971	347	109	24
New Hampshire	2299	2553	2046	873	300
NEW JERSEY	3818	4843	3701	1651	765
New Mexico	1484	932	373	216	103
North Carolina	3995	2078	1981	1167	379
North Dakota	792	679	327	80	30
Ohio	4395	1854	1677	1035	386
Oklahoma	2198	1297	1097	219	40
Oregon	2373	1396	675	209	44
Pennsylvania	3994	2955	1878	1074	422
South Dakota	1198	624	313	78	28
Tennessee	3596	1853	1519	370	127
Texas	2186	1191	729	326	107
Utah	1322	1236	385	279	97
Vermont	1407	1478	950	531	114
Virginia	3417	1718	1327	548	196
Washington	3099	1529	830	502	191
West Virginia	1920	1807	1174	511	217
Wisconsin	3299	1549	860	326	151
Wyoming	925	639	399	194	28
Puerto Rico	0	6485	1864	1120	595
National	2546	1581	1041	414	153

Source: Nat'l. Hwy. Inventory and Performance Summary, FHWA, Dec. 1977

STATUS OF INTERSTATE SYSTEM

AUGUST 31, 1979

LEGEND
 ----- UNDER STUDY
 - - - - - ALIGNMENT RECOMMENDATIONS
 TO THE FEDERAL HIGHWAY ADMIN.
 DESIGN AND RIGHT OF WAY
 ----- UNDER CONSTRUCTION
 ----- OPEN TO TRAFFIC



INTERSTATE MILEAGE					
ROUTE	UNDER STUDY	ALIGNMENT RECOMMENDATIONS TO THE FEDERAL HIGHWAY ADMIN. DESIGN AND RIGHT OF WAY	UNDER CONSTRUCTION	OPEN TO TRAFFIC	TOTAL
76	0.0	0.0	0.0	2.8	2.8
78	5.0	2.4	0.0	5.5	66.2
80	0.0	0.0	0.0	0.0	66.1
95	29.0	0.0	0.0	45.2	74.2
195	0.0	0.0	5.8	5.9	25.4
278	0.0	0.0	0.0	2.0	2.0
280	0.0	0.0	0.0	3.4	14.7
287	19.1	0.0	0.0	0.0	44.0
295	0.0	2.4	5.1	0.6	64.0
495	0.0	0.0	0.0	0.0	3.6
676	0.0	0.0	0.0	1.5	3.1
695	3.4	0.0	0.0	0.0	3.4
895	0.0	0.0	4.3	0.0	4.3
TOTAL	56.5	4.8	15.2	16.9	326.2

FIGURE 1

TABLE 9

**COMPARISON OF STATE AND US
URBAN AND RURAL MILEAGE CLASSIFIED BY STATE,
FEDERAL-AID AND NONFEDERAL-AID SYSTEMS**

MILEAGE AS OF 12-31-76

	FEDERAL-AID HIGHWAY SYSTEMS																
	INTERSTATE							OTHER PRIMARY				SECONDARY RURAL			ALL FEDERAL AID		
	RURAL			URBAN			TOTAL	RURAL	URBAN	TOTAL	URBAN	STATE	LOCAL	TOTAL	RURAL	URBAN	TOTAL
	FINAL	TRAV-ELED WAY	TOTAL	FINAL	TRAV-ELED WAY	TOTAL											
New Jersey Mileage	90	24	114	200	55	255	369	846	556	1402	5081	109	1770	1879	2839	5892	8731
Total US Mileage	28820	4101	32921	7425	2234	9659	42580	229184	26351	255535	112816	182420	216507	398927	661032	148826	809858
NJ Percent of US Total	0.3	0.5	0.3	2.7	2.4	2.6	0.8	0.4	2.1	0.5	4.5	0.05	0.8	0.4	0.4	3.9	1.0

Source: Pg. 104, 1976 Highway Statistics, FHWA, USDOT

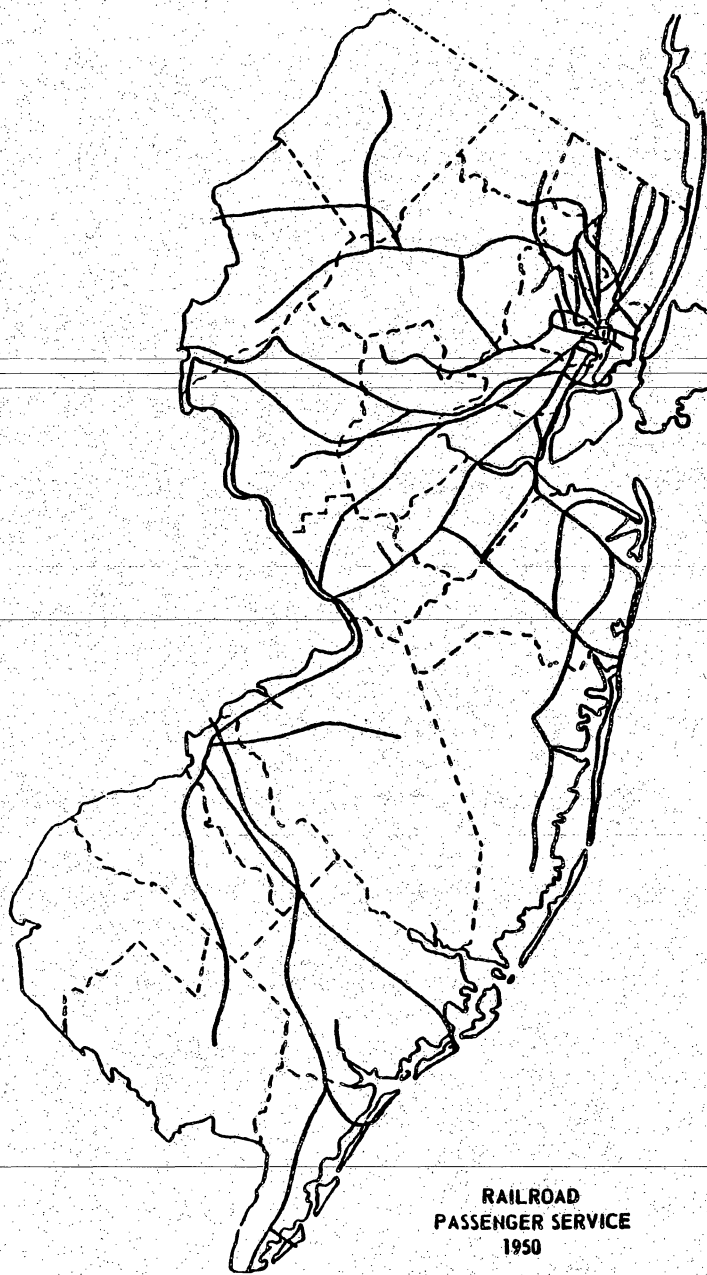
TABLE 9 (Cont'd)

COMPARISON OF STATE AND US
URBAN AND RURAL MILEAGE CLASSIFIED BY STATE,
FEDERAL-AID AND NONFEDERAL AID SYSTEMS

MILEAGE AS OF 12-31-76

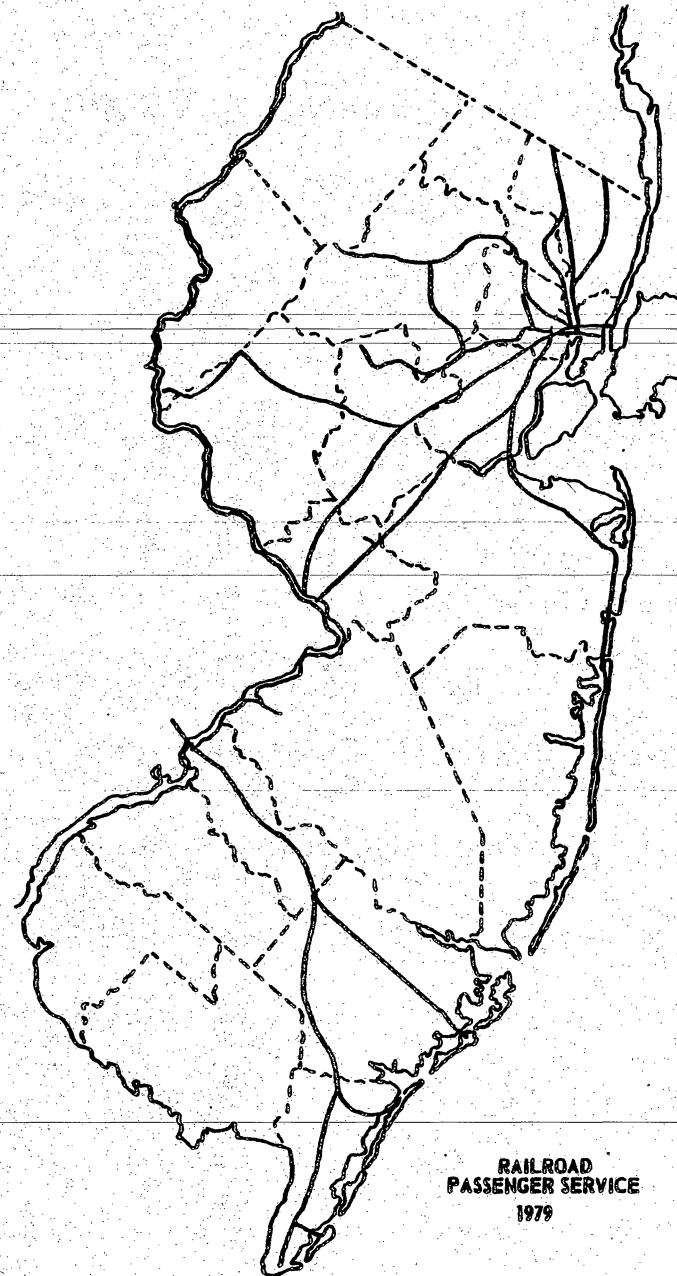
	NOT ON FEDERAL AID				ALL SYSTEMS		
	OTHER STATE RURAL	OTHER STATE URBAN & MUNI- CIPAL	LOCAL RURAL	LOCAL URBAN & MUNI- CIPAL	RURAL	URBAN & MUNI- CIPAL	TOTAL
New Jersey Mileage	504	11	7,849	16,031	11,192	21,934	33,126
Total US Mileage	123,343	10,952	2,476,292	436,911	3,260,667	596,689	3,857,356
NJ Percent of US Total	0.4	0.1	0.3	3.66	0.3	3.6	0.86

Source: Pg. 104, 1976 Highway Statistics, FHWA, USDOT



RAILROAD
PASSENGER SERVICE
1950

FIGURE 6



RAILROAD
PASSENGER SERVICE
1979

By 1959, rail patronage had reached an all time low, causing the first railroad abandonment. Spurred by this experience, and other impending cutbacks in rail service, the State entered into agreement with all major commuter rail lines to provide them with financial assistance that would ensure the continuation of essential passenger service in the State. Even with this support, passenger ridership, revenues and service declined steadily until the last carrier claimed bankruptcy in 1970.

Commuter rail service in New Jersey is provided on facilities formerly owned and operated by five companies: Pennsylvania Central Transportation Company, Central Railroad Company of New Jersey, Erie-Lackawanna Railroad, Reading Company and the Pennsylvania-Reading Seashore Lines. The New Jersey Department of Transportation, through its Commuter Operating Agency, contracts for most commuter rail service with ConRail. Additional service is provided by AmTrak on the Northeast Corridor Line.

With the exception of the Northeast Corridor Line, all passenger rail equipment and stations are owned by the State. The Northeast Corridor Line is owned by AmTrak.

Service

Commuter rail service in New Jersey operates on fourteen lines. The extent of service and ridership is identified in Figure 7 and Table 10.

Hoboken Division

This Division comprises the previous Erie-Lackawanna (EL) Railroad Lines:

- Pascack Valley Line
- Bergen County and Main Lines
- Boonton Line
- Morristown Line
- Montclair Branch
- Gladstone Branch

Rail commuter service is provided between communities in Bergen, Passaic, Essex, Morris and Somerset counties and Hoboken, New Jersey, where passengers make connections with the Port Authority Trans-Hudson Corporation (PATH) system for destinations in midtown and downtown Manhattan. Communities in Essex, Morris, and Somerset counties are also provided with service to Newark. At present, no Hoboken Division service provides direct rail access to midtown Manhattan.

This service is divided into the diesel-powered service for Bergen, Passaic, Essex and Morris counties and the electrified service for Essex, Union, Morris and Somerset

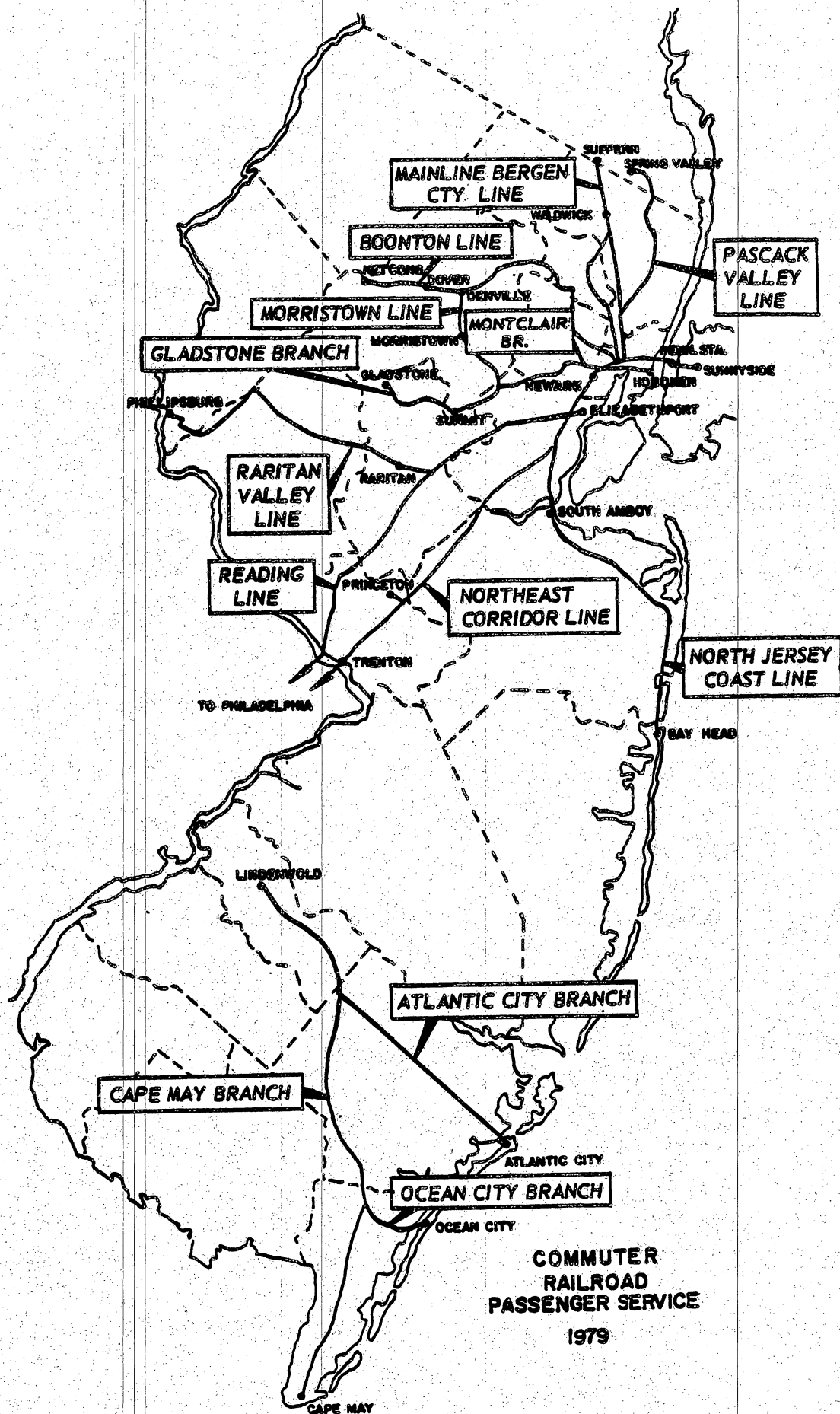


FIGURE 7
- 56 -

TABLE 10

1977 COMMUTER RAIL PASSENGER SERVICE

<u>Hoboken Division</u>	<u>Trains Per Weekday</u>	<u>Daily Passengers</u>	
		<u>East</u>	<u>West</u>
Pascack Valley Line	12	3230	3080
Main Line-Bergen Co. Line	66	7890	8030
Boonton Line	25	3080	2980
Morristown Line	84	13955	14605
Montclair Branch	24	715	610
Gladstone Branch	<u>39</u>	<u>3710</u>	<u>3610</u>
<u>Subtotal</u>	250	32,580	32,915
 <u>Raritan Valley Line</u>	 60	 6390	 6420
<u>North Jersey Coast Line</u>	34	9770	9830
 <u>Northeast Corridor Line</u>			
NJDOT	33	18134	15838
AmTrak	<u>77</u>	<u>3460</u>	<u>3734</u>
<u>Subtotal</u>	110	21,594	19,572
 <u>Seashore Line</u>			
Atlantic City Branch	6	--	--
Ocean City Branch	2	--	--
Cape May Branch	2	<u>--</u>	<u>--</u>
<u>Subtotal</u>	10	228	228
 <u>Reading Line</u>	 4	 278	 278
 <u>TOTAL</u>	 468	 70,840	 69,243

Source: NJDOT

counties. The diesel service is provided over three lines: the Pascack Valley Line, for eastern Bergen County; the Main Line-Bergen County Line, for Western Bergen County and Passaic County; and the Boonton Line, for Morris, Passaic and Essex counties. The electrified service is provided over the Morristown Line, for Morris and Essex counties, and its connecting lines, the Montclair Branch, for Essex County, and the Gladstone Branch, for Union and Somerset Counties.

Raritan Valley Line

This line was previously the main line of the Central Railroad of New Jersey (CNJ) which operated the commuter service between Phillipsburg and Newark's Penn Station, via the previous Lehigh Valley and Penn Central (PC) Railroads between Cranford and Newark. This operation was the result of 1964 trackage rights agreements with the now defunct Lehigh Valley and the Penn Central. Commuter passenger trains serve communities in Warren, Hunterdon, Somerset and Union counties. At Newark, passengers can make connections to midtown Manhattan via (previous Penn Central) ConRail main line service and PATH, and via PATH to downtown Manhattan. This service utilizes a key segment of Lehigh Valley double-track railroad between the Aldene connection of Cranford and the Lehigh's connection with the PC mainline in Newark (Hunter). A shuttle had operated on the CNJ's Main Line between Bayonne, in Hudson County, through Elizabeth, to Cranford, in Union County. This shuttle service traversed Newark Bay over the CNJ's Newark Bay Bridge, but was terminated on August 6, 1978. This rail service has been replaced by bus service.

North Jersey Coast Line

This line was previously called the New York and Long Branch Railroad (NY and LB), a joint venture owned by the CNJ and the PC prior to ConRail's establishment. Rail commuter service is provided from North Jersey Coast communities in Ocean County, through Monmouth, Middlesex and Union counties, to Newark's Penn Station and New York City. In Newark, passengers may also make connections to midtown and downtown Manhattan.

Northeast Corridor Line

Both ConRail and AmTrak provide rail commuter service on the Northeast Corridor Line. ConRail provides service from Trenton, in Mercer County, through Middlesex, Union and Essex Counties, to New York's Pennsylvania Station. A branch line between Princeton and Princeton Junction is used to bring passengers to the commuter and AmTrak inter-city service on the main line.

Atlantic City, Ocean City and Cape May Lines

ConRail operates rail commuter service between communities in Atlantic and Cape May counties and Lindenwold, where connecting trains are available on the Lindenwold High Speed Line, operated by the Delaware River Port Authority Transit Corporation, for travel to Camden and Philadelphia. These lines were operated by the Pennsylvania-Reading Seashore Lines Company prior to reorganization of the railroads.

Reading Line

ConRail provides rail commuter service from Philadelphia and West Trenton, through Mercer and Somerset Counties to Newark's Penn Station. This service was previously provided by the Reading Company. The service operates over what was once the Reading tracks from their origin to Bound Brook, where, pursuant to a trackage rights agreement with the now defunct CNJ, service proceeded to Cranford and then, pursuant to trackage rights agreement with the Lehigh Valley and PC, to its terminus, Newark's Penn Station. This service utilized, as did the CNJ, a key segment of double-track railroad between Cranford (Aldene) and a connection with the ConRail (PC) Main Line in Newark.

Equipment

The extent of the State's investment in commuter rail equipment and stations is indicated in Table 11.

Rapid Transit

Rapid transit service in New Jersey is provided by two public agencies and one private company. This service exists in 3 of New Jersey's 21 counties and carries approximately 200,000 passengers per day. Table 12 gives the extent and ridership of the State's rapid transit systems.

Port Authority Trans-Hudson

The Port Authority Trans-Hudson System (PATH) is a rapid transit line which operates in the New York-New Jersey Metropolitan area. The system began operations in September, 1962 when the PATH corporation, a subsidiary of the Port Authority of New York and New Jersey, acquired and began operating the former Hudson and Manhattan Railroad. Since that time the system has undergone numerous modernization programs and has grown into one of the finest systems in the country.

TABLE II

INVENTORY OF NEW JERSEY OWNED
COMMUTER RAIL EQUIPMENT AND STATIONS

<u>Type</u>	<u>Number</u>
Locomotives	91
Passenger Coaches	410
Rail Diesel Cars	20
Electric MU Cars	500
Stations	173

Source: NJDOT

TABLE 12

NEW JERSEY RAPID RAIL TRANSIT SYSTEMS

<u>Rail Line</u>	<u>Length (Miles)</u>	<u>Ridership</u> ¹
PATH	13.9	150,000
PATCO	14.5	40,400
Newark City Subway	4.1	<u>9,200</u>
		199,600

1 - 1977 Average Weekday Total Person Trips

Service

The PATH system connects Newark, Harrison, Jersey City and Hoboken with the World Trade Center Terminal (downtown) and the 33rd Street Terminal (midtown) in Manhattan (see Figure 8). Many people using PATH in New Jersey are commuter railroad transferees from ConRail trains at Newark and Hoboken. The average weekday ridership on the system was approximately 150,000 passengers in 1977.

Equipment

The PATH system is a modern rapid rail transit system utilizing modern automatic and interlocking signal control equipment. The system is double-tracked and two north tunnels, each with a single track, extend under the Hudson River between Hoboken, New Jersey, and Christopher Street, New York City. Two south tunnels, also single-track, extend under the Hudson River and connect the World Trade Center terminal in lower Manhattan with Exchange Place, Jersey City. The rolling stock consists of 298 air-conditioned passenger cars which operate up to speeds of 70 miles per hour. The longest (non-transfer) trip, Newark to the World Trade Center, is 8.9 miles and takes 19 minutes.

Port Authority Transit Corporation

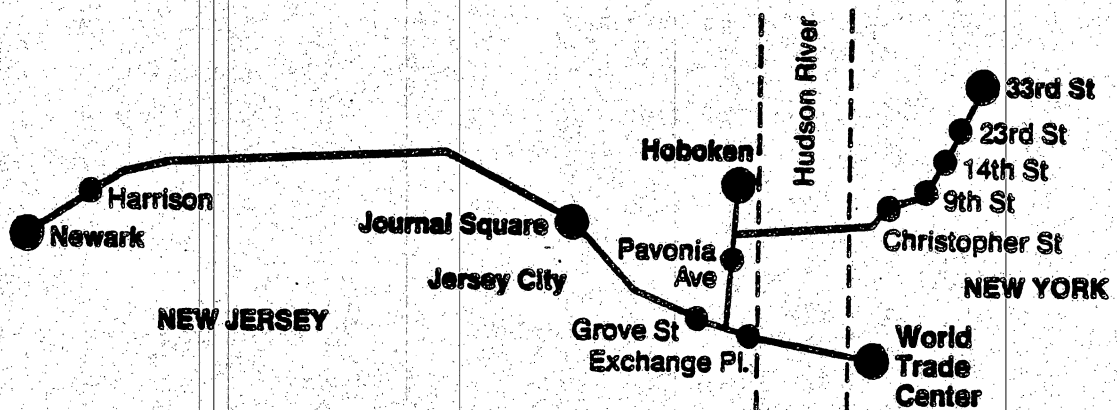
The Philadelphia-Lindenwold Line is a rapid transit line which operates in the Philadelphia-Camden Metropolitan area. The system is operated by the Port Authority Transit Corporation (PATCO) which is a subsidiary of the Delaware River Port Authority. Operations began in January, 1969 when initial service commenced between Camden and Lindenwold, New Jersey. Service into Philadelphia began the following month. This line has developed into one of the most modern rapid transit lines in the nation. A new station at Woodcrest will open late in 1979.

Service

The PATCO system connects a large section of southern New Jersey with the Philadelphia-Camden Metropolitan area. The service extends from Lindenwold to Philadelphia with access provided at 8 locations in the State (see Figure 9). The average weekday ridership was approximately 40,000 passengers in 1977. At Lindenwold the PATCO system connects with the former Penn-Reading Seashore Line which provides commuter rail service to communities in Cape May and Atlantic Counties.

PORT AUTHORITY TRANS-HUDSON

An Interstate Rail Rapid Transit System



A service of The Port Authority of New York and New Jersey

FIGURE 8

PORT AUTHORITY TRANSIT CORPORATION of Pennsylvania and New Jersey

An Interstate Rail Rapid Transit System

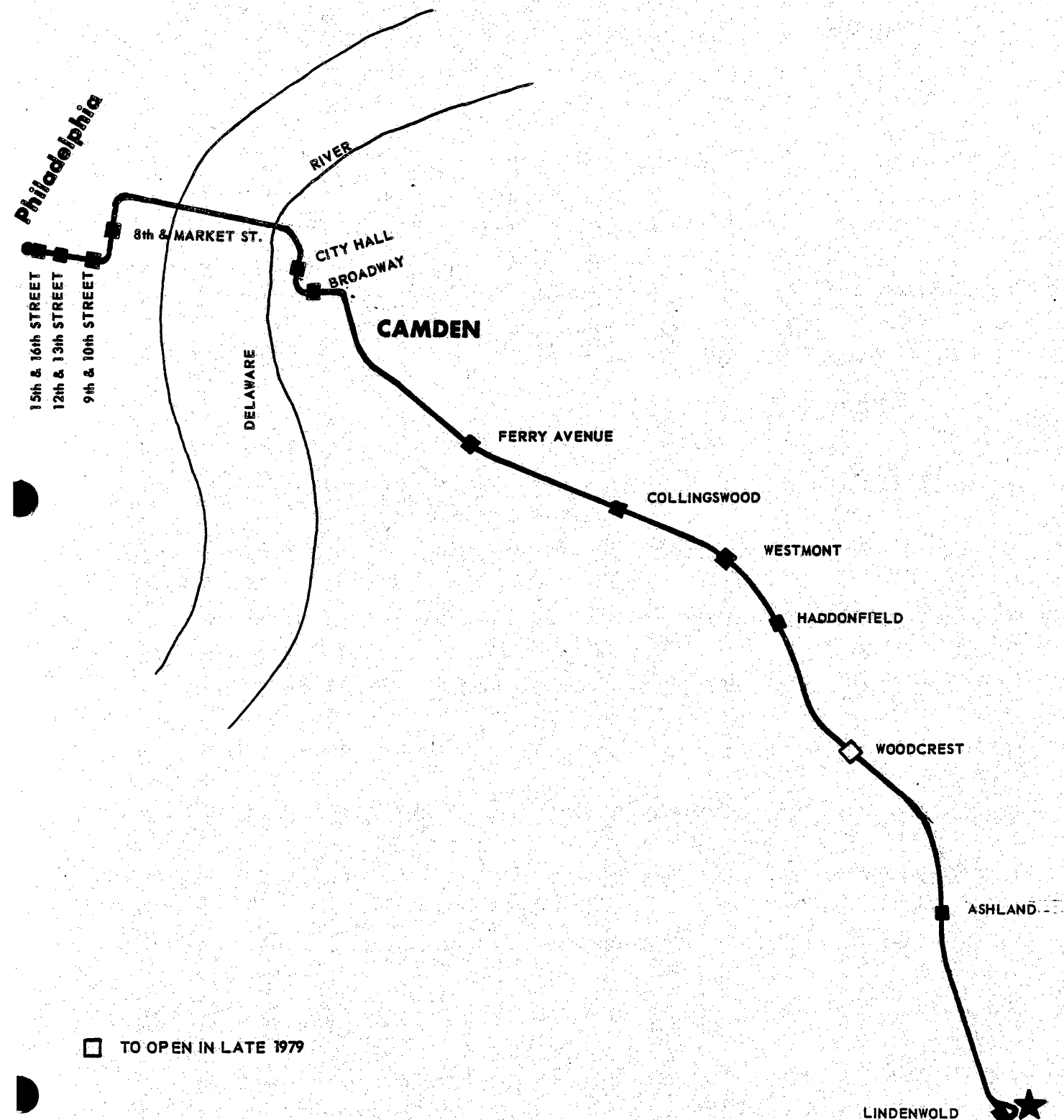


FIGURE 9

A service of the Delaware River Port Authority

Equipment

The PATCO system is highly modernized and automated. The system is completely double-tracked and utilizes an automatic train operation system. The rolling stock consists of 25 single-unit cars, and 50 cars semi-permanently coupled in pairs. Trains operate at speeds up to 75 miles per hour, and the time required to travel the entire length, 14.2 miles, from Lindenwold to Philadelphia, including twelve station stops, is approximately 22 minutes.

Newark City Subway

The Newark City subway is a vital link in the transportation system in the Newark area. The system began operations in the 1930's and since that time has generally deteriorated to a state where much improvement and modernization is required. Right-of-way for the subway is owned by the City of Newark. However, Transport of New Jersey owns the equipment and leases the right-of-way from the City. The Newark City subway has been subsidized by the State since 1969.

Service

The Newark City subway is approximately 4 miles long extending from Penn Station on the east to Franklin Avenue on the north (see Figure 10). The Subway is basically a local service which concentrates several CBD-oriented trip corridors into a single line. There are eleven stations in the Newark City Subway system which are generally located at or near the more important arterial streets. Patronage consists of transferencees from suburban bus lines, park-and-riders and on-line users; however, bus transfer stations are the heaviest loading points during the peak hour. During 1977, the average weekday ridership on the system was approximately 9000 riders per day.

Equipment

The Newark City subway is a two-track system with sections both underground and at-grade. At Penn Station, the system enlarges to six tracks and terminates in a loop. Little new rail has been laid since the initial construction in 1937. The rolling stock consists of 30 PCC Cars (President's Conference Committee) which were manufactured in 1945. Trains operate at speeds up to 50 miles per hour, and the average time required for the entire length is approximately 12 minutes.

Transport of New Jersey CITY SUBWAY

Serving NEWARK

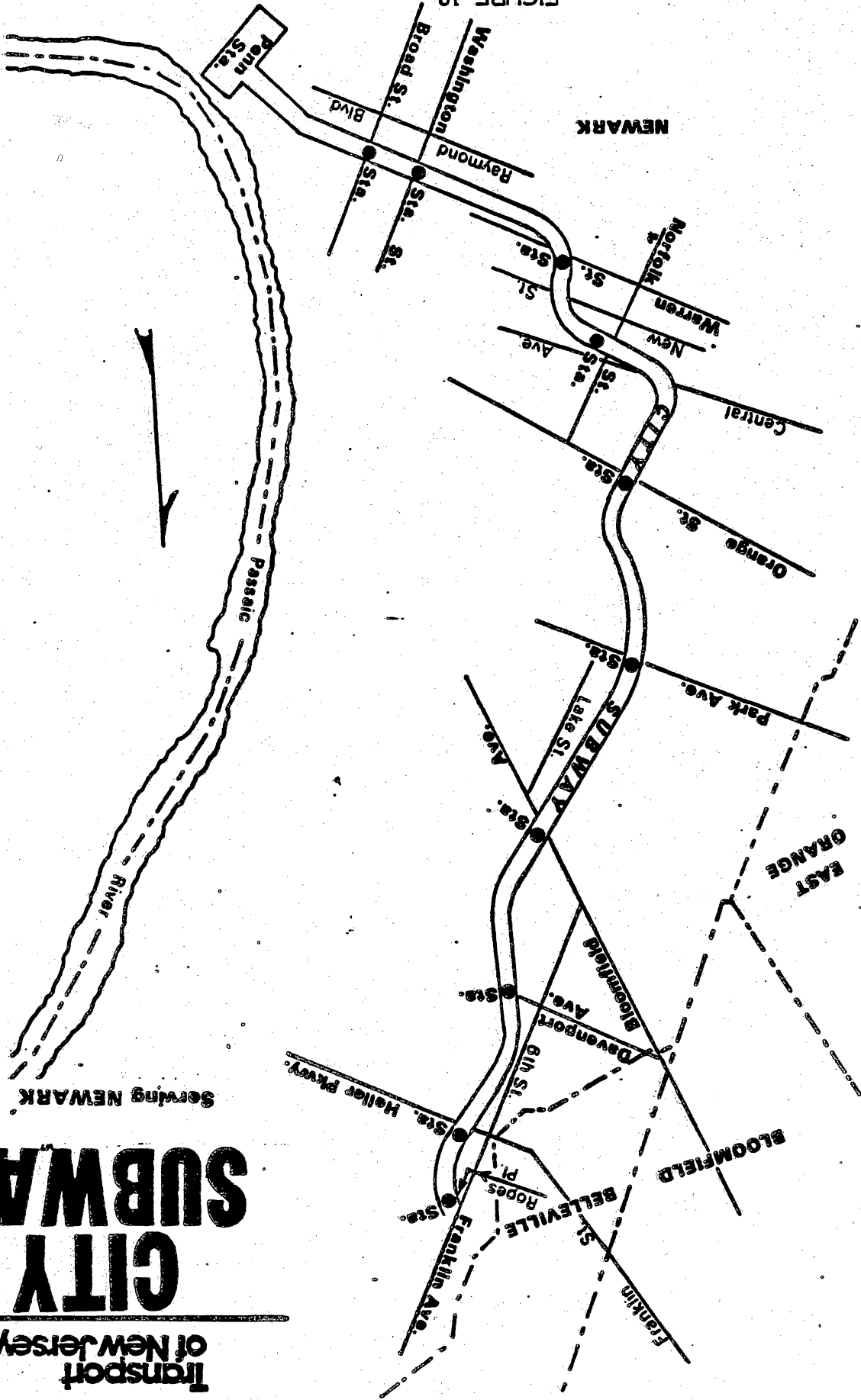


FIGURE 10
- 65 -

3. BUS

Bus transit in New Jersey started in the early 1900's when the jitney or motor bus appeared in the urban regions of the State. Since that time, the bus system has grown into the largest carrier of public transit riders in the State.

However, like its commuter rail counterpart, bus transportation in New Jersey has declined significantly since its peak years. Current bus ridership is only one-third of that which utilized the system immediately after World War II. Since 1970 alone, bus ridership has declined about 41%. This is in sharp contrast to the nationwide trend which shows an 11% increase in ridership during the same time period.

As ridership decreased, so did the financial status of the bus companies. In order to meet operating costs, financial assistance from outside sources became essential in many cases. Therefore, in 1969, the State Legislature approved a program of financial aid for essential bus services in imminent danger. What started out as an emergency short term subsidy program of \$0.5 million in 1969 has grown to a current program of approximately \$50.0 million. Although only 21 of New Jersey's bus companies receive State subsidies, these companies account for about 80% of the total bus ridership.

Service

The statewide bus network is comprised of 240 companies providing service on approximately 270 routes. These routes are generally the carry-over of street car and jitney routes which were established after World War I. The largest carrier of bus passengers in the State is Transport of New Jersey (TNJ). This company alone carries about one-half the State's daily bus ridership.

The function of bus service varies widely across the State. In the metropolitan areas surrounding New York and Philadelphia, interstate service is an important element as many New Jersey residents are oriented to these major attraction centers. However, in the smaller urban areas such as Trenton, Atlantic City and Millville-Vineland-Bridgeton, local trips remain the key function.

Under Section 16(b)(2) of the Urban Mass Transportation Act of 1964, the Department coordinates and manages the capital acquisition of vehicles to private non-profit organizations or associations which are providing transportation services to elderly and/or handicapped persons. The State retains title of these vehicles under leasing agreements with the private non-profit organizations.

The State also conducts a program of reduced fares to senior citizens 62 years or older and handicapped persons under the age of 62. The effective hours of the

programs are weekdays, 9:30 am to 4:00 pm and from 7:00 pm to 6:00 am; and Saturdays, Sundays and State holidays, all day.

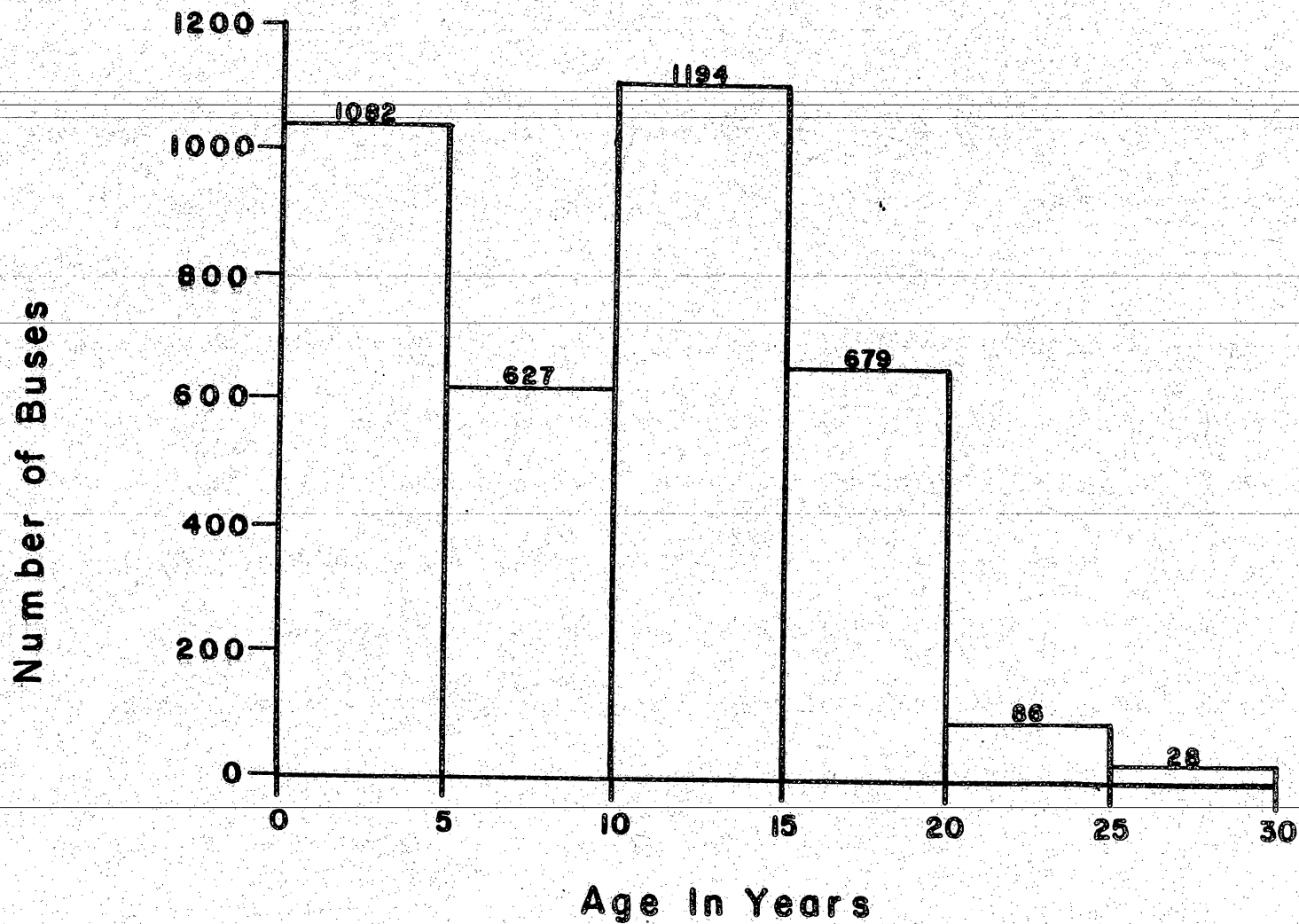
Equipment

The statewide bus network operates with a total of 3700 buses. Approximately one-half of these buses are owned by the State and leased to various private companies. In 1976, the Department pursued Phase I of a major bus replacement program. With the assistance of an UMTA Grant which provided for 80% financing, the Department purchased 866 new transit and commuter buses to replace overage vehicles. These buses were distributed to carriers throughout the State to improve comfort and dependability of service and to reduce operating costs. About 107 companies, both subsidized and non-subsidized, use such State supplied vehicles. With subsequent purchases, the Department now owns 1637 buses.

Motor buses in New Jersey vary widely in age of equipment. Figure 11 summarizes the comparative age of the bus fleet.

Since 1975, the State has purchased various types of specialized vehicles for the Elderly and Handicapped Program. Table 13 summarized the equipment purchase to date.

REGULAR ROUTE BUS FLEET AGE DISTRIBUTION



Source: NJ DOT, 1979

FIGURE 11

TABLE 13

INVENTORY OF EQUIPMENT PURCHASED
FOR THE ELDERLY AND HANDICAPPED PROGRAM

<u>Number</u>	<u>Type</u>
132	15 Passenger Vans
38	Vans with Hydraulic Lift for 6 ambulatory positions and 2 wheelchair positions
35	8 Passenger Station Wagons
12	26 Passenger Small Buses
14	20 Passenger Buses with 2 wheelchair positions
2	44 Passenger Large Buses
1	40 Passenger Large Bus with Lift

Source: NJDOT, 1979

II. GUIDELINES FOR DECISION

As indicated in the previous section, New Jersey has an extensive network of transportation facilities to serve the mobility requirements of its citizens. However, as will be pointed out in succeeding sections, the existing system has serious inadequacies and its development has contributed to other serious problems in the State.

In order to develop a meaningful and effective transportation program for the future, it is imperative that the transportation system be examined both for its ability to move people and goods and its impact on the other aspects of the quality of life of the citizens of the State. The remainder of this chapter will discuss some of the more important issues which should be considered in developing guidelines for effective and responsive transportation decision making.

A. MAJOR ISSUES

Several major issues have surfaced in recent years which will impact the way people and goods are transported in the future. Although not all inclusive, this section discusses some of the more important issues which should be considered in the development of transportation programs.

I. TRANSPORTATION, LAND USE AND ENERGY

The interrelationship of transportation and land use has been a concern for quite some time. However, increased concern for energy supplies and conservation efforts has placed considerably more emphasis on the consideration of this relationship in current development.

The present suburbanization pattern has not occurred by design. Rather, it is the result of historic forces, not the least of which has been the pattern of accessibility provided through the State's transportation system. Although much has been learned about transportation and land development relationships, the effectiveness of accessibility improvements or restrictions in changing the rate and pattern of land development is still largely unknown.

In the past, transportation facilities were not always planned, built and operated in consideration of associated land development. Conversely, land development moved

forward without adequate consideration of existing or planned transportation facilities. The result has been an expansion of uncoordinated, scattered patterns of suburban residential development, commercial growth, and other activities requiring a large and increasing amount of travel, and therefore, additional transportation facilities and services to function. In fact, this trend is perhaps no more apparent than in New Jersey which experiences a strange paradox in its relationship between transportation and land-use.

New Jersey is the most densely populated State in the nation, with an average density of nearly 1000 people per square mile. Although New Jersey ranks 46th in the nation in total land area, it ranks 9th in population, resulting in 3.5% of the nation's population residing in a state having only 0.2% of the nation's land area.

Yet, an examination of the travel habits of the State's citizens reveals that of all trips made within the borders of the state and to the major metropolitan areas of New York City and Philadelphia, approximately 92% depend on the private automobile. This is occurring in a state which has considerable public transit service in the form of rapid transit, commuter rail and bus service.

One explanation for this is the degree of suburbanization that has occurred in the State during the past 25 years. Figure 12 compares the limits of urbanization as identified in the 1950 Census with the 1975 identifiable urban boundaries. The majority of this expansion is of the low density scattered development type, which has developed generally at the expense of the major urban centers.

This population increase and low density development around the urban areas has consumed large amounts of land, energy and natural resources. Since scattered low density urban development is not easily served by public transportation, dispersion of population and employment has increased the dependence on the automobile. The increased accessibility brought about by the improved transportation system has greatly increased the potential for social and economic interaction but the amount of travel generated has also resulted in increased ambient levels of air pollution and noise, especially in transportation corridors used to link residential and employment centers.

Still the question arises as to why New Jerseyans who live in seemingly dense living patterns utilize a transportation system as highly inefficient as the one that has developed to date — a massive highway system of over 33,000 miles and 5 million petroleum consuming motor vehicles with an average occupant-to-vehicle ratio hovering near the 1.2 mark (peak hour), utilizing 3.5 billion gallons of gasoline annually.

There is little doubt that part of the inefficiency can be couched in psychological terms — the desires of people to utilize their own personal, comfortable and "private"

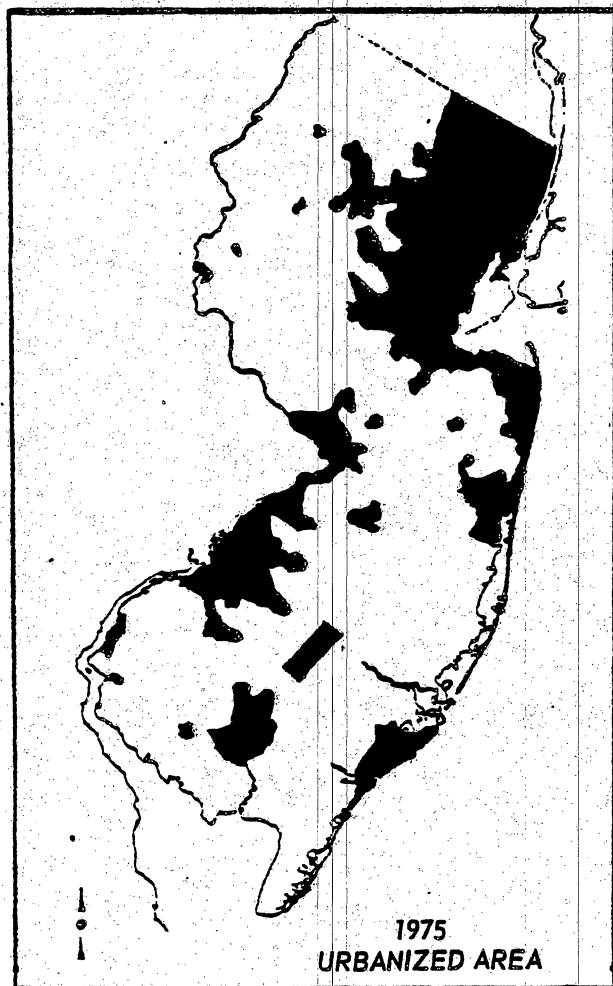
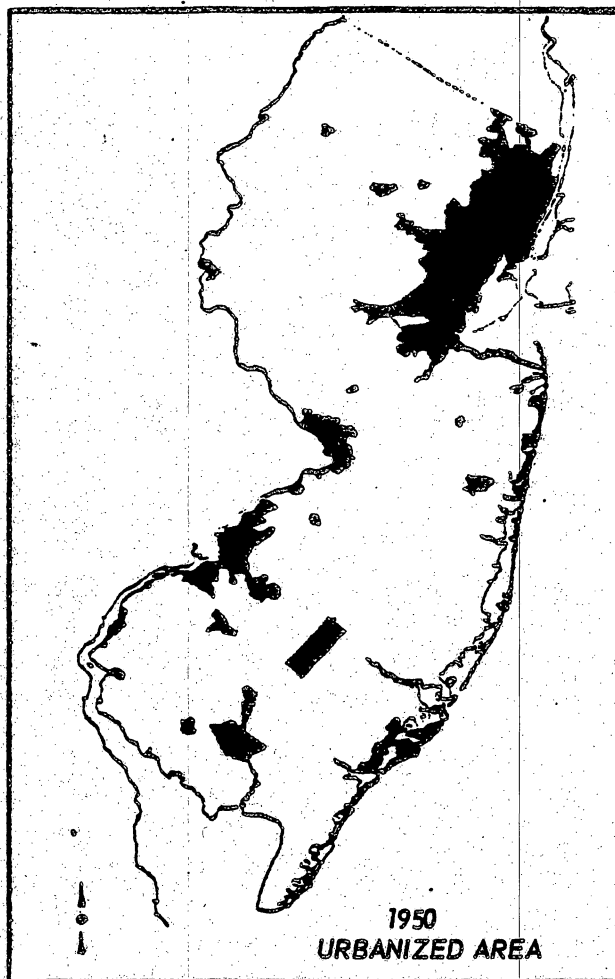


FIGURE 12

means of transportation that departs when they want to depart and gives excellent door-to-door service. Many people in the State want their home's door attached to a single home sitting on a one-quarter acre site on a tree-lined suburban street or rural road.

This situation might not be as problematic were it not for the present unstable energy situation, increasing petroleum costs, decreasing petroleum reserves and increasing Third World demands for "their" share of energy fuels and other natural resources.

The primary source of energy consumed in the United States comes from petroleum which accounts for about 45% of the energy base. Approximately 50% of all petroleum consumed is nondomestic - being imported from foreign countries. The transportation sector accounts for about 26% of gross energy consumption and about 60% of petroleum consumption. The statistics are even more profound in New Jersey as 75% of all energy consumed comes from petroleum products. Comparative statistics for transit usage indicate that 31% of gross energy consumption and over 40% of petroleum products consumed in the State are related to transportation. The glaring conclusion is that the private automobile is the greatest user of petroleum in the transportation sector where approximately 60% of all energy devoted to transportation in this country is supplied in the form of gasoline to automobiles and small personal trucks.

As petroleum reserves diminish and the percentage of our national needs supplied by imports increases, it becomes increasingly important that the best use be made of these fuels. The need to utilize energy resources wisely is likely to remain with us for many years, if not permanently. Different transport modes differ widely in terms of energy efficiency. For example, under fully loaded conditions rail transit is 50 times more efficient than an average commuter automobile. Transit buses, under maximum load conditions, can be 15 times more energy efficient than automobiles. Lower efficiencies can be expected from local and express bus services where two-way load factors are less. However, it is the total efficiency of the urban area and its complete transportation system that counts, not the efficiencies of the individual elements. It is interesting to note that the standard auto with one occupant, which is the primary carrier of people in the State by far, is also the most energy-inefficient.

Significant issues revolve around the need to greatly reduce automobile use and to place increasing reliance upon public transportation, particularly in urban areas. While the current fuel shortage may quicken the public's interest in such considerations, further research is needed to indicate both the transportation system, service implications and

requirements, and change in life-style necessitated by alternative land-use patterns.

Major transportation investments will influence the nature and shape of future growth in the State. Therefore, transportation should be recognized as a key tool in an overall growth management strategy for the State. This is especially true since transportation investments also effect energy conservation, through the patterns and types of land-use which they foster, i.e. low-density sprawl which is highway consumptive of energy, or more compact, energy-efficient land-use arrangements.

Previously, land-use plans have not consciously aimed at minimizing transportation needs. Intuitively, the clustered suburban center, the high-density corridor alternating with open space areas, and the high-density downtown district with concentrated commercial activities are patterns that would probably minimize transportation demands and make them easier to serve with bus or rail rapid transit.

One of the more complete empirical analyses, looking into the densities and spatial relationships of communities that support various public transit modes, was published by the Regional Plan Association in the Spring of 1976 for the Tri-State Regional Planning Commission.

The study determined that particular residential densities will supply public transit demand for particular modes depending on the area's distance from a non-residential concentration (i.e. a downtown commercial district); the size of that concentration (measured in square feet of a non-residential floorspace); and its character (a downtown district, a suburban shopping center, or one with mixed use). Table 14 generalizes the study's findings, showing the threshold residential densities necessary to support the usage of the various public transit modes. The table also suggests a number of New Jersey urban municipalities exhibiting threshold densities or greater (accumulative totals) that could possibly support various modes (other parameters excluded). Consequently, although nearly 3/4 of the approximately 400 urban communities could possibly support a commuter rail mode, very few of the community totals support other modes with the exception of the Dial-a-bus and Express bus modes. Basically, this exhibit reveals that the suburban rings surrounding the two major metropolitan centers have high-density characteristics in station areas, but the generally spread development yields densities too low to support a great variety of public transit modes. Consequently, the current concentration of people necessary for profitable or even equitable operation of certain modes of transportation may not be present in many areas of the State. Thus, the infilling of development, particularly in the next decade, must be accomplished by developing energy-efficient clusters of development.

TABLE 14

TRANSIT MODES RELATED TO RESIDENTIAL DENSITY

Mode	Service	Minimum Necessary Residential Density dwelling units per acre	Remarks	Accumulative No. of NJ MCDs exhibiting threshold densities or greater
Dial-a-bus	Many origins to many destinations	6	Only if labor costs are not more than twice those of taxis	31
Dial-a-bus	Fixed destination or subscription service	3.5 to 5	Lower figure if labor costs twice those of taxis; higher if thrice those of taxis	102
Local bus	"Minimum," ½ mile route spacing, 20 buses per day	4		76
Local bus	"Intermediate," ½ mile route spacing, 40 buses per day	7	Average, varies as a function of downtown size and distance from residential area to downtown	24
Local bus	"Frequent," ½ mile route spacing, 120 buses per day	15		4
Express bus -reached on foot	Five buses during two hour peak period	15 Average density over two square mile tributary area	From 10 to 15 miles away to largest downtowns only	4
Express bus -reached by auto	Five to ten buses during two hour peak period	3 Average density over 20 square mile tributary area	From 10 to 20 miles away to downtowns larger than 20 million square feet of non-residential floorspace	129
Light rail	Five minute headways or better during peak hour	9 Average density for a corridor of 25 to 100 square miles	To downtowns of 20 to 50 million square feet of non-residential floorspace	13
Rapid transit	Five minute headways or better during peak hour	12 Average density for a corridor of 100 to 150 square miles	To downtowns larger than 50 million square feet of non-residential floorspace	5
Commuter rail	Twenty trains a day	1 to 2	Only to largest downtowns, if rail line exists	335

Source: Regional Plan News, August, 1976. No. 99, Page 4; and NJDOT

Other factors that play important roles in public transit usage include distance from the residential area to major central business districts, the costs of operation and maintenance of the system in the area or region and the size of CBDs. Figure 13 indicates the transit modes suited to downtown sizes. These factors will reduce the number of communities capable of supporting public transit services.

In its discussion of tripmaking, the study emphasized that "the potential for public transportation is created not by particular trip rates per capita, but rather by the absolute densities of trips in an area." It is, therefore, pointed out that the public transportation gain is greatest from increased residential densities in the immediate vicinity of a downtown or another non-residential cluster exhibiting strong drawing powers (directly relatable to the size of the non-residential area).

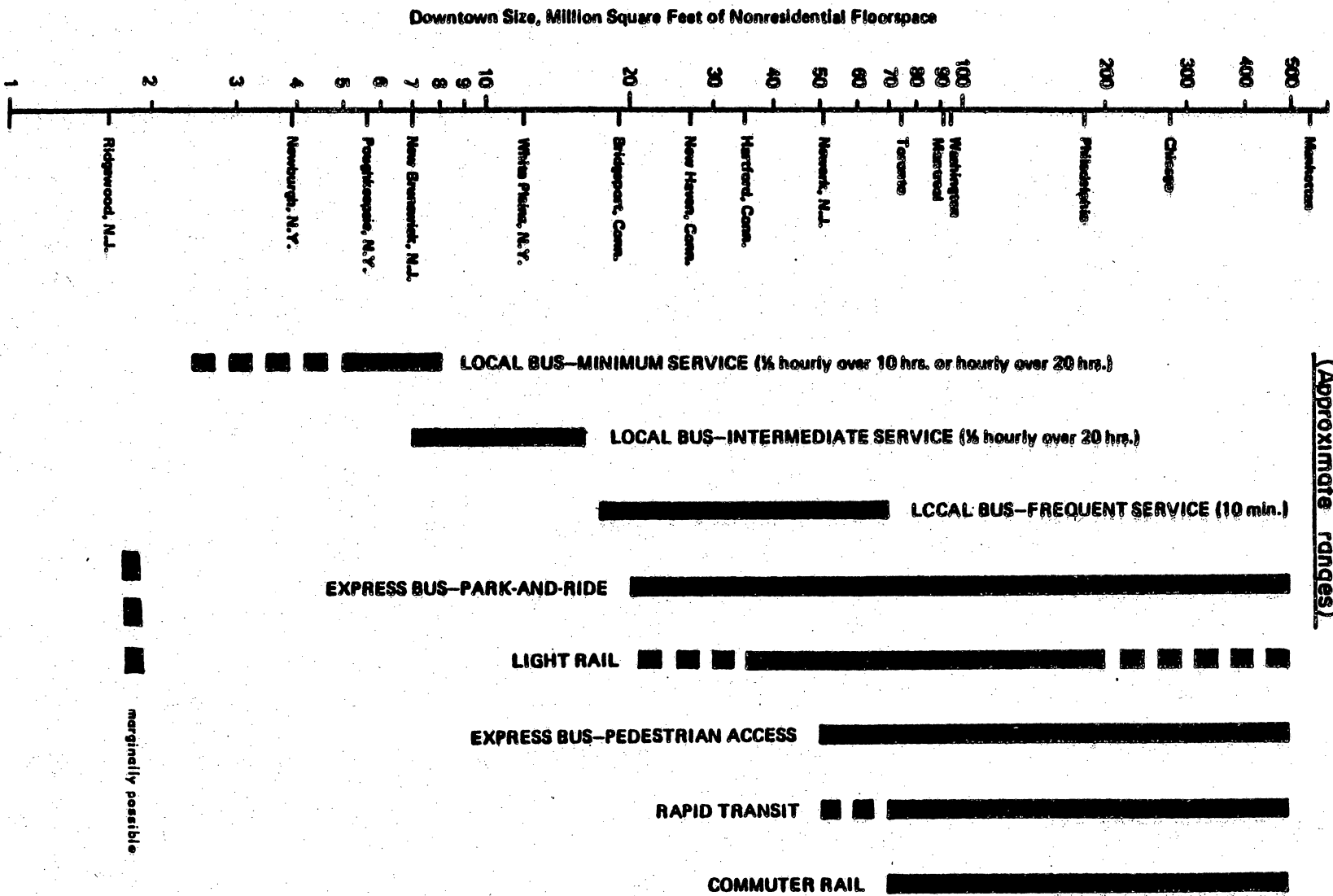
The findings of this study point out that if urban centers are to be strengthened, their need for highways reduced and the reduction in transportation pollution and conservation of transportation energy achieved, then "the land use policies which will do most for public transportation are those which will help cluster non-residential floorspace in downtowns and other compact development patterns. The higher the density of a downtown and the larger its size, the more it will shift travel from the auto to transit."

There are now significant questions being raised by segments of the public and government concerning the overall development patterns of the State. A number of laws, regulations and activities have been promulgated at the national and State levels of government to provide some guidance and control over future land use patterns. These include: CAFRA, Pinelands, Wetlands and the State Development Guide Plan drafted by the New Jersey Department of Community Affairs. While these activities serve as a beginning, there still remains a need for a statewide mechanism to integrate the planning and control of land-use and transportation planning. This mechanism should operate within a coordinated set of policies and investments. These policies should address water supply, sewage, zoning and subdivision regulations, taxation, federal mortgage practices, schools and other policies which may encourage the evolution of desirable land patterns. The use of transportation facilities to achieve land-use changes in the absence of this coordination should be resisted, for such investments are likely to be ineffective, as well as in conflict with meeting other transportation needs.

2. SOCIAL ISSUES

What are the social issues in transportation planning? What social issues can be affected through the provision of transportation services? What characteristics of the

FIGURE 13
TRANSIT MODES SUITED TO DOWNTOWN SIZE
 (Approximate ranges)



Note: Downtown is defined as a contiguous cluster of nonresidential use and is larger than the more narrowly defined Central Business District

Source: Regional Plan News, August, 1976. No. 99, Page 3.

transportation system developed and managed through the New Jersey Department of Transportation may assist in approaching solutions to social issues? The following paragraphs respond to these questions and sketch out the major elements of the issues themselves. Solutions to the issues are sought in subsequent segments of this document which address the goals, objectives, policies and programs of NJDOT.

At this point, a few definitions are in order. In general, the term "social issues" refers to those questions regarding the welfare and aspirations of the people of a society, on an individual or group basis, and human interrelationships and interactions. In American society, government has assumed a significant role in fostering and sponsoring efforts to resolve social issues and meet social needs. Because transportation, the movement of people and goods from one place to another, provides the connection between the disparate locations of the social-geographic pattern, transportation planning should address pertinent social issues.

Social issues relative to transportation may be categorized into two groups: 1) those regarding the degree of mobility afforded individuals and groups in the society by transportation services and; 2) those pertaining to the range of choices or opportunities available to the society as a whole. The relevance and composition of these two categories are the focus of the following paragraphs.

Mobility

Mobility is what links together the various elements of a society and provides access to many opportunities. Accessibility is a kind of freedom, a freedom quite dear to the present American lifestyle. Most Americans choose their employment, residential, recreational, cultural and other activities on a premise of relatively easy accessibility. The range of options is primarily limited by economic resources and personal preferences rather than physical proximity. However, the degree of mobility possessed by all members of society is not uniform, such that the range of options available to some members is far more restricted than others. In this sense, the transportation system and the service it provides to persons, can directly affect the mobility and, therefore, the range of opportunities they possess. Hence, the quantity, quality, costs and distribution of transportation services are determinants of mobility.

In New Jersey, what specific mobility issues exist? One such issue is the limitations on access experienced by many of the elderly and physically disabled. There are some 1,047,000 persons over 65 years of age or physically handicapped or 14.6% of the State's

population (See Table 15). Those without the capability to drive a car and without accessibility to public transit are denied substantial mobility. How can their mobility be increased? Alternative directions toward such an increase can range from full integration into the public transit system, including the retrofitting of fixed facilities, bus and rail equipment to eliminate accessibility barriers, to the provision of a comprehensive separate system through paratransit. Advantages of the latter approach are lower capital cost and higher effectiveness (door-to-door service without system-wide curtailments in operating efficiency). This approach can also be coordinated with social service delivery programs, as is occurring already in New Jersey.

A second group possessing limited mobility is the urban poor. This group includes persons of all ages who, lacking the economic means of auto ownership, cannot use the highway system for access. Tables 16 and 17 indicate the degree and dispersion of poverty families in 1969. Because the public transit system is limited, movement within much of the State's urban areas and through most of the suburban and rural areas is restricted. One step toward increasing mobility for the urban poor would be to expand public transit, both in the location of routes and frequency of service. Such a solution, however, requires threshold levels of ridership for economic operations. Such ridership levels depend on a critical mass density of development (residential, commercial or industrial) which can generate the necessary trips. Here, the related issues of land-use controls, development patterns and energy costs at the regional level emerge. How can these issues be integrated with the mobility issue?

A third group warranting special attention to increase their mobility are the young (31% under 17 in 1970), who depend largely on pedestrian and bicycle access for independent mobility. How is their mobility to be assured in areas containing high-volume vehicular movements?

And what is the significance, from a social sense, of a failure to provide mobility? A few examples of the opportunities denied through the lack of access suffice. Employment in suburban and exurban locations in retail, service, office and manufacturing activities is most inaccessible to the unemployed from the inner city. It is precisely those economic activities which afford entry-level positions which could be available to those of less training and education who are concentrated in the older urban centers. Likewise, many vocational and higher education institutions, recreational and cultural facilities and services are denied to persons lacking automobile access. Diversity in housing and neighborhood/community environment options, particularly from the standpoint of a racial and economic integration, development styles and characteristics, also are inaccessible to

TABLE 15
ELDERLY AND HANDICAPPED BY COUNTY

County	Elderly (65 years plus)				Handicapped		
	Total Population	Number of Persons	Percent of County Population	Percent of State Elderly	Number of Persons	Percent of County Population	Percent of State Handicapped
Atlantic	175,043	28,318	16.1	4.1	10,397	5.9	3.0
Bergen	897,148	84,716	9.4	12.2	37,494	4.2	10.7
Burlington	323,132	19,265	6.0	2.8	14,169	4.4	4.0
Camden	456,291	41,161	9.0	5.9	23,755	5.2	6.8
Cape May	59,554	11,832	19.9	1.7	2,839	4.8	0.8
Cumberland	121,374	12,107	9.9	1.7	7,498	6.2	2.1
Essex	932,526	99,020	10.6	14.2	52,301	5.6	14.9
Gloucester	172,681	13,295	7.7	1.9	8,630	5.0	2.5
Hudson	607,839	69,195	11.4	9.9	34,097	5.6	9.7
Hunterdon	69,718	6,995	10.0	1.0	3,196	4.6	0.9
Mercer	303,968	29,603	9.7	4.2	15,018	4.9	4.2
Middlesex	583,813	37,363	6.4	5.4	26,034	4.5	7.4
Monmouth	461,849	44,919	9.7	6.4	21,119	4.6	6.0
Morris	383,454	28,465	7.4	4.2	15,174	4.0	4.3
Ocean	208,470	32,920	15.8	4.7	11,482	5.5	3.3
Passaic	460,782	47,753	10.4	6.9	21,615	4.7	6.2
Salem	60,346	5,607	9.3	0.8	3,806	6.3	1.1
Somerset	198,372	14,229	7.2	2.0	7,847	4.0	2.2
Sussex	77,528	7,194	9.3	1.0	3,326	4.3	0.9
Union	543,116	54,636	10.1	7.8	27,651	5.1	7.9
Warren	73,879	8,385	11.3	1.2	3,735	5.1	1.1

Source: US Census of Population, 1970.

TABLE 16

PERCENT AND NUMBER OF FAMILIES WITH INCOMES LESS
THAN POVERTY LEVEL
IN 1969 FOR NEW JERSEY COUNTIES

	<u>County</u>	<u>Percent of County</u>	<u>Number in 1,000's</u>
Tri-State	Bergen	3.0	7.3
Region	Essex	10.0	23.5
	Hudson	9.1	14.5
	Middlesex	4.0	5.9
	Monmouth	5.9	6.7
	Morris	2.8	2.7
	Passaic	6.8	8.3
	Somerset	3.1	1.6
	Union	4.5	6.5
DVRPC	Burlington	5.2	3.9
Region	Camden	6.8	7.8
	Gloucester	5.7	2.5
	Mercer	6.4	4.9
Remaining	Atlantic	9.9	4.5
	Cape May	8.9	1.4
	Cumberland	9.2	2.8
	Hunterdon	4.2	0.8
	Ocean	6.7	3.8
	Salem	8.5	1.3
	Sussex	5.5	1.1
	Warren	5.2	<u>1.0</u>
	Total State		112.6

Source: 1970 Census Population for NJ Table 124

TABLE 17

POVERTY STATUS IN 1969 OF NEW JERSEY FAMILIES

	<u>Total</u>	<u>Total Urban</u>	<u>Total Urbanized</u>	<u>Central Cities</u>	<u>Urban Fringe</u>	<u>Places of 10,000 or More</u>	<u>Places of 2,500 to 10,000</u>	<u>Rural</u>
Number of Families	1,838,809	1,636,308	1,568,079	285,618	1,282,461	20,806	47,423	202,501
% Receiving Public Assistance Income	4.6	4.8	4.8	11.4	3.3	5.4	3.7	2.9

Source: 1970 Census of Population for New Jersey, Table 80

the less-mobile. Efforts to provide low and moderate-income housing in suburban areas, as called for by the New Jersey Supreme Court in the landmark Mount Laurel zoning case, could be facilitated in increased accessibility to the suburbs.

A special consequence is the issue of racial discrimination. Although full integration may not be achieved through transportation decisions, mobility and access to various activities (employment, education, etc.) could allow racial interaction which could assist integration. Denial of such access must be seen as supporting continued social discrimination.

Range of Choices

An extension of the concept of the freedom of choice afforded by mobility is the issue of what range of choices or opportunities are available. A broader range of options in housing, employment, development densities and characteristics is considered an asset to society. How can transportation planning affect this range of choices? At issue here is the role of transportation in shaping the activities to which mobility is sought.

Transportation programs can shape these activities, and therefore, contribute to the choices available, through preserving existing options and encouraging the addition of new ones. The great diversity in the quality of life and strong vitality of urban centers, a social asset, can be fostered through consideration of measures which will support their revitalization, both from an economic and social perspective. Transportation programs can work in harmony or conflict with such efforts. Conflicts arise from displacements and relocations, community disruption and tax losses. On the other hand, the provision of transportation facilities in locations which could encourage development grafted onto contiguous urban densities could enhance urban centers, rather than compete with them. This process could build on what sense of community such centers may possess. Similar new urban settlement options could be encouraged through transit service locations planned in concert with other land use and facility planning. New centers could offer opportunities for non-auto mobility, social interaction, social and economic integration and housing diversity. Aesthetic issues associated with sprawl-housing homogeneity and strip-commercial development, common to New Jersey, could also be incorporated into such a center strategy. Other areas could then be conserved at low-density development or agricultural uses. Thus, the range of choices for work, residence and recreation could be expanded.

3. THE ECONOMIC SITUATION

New Jersey's economy is in transition now, struggling to recover from an industrial decline which was deepened by the worst recession since the Great Depression. Although

the State has traditionally enjoyed strong industrial and population growth, its favorable competitive position has been seriously eroded by recent national trends and the economic lull of the 1970s.

Overall, the State has undergone a long-term shift from goods-producing activity to service-producing activity, accelerated by the loss of industrial plants due to the aging of existing investments and a low rate of capital reinvestment, compared to the nation. While in 1940, goods-producing jobs accounted for 45 percent of all employment, in 1970, they comprised only 38 percent.

The location of jobs is also changing. Jobs which used to be located in the central city are shifting outward to suburban or rural areas, placing new demands upon the highway system. Development pressure and population growth are also occurring in these new, open areas, part of an overall trend for development to occur in southern areas of the State as well as the nation, instead of in the already developed, northern regions. These general directions of change, in combination with the effects of economic lulls during this decade, have had serious consequences in New Jersey.

The recession of the early 1970s affected New Jersey heavily, causing an acceleration of the industrial exodus from the State, a faster loss of manufacturing jobs, a decline in the State's comparative rate of growth, and widespread unemployment.

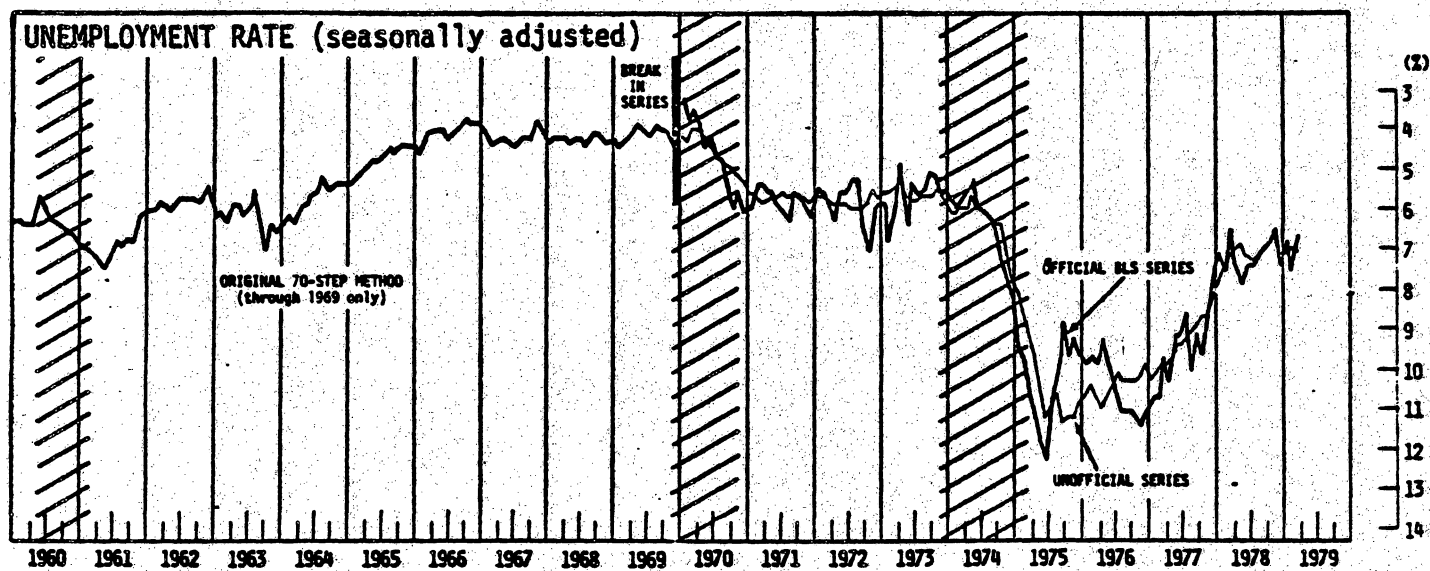
Unemployment

Statewide unemployment reached a post World War II high in September, 1975 of 11.4 percent, according to the US Bureau of Labor Statistics. Since then, it has declined to just under 8.0 percent, but not without exhausting the State's unemployment compensation fund first (see Figure 14).

Workers in manufacturing and construction have experienced the greatest job losses, followed by some service-sector workers. Major job categories suffering high levels of unemployment included operatives, craftsmen, service employees (except for health and professional workers) and laborers. At the same time, professional, technical and kindred workers have enjoyed above average job opportunities during the 1970s.

Job losses were felt most severely in the older, urbanized areas such as Newark, whose unemployment rate rose to almost 20 percent; in industrialized counties ringing major cities, such as Hudson, Passaic, Essex and Union counties; and in underdeveloped rural areas with slow economies.

Accompanying recessionary unemployment were declines in retail sales, capital investment and formation, and industrial output. The recession, many economists believe,



April 30, 1979

Sources: Economic Indicators
Department of Labor and Industry

FIGURE 14

may have dealt a serious blow to New Jersey's industrial sector, since it was already receiving stiff competition from successful, growing new industrial areas elsewhere in the nation.

Manufacturing

Until the recession of the 1970s, New Jersey had been in the industrial forefront of the nation. The State has always been heavily industrialized, despite its name of the "Garden State." In the 1940s, it held about 5 percent of the nation's factory jobs, and in 1975, during the height of unemployment, it still had some 3.9 percent of the country's factory jobs, with about 3.5 percent of the nation's population.

Industrial decline has characterized most of the northeastern United States recently. New Jersey's immediate neighbors, New York and Pennsylvania, have experienced population outmigration and decreasing ability to compete with the emerging Sunbelt states, where industry is attracted by lower land and labor costs, lower taxes, less crime and urban blight and a growing population and labor force.

In addition, the construction of the Interstate Defense Highway System encouraged the growth of long-distance trucking which, with cheap fuel, reduced industry's reliance upon locations close to market or along railroads. More and more firms were able to locate in new, relatively undeveloped areas outside the industrial Northeast.

Despite New Jersey's strong competitive position, economists agree that "something happened" during the recession, so that New Jersey has joined its neighbors in fighting what must be long-term decline. Factors considered as signposts of this decline include:

- The closing of old, marginal industrial plants and relocation of their tenants outside the State
- Low levels of capital investment and expansion
- Rising property taxes
- Higher land, labor and operating expenses here than in the Sunbelt
- The rapid decline of urban centers
- The tendency for innovations emerging from the state's strong research and development centers to go into production outside the state
- A slowdown in growth of the regional market

- The greater impact of recession upon an industrialized area.

Whether the State's industry is able to rebound from its current doldrums remains uncertain at this point, but many observers feel that growth in service-providing activity will help to make up the economic losses felt by the decline of manufacturing.

Services

New Jersey's economy is being "inexorably" transformed from an industrial to a service-predominant economy, according to the New Jersey Economic Policy Council. The nation is also undergoing this transformation, as industrial processes become more mechanized and automated, and as income rises. Leading the growth of the service sector have been business, professional, government and health services. The rise in service jobs has not been as dramatic as expected, however. In addition, nonbusiness services have not expanded dramatically, probably because population is growing slowly in the 1970s.

The rate of increase in personal services employment is largely dependent on the population growth rate. Since New Jersey's population is still growing, and since State residents are earning increasing incomes, demand for personal services is expected to spur growth in this sector in the future.

Population and the Labor Force

New Jersey ranked eighth in the nation in total population in the census decennial 1970. Over 7.349 million persons are reported to have resided in the State in 1977. According to the latest available projections, the State's population is expected to increase to approximately 9.0 million by the year 2000 (see Table 18). Migration into the State, which in the past has accounted for a significant portion of population growth, is expected to play a less significant role in the future.

A net of nearly 500,000 persons migrated into New Jersey between 1960 and 1970. However, between now and 1990, it is expected that many of those in search of another job or a new home will probably move southward to Sunbelt states instead of looking in the declining Northeast for employment and housing. In the past, those entering the state tended to have lower levels of educational attainment, but many were nonetheless skilled workers. At the same time, during the period 1965 to 1970 (the latest for which figures are available), college graduates were leaving the State, presumably in search of better job opportunities elsewhere.

In spite of the apparent exodus of New Jersey college students, statistics indicate the level of education of New Jersey's labor force is rising. The growth of vocational-technical schools, man-power programs and community colleges may be

TABLE 18

**INTERIM POLICY PROJECTIONS
COUNTY RESIDENT POPULATION**

	<u>1975*</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>% Growth (1975-2000)</u>
<u>New York Metropolitan Area</u>							
Bergen	879,100	865,700	885,700	923,900	954,400	990,000	11.5
Hudson	557,600	584,100	590,600	597,100	603,600	610,000	5.6
Essex	881,600	881,600	881,600	881,600	881,600	831,600	-0-
Union	520,500	520,500	520,500	520,500	520,500	520,500	-0-
Passaic	468,800	448,300	462,900	488,000	504,500	520,000	10.9
Morris	395,000	420,000	445,000	470,000	495,000	520,000	31.6
TOTAL	3,722,600	3,720,200	3,786,300	3,881,100	3,959,600	4,032,100	8.3
<u>Central New Jersey</u>							
Somerset	203,700	218,900	234,200	249,500	264,700	280,000	37.5
Middlesex	594,000	602,000	660,000	730,000	785,000	820,000	38.0
Monmouth	491,400	517,100	542,800	568,600	594,300	620,000	26.2
TOTAL	1,289,100	1,338,000	1,437,000	1,548,100	1,644,000	1,720,000	33.4
<u>Philadelphia Metropolitan Area</u>							
Mercer	318,000	348,641	364,330	379,976	395,579	410,400	29.1
Burlington	347,600	379,024	399,942	420,793	441,609	450,900	32.6
Camden	475,600	526,617	552,937	579,079	605,069	629,640	32.4
Gloucester	190,900	217,193	232,287	247,319	262,295	277,022	45.1
TOTAL	1,332,100	1,471,475	1,549,496	1,627,167	1,704,552	1,777,962	33.5
<u>Southern New Jersey</u>							
Salem	62,400	62,700	63,700	66,400	69,400	72,100	15.5
Cumberland	132,000	138,800	149,400	159,400	166,700	172,600	30.8
TOTAL	194,400	201,500	213,100	225,800	236,100	244,700	25.9
<u>Coastal New Jersey</u>							
Ocean	293,800	360,800	425,600	483,300	487,700	477,700	66.0
Atlantic	187,900	209,500	275,600	307,200	311,900	311,900	66.0
Cape May	72,300	86,200	114,900	120,000	120,000	120,000	66.0
TOTAL	554,000	656,500	816,100	910,500	919,600	919,600	66.0

TABLE 18 (Cont'd)

INTERIM POLICY PROJECTIONS
COUNTY RESIDENT POPULATION

	<u>1975*</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>% Growth</u> <u>(1975-2000)</u>
<u>Northwestern New Jersey</u>							
Sussex	99,000	117,000	132,400	150,500	164,300	164,300	66.0
Warren	80,000	85,000	87,300	93,900	98,700	100,100	25.1
Hunterdon	78,500	84,000	88,900	95,500	102,400	107,700	37.2
TOTAL	257,500	286,000	308,600	339,900	365,400	372,100	44.5
STATE TOTAL	7,349,700	7,673,675	8,100,546	8,532,567	8,829,252	9,056,462	23.4

*Source: Provisional Population Estimates for New Jersey, July 1, 1977; Official State Estimates. NJ Dept. of Labor and Industry,
Office of Demographic and Economic Analysis. October, 1978.

helping to provide better educated workers. Per capita incomes continue to rise, and the 1960-1970 US Census statistics show that New Jersey is gaining persons in high income brackets, while losing persons from middle - and lower - income brackets. New Jersey per capita personal income has historically been higher than the US average as noted by Table 19. New Jersey's cost-of-living is among the highest in the nation, and according to US Census figures, approximately 6.1 percent of all families were living below the poverty level in 1970.

Within the state, there has been a tendency for some counties to gain residents due to migration and other counties to lose population (see Table 20). Historically, only Hudson County has lost population. However, recent statistics indicate other northeastern counties are beginning to experience net outmigration, and planners must carefully monitor statistics to determine if this is the start of a long-term trend.

Most other counties are gaining people, especially Ocean County, the fastest growing county, which is housing more and more retirees. Suburbanization and a proliferation of industrial parks is occurring in the southern parts of the State, and commuters to New York show increasing willingness to commute further to work in order to enjoy open space and other amenities. The success of the Twin Rivers residential development, located halfway down the State, but populated principally by New York commuters, illustrates this trend.

As mentioned before, changing employment patterns are adding to the exodus from city to countryside. A 1970 survey found that more than 70 percent of workers listed their place of work as outside the Standard Metropolitan Statistical Area (SMSA) central city, and 30 to 40 percent listed their place of work as outside the SMSA entirely. This shift of jobs encourages exodus of people and, in turn, places increased burden on the tax revenues generated in urban municipalities (down-spiraling). Increased burdens also fall on municipal finances and services of rural communities.

New Jersey's Competitive Position

Despite the redistribution of industry to other regions, high unemployment and other changes already mentioned, New Jersey remains in a favorable position. Industrial decline is new to the State, and may be neither as deep nor as dramatic as some economists believe.

Industrial decline began only in the 1970s, and so far has removed the least productive plants from the roster. The State still retains a better than average share of the nation's industry, and of Fortune Magazine's top 500 companies, 90 percent maintain

TABLE 19
PER CAPITA PERSONAL INCOME
(RESIDENCE ADJUSTED)
1958-1977

<u>YEAR</u>	<u>DOLLARS</u>		<u>RATIO: ^{NJ} <u>US</u></u>
	<u>UNITED STATES</u>	<u>NEW JERSEY</u>	
1958	2,049	2,471	1.206
1959	2,145	2,603	1.213
1960	2,201	2,700	1.227
1961	2,248	2,753	1.225
1962	2,353	2,902	1.233
1963	2,436	2,973	1.220
1964	2,572	3,120	1.213
1965	2,750	3,310	1.204
1966	2,963	3,542	1.195
1967	3,142	3,768	1.199
1968	3,401	4,074	1.198
1969	3,667	4,359	1.189
1970	3,893	4,684	1.203
1971	4,132	4,967	1.202
1972	4,493	5,326	1.185
1973	4,980	5,807	1.166
1974	5,428	6,326	1.165
1975	5,861	6,794	1.159
1976	6,403	7,314	1.142
1977	7,019	7,994	1.139

Note: Data reflects 1976 benchmark revisions, revised estimates for 1975 and 1976 preliminary estimates for 1977.

Source: Bureau of Economic Analysis
US Department of Commerce

TABLE 20

COMPONENTS OF RESIDENT POPULATION CHANGE BY COUNTY

APRIL 1, 1970 TO JULY 1, 1977

COUNTY	POPULATION		COMPONENT OF CHANGE		
	April 1, 1970 (Census)	July 1, 1977 (P)	Total	Natural Increment	Net Migration
Atlantic	175,043	189,800	14,700	900	13,800
Bergen	897,148	874,200	-23,000	11,800	-34,800
Burlington	323,132	361,300	38,000	21,100	17,100
Camden	456,291	473,600	17,300	20,400	-3,000
Cape May	59,554	76,100	16,500	-1,600	18,200
Cumberland	121,374	130,800	9,500	6,800	2,600
Essex	932,526	850,700	-81,800	29,100	-111,000
Gloucester	172,681	195,900	23,200	8,700	14,500
Hudson	607,839	564,100	-43,800	14,400	-58,200
Hunterdon	69,718	82,400	12,700	2,500	10,100
Mercer	304,116	316,900	12,800	10,200	2,700
Middlesex	583,813	593,500	9,700	25,400	-15,700
Monmouth	461,849	491,600	29,800	15,600	14,200
Morris	383,454	398,900	15,400	18,000	-2,600
Ocean	208,470	317,900	109,500	5,900	103,600
Passaic	460,782	461,600	800	18,300	-17,500
Salem	60,346	62,700	2,400	2,200	200
Somerset	198,372	206,700	8,300	6,400	2,000
Sussex	77,528	104,600	27,100	5,300	21,800
Union	543,116	513,000	-30,200	8,900	-39,000
Warren	73,960	82,500	8,500	1,900	6,700
STATE TOTAL	7,171,112	7,349,000	178,000	232,000	-54,000

(P) Provisional

Note: State estimates are shown to nearest thousand. County estimates to nearest hundred.
Components of change may not add to totals due to rounding.

Source: Population Estimates for New Jersey, Dept. of Labor & Industry, October, 1978.

either a headquarters or a major facility in the State. Some 375 partially or totally foreign-owned firms have facilities in New Jersey, indicating that the State remains attractive to corporations both for management and production functions.

The State has a highly-productive, trained labor force, the highest number of scientists and engineers per capita of any state in the nation, and a high level of spending by industry on research and development. Of every \$10 spent in the US on research and development, a dollar is spent in New Jersey. In addition, the State has a highly diversified industrial mix, and enjoys the presence of strong Atlantic Ocean ports. New Jersey is located in the center of the Boston-Washington megalopolis, one of the largest markets in the nation.

While New Jersey cannot escape the national trend of redistribution of industry from highly-developed areas into undeveloped regions, some economists have questioned whether a continuation of past growth would have been beneficial. Rapid economic growth creates "spillover costs," such as wholesale environmental damage, transportation congestion, urban sprawl and its waste of energy, municipal fiscal difficulties and social impacts. While prospects for the future indicate slower growth, there will also be time to solve problems which were created by past growth.

Whatever direction New Jersey takes in coming years, it is clear the State is pulling out of the recession felt this decade, and rebounding faster than other, neighboring states. In turn, the economic lulls and the long-term changes already described have prompted business, labor and government to consider long-needed policy changes which could improve the prospects for the future.

Transportation Implications

As always, New Jersey is a state of paradoxes. In spite of New Jersey's high unemployment, its citizens have enjoyed a per capita income which is the second or third highest in the continental USA. Although New Jersey is the most urban state of the Union, it is transportation poor in public transit. This is especially true in the area of urban public transit, where the service in many areas is truly low quality, due mainly to the existence of antiquated equipment, poor infrastructure and congestion with other modes on the highway system.

As the economic base of the State changes from a location - dependent goods-producing one to the more varied location - independent "services" orientation, New Jersey will have to contend with the resulting demand for infrastructural support due to suburbanization pressure. The State and local governments must weigh these demands against

the loss of firms to other regions of the country.

It has been clear to many that economic recovery depends greatest on the redevelopment of the country's urban cores - - - and this is especially true in New Jersey. What must come to an end is the "leapfrogging" characteristics of the suburbanization process. "A compact development pattern can help to make better use of the existing infrastructure and service systems. With increasing costs of government services, materials, construction and maintenance, better use of our physical and social infrastructure will be an important factor in the (State's) ability to meet future needs. A compact development pattern created by reinvestment in the urban cores and 'in-filling' of vacant parcels of the urban areas will help insure that those needs are met in a thorough and economical way."*

The public transit sector of the infrastructure must be attuned to the overall development plan of a given urban region. Although recent experience provides no evidence that any rapid transit improvements have led to net new urban economic or population growth, many transit improvements have been important inducements to downtown development, but only when supported by other powerful forces. These powerful forces have been described as:

- the existence of a strong and effective demand for new office and retail space
- the existence of an already healthy and active downtown area
- the availability of land (non-fragmented) for development
- the appropriate placement of transit facilities
- and the existence of other public investments to include formal urban renewal activities.

Increased use of public transit must not be seen as the goal of urban development. Clearly, the revival of city centers depends on the locating of new jobs and services in compact downtowns. The proper selection and placement of public transit systems is only one of the major factors involved that will help ensure the revival is successful.

4. AIR QUALITY

It is well established that motor vehicles contribute substantially to air pollution in New Jersey's urbanized areas. Indeed, the automobile is the principal source of one major pollutant, carbon monoxide, and is further thought to be responsible for much of the ozone pollution produced in our automobile-dependent cities.

* DVRPC Year 2000 Plan

Accordingly, the search for a full measure of success in controlling air pollution clearly prescribes a degree of blending air quality criteria into the framework of the State's continuous, on-going transportation planning process. Carefully formulated, comprehensive transportation-air quality planning at all levels of government, together with the well-managed execution of resultant plans within the context of an informed citizenry, could certainly contribute to improved air quality. But further, in the long run, integrated planning of this nature could concomitantly enhance the efficiency of existing and future transportation facilities in the State's congested urban areas, through encouragement of the increased use of transportation modes other than the now ubiquitous automobile with its toxic fumes.

Standards and Trends

In 1970 Congress instructed the United States Environmental Protection Agency to establish nation-wide standards for air quality which would protect and enhance public health and welfare. National Ambient Air Quality Standards were subsequently promulgated for the following five air-borne pollutants:

- . Particulate matter
- . Sulfur dioxide
- . Nitrogen dioxide
- . Carbon monoxide
- . Ozone

Since the early 1970s, New Jersey's overall air quality has shown steady improvement. The State is substantially in compliance with National Ambient Air Quality Standards for three pollutants: particulate matter, sulfur oxides and nitrogen dioxide. Not as much progress has been made in controlling transportation related carbon monoxide (CO) and ozone, however.

The National Ambient Air Quality Standards for carbon monoxide are: (1) 9 parts per million (ppm) maximum eight-hour concentration and (2) 35 parts per million maximum one-hour concentration. One exceedance of a standard per year is permitted; more than one exceedance indicates violation of the National Ambient Air Quality Standard. As of 1978, carbon monoxide is monitored continuously at twenty-two locations throughout the State (see Figure 15).

Contraventions of the eight-hour carbon monoxide standard have been recorded by air monitors in sixteen municipalities, these are:

- | | |
|-----------------|--------------|
| . Asbury Park | . Morristown |
| . Atlantic City | . Newark |

Carbon Monoxide Monitoring Sites

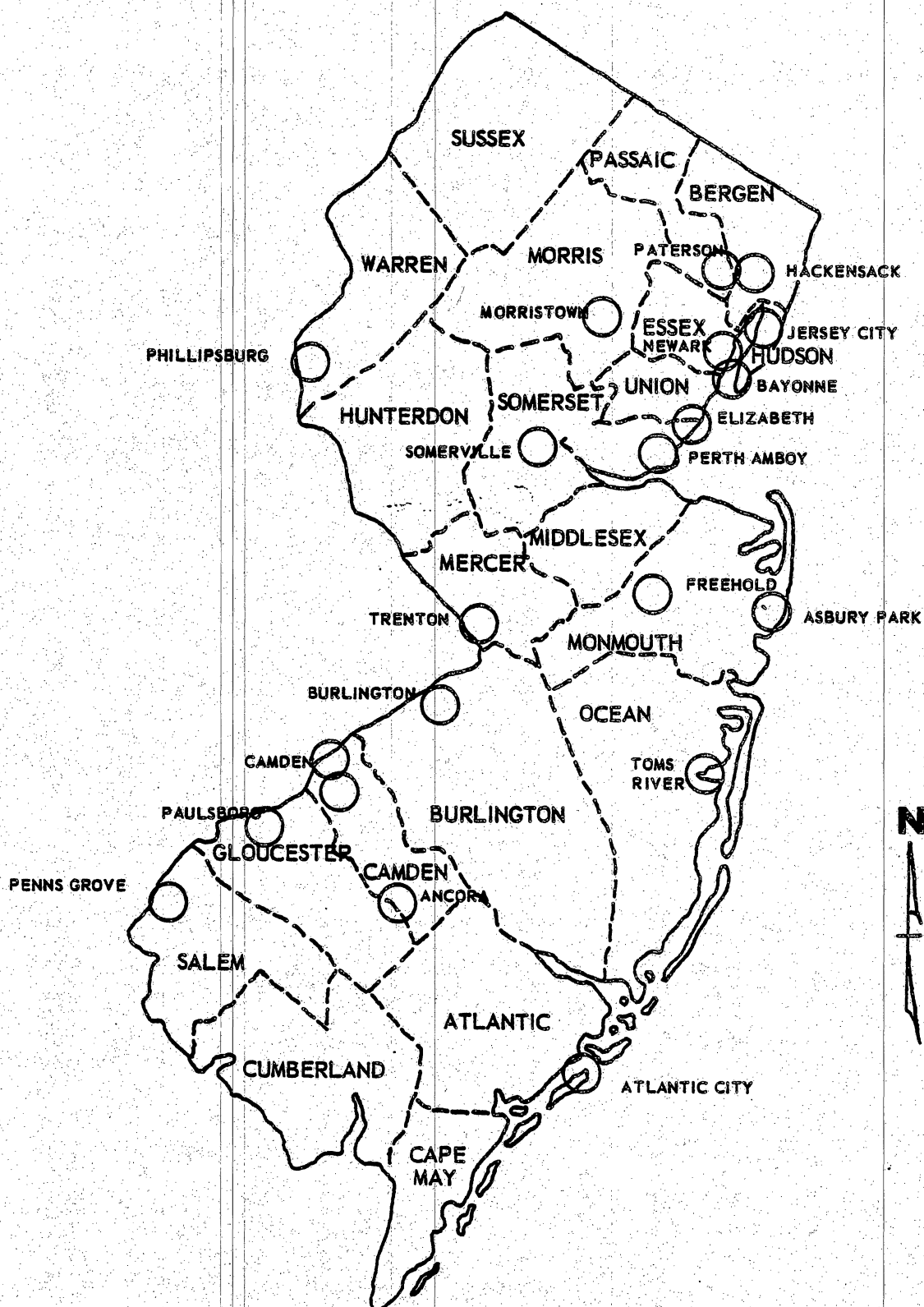


FIGURE 15

. Burlington	. Paterson
. Camden	. Penns Grove
. Elizabeth	. Perth Amboy
. Freehold	. Somerville
. Hackensack	. Toms River (portion of Dover Township)
. Jersey City	. Trenton

Seventy-five additional CBDs in Passaic, Bergen, Essex, Hudson, Union, Middlesex, Camden and Cape May counties are considered unclassifiable as to attainment or non-attainment. Although monitoring data is not available for such areas, their physical configurations and traffic patterns are thought to be similar to places with known contraventions of the CO standard.

In view of the limited monitoring data presently available, the New Jersey Department of Environmental Protection is currently formulating plans for extending CO monitoring on a temporary basis with the objective of developing a screening and modeling capability furthering the understanding of the carbon monoxide problem.

In recent years, contraventions of the one-hour (35 ppm) standard have been observed only at the Morristown air monitoring site.

The National Ambient Air Quality Standard for ozone is: 0.12 parts per million maximum one-hour concentration. The standard is attained when the number of days per calendar year with maximum hourly concentrations above 0.12 parts per million is one or less. During 1977, ozone was monitored at nine locations in New Jersey (see Figure 16).

The Environmental Protection Agency has designated New Jersey as a non-attainment area for ozone. However, New Jersey's ozone pollution may well be but a part of a much larger problem: recent surveys of ozone data indicates that contraventions of the standards are indeed widespread throughout the Northeast Corridor reaching from Richmond to Boston. This and similar corroborating evidence tends to support a conclusion that New Jersey's ozone problem is caused not only by New Jersey's emissions but may as well be aggravated by pollution emitted in "upwind" states. Conversely, New Jersey's emissions may well exacerbate ozone problems in neighboring downwind states, such as New York and Connecticut. Although the spatial transport of ozone and its precursors are far from adequately understood at present, it is clear that the ozone problem will most likely yield only to controls conceived and executed on a multi-state

Ozone Monitoring Sites

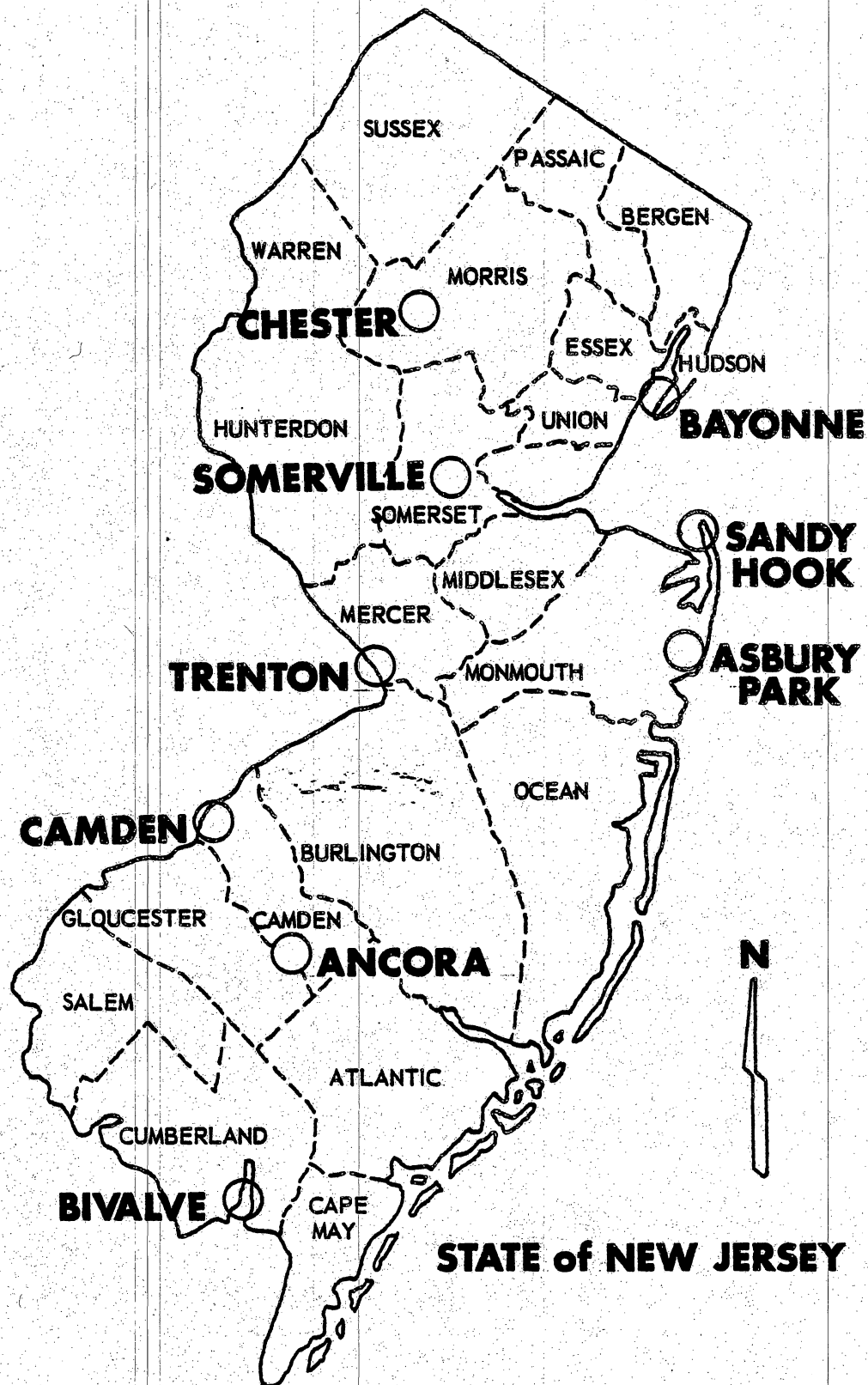


FIGURE 16

plane in the Northeast. Each state working independently may not suffice. To this end, New Jersey has supported a more comprehensive regional approach to the search for the solution to the ozone problem.

In recognition of the pervasiveness of violations of the ozone standards in the Northeast Corridor, and in recognition of the apparent atmospheric transport of ozone and ozone precursors among urban areas, EPA proposes to sponsor a special study with goals of: (1) a better definition of the Northeast ozone problem; and (2) an assessment of various region-wide control scenarios.

Attainment of Standards

The Federal Clean Air Act requires demonstration of attainment of air quality standards as expeditiously as practicable, but not later than December 31, 1982. However, in the case of carbon monoxide and ozone, the law permits EPA to grant an extension of the deadline to December 31, 1987. Based on all presently available evidence, and despite plans to implement available control measures, New Jersey may not fully attain standards for these two pollutants by 1982. The State has accordingly petitioned EPA for an extension of the attainment deadline for carbon monoxide and ozone to December 31, 1987.

The State Implementation Plan

The point of departure for transportation - air quality planning is the Federal Clean Air Act as first written in 1963 and as subsequently and substantively amended in 1970 and 1977. The Act establishes programs, criteria and funding for the various Federal, state and local air pollution abatement efforts.

Pursuant to the requirements of the 1977 Amendments, New Jersey developed a plan which, among other things, demonstrates how the State will achieve reductions in carbon monoxide and ozone levels to attain clean air standards. The "State Implementation Plan for the Attainment and Maintenance of Air Quality Standards" was formally delivered to EPA in December, 1978.

Two salient features of the State Implementation Plan, or "SIP", are that it is directed toward integration of air quality considerations with the on-going transportation planning process and that its goal is achieving standards for carbon monoxide and ozone by 1987, which is the Federally-mandated "deadline" for meeting the standards for all pollutants.

Control of Motor Vehicle Pollution Emissions

New Jersey's State Implementation Plan for the Attainment and Maintenance of Air Quality Standards (the "SIP") describes four basic classes of emission controls:

- Regulations for those industrial emissions which contribute to ozone standards contraventions
- The Federal "tailpipe" control program to reduce emissions from new motor vehicles (FMVP)
- New Jersey's motor vehicle emissions inspection and maintenance program (I/M)
- Measures to reduce pollution emissions from the State's transportation system.

The industrial regulations, the Federal Motor Vehicle Control Program, and the State's motor vehicle emissions inspection and maintenance program are not under the purview of NJDOT. However, measures to reduce pollution emissions from the State's transportation system do come under the domain of this department.

Reasonably Available Control Measures

The Federal Motor Vehicle Control Program and New Jersey's Inspection/Maintenance requirements are together designed to reduce emissions per unit-mile of vehicle operation. Reductions in emissions from the transportation system beyond these two programs will be obtained principally by reducing the overall use of motor vehicles as a class. Such reductions, colloquially termed "VMT" reductions or vehicle-miles-of-travel reductions, will be necessary to supplement stationary, FMVP and I/M reductions should these together prove inadequate to meet ambient air quality standards.

One of the requirements of the Clean Air Act is the implementation of all Reasonably Available Transportation Control Measures, or "RACMs", needed to achieve air quality standards. A benefit analysis should demonstrate which measures would materially assist in reducing ambient carbon monoxide and ozone levels. The measures to be considered includes:

- Improved Public Transit

Use of transit systems to reduce automobile use, particularly during commuting hours.

- Exclusive Bus/Carpool Lanes

Reserved lanes on roadways to reduce the drive-alone mode.

- Area-wide Carpool Programs
Assist employers and their employees in organizing carpools.
- Private Car Restrictions
Banning of movement of private autos in selected areas.
- On-Street Parking Controls
Aimed at reducing vehicular travel and emissions in congested areas.
- Park-and-Ride and Fringe Parking Lots
Provision of additional capacity for vehicles at existing and proposed transit terminals to encourage the use of mass transit in lieu of private autos.
- Pedestrian Malls
Auto-free zones in central business districts.
- Employer Programs to Encourage Car and Vanpooling, Mass Transit, Bicycling and Walking
Programs used by employers to reduce single-occupancy auto work trips such as: preferred parking for car and vanpools, bicycle parking and company-sponsored vanpools.
- Bicycle Lanes and Storage Facilities
Provision of exclusive bike lanes and secure storage to promote the bicycle as an alternate mode of transportation to work.
- Staggered Work Hours
Shifting employee arrivals and departures to spread out "peaking" of demand for transportation facilities during rush hours.
- Road Pricing to Discourage Single Occupancy Auto Trips
Use of pricing alternatives, such as increased bridge tolls or parking fees for low-occupancy private autos.
- Controls on Extended Idling
Programs to discourage extended idling of commercial vehicles during cargo handling operations.

Traffic Flow Improvements

Use of the best available traffic engineering practice to increase traffic flow in non-congested areas.

Designation of Lead Planning Agency

In the realization that successful reduction of air pollution depends in large measure on "grass roots" support of control measures, the Clean Air Act emphatically encourages elected officials of local governments to share with State government responsibilities for air quality planning. To induce their involvement, the Clean Air Act Amendments of 1977 authorized funding explicitly for the use of local officials in devising control measures, particularly those needed for transportation emissions.

The disbursement of these funds is pre-conditioned -- among other things -- on agreement between local officials and State government as to the appropriate group of local officials to assume leadership responsibilities for air quality planning. The Clean Air Act as amended in 1977 strongly urges local officials and the State to jointly designate those groups of local elected officials already charged with transportation planning, namely, the Metropolitan Planning Organizations (MPO) as the "Lead Planning Agencies" for air quality in their respective areas. In New Jersey, all six MPOs have indicated their desire to undertake this important task. Moreover, the Governor has endorsed this movement. Consequently, transportation - air quality planning in New Jersey will be performed by a consortium of mutually supportive governmental agencies and elected officials at the local, county and State levels acting through the MPOs.

5. OTHER ENVIRONMENTAL ISSUES

As New Jersey's population increases and economy expands, more open land is lost to residential, commercial, industrial and public facility and utility needs/demands each year. This increased development poses significant danger to the quality of our ambient air (discussed in the previous major issue) and water resources. This is true of transportation development, too, as rail, highway and airport facilities consume large tracts of land and contribute to air and water degradation.

In a state as small and densely-populated as New Jersey, open land, water resources and air quality are extremely valuable - economically, environmentally and socially. The issue here is the determination of a balance between the economic development of the State, so important to the vitality of its citizenry, and the loss of open space, cultural and historical heritages, and the general decline in the quality of the environment. Public

opinion has risen and been expressed through Federal, State and local legislation aimed at securing, preserving and maintaining environmentally-sensitive land and establishing high standards for environmental quality. Consequently, the New Jersey Department of Transportation has subscribed to and espoused environmental legislation in the transportation facilities planning stage to enhance the environment when possible, and to seek all available ways to mitigate any projected adverse impacts.

The importance of the protection and maintenance of New Jersey's major and unique natural areas cannot be overstated. The continually growing public awareness of the impact of "over-development" of the State's Coastal Area culminated with the passage of the Coastal Area Facilities Review Act of 1973 which authorized the State to prepare a plan for coastal management and to regulate all proposed industrial uses and large scale residential developments (see Figure 17). The purpose is to guide growth, avoiding adverse environmental impacts in an area having one of the most fragile and important ecological systems in the State. This area, so prone to intense summer recreational activity and residential and commercial development, presents complex environmental problems requiring unique solutions from scientists as well as planners.

Some recreational areas and wildlife preserves are so important that they have achieved national recognition and protection and include:

- Delaware Water Gap National Recreational Area which includes portions of western Sussex and Warren Counties bordering the Delaware River
- Gateway National Recreation Area concentrated in the area of Raritan Bay and Lower New York Bay encompassing Breezy Point, Jamaica Bay and Floyd Bennett Field in New York State and Sandy Hook in Monmouth County, New Jersey
- Great Swamp National Wildlife Refuge in Morris County
- Barneget National Wildlife Refuge in Ocean County
- Brigantine National Wildlife Refuge in Atlantic County
- Killcohook National Wildlife Refuge in Salem County

Not all areas have been selected solely for preservation. The Hackensack Meadowlands District has been targeted for urban development but its location and land composition make it ecologically important to the northeastern metropolitan area. The Meadowlands District is composed of about 19,730 acres of largely undeveloped tidal salt meadows and marshes, and extends through 14 northern New Jersey municipalities in Bergen and

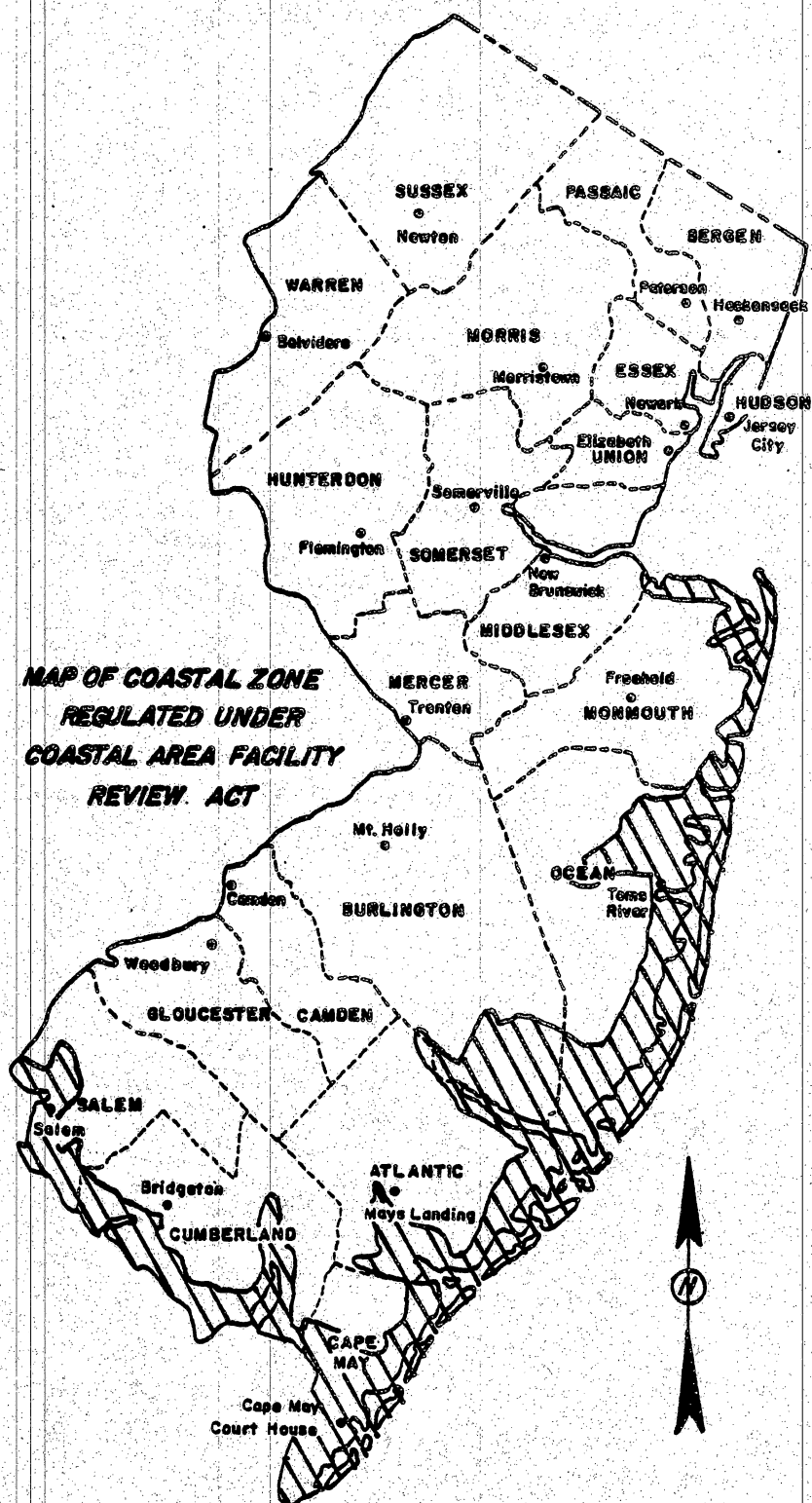


FIGURE 17

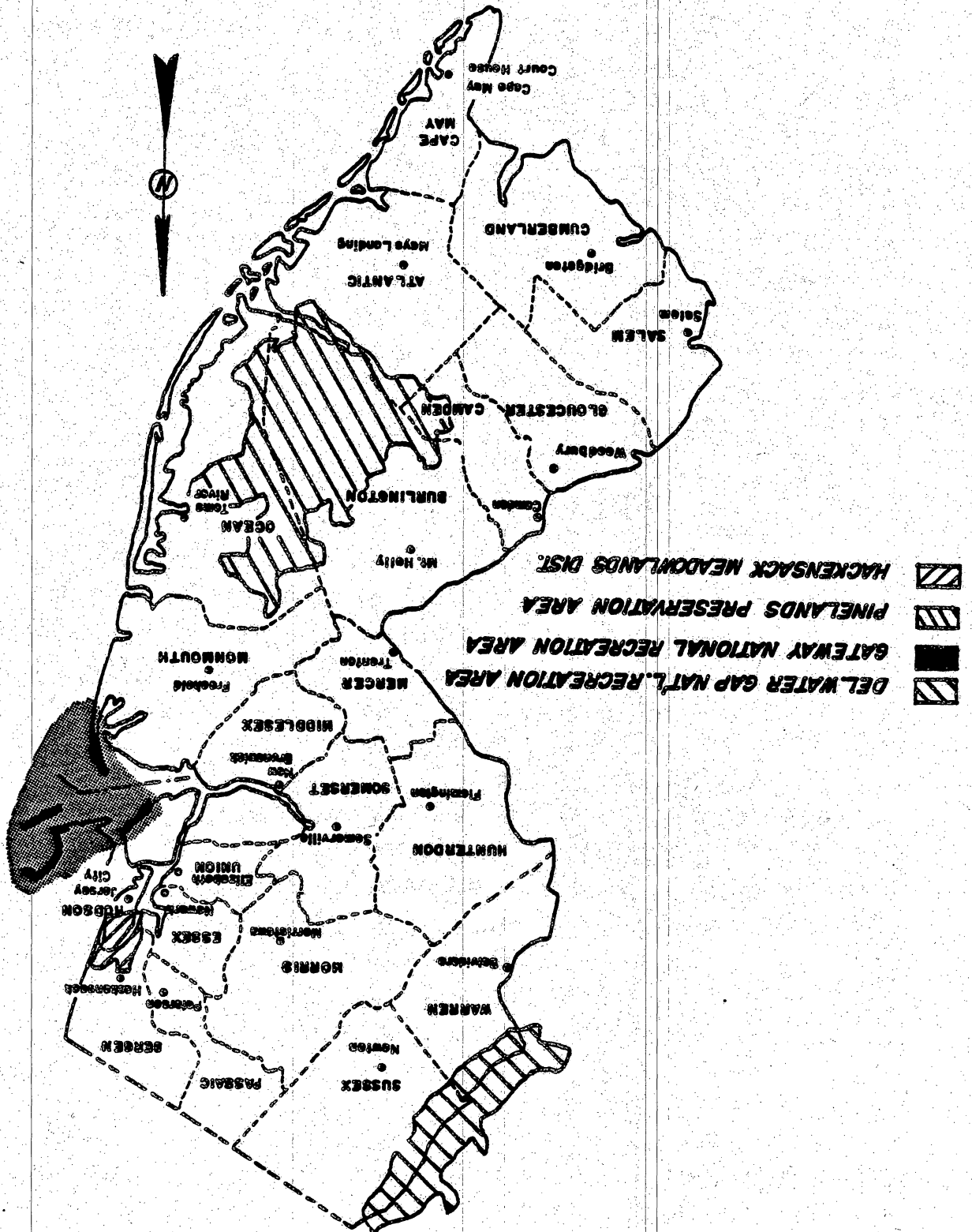
Hudson Counties. The upper level of the land lying within the District is composed mainly of meadow and organic salt marshes. The District, traversed by the Hackensack River and lying immediately north of Newark Bay, is subject to periodic tidal inundation and fresh water flooding. These physical conditions discouraged developments other than industry and transportation facilities to take place in this area in the past. The district became the transportation corridor for inter-urban travel in northern New Jersey and the site for necessary, but unaesthetic functions, such as the disposal of solid waste for the metropolitan region.

However, since the district has the largest open space remaining undeveloped in an urban area and has the accessibility to dense population centers of the metropolitan region, it will inevitably be fully utilized and developed in the future. To insure the preservation of the Meadowlands and to produce a viable developmental plan, the New Jersey Legislature in 1968 enacted a law creating the Hackensack Meadowlands Development Commission. Possessing independent administrative, financial and regulatory powers of broad scope, the commission is responsible for writing and implementing a master plan and corresponding zoning plan. The zoning regulations set the framework for providing balanced development and the necessary public services. Efforts will be made by the Department of Transportation to assure that any proposed transportation facility will be consistent with the master plan.

Two of the State's great natural areas -- the Pine Barrens of southern New Jersey and the Skylands area of Passaic and Sussex Counties perform the important function of being part of the environmental base and are of such importance to society that they deserve special care and attention. The Pinelands is a unique environmental system which is not duplicated anywhere in the United States. The woodlands and winding streams provide a setting for a variety of recreational pursuits, while beneath the surface is a vast supply of potable water. The Skylands is a rugged area which contains heavy forests and steep slopes. In addition to its recreation potential, the rivers, lakes and reservoirs in this area are the source of water supply for major portions of the northeastern metropolitan area. Besides water supply and recreational purposes, the two land areas also provide the environmental base for air quality and wildlife and fisheries resources (see Figure 18).

Besides the above named, environmentally-sensitive land areas, the State contains numerous other state and county parks and forests, recreation areas, and fish and wildlife management areas. Historic landmarks from both the National and State Registers of Historic Places can be found in the countryside and cities of New Jersey, their existence protected by the New Jersey Department of Environmental Protection.

FIGURE 18



Strategies to protect these natural resource areas from environmental degradation and destruction involve the exercise of regulatory powers, fee-simple purchase and the acquisition of conservation easements. In some situations, natural resources can be sufficiently protected primarily by controlling the type and location of development, as well as the infrastructure (highways, sewers, etc.) that leads to development.

However, where any development is considered undesirable, adequate protective measures may require the acquisition of lands or conservation easements. These techniques of regulatory control and acquisition can also be used in combination — as in the coastal wetlands — to achieve maximum protection within the constraints of existing development conditions and State financial limitations. Such legislation as the Wetlands Act of 1970 and the Floodplains Act of 1972 recognize the need to protect critical areas by providing for the State formulation of guidelines, mapping and regulation of proposed development of these areas.

In one respect or another, all land or space is environmentally sensitive. Wherever there is a transportation facility, a direct impact to the surrounding environs from the facility occurs. Highway surface runoff and transportation noise are typical examples, as well as air pollution. The Water Quality Improvement Act of 1971 was designed to protect the quality of water courses by prohibiting the discharge of harmful and hazardous substances into surface waters. The Noise Control Act of 1972 provides uniform Federal regulation of major noise sources, specifically construction equipment, transportation equipment, motors and electrical equipment. Although this Federal regulation is applicable to interstate commerce only, the primary responsibility for noise control is retained by the State or local government depending on the jurisdiction of the facility. These regulations must be considered in the planning and design of all transportation facilities.

Legislation initiating environmental action has generally been derived from two levels of government — the Federal and the State. The most significant legislation is the National Environmental Policy Act of 1969. It established environmental protection and restoration as a national policy and requires that an Environmental Impact Statement (EIS) be prepared and circulated to appropriate agencies for every project in which the Federal government participates. Any issue that arises from a conflict between a project or program fostering local or regional development and the surrounding environment should always be interpreted in the context of the national policy. It is to this end that the Department shall address the environmental impacts from transportation facilities and services on the environmental issues discussed in Section 4, Air Quality, and Section 5, Other Environmental Issues.

Effects of Environmental Requirements on the Transportation Planning Process

Overall Effects

The various Federal and State laws and regulations protecting the environment have caused significant changes in planning, among them a more thorough screening of proposals, both as to their impact and their possible alternatives. For projects in their initial planning stage, this provides a meaningful procedure for developing valuable information. The need for an improvement can be carefully evaluated and the consequences associated with not implementing it, or of providing an alternative, can then be described. However, while these changes provided advantages, they have also imposed difficulties. Much time is spent in meeting the social, economic and environmental regulations. In some cases, this additional activity results in the project never reaching implementation. This could be caused by loss of support because of changes in political leadership during the course of the long drawn-out process, or escalation in costs over the course of a decade, placing the project out of reach of any potential source of funds.

This is not meant to suggest that environmental and other associated regulations are unnecessary or too restrictive. However, for the Department of Transportation, such delays are hampering the realization of many worthwhile projects resulting in the loss of millions of scarce transportation dollars spent for studies, engineering, design and in some cases acquisition of right-of-way for projects which may never be constructed.

Potential Modification to the Environmental Regulations

Recently, consideration of environmental impacts of certain projects has resulted in design modifications that clearly benefit the people in New Jersey. For Interstate 195 in Monmouth County, special considerations for the protection of Allaire State Park were implemented, after the environmental studies indicated the sensitivity of the park to highway construction. Similar experiences have occurred on virtually every major transportation project where actual alternatives have existed.

While the Department recognized the significant positive contributions of environmental regulations, it realizes that as technology improves and experience is gained, these regulations will need to be modified. Already, the need to provide additional community interface has modified the environmental studies. Technical information must be provided in understandable language and certain design factors must be developed early in the process. Similarly, some projects are recognized as so small in scope, such as

traffic signal installation, that they are no longer given a substantial environmental review. Such changes will continue into the future.

The Department has specifically recommended that certain changes be implemented. Among these are recommendations that environmental statements be waived in certain cases, such as bikeways through parkland or even highway construction involving the acquisition of minor portions of parklands, where park officials indicate that the portions involved are not significant. Modification regulations may be necessary to provide relief to the State where two or more Federal laws conflict. For example, the delays in implementing auto exhaust standards authorized by Congress conflict with the target dates for obtaining cleaner air. In another case, there are proposed highway projects that will improve overall air quality but have specific locations where air standards will be exceeded and therefore are environmentally unacceptable.

The environmental regulations are recognized as a key element of current and future transportation planning. There is no doubt that, over time, changes to particular regulations will be necessary and will be implemented. In the long term, however, these regulations will assist the Department in serving the citizens of New Jersey through the development and operation of safe and efficient transportation systems, while at the same time preserving and enhancing the social, economic and environmental fabric of our State.

6. FUNDING TRANSPORTATION

Perhaps the most critical issue faced by New Jersey is the funding of the transportation systems and services. As the most urbanized and densely populated state in the Union, transportation systems in New Jersey experience a more continued and greater usage than in other states. Concurrently, transportation programs must compete with other increasing State responsibilities with dollars that have a purchasing power eroded by inflation.

Since World War II, the State's responsibility in providing transportation facilities and programs has increased significantly. Figure 19 indicates that linear or center-line miles of State highways have increased moderately since 1940. However, during the same time period the number of lane-miles of highway constructed has increased at a much greater rate to accommodate the demand of vehicular traffic which has increased at an even greater rate. New Jersey ranks first in the nation in the number of vehicles that are related to the total mileage of all highway facilities. Figure 20 compares New Jersey

**COMPARATIVE TRENDS:
lane miles, daily vehicle miles, linear miles**

- 110 -

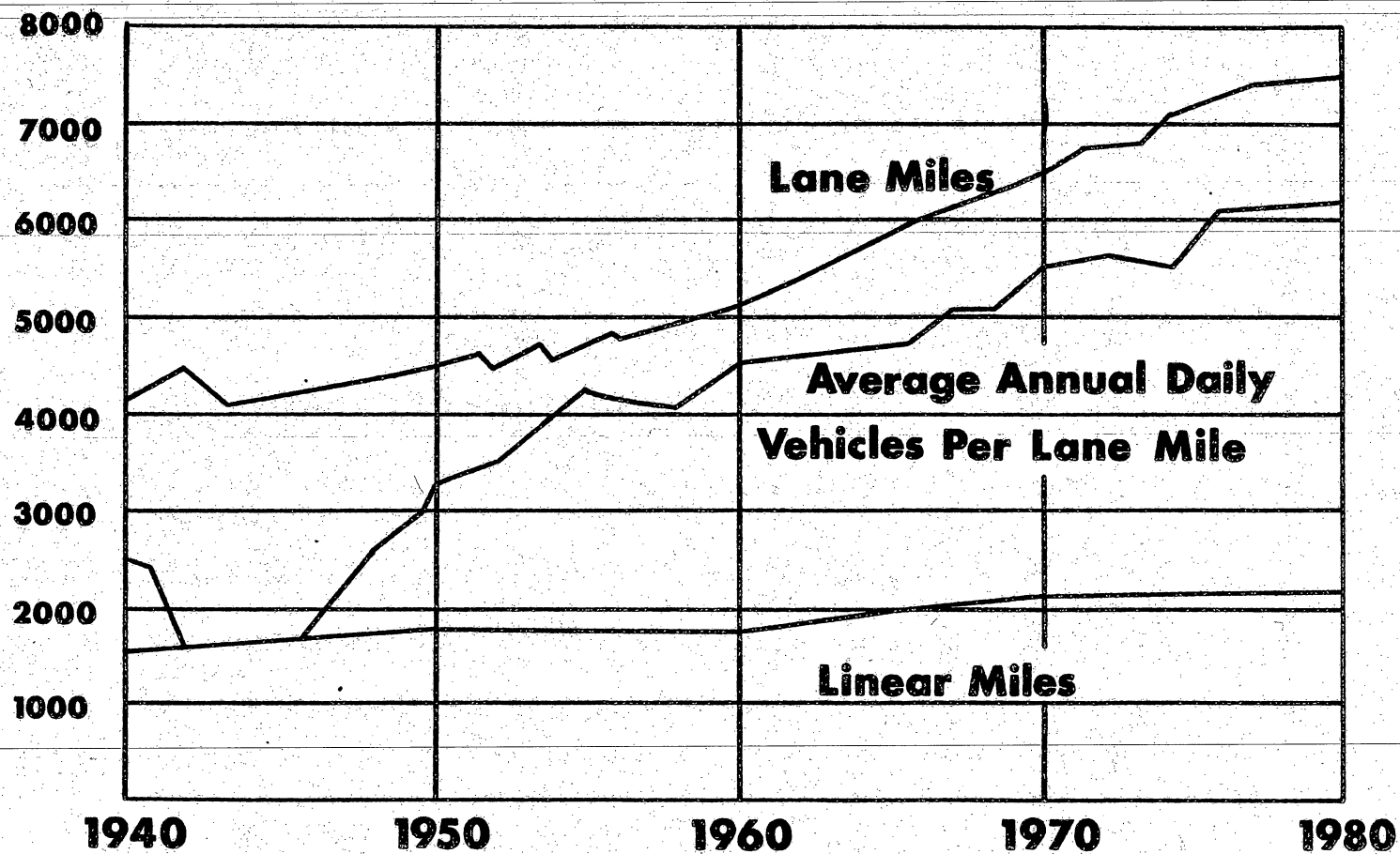
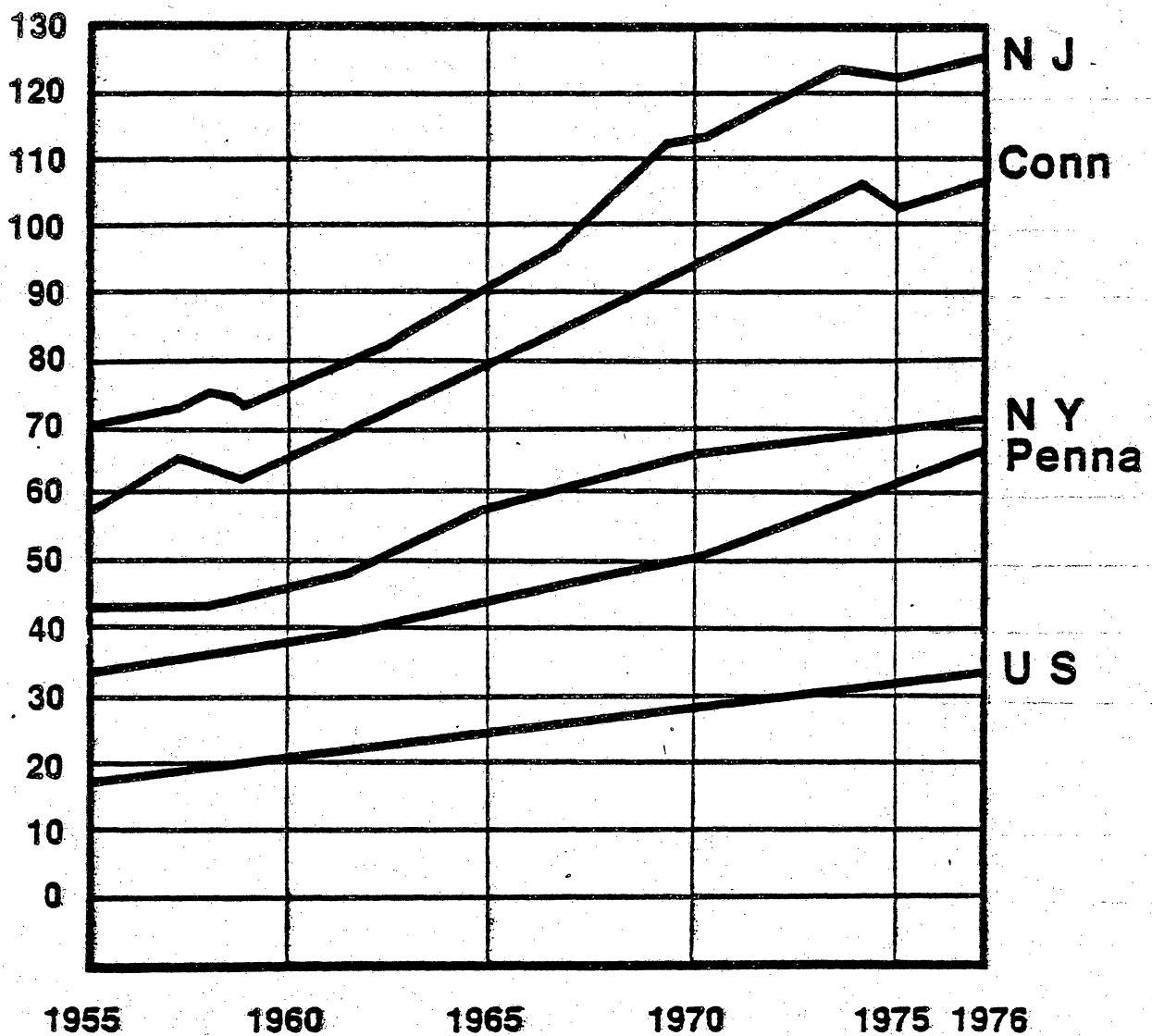


FIGURE 19

Vehicles Per Mile of Road



05/17/79

FIGURE 20

with other northeast states and the national average. The average daily traffic per mile of highway in 1976 was 125 vehicles, while the national average was approximately 34 vehicles per mile.

Since the State began providing operating assistance for passenger travel to railroad companies in 1961 with a \$4.1 million subsidy and to bus lines in 1970 with a \$0.5 million subsidy, combined annual operating assistance is expected to total \$145 million during Fiscal Year 1980.

Maintenance of State facilities has likewise increased over the years due to increases in the number and extent of these facilities. Shrinking dollars have necessitated that maintenance staffing remain at constant levels over the years and that less important maintenance standards be relaxed in order that safety standards be maintained. As can be seen by Figure 21, it has been necessary to increase transportation operating and maintenance appropriations since 1968 while construction has been cut back considerably.

a. Defining The Needs

The Department of Transportation is now in a transition stage; no longer is it involved in the massive road building effort that characterized the 1950s and 1960s, but rather, it has turned to the less glamorous but vital business of improving the road system by making it more safe and efficient by widening, installing barrier curbing, redesigning traffic-choked intersections and completing vital missing links. The Department strongly adheres to its commitment of preserving and expanding the State's mass transportation system, a commitment which began in the early 1970s and has led to substantial progress in reversing years of physical neglect. The cost of improving, maintaining and operating such a transportation system is immense.

(1) Capital Needs

The magnitude of the State's immediate short-term capital needs was reflected in the Department's recent submittal to the Commission on Capital Budgeting and Planning. The Department's seven year capital plan through 1986 contained \$4.0 billion of State and local transportation needs. This includes \$1.3 billion for mass transit and \$2.7 billion for State and local road systems. These funds, if made available, would be utilized to bring public transit equipment and facilities up to a reasonable operating condition, as well as to expand the system; to provide maintenance and improvements necessary to preserve the existing investments in our road system; and to complete the long-planned, critical missing links in that road system.

Comparison of FY 68 and FY 79 Appropriations

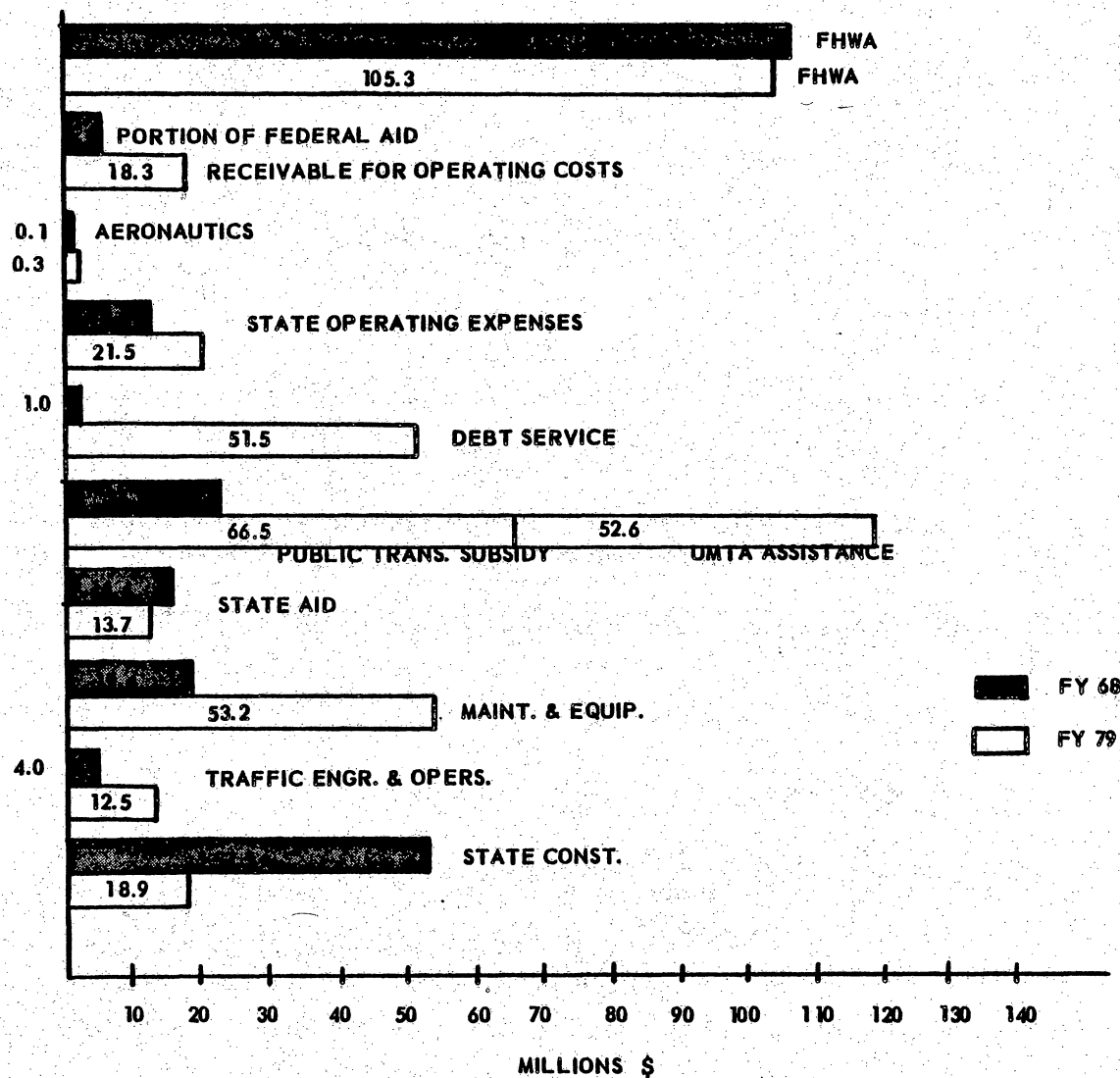


FIGURE 21

In recognition of budget and tax restraints, the need to conserve energy, and social and environmental concerns, the plan does not include any bold new construction initiative. Rather, it seeks to catch up in areas where a race with time and the elements is being lost — that is, in the proper care of existing roads, and upgrading of the aging public transit system to maintain and increase ridership. Providing the critical missing road links is also in line with these concerns, since these projects would relieve congestion and resulting pollution on existing roads.

The system is already operating in excess of its capacity and roads are wearing out faster than they can be repaired. The resurfacing backlog now stands at more than \$100 million, and there are 1,800 bridges on the State, county and local systems which need another \$120 million in repairs. In addition, the State has exercised its option to purchase rail facilities including 540 railroad bridges. Preliminary estimates indicate that \$63 million will be required for repair and replacement of these structures, and the 54 railroad bridges the State already owns.

There are currently 2,500 active State, county and local projects eligible for Federal-aid, with about 20% of these in the final voucher stage, but they are increasing at a rate of 500 a year, primarily for badly needed repairs. The State is currently behind in matching federal funds by \$65 million. Implementation of this plan would bring New Jersey's transportation system up to an acceptable standard of safety and efficiency.

(2) Transit Operations

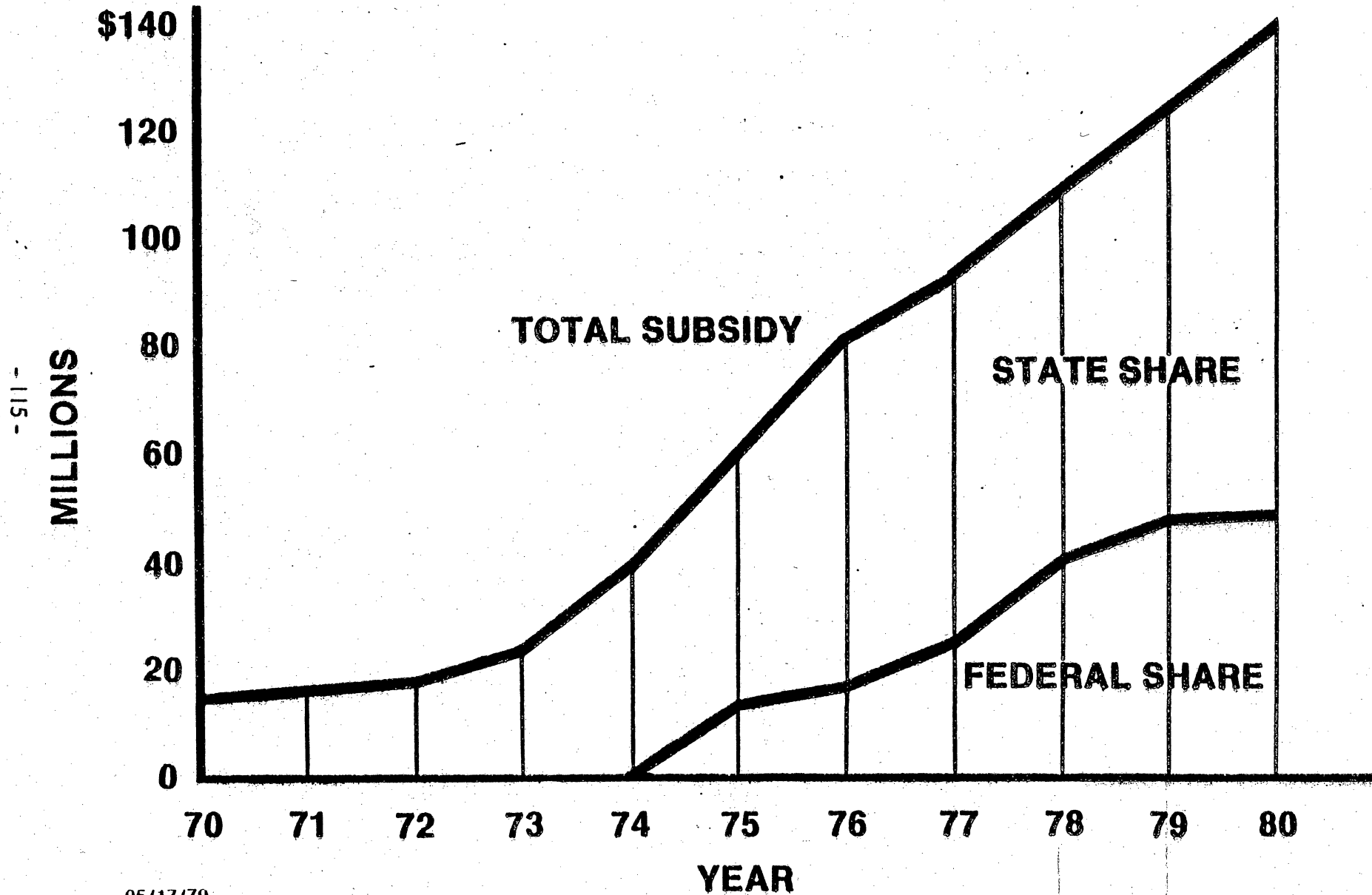
The State has provided operating assistance for essential public transit service since the early 1960s. Rail subsidies began in 1961 when the State initiated a program totalling \$4.1 million. Bus subsidies began in 1970 when the State initiated a "temporary" program of one year duration in the amount of \$0.5 million. The total subsidy program is expected to grow to \$145 million during the current fiscal year.

Federal assistance for operating subsidies was initiated in 1975 with the creation of UMTA Section 5 funds. As indicated in Figure 22 these funds have absorbed a significant amount of the State's operating subsidies liability. However, in recent years, federal funds for operating subsidies have begun to level off, putting an increased burden on State resources.

(3) Operation and Maintenance of Highways

Figure 23 shows the portion of Department appropriations devoted to highway operations since 1962, as well as the amount of highway operations expressed in

Rail and Bus Operating Subsidies



05/17/79

FIGURE 22

Appropriations vs. Constant Dollars

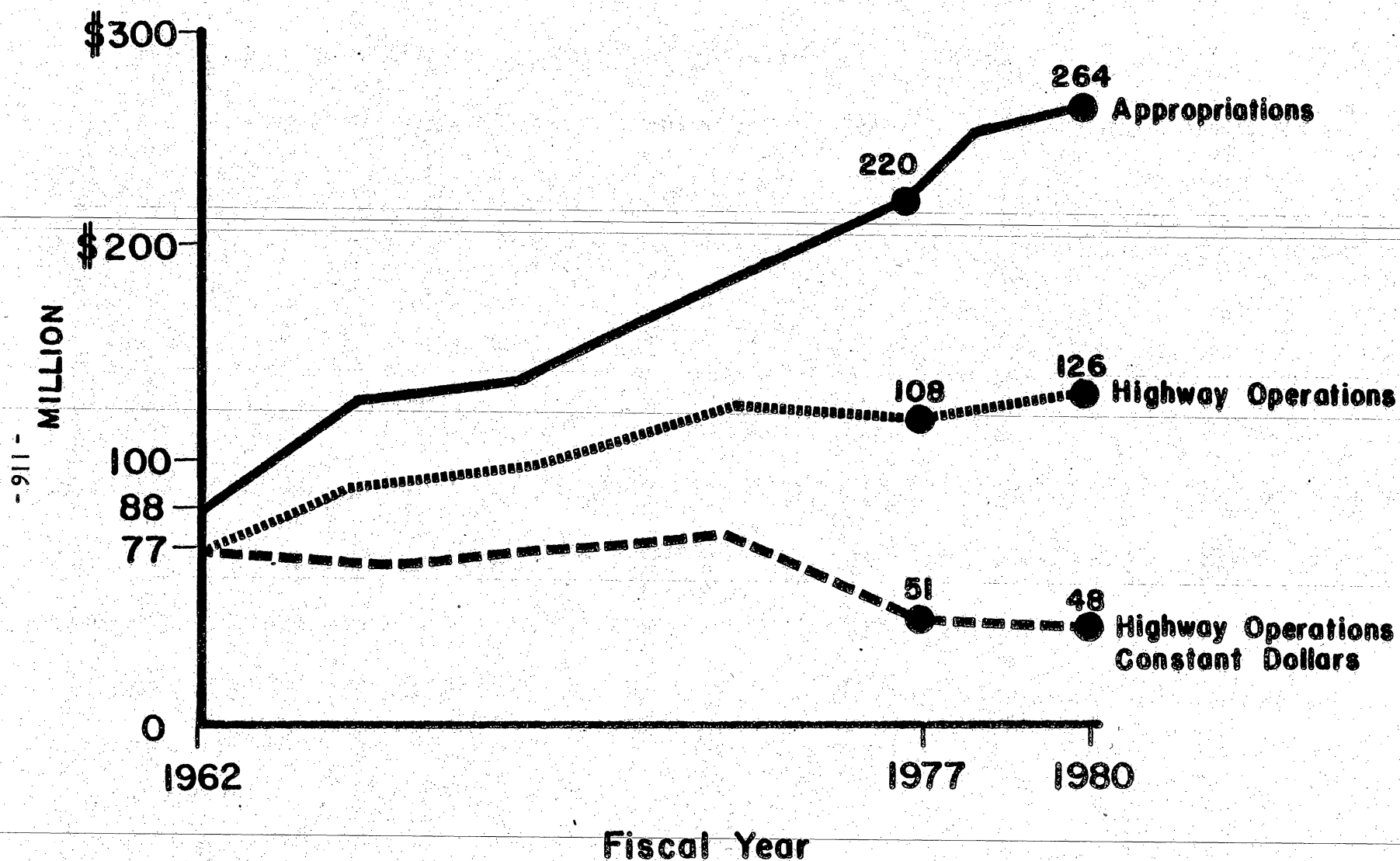


FIGURE 23

constant dollars. Several points are illustrated: 1) while annual appropriations have risen regularly since 1962, the share available for highway operations is rising at a much slower pace (largely due to the growth of rail and bus subsidies as a percentage of budget since 1970); and 2) although there has, in fact, been a slight rise in actual appropriations available for highway purposes, in constant dollar terms, when the inflation factor is considered the purchasing power of the highway related appropriation in 1980 is significantly less than that of 1962 (from \$77 million to \$48 million).

(4) State Aid

County and local roads have suffered substantial deterioration over the past several years. The vast majority of these roads, 23,000 miles out of 30,000 miles, are not eligible for any Federal-aid and county and local budgets have been unable to support an adequate level of maintenance and repair. In fact, State Urban System funds (FAUS) are being used as the local matching share to attract FAUS funds for eligible local projects. Lack of additional State aid is a major problem for local government. Lack of a uniform local fund contribution system for various local highway and transit projects is a major problem for State government.

b. Short-Term Solutions

In an effort to relieve some of the more critical backlog needs, the Department is promoting the acceptance of two short-term funding programs. These programs are considered as stop-gap measures and not as long-term solutions to meeting the State's projected transportation needs.

(1) Transpac

The New Jersey Department of Transportation has entered into an agreement with the Port Authority of New York and New Jersey and the Urban Mass Transportation Administration to fund a \$600 million New Jersey Statewide Mass Transit Capital Improvement Program. The funds for this program will come from two sources: \$120 million from the Port Authority of New York and New Jersey and \$480 million from UMTA.

(2) Bond Proposal

The State Department of Transportation is recommending a \$475 million Transportation Bond Issue for mass transit and roads. The proposal designates \$245

million for State highways, \$150 million for public transit and \$80 million for a State aid program for county and local roads, to include 23,000 miles of roads not eligible for Federal funding.

c. Long Range Funding Issues

It is evident that current levels and sources of funding for transportation will not be sufficient to meet long range needs. To adequately explore the reasons for this inadequacy requires discussion of some of the more important issues in funding.

(1) Inadequacy of Federal Funds

At first glance, it seems inappropriate to discuss an inadequacy of Federal funds when the State has over \$320 million of unspent Federal highway funds. However, approximately one-half of these funds has already been earmarked for Interstate and other Federal-aid projects which are awaiting resolution of environmental issues. The remaining backlog of Federal dollars is in "limbo" because of the inability of the State to provide the local matching share.

Even if the current surplus of Federal dollars were made available for highway construction, it would only fund some of the more critical of the backlog needs. Future Federal highway funding at current levels will be insufficient to address the ever-growing backlog of highway reconstruction, bridge rehabilitation and other safety improvements which are growing at an alarming rate on the highway system of the State.

The problem is equally significant for Federal funding of public transit, both capital and operating. Since its enactment, the UMTA program has never provided New Jersey with financial assistance commensurate with its needs. The formula grant (Section 5 operating assistance) part of the program was heavily tilted against the older rail systems. The capital grant program (Section 3) has been administered in a manner that encouraged the construction of new projects, usually rail systems, while the existing systems were ignored. This has harmed New Jersey, whose capital program places priority on the upgrading of the existing facilities.

Despite the size, scope and high use of its transit facilities, New Jersey ranks eighth in receiving UMTA capital grants. Ahead of the State are (through September 30, 1978):

New York	\$1.75 billion
California	\$900 million

Illinois	\$863 million
Georgia	\$860 million
Massachusetts	\$540 million
Pennsylvania	\$540 million
Maryland	\$495 million
New Jersey	\$384 million

Most of these states have new starts or extensions which are expensive and, possibly, less justifiable and important than activities planned for New Jersey.

Although UMTA Section 5 funds can be used either for capital or operating assistance, these funds to date have been used solely for operating assistance. As has been shown previously, these funds have begun to level off in recent years, while statewide operating subsidies continue to escalate. This has thrown an increased burden on State resources.

(2) Interstate System Transfers

The Surface Transportation Assistance Act of 1978 allows for the substitution of unconstructed portions of the Interstate system with other highway or public transit projects. However, any substitution must be agreed to by the local, State and Federal governments. Not only are there time constraints (Environmental Impact Statements for the substituted projects must be submitted to USDOT prior to September 30, 1983 and the substituted projects must be under contract for construction by September 30, 1986), but funds for the substituted projects have limited availability due to their being funded from general congressional appropriations on a national basis rather than from the Highway Trust Fund.

There are currently certain uncompleted sections of the Interstate system which the NJDOT is considering for dedesignation. Many things have changed since the original Interstate system was designated and it is questionable whether these segments are in concert with the future development goals of the State. The dedesignation of these Interstate segments would "free-up" over \$300 million for other needed highway and public transit projects. However, the allocation of these funds to substitute projects would require additional State matching monies as the Federal/State match for substitute projects requires increased local matching funds.

(3) Surplus Authority Revenues

There are several major public authorities which construct, operate and maintain transportation facilities in New Jersey. These authorities are self-

sufficient in that funds are generated through the sale of general purpose bonds which are paid off through toll revenues.

The authorities generally operate their facilities with what may be considered excess or surplus toll revenues. This excess of funds has generally led the authorities to follow policies which are quite different from those espoused by government transportation agencies. The authorities are self-perpetuating entities and improvements or extensions to their facilities may not be necessarily made in conjunction with overall statewide development goals.

In this era of financial crisis, serious consideration should be given to "sharing" these excess revenues with other transportation interests. This concept is not unique as the Port Authority of New York and New Jersey has agreed to provide \$120 million to fund TRANSPAC. Also, several feeder highways to toll facilities have been improved or constructed with excess toll revenues. The State Department of Transportation is in the early stages of investigating the feasibility of extending this concept as a funding source.

(4) A State Dedicated Funding Source

New Jersey is almost unique in the way State transportation funds are appropriated. Most states in the Union have dedicated transportation funding programs whereby nearly all of the transportation revenues collected are returned for transportation uses. In New Jersey, transportation funds come from the general fund of the State Treasury and transportation must compete for its "share" with all other State programs. This type of funding arrangement has created a situation whereby New Jersey is the only state where less than 70% of the transportation revenue is returned to the transportation sector (see Figure 24). The outlook for transportation under this funding arrangement is not encouraging. Figure 25 indicates that although the State Budget has increased annually, the portion of the State Budget allocated to transportation has dropped from 18.2% in 1962 to 6.9% during the current year. The result has been that since 1960 nearly \$3 billion of revenue from highway user fees has been diverted to non-transportation use (see Figure 26).

Aside from the inadequacy of such a funding procedure, transportation planning based on annual appropriation by legislative budgeting is inconsistent with proper planning procedures, as the future funding of projects can never be assured over the

Percent of Transportation Revenues Returned to Transportation Uses

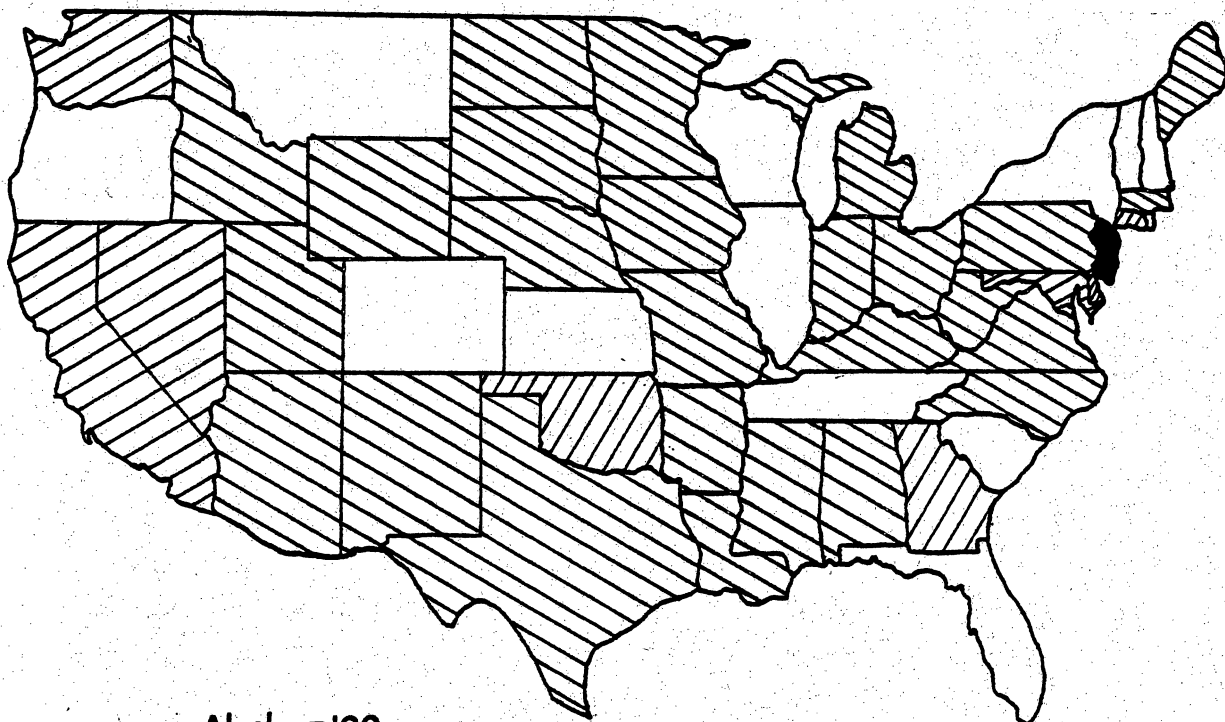
 = 100

 = 90 - 99

 = 80 - 89

 = 70 - 79

 = Less than 70



Alaska = 100

Hawaii = 100

New Jersey = 64

FIGURE 24

Percentage of General State Fund Devoted to Transportation

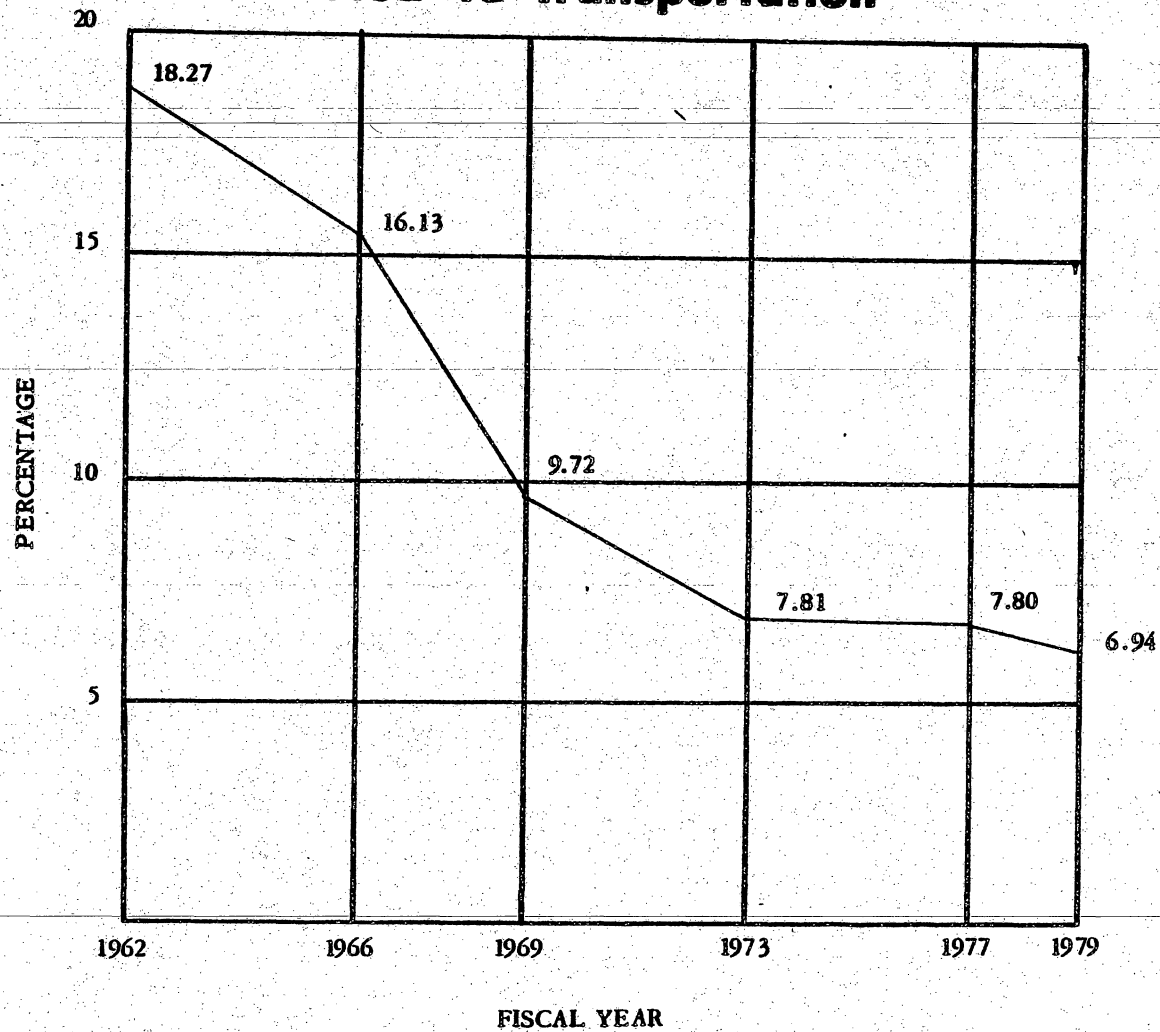


FIGURE 25

Disposition of New Jersey's State Highway User Tax

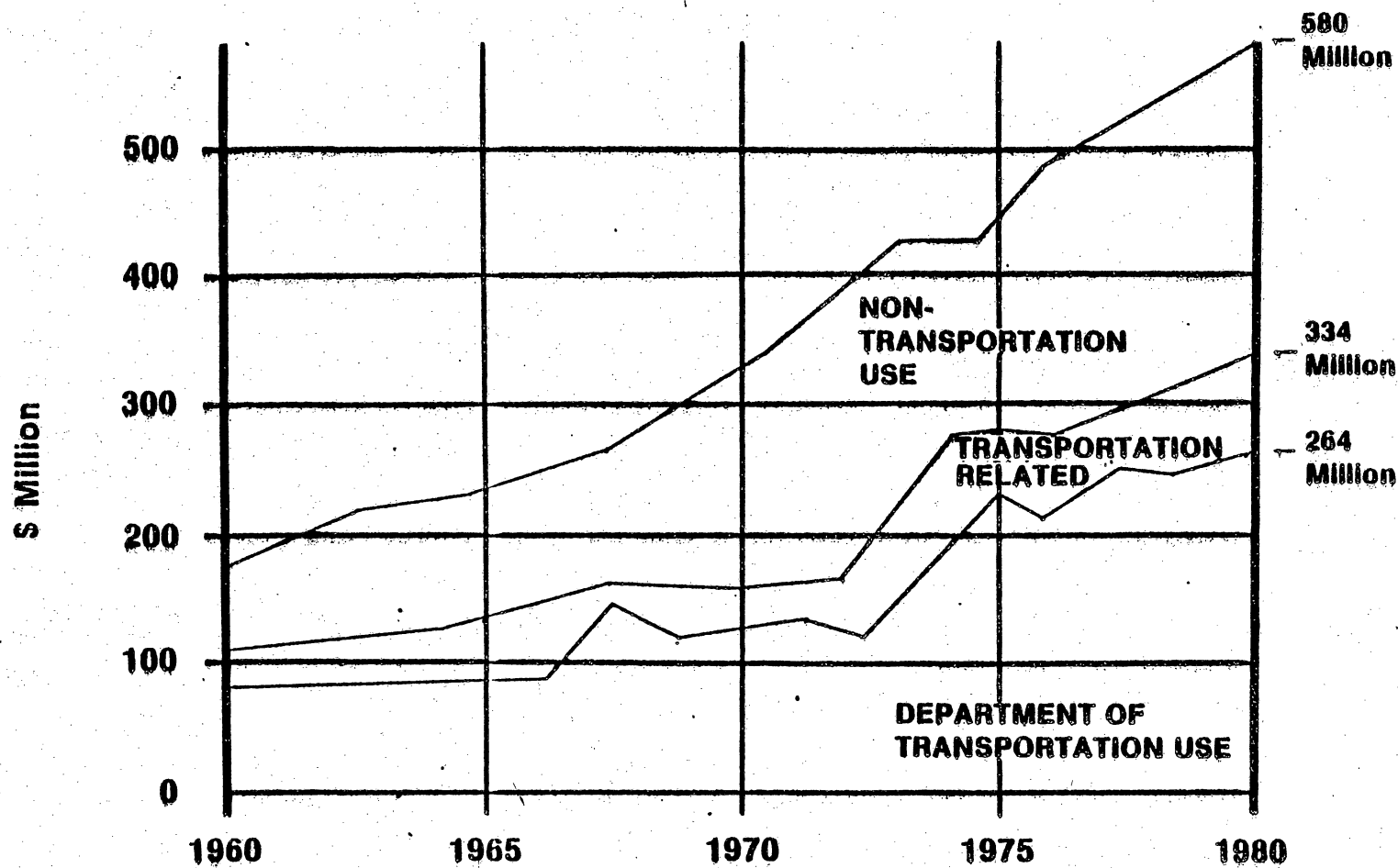


FIGURE 26

05/17/79

years. This situation has led in the past to the formation of the Turnpike and Highway Authorities and the issuance of transportation bonds in order to complete necessary capital improvements. Further, departmental flexibility in responding to transportation needs is hampered by this procedure.

(5) Continued Operating Assistance Requirements For Public Transportation

The need for continued and improved public transit service in the State is evident. If all public transit service were suddenly discontinued, there would be immediate and chaotic impacts to the State. In addition to economic losses, these impacts would include severe highway congestion, increased accidents, increased energy usage and further deterioration in the State's air quality. As for the future, public transportation will be a vital ingredient in the State's goals for economic growth and development. The State's future economic growth will depend heavily on strategies which will improve the energy efficiency of the State. The direct and indirect petroleum efficiencies to be derived from increased public transit usage can reinforce many of these strategies.

The cost of public transportation facilities and services will not come cheaply; capital costs to rehabilitate and expand the system will be enormous. In addition, the need to provide operating assistance from public tax revenues will be extended into the future. To maintain existing and encourage additional transit ridership, it will be necessary to maintain a fare structure which enables transit to compete as a viable alternative with the automobile. If a stable fare structure is to be maintained in spite of spiraling inflationary operating costs, then continuing operating assistance will be necessary in the future.

It is recognized, however, that by its very nature, the operating assistance program does not result in the most economically and efficiently operated system. This has been exemplified by the past history of the operating assistance program. Two avenues of approach are seen as a means of controlling the growth of operating subsidies:

- . increase the productivity and cost effectiveness of the existing transit system.
- . insure that expanded transit services reflect cost effective practices.

These objectives can be achieved through the greater involvement of government in the operation of public transit services.

The newly created New Jersey Transit Corporation, by its centralization of management and operations, will increase the productivity of the public transit

system. The realization of a more cost effective service will, over the years, tend to curb the ever-increasing operations subsidy program

The act which created the Corporation recognizes the fact that in the provision of public transit services, it is desirable to encourage to the maximum extent feasible the participation of private enterprise and to avoid destructive competition. A high degree of coordination and cooperation between the Corporation and private operators will be necessary in order to assure that the needs of public transit users are sufficiently provided.

B. FUTURE GROWTH AND DEVELOPMENT

As the previous discussion on major issues suggests, existing transportation programs affect to a significant degree the size and shape of future economic growth and development. Because Transportation comprises a key component of our economic infrastructure, investment decisions, both for businesses and homeowners, are often determined by the availability, quality and cost of transportation services. Therefore, it is a fundamental responsibility of the New Jersey Department of Transportation to examine the effects that its programs have on either enhancing or hindering economic growth and on molding or modifying the pattern of development. The Department's programs must be designed and planned so that they foster and complement the statewide policies on growth and development established by the Executive Office of the Governor.

State Policies and Offices on Growth and Development

Governor Byrne has established a clear economic goal of encouraging the growth of investment and employment in the State of New Jersey so as to increase the income and quality of life of its citizens. Programs have been created under the Department of Labor and Industry specifically intended to attract greater investment and employment in New Jersey.

The Governor has also established a major, overriding development policy premised on his fundamental goal to help revitalize the economies of the State's major cities such as Newark, Jersey City, Elizabeth, Trenton, New Brunswick and Camden. According to this policy, State investments and programs are to be redirected and concentrated in these core urban areas.

The Governor's Office of Policy and Planning, created by Governor Byrne, has primary responsibility for directing and implementing the policy. This Office, using population projections developed by the Department of Labor and Industry, will provide guidelines for the various State departments to achieve a more proper balance in the distribution of State investments and programs between suburban and urban areas of the State in order to modify the suburbanizing trends of the past.

In accordance with this theme, the Department of Community Affairs has composed a draft State Development Guide Plan. The Plan suggests the areas of the State appropriate for future development and identifies the areas in which development should be constrained. The Plan also sets forth a series of guidelines to assist both public

officials and the private sector in molding specific programs and investments to match fundamental State goals and objectives.

It should be noted that much of the State's ability to affect land-use development patterns resides in the Department of Environmental Protection. The Department of Environmental Protection is charged with the responsibility for maintaining the existence of environmentally sensitive land such as, the State's coastal areas, wetlands, riparian land, parks and forests, and "Green Acres" lands, and therefore the Department has extensive authority to prevent development in many areas slated for preservation or protection.

Transportation must comprise a key component of any effort to increase the petroleum efficiencies of the State, because transportation has experienced the largest growth in energy consumption of any economic sector in New Jersey during the last 15 years. During the period 1960-74, while the total energy consumption in the State increased by 38 percent, the transportation sector in energy consumption increased by 62 percent. Similarly, for the period 1970-74, while total energy consumption declined by 9 percent, transportation consumption increased by 6 percent, and gasoline consumption increased by 12 percent. The State's transportation programs have to recognize these trends and take action to reverse them if the State's policies are going to be consistent with those at the national level.

Conformity with the national petroleum conservation policies is also consistent with the State's energy control, environmental protection and urban revitalization policies. The New Jersey Department of Energy has developed an energy master plan which examines the reasons for the large growth in transportation energy consumption and which outlines a number of specific transportation actions required to conserve energy. The State Implementation Plan for compliance with Federal clean air requirements submitted by the New Jersey Department of Environmental Protection contains a transportation component with specific considerations for changes to the various transportation programs.

Finally, the Governor has established a clear goal, to be attained largely through the efforts of the Department of Labor and Industry, of encouraging and stimulating both investment and employment in the State so as to enhance the quality of life of its citizens. All these development goals and guidelines must be incorporated into the Department's transportation policies and programs.

In developing cohesive and complementary policies on future growth and development, all departments work in close liaison with the Governor's Office of Policy and Planning. This office coordinates and directs all state agencies with respect to the

various policy guidelines, in addition to supporting the activities of the Cabinet Committee for development. The Cabinet Committee further clarifies the priorities for State government and the direction of the various particular programs, such as the transportation programs.

However, the focus of this section concerns the role that transportation programs necessarily play in the execution of the State's policies on growth and development. Before the Department of Transportation could determine and delineate its goals and objectives, the Department must first establish how and the extent to which its programs can aid the attainment of State goals on growth and development.

Economic Growth, Public Transportation and Petroleum

As stated in the previous section, New Jersey's economic position is competitive in many respects and enjoys numerous assets in the structure of both its industry and its labor force. Some forecasts indicate that the citizens of New Jersey should experience steady increases in their real income and their quality of life.

However, the very foundation of New Jersey's economic welfare and future could be threatened by a protracted and aggravated national petroleum crisis. Not only does New Jersey's economy share the dislocations of the national economy caused by petroleum, but because it is so dependent on petroleum, New Jersey, in fact, stands as one of the states most vulnerable to petroleum price increases and shortages.

Crude petroleum prices in the State of New Jersey have increased seven-fold during the past seven years, and most economic projections provide expectations for little moderation in the rate of price increases in the future. Yet, the State of New Jersey still depends on petroleum for 76 percent of its total energy supply. Econometric models have demonstrated that, with such a dominant dependence on petroleum, the economy of New Jersey suffers both significantly heightened inflation and worsened unemployment with each new price increase or protracted shortage. Furthermore, because New Jersey is more dependent on petroleum as a percentage of its energy consumption than are most other states, New Jersey's competitive position in the national marketplace faces irreparable long-term harm if New Jersey's economy remains as dependent on petroleum despite its soaring prices.

If New Jersey is to experience vibrant economic growth, that growth clearly cannot be as dependent on petroleum in the future as in the past. In order to encourage and accommodate economic growth, the State of New Jersey has developed several strategies to increase the total petroleum efficiencies of the State, such as the programs of the New

Jersey Department of Energy to encourage home insulation and to promote the use of existing solar technology.

However, the expansion and improvement of public transportation in New Jersey must comprise a key component of any strategy intended to increase the petroleum efficiencies of the State. Transportation in New Jersey accounts for more than 40 percent of all the petroleum consumed in the State, and the rate of growth in the use of petroleum for transportation is more than double that for other uses of petroleum. If petroleum consumption is to be moderated, patterns of transportation in New Jersey must change.

Yet, it is not the petroleum saved directly by transit vehicles that is most important; rather, it is the total petroleum efficiencies of a revitalized urban and more centralized suburban society, designed and built around public transportation, that will aid New Jersey's economic growth. Public transportation serves to foster a lifestyle by which a person's work, residence, shopping and recreation are all more efficiently intertwined. Walking, one of the most energy-efficient methods of personal mobility, becomes reasonable and acceptable, and the length of other trips is shortened. The Study of the Regional Planning Association of Spring 1976 supports this thesis that public transportation works to create increased total petroleum efficiencies by inducing a style of living less dependent on the automobile. As the New Jersey Energy Master Plan stated, "In the long run, transportation energy consumption can only be brought under control by formulating an urban redevelopment strategy."

This discussion is not intended in any way to suggest that existing communities or developments either can be or should be restructured or abandoned. Communities in which people now live and facilities in which business has already invested are, in fact, assets to the State of New Jersey and must continue to be served by transportation programs.

However, if New Jersey is to gain the benefits of economic growth, that growth must be able to develop in patterns not as dependent on petroleum. Vibrant economic growth in New Jersey requires urban revitalization induced at least in part by vastly improved public transportation.

C. GOALS AND OBJECTIVES

The quality of life of the citizens of the State should be the foremost concern of any plan dealing with an infrastructure as vital to our everyday life as transportation. In fact, quality of life may even be considered the ultimate goal, or ideal, toward which all other efforts are directed.

Quality of life is defined by the goals which the people establish for the social, economic and environmental aspects of their society. From a transportation perspective, the important means to achieving these goals are transportation facilities and services, land use and energy resources. The goals for these important "means" should be secondary to, but supportive of, the quality of life goals.

People live a life style that is mostly described by their degree of social activity, the amount of economic vitality and the quality of their surrounding environment. Energy and land resources have become more important factors or constraints, not only because our population is growing, but because it is recognized that these resources, like transportation, are no longer unlimited in quality or quantity. And yet, all these elements or goals, primary and secondary, are interrelated. One element affects another, and so on, until the total picture of the quality of society's life appears to change, for better or worse, from the ideal. Transportation goals and objectives must, therefore, reflect or integrate goals and objectives from other elements.

Figure 27 illustrates the flow of considerations from the Quality of Life "Ideal" to Transportation Program Policy Statements. Transportation, land use and energy are shown as interrelated with social, economic and environmental considerations because none of these elements are mutually exclusive. The direction to be taken by one will affect the direction to be taken by another.

In addition, there are certain external influences outside the basic elements of our quality of life which will affect the direction of future transportation development. Although not all-inclusive, some of the major influences include legislative mandates, fiscal considerations, technological advances and public input.

In recent years, there have been a number of planning developments which will affect our perception of quality of life and the way in which it is achieved. The developments will, in effect, place certain limitations on the direction that future transportation programs will take. Some of the more prominent developments are

DEVELOPING TRANSPORTATION PROGRAM POLICIES

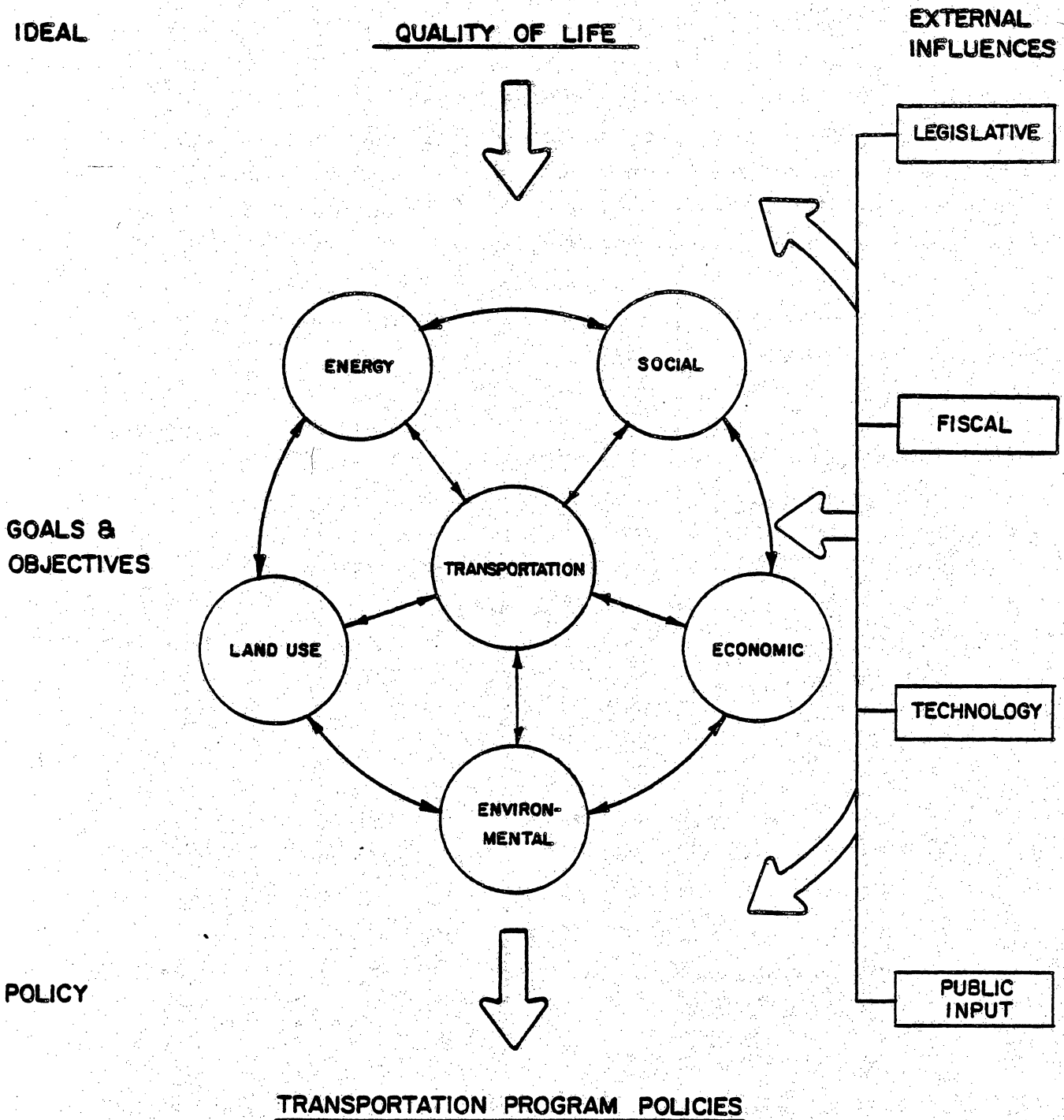


FIGURE 27

summarized as follows:

New Jersey State Development Guide Plan

As mentioned earlier, the New Jersey Department of Community Affairs published its State Development Guide Plan (preliminary draft) during September, 1977. This Plan was developed to provide a framework within which development programs could be viewed for their potential impacts. The Plan suggests areas appropriate for future development, as well as areas in which development should be constrained. The Plan also establishes a series of guidelines to assist the public and private sectors in relating proposals to fundamental State goals and objectives.

The Plan identifies goals for future State development. These goals are summarized as follows:

- maintain the quality of the environment
- preserve the open space necessary for an expanding population
- provide space and services to support continued economic expansion
- enhance the quality of life in urban areas

New Jersey Energy Master Plan

The New Jersey Department of Energy published The New Jersey Energy Master Plan during October 1978. The publication of this document enabled New Jersey to become the first state to develop a comprehensive guide for statewide energy policy.

The report outlines proposed policy goals and strategies to shape energy-related decision-making in the State for the next ten years. It recognizes the important links between energy and the economic and environmental goals of the State. The Plan identifies three long-range energy policy goals which are identified as follows:

- assure uninterrupted energy supplies to all residential, commercial, utility and industrial users in New Jersey
- promote economic growth while safeguarding environmental quality
- encourage the lowest possible energy cost consistent with the conservation and efficient use of energy

The State Implementation Plan for the Attainment and Maintenance of Air Quality Standards

New Jersey's "State Implementation Plan for the Attainment and Maintenance of Air Quality Standards" (SIP) was formally delivered to the Environmental Protection Agency during December, 1978.

The SIP describes four basic classes of emission controls:

- Regulations for those industrial emissions which contribute to ozone standards contravention
- The Federal "tailpipe" control program to reduce emissions from new motor vehicles (FMVP)
- New Jersey's motor vehicle emissions inspection and maintenance program (I/M)
- Measures to reduce pollution emissions from the State's transportation system

Section 504 of the Rehabilitation Act of 1973

Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of handicap in any program receiving Federal assistance. Presidential Executive Order 11914 required the Department of Health, Education and Welfare (HEW) to issue guidelines concerning the responsibilities of each Federal agency under Section 504, which reads as follows:

"...no otherwise qualified handicapped individual...shall, solely by reason of his handicap, be excluded from the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance . . ."

Governor Brendan T. Byrne's Second Inaugural Address

"Yet, with these exciting new developments to enrich our lives and our image, one great frontier remains: the inner frontier of our own cities. If our cities are not made as healthy and attractive as the rest of New Jersey, I fear that all the other achievements are threatened. But if we take up and win the challenge of the cities, we will not only restore ourselves, but set an example for a whole nation to follow." . . .

"To this end, my second Administration will invest its capital and structure its policies to make urban living more attractive. We can do this by deciding where and

where not to build sewage systems, roads, and public works and regional facilities . . . where and where not to direct housing investment, economic development projects, revenue sharing and tax incentives . . . where and where not to invest the time and talents of our State officials."

State Expenditures Limitation Act

On August 18, 1976, Governor Brendan T. Byrne signed P.L. 1976, c. 67 which created the State Expenditures Limitation Act. This CAP legislation limits the maximum permissible expenditures by the State based on a formula which is tied to the State per capita personal income.

The preceding activities were given careful consideration in the development of goals and objectives which serve as the basis for the various transportation program policies. Consideration was also given to other State and regional (MPO) reports, as well as staff analysis to arrive at a consensus for future statewide transportation development programs.

The following discussions on goals and objectives are represented from a transportation perspective. They are by no means presented as a finished product, but rather as a focal point for discussion — and revision, if necessary.

I. TRANSPORTATION - SOCIAL GOAL

Establish and maintain a transportation system which allows New Jersey's citizens and visitors the opportunities to participate in those social activities which express the varied and acceptable aspects of human life.

Objectives

- Promote social well-being by providing accessibility to employment, educational, religious, cultural, recreational, medical and other activities and by encouraging expansion of the range of opportunities for such activities.
- Maintain neighborhood integrity in the development of new facilities.
- Open accessibility opportunities to those persons with physical or economic handicaps (handicapped, elderly, young, economic disadvantaged, auto-less) such that they may be integrated into the mainstream of social activities.

2. TRANSPORTATION - ECONOMIC GOAL

Establish and maintain a transportation system which will assist in the inducement of continued economic growth in New Jersey with minimum environmental damage and social disruption.

Objectives

- Promote an appropriate relationship between land development and each component of the transportation system to maintain consistency with State economic development and petroleum resources.
- Consider all impacts of new or improved transportation facilities on existing businesses.
- Provide new and improved facilities which will develop economic opportunities consistent with overall growth objectives.

3. TRANSPORTATION - ENVIRONMENTAL GOAL

Establish and maintain a transportation system which complements the State's desire for a clean, healthful and pleasant living environment.

Objectives

- Plan, design and construct transportation facilities with minimal impact to the environments: noise, air and water pollution; community disruption; aesthetic degradation.
- Promote the usage of transportation modes or programs which maximize the attainment of the need for mobility but minimize the detrimental impacts of that need on the environment.

4. TRANSPORTATION - LAND USE GOAL

Promote an appropriate balance between land development and each component of the transportation system to maintain consistency with available State, regional and local development goals and to enhance the economic development potential of the State.

Objectives

Urban Revitalization

- Maximize transportation investment in older urban cities.
- Provide transportation facilities which promote urban development consistent with State, regional and local objectives.
- Promote transportation modes consistent with existing or desired population densities.
- Give priority to transportation investments which are vital to the economic development of the older urban cities.
- Promote a balanced and coordinated transportation system which would reduce congestion and improve travel time within the urban areas.
- Ensure that transportation plans, projects, and programs are consistent with the following: Department of Community Affairs' State Development Guide Plan; Metropolitan Planning Organizations' Year 2000 Land Use, Housing and Open Space Plans; Regional Development Guides and Transportation Plans.

Suburban and Rural Development

- Link outlying population clusters with their natural urban CBD's.
- Promote new facilities or improvements to existing facilities which encourage the clustering of economic activities.
- Discourage land development which is inconsistent with the ability of the existing transportation system to serve the additional travel demands.

Preservation

- Discourage new facilities or improvements to existing ones which would promote development in areas set aside as agricultural, open space, etc.
- Meet transportation needs through improving existing facilities rather than constructing new ones.
- Reduce automobile travel (vehicle miles of travel) in order to reduce projected highway lane-mile requirements by providing alternate services.
- Consider joint use of rights-of-way or air-rights for maximum benefit to society.

- Ensure that the transportation plans, projects and programs strive to maintain the preservation of environmentally-sensitive lands and waters defined by the Department of Environmental Protection's Coastal Management Program, Green Acres Program, Parks and Forests Management Programs, Wetlands, Riparian Lands, and Flood Plains Management Programs, and Stream Encroachment and Water Resources Planning Programs.

Accessibility

- Minimize interchange locations on freeways and expressways except in those areas where vital to urban revitalization.
- Discourage land development in areas where such development will severely over-tax the capacity of existing transportation systems and where improvements to the existing system are impractical.

5. TRANSPORTATION - ENERGY GOAL

Promote the concepts of energy conservation by placing more emphasis on public transportation systems and programs, by encouraging some measure of trip diversion from the auto to public transportation systems, and by encouraging the more efficient use of the highway system through low capital intensive transportation services and facilities that reduce congestion and conserve energy.

Objectives

Conservation

- Encourage greater use of more energy-efficient modes of transportation such as public transportation, carpooling, vanpooling, bicycling, walking, etc.
- Encourage more energy-efficient use within each and every mode of transportation used for passenger and freight movements.
- Encourage greater use and dependence on telecommunications as a beneficial alternative to trip-making where possible.
- Encourage multiple-purpose trip-making instead of single-purpose auto trip-making.
- Support the New Jersey Department of Energy's programs and uphold the New Jersey Energy Master Plan's Transportation Recommended Conservation Policies.

Equity

- Support all attempts by the New Jersey Department of Energy to assure that petroleum supplies are available for New Jersey transportation needs during emergency periods as well as non-emergency periods based on the most equitable system possible in relation to other states and/or regions.

Development

- Support/promote research and development of new energy forms, existing untapped energy resources, and more energy-efficient transportation vehicles.
- Encourage the development of a more reliable, more efficient, more accessible public transit system - commuter rail, rapid rail and bus.

Energy Planning

- In conjunction with the New Jersey Department of Energy, assist in the preparation of contingency plans for petroleum emergencies for the state.
- Analyze all major action category projects that will determine the energy impact of such projects.
- In conjunction with the New Jersey Departments of Energy, and Labor and Industry, assist in the preparation of a long-range, long-term transportation energy plan - the ultimate aim of which is the most energy-efficient transportation system available.

6. TRANSPORTATION PROGRAM GOALS

As stated previously, the basic transportation goal for New Jersey should be the development, coordination and maintenance of a transportation system that provides the optimum capability for the movement of people and commodities in the most efficient, time-effective, convenient, safe, reliable and cost-effective manner consistent with the social, economic and environmental interests of the people. At the same time, emphasis should be placed upon or given to transportation needs within the urban areas, within the rural areas and between cities.

Inter-City Transportation Goal

Develop, maintain and maximize the total utilization for all potential users of a balanced transportation system which interconnects major cities, industrial sites and

recreational areas with each other as well as with those of adjoining states with maximum consideration given to social, economic and environmental concerns.

Objectives

- Complete and/or improve the essential links of the inter-city surface passenger transportation system.
- Provide sufficient capacity to maximize the accessibility between major urban centers of the State as well as those of adjoining states.

Urban Transportation Goal

Promote the development, maintenance and maximum utilization for all potential users of a multi-modal transportation system within the urbanized areas which provides the optimum capability for the movement of people in a manner consistent with the social, economic and environmental interests of the people of each urbanized area and within a transportation planning process which establishes cooperation among public, private and citizen interests.

Objectives

- Provide an integrated transportation system within the urban areas which augments and supports the intercity transportation system while at the same time serving the major activity centers within the urban area.
- Provide sufficient surface transportation capacity to maximize the accessibility between activity centers within the urban areas of the State.
- Plan transportation system improvements comprehensively, in cooperation with the metropolitan planning organizations, local agencies, elected officials and interested citizens.

Rural Transportation Goal

Promote the development, maintenance and maximum utilization of a transportation system which meets the basic mobility needs of the residents of the rural and small urban areas of the State.

Objectives

- Promote the development of a transportation system which connects the major rural concentrations of populations with their natural urban centers.

- Promote the development of a transportation system which serves the more important intra-county corridors not already served by the inter-city surface passenger system.
- Promote the development of transportation systems and programs which provide the potential users with a modal choice.

D. PROGRAM POLICY STATEMENTS

I. INTRODUCTION

The previously defined general development goals and objectives for the State must be translated into specific transportation program policy statements in order that:

- a. the attainment of the desired goals may be furthered, and
- b. the setting for program priorities and direction may be established.

Within this decade we have seen the range of transportation programs broadened to deal with a greater variety of transportation problems and needs. Expanded safety, economic development and rural public transportation programs were added to the traditional legislated programs. At the same time, the assessment of environmental and social goals in program development has intensified in recent years. Transportation dollars purchase less each year due to inflation. The uncertainty of future energy resources, particularly the availability of petroleum products, makes the forecasting of transportation needs difficult. Thus, specific policy statements are appropriate in guiding transportation system development.

The New Jersey Department of Transportation must be sure that it responds to the needs of the citizens. Specific policy statements require a knowledge that such policies will address these needs. In order to determine what transportation programs conceived within the Department would have broad-based support from the public and what policies would be expected in a revised transportation plan, the Department recently circulated questionnaires citing various transportation objectives to various public groups for their response. The results of this survey, useful in the development of draft program goal, objective and policy statements, are presented in the next section.

2. PUBLIC SURVEY

During February of 1979, the Office of Community Involvement circulated a questionnaire offering thirty-five possible transportation objectives in an attempt to determine what transportation objectives had broad-based support or diverse opposition and to determine what transportation objectives and policies particular interest groups could be expected to seek in a transportation plan. Distribution included the Legislature, county and major city governments, public interest groups and public citizens with a

stated interest in transportation. Over five hundred questionnaires were mailed out and nearly 150 were returned.

A review of the resulting priority ranking of the objectives in the survey responses indicated that nine objectives had very strong support and three had very weak support. Those objectives appearing to have strong support are:

- Public transportation should be expanded to meet the energy shortages.
- Implementation of low-cost transit improvements should be encouraged.
- Continuing financial support for public transportation must be provided.
- Particular attention should be given to special transit services including park-and-ride facilities.
- Local governments should be actively involved in planning public transportation.
- Particular attention should be given to special transit services including express bus service.
- Essential interstate segments should be completed.
- Transportation research should provide local government with more information regarding a variety of transit alternatives and their appropriateness in meeting transportation service requirements.

Those with the least support are:

- Local governments should be responsible for planning and operating ferry service.
- Local governments should be more actively involved in financing public transportation.
- The airport development program for general aviation should be expanded.

Both aviation and marine transportation appear to have only weak support among active public interest groups. Thus, aviation and marine transportation policies and plans will be addressed in future publications of the Department. At that time, Department policies and commitments will be formalized.

Certainly, it is obvious that any program that involves financial commitment on the part of local government has strong opposition. On the other hand, there is support for local government being actively involved in transportation planning. The policy statements that follow concerning surface passenger transportation reveal a cognizance by the

Department toward this local dualistic stance. For instance, the Department's draft policy statements on rail passenger stations are worthy of special scrutiny.

The results of the questionnaire survey have, therefore, been used in the development of Department policies primarily by acting as a sounding board or scale by which in-house developed policies may be judged and measured. The following Department program policies have been drafted and arranged in modal outline form as the resulting plans and projects will be modally oriented, i.e. public transportation services, highway services and intermodal transfer facilities.

3. TRANSPORTATION SERVICES

Program policy statements follow directly for the modal programs listed below:

- Railroad Services
- Bus Services
- Paratransit
- Highways and Streets Program
- Ridesharing Programs
- Bicycle Facilities and Programs
- Pedestrian Services
- Railroad Station Facilities
- Bus Passenger Facilities
- Park-and-Ride Program

The format for each modal program policy includes an introduction which discusses each program, the program policy statements and brief explanatory paragraphs expanding each policy statement.

RAILROAD SERVICES

Introduction

The passenger rail system in New Jersey consists of both commuter rail and rapid rail facilities. The commuter rail system serves 15 of the 21 counties in the State with approximately 500 route miles of track and carries about 145,000 passengers per day. The rapid rail system serves three counties with almost 33 route miles of track and carries about 200,000 passengers per day.

The State's commuter rail system is generally characterized by outdated and worn out equipment, unreliable service, and until the recent energy crisis, declining ridership. This was the result of years of neglect by private owners of their rail assets. By contrast, most of the State's rapid rail facilities, which are owned and operated by public agencies, provide modern, efficient and reliable service.

Since 1961, the State and Federal governments have subsidized commuter rail service in New Jersey. The subsidy program has grown from its initial \$4.1 million investment in 1961 to more than \$78 million in 1979. The Newark City Subway is also a participant in the subsidy program.

Passenger rail service will play an integral part in the State's future growth and development. There is an integral relationship between land development, public transportation and petroleum conservation and every effort will be made to restore and expand this service in the future.

Program Policy Statements

Give High Priority to Preserving and Stabilizing Essential Service

The economic vitality of the State depends on railroads and the service they provide to both commuters and industry. In this era of energy prudence, it is essential that existing rail service be preserved and stabilized, not only to provide the commuter with a viable transportation alternative to the automobile, but also to guide more energy efficient land development in the future.

Strive for Maximum System Compatibility Between Tracks and Terminals

The State's commuter rail system represents the remnants of a system which was built a century ago by private interests. The system was built by its owners to make a profit and to compete with other operators. Consequently, some of the system is

redundant under public ownership, and much of the system reflects incompatible operations.

There are opportunities to connect some of the rail lines to provide a more efficient service for the public at reduced cost. Such interconnections, as well as other mainline improvements, such as uniform electric power lines, will make it possible to restructure rail service, maximize the use of equipment and attain a more efficient and responsive operation.

Rebuild the Physical Plant

The State owns 425 miles of railroad right-of-way, as well as stations and other supporting facilities. Included in the inventory are bridges, viaducts, tunnels, storage yards, structures of all sorts and other tangible assets. These facilities were neglected by the former bankrupt owners for many years and must be rebuilt to insure reliable, comfortable and on-time performance.

Replace Obsolete Rolling Stock

The State owns all coaches, electric commuter cars and locomotives used in its commuter rail service. Through a replacement program, most of the rail cars are less than ten years old. However, 167 cars needed during peak periods are old, uncomfortable and unreliable and need to be replaced.

The State also owns a number of electric and diesel locomotives which are old and unreliable. Their replacement is essential to continued rail service.

Maintain a Decent Level of Service

It is essential to the preservation of service that a decent level of operations be maintained. Therefore, it is mandatory that trains run on time, heating and air conditioning systems be in working order, seats and floors be clean, train crews be at work, tracks be unobstructed, signals and communication systems be operating and stations be open to the public and staffed.

Promote Fare Structures Which Will Serve as an Inducement to Increased Ridership

Inflation and increased energy costs now make rail services more attractive as an alternative to the automobile. It is essential that fare structures be set at a level which will maintain existing ridership, as well as induce increased ridership. This policy requires that operating subsidies be continued for all essential rail service.

Provide Accessibility for the Elderly and Handicapped

Most of the State's commuter rail system is inaccessible to the elderly and physically disabled. Without the ability to drive a car and without accessibility to public transit, these individuals are denied substantial mobility. As part of a vast federally funded construction program of nationwide impact, every effort will be made to improve the accessibility of the system to these citizens by renovating stations and platforms at essential locations.

Provide Appropriate Protection at All Rail-Highway Crossings

It is essential to the efficient and safe operation of both the rail and highway systems that all rail/highway crossings be appropriately protected from conflicting movements. Grade crossings should be constructed at high-volume crossings while appropriate warning and/or safety devices should be installed at lesser volume at-grade crossings.

Expand Appropriate Rail Service to Developing Areas

As New Jersey's population continues to grow, and more dense corridors develop, railroad services will play a key transportation role in the orderly growth of these developing areas. Because of the energy conservation aspects of rail transit, it is essential that the appropriate commuter or rapid rail facilities be an integral part of the planning for these new growth areas.

Retain Discontinued Rail Service Rights-of-Way for Future Use

There are numerous commuter and freight rail lines which have been discontinued and abandoned over the years. These rights-of-way could be a valuable asset to future transportation growth and development and will be retained where feasible for future considerations.

Encourage Priority Allocation of Energy Supplies to Rail System

By its nature, rail service is more efficient in terms of energy used per passenger mile than the standard one-occupant auto. During emergency energy situations, the Department will encourage a priority allocation of fuel to rail services.

BUS SERVICES

Introduction

New Jersey has the largest privately owned and operated regular-route bus service in the United States. Each day over 650,000 riders use buses, and to many it is the only available means of transportation. State and Federal funds provided to private carriers are used to subsidize the costs of bus service provided to about 80% of regular-route riders in the State. This year that operating subsidy will amount to \$51 million.

Since the State operating assistance program began ten years ago, ridership has decreased by over 40%. The costs to provide service have exceeded the amount of public funds available to pay the private operators, and, as a result, the level of bus service in New Jersey has deteriorated.

In order to reverse this decline in needed bus service, the State recently directed the creation of the New Jersey Transit Corporation (NJTC). This public agency is authorized to purchase the property and equipment of private bus companies and to operate transit lines. The agency is charged with the responsibility of providing an efficient, coordinated, safe and responsive public transportation service which promotes mobility, serves the needs of the transit-dependent, protects the environment, conserves energy and promotes sound land use and the revitalization of our urban centers.

Program Policy Statements

Preserve Existing Essential Bus Service

Existing bus service will be maintained during any transition period when the New Jersey Transit Corporation acquires bus operators. Operating subsidies will still be available to those bus operators which remain independent, private companies. Private operators willing to meet the State and Federal requirements for public assistance will share available funds with the public corporation NJTC.

It is expected that the largest private operator, Transport of New Jersey, and its subsidiary, Maplewood Equipment Company, which together operate over half the bus service in the State, will be acquired by the Corporation. The other 209 private companies which provide the balance of the service will have the opportunity to coordinate or consolidate their operations and equipment with NJTC.

NJTC has a built-in consumer orientation. It will strive to provide levels of bus services at the right time of day to those people who need the service the most. Route

modifications, additional service for heavily travelled lines, innovative fare structures and an aggressive marketing program will all be implemented using bus service improvement recommendations developed by the Department of Transportation and NJTC.

Acquire and Maintain Modern Buses

The State presently owns 1,637 of the 3,700 buses operated in New Jersey. The Department will purchase 1,165 new, replacement buses which will lower the average age of the statewide fleet of buses to twelve years. These new buses will be air-conditioned, have easy access features for the elderly and handicapped, and be equipped with the most efficient air-pollution controls available. State-owned buses are available to the private operators and the NJTC, provided that stringent maintenance conditions are met.

One of the more unfortunate aspects of the rapid increase in the costs of operating buses is that periodic maintenance of the equipment is often minimized to cut costs. This frequently results in breakdowns on the street and aggravating schedule disruptions. Equipment is too often dirty and unattractive to those potential riders repelled by graffiti, littered floors and non-transparent windows. Air-conditioning equipment occasionally fails in the summer causing riders to swelter in the buses. The adequate maintenance of all publicly-owned buses will be a primary policy of the State. The maintenance shops acquired by NJTC will be made more efficient and, as funds become available, new shops will be built as needed.

Promote Progressive Management

Public ownership and operation of buses provides the opportunity to more efficiently manage existing services through the coordination of operations and centralization of management. Where it is determined that improved service can be provided to the public through better coordination of operations, NJTC will be able to work directly with the private operators. On the other hand, where public operation is viewed as the best way to improve service, NJTC will be able to merge existing routes into its route structure. A significant reduction in overhead expenses can occur. Purchasing, accounting and other general administrative functions can be run more effectively. Service adjustments will be made where two competing companies run buses on the same route resulting in more buses available than needed during the rush-hours and few buses running off-hours. Fares charged will be equitable to all and transfers will be provided between routes. Supervision of buses on the streets by the utilization of modern communications techniques will result in closer adherence to schedules and the ability to respond quickly in order to overcome

service disruptions.

Foster the Coordination of Public Transportation Service

In the words of the act which created the Corporation, it is stated that "it is desirable to encourage to the maximum extent feasible the participation of private enterprise and to avoid destructive competition." In addition to coordinating existing bus routes in the State, NJTC will assist in setting up bus feeder routes to commuter railroad and rapid transit stations. Whenever possible, commuters will be encouraged to leave their cars at home and use public transportation.

Park-and-ride lots will be built along transportation corridors and buses will be scheduled to serve these parking lots. Many areas of the State with no commuter rail line are now provided with commuter bus service to Newark, New York City and Philadelphia. These operations can often be extended to serve developing residential areas, shopping centers and employment concentrations. When a potential market for bus service occurs, NJTC will explore all possibilities of operation either by itself or by private bus companies.

PARATRANSIT

Introduction

Paratransit generally refers to those forms of passenger transportation that operate on the highway and street system which are "in-between" the private automobile and conventional bus. Included are such services as rental car, taxi, dial-a-ride, jitney and subscription bus.

Paratransit can play an important role in serving peak hour travel, in meeting low density travel demand (particularly by disadvantaged groups), in providing short access trips to conventional transit terminals and in serving the demand for internal movement within business and commercial districts. Thus, paratransit might effectively substitute for or complement the private automobile and conventional transit.

Paratransit could become an essential element in a system tailored to meet the diverse needs of an urban area such as New Jersey. It can operate in low density areas not economically served by fixed rail or bus systems, provide feeder service to line haul routes and provide the backbone of small community and neighborhood transit service.

Program Policy Statements

Encourage Local Initiative

Local initiative should be the program's basic tenet. That is, the localities should be encouraged to solve local transportation problems and needs on their own. Generally, the county should become the coordinating unit and assist in the identification of local mobility needs and appropriate paratransit solutions.

Promote the Use of Existing Resources

Encouraging the utilization of existing local transportation resources, such as local private operators and existing public services, will make this program an economical one.

Foster Coordination

Efforts will be made to achieve greater coordination of existing paratransit services. This will require greater communication with and the provision of technical assistance to local governing bodies. Maximum participation of private operators will also be encouraged so as to benefit from their incomparable expertise in providing these services.

A single recipient for each county should serve as the broker for all State and Federal funds flowing into their jurisdictions. NJDOT will be responsible for the fair and

equitable distribution of these funds throughout the State.

Integrate Paratransit with Conventional Services

The Department shall encourage the linking of paratransit services to conventional transit wherever feasible. Ideally, the local paratransit network should function as a collector/distributor service for conventional transit in low-density or low-transit demand areas.

HIGHWAYS AND STREETS PROGRAM

Introduction

New Jersey's highway and street system contains about 33,000 miles of facilities and carries approximately 20 million passenger trips each day. The responsibility for constructing, operating and maintaining these facilities is shared among State, county and local governing bodies and several public agencies (highway authorities).

As New Jersey is the most densely populated state in the nation, its highway system has more vehicles per lane-mile than any other state, 125 vehicles compared to the national average of 34. Although most of these are automobiles, the highway system also carries more than 640,000 bus passengers per day.

Past highway construction has no doubt aided and abetted the suburbanization process, which in turn, has placed the core cities and larger urban areas in a state of economic and social instability. In addition, automobile usage has become a prime target in efforts to conserve energy and improve air quality. However, there is considerable public and private investment in highways which must be preserved for the movement of people and goods.

Concerns for the social, economic and environmental impacts of highway construction, plus ever growing funding limitations, have led highway programs into a period of transition. The massive road building that characterized the 1950s and 1960s is being replaced by programs which are geared to preserving and improving the management of the system which already exists.

In the future, highway plans and programs must be prepared carefully, for highways can serve as a positive and efficient infrastructure for future development of the State. However, these plans and programs must be geared to developing a totally integrated transportation system and be accomplished within a framework of coordination and cooperation.

Program Policy Statements

Give High Priority to Constructing Essential Missing Links

There are several segments of the statewide freeway system (both Interstate and Non-Interstate) which are still to be completed. The absence of these essential "missing links" severely curtails the full measure of service that could be provided by the freeway

system and places an undue burden on county and local roads which must "bridge the gap" in the interim. This has led to many instances of severe localized congestion and its attendant problems. Completion of these missing links is essential to the circulation and proper functioning of the freeway system, as well as to air quality improvement, energy savings, safety and national defense.

Improve Existing Facilities Rather than Construct New Ones

In the past, it was in many cases the practice to improve the carrying capacity of a facility by constructing a new parallel facility. This practice was costly, caused extensive environmental damage, contributed to the suburbanization process and increased auto use. To address current considerations, the Department will focus on improving the carrying capacity of a highway corridor where appropriate by improving the existing facility, rather than replacing it with a new one.

Promote an Adequate Array of Functional Highway Systems

In order for the highway and street system to perform efficiently, it is necessary to have an adequate array of arterials, collectors and local streets. If such a system is not available, many links in the network cannot truly fulfill their intended mobility/access role. Additionally, many Federal-Aid Highway funding programs are based on functional concepts and a proper array of functional systems is essential to the efficient distribution and utilization of these funds.

Abandon Highway Projects or Proposals which are Inconsistent with Current Goals and Objectives

Recent considerations in land use development, energy consumption, air quality improvement and funding limitations have rendered many highway projects and/or proposals inconsistent with current statewide goals. Consequently, these proposals have little, if any, chance of ever being implemented. Such proposals will be identified and abandoned as deemed appropriate.

Provide Additional Capacity Where Warranted, Giving Highest Consideration to Transportation Systems Management (TSM) Measures Rather Than Physical Expansion

There are numerous links in the statewide highway system which are currently deficient or are expected to be deficient in capacity in the future. In order for the highway system to function properly and in the interest of air quality, energy and safety, it will be necessary to improve the carrying capacity of these links where no other prudent

alternative exists. In these cases, the Department will give highest consideration to the implementation of Transportation Systems Management (TSM) measures rather than the actual physical expansion of a facility.

Improve Substandard Links in the Highway

There are a number of links in the state highway network which are deficient in accepted Department standards. These links are generally significant in length and contribute to hazardous and uncomfortable driving conditions. Such deficiencies include, but are not limited to, extreme horizontal and vertical curves, 3-lane highways, undivided 4-lane sections of highway and deficient lane or shoulder widths. In the interest of safety, the Department will maintain an on-going program to identify and improve these deficient sections where appropriate.

Improve Hazardous and Congested Spot Locations

A number of locations exist throughout the state highway system which are points of severe traffic congestion or are highly hazardous locations. Such spot locations include: over-capacity intersections, traffic circles, inadequate or unsafe bridges and hazardous rail/highway crossings. In the interest of safety, air quality and energy, the Department will maintain an on-going program to locate and improve conditions at such locations.

Integrate the Highway System with Existing and Proposed Public Transit Systems

To promote more extensive use of the State's public transit system, the Department will integrate the highway system with the existing and proposed public transit system to the extent feasible. To facilitate modal change and increase public transit patronage, the highway program will strive to maximize highway access to public transit terminals, stations and park-and-ride lots.

Encourage the Elimination of On-street Parking on Major Arterials In Congested Areas

On-street parking, especially during peak periods, deprives moving vehicular traffic of essential highway capacity. Motorists entering and exiting from their vehicles (as well as parking them) can effectively paralyze a center city street. The elimination of on-street parking from major arterials during peak periods in congested areas can do much to improve traffic flow, and reduce congestion and in many cases can negate the need for additional capacity improvements. This action can lead to reduced automobile use, increased travel speeds and significant reductions in auto pollutant emissions and energy use.

Encourage Measures which will Spread the Peak Period

The majority of traffic problems occur during the morning and evening journey-to-work and return trip. During these periods, as much as 8% to 10% of the total daily traffic carried by a highway facility can occur. By expanding the peak period, significant reductions in traffic congestion and capacity needs can take place. The Department will encourage public and private agencies, business and industry to enter into a coordinated program to vary working hours so as to reduce traffic peaking characteristics. Such measures to be considered include the staggering of work hours, flex-time and the 4-day work week.

Consider Pedestrian Traffic in Facilities Design and Construction

The pedestrian mode is a viable mode for fair weather short trips. Therefore, such movement should be allowed to occur through a separation of vehicular and pedestrian traffic. This will encourage pedestrian movements where such movements were previously unsafe (real or perceived) and allow vehicular traffic to flow with minimum interference and interaction with pedestrian movements. This can have an added advantage of simultaneously promoting public transportation use.

Encourage Enforcement of the 55 MPH Speed Limit

The Emergency Energy Conservation Act of 1973 mandated a nationwide maximum speed of 55 miles per hour. Since that time, evidence indicates that enforcement of the 55 mph limit has resulted in the saving of thousands of lives and millions of dollars in property, reduced injuries and provided significant savings in energy. The Department of Transportation assists the Division of State Police in the Department of Law and Public Safety in maintaining the speed limit. This cooperative effort and support will continue to be maintained.

Minimize Interchange Locations on Freeways and Expressways Except in those Areas Vital to Urban Redevelopment

The primary function of freeways and expressways is to interconnect regional activity centers. However, indiscriminate and excessive interchange locations can spur growth in undesirable growth areas as well as generate a significant amount of local traffic on a high-speed facility which was intended for longer distance trips. To negate these effects, interchange locations on such facilities will be minimized except in those areas where such access is vital to desired urban redevelopment. This policy will maintain

the integrity of the system as well as serve both the transportation, growth and development aims of a region.

Control Accessibility to the State Highway System

Accessibility to the state highway system is provided by the Department through a driveway permit request procedure. State law currently permits denial of access only for safety reasons. This practice has led to uncontrolled growth along the state highway system and has contributed significantly to current growth and traffic problems. To rectify this situation, the Department will take an active role in changing the law to allow the Department to deny such access, should studies indicate that the transportation system is incapable of handling the additional burden generated by new development or such development is in conflict with statewide goals.

Provide Energy Impact Statements as well as Environmental Impact Statements for all Major Action Category Highway Projects

Since transportation, and more specifically the automobile, is the biggest user of petroleum, the Department will require that an energy impact statement, in addition to an environmental impact statement, be prepared for each major highway proposal. To achieve petroleum savings in addition to travel time savings, a given transportation facilities project should conserve energy in both its construction and operation (user) phases. Therefore, a variety of alternative transportation modes including public transit modes and other ridesharing methodologies, will be included in each major project analysis to determine an energy-efficient solution. This policy is supportive of that proposed in the New Jersey Department of Energy Master Plan.

Advocate the Use of Energy Efficient Motor Vehicles

In this era of energy consciousness, it is prudent that the Department advocate the use of more energy-efficient motor vehicles on the State's highways. This implies more extensive use of the bus system as well as supporting strategies which encourage the use of smaller, light-weight, more energy-efficient motor vehicles. Such strategies could include motor vehicle registration fees, monetary penalties based on gasoline consumption and parking and toll programs.

Minimize Disruption During Construction

Highway facilities have serious impacts on neighboring communities. Rechanneling or detouring traffic flow during the construction or reconstruction of these facilities can

affect the growth and development of commercial and residential districts. These changes can cause serious effects, often detrimental, even to the extent of permanently altering trip characteristics. Therefore, it is imperative that disruption to the community as well as the user be minimized during highway construction.

Develop Highway Plans and Programs which Maximize the Utilization of Available Highway Funds

In this era of fiscal prudence, Federal funds have become the primary source of funds for highway programs. To insure that New Jersey utilizes its full share of these funds, plans and programs will be developed with the intent of qualifying for Federal funds. In addition, critical State dollars will be used to fund the required match for Federal-aid projects rather than to fund 100% State projects to the extent feasible.

Construct or Improve Highway Facilities with the Lowest Initial Capital and Maintenance Costs Possible within Accepted Standards

In the present fiscally-constrained funding atmosphere, contracts for construction of all highway facilities should not only be awarded to the lowest bidder, but also to that design which will necessitate the lowest possible present and future operating and maintenance expenses.

Utilize the Most Efficient Technologies and Methodologies Available for Operating and Maintaining the Highway and Street System

As technological innovations continue to be developed for the operation and maintenance of highway facilities in such areas as highway lighting and signalization, resurfacing, and snow removal, the Department will pursue, investigate and adopt those innovations which are truly energy efficient and cost saving while minimizing risk to travelers, residents and the environment.

Negotiate Jurisdictional Responsibilities Consistent with Functional Classification Concepts where Feasible

Changes in land-use, population density and highway travel patterns have caused the functional usage of a significant number of highways and streets in the State to change over the years. Consequently, there are instances where State highways are serving "local" travel and local roads are carrying travel of regional significance. To rectify this situation, the entire statewide system of highways and streets should undergo a jurisdictional realignment so that facilities of similar usage would be administered by those

levels of government best suited to their administration. The Department will attempt to negotiate this jurisdictional redistribution with county and local governing bodies based on the concepts of functional classification.

RIDESHARING PROGRAMS

Introduction

In exploring methods of increasing vehicle occupancy in order to achieve high levels of petroleum conservation and great improvement in air quality, the Department is presently engaged in two ridesharing programs.

The computer-assisted carpool matching program is the most actively promoted program presently being employed by this Department. Carpool matching is based on the concept that the major deterrent to the formation and use of carpools is a lack of knowledge relative to the origin, destination and time-of-travel of other persons making trips between the same places at the same time.

A second program is the Department's Vanpool Program. A vanpool substitutes one multiple, high-occupancy vehicle for several low-occupancy vehicles. Vanpools operate like carpools except for the ownership of the vehicle and the large number of persons in the pool.

Program Policy Statements

Assist both public and private employers and employees who wish to establish carpooling and vanpooling programs where they are needed and desired.

A concerted effort by the Department as the lead planning agency will enable these programs to become firmly established as a viable mode within the State's total transportation system.

Assist local and other State Government Departments, and their instrumentalities, in encouraging ridesharing by removing legal and regulatory barriers to such programs, supporting existing carpooling and vanpooling programs, and providing technical assistance.

Some laws and statutes regulating the insurance industry and inter-governmental transactions, once established for justifiable reasons, have today become archaic and/or regressive. Analysis of these regulations will reveal those laws which can be modified or repealed to allow ridesharing programs to be successful.

Coordinate the Department's ridesharing efforts with the Departments of Environmental Protection and Energy, other affected Departments, local and county governments,

metropolitan planning organizations, and state highway authorities.

It is imperative that a unified approach be maintained in New Jersey's ridesharing efforts which are crucial to the State's petroleum conservation efforts. Much of this effort will overlap both jurisdictional and administrative functions, and thus success can be achieved by a concerted effort on the part of all participants involved.

Strengthen the Department's marketing program to promote the concepts of ridesharing.

The increase of public response from informative promotional campaigns hinges on a well-managed and cogent marketing effort, similar to those employed by private industry.

BICYCLE FACILITIES AND PROGRAMS

Introduction

In an era of energy and environmental conservation awareness, the bicycle is an underutilized, inexpensive and beneficial form of travel. Bicycles can be used for short-trip utilitarian purposes such as travel to work, school, shopping, recreation areas and public transit stations.

Although current popular interest in bicycling is at an all-time high and bicycling is the number one form of outdoor recreation in New Jersey, greater utilization and integration into the transportation system is inhibited by safety and security problems, both real and perceived. Interaction with the auto mode, especially at roadway intersections, is a prime cause of bicycle accidents. Poor traveling surfaces, curbing and poorly designed drain grates also contribute to bicycling hardships. With the high cost of many bicycle models and the high theft rate, inadequate and insecure parking facilities for bicycles is a major deterrent to such utilitarian use.

Primary efforts (from State involvement) will be for establishing adequate facilities and road design which incorporate bicyclists' (school age children and those making short-haul trips) needs, as well as map publications and safety education for school, work and shopping trips; and public transit connections of the journey-to-work trip. At the local level, emphasis should be on specific needs of a given municipality and State assistance and support should be channeled in that direction.

Program Policy Statements

Promotion of Education of both the Bicyclist and Motorist as the most Effective Way to Reduce Bicycling Accidents, through Elementary Schools and at Motor Vehicle Licensing and Registering.

Education of both the bicyclist and the motorist is recommended as the most effective way to reduce bicycling accidents and thus promote confident bicycle use. Schools are the logical place to teach children; the automobile licensing and registration system is an easy, quick and inexpensive way to reach the motorist; the electronic and printed media can reinforce the safety message to most of New Jersey's citizens.

Motorists must learn to understand bicyclists' abilities and problems. Bicycles are legitimate and legal vehicles on the road, a fact of which many motorists remain unaware

or tend to overlook. Bicyclists need to learn to ride with the traffic, use lights at night and observe all the rules of the road.

Promotion of Statewide Bicycle Registering Administered at the Local Level to Inhibit Theft

Bicycle theft is a major deterrent to utilitarian bicycle use. Secure bicycle-locking facilities are badly needed, especially near public transportation centers. A statewide bicycle registration system would help reduce theft by making the reselling of stolen bicycles difficult and would aid the police in returning stolen bicycles to their owners. Such a registration system would help to enforce the safety equipment standards, legitimize the status of the bicycle as a vehicle, and aid in the collection of safety statistics and user characteristics.

Facilitate the use of Federal-funds on the local level for the costs of supplementary facilities such as shelters, parking facilities, bicycle-storage facilities and comfort stations, especially at public transit stations and terminals.

The Federal Highway Administration (FHWA) allows the construction of bikeways as an incidental feature of regular highway improvements. FHWA can pay 75% of the cost of these bicycle facilities (90% in interstate construction), just as with any Federal-Aid Highway funds' project, with the State or local government paying the remaining portion. FHWA allocates \$25 million per year of highway funds to be spent on independent bicycle facilities. There is also money available for bicycle facilities from such sources as the National Park Service, the Army Corps of Engineers and various other Federal agencies. The Department should apply such available resources to obtain maximum benefit for New Jersey's citizens.

Provide Mapping of:

- local bikeways and bicycle-safe streets.
- tourist information such as scenic and historic routes having bikeways.
- general biking information.

Bicycle maps showing the best bicycling streets coupled with safety improvements (such as spot improvements, operational signing, storm drain replacement and shoulder paving) are inexpensive and effective alternatives to creating an official bicycle system. Such maps would show bikeways, safe streets and bridges, transit stop information, locking facilities and bicycle repair shops. Advertising (both related and non-related to bicycles)

could be sold on the map borders and would help defray printing and distribution costs. Maps could also contain safety rules and practices. Maps should be sold at cost to supply money for future reprinting if funds are not available, as they are, for other systems' mapping.

In Future Construction, give priority to construction of Class II Bikeways over Class I and III Bikeways.

The characteristics of each class are:

- Class I Bikeways (bike paths)

These are independent right-of-way, off-street facilities with cross flows by motorists minimized.

- Class II Bikeways (bike lanes)

These are one-way facilities that are basically wide curb lanes of a roadway with stripes (not physical barriers) to promote an orderly flow of traffic.

- Class III Bikeways (bike routes)

These are intended to provide continuity to a bikeway system only. Operational and warning bike route signs are placed along safe, well-maintained roads.

Class II Bikeways are economically feasible while Class I Bikeways are expensive to build and maintain. Class III improvements really do not serve the "user" but rather improve the image of bicycling. The bulk of funds can be used for the improvement or resurfacing of roadway shoulders for bicycling purposes.

In road construction, the needs of bicyclists should be incorporated into the design where appropriate. This often eliminates the need for bikeways. Wide curb lanes, bicycle-safe drain gates, smooth railroad crossings, and bikeways on highway bridges can be designed into many projects.

PEDESTRIAN SERVICES

Introduction

As New Jersey's citizens become more energy and health conscious, appropriate provisions must exist for improvement and/or construction of pedestrian malls and other means of separating pedestrian and vehicular traffic. With more people realizing the energy-efficiency of walking directly to their destination (assuming close proximity and appropriate weather conditions), efforts must be taken to meet pedestrian needs. In addition, the sport of jogging, as a form of exercise and recreation, depends on a good, well-connected system of pedestrian walkways for the safety and convenience of both the joggers and vehicular traffic.

Even though a portion of many trips involves walking, only minimal attention has been given to pedestrian services outside CBDs and other areas of high pedestrian concentrations. Furthermore, the absence of sidewalks in residential areas requires pedestrians to walk in the street, which is a deterrent to many who wish to utilize bus transit.

Program Policy Statements

Pedestrian facilities should be made a prime element of public transportation systems particularly where they support community-centered public transportation services.

One of the ways that ridership can be increased on public transportation systems, especially buses, is to make such service more accessible. Up to this time, attention has been focused on serving those users with autos. Ridership could be increased if pedestrian systems could attract more car-less riders as well.

Provide safe waiting areas adjacent to highways for school-bus and mass transit patrons.

Such a policy will encourage bus ridership and thus, aid in the reduction of urban traffic congestion. Furthermore, the increased pedestrian traffic flows that result may increase CBD business volumes.

Provide for safe, all-weather walking space along highways in those areas where pedestrian traffic is likely to occur.

Although many highways and expressways near urban areas facilitate vehicular movements, those that lack pedestrian walkways can effectively isolate those areas they traverse. Such walkways are important in maintaining residential and commercial district

interaction and cohesion. Thus, impacts on land use in the proximity of a highway can be significantly lessened.

Provide pedestrian overpasses at locations where such overpasses are warranted by Department guidelines and where at-grade pedestrian crossings are not feasible.

These types of pedestrian crossings are especially important in urban areas as they permit safe crossing of a highway which would otherwise be impassible or extremely hazardous. Inter-community interactions are also enhanced.

Provide appropriate pedestrian protection at all highway intersections

This will facilitate and improve pedestrian circulation and safety. It can be achieved by pedestrian-actuated traffic signals, crosswalks, a uniform system of signing and pedestrian overpasses, where warranted.

From a pedestrian viewpoint, safety is of great importance. Often, even minor improvements can enhance the appearance of a pedestrian system, which will increase its viability as a mode option.

RAILROAD STATION FACILITIES

Introduction

On September 15, 1978, the State of New Jersey operating through the Commuter Operating Agency (COA) of the Department of Transportation, exercised its option to take title to most rail properties, used in commuter rail service, which were conveyed to ConRail on April 1, 1976 under the terms of the Regional Rail Reorganization Act of 1973, as amended. As of that date, the COA became the owner of 130 station parcels. All those available station parcels (including associated parking facilities) for which continued commuter operation is expected were acquired. This total number includes most ConRail-owned station parcels on the former Erie Lackawanna, New York and Long Branch, Central Railroad of New Jersey, Reading and Pennsylvania-Reading Seashore lines. The State of New Jersey has also exercised its option to acquire from AmTrak those station properties on the Northeast Corridor used primarily by NJDOT-ConRail commuters. This acquisition is in addition to the railroad property acquired by the State in April of 1976.

Program Policy Statements

Encourage Local Pride

Historically, railroad station facilities have been located in or adjacent to central business districts of municipalities along the rail lines. The railroad stations have, in the past, served as a spur to development of town centers, as well as residential communities. Because of the prominent position a railroad station usually plays in a community-anchoring or at the hub of a town's commercial center, the station should be a source of municipal pride as well as a social and economic asset. For this reason, the State wishes to encourage local community involvement in the upkeep and improvement of station facilities.

Improve the Standard of Maintenance and Security

A local municipality, as opposed to the State, or even ConRail, is in a position to notice maintenance problems quickly and to match the level of maintenance and minor improvement functions to the desires of the community, in order to insure clean and safe station operation. Similarly, the necessary level of personal security can more adequately be provided at a local level.

Minimize State and Local Costs

The State will continue to be financially responsible, through the rail service financial assistance program, for the provision of commuter rail service and maintenance of the railroad right-of-way. In an effort to minimize costs of individual stations, consideration should be given to the leasing of railroad stations and related facilities. The additional station operation and maintenance costs can be incorporated into existing municipal budgets at a funding level lower than present costs.

Retain Limited Control to Insure Full Access to the State-owned and Subsidized Commuter Rail System

The State's involvement in station operation is required in a limited manner, because of system-wide commuter rail responsibilities. These responsibilities will include standards for maintenance, parking fees, surveillance, signage and information, supervision of ticketing and commuter fares and control over station uses which might unduly limit or interfere with commuter operations.

Restore and Improve Rail Station Facilities

With the decline of passenger railroad service, station facilities have been neglected and have in many instances deteriorated to an unacceptable condition. Furthermore, station facilities are no longer appropriate for existing demand and operations. In addition, although station facilities are a prominent feature of most communities, many have not been improved and developed to complement, reinforce and function as a vital part of the surrounding areas.

To address these problems, station facilities shall be restored and improved by the State with reference to the following guidelines:

- Facilities should be sized for current levels of usage and shall maximize operational efficiency.
- Facilities should be permanent, durable, resistant to abuse and easy to maintain at minimal costs.
- Stations should provide an attractive, bright, highly visible, high quality environment meeting modern standards of comfort and safety.
- Facilities should be energy-efficient.
- Stations must facilitate modal interchange.

- Sufficient parking for users of mass transit should be provided.
- Station areas should be organized to facilitate pedestrian and vehicular movement.
- Joint use and multi-purpose development in and around public transit facilities will be encouraged.
- Extensive system and community information will be provided.
- Stations must be developed so that they are compatible with community needs and activities.

BUS PASSENGER FACILITIES

Introduction

Serving New Jersey bus riders are a large number of passenger facilities and a few terminals. These facilities range from unattended and unmaintained roadside parking areas; to reserved sections of shopping center parking lots, where in some cases bus tickets are sold by commercial establishments, and which have informal parking arrangements for bus passengers; and finally to major high volume terminals with waiting rooms and attendants.

Program Policy Statements

Improve Existing Facilities

The State does not own any bus facilities or terminals at this time. What facilities that do exist are owned and operated by private carriers, municipalities or private individuals. Facilities acquired by the New Jersey Transit Corporation will be improved as required to better serve the public. Municipalities will be encouraged to provide bus shelters and waiting rooms at high volume points along bus routes. Federal and State funds will be available for these improvements.

The Department of Transportation is completing an extensive inventory of bus stations, noting the physical condition of each facility. From this study specific recommendations for improving these facilities will lead to programs of benefit to bus users.

Establish Maintenance Practices

Bus shelter and unattended waiting rooms are prime targets for vandals and graffiti artists. Keeping these facilities clean and safe for use by the public requires the cooperation of the transit operators, owners, police and most of all, the general public. The Department of Transportation will continue to inspect these facilities and encourage their proper maintenance.

Before public funds are invested in improving existing facilities, standards of maintenance must be assumed by the owner. Community cooperation is necessary in seeing that these facilities are clean, safe and kept in good repair.

All new bus facilities constructed by the State or New Jersey Transportation Corporation will be fully accessible to the handicapped. Information on routes, fares and schedules will be posted and kept current.

PARK-AND-RIDE PROGRAM

Introduction

The goal of any park-and-ride program is to attract people from a private auto into a higher density passenger vehicle. Traditionally, the thrust of a park-and-ride improvement program has been directed at regular, public transportation modes. This is now changing to also accommodate parking for carpools and vanpools. The basis for locating facilities should be traffic, current land use densities, and future development goals.

New Jersey has a number of park-and-ride facilities throughout the State which are served by both commuter rail and bus systems. No specific park-and-pool facilities are now under State jurisdiction; however, pooling does occur at various locations along State highways and at highway interchanges. Also, it is likely that some pooling occurs at transit park-and-ride locations.

Most formal transit park-and-ride facilities in New Jersey can be termed "successful." Some are so successful that overuse and its attendant problems have occurred. The potential for success at other park-and-ride facilities is diminished by the negative impacts which these problem areas impart to other corridors in the transportation system. Unrestricted access, free parking and good transit service all can contribute to the overuse of a park-and-ride lot, sometimes at the expense of transit services in other corridors. Also, park-and-ride locations in or near a major CBD will attract patrons from transit services in outlying areas to the transit services at the parking facility.

Transit service adjustments during peak, and especially off-peak times, will smooth service demand, aid in attainment of on-time performance standards and raise comfort and convenience levels. The counterproductive nature of the long-access distances exhibited by those who use park-and-ride lots located close to CBDs can be avoided as a matter of development policy. Certain aspects of the financial advantages of point-to-point short-haul transit service associated with CBD-proximate park-and-ride lots can be applied to over-the-road commuter-type park-and-ride service. The value of removing the maximum number of vehicles from a given traffic flow on heavily congested roadways, an advantage of close-in park-and-ride lots can be weighed in determining park-and-ride locations with respect to distance from CBD considerations. These questions are important in developing a program which is responsive to the concerns of both consumers

and suppliers of park-and-ride services.

Program Policy Statements

Increase Transit Ridership Through the Rational Improvement of the Current System of Bus and Rail Parking Facilities

The main thrust of this policy is to increase current transit ridership trends through improvement of the existing parking facilities. Ridesharing program gains will provide complimentary progress towards the attainment of the State's goals. Within budgetary constraints, the improvement of the current problem in the existing system of transit park-and-ride lots is of high priority. The following guidelines will be utilized:

- Improve existing facilities to an acceptable capacity and operating standard; re-allocate excess demand and capacity through transit service adjustments or parking management techniques; improve joint-use arrangements to reduce risk of parking privilege loss.
- Adjust park-and-ride transit service to a maximum achievable transit productivity level.
- Seek early and active community participation in park-and-ride lot expansion or adjustment activities; expand only those facilities which neither inhibit community development goals nor adversely affect adjoining land uses.
- Adjust transit services based on expressed community desires as well as technical requirements.
- Make maximum use of transportation and public works funding sources which may be available at the Federal, State and local levels, and from private sources.
- Seek management and operation agreements that place responsibility at the local level; arrange fair and equitable rates for parking without geographic constraint.

Develop New Park-and-Ride Facilities that Will Successfully Penetrate the Auto-Driver Travel Market

The development of new park-and-ride lots should concentrate only on those candidate projects which would successfully penetrate the auto-driver travel market. Only those few with the greatest potential should be pursued as a high priority. The technical aspects of the policy relating to facility improvement and new project

development are basically the same, and are aimed at equitably addressing questions of land use and development, economics, ownership and operation responsibility. However, additional guidelines to be considered in the development of new facilities are:

- Active consideration for new locations will be given to those with potential for maximum auto diversions and minimum, unavoidable current transit travel diversions.
- New facilities will be considered in an area, corridor or system approach, with attention to staged development alternates.
- Early and continuous participation of local and county interests in project development will be required; all decisions concerning location facilities, service, funding, acquisition, construction, and management and operation will be made cooperatively.
- Seek carrier participation; ensure acceptable level of carrier productivity, balancing manpower, equipment and revenue; avoid potential competition between carriers and transit sub-modes.
- Maximum reliance will be placed on municipal interests to manage and operate new park-and-ride lots; subject to demand management and re-allocation techniques, access to park-and-ride lots will not be constrained geographically; parking rates will be set based on operating and maintenance costs.
- New park-and-ride facilities will have comparatively advantageous acquisition and construction costs for a given set of alternative sites; operation and maintenance costs should be manageable within parking fee structure; maximum use of all transportation and public works funding sources at Federal, State, local and private levels will be balanced with funding availability and auto-diversion objectives.

Establish a Program of Funding, Operating, and Maintaining Park-and-Ride Facilities

Generally, the responsibility for the ownership and operation of transit and pool park-and-ride lots is defined on an individual basis. Consequently, park-and-ride lots are owned and operated by a wide range of public and private entities, and almost every facility is unique. Government involvement in park-and-ride facilities should not reduce the current performance capability of a given facility, should improve poor performance and establish guidelines to ensure proper operation of publicly-owned and newly-acquired

facilities. The lack of formal organization and operating strategy at many park-and-ride facilities leads to problems of congestion, safety and security and foul-weather inefficiency. Furthermore, certain joint-use park-and-ride lots, located in shopping centers and similar properties, are constantly in jeopardy of being closed. Usually, government is powerless to successfully intervene in such situations. Clear policy and direction concerning ownership and especially operating responsibility for publicly owned park-and-ride facilities will aid in the smooth operation of the whole transportation system, and stimulate uniformly reliable operation of all park-and-ride facilities in New Jersey.

Technically, facilities would be owned by the State as a policy matter, responsibility for management and operation of park-and-ride lots, through a lease agreement, would be at the local or municipal level.

