The New Jersey State Development and Redevelopment Plan

The New Jersey State Development and Redevelopment Plan

Infrastructure Needs Assessment

New Jersey State Planning Commission
P.O. Box 204
Trenton, NJ 08625-0204
609.292.7156

www.njsmartgrowth.com

New Jersey State Planning Commission
Adopted March 1, 2001

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New Jersey State Planning Commission

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Key Findings

The *Infrastructure Needs Assessment* is intended to serve as one of many sources of information—together with the Cross-acceptance process, the monitoring and evaluation (State Plan indicators and targets) program, reports on plan implementation, and the deliberations of the State Planning Commission—contributing to the development of the *New Jersey State Development and Redevelopment Plan* and its attendant goals, objectives, policies and mapping.

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Transportation and commerce infrastructure systems ● support the economy of New Jersey by helping to produce goods and move goods, people and information ● most costs are for maintaining and upgrading existing systems to correct existing deficiencies or to keep existing infrastructure in service ● for farmland retention and public transportation, costs for future needs are greater than costs to meet existing needs	**$18.7 billion**	**$12.9 billion**	**$31.6 billion (43%)**
Public health and environment infrastructure systems ● include water supply, wastewater disposal and other systems that protect public health and environmental quality ● costs for existing and future needs evenly divided overall ● greatest share of future needs are for wastewater disposal and water supply	**$15.4 billion**	**$12.4 billion**	**$27.8 billion (37%)**
Public safety and welfare infrastructure systems ● help create and maintain a just society ● most documented costs are associated with existing needs	**$11.7 billion**	**$3.4 billion**	**$15.1 billion (20%)**
Estimated infrastructure costs through 2020	**$45.8 billion (61%)**	**$28.7 billion (39%)**	**$74.5 billion**

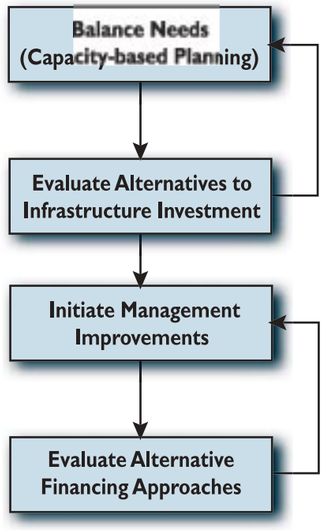
The average New Jerseyan pays $543 per year for public investments in infrastructure, nearly evenly divided between state and local governments and primarily for highways and education. On a per capita basis, New Jersey now invests more than most of its surrounding states and more than the national average in infrastructure improvements. Nationwide, local governments provide a significantly larger share of capital investments relative to state government.

The rehabilitation, repair and replacement of existing infrastructure have been increasingly coordinated with the State Plan's priorities for infrastructure for new growth.

Strategic plans are now being developed and applied by state agencies to guide public investments in economic development, transportation, energy, water supply, open space, higher education, affordable housing, the arts and other key infrastructure components. The importance of long-range capital improvement planning as a management and fiscal planning tool to help local governments finance and build infrastructure is being increasingly highlighted.

As part of the State Plan, the Assessment is revised and updated as part of the Cross-acceptance process. It does not substitute for functional plans and annually updated capital plans and budgets of municipal, county, regional and State agencies and neither evaluates nor endorses plans and proposals for specific projects.

The State Plan, through its Goals, Statewide Policies, State Planning Policy Map and other provisions, establishes a framework for strategic decision making. The *Infrastructure Needs Assessment* organizes this framework to define an Infrastructure Investment Decision Process and advance recommendations for subsequent assessments. Municipal, county, regional and State agencies that incorporate this decision making process in their capital planning will help to achieve the goals of the State Plan, and will help government agencies in New Jersey comply with the *Government Accounting Standards Board Statement 34* that establishes new national Generally Accepted Accounting Principles for government agencies that manage infrastructure.



Efforts to increase the geographic detail and operational usefulness of the *Infrastructure Needs Assessment* in the future to achieve the goals of the State Plan will include:

- Implementing advanced information technologies (such as geographic information systems, Internet and advanced modeling capabilities) and data exchange among state and local agencies to more accurately track needs and capital investments
- Maintaining a unified series of municipal demographic and economic forecasts
- Implementing the Infrastructure Investment Decision Process, including developing data for capacity-based planning
- Implementing the State Plan, including Plan Endorsement efforts
- Maintaining and enhancing the State Plan monitoring and evaluation (indicators and targets) program
- Including capital planning in the State Plan Cross-acceptance process

Purpose of the Assessment

This *Infrastructure Needs Assessment* for 2000 through 2020 compiles and summarizes information provided by state agencies since the adoption of the first *Infrastructure Needs Assessment* by the State Planning Commission in June 1992.[1]

Why Is the Assessment Prepared?

"[The State Planning Commission shall]…Prepare and adopt as part of the [State Development and Redevelopment] plan a long-term Infrastructure Needs Assessment, *which shall provide information on present and prospective conditions, needs and costs with regard to State, county and municipal capital facilities, including water, sewerage, transportation, solid waste, drainage, flood protection, shore protection and related capital facilities…"—N.J.S.A. 52:18A-199b.*

Investment in capital facilities and other infrastructure is one of the most powerful tools available to implement comprehensive plans for development and redevelopment. The New Jersey State Planning Act recognizes the importance of infrastructure by promoting development where infrastructure capacity exists or may be readily provided and discouraging development where capacities are limited. The State Planning Act links the state's annual capital budget recommendations to the *New Jersey State Development and Redevelopment Plan*, and makes the *Infrastructure Needs Assessment* an integral part of the State Plan.

An ultimate objective of the State Planning Act is to allow government at all levels to devise more effective, efficient and desirable

Scouts listen intently during a visit to a police station, above. Children enjoy learning in a newly remodeled former industrial space that has been converted for early childhood education in Paterson, below.

[1] *Assessment of Infrastructure Needs to 2010: New Jersey State Development and Redevelopment Plan.* New Jersey State Planning Commission, June 12, 1992. OSP Publication #95.

growth and infrastructure policies. Specifically, the State Planning Act and related legislation encourages state and local agencies to:

- coordinate capital plans with comprehensive and functional plans,
- increase the time horizon for capital planning,
- base capital budget on long-term capital plans, and
- use consistent and coordinated capital planning methods.

How is the Assessment to Be Used?

Develop and promote procedures to facilitate cooperation and coordination among State agencies and local governments with regard to the development of plans, programs and policies which affect land use, environmental, capital, and economic development issues.—N.J.S.A. 52:18A-199b.

The Commission [on Capital Budgeting and Planning] shall each year prepare a State Capital Improvement Plan containing its proposals for State spending for capital projects, which shall be consistent with the goals and provisions of the State Development and Redevelopment Plan adopted by the State Planning Commission.—N.J.S.A. 52:9S-3a.

The *Infrastructure Needs Assessment* served as one of many sources of information, together with the Cross-acceptance process, the monitoring and evaluation (State Plan indicators and targets) program, reports on plan implementation, and the deliberations of the State Planning Commission itself, contributing to the development of the State Plan and its attendant Goals, objectives, policies and mapping.

As part of the State Plan, the Assessment is revised and updated as part of the Cross-acceptance process. Therefore, it does not and should not substitute for functional plans and annually updated capital plans and budgets of municipal, county, regional and state agencies. The Assessment describes, but neither evaluates nor endorses, plans and proposals for specific projects.

The State Plan, through its Goals, Statewide Policies, State Plan Policy Map and other provisions, establishes a framework for strategic decision-making. The *Infrastructure Needs Assessment* organizes this framework to define an Infrastructure Investment Decision Process and advance recommendations for subsequent assessments. Municipal, county, regional and state agencies that incorporate this decision-making process in their capital planning will help to achieve the Goals of the State Plan, and will help government agencies in New Jersey comply with the *Government Accounting Standards Board (GASB) Statement 34* that establishes new national Generally Accepted Accounting Principles for government agencies that manage infrastructure.

Methodology

The recommendations of the *Infrastructure Needs Assessment* are based on best available statewide information regarding the conditions, needs, costs, and revenues available for infrastructure systems. This section describes the general methodological approach to the Assessment; specific methods and sources vary by infrastructure system and type of analysis.

The scope of the 20 infrastructure systems examined in this Assessment exceeds the seven systems delineated in the State Planning Act, and the analyses of potential revenues, of the decision-making process and recommendations for future assessments go well beyond the scope of the Act.

Two prior drafts of this *Infrastructure Needs Assessment* were released by the State Planning Commission for review and comment by state and local agencies and by the public. An April 2000 draft received comments from several state agencies and interest groups, and was cited in the September 2000 impact assessment study. In October 2000, an updated and revised draft incorporating findings of the impact assessment study was issued as part of the *Draft State Development and Redevelopment Plan* for comment as part of the final review phase of the Cross-acceptance process.

Infrastructure Systems

The State Plan defines infrastructure as those capital facilities and land assets under public ownership, or operated or maintained for public benefit, that are necessary to support development and redevelopment and to protect public health, safety and welfare.

The State Planning Act specifies that the *Infrastructure Needs Assessment* should address "water, sewerage, transportation, solid waste, drainage, flood protection, shore protection and related capital facilities." This Assessment combines the consideration of drainage and flood protection infrastructure while dividing transportation into five component systems. Because the State Plan defines infrastructure broadly, this Assessment also addresses 10 additional infrastructure systems: energy, farmland retention, public recreation open space land, public recreation facilities, public education, higher education, public libraries, arts, corrections and human services. In addition to these 20 infrastructure systems, telecommunications, public health care, public safety, justice, historic resources, public administration and public housing will also be

considered as information becomes available. In total, as many as 27 infrastructure systems may be analyzed.

Conditions, Needs and Costs

The discussion of conditions, needs and costs is grouped together for each infrastructure system.

The Office of State Planning requested and researched data on the availability, capacity, deficiencies and proposed improvements for each infrastructure system from federal, state, regional and local government agencies, as well as studies by private organizations. Federal or state statutes or rules require many state agencies to periodically collect and analyze information on state, county, municipal and private infrastructure systems. In many cases, data and analyses provided by local agencies and private organizations were not complete or compatible statewide. In most cases, counties failed to provide information on infrastructure conditions, needs and costs in their Cross-acceptance reports. In many cases, state agency data is being refined and updated through the development of new databases and digital spatial data sets that are not yet complete. Therefore, while many sources of information were collected and reviewed, the most current statewide data provided by state agencies provided the most comprehensive and methodologically consistent basis for the analyses of conditions, needs and costs in the *Infrastructure Needs Assessment*.

State agency master plans and capital budget requests provided most of the data used to profile infrastructure conditions, including changes in conditions since the 1992 assessment and proposed future projects, used in this Assessment.

To the extent adequate data are available, this *Infrastructure Needs Assessment:*

1. estimates needs in terms of both:
   - units of service or capacity (classrooms, millions of gallons per day, acres) for capital facilities and land assets, and
   - dollar costs (adjusted to 1999 constant dollars), without regard to funding source,
2. defines needs as:
   - present needs, consisting of backlog needs to correct existing deficiencies to serve existing residents and jobs and rehabilitation needs for recurring, periodic improvement or replacement of capital facilities to keep existing infrastructure in service, and
   - prospective needs, consisting of needs to provide and maintain new infrastructure to serve anticipated future development and redevelopment and to respond to changes in standards of service.

Need is the amount of infrastructure determined to be necessary to achieve and maintain desired levels of service and standards of quality, given estimates and projections of demand. Levels of service tend to be defined for capital facilities in terms of the relationship of demand to designed capacity. Standards of quality tend to be defined in terms of societal objectives, such as swimmable and fishable water quality and thresholds of cancer risk, although they are expressed in terms of tangible measurements achievable using current (though evolving) technologies.

On a statewide basis, each infrastructure system responds to a variety of needs. The sensitivity of these systems to locations and patterns of growth and development may vary for different components within each system. For example, site components such as post offices, rail stations, theaters and hospitals have different effects depending on whether they are integrated within or isolated from "downtown" neighborhoods. System components such as a road, rail line, sewer line and greenway cross over and transcend the characteristics of particular areas, and may promote growth in inappropriate areas if access to these systems is not managed properly.

Projected road, sewer and water supply infrastructure costs reported for the "Plan" scenario in the September 2000 Impact Assessment Study are incorporated as prospective costs.

Costs are determined using techniques appropriate for each infrastructure system, which relate needs to estimates of costs for units and/or similar systems. In most cases, costs were documented in state agency master plans or capital budget requests. To minimize the potential effects of prospective infrastructure investments being inconsistent with the State Plan, the *Infrastructure Needs Assessment* includes the costs for roads, water supplies, wastewater treatment infrastructure cited for the "Plan" scenario for systems analyzed in the September 2000 impact assessment study.[2] In some cases, state agency staff provided costs. The Office of State Planning estimated costs for some systems using methods described in the analysis. In all cases, sources of cost estimates are documented.

Revenue Analysis

Capital investment trends were identified using a revenue analysis. Revenue is estimated based on anticipated (authorized and appropriated) or projected revenue sources applicable to each infrastructure system. If available, analyses of fiscal capacity may be used to identify potential sources of revenue that may be used to finance estimated infrastructure costs.

Summary data for state and local outlays by infrastructure type are compiled and validated annually for each state by the United States Census Bureau.

The revenue analysis evaluates recent and potential future state and local financing of infrastructure investments that can be compared to, and provides a point of reference for, the present and prospective costs required by the act. The revenue analysis and decision-making process advance recommendations intended to engage discussion on how infrastructure should be financed in the future.

Recommendations

The 1992 *Infrastructure Needs Assessment* was the State Planning Commission's first attempt to:

- provide a conceptual and informational framework for future reassessments and for shorter-term determinations of specific needs, and
- recommend an approach to infrastructure decision-making that may lead to reductions in future needs and to better use of existing and future infrastructure systems.

Due to changes in methodologies used for each source of information, the ability to compare the results of the 1992 and 2001 *Infrastructure Needs Assessment* is limited. Also, since the

[2] *The Costs and Benefits of Alternative Growth Patterns: The Impact Assessment of the New Jersey State Plan.* Center for Urban Policy Research. New Brunswick: Rutgers University, September 2000.

Infrastructure Needs Assessment summarizes information to a statewide scale, it cannot be directly employed to evaluate local changes to the State Plan Policy Map. However, more detailed information collected by the Office of State Planning regarding the capacity of sewer, water supply, transportation and other critical facilities is considered in evaluating specific map changes if available. Therefore, new recommendations to improve coordination, facilitated by improvements in technologies for collecting and analyzing data, are specified in the concluding section of this report to improve the rigor of the methodology and thus the overall effectiveness of this effort.

Transportation and Commerce

This section of the *Infrastructure Needs Assessment* addresses the infrastructure systems that most directly support the economy of New Jersey by helping in the production of goods and in the movement of goods, people, and information.

The transportation system includes roads, bridges and tunnels; ports and railroads for freight movement; aviation facilities; public transportation, including bus, rail and ferry and their associated terminals; and other transportation facilities. Other systems supporting commerce include energy, telecommunications, and farmland retention (to maintain a land base for agricultural production).

Most costs are for maintaining and upgrading existing systems.

These systems represent 63 percent of the estimated infrastructure costs within New Jersey. Most costs are for maintaining and upgrading existing systems to meet Present Needs. Prospective Costs for farmland retention and public transportation exceed Present Costs (see Table 1).

TABLE 1:
SUMMARY OF ESTIMATED TRANSPORTATION/COMMERCE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
TRANSPORTATION/COMMERCE	**$50,881**	**$20,619**	**$71,500**
Roads, Bridges and Tunnels	$26,707	$3,999	$30,706
Public Transportation	$15,526	$10,791	$26,317
Freight, including Ports	$2,530	$835	$3,365
Aviation, including Air Freight	$4,209	$2,916	$7,125
Other Transportation Facilities	$190	$145	$335
Energy	$1,335	$415	$1,750
Telecommunications	nav	nav	nav
Farmland Retention	$384	$1,518	$1,902

Notes: All values in millions of 1999 dollars.
* = Present Costs do not include tunnels or rehabilitation costs for existing infrastructure.
nav = Documented estimates are not available for this category.

Roads, Bridges, and Tunnels

New Jersey's roads and bridges continue to be among the most heavily traveled in the nation, even as their capacities grow (see Table 2). "Vehicle Miles Traveled" (VMT) remains the chief measure of highway use. Nearly two million miles of traffic per year per mile continue to traverse New Jersey roads, more than three times the national average. Since 1960, the rate of increase of VMT traffic has far outpaced the rates of population and job growth (see Figure 1 and Table 3). In the 13 counties[3] served by the North Jersey Transportation Planning Authority (NJTPA), one of three Metropolitan Planning Organizations designated for regional transportation planning in New Jersey, VMT is projected to increase by 20 percent by 2025; this outpaces projected increases for population and jobs over the study period.[4]

Of the 6,331 highway carrying bridges in New Jersey, DOT (2,346) and counties (2,431) maintain the largest share.

TABLE 2:
USE OF ROADS AND BRIDGES, 1990–1999

	1990	1995	1999
Highway, toll, county, and local roads	34,000 miles	35,646 miles	35,943 miles
• Interstate	304 miles		
• Freeway	509 miles		
• Arterial	4,182 miles		
• Collector	5,449 miles		
• Local	23,808 miles		
Bridges	>6,000	>6,000	>6,000
Licensed drivers	5.6 million	5.4 million	5.8 million
Registered vehicles	5.6 million	5.9 million	6.4 million
Vehicle miles traveled annually	60 billion	61.013 billion	65.919 billion
Vehicle miles traveled per mile per day	4,835	4,690	5,025

Source: New Jersey Department of Transportation
New Jersey Office of State Planning

[3]Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren Counties.
[4]*Access and Mobility: The 2025 Regional Transportation Plan for Northern New Jersey.* North Jersey Transportation Planning Authority. January 2001.

TABLE 3:
VMT AND POPULATION GROWTH

	1960	1999	CHANGE	% INCREASE
Vehicle Miles Traveled	22.2 billion	65.92 billion	43.72 billion	197%
Population	6,066,792	8,143,412	2,076,620	34%
Civilian Labor Force	2,457,722	4,205,500	1,747,778	71%
Employment	1,547,081	3,247,983	1,700,902	110%

Note: Employment is ES202 private sector covered employment.
Sources: New Jersey Department of Transportation, New Jersey Department of Labor.

TABLE 4:
MOTOR VEHICLE REGISTRATION TRENDS

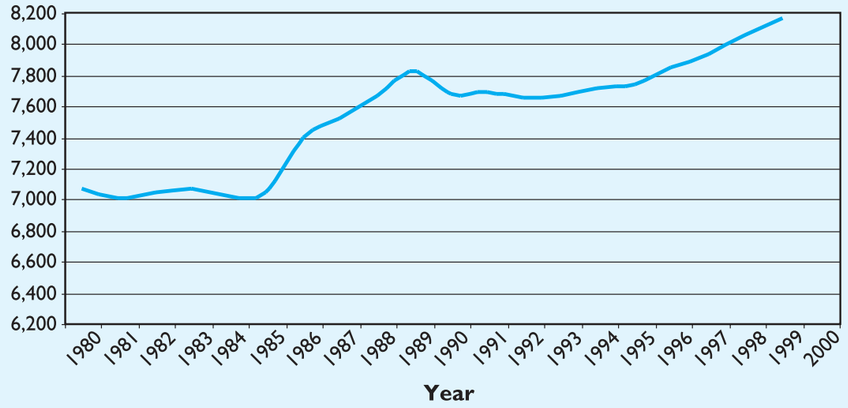
CALENDAR YEAR	CARS	LIGHT TRUCKS AND VANS	TOTAL NEW REGISTRATIONS ANNUAL	TOTAL NEW REGISTRATIONS MONTHLY AVERAGE
1991	327,710	90,612	418,322	34,860
1992	324,998	99,974	424,972	35,414
1993	368,218	134,808	503,026	41,919
1994	371,592	160,398	531,990	44,333
1995	350,533	158,366	508,899	42,408
1996	350,955	182,203	533,158	44,430
1997	344,977	192,582	537,559	44,796
1998	348,202	201,396	549,598	45,800
1999	361,182	221,149	582,331	48,528

Source: New Jersey Department of the Treasury, Office of Management and Budget
R.L. Polk and Company

On average, the work trip accounts for 35 percent to 40 percent of all travel in the state. Motor vehicle registrations continue to increase, with increases in light trucks and vans outweighing overall growth in car registrations (see Table 4).

Over 70 percent of New Jersey's streets and highways are local roads under local jurisdiction. There are about 800 miles of interstate and other limited-access highways that carry about 40 percent of all the state's VMT. The New Jersey Turnpike, Garden State Parkway and Atlantic City Expressway comprise 400 miles of limited access highways under the jurisdiction of special authorities that, combined, carry a volume of approximately 600 million vehicles and raise over $400 million per year in revenues for capital needs through tolls and other means.

FIGURE 1: TRENDS IN VEHICLE MILES TRAVELED PER CAPITA

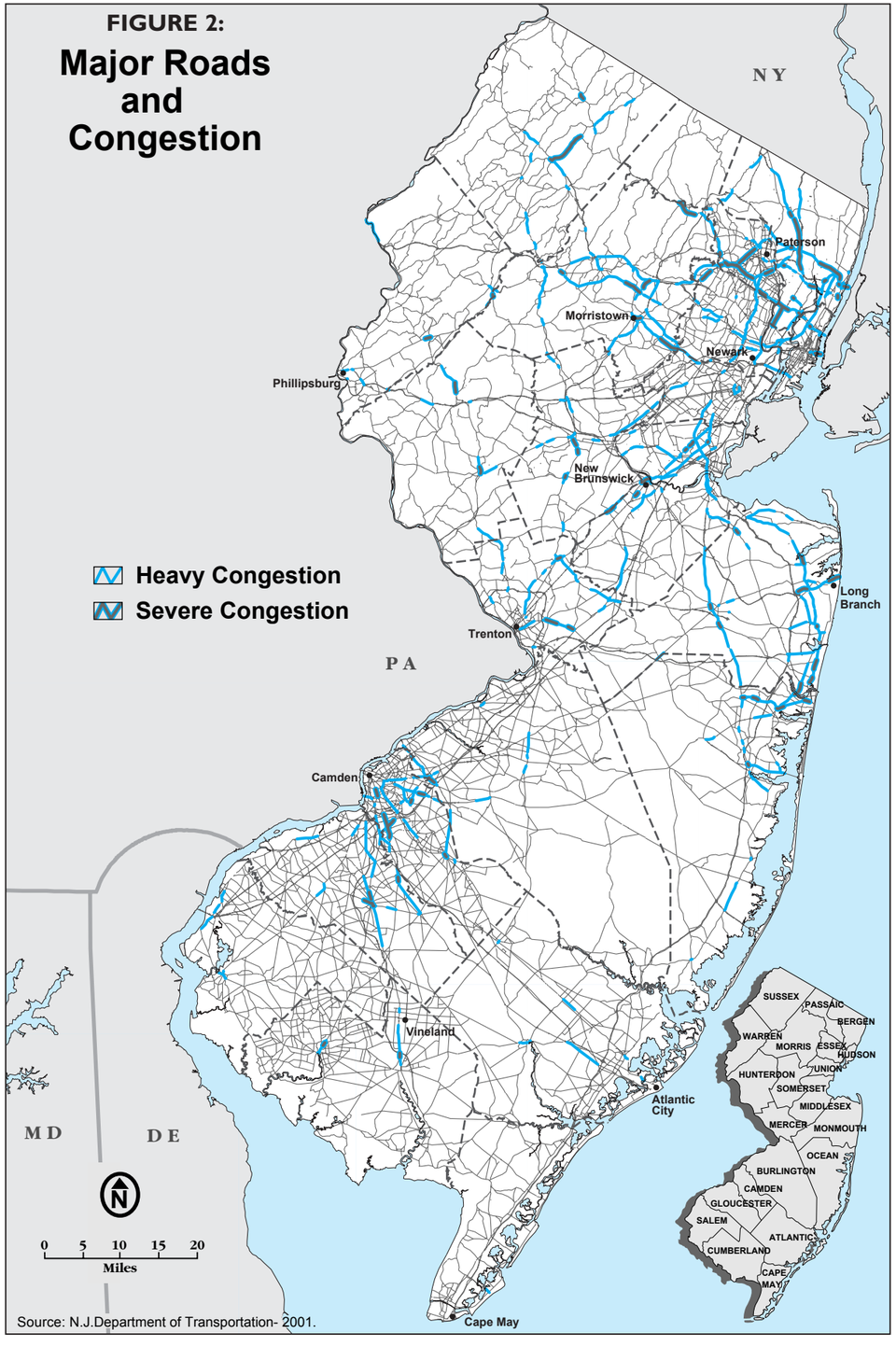


Source: New Jersey Department of Transportation, New Jersey Department of Labor

The New Jersey Department of Transportation has estimated that almost 30 percent of state highway miles operate at severely congested levels, carrying traffic volumes well in excess of their designed capacity (see Figure 2).[5] Due to both their age and the intensity of their use, as much as 30 percent of the lane miles under state jurisdiction are rated "fair" or worse, and many highways and bridges are too narrow to be safe for pedestrian or bicycle use. NJTPA also reported that of the 1,400 state highway lane miles in its region, half were subject to "significant recurring congestion" and 34 percent were in fair or poor pavement condition.[6] A 1999 United States General Accounting Office study[7] comparing pavement condition needs for the National Highway System among states noted that New Jersey was consistent with the national average of 57 percent of pavement not in good condition (but only eight percent in poor or mediocre condition compared to the national average of 16 percent), although differences in measurement techniques among states currently make comparisons difficult.

[5] *Transportation Choices 2020: Statewide Long-Range Transportation Plan.* New Jersey Department of Transportation. July 1995.
[6] *Mobility for the 21st Century: Regional Transportation Plan for Northern New Jersey.* North Jersey Transportation Planning Authority, 1995.
[7] *Transportation Infrastructure: Better Data Needed to Rate the Nation's Highway Conditions.* United States General Accounting Office. Washington, D.C. GAO/RCED-99-264. September 1999.

FIGURE 2:
Major Roads and Congestion



Source: N.J.Department of Transportation- 2001.

In May 1998, Governor Whitman, the New Jersey Department of Transportation and New Jersey Transit issued *New Jersey FIRST: A Transportation Vision for the 21st Century*, which established six objectives and 175 associated actions for improving New Jersey's transportation systems. Among these actions were:

- Improve the 25 most congested vehicular hot spots within five years and the 40 most congested within 10 years.
- Construct missing highway links that are essential to our regional mobility strategy. For example, the New Jersey Turnpike/Secaucus Interchange and long-time commitments, like Route 18 in New Brunswick, will be constructed.
- Eliminate the traffic signals on the Garden State Parkway in Cape May County by 2010.
- Establish intermodal access points to connect the interstate highway system and the commuter rail system.
- Eliminate all bridge deficiencies on New Jersey's national highways by 2010.
- Reduce the backlog of all other state bridge deficiencies by 50 percent and local bridge deficiencies by 25 percent by 2010.
- Correct all deficiencies on state highway dams by 2010.
- Replace all deficient state highway pavement by 2010.
- Resolve all serious flooding problems on state roadways by 2010.
- Implement a full preventive maintenance program for all state roads and bridges by 2000.
- Complete the delineation of barrier curb and guide rails and the installation of raised pavement markers by 2000.
- Upgrade all guide rails by 2000 to minimize harm to drivers and passengers involved in collisions.

In 1998, the New Jersey Department of Transportation prepared a Capital Investment Strategy. This document was based on policies from the 1992 *State Development and Redevelopment Plan*, *Transportation Choices 2020* (the 1995 DOT Statewide Long-Range Transportation Plan), the Governor's 1998 *New Jersey FIRST* (Future Investments and Reinvestments in Transportation) vision report and other operating policies. Approximately 17 percent of state bridges on the National Highway System had been classified as structurally deficient, including 39 percent of the 1,700 bridges in northern New Jersey (NJTPA region). The Capital Investment Strategy set an objective to eliminate the backlog of structurally deficient NHS state bridges within 12 years. Transportation Choices 2020 advocated removal, rather than replacement, of unnecessary bridges at the end of their useful lives where parallel or other alternate routes are available and, alternatively, obsolete bridges could be closed to traffic and preserved for bicycle and pedestrian use consistent with the *State Development and Redevelopment Plan*.

In July 2000, the New Jersey Congestion Relief and Transportation Trust Fund Renewal Act[8] was signed into law. In addition to reauthorizing the Transportation Trust Fund, the statute advanced a number of initiatives to manage the demand for transportation facilities and services:

- Creation of a "Congestion Buster Task Force" to identify and recommend projects and actions that will cap peak hour vehicle trips at 1999 levels
- Preparation of a Commerce and Economic Growth Commission report identifying sectors of New Jersey's economy appropriate for telecommuting

KEY TO TABLE 5

CIP = Capital Improvement Program
HBLRT-LRV = Hudson Bergen Light Rail Transit-Light Rail Vehicles
ITS = Intelligent Transportation Systems
LRT = Light Rail Transit
NHS = National Highway System
R&R = Rail and Rolling Stock
SNJLRTS = Southern New Jersey Light Rail Transit System
SOGR = State of Good Repair
TMAS = Transportation Management Associations
TTF = Transportation Trust Fund

[8] *N.J.S.A.* 27:1B-21.14 et seq. (P.L. 2000, c. 73)

TABLE 5: DOT PRESENT AND PROSPECTIVE COSTS, FY2001–FY2020

COSTS IN MILLIONS OF FY01 DOLLARS	2020 TOTAL
CAPITAL	
Highway	
Capital Improvement Program	
SOGR-NHS, Local & Other Bridges	$ 9,389.43
SOGR-Other Bridge Programs	$ 919.10
SOGR-Roadways & Other Facilities	$ 2,259.23
Safety	$ 1,036.42
Congestion/Mobility	$ 2,425.15
Travel Friendly System	$ 632.04
Economic Growth	$ 965.35
Quality of Life	$ 410.93
Local Systems	$ 3,994.00
Operations/Project Efficiency	$ 4,433.73
Other/Not Defined	$ 241.72
New Capacity Construction	$ 1,141.80
	$ —
Transit	$ —
New R&R Initiatives	$ —
Rail Capital Maintenance	$ 192.20
Rail Infrastructure	$ 865.49
Rail Passenger Facilities	$ 442.51
Rail Rolling Stock	$ 742.12
Systemwide	$ 800.64
Transit Enhancements	$ 1.58
Long-Term R&R	$ 6,615.00
Funded Leases	$ —
Nova Transit 1999	$ 165.20
Alstom Railcars 2000	$ 348.70
MCI Cruiser 2001	$ 694.00
Electrics 2001	$ 263.20
Unfunded Leases	$ —
Bi-levels	$ 750.00
Diesel Locos	$ 180.00
Volvo	$ 70.00
Suburban	$ 140.00

TABLE 5:
DOT PRESENT AND PROSPECTIVE COSTS, FY2001–FY2020 *(continued)*

COSTS IN MILLIONS OF FY01 DOLLARS	2020 TOTAL
TTF Funded Leases	$ —
1999 SNJLRTS	$ 869.10
1998 HBLRT-LRV	$ 213.60
Capitol Extension	$ 97.50
Additional Amtrak Capital	$ 360.00
Bus Replacement & Expansion (Derived)	$ —
Local Buses	$ 256.99
Suburban Buses	$ 719.97
Bus Passenger Facilities	$ 28.54
Bus-LRT Infrastructure	$ 336.27
Bus-LRT Rolling Stock	$ 373.12
New Rail Capacity Projects	$ —
Right-of-Way	$ —
Construction/Acquisition (Except CIP)	$ 7,340.88
Rail Cars	$ 1,753.11
Other Equipment	$ 1,468.27
Engineering	$ —
Derived from New Rail Capacity Projects	$ —
R&R/Short-term	$ 71.33
R&R/Medium-term	$ 157.30
R&R/Long-term	$ —
	$ —
	$ —
OPERATING	$ —
Highway	$ —
Maintenance & Operations	$ 1,710.33
ITS	$ 319.04
TMAs	$ 71.24
Motor Vehicle Services	$ 2,208.39
Security Responsibility	$ 212.06
Transit	$ —
Motor Bus Operating Cost	$ 7,910.47
Heavy Rail Operating Cost	$10,446.88
Light Rail Operating Cost	$ 2,687.52
Paratransit	$ 421.72
Adjustments	$ 9,314.57

Source: New Jersey Department of Transportation, 2001

- Construction of 1,000 miles of bicycle lanes within five years
- Incentives to reduce single occupancy trips
- Planning for traffic in residential areas, town centers and future town centers
- Managing large truck traffic
- Establishing or expanding at least two park and ride facilities per year.

On March 1, 2001, the New Jersey Department of Transportation released for public dialogue *Transportation Choices 2025: New Jersey Long-Range Transportation Plan Update*. This report provided an extensive analysis of estimated capital and operating cost needs through 2025. Annual estimated costs for FY2001 through FY2020 were used as the basis for the Present Costs and the highway and transit portions of this *Infrastructure Needs Assessment* (see Table 5).

Prospective Costs for new local roads and streets associated with future growth were not addressed by the New Jersey Department of Transportation. However these costs were estimated by the impact assessment study published in September 2000 by the Center for Urban Policy Research at Rutgers University.[9] Based on a total statewide growth of 908,000 people, 462,000 new households and 802,500 new jobs between 2000 and 2020, the study projected that 2,857 miles (as measured by their center line) of new local streets will be required to support the anticipated new development, as long as it is in growth patterns consistent with the State Plan (see Table 6). At a cost of approximately $1 million per centerline mile (1999 dollars), this results in a cost for Prospective Costs of $2,857,000,000.

According to the impact assessment study, costs for future streets will be highest in central parts of New Jersey and lowest in the northern parts, greatest in suburban communities and least in urban communities (where the road network is well established). Most of the new road miles will be in the Rural and Environmentally Sensitive Planning Areas. However, if the State Plan is not implemented, nearly 870 more miles of local streets will be required to serve development, mostly in areas outside rural Centers. Failure to effectively implement the State Plan would result in Prospective Costs of 3,723 miles of local roads at an estimated cost of $3,723,000,000.

[9] *The Costs and Benefits of Alternative Growth Patterns: The Impact Assessment of the New Jersey State Plan.* Center for Urban Policy Research, Rutgers University, September 2000.

TABLE 6:
PROJECTED NEW LOCAL ROAD MILES BY COUNTY

COUNTY	ADDITIONAL ROAD MILES NEEDED: TREND	PLAN
Atlantic	369	223
Bergen	9	0
Burlington	317	229
Camden	140	74
Cape May	170	182
Cumberland	143	113
Essex	7	1
Gloucester	239	179
Hudson	12	4
Hunterdon	316	264
Mercer	145	74
Middlesex	238	166
Monmouth	278	134
Morris	89	64
Ocean	473	107
Passaic	23	13
Salem	70	43
Somerset	283	251
Sussex	208	203
Union	9	3
Warren	182	130
New Jersey	3,722	2,857

Note: Center line road miles
Source: Rutgers University, Center for Urban Policy Research, Impact Assessment Study

TABLE 7:
ROADS, BRIDGES AND TUNNELS COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Roads, Bridges and Tunnels	$6,014*	$2,857**	$8,871

Notes: All values in millions of 1999 dollars.
* = Present Costs do not include tunnels or routine maintenance or rehabilitation.
** = Prospective Costs based on local road costs only.

Sources: New Jersey Department of Transportation
Rutgers University, Center for Urban Policy Research

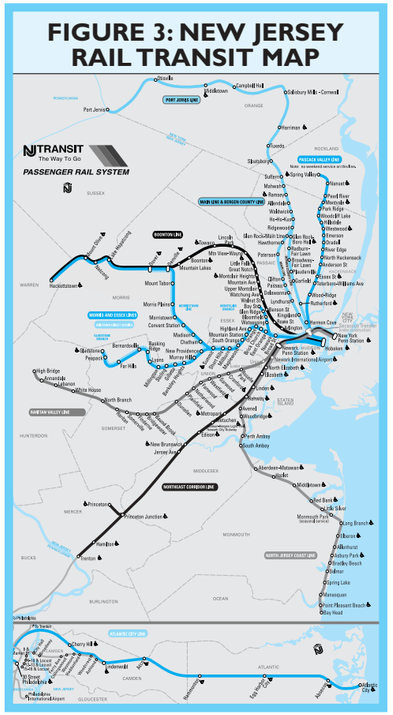
Public Transportation

New Jersey continues to be among the states most extensively served by public transportation in the nation. At peak hours more than 85 percent of all Manhattan-bound and over 50 percent of all Philadelphia-bound commuters ride buses and trains.[10] AMTRAK intercity rail, New Jersey Transit

[10] *NJ Transportation Fact Book 2000.* New Jersey Department of Transportation, 2000. p. ii.

local and commuter rail and bus, the Newark subway, the Port Authority Trans-Hudson (PATH) rail in the New York area, and SEPTA and PATCO rail service in the Philadelphia area provide a convenient and expansive transit network. Redevelopment in Hoboken and Jersey City has contributed to an increase in average weekday PATH ridership of 254,967 (9.7 percent), and similar percentage increases in weekend ridership, from 1999 to 2000. More than 40 private bus lines, some of which are contract carriers for New Jersey Transit, also serve New Jersey. Statewide, total passenger trips are estimated to exceed 352,000 per day (206.9 million per year), with 255,500 daily bus trips and 96,950 daily train trips.[11] Even so, only 8.8 percent of New Jersey residents used public transit (bus and rail) to commute to work. Considering the extent of the increase of traffic on New Jersey's highway network, transit facilities and services will need to increase substantially to sustain access between jobs and housing to accommodate the projected increase of over 900,000 people and 800,000 jobs in the state over the next 20 years. The impact assessment study projects transit ridership to increase by nine percent, or 27,000 daily work trip users, by 2020.[12]

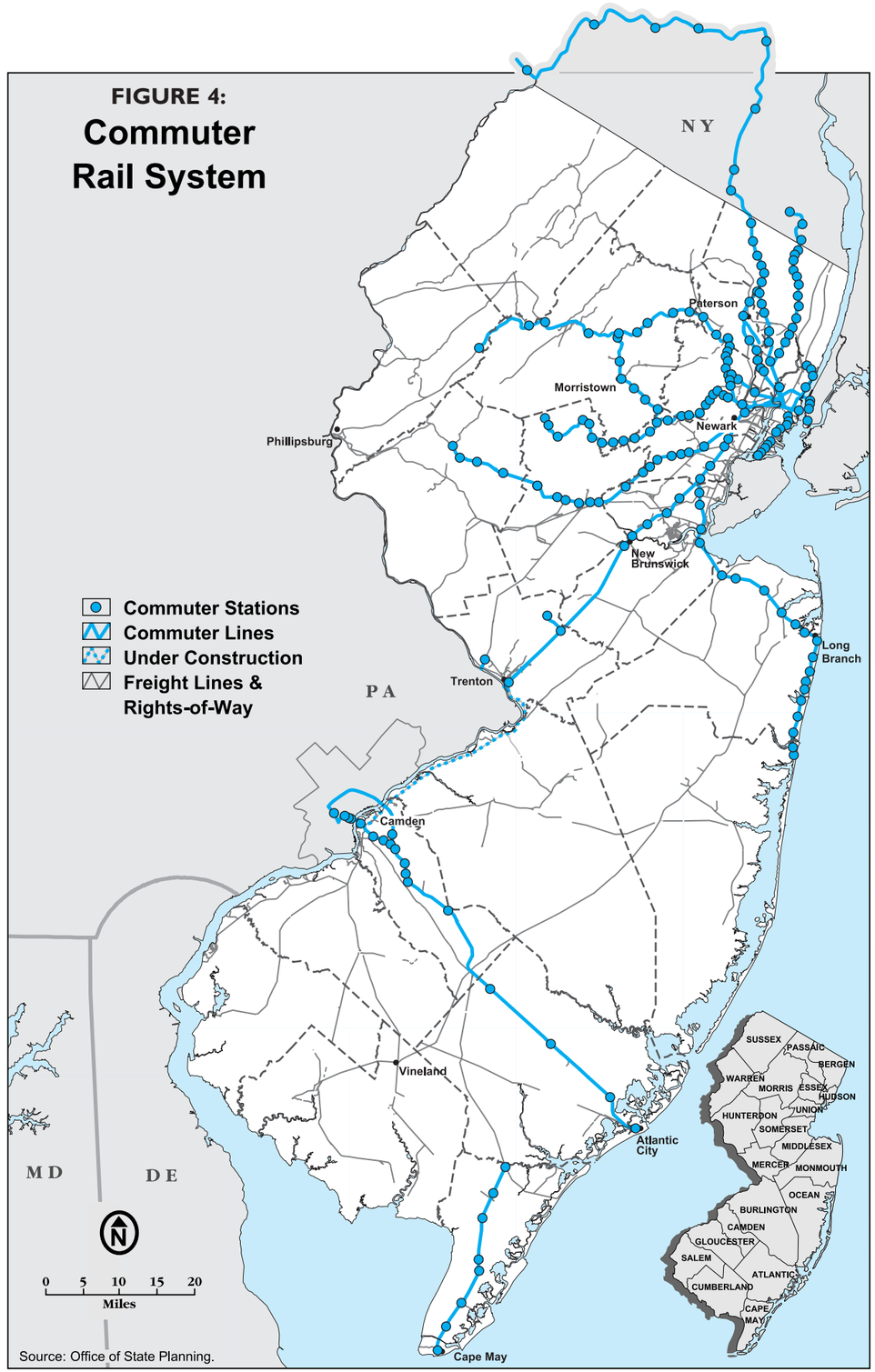
FIGURE 3: NEW JERSEY RAIL TRANSIT MAP



Covering a service area of 5,325 square miles, New Jersey Transit has increased in rank from the fourth to the nation's third-largest provider of bus, rail and light rail transit—linking major points in New Jersey, New York and Philadelphia (see Figure 3). New Jersey Transit provides bus services ranging from express to suburban to local intra-city transit. The agency's fleet of 1,900 buses and 591 trains (829 locomotives and rail cars) now serves more than 321,000 customers (up from 290,000 in 1990), making more than 632,000 trips daily. On 178 bus routes and 12 rail lines statewide, New Jersey Transit provides 188 million passenger trips and travels more than one billion miles each year.[13]

[11] Ibid., p. 19.
[12] *The Costs and Benefits of Alternative Growth Patterns: The Impact Assessment of the New Jersey State Plan.* Center for Urban Policy Research, Rutgers University, September 2000.
[13] NJ Transit General Information, via NJ Transit website: http://www.njtransit.state.nj.us

FIGURE 4: Commuter Rail System



Source: Office of State Planning.

New Jersey Transit's rail network serves 161 stations in 137 communities, with transfers to and from New Jersey Transit buses at 123 rail stations.

The 14-mile PATH rapid transit service connecting Newark, Hoboken, Jersey City and New York City carries over 60 million riders per year. The 14-mile PATCO rapid transit service carries 11 million riders per year between Lindenwold and Philadelphia through Camden. On average, 585,000 riders board AMTRAK Northeast Corridor line trains in New Jersey each year, including Metroliner trains. New Jersey Transit provided rail service to Atlantic City from Lindenwold beginning in 1989 and provided direct service to Philadelphia in 1993. In April 1995, New Jersey Transit took over the 68-mile AMTRAK service between Atlantic City and Philadelphia and increased the frequency of service to 14 trips per day as well as ridership. Ridership on the Atlantic City Rail Line increased 90 percent from 525,000 riders (annual) in Fiscal Year 1991 to 998,000 riders in Fiscal Year 1999 (currently approximately 2,800 riders per day). Charter buses also bring some 10 million visitors to Atlantic City each year.

Four privately operated commuter ferry services connect Hoboken, Weehawken, and Monmouth County across the Hudson River or New York harbor with lower Manhattan. Three other ferry lines serve primarily recreational markets:

- the Cape May—Lewes, Delaware, ferry across Delaware Bay,
- the Liberty State Park ferry to Liberty and Ellis islands in New York harbor, and
- the New Jersey State Aquarium ferry across the Delaware River between Camden and Philadelphia.

The 1998 vision report, *New Jersey FIRST* identified a number of objectives for public transportation, which included:

- Replace every overage bus in its fleet with one that runs on the best fuel technology. A substantial portion of the state's bus fleet operated by New Jersey Transit and private carriers is presently overage. To ensure safe operations and minimize operating budget outlays, at least 1,400 buses will be replaced within the next five years.
- Replace 424 rail cars and 17 locomotives within 10 years to continue high on-time performance, sustain customer satisfaction and ensure safe operations.
- Upgrade the top 20 passenger stations that are most in need of repair in concert with local communities.
- Increase investments in our tracks and rail yards so that rail on-time performance remains high.[14]

New Jersey Transit's $6.1 billion five-year capital program for fiscal years 2002 through 2006 included a number of major initiatives, emphasizing sustaining and enhancing system capacity and replacing aging equipment:

- Construction and operation of the 20.5 mile Hudson-Bergen Light Rail Transit System. Service on the first segments began in spring 2000.
- Completion of the Boonton Line Electrification and Montclair Branch Connection projects, that will provide one seat rail service to Penn Station, New York from the Montclair Branch and easy access to Newark via the Broad Street Station and to other New Jersey cities via the Secaucus Transfer from as far northwest as Netcong.
- Construction of the Southern New Jersey Light Rail Transit System from Camden to Trenton.

[14] Ibid.

- Completion of the Newark Airport Station link with the one-mile Newark Airport monorail expansion being completed by the Port Authority of New York and New Jersey.
- Improvements to Newark's Penn Station and Broad Street Station, Hoboken Terminal and Trenton Station and improvements to several rail yards.
- Construction of a Newark-Elizabeth rail link.

Public transit services will be increasingly needed to provide mobility for several segments of the population that are projected to increase dramatically in New Jersey through 2020. According to the New Jersey Department of Transportation, more than 1.1 million New Jersey residents have a limited ability to meet their mobility needs:

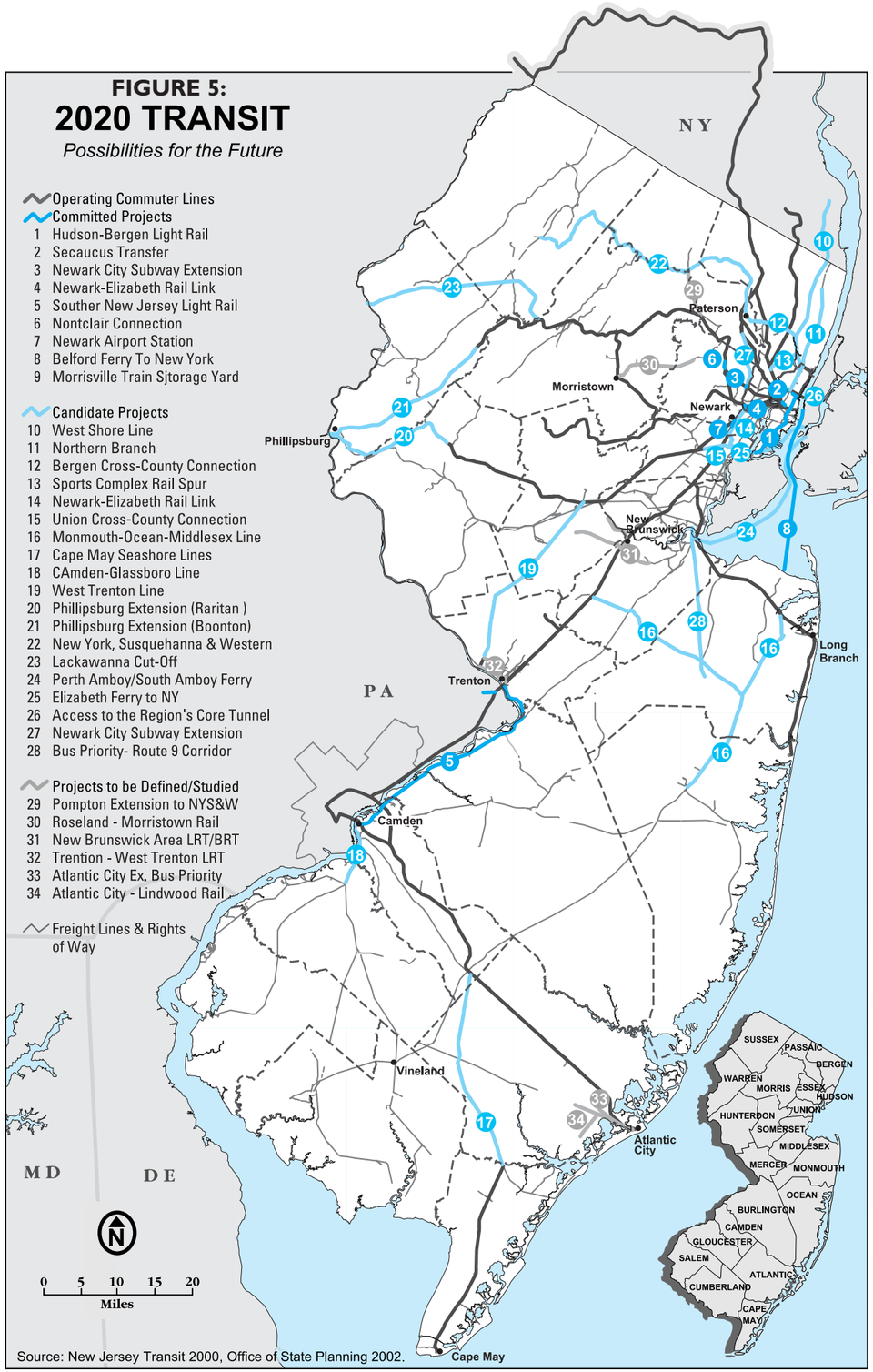
- One of eight households in New Jersey does not have a vehicle available for its use.
- Nearly 230,000 residents have mobility limitations than make alternatives to driving essential.
- 480,000 non-disabled New Jerseyans are over 75 years old, and age when driving reflexes and endurance may be declining and alternatives to driving become more necessary.
- 420,000 New Jerseyans are 12 years old to 16 years old and dependent on adults for transportation to jobs, schools and recreation if other alternatives are not available.[15]

In association with the New Jersey Department of Transportation, the Office of State Planning and other organizations, New Jersey Transit is currently leading an initiative promoting transit-oriented community design which may affect infrastructure needs associated with future development and redevelopment. Walking and biking to work or to transit stops requires barrier-free routes. A number of New Jersey communities are already advancing projects to improve access to, and safety for, rail and bus transit stops.

While most of the buses and rail rolling stock is currently being replaced, with the average useful life of a bus of 12 years and of a rail car 30 years, significant life-cycle replacement and rehabilitation costs will be incurred prior to the State Plan's horizon year of 2020. Potential major rail system projects that may be initiated by 2020 include:

- Meadowlands Sports Complex rail spur.
- West Shore Rail Line reactivation.
- New York, Susquehanna and Western Rail restoration.
- West Trenton Rail Line reactivation.
- Expansion of rail services in Middlesex, Monmouth and Ocean counties, including a Trenton-Wall Township passenger rail line along Interstate 195.
- Construction of a second Hudson River transit crossing.

[15] *Transportation Choices 2020: Statewide Long-Range Transportation Plan.* New Jersey Department of Transportation. July 1995.



Source: New Jersey Transit 2000, Office of State Planning 2002.

TABLE 8:
PUBLIC TRANSPORTATION COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Transportation	$4,075	$4,129	$8,204

Notes: All values in millions of 1999 dollars

Sources: New Jersey Department of Transportation
New Jersey Transit

In October 2000, New Jersey Transit published the *2020 Transit Report: Possibilities for the Future*. This technical report established criteria for calculating a "transit score" defining the suitability of specific geographic areas for fixed guideway transit, bus service or intermodal access to transit. The transit scores, depicted in part in New Jersey Transit's *2020 Transit Map* (see Figure 5), relate well, and can be increasingly integrated, with the *State Development and Redevelopment Plan.*

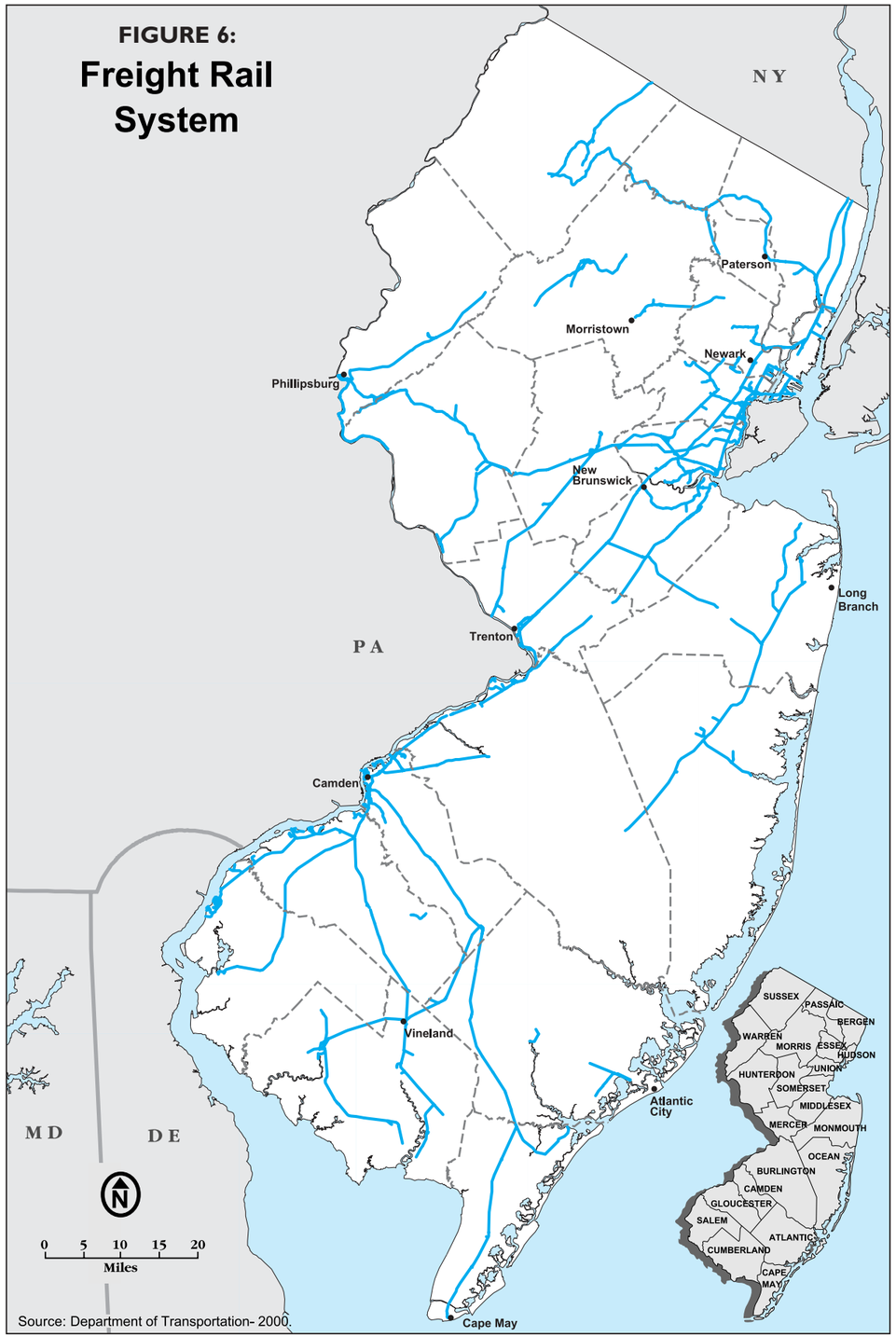
Based on a comparison using current dollars, the New Jersey Department of Transportation has estimated that costs to meet Present Needs for backlog and rehabilitation have slightly decreased from $4,605 million (1990–2010) to $4,075 million (2000–2020) while costs for Prospective Needs to accommodate new growth will substantially increase from $2,159 million (1990–2010) to $4,129 million (2000–2020).

Freight, including Ports

A rational and efficient goods movement system is crucial to maintaining a healthy state economy. Goods movement and distribution is New Jersey's fourth-largest industry. Unlike transit and most private automobile travel in New Jersey, trucking, rail freight and marine freight movements are dictated by what happens outside the state as much as, or more than, by what happens within the state. The globalization of manufacturing, distribution and marketing of goods, the increasing use of "just-in-time" inventory practices by manufacturers, overnight package deliveries and the changing combinations of transportation modes and links that make up a goods movement trip today from origin of manufacture to consumer destination, all have important implications for the state's transportation system.

Over 6.9 billion tons of freight is moved each year in New

FIGURE 6:
Freight Rail System



Source: Department of Transportation- 2000.

Jersey, more than 77 percent by truck.[16] An estimated 324,000 tons of goods manufactured in New Jersey are transported each day in more than 136,500 trucks. In northern New Jersey alone, trucks carry some 150 million tons of freight annually; rail, 22 million tons; ships, 57 million tons and aircraft, two million tons.[17] In addition, a number of privately operated pipelines provide bulk transport of oil and natural gas through New Jersey from the southwest. Five major pipelines move 280 million tons of liquids each year.

With convenient links to both rail and highway, New Jersey's ports are within a day's truck trip of Chicago, Montreal, and two-thirds of the entire population of the United States. With the increasing demands for "just-in-time" freight delivery and courier delivery of consumer goods purchased through catalogs and the Internet, New Jersey's freight network requires substantial investments to meet the demands of the 21st century economy.

The nature of the freight industry makes transfers among modes very important, especially for ocean borne and rail containers that are mounted on truck chassis and moved by highway to their final destination. There are four major rail freight carriers using an extensive network of 1,200 miles of track in New Jersey. The Conrail Shared Assets Operator (CSAO) delivers freight on behalf of its parent companies, the Norfolk Southern (NS) and CSX railroads. Equally important are the intermodal operations of the Canadian Pacific Railroad in Newark and Philadelphia. At the local level, New Jersey's 13 short-line railroads provide switching services to a significant number of industries, several on track that would otherwise have been lost to abandonment by the larger railroads. The 10 rail intermodal terminals in northeastern New Jersey handle 900,000 shipments per year; four terminals in the Philadelphia area handle one million shipments per year.

Waterborne freight operates through 76 ports and terminals throughout the state, with Port Newark-Elizabeth and the Port of Camden the largest of the four dominant ports.[18] Handling 17.6 million tons of freight per year, the Port of Newark-Elizabeth is the third largest in the United States and the largest container port on the Eastern seaboard, directly and indirectly employing

[16] *NJ Transportation Fact Book 2000.* NJ Department of Transportation, 2000, p. 24.
[17] *Transportation Choices 2020: Statewide Long-Range Transportation Plan*, NJ Department of Transportation, July 1995.
[18] *Transportation Choices 2020: Statewide Long-Range Transportation Plan*, NJ Department of Transportation, July 1995.

approximately 166,000 people and contributing $20 billion per year to the local economy. The South Jersey Port Corporation in Camden captures about one third of the Philadelphia port traffic. Specializing in scrap metals, food and building products, it generates an estimated 18,000 jobs in southern New Jersey. The ports of Salem and Bridgeton, located across from the Chesapeake-Delaware Canal, are small public ports that need substantial improvements to reach their potential. Each working day, an average of 20 ships load or unload 218,400 tons of goods. Overall, the maritime industry is estimated to contribute more than $50 billion per year into New Jersey's economy.

As expansion of the global economy increases the importance of import and export activity, the ports of Newark and Elizabeth as well as the Delaware River ports will become key to New Jersey's economic future. Support activities such as custom freight brokering, international banking, motor and rail freight, warehousing and distribution, and further worldwide outsourcing of goods manufacture are interdependent with the global economy. Along with proposals to dredge the Kill Van Kull, Port Jersey and Arthur Kill channels and New York Harbor to accommodate larger vessels, the "Portway" project of the New Jersey Department of Transportation is promoting use of the Newark and Elizabeth ports through a series of transportation improvements designed to make goods movement more efficient and attractive to shippers.

As expansion of the global economy increases the importance of import and export activity, the ports of Newark and Elizabeth as well as the Delaware River ports will become key to New Jersey's economic future.

At 15,000 trucks each day, and over two million truck trips per year, one third of all New Jersey's truck traffic is estimated by the New Jersey Department of Transportation to use roadways within the 10-mile area surrounding Port Newark-Elizabeth, and this rate is projected to increase 4 percent by 2010. Port Newark-Elizabeth handles more than 1.4 million containers per year, and is expected to handle more than 2.8 million containers (two million by rail) by 2010. When dredging is completed, Port Newark-Elizabeth will be able to handle the future fleet of deep draft vessels that will carry an equivalent of 6,000 20-foot containers in a single load.

With the exception of a $10 million road built in conjunction with the new Jersey Gardens mall, the road network serving the port area has not received significant improvements since the 1950's. The high clearances required for "double stack" container trains frequently used for shipping products to and from the Pacific Rim are not available on all rail lines serving New Jersey's intermodal terminals. A $545 million Portway project is being advanced to help relieve traffic congestion in the area by expediting and accommodating the increasing truck traffic within a dedicated freight corridor.

With the sale of Conrail to CSX, the rail freight network in New Jersey is part of the much larger inter-regional networks of two competing private national railroads. These networks will, in turn, tie New Jersey more closely to New England, the South and the Midwest. The need to amortize the costs of their purchase of the Conrail system will motivate the successors to increase their business. As a result, more demand is likely to be made on the capacity of the existing rail system. However, under Conrail, much of the state's rail system became significantly downsized since 1976. The capacity of New Jersey's freight rail system was first reduced due to abandonment of unprofitable branch lines and the reduction of other lines from two tracks to one. More than 500 miles of rail lines were abandoned in New Jersey since 1970, and less than 200 miles of these

TABLE 9:
FREIGHT COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Freight, including Ports	$2,530	$835	$3,365

Notes: All values in millions of 1999 dollars.

Sources: New Jersey Department of Transportation
State Planning Commission, 1992 *Infrastructure Needs Assessment*

rights of way still exist. This could have potentially serious implications for passenger rail transit on those rail lines where rail freight and rail passenger operations must share the same tracks. The prospect of increased rail freight business is good for the state's economy and employment. At the same time, provision of more rail transit can greatly benefit the mobility of the state's residents. If we are to optimally accommodate both passenger and rail traffic, it may be necessary to increase the capacity of the freight rail system. To address the capacity shortfall, the New Jersey Department of Transportation and New Jersey Transit, in cooperation with the Class I railroads, have identified approximately $200 million in needed capital improvements.

In May 1998, *New Jersey FIRST* established as an objective the financing of improvements to short line railroads to promote economic growth along existing rail freight routes. New Jersey's State Rail Plan currently identifies $36 million in needed improvements to these short lines. Under current guidelines, these projects will be eligible for state funds to cover 50 to 70 percent of the total cost.

There are now more intermodal linkages involved in goods movement. Increased rail freight intermodal service would result in mixed impacts on the state's highway system. A shift from trucks to rail for long distance goods movement could be a benefit in reduced wear and congestion on highways. However, short distance truck traffic may increase in some areas. This is especially true in terminal states like New Jersey

Where there is a strategic interface between a rail line and major highways there are likely to be strong, market-driven forces to locate very large warehousing and distribution facilities and related support businesses. There is adequate capacity on rail lines to support this development in many of the state's suburban and rural areas. In contrast, as a result of rail line abandonment, rail capacity is now insufficient in many urban areas to support the traditional roles of warehousing and distribution in New Jersey's cities and towns. Local strategies for urban redevelopment and revitalization will need to be carefully considered to determine if investments in restoring rail capacity would ensure that these roles remain viable, or if investments in redeveloping warehousing and distribution centers to other uses would be more effective.

Despite the critical nature of the freight system in New Jersey, a coordinated effort to plan for these needs has emerged only in the past few years. Competition within the private sector, lack of data regarding freight markets and needs, and conflicts among federal, state and local environmental and site development regulations have challenged efforts for freight infrastructure

planning. Therefore, while the precedent of the Portway project promises a more comprehensive statewide analysis in the future, an updated assessment of statewide needs for freight infrastructure is not yet available. For the purposes of this assessment, the estimates in the 1992 assessment are updated from 1990 dollars to 1999 dollars.[19]

Aviation, including Air Freight

New Jersey has two international airports—Newark and Atlantic City. In 1997, about 30.8 million people flew in or out of Newark International Airport, setting an all-time record for passenger usage as its cargo numbers continued to rise. In 1999, its 94,000 passengers per day made Newark, which offers nonstop connections to more than 40 international destinations, the region's most heavily trafficked airport. In 2000, Newark welcomed 34.4 million passengers, an increase of 800,000 passengers from 1999. Newark Airport is the national hub airport for Continental Airlines. Meanwhile, Atlantic City International Airport showed an 18 percent increase in passengers from 1996 to 1997.[20] It now draws nearly 3,000 passengers per day serving the booming casino industry.

From 1990 through 1999, aviation in New Jersey showed the following trends:[21]

- Total commercial air carrier scheduled passenger enplanements at New Jersey's three scheduled service airports increased from approximately 11.4 million passenger enplanements to approximately 17.1 million, representing an average annual growth rate of approximately 4.6 percent.
- In 1999, almost 2.5 million total general aviation operations and over 480,000 total operations by scheduled service aircraft occurred at New Jersey's airports.
- Total general aviation operations at New Jersey's towered airports increased from 876,230 to 906,752, representing an average annual growth rate of approximately 0.4 percent.
- Total aircraft based at New Jersey's system airports increased from 3,894 to 4,219, representing an average annual growth rate of 0.9 percent.

[19] 1990 dollars are adjusted to 1999 dollars by dividing the 1990 dollar amount by 0.783, based on the Consumer Price Index. Backlog and Rehabilitation Needs were combined as Present Needs, and Growth Needs were included as Prospective Needs.
[20] An expanded terminal at Atlantic City International Airport will accommodate up to 1.3 million passengers per year. http://www.acairport.com/news/acairfacts.cfm
[21] *New Jersey State Airport System Plan.* New Jersey Department of Transportation. February 2001, Working Draft.

Most air cargo in New Jersey comes through Newark Airport. The nation's eighth-largest air cargo facility, Newark Airport currently handles 1.14 million tons of cargo each year and is projected by DOT to increase its tonnage by more than 10 percent per year for the foreseeable future.

New Jersey's aviation infrastructure is part of an integrated national network. Nationwide, the total number of hours flown in general aviation increased by 32 percent between 1994 and 1999, and hours are projected by the Federal Aviation Administration (FAA) to continue to increase by more than two percent per year, primarily from turbojets associated with corporate travel, air taxi and medical transport. In addition, smaller, well-equipped regional airports help to relieve congestion in both the skies and on the ground at the major airports.

While demands for New Jersey's aviation infrastructure have continued to increase, increased land development near airports has continued to intensify conflicts between flight operations and neighboring land uses. Public use airports in New Jersey have decreased from 54 in 1992 to 49 in 2000 (see Figure 7). Portions of the airplane parking area in Bader Field in Atlantic City were redeveloped as a minor league baseball stadium. Airport noise has become a public issue as incompatible land uses such as residences, schools, houses of worship and parks have increased within the 65 decibel noise contour near many general aviation airports and public and private use heliports. High land values and property taxes result in increasing pressures to develop land near airports for incompatible uses and to convert the airport itself to other uses (which may violate terms of FAA grants to general aviation airports for capital projects under the federal Airport Improvement Program).

Airport noise has become a public issue as incompatible land uses such as residences, schools, houses of worship and parks have increased within the 65 decibel noise contour near many general aviation airports and public and private use heliports.

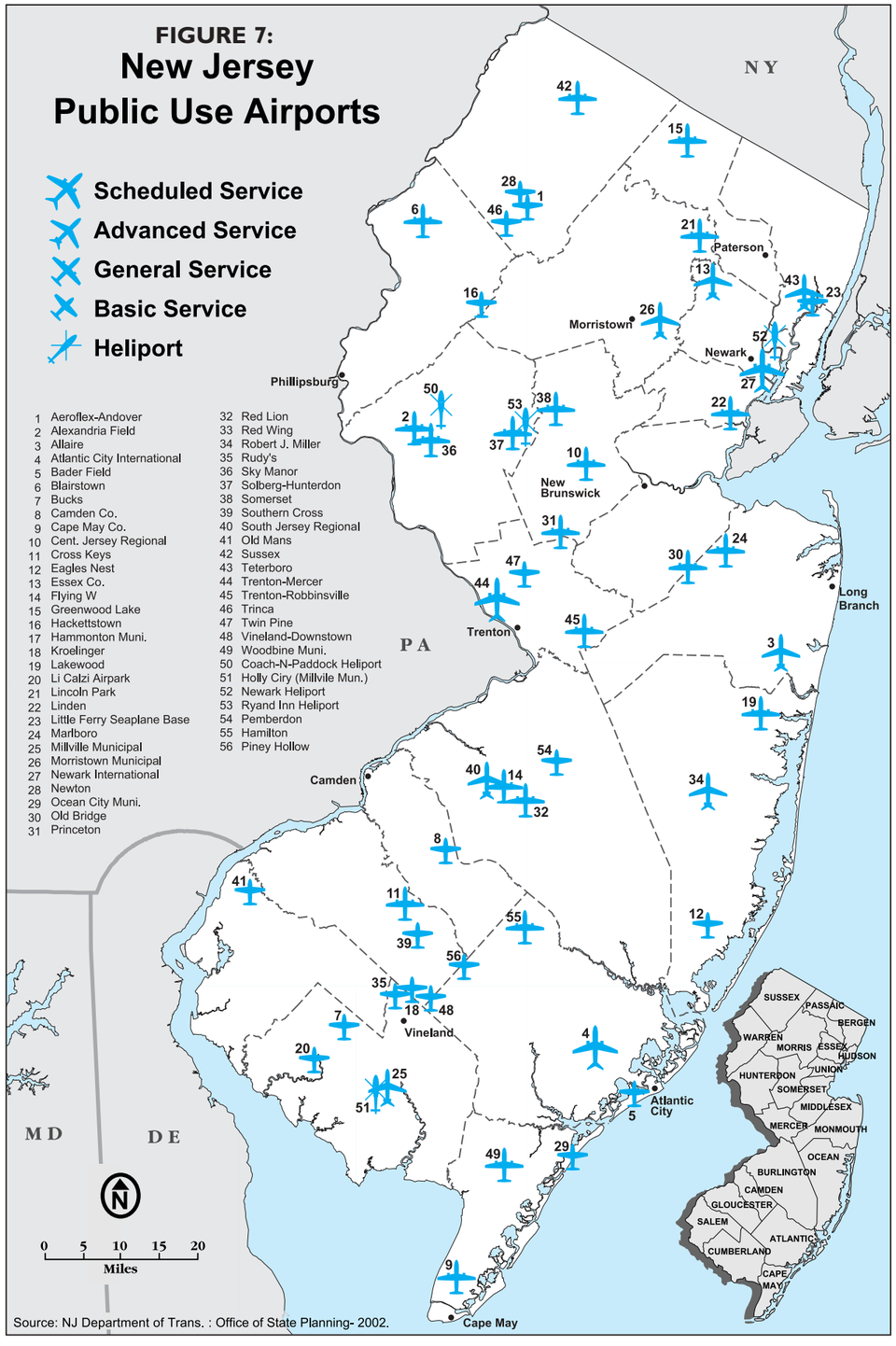
Only five general aviation airports in the state have runways longer than 5,000 feet, necessary to land modern business aircraft. According to a 1998 report of the New Jersey General Aviation Study Commission to the Legislature,[22] over 70,000 people are employed directly and indirectly as a result of the general aviation industry.

Airports provide many benefits to communities both locally and regionally even for those who never use or visit the airport. Corporate location decisions, medical and emergency services and traffic surveillance all depend on general aviation airports. Airborne fire suppression, organ and patient transport, government business, environmental monitoring, pipeline monitoring and the National Guard depend on general aviation airports. Annual economic activity associated with general aviation airports, including the businesses that depend on them, exceeds $4.6 billion. New Jersey has the highest number of people per airport in the nation. However, New Jersey ranks poorly compared to other states in its investments in public use airports. New Jersey has the second-highest proportion of its public use airports in private ownership. Were the state to purchase and improve its general aviation airports the cost would exceed $1.6 billion.

The continued vitality of New Jersey's general aviation airports was established as an objective of *New Jersey FIRST*.[23] In December 2000, Governor Whitman signed legislation that authorized the

[22] *Report of the New Jersey General Aviation Study Commission.* Commissioned Public Law 93 Chapter 336. NJ General Aviation Study Commission, 1998, 339 pages.
[23] *New Jersey First: A Transportation Vision for the 21st Century.* New Jersey Department of Transportation, May 1998.

FIGURE 7:
New Jersey Public Use Airports



Source: NJ Department of Trans. : Office of State Planning- 2002.

TABLE 10:
AVIATION COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Aviation, including Air Freight	$4,209	$2,916	$7,125

Notes: All values in millions of 1999 dollars
Source: New Jersey Department of Transportation

New Jersey Department of Transportation to purchase development rights associated with certain public use airports and appropriated $2.5 million for this purpose.[24]

The 1991 Statewide Airport System Plan (SASP) by the New Jersey Department of Transportation included a limited needs analysis. This assessment includes the total needs for all public-use airport facilities, air carrier and general aviation throughout the state. An update to the SASP, to be completed in late 2001, is expected to include a more robust needs assessment and analysis to ensure that the plan will adequately respond to the requirements of the air transportation system and can be used as a basis for airport development. In addition, an updated economic impact analysis and land-use compatibility analyses for public use airports will be initiated in 2001. A 1995 study by the Delaware Valley Regional Planning Commission recommended a $740 million capital improvement program for major commercial, reliever and general aviation airports and heliports in the Philadelphia area, including over $40 million for improvements to facilities in New Jersey.[25] New Jersey's system of airports is required to furnish New Jersey with adequate access to the global economy.

In addition to public use airports, aviation facilities in New Jersey also include 40 restricted use airports, five balloonports, four public use heliports, 389 restricted use helistops (hospitals, corporate, etc.), five seaplane facilities and 39 private landing strips.

Based on preliminary results of the assessment in progress, the total projected costs to meet infrastructure needs for aviation have increased from $6,430 million in 1992 to $7,125 million in 1999. Of this total, costs for Present Needs (rehabilitation costs) increased from $3,965 million in 1992 to $4,209 million in 1999.

Other Transportation Facilities

These facilities include administration buildings and other capital facilities and services related to transportation not classified elsewhere. The magnitude of transportation facilities and services provided results in a significant need for administration buildings and other transportation-related construction and improvements that are not associated with any single transportation system. For example, the World Trade Center in Manhattan, New York City, as the headquarters of

[24] *N.J.S.A.* 6:1-95 et seq.
[25] 2020 Regional Airport System Plan for the Delaware Valley: The Airport Planning Element of the DVRPC Year 2020 Plan. Delaware Valley Regional Planning Commission, August 1995.

TABLE 11:
OTHER TRANSPORTATION FACILITIES COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Other Transportation Facilities	$190	$145	$335

Notes: All values in millions of 1999 dollars.
Source: New Jersey Department of Transportation
State Planning Commission, 1992 *Infrastructure Needs Assessment*

administrative services for major New Jersey transportation facilities, accounts for part of New Jersey's infrastructure needs. An international trade center proposed for Newark is intended to provide similar services.

In the absence of an updated Assessment, the estimated costs in the 1992 Assessment were updated to 1999 dollars.[26]

Energy

An April 2000 report[27] by the New Jersey Office of Sustainable Business identified the critical nature of energy infrastructure in New Jersey. In 1999, the most recent year for which these data were available,[28] New Jersey was the 12th-highest energy consuming state in the United States, although 14th lowest in consumption per capita (317.9 MMBTU/year). New Jersey is a net importer of energy. The 13th-lowest energy producing state in 1999, New Jersey's 12.6 MMBTU per year virtually exclusively from nuclear electric power generation. In 1997, energy expenditures in the state approached $17.5 billion, a substantial portion of the state economy. As stated by the Office of Sustainable Business:

> *Since New Jersey is dependent on foreign and domestic energy imports, only a small fraction of the money spent on energy actually remains in the state's economy. This combination of high energy costs, high energy usage and the high losses of capital to pay for energy imports is detrimental to the quality of New Jersey's economy, industrial competitiveness, small business profitability and job creation.*

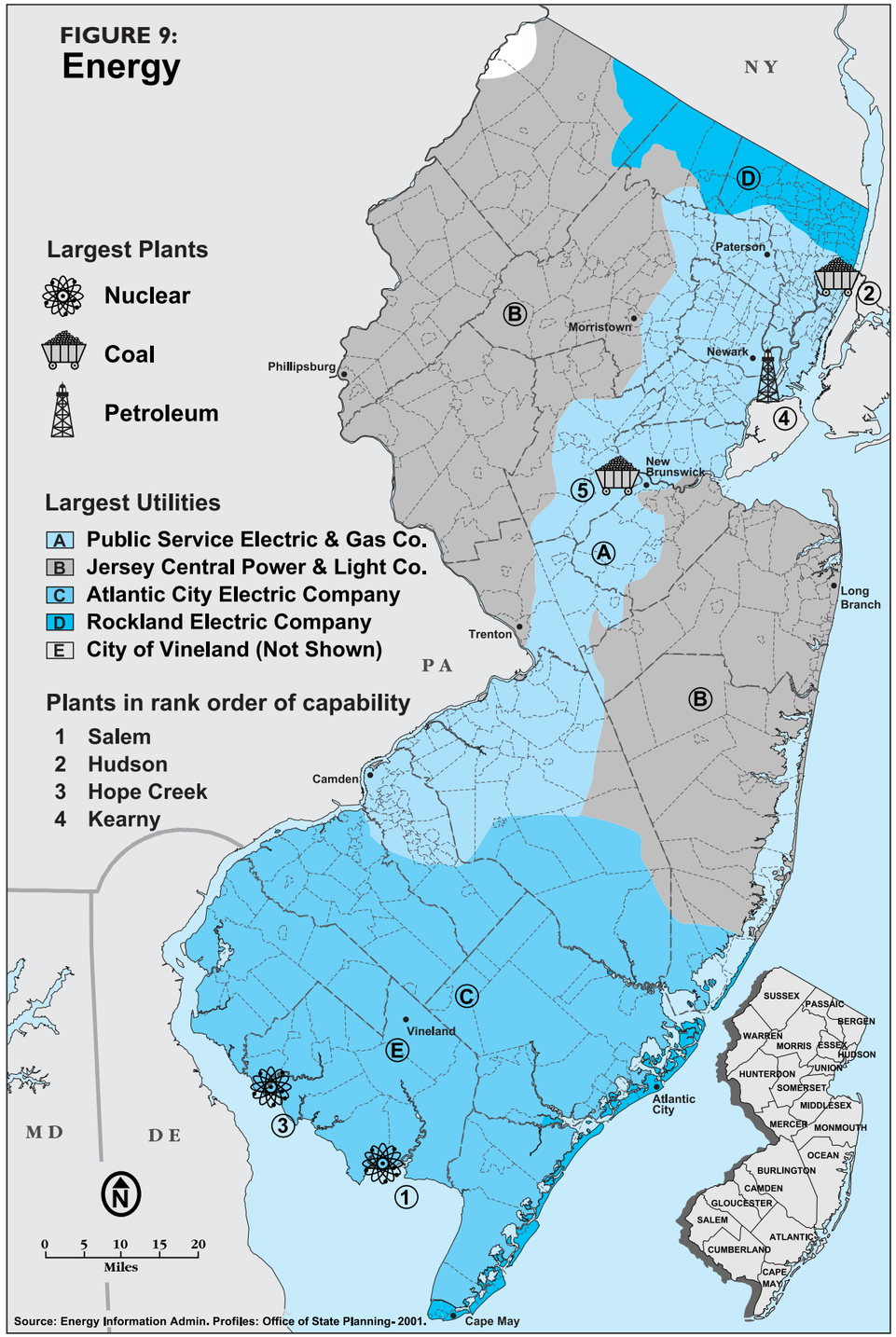
New Jersey is relatively efficient in its use of energy. In 1997, approximately 8.8 thousand BTU were consumed for each dollar of Gross State Product compared to an average of 12 thousand BTU for the nation. There is room for improvement. The American Council for an Energy-Efficient Economy (ACEEE), in a 1997 report cited by the Office of Sustainable Business in *Greening the Garden State*, estimated that implementing currently available energy-efficient technologies would improve the quality of life for New Jersey residents by creating 33,600 net new jobs, reducing total air emissions by 23 percent and reducing total energy consumption by 20 percent.

Residential and commercial buildings account for over 40 percent of the energy consumed in the state. Transportation accounts for one third, with industrial use the remainder. Space heating of buildings is most affected by building codes and construction practices. Transportation energy use is sensitive to vehicle efficiency, mode of travel (private car vs. public transportation), and land-use patterns. In 1999, New Jersey has generated over $128 in economic output per Million British Thermal Units (MBTU) of energy consumed (see Figure 8).

Nuclear fuel is the primary source of electric power generation in New Jersey, with four reactors accounting for 50.6 percent of all electric power generation in 1998 (see Table 16). Normally, nuclear power supports New Jersey's baseline electric power needs supplemented by fossil fuel based plants and electricity from interstate regional power grids during peak demand periods. The Salem twin reactors and the Hope Creek reactor share a 700-acre site on an artificial island three miles long and one mile wide on the eastern shore of the Delaware River in Lower Alloways Creek Township, eight miles southwest of Salem, New Jersey, and 30 miles southwest of Philadelphia, Pennsylvania. Hope Creek's cooling tower is the tallest concrete structure in New

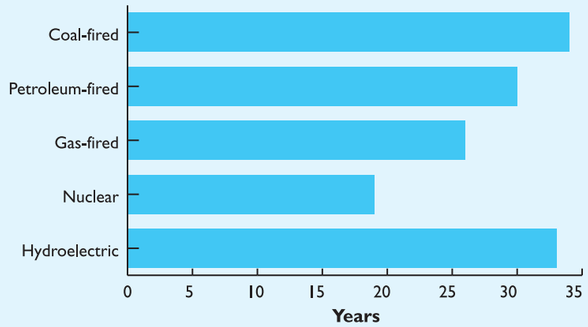
[26] 1990 dollars are adjusted to 1999 dollars by dividing the 1990 dollar amount by 0.783, based on the Consumer Price Index. Backlog and rehabilitation costs are combined in Present Costs.
[27] *Greening the Garden State: A Report on Sustainable Business Actions in New Jersey.* A Report to the New Jersey Commerce & Economic Growth Commission. New Jersey Office of Sustainable Business, Trenton, New Jersey. April 2000, 148 pp.
[28] *State Energy Data Report 1999*, Federal Energy Information Administration, Washington, D.C. http://www.eia.doe.gov

FIGURE 9:
Energy



Source: Energy Information Admin. Profiles: Office of State Planning- 2001.

FIGURE 10: AVERAGE AGE OF ELECTRIC UTILITY POWER GENERATING PLANTS, 1998



Source: United States Department of Energy

TABLE 12:
FIVE LARGEST ELECTRIC UTILITY POWER GENERATING PLANTS, 1998

PLANT	ENERGY SOURCE	OPERATING COMPANY	NET CAPABILITY (MW)	AGE (YEARS)
1. Salem	Nuclear	Public Service Electric & Gas Co	2,250	27
2. Hudson	Coal, Gas, Petroleum	Public Service Electric & Gas Co	1,135	34
3. Hope Creek	Nuclear	Public Service Electric & Gas Co	1,031	12
4. Kearny	Petroleum, Gas	Public Service Electric & Gas Co	784	45
5. Mercer	Coal, Petroleum	Public Service Electric & Gas Co	777	38

Source: United States Department of Energy

TABLE 13:
ELECTRIC POWER GENERATING CAPABILITY BY PLANT TYPE

	MEGAWATTS ELECTRIC			ANNUAL GROWTH RATE 1988–1998 (PERCENT)	PERCENTAGE SHARE		
PLANT TYPE	1988	1993	1998		1988	1993	1998
Total Utility	13,510	13,850	13,390	–0.1	86.5	84.5	80.5
Coal-fired	1,652	1,644	1,658	0.0	10.6	10.0	10.0
Petroleum-fired	3,407	3,072	2,490	–3.1	21.8	18.8	15.0
Gas-fired	165	303	1,068	20.5	1.1	1.8	6.4
Dual-fired	4,093	4,598	3,912	–0.5	26.2	28.1	23.5
Nuclear	3,863	3,853	3,862	0.0	24.7	23.5	23.2
Hydroelectric	330	380	400	1.9	2.1	2.3	2.4
Total Nonutility	2,111	2,534	3,235	4.4	13.5	15.5	19.5
Totals	15,621	16,384	16,625	0.6	100.0	100.0	100.0

Source: United States Department of Energy

TABLE 14:
NATURAL GAS CONSUMPTION, 1999

CONSUMERS	CONSUMPTION (MILLION CUBIC FEET)	NUMBER OF CONSUMERS	AVERAGE ANNUAL CONSUMPTION CONSUMER (1,000 CUBIC FEET)	AVERAGE PRICES FOR NATURAL GAS ($/1,000 CUBIC FEET)
Residential	209,399	2,245,904	93	7.46
Commercial	163,759	232,831	703	3.99
Industrial	206,898	10,111	20,463	3.14
Electric Utilities	32,650	—	—	3.08

Source: United States Department of Energy

TABLE 15:
PETROLEUM REFINING CAPACITY, 2001

REFINERY	DISTILLATION CAPACITY (BARRELS PER CALENDAR DAY)
Amerada Hess Corp (Port Reading)	0 (Downstream capacity only)
Chevron U.S.A., Inc. (Perth Amboy)	0 (Asphalt plant)
Citgo Asphalt Refining Co. (Paulsboro)	0 (40,000 BCD idle on 1/1/01)
Coastal Eagle Point Co. (Westville)	143,000
Tosco Refining Co. (Linden – Bayway)	250,000
Valero Refining Co. (Paulsboro)	154,000
TOTAL CAPACITY	**547,000**

Source: United States Department of Energy

FIGURE 8: ECONOMIC OUTPUT PER UNIT OF ENERGY CONSUMED

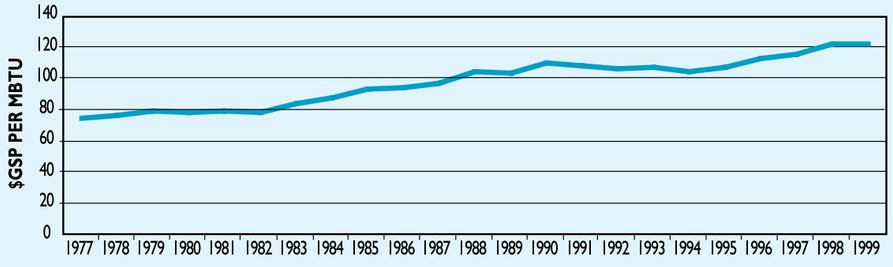


TABLE 16:
NUCLEAR GENERATING STATIONS

	SALEM UNIT 1	SALEM UNIT 2	HOPE CREEK	OYSTER CREEK
Operator	Public Service Electric & Gas Co.		Public Service Electric & Gas Co.	AmerGen Energy Co.
Owners	Public Service Electric & Gas Co. (42.6 percent); PECO Energy Co. (42.6 percent); Conectiv, Inc. (14.8 percent)		Public Service Electric & Gas Company (95 percent), Conectiv, Inc. (5 percent)	Jersey Central Power & Light Company
Reactor Supplier	Westinghouse Corporation	Westinghouse Corporation	General Electric Company	General Electric Company
Capacity	1106 net MWe	1106 net MWe	1031 net MWe	619 net MWe
Reactor Type	Pressurized water reactor	Pressurized water reactor	Boiling water reactor	Boiling water reactor
Date of Operation	December 1976	May 1981	July 1986	August 1969
License Expiration Date	August 13, 2016	April 18, 2020	April 11, 2026	December 15, 2009
Electricity Produced in 2000	8.81 billion kWh	8.41 billion kWh	7.26 billion kWh	4.10 billion kWh
2000 Average Capacity Factor	90.72 percent	86.52 percent	80.14 percent	75.43 percent

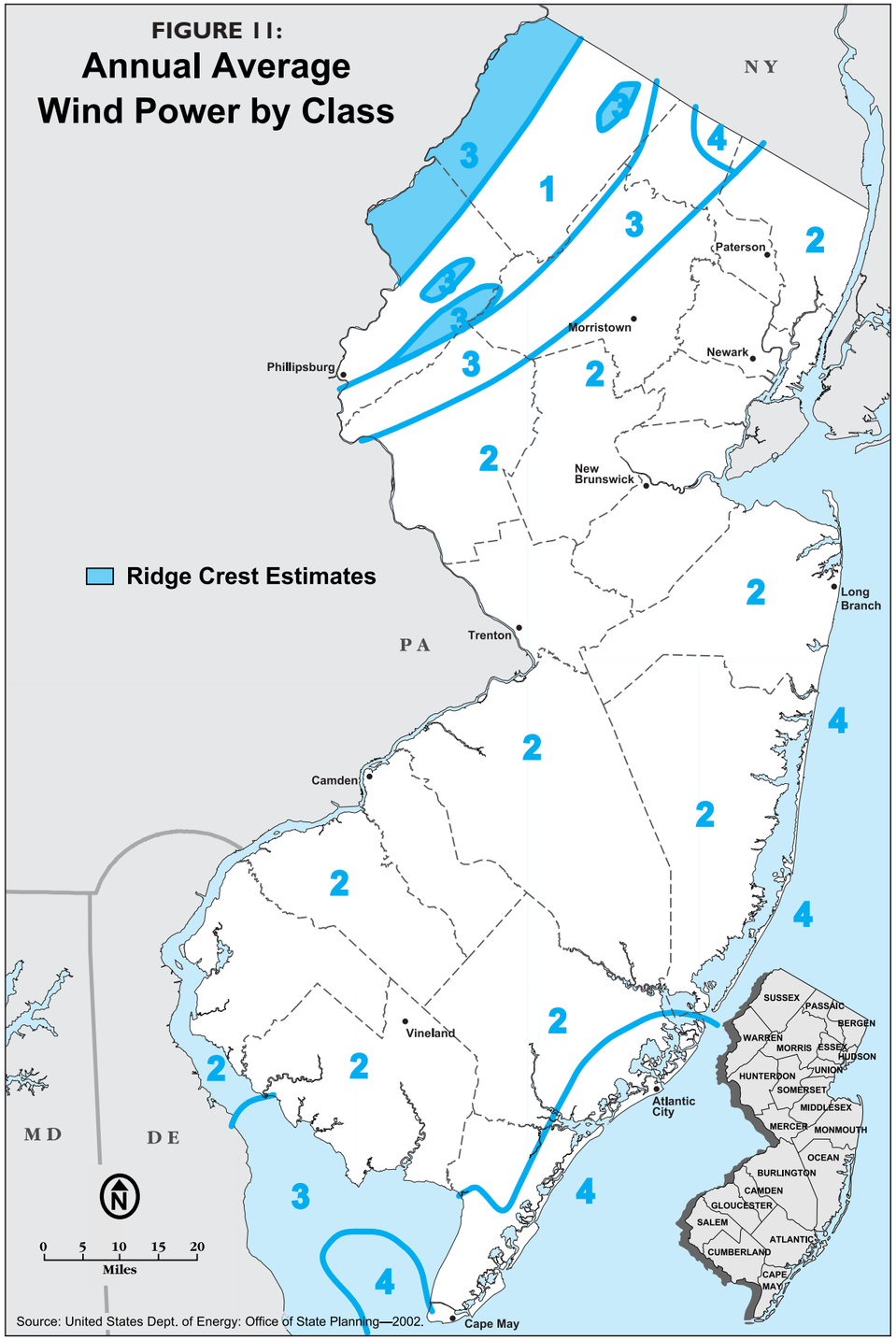
Source: United States Department of Energy

Jersey. The unit is sited next to the twin Salem units. The Oyster Creek nuclear power plant is located on an 800-acre site on Barnegat Bay in Forked River, New Jersey, nine miles south of Toms River. Cooling water is obtained from the Atlantic Ocean.

About 58 percent of the homes in New Jersey are heated by natural gas, with fuel oil accounting for the next largest share at 29 percent. New Jersey is traversed by several natural gas pipelines and a major petroleum product pipeline (shared by Colonial, Buckeye and Sun). Six petroleum refineries are clustered on the Delaware River east of Philadelphia, Pennsylvania and in the northeastern suburbs just south of New York City. Woodbridge, New Jersey, is home to an oil reserve with one million barrels of capacity, one of the four Northeast Heating Oil Reserve sites established by Congress in 2000 to help cushion the risks presented by home heating oil shortages. Approximately 3,900 gasoline stations were operating in New Jersey in 2000, serving a demand of 10.5 million gallons per day (11th highest in the nation). New Jersey ranks third in the nation in jet fuel consumption, averaging 4.2 million gallons per day.

Renewable sources of energy are receiving increasing attention (see Figure 11). Areas with wind power designated as class 3 or greater are suitable for most wind turbine applications. However, class 2 areas that are otherwise marginal may be suitable for part of the year as wind classes tend to increase in New Jersey by one or two above the annual average during the winter, especially on ridges and near the coast.

FIGURE 11:
Annual Average Wind Power by Class



Source: United States Dept. of Energy: Office of State Planning—2002.

TABLE 17:
ENERGY FACILITIES COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Energy	$1,335	$415	$1,750

Notes: All values in millions of 1999 dollars
Source: State Planning Commission, 1992 *Infrastructure Needs Assessment*

On May 5, 1994, Governor Whitman issued Reorganization Plan Number 001-1994 that included the following provisions related to the development of the state's energy policies:

- The Board of Regulatory Commissioners was transferred to and constituted as the New Jersey Board of Public Utilities, and the name of the Department of Environmental Protection and Energy (DEPE) was changed to the Department of Environmental Protection.
- The responsibility to act as Chair of the Energy Master Plan Committee was transferred from the Commissioner of the former DEPE to the President of the Board of Public Utilities.
- The Office of Energy Planning and all of its functions, powers and duties were transferred to the Division of Energy Planning and Conservation in the Board of Public Utilities. The Division of Energy Planning and Conservation is responsible for coordinating the development of the Energy Master Plan.

The New Jersey Board of Public Utilities published the Phase 1 report of the New Jersey Energy Master Plan in March 1995.[29] The Phase 1 report outlined policy objectives primarily designed to increase competition in energy markets and to coordinate with the policies of the *State Development and Redevelopment Plan* and the 1995 Economic Master Plan. The Phase 2 report[30] advanced specific recommendations for implementing these policies. The Phase 3 report, intended to update the detailed analyses and projections of the 1991 Energy Master Plan, has not yet been published.

The Phase 1 report provided the basis for a substantial deregulation of energy utilities that has recently been implemented in New Jersey. While no major shifts in energy consumption or costs have yet been documented, it is possible that the higher costs of improving energy infrastructure in urban areas relative to suburban and rural areas may discourage energy utilities from providing the energy infrastructure necessary to support redevelopment in New Jersey's urban areas.

A recent compilation by the Board of Public Utilities of capital and purchase costs of electric power generation facilities nationwide between October and December 1998 found these costs to range from $227,000 to $1,536,000 per megawatt of capacity, but predominantly under $300,000 per megawatt. These costs are considerably less that the $500,000 to $1.5 million per megawatt

[29] *New Jersey Energy Master Plan Phase I Report*, New Jersey Board of Public Utilities. March 1995.
[30] *New Jersey Energy Master Plan Phase II Report*, New Jersey Board of Public Utilities updated the report, New Jersey Energy Master Plan: Implementation Section, New Jersey Energy Master Plan Committee, February 1993.

TABLE 18:
TELECOMMUNICATIONS FACILITIES COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Telecommunications	nav	nav	nav

nav = Documented estimates are not available for this category.

FIGURE 12: CASH RECEIPTS FROM FARM MARKETINGS

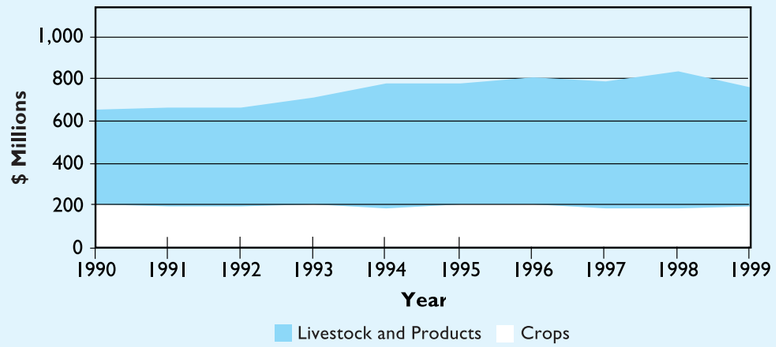
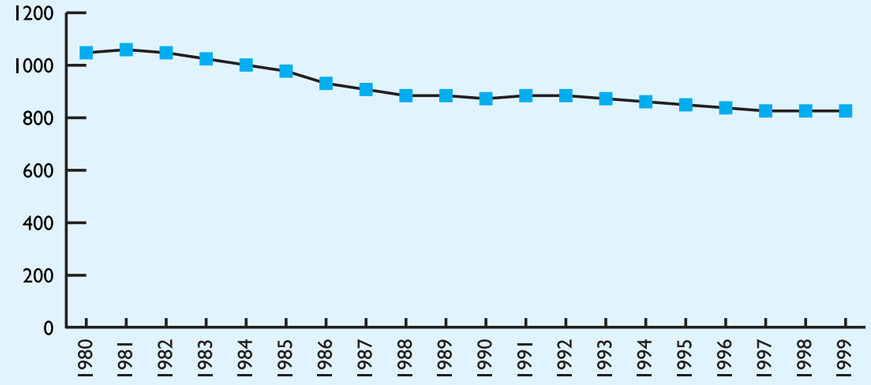


FIGURE 13: LAND IN FARMS



Note: Thousands of acres
Source: New Jersey Department of Agriculture

costs estimated in the 1991 Energy Master Plan and presented in the 1992 *Infrastructure Needs Assessment.*

In the absence of new estimates from the Board of Public Utilities, for the purpose of this Assessment, the energy generation costs presented in the 1992 assessment were inflated to 1999 dollars using the Consumer Price index, then reduced by 70 percent to account for the lower per megawatt generating costs.

Telecommunications

Industry restructuring and the enactment of New Jersey's Telecommunications Act of 1992 facilitated competition in the telecommunications industry. While telecommunications services and options have greatly increased since 1992, there are no new statewide studies of telecommunications infrastructure needs available that address this new context.

Farmland Retention

In 1999, the 9,600 farms in New Jersey generated cash receipts totaling $750 million in diverse crops and industries. Of the more than 830,000 acres of productive farmland in New Jersey, 96,839 acres of farmland have been preserved for permanent agricultural use through easements, fee simple purchases and donations through December 2000. In 1999, the state's farmland preservation program documented an 89,000-acre backlog of farmland ready to enter the program.[31] To stem the loss of open lands in productive agriculture, the New Jersey Department of Agriculture and the Governor's Council on the Outdoors both reported that an increased effort to preserve 500,000 acres of farmland was necessary to keep agriculture viable.[32]

For this Assessment, the statewide average cost per acre of $4,315 was used to estimate potential costs (regardless of funding source, which may include private donation) to meet the established need of 500,000 acres of preserved farmland (see Table 19). The current backlog of 89,000 acres of farmland ready to enter the program is considered the basis for the Present Need. The 351,759 remaining acres necessary to preserve 500,000 acres are considered the basis for the Prospective Need.

[31] *New Jersey's Farmland Preservation Program: Securing the Future of the Garden State's Farmland*, NJ Department of Agriculture, www.state.nj.us/agriculture/, June 1999.
[32] *Final Report: Summary of Findings*. Governor's Council on New Jersey Outdoors. February 26 1998.

TABLE 19:
FARMLAND PRESERVATION EASEMENT COSTS

COUNTY	ORIGINAL FARMS	EASEMENT ACRES DONATED	EASEMENT ACRES PURCHASED	TOTAL EASEMENT COSTS	AVERAGE COST PER ACRE
STATE TOTALS	**403**	**874**	**59,241**	**$255,652,820**	**$4,315**
Atlantic	1	0	190	205,838	1,083
Bergen	0	0	0	0	0
Burlington	65	0	10,694	44,050,843	4,119
Camden	0	0	0	0	0
Cape May	20	0	2,016	5,346,214	2,652
Cumberland	27	0	4,891	8,863,325	1,812
Essex	0	0	0	0	0
Gloucester	18	0	2,547	7,115,136	2,794
Hudson	0	0	0	0	0
Hunterdon	47	245	6,384	32,166,877	5,039
Mercer	31	628	3,397	15,106,951	4,447
Middlesex	17	0	2,279	19,082,687	8,373
Monmouth	41	0	5,942	36,971,234	6,222
Morris	27	0	2,634	27,957,766	10,614
Ocean	13	0	1,777	4,658,904	2,622
Passaic	0	0	0	0	0
Salem	31	0	6,866	11,808,785	1,720
Somerset	22	0	2,385	18,751,537	7,862
Sussex	17	0	3,016	8,138,472	2,698
Union	0	0	0	0	0
Warren	26	0	4,222	15,428,252	3,654

Note: Total easement costs are in current dollars since program inception, not adjusted for inflation. Costs are for both county owned and State Agricultural Development Committee (SADC) owned easements.
This table represents only permanent easement purchases involving SADC, and does not include costs of fee simple purchase, capital value of donations, or any other farmland preservation programs or techniques.

Source: New Jersey State Agriculture Development Committee, January 21, 2000.

TABLE 20:
FARMLAND RETENTION COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Farmland Retention	$384	$1,518	$1,902

Notes: All values in millions of 1999 dollars.

Health and Environment

This section addresses the infrastructure systems that protect public health and the quality of the environment.

These systems include wastewater disposal, water supply, stormwater management, shore protection, open space and recreation lands, solid waste management, and public health care. Public health-care infrastructure was not addressed in this assessment, but will be included in later revisions as data become available.

On the whole, estimated costs are nearly evenly divided between correcting existing deficiencies and meeting future needs, although this varies by infrastructure component due to the data available.

Together, these systems represent approximately 24 percent of the estimated infrastructure needs within New Jersey, based on information currently available (see Table 21). The share of costs varies significantly by infrastructure component, but overall is evenly divided between Present and Prospective Needs.

TABLE 21:
SUMMARY OF ESTIMATED HEALTH AND ENVIRONMENT COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Health and Environment	**$15,376**	**$12,380**	**$27,756**
Wastewater Disposal	$4,988	$8,370	$13,358
Water Supply	$1,980	$3,340	$5,320
Stormwater Management	$201	nav	$201
Shore Protection	$364	nav	$364
Public Recreation Open Space Land	$2,500	nav	$2,500
Public Recreation Facilities	$243	nav	$243
Solid Waste Management	$5,100	$670	$5,770
Public Health Care	nav	nav	nav

Notes: All values in millions of 1999 constant dollars.
nav = Documented estimates are not available for this category.

Wastewater Disposal

In 1996, the date of the most recent nationwide needs assessment for wastewater treatment facilities,[33] there were 145 sewage treatment plants and 516 collection systems in New Jersey discharging approximately 1.5 billion gallons of wastewater into New Jersey's water resources. Domestic treatment systems account for 80 percent of these discharges. Systems are both publicly and privately owned. Thirty-seven combined sewer facilities, in which untreated sewage including bacteria, viruses, and other pathogens may be released from sanitary sewer systems with stormwater runoff during high flow (storm) periods, existed in New Jersey in 1996. In 1999, five municipal sewage treatment plants and 12 sewage collection systems were not permitted to connect new customers due to violations of water quality standards, a substantial reduction from 1992 when 89 treatment plants and 23 collection systems were faced with connection bans. A map depicting the extent of sewer service areas is presented in Figure 14.

By 2016, the United States Environmental Protection Agency (USEPA), based on data provided by the New Jersey Department of Environmental Protection (DEP),[34] projected there would be 153 sewage treatment plants and 553 collection systems in operation. The total 1996 documented and modeled needs through 2016 are estimated by USEPA at $6.958 billion for New Jersey and $139.5 billion for the entire nation. Additional needs estimated by DEP increase the total to $8.026 billion (see Table 22).

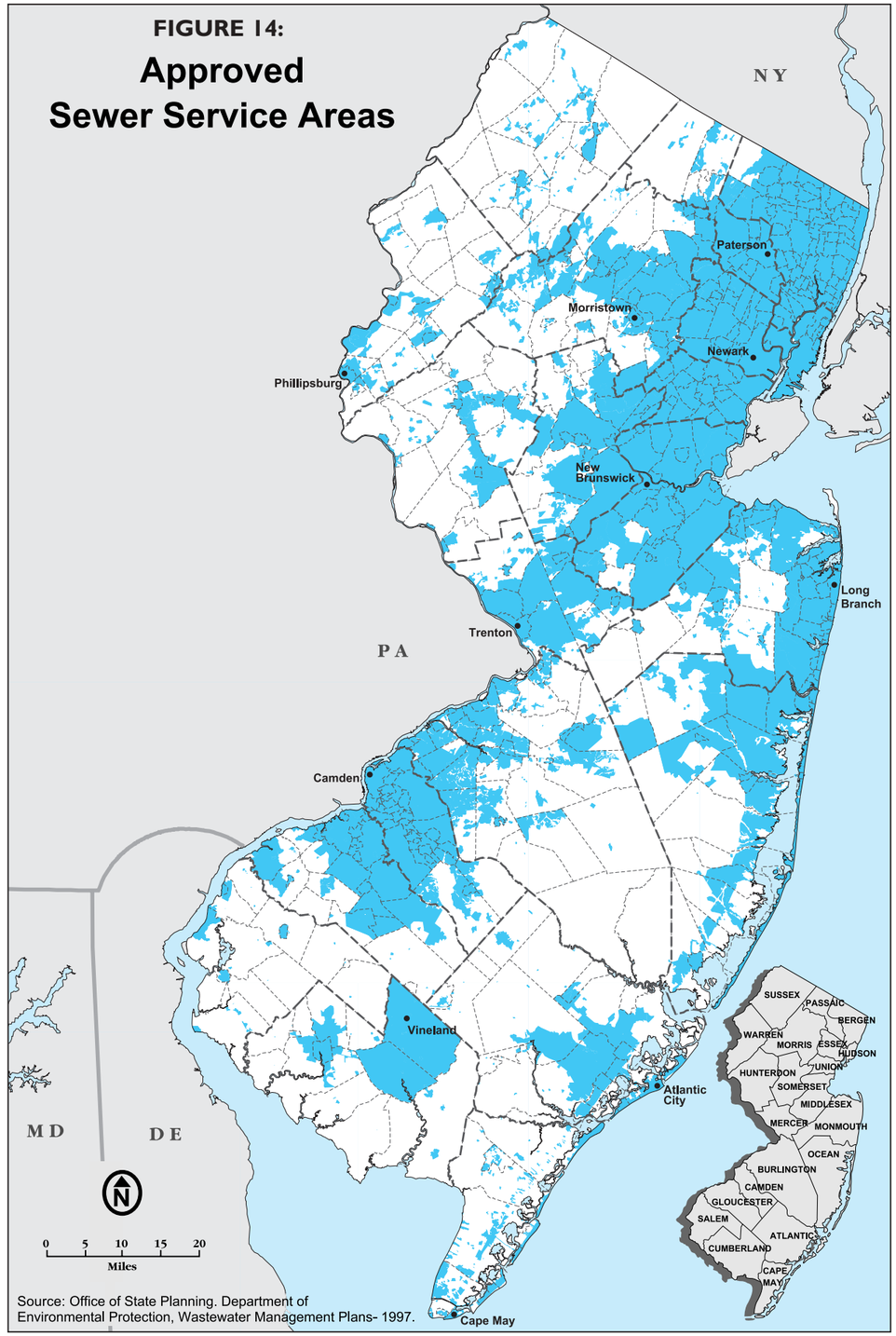
USEPA's 1996 Clean Water Needs Survey (CWNS) presents detailed estimates of capital costs eligible for funding under the State Revolving Fund (SRF) program established in the 1987 Amendments to the federal Clean Water Act (FCWA). The CWNS covers publicly owned, municipal wastewater collection and treatment facilities, facilities for the control of combined sewer overflows (CSOs), activities designed to control stormwater (SW) runoff and nonpoint source (NPS) pollution, and programs designed to protect the nation's estuaries.

The CWNS defines a "need" as a cost estimate for a project eligible for SRF funding under the FCWA to prevent or abate a public health or water quality problem. The cost estimates in the 1996 CWNS database were either reported by the states or modeled by USEPA. Reported needs include costs for facilities used in conveyance, storage and treatment, and recycling and reclamation of municipal wastewater. In addition, costs for structural and nonstructural measures and costs to develop and implement state and municipal stormwater and nonpoint source programs were included. For the modeled categories (i.e., stormwater and nonpoint source pollution control), USEPA prepared cost estimates for eligible facilities and program activities. Needs estimates in the CWNS do not include annual costs for operations and maintenance. They also do not include needs that are ineligible for federal assistance under Title VI of the FCWA, such as house connections to sewers and costs to acquire land that is not a part of the treatment process.

[33] *1996 Clean Water Survey*. United States Environmental Protection Agency, September 1997. The national CWNS Report to Congress is required by sections 205(a) and 516(b)(1) of the Federal Clean Water Act and is a joint effort by the states and USEPA. A similar assessment was performed by USEPA in 1992, but its results were published after the 1992 Infrastructure Needs Assessment was completed.

[34] The 1996 New Jersey Clean Water Needs Survey is based on a database of technical and cost information on approximately 680 publicly owned wastewater treatment facilities. It also contains cost and technical information for other specific programs and projects that target documented water quality or public health problems. Additional information may be obtained from the New Jersey Department of Environmental Committee.

FIGURE 14:
Approved Sewer Service Areas



Source: Office of State Planning. Department of Environmental Protection, Wastewater Management Plans- 1997.

TABLE 22:
WASTEWATER NEEDS ASSESSMENT, 1996–2016

CATEGORY	DESCRIPTION	USEPA ESTIMATES ALL COMMUNITIES	USEPA ESTIMATES SMALL COMMUNITIES	SEPARATE STATE ESTIMATES** ALL COMMUNITIES	SEPARATE STATE ESTIMATES** SMALL COMMUNITIES
Total		**$6,958**	**$492**	**$1,068**	**$283**
I	Secondary Treatment	1,984	172	326	270
II	Advanced Treatment	257	34	0	0
IIIA	Infiltration/Inflow Correction	248	31	6	1
IIIB	Sewer Replacement/ Rehabilitation	247	33	264	0
IVA	New Collector Sewers	745	139	39	0
IVB	New Interceptor Sewers	351	49	113	0
V	Combined Sewer Overflows	3,016	14	285	0
Total (I–V)	**Point Sources Subtotal**	**$6,848**	**$472**	**$1,033**	**$271**
VI	Stormwater	0*	0	5	0
VII	Nonpoint Sources (Total)	$110	$20	$30	$12
A	Agriculture (cropland)	16*		0	
B	Agriculture (confined animal facilities) Silviculture	5*		0	
C	Urban Runoff	2*		0	
D	Ground Water	67		30	
E	Estuaries	4		0	
F	Wetlands	16		0	
G		0		0	

The 1996 CWNS included an emphasis to estimate costs for preventing sanitary sewer overflows. Such overflows can be caused by a variety of factors, including blockages, system failures (for example, power outages at pump stations or pipe collapses), high flows caused by large volumes of infiltration and inflow (I/I), and inadequate pipe or pump capacity. Often a combination of measures is required to prevent these overflows including:

- Sewer and pump rehabilitation and replacement;
- I/I correction measures;
- Expansion of sewer, interceptor, and pump capacity to address existing capacity limitations and/or to provide for future growth;
- Expansion of treatment plant capacity;
- Provision of backup facilities;

TABLE 22:
WASTEWATER NEEDS ASSESSMENT, 1996–2016 *(continued)*

Note: This table summarizes the 1996 USEPA assessment of total documented and modeled needs for New Jersey for traditional and other State Revolving Fund (SRF) eligibilities to satisfy the design year (2016) population. All values are presented in millions of January 1996 dollars. Divide values by 0.940 to adjust to 1999 dollars.

The total documented and modeled needs represent the capital investment necessary to build publicly owned wastewater treatment facilities (Categories I through V) needed to serve the design year population and satisfy other types of needs eligible for funding under the SRF program. These other eligible needs are stormwater (Category VI) and nonpoint source pollution control (Category VII). These needs include all planning, design, and construction activities eligible for funding under Title II and Title VI of the Clean Water Act.

The documented needs for the SRF-eligible nonpoint source pollution control projects represent the capital investment necessary to implement activities in approved state NPS Management Plans under Section 319 and to develop and implement conservation and management plans under Section 320 (National Estuary Program) of the Clean Water Act. These needs have met the established documentation criteria and are eligible for funding under Title VI of the Clean Water Act.

* = These are modeled needs. New Jersey has zero needs in Category VI because there are no municipal separate storm sewer systems regulated under Phase I of the USEPA NPDES Stormwater Program.

** = The Separate State Estimates are optional and in addition to the USEPA estimates. The Separate State Estimates were submitted by the New Jersey Department of Environmental Protection as legitimate needs but either were justified with documents outside the established USEPA documentation criteria of the 1996 Clean Water Needs Survey or had no written documentation.

Source: United States Environmental Protection Agency, 1996 Clean Water Needs Survey

- Preventive maintenance measures (for example, cleaning); and
- Improved operational procedures.

These needs are not identified separately since many costs overlap with, and are included in, needs for categories IIIA and IIIB and, to a lesser extent, I, IVA, and IVB. In general, USEPA believes that the needs estimates in these categories related to overflows underestimate the total costs since many municipalities have not fully investigated their overflow problems or measures necessary to correct them, or have not submitted documented needs for correction measures such as I/I measures or sewer rehabilitation and replacement because these types of projects have traditionally been given low priority or are not eligible for federal SRF funding (for example, preventive maintenance and operational measures that are not capital related).

Small community facilities (serving less than 10,000 people) account for approximately half the facilities in New Jersey, but for a much smaller portion of estimated needs (see Table 23 and Table 24).

In certain cases, improvements in water quality resulting from wastewater treatment improvements may reduce needs for drinking water treatment reported under the USEPA Drinking Water Infrastructure Needs Survey.

TABLE 23:
COMPARISON OF SMALL COMMUNITY FACILITIES AND NEEDS

	FACILITIES				NEEDS			
	SMALL COMMUNITY PERCENT OF TOTAL FACILITIES WHEN ALL DOCUMENTED NEEDS ARE MET		SMALL COMMUNITY PERCENT OF TOTAL FACILITIES WITH DOCUMENTED NEEDS		SMALL COMMUNITY DOCUMENTED AS PERCENT OF DOCUMENTED NEEDS		SMALL SEPARATE STATE PERCENT OF TOTAL SSES	
POPULATION SERVED	NUMBER	PERCENT	NUMBER	PERCENT	$ MILLION	PERCENT	$ MILLION	PERCENT
All Facilities (Total)	**359**	**52%**	**180**	**45%**	**492**	**7%**	**283**	**26%**
3,500 to 10,000	188	27%	102	25%	316	5%	194	18%
1,000 to 3,500	135	20%	60	15%	158	2%	82	8%
Less than 1,000	36	5%	18	4%	18	0%	7	1%

Note: All values are millions of 1996 dollars. The facilities summary presents the total number of facilities that will serve small communities in 2016 when all documented needs are met, the total number of these facilities reporting documented needs, and their respective percentage of the relative total facilities within the state. The needs summary presents the total documented needs (Categories I - VII) for these small community wastewater treatment and collection facilities, and their reported Separate State Estimates (SSEs). The small community percentages are derived from the total documented and SSEs needs reported for each state, including needs for SRF-eligible projects unassociated with treatment and collection facilities.

Source: United States Environmental Protection Agency, 1996 Clean Water Needs Survey

TABLE 24:
WASTEWATER NEEDS FOR SMALL COMMUNITIES, 1996–2016

CATEGORY	DESCRIPTION	ALL SMALL COMMUNITIES	3,500–10,000 POPULATION	1,000–3,500 POPULATION	LESS THAN 1,000 POPULATION
Total		$492	$316	$158	$18
I	Secondary Treatment	172	108	60	4
II	Advanced Treatment	34	12	21	1
IIIA	Infiltration/Inflow Correction	31	20	10	1
IIIB	Sewer Replacement/Rehabilitation	33	19	12	2
IVA	New Collector Sewers	139	92	41	6
IVB	New Interceptor Sewers	49	42	5	2
V	Combined Sewer Overflows	14	8	6	0
Total (I - V)	Point Sources Subtotal	$472	$301	$155	$16
VI	Stormwater	0	0	0	0
VII	Nonpoint Sources (Total)	$20	$15	$3	$2

Note: This table summarizes the 1996 USEPA assessment of total documented and modeled needs for New Jersey for traditional and other SRF eligibilities to satisfy the design year (2016) population. Separate State Estimate (SSE) needs are not included. All values are presented in millions of January 1996 dollars. Divide values by 0.940 to adjust to 1999 dollars.

Source: United States Environmental Protection Agency, 1996 Clean Water Needs Survey

The calculation of Present and Prospective Needs was performed using the CWNS data supplemented by projections of the September 2000 Impact Assessment Study.

The following components of the CWNS data were assumed to represent Present Needs, totaling $4.689 billion (1996 dollars):

- Secondary and Advanced Treatment (state estimates)[35]
- Infiltration/Inflow Correction (USEPA and state estimates)
- Sewer Replacement/Rehabilitation (USEPA and state estimates)
- New Collector Sewers (state estimates)
- New Interceptor Sewers (state estimates)
- Combined Sewer Overflows (USEPA and state estimates)
- Stormwater (USEPA and state estimates)
- Nonpoint Sources (USEPA and state estimates)

The remaining components of the CWNS data were assumed to represent Prospective Needs, totaling $3.337 billion (1996 dollars):

- Secondary and Advanced Treatment (USEPA estimates)
- New Collector Sewers (USEPA estimates)
- New Interceptor Sewers (USEPA estimates)

Adjusted for inflation to 1999 constant dollars, the costs reported in the 1996 USEPA Clean Water Needs Survey for 1996 to 2016 translate to $4.988 billion in Present Costs and $3.550 billion in Prospective Costs for 2000 to 2020.

The September 2000 Impact Assessment Study[36] estimated costs for wastewater infrastructure based on alternative ("Trend" and "Plan") patterns of new growth for the period 2000–2020. While some, unquantified, overlap with the CWNS in estimating the costs of new treatment systems is likely, this overlap is not likely to be significant due to the approaches used by the Center for Urban Policy Research to also estimate costs for lateral connections to individual housing units and costs for individual onsite septic systems in areas not served by sewers.

The Impact Assessment Study projected that by 2020 an additional 107.34 million gallons per day (MGD) of sewer capacity will be required to serve approximately 454,500 new lateral connections (a portion of which will be single laterals serving multiple dwelling units). Forty-five percent (48.19 MGD) of this new capacity will be required in the central part of New Jersey, 32 percent (34.25 MGD) in the southern regions and 23 percent (24.90 MGD) in northern counties. Statewide, approximately 74 percent (78.73 MGD) of this capacity will be required in suburban communities, 16 percent (18.50 MGD) in urban communities and 10 percent (10.12 MGD) in rural communities. The total cost for this new infrastructure is estimated (in 1999 dollars) to be $8.37 billion.[37] This cost, instead of the CWNS Prospective Costs, results in total Prospective Costs of $8.37 billion.

The Impact Assessment Study estimate is based on a future development pattern emulating the policies of the State Plan. Should existing development trends continue, the Prospective Costs

[35] Backlog needs and other costs not eligible for USEPA SRF funding are reported as Separate State Estimates.

[36] *The Costs and Benefits of Alternative Growth Patterns: The Impact Assessment of the New Jersey State Plan*, Center for Urban Policy Research, Rutgers University, September 2000.

[37] This cost is the total of the "full sewer" and "lateral" cost projections in the impact assessment study. Costs for sewer laterals are not calculated in the OSP sewer model, on which the CUPR "full sewer" cost projection is based.

TABLE 25:
WASTEWATER DISPOSAL COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Wastewater Disposal	$4,988	$8,370	$13,358

Notes: All values in millions of 1999 constant dollars.
Present Costs are based on selected 1996-2016 needs reported in the National Clean Water Survey adjusted to 1999 dollars by dividing by 0.940 (Consumer Price Index inflator).
Present Costs do not include needs to upgrade individual on-site wastewater disposal systems, such as septic systems.
Sources: United States Environmental Protection Agency, *Clean Water Survey*
Rutgers University, Center for Urban Policy Research

increase to $9.80 billion for the impact assessment study, a 17 percent increase in future costs. These increased costs are a result of increases in sewer demand (to 110.51 MGD, and increase of 3.16 MGD statewide) and in the number of sewer laterals to serve conventional patterns of new development (to 496,800, an increase of 42,400 laterals statewide).

Water Supply

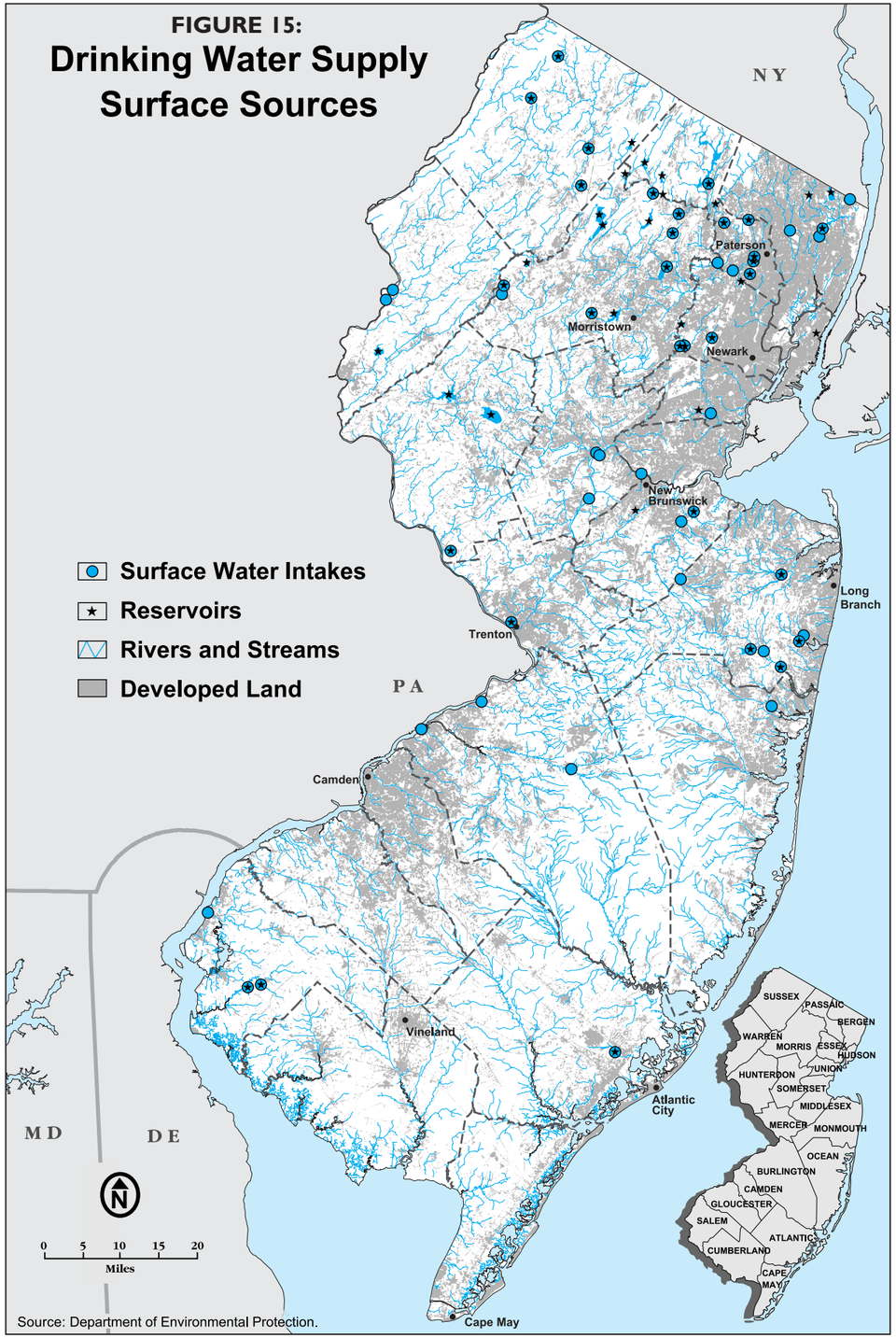
Public water supplies in New Jersey are currently provided by more than 600 community water systems (ranging from systems for individual subdivisions to large metropolitan systems) and more than 3,700 non-community water systems. A combination of reservoirs, river intakes and well systems is used, with more than half the total supply is drawn from ground water.[38]

The New Jersey Department of Environmental Protection published a Statewide Water Supply Plan in 1996 that included a $1.087 billion action plan.[39] A national Drinking Water Infrastructure Needs Survey (DWINS) published in 1997 estimated 20-year needs from 1995 to 2015 in New Jersey to be $3.613 billion in 1995 dollars.[40] Needs for all states totaled $136.7 billion.

The 1996 Water Supply Plan updated a 1982 plan. Using a water balance model and projections of population growth to 2040, DEP analyzed surpluses and deficiencies among water supplies by watershed and advanced programs of management measures and capital improvements. Estimating a total safe yield for surface water supplies in New Jersey of approximately 850 million gallons per day and a total safe yield for ground water supplies of approximately 900 million gallons per day, DEP projected that the total safe yield of 1,750 million gallons per day was generally sufficient to meet estimated 1990 demands of 1,500 million gallons per day but would not satisfy the projected 2040 demand of 1,790 million gallons per day for a population of 8,933,212 (this population is currently projected by the Office of State Planning to be exceeded by 2020).

[38]Data provided by the New Jersey Department of Environmental Protection.
[39]*Water for the 21st Century: A Vital Resource. New Jersey Statewide Water Supply Plan.* New Jersey Department of Environmental Protection. August 1996.
[40]*Drinking Water Infrastructure Needs Survey: First Report to Congress*. United States Environmental Protection Agency, Office of Water. EPA 812-R-97-001. January 1997.

FIGURE 15:
Drinking Water Supply Surface Sources



The Water Supply Plan included a $1.087 billion action plan consisting of a number of studies and projects that were currently proposed, in progress or completed since 1982, including $786.55 million in capital projects. Many of these capital projects involved private and other public funds, as the Water Supply Bond Fund contributed or is proposed to contribute $217.55 million toward these projects.

The 1996 federal Safe Drinking Water Act Amendments directed USEPA to conduct a survey of the infrastructure needs facing community[41] public water systems. Non-community water systems, private individual water supply wells and projects purely for future growth were not addressed by the survey. The first survey released in 1997 was used to develop a formula to allot funds for Drinking Water State Revolving Fund grants to states. The next Needs Survey, due in 2001, is currently being conducted. The breakdown of costs in New Jersey is typical of that nationwide (see Table 26 and Table 27). Nationally, the total needs for large systems are significantly higher, but are the smallest on a per-household basis. Conversely, the needs for small systems tend to have the highest per-household costs. Included in the needs presented below are $175.6 million (1995 dollars) in current needs to meet current federal Safe Drinking Water Act requirements in New Jersey ($212.1 million for 20-year needs). $348.4 million in costs are estimated to meet needs associated with the adoption of proposed new federal Safe Drinking Water Act regulations. An additional $1,127.8 million is estimated to address related needs in New Jersey such as distribution system improvements (including transmission mains from source to treatment or from treatment to distribution systems).

TABLE 26:
DRINKING WATER INFRASTRUCTURE NEEDS BY CATEGORY, 1995–2015

DESCRIPTION	TRANSMISSION AND DISTRIBUTION	TREATMENT	STORAGE	SOURCE REHABILITATION AND DEVELOPMENT	OTHER (FOR EXAMPLE, AUTOMATION, LABORATORIES	TOTAL
Total Needs	2,469.8	658.2	290.5	163.5	31.2	3,613.2
Current Needs	1,409.1	149.0	153.8	94.9	0.0	1,806.8
Future Needs	1,060.7	509.2	136.7	68.6	31.2	1,806.4

Note: All values in millions of 1995 constant dollars.
"Current Needs" include projects such as source, storage, treatment and water main improvements currently necessary to minimize the risk of contamination of water supplies.
"Future Needs" include projects to replace existing infrastructure or to meet needs resulting from proposed federal Clean Water Act regulations. Needs associated solely with future growth were excluded.
Source: United States Environmental Protection Agency, Drinking Water Infrastructure Needs Survey, 1997.

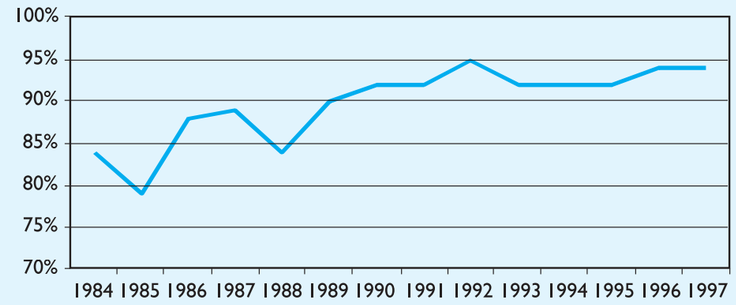
[41] "Community" water systems have at least 15 service connections used year-round by residents or regularly serve at least 25 residents year-round. Examples of this type of water system include cities, towns, and communities such as retirement homes. "Non-community" water systems do not meet the definition of community water systems, but serve an average of at least 25 individuals 60 days of the year. Examples of non-community systems include schools and churches with their own water systems. (Source: USEPA)

TABLE 27:
DRINKING WATER INFRASTRUCTURE COSTS BY SYSTEM SIZE

SYSTEM TYPE	POPULATION SERVED	20-YEAR COSTS (1995–2015)
Total Needs		**$3,613.2**
Large Systems	More than 50,000 people	1,905.4
Medium Systems	3,301 to 50,000 people	1,383.2
Small Systems	Up to 3,300 people	324.6

Note: All values in millions of 1995 constant dollars.
Source: United States Environmental Protection Agency, *Drinking Water Infrastructure Needs Survey*, 1997.

FIGURE 16: PERCENT OF COMMUNITY WATER SYSTEMS MEETING STANDARDS



The needs identified in the DEP Statewide Water Supply Plan and the USEPA Drinking Water Infrastructure Needs Survey overlap, but not completely. The USEPA study does not address non-community public water supplies or private individual water supply wells. The USEPA study addresses Prospective Needs that may result from changes in performance standards, but not Prospective Needs associated with new growth. In contrast, the DEP plan does not distinguish between capital projects needed for Present Needs and projects to meet Prospective Needs occasioned by projected growth. However, the September 2000 Impact Assessment Study[42] estimates these latter needs. Therefore, the Present Costs for water supply are based on the USEPA current needs estimate adjusted for inflation (divided by 0.913 based on the Consumer Price Index). The Prospective Costs for water supply are based on the USEPA future needs estimate plus the estimate based on new growth provided by the Impact Assessment Study.

The patterns of water supply infrastructure needs anticipated in the Impact Assessment Study are, not surprisingly, similar to the patterns reported for wastewater disposal. Between 2000 and 2020, the study estimates that an additional capacity of 128.04 million gallons per day of water

[42] *The Costs and Benefits of Alternative Growth Patterns: The Impact Assessment of the New Jersey State Plan*, Center for Urban Policy Research, Rutgers University, September 2000.

TABLE 28:
WATER SUPPLY COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Water Supply	$1,980	$3,340	$5,320

Notes: All values in millions of 1999 constant dollars.
Source: United States Environmental Protection Agency, Drinking Water Infrastructure Needs Survey, 1997. Rutgers University, Center for Urban Policy Research

supply will be required to serve new development. While estimating total demand, the impact assessment study does not estimate water supply treatment costs, but estimates the number and cost of water supply laterals. Assuming that new development occurs in patterns that emulate the policies of the State Plan, an estimated 454,400 water laterals will be needed at a cost of $1.36 billion (1999 constant dollars), added to the Prospective Costs reported in the USEPA Drinking Water Infrastructure Needs Survey.

If conventional patterns of development continue, an estimated 496,800 laterals will be needed at a cost of $1.39 billion. This would represent an increase of 42,400 laterals at an additional cost of $25 million.

Stormwater Management

The flooding generated by Tropical Storm Floyd demonstrated the vulnerability of New Jersey and its citizens, particularly in urban and suburban areas, to stormwater management and flood control (see Figure 17).

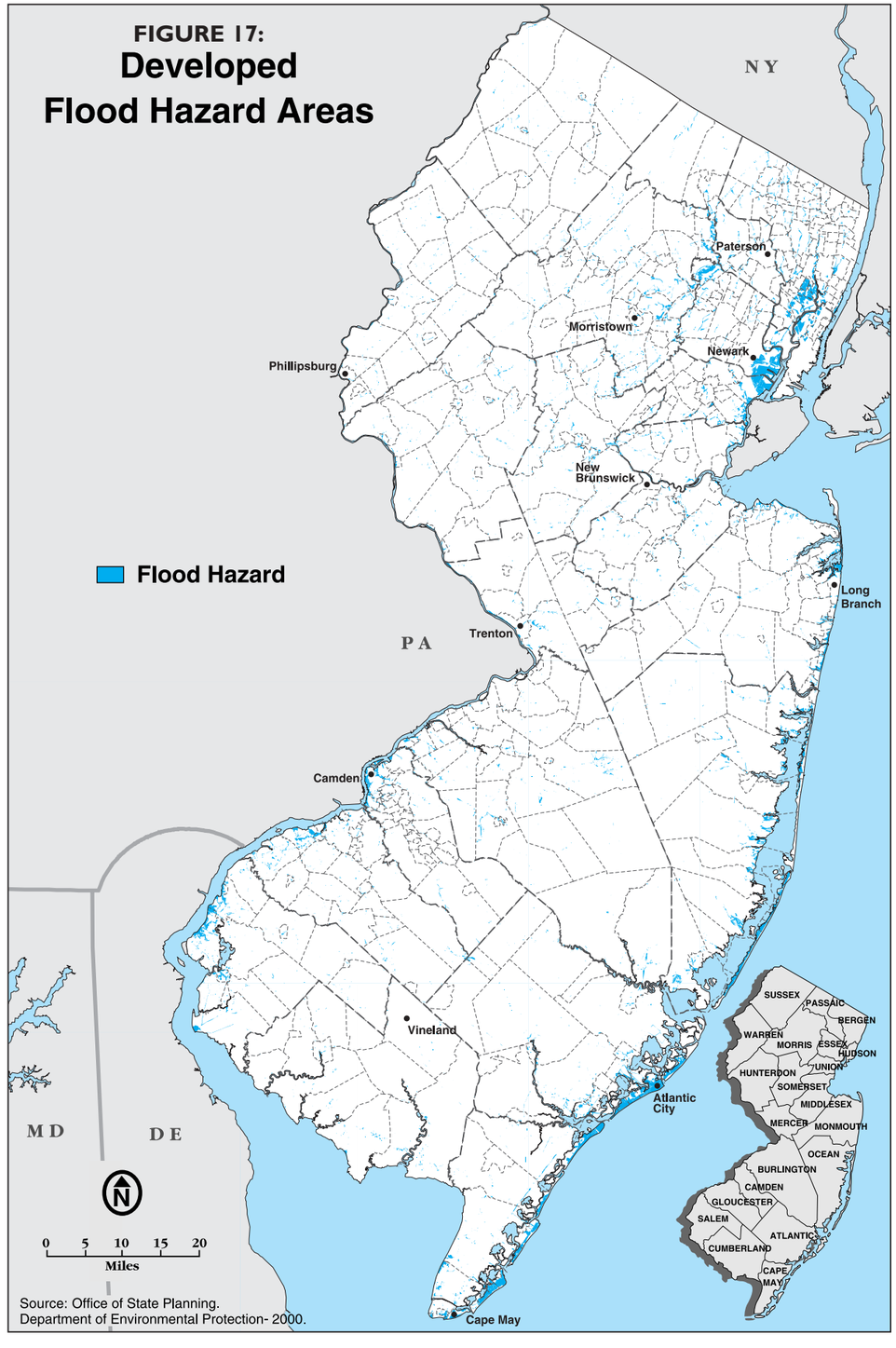
Stormwater management consists of three activities:

- Flood plain management,
- Flood control, and
- Drainage control.

Infrastructure investments in these three categories are currently directed toward built systems such as dams, channels, storm sewers, and catch basins. Investment in natural systems and nonstructural measures are now increasingly significant portions of stormwater management programs. In response to Tropical Storm Floyd damages and to current state and federal mandates for watershed scale planning, watershed strategic plans including stormwater management measures are now being prepared or are scheduled to be initiated for all watersheds in New Jersey. As a result, current comprehensive estimates of long-term stormwater management needs are not yet available.

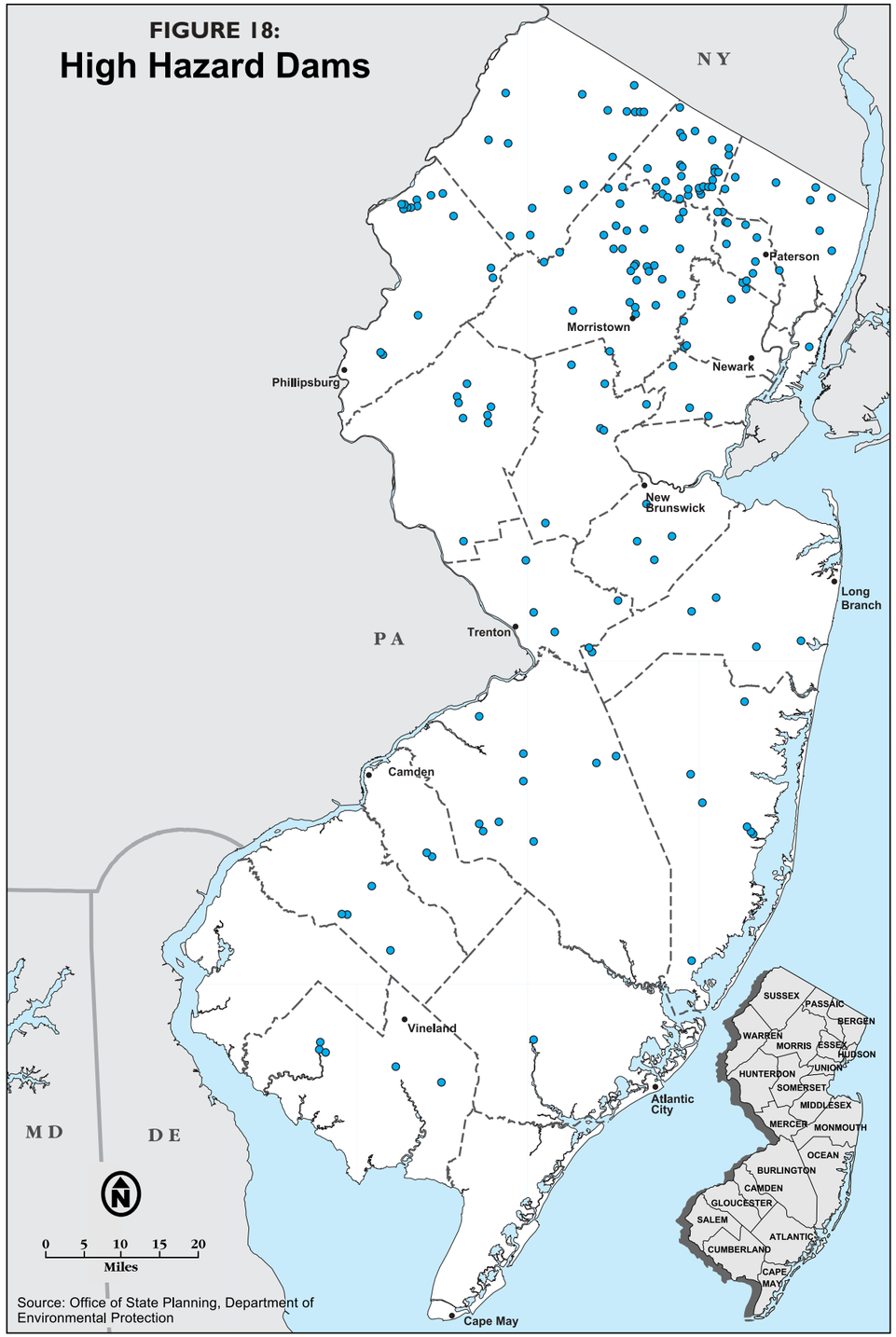
Updated information on the repair and rehabilitation of dams is available. Dams under state jurisdiction are artificial barriers and appurtenant structures that raise the waters of a stream more than five feet above the usual mean low water height. There are currently 1,592 dams under state

FIGURE 17:
Developed Flood Hazard Areas



Source: Office of State Planning.
Department of Environmental Protection- 2000.

FIGURE 18:
High Hazard Dams



Source: Office of State Planning, Department of Environmental Protection

jurisdiction, of which 596 are classified by the New Jersey Department of Environmental Protection (DEP) as being of high or significant hazard with respect to the potential impacts downstream in the event of a dam failure (not an assessment of its current physical condition, see Table 29 and Figure 22). While the largest dams in New Jersey are associated with water supply reservoirs, recreation, and hydro power, most dams are used, at least in part, for stormwater management and flood control. Approximately 60 percent of all dams in New Jersey are in private ownership.

New Jersey has had dam safety programs in place continuously since 1912. The existing dam safety program was established under the 1981 Safe Dam Act amendments to the 1912 law. New Jersey's Dam Safety program is administered by DEP's Division of Engineering & Construction, Dam Safety Section, under the May 1985 Dam Safety Standards. The primary goal of the program is to ensure the safety and integrity of dams in New Jersey to in turn protect people and property from the consequences of dam failures. While a number of dam failures that resulted in the loss of life and extensive property damage have occurred in the United States, New Jersey has not experienced a catastrophic dam failure. However, there have been an increasing number of small dam failures, largely attributed to the lack of maintenance and inspection as well as the fact that many of the dams in the state are nearing the

TABLE 29:
NUMBER OF DAMS BY HAZARD CLASSIFICATION, 1999

High Hazard	184
Significant Hazard	412
Low Hazard	996

Note: Hazard of a dam relates to the potential impacts downstream in the event of a dam failure and not its current physical condition. Source: New Jersey Department of Environmental Protection

end of their design life. At present, 22 dam rehabilitation projects ranging in costs from $2.2 million to $175,000, totaling over $15.5 million in project costs, are currently under construction. However, this listing of projects is determined by state grant funds available. A complete assessment of dam rehabilitation needs (other than for transportation related dams) is not currently available.

The capital funding request by the New Jersey Department of Environmental Protection for fiscal year 2001 calls for a total investment of approximately $6.5 million in dam rehabilitation projects and $195 million in flood control projects over the next seven years. For the purposes of this Assessment, this budget proposal, together with the current dam rehabilitation projects, may be considered to document Present Costs. An estimate of Prospective Costs associated with future growth is not available.

TABLE 30:
STORMWATER MANAGEMENT COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Stormwater Management	$201	nav	$201

Notes: All values in millions of 1999 constant dollars.
nav = Documented estimates are not available for this category.

Source: New Jersey Department of Environmental Protection.

Shore Protection

The New Jersey coastal area spans 10 counties, 137 municipalities and several regional jurisdictions. The New Jersey Department of Environmental Protection (DEP) is the lead state agency responsible for coordinating shore protection. Although several studies have been initiated by DEP, federal agencies and other entities, the most recent published comprehensive needs assessment for shore protection infrastructure is the 1981 DEP Shore Protection Master Plan. With coastal tourism a key component of New Jersey's economy, shore protection capital projects such as beach nourishment, beach fill, artificial reef placement and erosion control continue to take place in reaction to damage caused by hurricanes, nor'easters, and other major storms as well as actions of the tides. With the recent availability of "blue acres" program state funds, nonstructural measures

and buyouts of the most severely damaged or threatened properties are becoming a more significant portion of capital needs.

While a comprehensive, long-term assessment of capital needs is not available, the capital funding request by the New Jersey Department of Environmental Protection for fiscal year 2001 calls for a total investment of approximately $363.7 million in shore protection projects over the next seven years. For the purposes of this Assessment, this budget proposal may be considered to document costs associated with Present Needs. An estimate of costs of Prospective Needs associated with future growth is not available.

TABLE 31:
SHORE PROTECTION COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Shore Protection	$364	nav	$364

Notes: All figures in millions of 1999 constant dollars.
nav = Documented estimates are not available for this category.

Source: New Jersey Department of Environmental Protection.

Public Recreation and Open Space Lands

Approximately 1,383 square miles, or 18 percent of New Jersey's land area, is dedicated to permanently accessible open space for outdoor recreation, an increase of nearly 12 percent since the 1992 Assessment. As of 1999, the New Jersey Department of Environmental Protection, through its Division of Fish, Game & Wildlife and Division of Parks & Forestry, manages 67 percent of all public land preserved in New Jersey. Counties and municipalities manage 17 percent, the federal government manages its 12 percent, and nonprofit organizations hold about four percent of all preserved lands. In 1994, the New Jersey Department of Environmental Protection, Green Acres Program, published its 1994–1999 *New Jersey Open Space and Outdoor Recreation Plan*. This plan, closely linked to the *New Jersey State Development and Redevelopment Plan*, called for the preservation of an additional 271,561 acres of open space over the existing 790,341 acres to meet established balanced land-use goals for the state of 1,051,452 acres. As of December 2000, New Jersey had approximately 964,259 acres of public open spaces permanently preserved. The Green Acres Program also has assisted in purchasing over 37,200 acres of farmland in association with New Jersey's Farmland Preservation Program.

> The long-range vision for open space in New Jersey is an extensive, interconnected system of public and private preserved lands, linked together by greenways. The largest parks, forests, and wildlife management areas will serve as "hubs" from which open space "spokes" will radiate. Corridors of preserved lands will weave across the state, connecting smaller local parks and natural areas. Urban, suburban, and rural landscapes will be linked by a system of walkways, trails, and public access right-of-ways. Some corridors, such as waterfront walkways, may be narrow. In other areas, broader agrarian landscapes along scenic trails, streams, or roadways will be preserved.
>
> — DEP, Green Acres Program

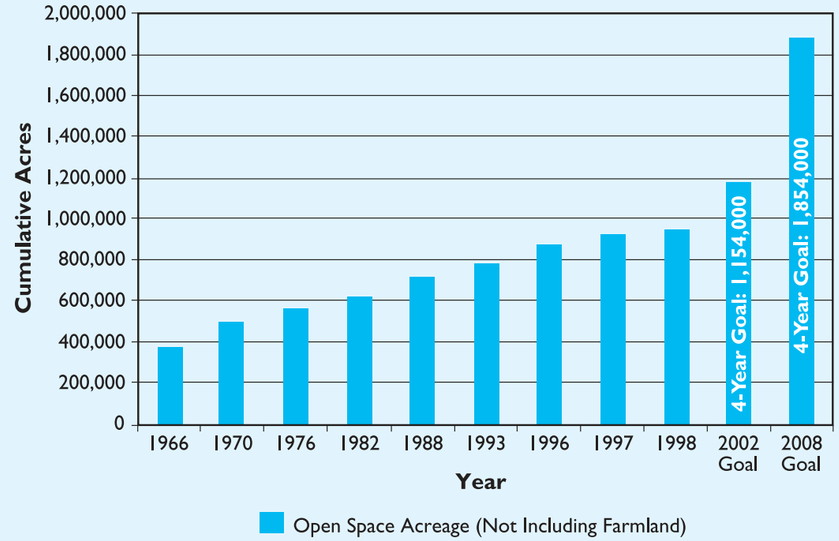
In 1998, the Governor's Council on New Jersey Outdoors issued a report defining a vision for New Jersey's open space needs and recommending the preservation of one million acres of open space in addition to the area already preserved within the next 10 years.[43] Half of the one million acres, or 500,000 acres, is to be farmland. The other 500,000 acres is to include lands preserved as open space for ecological, recreational, watershed protection, and historical purposes as follows:

- 200,000 more acres of recreational open space.
- 200,000 acres of greenway linkages through preservation of open space or purchase of easements and rights-of-way throughout the state.
- 100,000 acres surrounding the headwaters, water-supply streams and reservoir systems of the state.

The identification and preservation of bio-diversity is to be applied as one of the criteria for consideration in all open space funding categories. While most of the future open space land is expected to be permanently preserved through public ownership and management, a significant portion of these open lands (farmlands, in particular) may be protected by the purchase of conservation easements while remaining in private hands.

The costs of acquiring public open space lands is highly variable, depending on local land markets, the volume of land in each purchase, the suitability of each tract for development[44] or

FIGURE 19: NEW JERSEY'S OPEN SPACE ACREAGE



[43] *Final Report: Summary of Findings*. Governor's Council on New Jersey Outdoors. February 26, 1998.

[44] According to an Office of State Planning analysis in 2000 of land cover, wetlands and open space geographic information system data provided by the New Jersey Department of Environmental Protection, of 893,424 acres in parks, public open space preserves, athletic fields, and preserved farmlands, 271,787 acres, approximately 30 percent, are classified as wetlands. Site-specific conditions affect the extent to which wetlands limit development.

TABLE 32:
PUBLIC RECREATION OPEN SPACE LAND COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Recreation Open Space Land	$2,500	nav	$2,500

Notes: All values in millions of 1999 constant dollars.
nav = Documented estimates are not available for this category.

Source: New Jersey Office of State Planning

TABLE 33:
PUBLIC RECREATION FACILITIES COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Recreation Facilities	$243	nav	$243

Notes: All values in millions of 1999 constant dollars.
nav = Documented estimates are not available for this category.

other uses, and the time and costs of each transaction. A significant amount of open space land has been donated into land trusts and other mechanisms for which there is no purchase price. Recognizing that the open space goal may be achieved through both donations and through purchases by federal, state and local governments and by private land trusts, for the purposes of this Assessment an average cost of $5,000 per acre (in 1999 constant dollars, based on current patterns of acquisition costs) is used to estimate the total costs of the 500,000 acre goal. The entire cost is considered to be associated with Present Need.

Public Recreation Facilities

The 1994–1999 *New Jersey Open Space and Outdoor Recreation Plan* estimated that by the year 2000, as many as 709,000 adults would encounter inadequate facilities for swimming, followed by 255,900 for tennis, 216,600 for snow skiing, 185,000 for fishing, 180,100 for softball and baseball, and tens of thousands for each of 21 other outdoor activities. While a comprehensive, long-term assessment of capital needs for public recreation facilities is not available, the capital funding request by the New Jersey Department of Environmental Protection for fiscal year 2001 calls for a total investment of approximately $242.7 million in improving state public recreation facilities over the next seven years. For the purposes of this Assessment, this budget proposal may be considered to document

costs for Present Needs. A cost estimate for Prospective Needs associated with future growth is not available.

Solid Waste Management

The New Jersey Department of Environmental Protection estimates that, while solid waste generation rates have increased, recycling rates increased at a greater rate to not only offset, but to reduce the amount of solid waste being incinerated, landfilled or transported to other states (see Table 34).

The Emergency Solid Waste Assessment Task Force Report of 1990 established the state's solid waste policy. The Task Force was created to review the solid waste management needs of the districts for the next 20 years. The Task Force achieved its statutory goal[45] to recycle 60 percent of New Jersey's total solid waste stream by 1995 within a comprehensive management approach of source reduction, recycling, resource recovery and disposal. The Department of Environmental Protection has established a new goal to recycle 65 percent of New Jersey's total solid waste stream by 2001.

TABLE 34:
SOLID WASTE GENERATION RATES

	1992	1999
Solid Waste Generated, Annual Total	14.1 million tons	16.7 million tons
Solid Waste Generated, Per Capita	10 pounds per day	11.4 pounds per day
Percent Recycled	45%	61%
Solid Waste Recycled Per Year	6.3 million tons	10.2 million tons
Percent Incinerated or Landfilled	35%	25%
Solid Waste Incinerated or Landfilled Per Year	4.9 million tons	4.2 million tons
Percent Transported to Other States	20%	14%
Solid Waste Transported to Other States Per Year	2.9 million tons	2.3 million tons

Source: New Jersey Department of Environmental Protection

[45] P.L. 1992, c. 167.

TABLE 35:
SOLID WASTE MANAGEMENT COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Solid Waste Management	$5,100	$670	$5,770

Notes: All values in millions of 1999 constant dollars. 1992 estimates in 1990 constant dollars were inflated to 1999 constant dollars by dividing by 0.783 (Consumer Price Index inflation factor).

Source: New Jersey Office of State Planning

A statewide average of approximately 45 percent of the municipal solid waste stream (a portion of the total waste stream) is currently recycled. This includes a recycling rate for post consumer waste of 66 percent for aluminum used beverage containers, 65 percent of old newspapers, 60 percent of old corrugated containers, 65 percent for glass containers and 35 percent for plastic containers, considered to be near "saturation" points for consumer recycling.[46]

According to the Department of Environmental Protection, the public role in solid waste management infrastructure is declining. In the aftermath of recent court decisions striking down solid waste flow control regulations associated with county solid waste management plans, local governments are withdrawing from public ownership of solid waste facilities. Resource recovery facilities are being sold to private interests, and public landfills are often maintained primarily to finance repayment of existing debt. Publicly owned recycling has been limited to about one in 10 municipalities operating a compost facility, municipalities collecting "Class A" recyclables (such as cans, glass, and aluminum) either curbside or at drop-off centers and a few counties which have a central Class A sorting station. Much of the sorting takes place at private facilities. Nearly all "Class B" recycling (such as construction debris) has been private enterprise, as has been much composting activity. Of the 10.2 million tons of solid waste recycled in 1997, only about 2.5 million tons came from the residential solid waste. Only the issue of landfill closure remains a significant direct public cost.[47]

While the incidence of costs does not necessarily affect the infrastructure needs, the decreased public-sector role results in less publicly available data and increased difficulty in estimating costs. As no new cost estimates were available, for the purposes of this Assessment the estimates of the 1992 Assessment are carried forward and inflated to 1999 constant dollars. Costs for Present Needs are based on the backlog and rehabilitation needs estimated in the 1992 Assessment.

Public Health Care

A current, comprehensive, statewide assessment of long-term capital needs for hospitals, long-term care facilities and other public health infrastructure in New Jersey is not available. While

[46] Jenny M Heumann, "A Waste Reduction Emphasis." *Waste Age*. August 1997, pp. 39-53.
[47] Memorandum from John A. Castner, Director, DEP Division of Solid and Hazardous Waste to Lee Cattaneo, Director, DEP Office of State Plan Coordination. June 28, 1999.

TABLE 36:
PUBLIC HEALTH CARE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Health Care	nav	nav	nav

Notes: All values figures in millions of 1999 constant dollars.
nav = Documented estimates are not available for this category

approximately $95 million in needs related to public health infrastructure were identified in state agency capital budget requests, these were not considered to be representative of all needs throughout the state.

The primary infrastructure need identified by the New Jersey Department of Health and Senior Services is the replacement of existing obsolete state health laboratory equipment and facilities at an estimated cost of $57 million.

The New Jersey Department of Military and Veterans' Affairs provides health care services to approximately 740,700 New Jersey veterans. Three Veterans Memorial Homes in Menlo Park, Paramus and Vineland provide a range of medical, nursing care, residential, physical, occupational and recreational therapy services to elderly or disabled veterans, including their spouses and survivors. In 1999, 92 beds were added to the capacity of the Menlo Park home.

In its capital budget request for FY2001, the Department of Military and Veterans' Affairs proposed replacing the Vineland Memorial Home with a new 166,000 square foot, 332-bed facility at a cost of approximately $37 million and a $1 million Adult Day Care Center at the Paramus home to assist families caring for senior citizen veterans. A portion of this need may be met if the United States Army makes the Walston hospital at Fort Dix available.

Public Safety and Welfare

Infrastructure systems primarily associated with public safety and welfare help create and sustain a just society. Some of these systems provide for basic needs, such as public safety (police and fire departments), justice (state and municipal court systems), public administration (government buildings), and public housing. Other systems define our culture and our opportunities to improve our welfare, such as education, higher education, arts, and historic resources.

Public safety infrastructure systems addressed in this analysis represent approximately 13 percent of the total infrastructure needs within New Jersey (see Table 37). Present Costs constitute the majority of the relatively few documented estimates available.

TABLE 37:
SUMMARY OF ESTIMATED PUBLIC SAFETY AND WELFARE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Safety and Welfare	**$11,687**	**$3,419**	**$15,106**
Public Education	$10,300	nav	$10,300
Higher Education	$581	$2,569	$3,150
Public Libraries	$290	nav	$290
Arts	$300	nav	$300
Public Safety	nav	nav	nav
Justice	nav	nav	nav
Corrections	$129	$534	$663
Historic Resources	nav	nav	nav
Public Administration	nav	nav	nav
Human Services	$87	$316	$403
Public Housing	nav	nav	nav

Notes: All values in millions of 1999 constant dollars
nav = Documented estimates are not available for this category

Public Education

A study of school facilities needs for 28 of the 30 *Abbott* districts[48] published by the New Jersey Department of Education in 1998 estimated the cost for rehabilitation of existing *Abbott* district schools and the construction of new general classroom space to meet current enrollments to

[48]New Jersey's 28 poorest urban school districts were identified as Special Needs Districts, or *Abbott* Districts, in the *Abbott v. Burke* litigation decided by the New Jersey Supreme Court on June 5, 1990. The Legislature added two school districts to this list since 1990.

These middle school students are participating in the Paterson Design Arts Academy that is housed in what was a vacant, second-story downtown mall. They are working on models for renovations and additions to one of the local schools.

exceed $1.8 billion. As of the 1997–1998 school year, the *Abbott* districts enrolled 261,738 students in pre-kindergarten through grade 12 in 429 public school buildings with a rated capacity of 222,076 students and an average of 135 square feet per student. The average age of an original school building was 56 years old (1941) and the average age of an addition is 33 years old (1964). Costs for new construction of 3,137 new classrooms at various grade levels are estimated to be $125 per square foot (excluding site acquisition costs and design, engineering, legal and administrative expenses).[49]

An independent 1997 study[50] analyzing the 1995 Long Range Facilities Master Plans submitted to the New Jersey Department of Education by local school districts found that in the non-*Abbott* school districts 612 school buildings (36 percent) exceeded 90 percent of their design capacity compared to 228 of the *Abbott* district school buildings (62 percent). In the non-*Abbott* school districts 259 school buildings (15 percent) exceeded their design capacity compared to 161 of the *Abbott* district school buildings (44 percent). These ratios were

TABLE 38: SPECIAL NEEDS (*ABBOTT*) DISTRICTS FOR PUBLIC EDUCATION

DISTRICT	COUNTY
Pleasantville	Atlantic
Garfield	Bergen
Burlington	
Pemberton	Burlington
Camden City	
Gloucester City	Camden
Bridgeton	
Millville	
Vineland	Cumberland
East Orange	
Irvington	
Newark	
Orange	Essex
Harrison	
Hoboken	
Jersey City	
Union City	
West New York	Hudson
Trenton	Mercer
New Brunswick	
Perth Amboy	Middlesex
Asbury Park	
Keansburg	
Long Branch	
Neptune	Monmouth
Passaic City	
Paterson	Passaic
Elizabeth	
Plainfield	Union
Phillipsburg	Warren

Source: New Jersey Department of Education

[49] *A Study of School Facilities and Recommendations for the Abbott Districts*. New Jersey Department of Education, 1999. http://www.state.nj.us/njded/abbotts/abbottstudy2.htm.

[50] *School Facilities: A Challenge for New Jersey.* Joan M. Ponessa, Public Affairs Research Institute of New Jersey, Inc. and James P. Nichols, New Jersey Institute of Technology, Center for Architecture and Building Science Research, October 1997.

expected by the school districts to increase to 44 percent and 22 percent, respectively, in the non-*Abbott* districts and 67 percent and 49 percent in the *Abbott* districts by the 1999–2000 school year. This analysis did not take into account potential space requirements arising from implementation of the Department of Education's new Core Curriculum Standards. However, the study noted that many school districts had buildings with significant amounts of extra room. The study was not able to estimate costs for needed school facilities, but it cited the 1992 *Infrastructure Needs Assessment* estimate of $16.4 billion and suggested that a current statewide estimate of $6 billion (including $2.7 billion in needs for non-*Abbott* districts) by the Department of Education based on the 1985 and 1990 Long Range Facilities Master Plans was low. As of November 1999, 28 of the *Abbott* districts had proposed school construction plans totaling $7.6 billion.

This old school building in Perth Amboy illustrates the opportunity to preserve an architecturally distinctive facility that is conveniently located to downtown neighborhoods.

Pursuant to the Educational Facilities Construction and Financing Act,[51] every school district in the state[52] was required to file a Long Range Facilities Plan with the New Jersey Department of Education by December 2000. These plans have a five-year horizon, and are required to be resubmitted every five years. Enrollment (demand) projections are based primarily on enrollment trends for the past five years and cohort survival demographic projections. The chief administrator, school business administrator or other district employees are considered qualified demographers if they possess required experience.[53] The planning boards of the municipalities within each school district are required to receive copies of the Long Range Facilities Plan for review, and are provided 55 days to comment to the district and to the Commissioner of Education. As the Department was reviewing these plans at the time this Assessment was prepared, summary data were not available for this analysis. While the five-year horizon does not provide information for estimating the 20-year horizon prospective needs required by this *Infrastructure Needs Assessment*, the Long Range Facilities Plans provide an extensive inventory of the conditions and present needs for public schools in the state.

For the purpose of this Assessment, the $7.6 billion estimate for capital construction needs for the Special Needs Districts and the $2.7 billion prior estimate for the remaining districts represent the costs for statewide Present Needs. Current agency cost estimates of Prospective Needs are not available.[54]

[51] *N.J.S.A.* 18A:7G-4 (P.L. 2000, c. 72)

[52] Local or regional school districts, county special services school districts, county vocational school districts and state-operated school districts as defined in *N.J.A.C.* 6:23-1.2

[53] *N.J.A.C.* 6:23-2.2

[54] A recent nationwide study estimated a total funding need for modernizing New Jersey public schools to be $22,029,345,313 for infrastructure (over $20.7 billion) and technology. New Jersey was estimated to have the fourth highest needs in the nation, behind New York, California and Ohio. *Modernizing Our Schools: What Will It Cost?* National Education Association, May 2000.

TABLE 39:
PUBLIC EDUCATION INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Education	$10,300	nav	$10,300

Note: Needs in millions of 1999 dollars
nav = Documented estimates are not available for this category

Source: New Jersey Department of Education.

Higher Education

In 1996, the New Jersey Commission on Higher Education adopted *Looking to the New Millennium: New Jersey's Plan for Higher Education*. The first long-range plan since 1981, it defined a vision and policies for New Jersey's higher education system following its restructuring in 1994 (which included the elimination of the state's Department of Higher Education). The plan recommended a five-year facility renewal program for the senior public institutions and an increase in the state bond authorization level for the community college Chapter 12 program. In 1998, the Chapter 12 authorization was increased from $160 million to $280 million. In 1999, the Commission identified a need of nearly $3.2 billion for facilities over the next seven years in two reports (see Table 41).[55] New growth needs comprised over 80 percent of the total for both the senior colleges and universities and the community colleges (see Table 42).

Current undergraduate enrollment trends show increasing full-time enrollments substantially offsetting decreases in part time enrollments (see Table 40). Data from the National Center for Educational Statistics indicate that the number of high school graduates in New Jersey may increase by as many as 15,000 by 2008, bringing the total number of annual graduates to approximately 87,000. Assuming that current patterns regarding higher education attendance continue into the

[55]Data was obtained from two New Jersey Commission on Higher Education reports: *Looking to the New Millennium: New Jersey's Plan for Higher Education 1999 Update*, June 1999. *New Jersey's Capital Investment in Higher Education*, February 1999. Reports available online: http://www.state.nj.us/highereducation/

TABLE 40:
PUBLIC AND INDEPENDENT COLLEGE ENROLLMENT SUMMARY

FULL-TIME UNDERGRADUATE ENROLLMENT

YEAR	COMMUNITY COLLEGES	STATE COLLEGES	OTHER PUBLIC 4-YEAR (1)	INDEPENDENT COLLEGES	TOTAL
1989	42,398	37,873	31,308	29,801	141,380
1990	45,673	39,457	31,390	29,477	145,997
1991	49,497	39,911	32,147	29,343	150,898
1992	52,584	40,569	32,147	29,148	154,448
1993	54,923	40,246	31,595	29,818	156,582
1994	54,676	39,356	31,597	30,082	155,711
1995	54,862	40,265	32,272	30,244	157,643
1996	54,053	40,934	32,677	32,005	159,669
1997	53,323	41,874	33,468	33,258	161,923
1998	53,643	42,843	34,578	35,175	166,239
1999	54,869	43,895	35,857	36,075	170,696
2000	56,509	44,603	36,425	37,498	175,035
PART-TIME UNDERGRADUATE ENROLLMENT					
1989	76,044	20,383	16,232	13,282	125,941
1990	79,167	20,540	16,526	13,281	129,514
1991	83,132	19,067	16,851	13,299	132,349
1992	86,144	18,958	17,584	13,824	136,510
1993	84,992	18,304	17,747	13,893	134,936
1994	81,086	17,871	17,259	13,366	129,582
1995	78,378	17,400	17,103	12,936	125,817
1996	73,050	16,733	16,751	13,169	119,703
1997	69,265	16,418	16,515	12,489	114,687
1998	67,471	15,471	16,452	11,757	111,151
1999	68,013	14,663	15,739	11,349	109,764
2000	68,076	22,652	7,569	11,435	109,732

Note: (1) Includes Rutgers, The State University, New Jersey Institute of Technology, The University of Medicine and Dentistry's School of Allied Health Professions, and Thomas Edison State College.

Source: New Jersey Department of Higher Education, "Opening Fall Enrollments New Jersey Colleges and Universities."

TABLE 41:
HIGHER EDUCATION CAPITAL NEEDS ANALYSIS, 1999

SEVEN-YEAR CAPITAL NEEDS ESTIMATES
(millions of dollars)

	COMMUNITY COLLEGES	INDEPENDENT COLLEGES & UNIVERSITIES	PUBLIC RESEARCH UNIVERSITIES	STATE COLLEGES & UNIVERSITIES	ALL INSTITUTIONS
Preservation	111.12	41.09	188.62	206.01	546.84
Compliance (ADA)	7.49	4.08	16.35	18.72	46.63
Compliance (life safety)	9.22	6.41	25.26	31.60	72.49
Environmental	6.84	6.24	21.43	32.11	66.63
Acquisition	22.15	5.25	79.67	12.57	119.64
Construction	443.67	180.83	746.06	658.79	2,029.35
Infrastructure	42.75	20.61	146.27	58.43	268.06
Total Capital Needs	**643.24**	**264.52**	**1,223.65**	**1,018.23**	**3,149.64**
Total Deferred Maintenance	53.25	136.03	208.06	184.11	581.45

Source: New Jersey Commission on Higher Education

TABLE 42:
HIGHER EDUCATION INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Higher Education	$581	$2,569	$3,150

Note: All values in millions of 1999 dollars.
Source: New Jersey Commission on Higher Education

future, roughly 76 percent of those additional graduates, or 11,400 additional students, might enroll in college after graduation, with about 7,000 of those (62 percent) remaining in state.

Additionally, the percentage of New Jersey jobs that require some form of higher education is expected to increase, and the desire for lifelong learning opportunities to enhance job skills and provide ongoing intellectual stimulation continues to grow. As a result, enrollments are likely to increase among both traditional and nontraditional students.[56]

A *Capital Investment Study* was prepared by the New Jersey Commission on Higher Education in an effort to address the future needs of the higher education community. The 18-month long survey of the public and private colleges and universities in the state found that the replacement value of academic buildings at the institutions that responded to the survey is more than $5 billion,

[56] *Looking to the New Millennium: New Jersey's Plan for Higher Education 1999 Update,* June 1999.

The higher education system in New Jersey includes 24 private colleges, 19 community colleges, as well as the following State institutions:

- The College of New Jersey
- Thomas Edison State College
- Kean University
- Montclair State University
- New Jersey City University
- New Jersey Institute of Technology
- The William Paterson University of New Jersey
- Ramapo College of New Jersey
- Rowan University
- Rutgers, The State University of New Jersey
- The Richard Stockton College of New Jersey
- University of Medicine and Dentistry of New Jersey

and more than $2 billion for auxiliary buildings such as dormitories and student centers. The 1,955 buildings contain more than 51 million gross square feet, the majority of which was constructed in the 1960s and 1970s. The colleges and universities estimate that an additional $3.2 billion is needed for capital construction over the next seven years, two-thirds for new construction and an additional $547 million needed to preserve existing buildings. Additionally, New Jersey's institutions reported a total of $581 million in costs for accumulated deferred maintenance needs.[57]

Public Libraries

In 1999, the New Jersey State Library Association, in consultation with the New Jersey State Library, published the results of a survey of public libraries regarding building needs. Many libraries have developed construction plans and are awaiting funding to initiate projects. In addition, a number of libraries have identified unspecified capital needs for renovations to accommodate new and emerging information technologies and to retrofit existing buildings to be compliant with Americans with Disabilities Act requirements. The survey, which is not represented to be comprehensive or exhaustive, identified total costs of over $289.4 million, of which over $78.4 million was for libraries serving communities eligible for Urban Coordinating Council assistance. All the reported costs are considered to be associated with Present Needs for the purposes of this Assessment (see Table 43).

[57] New Jersey's Capital Investment in Higher Education, February 1999.

TABLE 43:
PUBLIC LIBRARIES INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Libraries	$290	nav	$290

Note: All values in millions of 1999 constant dollars.
nav = Documented estimates are not available for this category.

Source: New Jersey State Library Association.

Arts

In 1994, an Eagleton Institute study of nonprofit arts institutions and programs in New Jersey estimated that the nonprofit arts sector (exclusive of profit-making motion picture and television production, commercial theater or other live entertainment, or for-profit art galleries) contributed over $643 million to New Jersey's economy in 1993. Further, over the prior five-year period, nonprofit arts organizations made substantial investments in enhancing New Jersey's arts infrastructure, spending nearly $82 million in new construction and renovation of arts facilities and $3.5 million for the purchase of equipment. According to the report, an additional $206 million in capital expenditures was planned for the next five years.[58]

In April 1997, the New Jersey State Council on the Arts estimated a total current capital development need of $300 million through 2020 (see Table 44), recommending that a more formal, comprehensive survey of needs was necessary to obtain a more accurate number.[59] Also in 1997, the Council published *Arts Plan New Jersey*, a strategic plan defining objectives and future programs.[60] In the future, proposals to develop cultural centers[61] designated by the council may lead to a greater identification and articulation of infrastructure needs.

[58] *The Arts in New Jersey: A Study of Economic Activity 1992–93 Summary Report*. Prepared by the Center for Public Interest Polling, Eagleton Institute of Politics, Rutgers University for the New Jersey Council on the Arts and the South Jersey Cultural Alliance. 1994.

[59] Excerpted from a memorandum from Barbara Russo, Executive Director of the New Jersey Council on the Arts to Lathea Morris, Assistant Secretary of State, April 22, 1997.

[60] *Arts Plan New Jersey: Toward a Thriving New Jersey, A Statewide Plan for the Arts*. New Jersey State Council on the Arts. Fall 1997.

[61] Cultural centers in this context means a facility or network of facilities offering a broad range of programs in the performing, plastic, graphic or other arts, as designated by the State Council on the Arts pursuant to the State and Regional Centers of Artistic Excellence Act, *N.J.S.A.* 52:16A-26.1 et seq.

TABLE 44:
ARTS INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Arts	$300	nav	$300

Note: All values in millions of 1999 dollars.
nav = Documented estimates are not available for this category.

Source: New Jersey State Council on the Arts.

TABLE 45:
PUBLIC SAFETY COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Safety	nav	nav	nav

Note: All values in millions of 1999 dollars.
nav = Documented estimates are not available for this category.

Public Safety

Public safety is an important component of the infrastructure that supports and sustains development and redevelopment. Capital needs for police, firefighting, ambulance and emergency management services are substantial, particularly at the local level. However, no statewide, comprehensive compilation of capital needs for public safety is currently known to exist. As a result, estimates of present and prospective public safety needs through 2020 are not available for this Assessment.

TABLE 46:
JUSTICE INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Justice	nav	nav	nav

Note: All values in millions of 1999 dollars
nav = Documented estimates are not available for this category

Justice

Capital needs for the justice system are typically associated with buildings that house the state, county and municipal courts and associated services, including holding cells but excluding detention centers and prisons, which are addressed under Corrections. In recent years, the state has assumed the costs of operating the county court system.

No statewide, comprehensive compilation of capital needs for the state and local justice system in New Jersey currently is known to exist. As a result, estimates of Present Needs and Prospective Needs for justice system infrastructure through 2020 are not available for this Assessment.

Corrections

Infrastructure needs to accommodate resident populations of adult and juvenile offenders are estimated by the New Jersey Department of Corrections and the New Jersey Juvenile Justice Commission, respectively.

The Department of Corrections is not only responsible for administering all aspects of custody and rehabilitation of persons committed to adult correctional institutions in the state correctional system, but also ensures that county and municipal jails are in compliance with state standards. In part due to significant changes in the New Jersey Criminal Code (Title 2C) in 1997, the Department's adult population has increased by 13,444 (75 percent) from 17,856 to 31,300 inmates between 1989 and 1999. Preliminary estimates by the Department of Corrections indicate that the 1997 No Early Release Act, which increases the length of stay before a prisoner is eligible for parole, will increase the prison population by 4,000 offenders within 15 years. Despite the 1998 opening of the 3,200 bed South Woods State Prison at Bridgeton, state correctional facilities are operating at 140 percent of their design capacity of 22,350, and 5,000 state sentenced inmates are currently housed in county facilities. Since 1980, admissions to the state correctional system have exceeded releases by an average of 100 per month.

In its FY2001 capital budget request, the Department of Corrections proposed a seven-year program totaling over $480 million. Of this total, $46.9 million for renovations and rehabilitation, $22.5 million for preservation, $16.9 million for environmental projects, $14.4 million for compliance projects and $3 million for infrastructure projects, yielding a total of $103.7 million in

TABLE 47:
CORRECTIONS INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Corrections	$129	$534	$663

Note: All values in millions of 1999 dollars.
Source: New Jersey Department of Corrections.

TABLE 48:
HISTORIC RESOURCES INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Historic Resources	nav	nav	nav

Note: All values in millions of 1999 dollars.
nav = Documented estimates are not available for this category.

Present Needs costs. Although the cost estimates do not address all needs through the 2020 horizon year of this Assessment, the remaining costs are considered Prospective Needs.

The Juvenile Justice Commission was created "in but not of" the Department of Law and Public Safety in 1996 to respond to the complicated nature of juvenile justice, the increased demand for services, and the need for comprehensive planning for system needs. Prior to 1996, responsibilities for programs, operations and facilities were divided among the departments of Corrections, Human Services and Law and Public Safety. By 1999, the Commission was responsible for an average of 1,400 to 1,500 youths per day in a variety of programs and facilities throughout the state. In its FY2001 capital budget proposal, the Juvenile Justice Commission identified a seven-year program totaling $182.5 million. Of this total, $25.2 million was requested to address Present Needs. The remaining costs were considered to address Prospective Needs for the purposes of this Assessment.

Historic Resources

To protect, preserve and enhance historic buildings, districts and landscapes is a significant public trust, whether the preservation of these resources is undertaken by public sector or private entities. While most state agencies have assigned costs in their capital budgets related to actions taken to preserve or restore historic structures, these costs are typically incurred in association with meeting other needs, such as the adaptive reuse of an historic structure to serve as

administrative offices. Similar data problems exist for other jurisdictions. No other statewide, comprehensive compilation of capital needs for historic resources is currently known to exist. As a result, estimates of costs for Present Needs and Prospective Needs for historic resources through 2020 are not available for this Assessment.

Public Administration

Since 1992, the New Jersey Department of the Treasury completed a *Statewide Facilities Master Plan* for New Jersey state government facilities. This plan focused on eliminating unnecessary leased space and improving the utilization of state-owned facilities in the context of constantly fluctuating state agency staffing levels. Detailed assessments of costs associated with the master plan have not yet been completed. No statewide compilation of cost estimates for Present Needs or Prospective Needs for local government facilities is available.

Human Services

The largest institution addressing human services needs in New Jersey is the state's Department of Human Services (DHS), which serves some of the state's most vulnerable citizens: abused children; troubled youth and families; the poor; elderly men and women; and persons who are mentally ill, developmentally disabled, blind, visually impaired, deaf and hard of hearing. While the department is primarily concerned with the efficient and coordinated delivery of social services through a combination of public, private and nonprofit organizations to provide food, clothing, shelter and medical care, it also operates and maintains 13 major facilities serving the mentally ill, developmentally disabled, and blind and visually impaired. The department is the largest agency in state government. With 18,829 employees and a $6.7 billion budget, it comprises about one-quarter of the state's budget and work force.

Costs associated with providing barrier-free access to facilities for the disabled in compliance with the federal Americans with Disabilities Act are typically included within the capital budgets of the agencies managing these facilities. For example, ADA-compliant buses are included in the capital programs of public transportation agencies.

In its FY2001 budget request, the Department of Human Services advanced a seven-year capital program totaling $395 million. Current year funding requests to meet existing backlog and

TABLE 49:
PUBLIC ADMINISTRATION INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Administration	nav	nav	nav

Note: All values in millions of 1999 dollars
nav = Documented estimates are not available for this category

TABLE 50:
HUMAN SERVICES INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Human Services	$87	$316	$403

Note: All values in millions of 1999 dollars.
Sources: New Jersey Department of Human Services
New Jersey Department of Education.

rehabilitation (present) needs total $79.1 million: $31.1 million for facilities preservation projects, $15.5 million for new construction, $13.8 million for environmental projects, $11.3 million for infrastructure, $7.4 million for compliance projects. For this Assessment, the remaining costs are considered to be associated with Prospective Needs.

The New Jersey Department of Education is directly responsible for funding capital projects associated with the Marie H. Katzenbach School for the Deaf, and for capital projects for New Jersey's 11 Regional Schools for the Handicapped that exceed $50,000. The FY2001 capital budget request for the Department of Education identifies a seven-year program of $8.1 million in needs associated with rehabilitating existing facilities, costs classified as Present Needs for this Assessment.

Public Housing

The State of New Jersey and other levels of government invest capital to encourage construction of moderate and low-income housing units. By the definition of infrastructure applied by the State Planning Commission, public capital investment in housing stock for low and moderate-income households and special needs populations is viewed as an investment in the state's infrastructure.

Public housing is under the jurisdiction of the New Jersey Department of Community Affairs, Division of Housing and Community Resources. Public Housing provides the largest pool of affordable housing in New Jersey. Public Housing units are administered by public housing authorities that receive federal funds to build, manage, and operate public housing developments.

TABLE 51:
LOCAL PUBLIC HOUSING AUTHORITIES, 1999

Asbury Park	Garfield	Newton
Atlantic City	Glassboro	North Bergen
Bayonne	Gloucester City	Ocean City
Belmar	Gloucester County	Old Bridge
Bergen County	Guttenberg	Orange
Berkeley Township	Hackensack	Passaic County Housing Agency
Beverly	Haddon Township	Passaic City
Bloomfield	Hamilton Township	Paterson
Boonton	Harrison	Penns Grove
Brick Township	Highland Park	Perth Amboy
Bridgeton	Highlands	Phillipsburg
Brooklawn	Hightstown	Plainfield
Buena	Hoboken	Pleasantville
Burlington City	Irvington	Princeton
Burlington Co Rental Asst	Jersey City	Rahway
Camden City	Keansburg	Red Bank
Cape May	Lakewood	Salem
Carteret	Linden	Sayreville
Clementon	Lodi	Sea Isle City
Cliffside Park	Long Branch	Secaucus
Collingswood	Madison	Somerville
Dover	Manville Housing Asst Program	South Amboy
East Orange	Middlesex County	Summit
Edgewater	Middletown	Trenton
Edison	Millville	Union City
Elizabeth	Morris County	Vineland
Englewood	Morristown	Warren County
Florence	Neptune City	Weehawken
Fort Lee	Neptune Township	West New York
Franklin Township	New Brunswick	West Orange
Freehold Borough	Newark	Wildwood
		Woodbridge

Source: New Jersey Department of Community Affairs

TABLE 52:
PUBLIC HOUSING INFRASTRUCTURE COSTS

	ESTIMATED PRESENT COSTS	ESTIMATED PROSPECTIVE COSTS	TOTAL ESTIMATED COSTS
Public Housing	nav	nav	nav

Note: All values in millions of 1999 dollars.
nav = Documented estimates are not available for this category.

There are currently 94 local public housing authorities in New Jersey (see Table 51). Most of these units are apartments. Rents depend on household income and can be no more than 30 percent of a household's adjusted earnings. Public housing units generally are reserved for families with earnings at or below the moderate-income levels, as defined by the federal government. At present, however, federal law requires housing authorities to reserve a percentage of their units for very low-income families, who earn 50 percent or less than median family income. The current draft of the Public Housing Authority five-year plan establishes its mission to be to promote adequate and affordable housing, economic opportunity and a suitable living environment free from discrimination for the low-income, very low-income, and extremely low-income families in the authority's jurisdiction, and to strengthen and revitalize communities by assisting in the delivery of adequate and affordable housing, economic opportunity and a suitable living environment, and by providing supportive services and by promoting community and economic development without discrimination.

In 1999, there were 9,640 families on the waiting list for Section 8 tenant rental assistance. Of these, 8,540 families qualified as extremely low income (less than 30 percent of median income), 1,059 qualified as very low income and 41 qualified as low income. Of these, 7,677 families included children and 625 included elderly. Families with disabilities were 1,507. The state's approach is to provide $150 million in funds to assist in rental payments rather than to increase capital investments in public housing. Many public housing authorities accommodate Section 8 and other rental assistance tenants, however. There is no statewide compilation of capital needs for local housing authorities currently available.

Revenue Analysis

Overview

This section is intended to provide a framework for discussing alternative revenue sources for financing infrastructure costs. Revenue analysis is a highly complex task. A complete revenue study is beyond the scope of this *Infrastructure Needs Assessment* as it requires the application of sophisticated financial analysis tools and a comprehensive review of state, county, regional agency, municipal and special district expenditures.

In response to general declines in federal funding support for infrastructure since 1992, there has been greater pressure on state and local governments to finance infrastructure that is financially self-sustaining, using market-driven techniques such as user fees, development fees and exactions on developers, privatization, outsourcing and revenue bonding. Nevertheless, the amount of infrastructure supported by general taxation for pay-as-you-capital outlays has remained substantial, and New Jersey has invested more than its share of the nation and most of its surrounding states in recent years. In fiscal year 1996, the most recent year in which comparable data was available, the average New Jersey resident paid approximately $543 for state and local infrastructure investments, nearly evenly divided between state and local governments. In the nation as a whole, local governments provide a significantly larger share of capital investments relative to state government. Over the five-year period from fiscal year 1992 through fiscal year 1996, New Jersey state and local governments invested $21.4 billion in capital outlays, with the greatest investment in highways (38 percent) and education (22 percent).

In 1992, an analysis by the New Jersey Office of State Planning estimated that the private sector contribution to infrastructure in New Jersey averaged $1 billion per year (in 1990 constant dollars).[62] Adjusting for inflation to current dollar values, this estimate, if it remains accurate, would yield nearly $1.3 billion per year in private sector investments. If this level of state and local government capital outlays and private sector infrastructure investments was maintained through 2020, potential projected total revenues for infrastructure investments would reach $133 billion through the horizon year of the 2001 *State Development and Redevelopment Plan*.

While this projection is nearly twice the infrastructure costs estimated in this Assessment, it is important to note that the estimated costs do not yet account for major prospective needs to be estimated by the impact assessment study, nor do the costs in this Assessment include many infrastructure components for which state and most local infrastructure needs have not yet been estimated. Therefore, a reasonably accurate comparison between projected costs and revenues for infrastructure by 2020 cannot yet be made as part of this Assessment.

In addition to capital outlays, capital needs are commonly funded by the use of general obligation bond funds (which may also be used to establish and secure revolving funds and revenue funds) and by leasing or lease-purchase arrangements. A summary of major state capital programs addressing the infrastructure components in this Assessment for which data are available identifies

[62] *Assessment of Trend Infrastructure Needs to 2010*. New Jersey Office of State Planning, January 1992, p. 138.

TABLE 53:
STATE CAPITAL FUNDING PROGRAMS SUMMARY

YEAR	FUNCTION	AUTHORIZED FOR CURRENT PROGRAMS	UNISSUED BONDS	REMAINING FUND BALANCE (6/30/1999)	FUNDING SOURCES
	TOTAL	**$11,678,000,000**	**$128,400,000**	**$2,810,518,602 + $18 million/year**	**--**
	TRANSPORTATION AND COMMERCE	$2,143,000,000	N/A	$260,486,665	--
1984	Transportation	$1,380,000,000	N/A	$260,486,665	Tax, Bond, Revolving Loans
1992	Farmland Retention	$763,000,000	N/A	$520,973,330	Tax, Bond
	HEALTH AND ENVIRONMENT	$8,121,000,000 + $20 million/year	$128,400,000	$2,502,924,959 + $18 million/year	--
1985	Wastewater Treatment	$ 0	$35,000,000	$12,827,000,020	Bond, Revolving Loans
1981	Water Supply	$350,000,000	$93,400,000	$209,088,709	Bond, Revolving Loans
1978	Stormwater Management	$70,000,000	N/A	$18,647,556	Bond, Revolving Loans
1977	Shore Protection	$15,000,000 per year + $95,000,000	N/A	$15,000,000 per year + $27,628,754	Tax, Bond
1978	Public Recreation/ Open Space	$1,390,000,000	N/A	$312,311,364	Tax, Bond, Revolving Loans
1995	Public Recreation Facilities	$50,000,000	N/A	N/A	
1985	Solid Waste Management	$4 to 6 million/year + $183,000,000	N/A	$2.5 to $3.5 million/ year + $179,322,008	Tax, Bond, Revolving Loans
--	PUBLIC SAFETY AND WELFARE	$1,414,000 + $268 million/year	N/A	$47,106,978	--
1995	Public Education	$100,000,000	N/A	N/A	Bond, Revolving Loans
1988	Higher Education	$740,000,000	$10,000,000	$14,875,464	Bonds, Revolving Loans
1999	Public Libraries	$45,000,000	N/A	N/A	Appropriation
1987	Arts	$40,000,000	N/A	$5,300,000	Bond
1982	Corrections	$368,000,000	$0	$15,535,899	Bonds
1987	Historic Resources	$121,000,000	N/A	$11,395,615	Bonds, Revolving Loans
1995	Housing	$268,000,000 per year	N/A	N/A	Revolving Loans

Notes: Year refers to earliest capital funding source with funds still remaining.
Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
Due to debt limitations and other statutory provisions, not all unissued or remaining funds are currently available for infrastructure investments.
N/A = Data not available or not applicable.
Data for capital revenue programs are not available for Energy, Telecommunications, Public Health Care, Public Safety, Justice, Public Administration, and Human Services.

Source: New Jersey Department of the Treasury, Office of Management and Budget, January 2000

$2.8 billion in fund balances and $128.4 million in unissued bonds that are potentially available to fund infrastructure projects (see Table 53). However, due to constitutional debt limitations and other statutory provisions, as well as other accepted financial practices, such as to secure fund liabilities, not all unissued or remaining funds may currently be used for this purpose.

A long-term, comprehensive revenue analysis should be conducted and kept current as part of the annual capital planning and budgeting process of both state and local government. Nevertheless, this brief review of general revenue trends and revenue sources for existing programs suggests that the most effective approaches for financing infrastructure in the long term are both constant and flexible. Such an approach can be achieved by establishing baseline funding programs supplemented by bond issues or by similar short-term measures targeted for specific functions and rapid implementation. Baseline revenues should be scaled to rehabilitation needs and a share of new growth needs. Short-term revenues should address present needs and provide additional capacity to support new growth in accordance with the *State Development and Redevelopment Plan*. The same combination of measures may also be appropriate for the long-term financing of intergovernmental transfers and joint public-private ventures.

Since the 1992 *Infrastructure Needs Assessment*, many state agencies have granted priority in funding and programs for projects that are consistent with the *State Development and Redevelopment Plan* or that are part of a municipal planning agenda adopted by the State Planning Commission in the Center designation and Plan Endorsement process. As of March 2001, 88 New Jersey communities had been designated by the State Planning Commission as Centers or were included in a regional plan endorsed by the State Planning Commission, and nearly 20 state and regional programs provide priority assistance to these areas.

General Trends

Federal funding support for infrastructure continued to decline since 1992, except for federal investments in transportation infrastructure. Nationally, state and local governments have assumed a larger share of fiscal responsibility for investments in infrastructure. At the same time, federal revenues as a percent of gross domestic product (GDP) were almost constant while state and local tax receipts for the nation as a whole rose (up to 11 percent of GDP).[63] According to a Lincoln Institute study, this has resulted in a growing reliance on market forces, and therefore financially self-sustaining projects, for financing infrastructure investments by increasing:

- User fees over general taxation,
- Development fees and exactions on developers,
- Privatization, outsourcing and revenue bonding.[64]

The United States Census Bureau enumerates capital outlays of state and local governments annually in a uniform and consistent manner.[65] "Capital outlays" are defined as "direct expenditure[s] for contract or force account construction of roads, bridges, and other improvements, and for purchase of equipment, land, and existing structures [including] amounts for additions, replacements, and major alterations to fixed works and structures." Capital outlays do not include amounts paid for repairs, otherwise classified as current operation expenditures. One can examine capital outlays as percentages of total government expenditures to gauge the extent of infrastructure investment.

State Government Capital Outlays

Over the period from fiscal year 1992 through fiscal year 1997,[66] capital outlays have represented approximately seven percent of the state of New Jersey's total expenditures[67] (see Table 54 and Figure 20). Capital outlays fluctuated significantly since fiscal year 1992, ranging from $1.9 billion in FY1993 to approximately $2.3 billion in fiscal year 1997, in the latter year amounting to $284 per resident for expenditures by state government.

Based on Census data, New Jersey spent more on capital outlays on a per capita basis in 1997 than Pennsylvania and the United States (average of all states), but spent slightly less than the state of New York. In terms of percent of total general expenditures,[68] the New Jersey figure of 10 percent is significantly higher than the corresponding Pennsylvania, New York, and United States averages (see Table 55 and Figure 21).

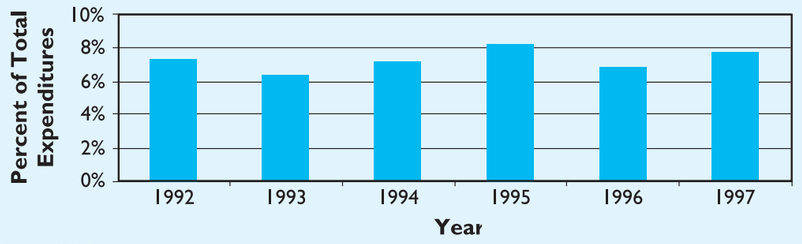
[63] "The Extraordinary Growth in State Government Revenues." C. Eugene Steuerle. Tax Analysts, October 1998.
[64] "Public Capital Investment: Patterns of Local Accommodation." Lynne B. Sagalyn. *Land Lines* 6(6)-1, November 1994.
[65] Local government data and comparisons of State and local capital expenditures are based on published data of the U.S. Census Bureau. Census data for New Jersey State government capital outlays prior to 1992 have been found by the New Jersey Department of the Treasury, Office of Management and Budget to exceed State records of actual expenditures, apparently due to double-counting of expenditures under certain trust funds. Efforts were made to resolve this, resulting in some discontinuity in Census capital outlays data between the 1980s and the 1990s. Consequently, the results of this analysis based on data for the 1990s cannot be compared to the results in the 1992 *Infrastructure Needs Assessment*, which was based on data for the 1980s.
[66] Census data are used for this analysis unless otherwise cited to ensure compatibility with data for New Jersey local governments and with data for other states. The most recent state government data available at the date of this report is for Fiscal Year 1997 (July 1996 through June 1997). The most recent local government data available is for Fiscal Year 1996.
[67] Total State Expenditures consists of Direct General Expenditures, Intergovernmental Transfers, and other Direct Expenditures.
[68] General expenditures do not include intergovernmental transfers, such as grants to local governments.

TABLE 54:
CAPITAL OUTLAYS AS PERCENT OF STATE GOVERNMENT TOTAL EXPENDITURES

Fiscal Year	State Capital Outlays	Total State Expenditures	State Capital Outlays as Percent of Total Expenditures	State Capital Outlays per Capita
1992	2,160,051,000	29,316,217,000	7.37%	$275.94
1993	1,874,448,000	28,922,752,000	6.48%	$238.03
1994	2,145,616,000	29,605,770,000	7.25%	$271.46
1995	2,713,013,000	32,605,483,000	8.32%	$341.47
1996	2,242,394,000	32,314,887,000	6.94%	$280.72
1997	2,283,969,000	29,429,586,000	7.76%	$283.62

Note: All values in current dollars.
Total State Expenditures consists of Direct General Expenditures, Intergovernmental Transfers, and other Direct Expenditures.
Source: U.S. Census

FIGURE 20: CAPITAL OUTLAYS AS PERCENT OF STATE GOVERNMENT TOTAL EXPENDITURES



Note: All figures in current dollars.
Source: U.S. Census

Local Government Capital Outlays

Local government share is divided among an array of substate general purpose and special purpose governments (such as independent local utilities and improvement authorities and school districts), with the largest share typically maintained by municipal governments.

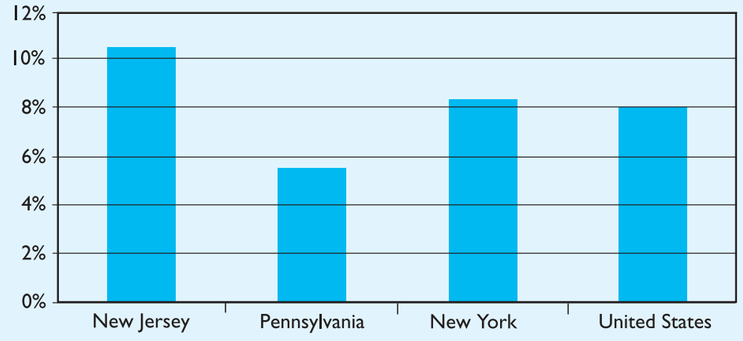
Capital outlays represent approximately eight percent of local government total expenditures since fiscal year 1992. The actual amounts of capital outlays fluctuated significantly over the five year period from fiscal year 1992 through fiscal year 1996, ranging from approximately $1.4 billion in FY1994 to $2.1 billion in FY1995. Approximately $2.1 billion was spent New Jersey local

TABLE 55:
CAPITAL OUTLAYS AS PERCENT OF STATE GOVERNMENT EXPENDITURES, 1997

	Total State Government Capital Outlay	Total State Government General Expenditures	Capital Outlay as Percent of State Government Expenditures	State Capital Outlay per Capita
New Jersey	$ 2,283,969,000	$ 23,053,317,000	9.9%	$ 283.62
Pennsylvania	$ 1,678,474,000	$ 33,708,562,000	5.0%	$ 139.64
New York	$ 5,486,691,000	$ 70,016,990,000	7.8%	$ 302.51
United States	$ 59,657,707,000	$ 788,175,737,000	7.6%	$ 223.35

Note: All values in 1997 current dollars for Fiscal Year 1997.
Source: U.S. Census

FIGURE 21: CAPITAL OUTLAYS AS PERCENT OF STATE GOVERNMENT EXPENDITURES, 1997



Note: Percent of General Expenditures, Fiscal Year 1997
Source: U.S. Census

governments in fiscal year 1996, representing an average among local governments of 8.5 percent of general expenditures and an average of $262 per capita across the state (see Table 56 and Figure 22).

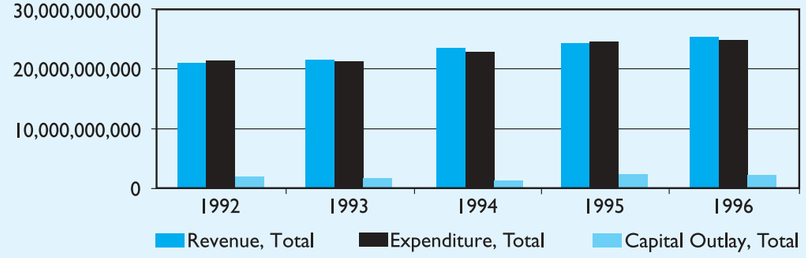
In comparison with other states, local governments in New Jersey spent a lesser share of direct expenditures (not including intergovernmental transfers of funds) on capital outlays than neighboring states, and for local governments on average throughout the United States, in fiscal year 1996 (Table 57 and Figure 23). Municipalities in New Jersey are limited by state statute (*N.J.S.A.* 40A:2-6) to total net debt of 3.5 percent of its average equalized valuation taxable for the last three preceding fiscal years. Debt service on current and authorized capital improvements is a significant factor in the planning and management of municipal budgets in New Jersey.

TABLE 56:
NJ LOCAL GOVERNMENT EXPENDITURES TOTAL REVENUE, EXPENDITURE, & CAPITAL OUTLAY

	1992	1993	1994	1995	1996
Revenue, Total	21,123,616,000	21,828,248,000	23,695,477,000	24,382,232,000	25,625,347,000
Expenditure, Total	21,264,898,000	21,418,235,000	22,907,211,000	24,697,858,000	24,761,362,000
Capital Outlay, Total	1,830,004,000	1,714,536,000	1,405,486,000	2,119,613,000	2,093,571,000
Capital Outlay/ Total Expenditure	8.6%	8.0%	6.1%	8.6%	8.5%
Capital Outlay per Capita, Total	$233.78	$217.72	$177.82	$266.79	$262.09

Note: All values in current dollars.
Source: U.S. Census, *State Government Finances 1992–1996*

FIGURE 22: NJ LOCAL GOVERNMENT EXPENDITURES TOTAL REVENUE, EXPENDITURE, & CAPITAL OUTLAY



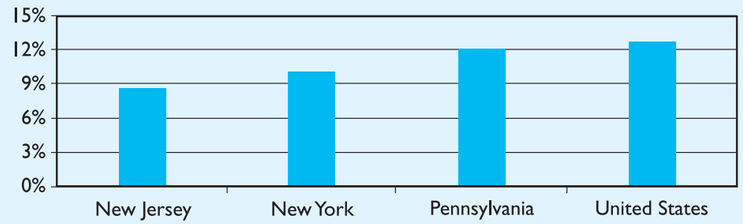
Note: All values in current dollars.
Source: U.S. Census, *State Government Finances 1992–1996*

TABLE 57:
LOCAL GOVERNMENT CAPITAL OUTLAYS AS PERCENT OF DIRECT EXPENDITURES

State	Total Local Government Capital Outlay	Total Local Government Direct Expenditure	Capital Outlay as Percent of Direct Expenditure
New Jersey	2,093,571,000	24,429,028,000	8.57%
New York	8,806,031,000	87,335,409,000	10.08%
Pennsylvania	3,769,862,000	31,204,757,000	12.08%
United States	99,983,807,000	786,120,191,000	12.72%

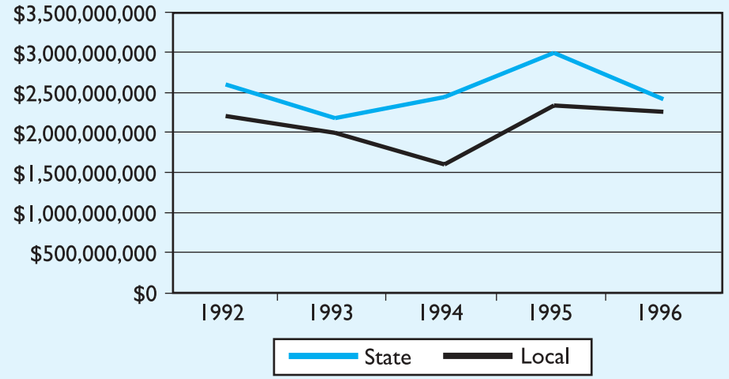
Note: All values in thousands of 1996 dollars.
Source: U.S. Department of Commerce, Bureau of the Census *Government Finances: 1996*

FIGURE 23: LOCAL GOVERNMENT CAPITAL OUTLAYS AS PERCENT OF DIRECT EXPENDITURES



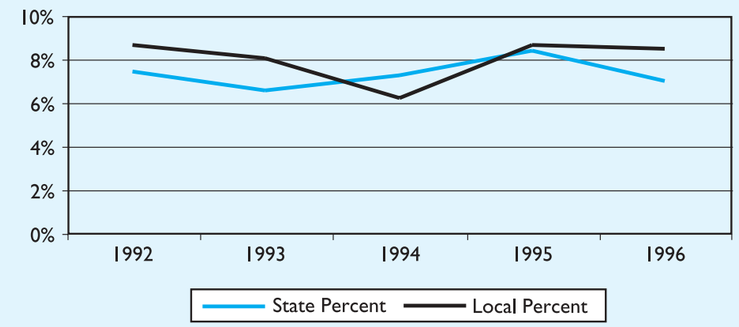
Note: All values in thousands of 1996 dollars.
Source: U.S. Department of Commerce, Bureau of the Census *Government Finances: 1996*

FIGURE 24: COMPARISON OF STATE AND LOCAL GOVERNMENT CAPITAL OUTLAYS



Note: All values in constant 1999 dollars.
Source: New Jersey Office of State Planning, based on U.S. Census

FIGURE 25: COMPARISON OF STATE AND LOCAL GOVERNMENT CAPITAL OUTLAYS, PERCENTAGE OF TOTAL OUTLAYS



Source: U.S. Department of Commerce, Bureau of the Census *Government Finances: 1996*

TABLE 58:
N.J. STATE GOVERNMENT CAPITAL OUTLAYS BY FUNCTION

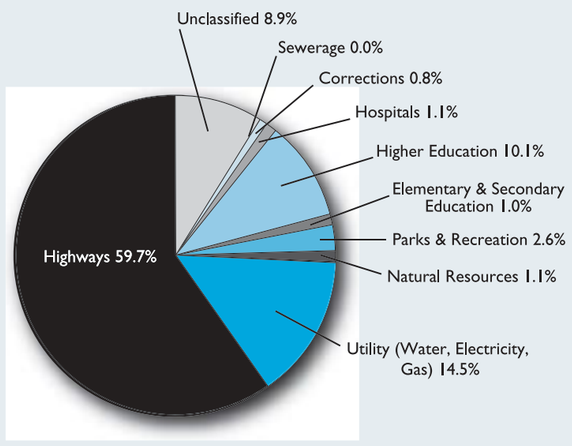
STATE CAPITAL OUTLAYS BY FUNCTION

	FY1992	FY1993	FY1994	FY1995	FY1996	5-Year Totals
Total Capital Outlays	$ 2,571,489,286	$ 2,166,991,908	$ 2,418,958,286	$ 2,971,536,692	$ 2,385,525,532	$ 12,514,501,704
Highways	$ 1,700,561,905	$ 1,378,379,191	$ 1,475,319,053	$ 1,664,759,036	$ 1,250,971,036	$ 8,469,990,461
Utility (Water, Electricity, Gas)	NA	$ 238,653,179	$ 357,405,862	$ 633,355,969	$ 595,034,043	$ 1,814,449,054
Sewerage	$ 76,190	$ 53,179	$ 315,671	$ 1,235,487	$ 48,936	$ 1,729,464
Solid Waste Management	NA	$ 1,019,653	$ 2,671,928	$ 10,726,177	$ 593,617	$ 15,011,375
Natural Resources	NA	$ 24,186,127	$ 31,167,982	$ 61,544,359	$ 18,143,617	$ 135,042,085
Parks and Recreation	NA	$ 99,082,081	$ 46,665,163	$ 60,796,276	$ 123,447,872	$ 329,991,393
Elementary & Secondary Education	$ 21,258,333	$ 26,076,301	$ 14,004,510	$ 31,037,240	$ 27,957,447	$ 120,333,830
Higher Education	$ 242,108,333	$ 226,758,382	$ 296,484,780	$ 268,181,818	$ 230,413,830	$ 1,263,947,143
Hospitals	NA	$ 20,767,630	$ 30,078,918	$ 45,070,099	$ 42,735,106	$ 138,651,753
Corrections	NA	$ 26,349,133	$ 42,087,937	$ 26,985,761	$ 10,520,213	$ 105,943,044
Unclassified	$ 607,484,524	$ 125,667,052	$ 132,756,483	$ 167,844,469	$ 85,659,574	$ 1,119,412,102

Note: All values in 1999 constant dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

FIGURE 26: N.J. STATE GOVERNMENT CAPITAL OUTLAYS BY FUNCTION



Note: Fiscal Year 1992 to Fiscal Year 1996, aggregate data in constant 1996 dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

TABLE 59:
N.J. LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION

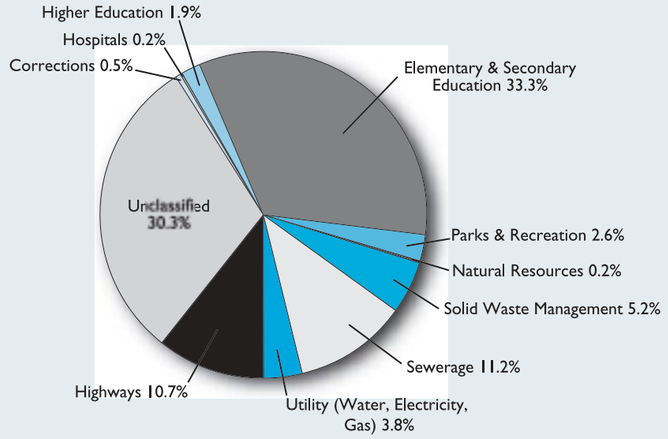
LOCAL CAPITAL OUTLAYS BY FUNCTION

	FY1992	FY1993	FY1994	FY1995	FY1996	5-Year Totals
Total Capital Outlays	$ 2,178,576,190	$ 1,982,122,543	$ 1,584,538,895	$ 2,321,591,457	$ 2,227,203,191	$ 10,294,032,277
Highways	$ 289,260,714	$ 236,275,145	$ 211,131,905	$ 338,430,449	$ 31,525,532	$ 1,106,623,745
Utility (Water, Electricity, Gas)	NA	$ 103,892,486	$ 83,453,213	$ 97,937,568	$ 103,197,872	$ 388,481,139
Sewerage	$ 404,922,619	$ 220,606,936	$ 178,428,410	$ 172,532,311	$ 178,352,128	$ 1,154,842,405
Solid Waste Management	NA	$ 83,483,237	$ 61,241,263	$ 326,026,287	$ 65,590,426	$ 536,341,212
Natural Resources	NA	$ 7,338,728	$ 3,195,039	$ 1,631,982	$ 6,504,255	$ 18,670,006
Parks and Recreation	NA	$ 39,054,335	$ 60,621,195	$ 74,279,299	$ 98,161,702	$ 272,116,531
Elementary & Secondary Education	$ 534,236,905	$ 683,976,879	$ 579,722,661	$ 715,911,281	$ 911,526,596	$ 3,425,374,321
Higher Education	$ 31,467,857	$ 22,115,607	$ 33,936,866	$ 76,380,066	$ 32,518,085	$ 196,418,481
Hospitals	NA	$ 5,390,751	$ 7,877,114	$ 3,765,608	$ 4,990,426	$ 22,023,899
Corrections	NA	$ 27,270,520	$ 7,780,158	$ 12,223,439	$ 3,177,660	$ 50,451,777
Unclassified	$ 918,688,095	$ 552,717,919	$ 357,151,071	$ 502,473,165	$ 791,658,511	$ 3,122,688,761

Note: All values in 1999 constant dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

FIGURE 27: N.J. LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION



Note: Fiscal Year 1992 to Fiscal Year 1996, aggregate data in constant 1996 dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

TABLE 60:
TOTAL N.J. STATE AND LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION

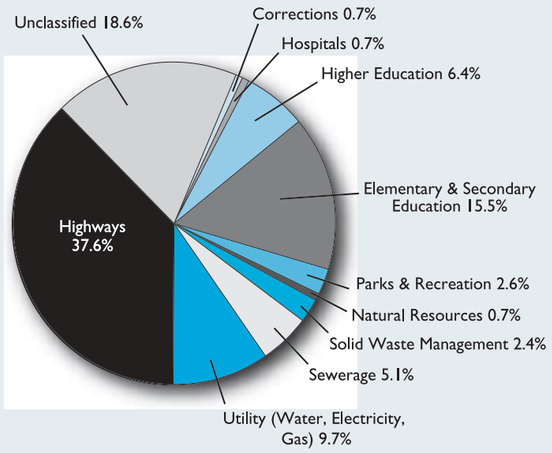
TOTAL NJ STATE AND LOCAL CAPITAL OUTLAYS BY FUNCTION

	FY1992	FY1993	FY1994	FY1995	FY1996	5-Year Totals
Total Capital Outlays	$ 4,750,065,476	$ 4,149,114,451	$ 4,003,497,182	$ 5,293,128,149	$ 4,612,728,723	$ 22,808,533,981
Highways	$ 1,989,822,619	$ 1,614,654,335	$ 1,686,450,958	$ 2,003,189,485	$ 1,282,496,809	$ 8,576,614,206
Utility (Water, Electricity, Gas)	NA	$ 342,545,665	$ 430,859,076	$ 731,293,538	$ 698,231,915	$ 2,202,930,193
Sewerage	$ 404,998,810	$ 220,660,116	$ 178,744,081	$ 173,767,798	$ 178,401,064	$ 1,156,571,869
Solid Waste Management	NA	$ 84,502,890	$ 63,913,191	$ 336,752,464	$ 66,184,043	$ 551,352,588
Natural Resrouces	NA	$ 31,524,855	$ 34,363,021	$ 63,176,342	$ 24,647,872	$ 153,712,091
Parks and Recreation	NA	$ 138,136,416	$ 107,286,359	$ 135,075,575	$ 221,609,574	$ 602,107,924
Elementary & Secondary Education	$ 555,495,238	$ 710,053,179	$ 593,727,170	$ 746,948,521	$ 939,484,043	$ 3,545,708,151
Higher Education	$ 273,576,190	$ 248,873,988	$ 330,421,646	$ 344,561,884	$ 262,931,915	$ 1,460,365,624
Hospitals	NA	$ 26,158,382	$ 37,956,032	$ 48,835,706	$ 47,725,532	$ 160,675,651
Corrections	NA	$ 53,619,653	$ 49,868,095	$ 39,209,200	$ 13,697,872	$ 156,394,821
Unclassified	$ 1,526,172,619	$ 678,384,971	$ 489,907,554	$ 670,317,634	$ 877,318,085	$ 4,242,100,863

Note: All values in 1999 constant dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

FIGURE 28: TOTAL N.J. STATE AND LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION



Note: Fiscal Year 1992 to Fiscal Year 1996, aggregate data in constant 1996 dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

TABLE 61:
U.S. STATE GOVERNMENT CAPITAL OUTLAYS BY FUNCTION

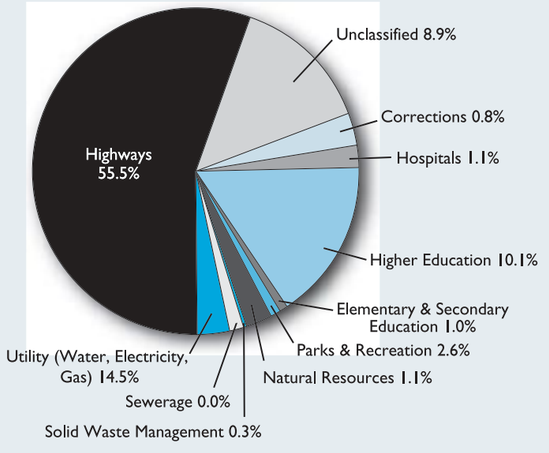
U.S. STATE CAPITAL OUTLAYS BY FUNCTION

	FY1992	FY1993	FY1994	FY1995	FY1996	5-Year Totals
Total Capital Outlays	$ 59,673,261,905	$ 57,979,460,116	$ 59,633,264,938	$ 63,339,472,070	$ 62,688,482,979	$ 303,313,942,007
Highways	$ 33,044,640,476	$ 32,609,519,075	$ 33,816,127,396	$ 34,706,806,134	$ 34,253,363,830	$ 168,430,456,910
Utility (Water, Electricity, Gas)	NA	$ 2,112,626,590	$ 2,394,142,052	$ 2,438,533,406	$ 2,772,902,128	$ 9,718,204,175,
Sewerage	$ 634,789,286	$ 790,341,040	$ 873,027,057	$ 934,800,657	$ 971,376,596	$ 4,204,334,637
Solid Waste Management	NA	$ 199,216,185	$ 186,961,669	$ 210,852,136	$ 201,272,340	$ 798,302,330
Natural Resources	NA	$ 1,682,298,266	$ 1,919,083,427	$ 2,141,856,517	$ 2,174,457,447	$ 7,917,695,657
Parks and Recreation	NA	$ 809,219,653	$ 779,783,540	$ 712,148,959	$ 750,676,596	$ 3,044,828,748
Elementary & Secondary Education	$ 489,190,476	$ 669,921,387	$ 430,295,378	$ 430,305,586	$ 495,672,340	$ 2,515,385,168
Higher Education	$ 9,771,688,095	$ 9,266,092,486	$ 8,852,241,263	$ 10,087,168,675	$ 10,159,748,936	$ 48,096,939,454
Hospitals	NA	$ 1,622,900,578	$ 1,853,202,931	$ 1,732,878,423	$ 1,572,318,085	$ 6,781,300,017
Corrections	NA	$ 2,141,236,994	$ 2,446,918,828	$ 3,015,704,272	$ 2,236,386,170	$ 9,840,246,264
Unclassified	$ 15,732,953,571	$ 6,123,087,861	$ 6,081,481,398	$ 6,928,417,306	$ 7,100,308,511	$ 41,966,248,647

Note: All values in 1999 constant dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

FIGURE 29: U.S. STATE GOVERNMENT CAPITAL OUTLAYS BY FUNCTION



Note: Fiscal Year 1992 to Fiscal Year 1996, aggregate data in constant 1996 dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

TABLE 62:
U.S. LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION

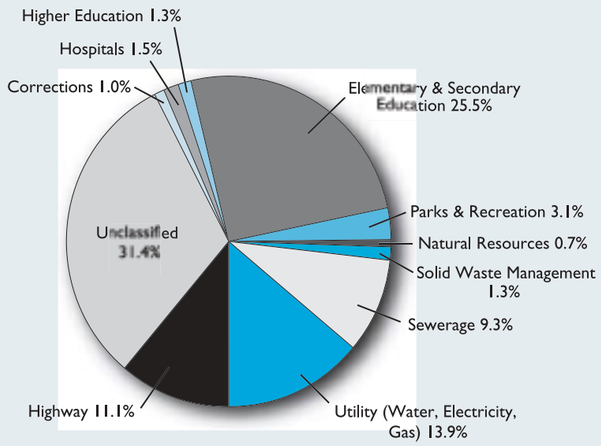
U.S. LOCAL CAPITAL OUTLAYS BY FUNCTION

	FY1992	FY1993	FY1994	FY1995	FY1996	5-Year Totals
Total Capital Outlays	$100,687,255,952	$ 99,218,300,578	$ 95,384,599,775	$102,531,754,655	$106,365,752,128	$504,187,663,088
Highways	$ 11,039,986,905	$ 10,107,472,832	$ 10,719,428,410	$ 11,910,047,097	$ 11,973,584,043	$ 55,750,519,288
Utility (Water, Electricity, Gas)	NA	$ 16,305,453,179	$ 18,102,000,000	$ 18,402,361,446	$ 17,179,646,809	$ 69,989,461,433
Sewerage	$ 9,991,478,571	$ 11,060,861,272	$ 8,133,968,433	$ 8,806,166,484	$ 8,949,523,404	$ 46,941,998,164
Solid Waste Management	NA	$ 1,486,426,590	$ 1,829,190,530	$ 1,951,476,451	$ 1,426,432,979	$ 6,693,526,549
Natural Resources	NA	$ 787,566,474	$ 729,173,619	$ 1,024,510,405	$ 1,061,888,298	$ 3,603,138,796
Parks and Recreation	NA	$ 3,636,466,243	$ 3,638,798,196	$ 3,762,642,935	$ 4,429,072,340	$ 15,466,959,715
Elementary & Secondary Education	$ 24,890,776,190	$ 25,097,000,000	$ 21,771,304,397	$ 26,741,520,263	$ 30,214,891,489	$128,715,492,340
Higher Education	$ 1,157,260,714	$ 1,126,217,341	$ 1,247,635,851	$ 1,370,967,141	$ 1,548,885,106	$ 6,450,966,154
Hospitals	NA	$ 2,965,689,017	$ 2,274,701,240	$ 1,982,240	$ 2,255,647,872	$ 7,498,020,370
Corrections	NA	$ 1,489,691,329	$ 1,266,832,018	$ 1,171,096,386	$ 1,053,924,468	$ 4,981,544,201
Unclassified	$ 53,607,753,571	$ 25,155,476,301	$ 25,671,567,080	$ 27,388,983,806	$ 26,272,255,319	$158,096,036,077

Note: All values in 1999 constant dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

FIGURE 30: U.S. LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION



Note: Fiscal Year 1992 to Fiscal Year 1996, aggregate data in constant 1996 dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

TABLE 63:
TOTAL U.S. STATE AND LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION

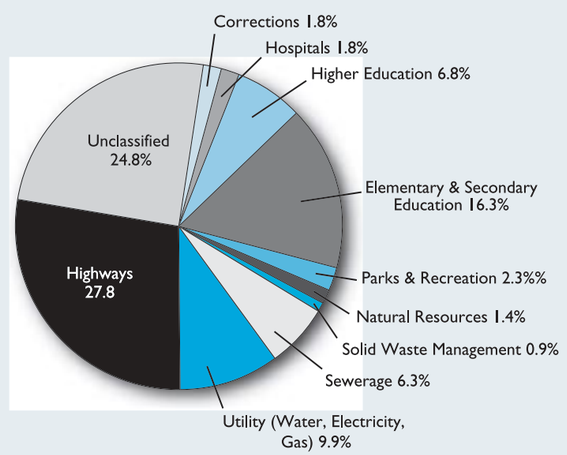
TOTAL U.S. STATE AND LOCAL CAPITAL OUTLAYS BY FUNCTION

	FY1992	FY1993	FY1994	FY1995	FY1996	5-Year Totals
Total Capital Outlays	$160,360,517,857	$157,197,760,694	$155,017,864,713	$165,871,226,725	$169,054,235,106	$807,501,605,095
Highways	$ 44,084,627,381	$ 42,716,991,908	$ 44,535,555,806	$ 46,616,853,231	$ 46,226,947,872	$224,180,976,198
Utility (Water, Electricity, Gas)	NA	$ 18,418,079,769	$ 20,496,142,052	$ 20,840,894,852	$ 19,952,548,936	$ 79,707,665,609
Sewerage	$ 10,626,267,857	$ 11,851,202,312	$ 9,006,995,490	$ 9,740,967,141	$ 9,920,900,000	$ 51,146,332,801
Solid Waste Management	NA	$ 1,685,642,775	$ 2,016,152,198	$ 2,162,328,587	$ 1,627,705,319	$ 7,491,828,879
Natural Resources	NA	$ 2,469,864,740	$ 2,648,257,046	$ 3,166,366,922	$ 3,236,345,745	$ 11,520,834,453
Parks and Recreation	NA	$ 4,428,665,896	$ 4,418,581,736	$ 4,474,791,895	$ 5,179,748,936	$ 18,511,788,463
Elementary & Secondary Education	$ 25,379,966,667	$ 25,766,921,387	$ 22,201,599,775	$ 27,171,825,849	$ 30,710,563,830	$131,230,877,507
Higher Education	$ 10,928,948,810	$ 10,352,309,827	$ 10,099,877,114	$ 11,458,135,816	$ 11,708,634,043	$ 54,547,905,609
Hospitals	NA	$ 4,588,589,595	$ 4,127,904,171	$ 1,734,860,663	$ 3,827,965,957	$ 14,279,320,387
Corrections	NA	$ 3,630,928,324	$ 3,713,750,846	$ 4,186,800,657	$ 3,290,310,638	$ 14,821,790,465
Unclassified	$ 69,340,707,143	$ 31,278,564,162	$ 31,753,048,478	$ 34,317,401,112	$ 33,372,563,830	$200,062,284,724

Note: All values in 1999 constant dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

FIGURE 31: TOTAL U.S. STATE AND LOCAL GOVERNMENT CAPITAL OUTLAYS BY FUNCTION



Note: Fiscal Year 1992 to Fiscal Year 1996, aggregate data in constant 1996 dollars.

Source: U.S. Department of Commerce, Bureau of the Census
N.J. Office of State Planning

Comparison of State and Local Government Total Capital Outlays

In New Jersey, local governments have provided a nearly equal percentage share of their budgets to capital outlays to state government over recent years (see Figure 24 and Figure 25). Both state and local capital outlays have been somewhat volatile since fiscal year 1992.

State and Local Government Capital Outlays by Function

Due to the volatility of capital outlays over time, it is useful to compare capital outlays for the five year period from fiscal year 1992 through fiscal year 1996 for which current data is available for both state and local governments.

Highways accounted for nearly 60 percent of capital outlays by New Jersey state government over this period, followed by utilities (15 percent) and higher education (10 percent) (see Table 58 and Figure 26). The largest portion of New Jersey local government capital outlays in this period was allocated to public education (35 percent for elementary, secondary, and higher education), followed by wastewater disposal and transportation, each representing approximately 11 percent of capital outlays (see Table 59 and Figure 27). Together, New Jersey state and local governments invested $21.4 billion in capital outlays over this period, with the greatest investments in highways (38 percent) and education (22 percent) (see Table 60 and Figure 28).

New Jersey state and local capital outlays are significantly higher than the $16.1 billion average among the 50 states, and comprise 2.8 percent of the national total for this period. The pattern of investment in New Jersey differs significantly from that of the United States as a whole over this same period. Although the relative priorities among functions remain the same, the magnitude of funding is reversed. Nationwide, local governments have invested a much higher amount of capital outlays than state governments, averaging over 62 percent of the total state and local capital outlays over this period. Similar to New Jersey, highways (55 percent) and higher education (16 percent) represented the highest shares of state government capital outlays nationwide over this period (see Table 61 and Figure 29). Like New Jersey, the largest portion of local government capital outlays was in public education (26 percent for elementary, secondary, and higher education), followed by utilities (14 percent), highways (11 percent) and wastewater disposal (9 percent) (see Table 62 and Figure 30). Overall, state and local governments nationwide invested $807 billion in capital outlays over this period, with the greatest investments in highways (28 percent) and education (23 percent) (see Table 63 and Figure 31).

State Agency Capital Programs and the State Plan

State agency capital funding plans define patterns of investment, and relationships among investments and other activities, that can be made consistent with the *State Development and Redevelopment Plan* Goals, policies and objectives pursuant to the State Planning Act. Where state agencies specifically identify relationships between their capital programs and the *State Development and Redevelopment Plan* in terms of policy implications and geographic locations, it is possible to:

- understand the array of capital funding sources available to advance State Plan Goals;
- improve coordination among capital programs; and
- more effectively leverage capital projects with other projects and initiatives.

By advancing the State Plan's Goals in practice, capital programs can provide a higher level of service at a lesser overall cost to the tax payers and rate payers of New Jersey.

Many state agencies have changed, modified or created means of implementing the State Development and Redevelopment Plan by granting priority in funding and programs for projects that are consistent with the State Plan or that are part of a municipal planning agenda adopted by the State Planning Commission in the Center designation and Plan Endorsement process. In the course of review, state agencies[69] are invited to comment on petitions from local jurisdictions for Center designation or Plan Endorsement, and to consider what state government actions are necessary to support the petitioner's planning agenda.

Pursuant to state law,[70] each state department, agency and commission is required to publish notice of all federal and state project grant funds available through the agency. These notices are to include:

- the names of the grant programs that have funds available;
- the purpose for which the grant program funds shall be used;
- the amount of money in the grant program;
- the groups or entities which may apply for funding under the grant program;
- the qualifications an applicant needs to be considered for the grant programs;
- the procedure for eligible entities to apply for grant funds;
- the address of the division, office or official receiving the application;
- the deadline by which applications must be submitted; and
- the date by which applicants shall be notified whether they will receive funds.

State agencies typically publish notices in the *New Jersey Register*, an official publication, for each individual grant program. The law permits agencies to assemble, publish and maintain a comprehensive catalog of grant and loan programs. Such catalogs can be of great benefit, not only to grant applicants but also to state government as a whole, by providing information that helps to coordinate funding sources and package grant and loans for specific types of projects. At present, these catalogs are rarely routinely compiled.[71]

As of December 1999, nearly 20 state and regional programs provide priority for projects consistent with the State Plan through their rules, regulations, policies or plans. Some of these programs include:

- Department of Transportation: Project Development;
- Department of Transportation: Transportation Enhancements;
- Department of Environmental Protection: Municipal Wastewater Assistance;

[69] Agencies currently involved in this review include the Departments of Community Affairs, Commerce and Economic Development, Environmental Protection, Transportation, Agriculture and Treasury as well as New Jersey Transit, the Council on Affordable Housing, Housing Mortgage Finance Agency, New Jersey Economic Development Authority, Delaware Valley Regional Planning Commission and the North Jersey Transportation Planning Authority.

[70] *N.J.S.A.* 52:14-34.4 (L. 1987, c. 7, eff. January 20, 1987)

[71] An example of a recent catalog is that published by the New Jersey Department of Environmental Protection in November 1994. The catalog is organized into sections reflecting the structure of the department. Within each section, the programs are presented in order by general subject, and include grants and loans available through the department from state appropriations, federal awards and other funding sources. Programs are listed even where all funding has been obligated or is not yet or no longer available to enable users to contact the program to discuss related issues, past projects and future opportunities for funding or technical assistance.

- Department of Environmental Protection: Green Trust Fund;
- Department of Environmental Protection: Historic Preservation Planning Grants;
- New Jersey Department of Community Affairs: Community Development Block Grants;
- New Jersey Department of Community Affairs: Neighborhood Preservation Program;
- New Jersey Transit Station Planning and Development.

These programs are described later in this analysis. In addition, DOT maintains Local Aid for Centers programs in which only designated Centers are eligible. In the past year, seven projects were funded for a total state investment of $1 million. Rules of the Council on Affordable Housing adopted in 1994 encourage private developers to construct inclusionary developments (projects which include housing affordable to low and moderate income households) in Planning Areas 1 and 2 and in designated Centers in Planning Areas 3, 4 and 5.[72] These and other state statutes and regulations related to the State Plan and the State Planning Act are discussed in detail in a separate report.[73]

State Capital Investment Funding Sources

This section identifies current major state capital investment funding sources and programs associated with infrastructure components in this Assessment. For each program, this report identifies the authorizing statutes for each funding source, the original amount of capital funding appropriated and amounts that remain. State agencies responsible for administering each program provided this information at the request of the Office of State Planning. With this information, plans and policies can be formulated to expend the remaining funding on capital projects and programs that are consistent with the Goals and policies of the *State Development and Redevelopment Plan*.

State capital funding represents only one segment of all sources for capital funding. Federal and local funds are often used in conjunction with state resources to finance capital projects. Capital program information for "off budget" state and regional commissions, agencies and authorities[74] was not included in this analysis, but will be collected for a subsequent analysis.

Capital needs of the state are primarily funded through three methods, which may be used singularly or in combination. The three methods are pay-as-you-go capital appropriations, general obligation bond funds, and lease or lease-purchase of facilities for state operations.

- Pay-as-you-go capital outlays are used primarily for renovations and preservation of state properties, highway and mass transit improvements and environmental projects associated with agency program objectives. Pay-as-you-go capital projects are often relatively small and are usually funded through annual appropriations from the General Fund (see Table 64).
- General obligation bond funds, authorized by the state's voters, are used to finance more expensive capital construction projects such as new facilities. The projects are expected to have a useful life equal to the time required to retire the bonds and must yield substantial benefits, not only for the present, but for future generations. The state Constitution limits the amount of debt that can be created to one percent of the total fiscal year

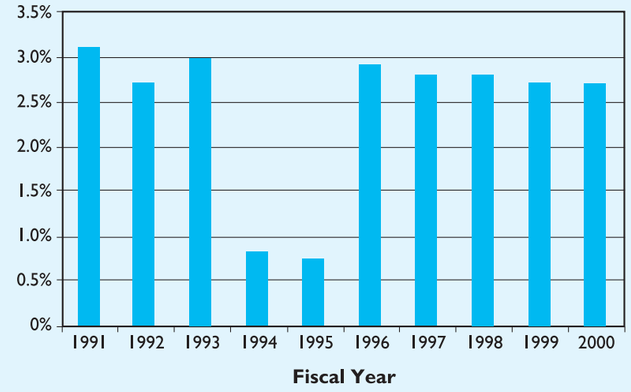
[72] *N.J.A.C.* 5:93-5.4, 5.6, and 13. A center designation does not add to or subtract from a municipality's affordable housing obligation assigned by COAH.
[73] *New Jersey Statutes and Regulations Linked to the State Planning Act*, October 1995. OSP Document #112.
[74] For example, toll road and bridge authorities, the Economic Development Authority, Urban Development Corporation, and Health Care Financing Agency.

TABLE 64: N.J. CAPITAL APPROPRIATIONS BY DEPARTMENT

Year Ending June 30, 1999						Year Ending June 30, 2001	
Orig. & (S)Supplemental	Reapp. & (R)Recpts.	Transfers & (E)Emergencies	Total Available	Expended		2000 Adjusted Approp.	Requested	Recommended
***	990	925	1,915	1,616	Legislature	***	***	***
156	41	***	197	17	Dept. of Agriculture	1,153	600	600
11,824	20,447	1	32,272	9,283	Dept. of Corrections	24,557	85,493	33,198
1,810	526	–1	2,335	800	Dept. of Education	1,850	3,899	3,336
66,544	36,886	–1,609	101,821	76,830	Dept. of Environmental Protection	105,944	129,213	96,721
1,269	633	***	1,902	1,383	Dept. of Health and Senior Services	1,508	6,223	4,625
11,399	3,766	–27	20,138	4,564	Dept. of Human Services	23,800	42,325	25,255
19,884	10,504	***	30,388	11,496	Dept. of Law and Public Safety	24,275	45,863	42,224
2,450	1,539	***	3,989	1,651	Dept. of Military and Veterans' Affairs	10,091	15,280	14,370
12,646	5,320	1	17,967	9,595	Dept. of State	6,628	3,287	2,887
465,231	594	***	465,825	465,231	Dept. of Transportation	477,801	698,600	698,600
7,521	8,781	6,445	22,747	10,319	Dept. of the Treasury	15,396	20,885	11,015
2	***	***	2	***	Miscellaneous Commissions	***	***	***
142,850	16,623	–7,195	152,278	86,862	Interdepartmental Accounts	196,578	243,339	231,689
743,586	**111,650**	**–1,460**	**853,776**	**679,647**	**Total Appropriation**	**889,581**	**1,295,007**	**1,164,520**

Source: New Jersey Department of the Treasury, Office of Management and Budget

FIGURE 32: GENERAL OBLIGATION DEBT AS A PERCENT OF STATE APPROPRIATIONS



Source: New Jersey Department of the Treasury, Office of Management and Budget

appropriation, unless authorized by law and submitted to the voters for approval (see Figure 32). Voter authorization, however, is not required for the creation of a debt to refinance the general obligation debt if refinancing produces savings. Some bond funds are revolving funds in which funds for capital projects are made available to state and local entities through loans at below market rates. As loans are repaid, the funds become a renewable capital resource. In many programs, the process is not automatic and requires

action by the Legislature to reallocate these funds from the state General Fund to the originating capital loan program.

- Lease or lease-purchase of facilities postpones or eliminates the cost associated with state ownership and is normally structured to coincide with the useful life expectancy of a facility. Lease-purchase agreements have been an important and positive means for obtaining office space. Under such agreements, independent authorities, such as the New Jersey Building Authority, the Economic Development Authority, and the Sports and Exposition Authority issue bonds and construct facilities. The state occupies such facilities, funds the debt service and, over a defined period of time, secures ownership. This is an accepted alternate method of financing capital construction because it provides considerable budget flexibility.

Transportation and Commerce

- The Transportation Trust Fund is expected to contribute $900 million in highway and transit projects in fiscal year 2000. However, future Transportation Trust Fund funding for projects will be limited due to debt payments until additional revenues are made available to the fund. The $500 million Statewide Transportation and Local Bridge Bond Act of 1999 will provide funds for transportation projects in the short term. The $205 million Dredging and Containment Facility Fund provides revenues for projects to improve the capacities of New Jersey's ports and navigation channels. The Transportation Trust Fund was renewed in July 2000, providing a total of $3.75 billion in road and transit projects through 2004.
- The State Agricultural Development Committee administers three capital-intensive programs that are the major tools for farmland preservation in the state of New Jersey—Fee Simple, Easement Purchase, and the Eight-Year Program. $600 million in Garden State Preservation Trust funds will be made available to match federal and local funds and private donations through 2009.

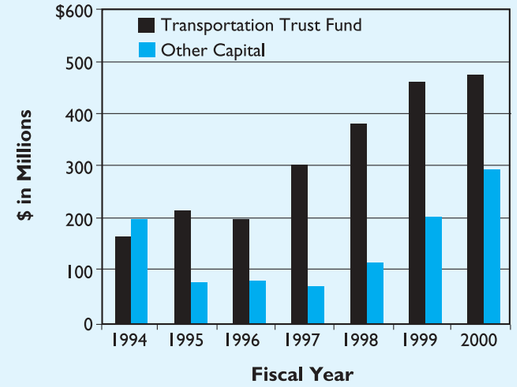
Transportation

PROGRAMS

Capital funds are critical for the upkeep and maintenance of the state's highways, tunnels, bridges, transit and goods movement systems. Over recent years, approximately $2 billion per year are spent on transportation projects. Along with state investments, transportation programs rely substantially on capital financing provided by the federal government. The state's Transportation Trust Fund (TTF) and the federal Intermodal Surface Transportation Act (ISTEA) primarily provided funding for transportation projects. The Congressional reauthorization of the 1991 ISTEA law become the federal Transportation Equity Act for the 21st Century (TEA-21) in 1998 which increased funding for public transit, bicycle and pedestrian transportation facilities and services. TEA-21 also established a nationwide pilot program to help communities reconcile land use and transportation decision-making.

Also in 1998, Governor Whitman announced a 12-year, $30 billion program to improve and expand all facets of New Jersey's transportation network (*New Jersey FIRST*), and a $500 million Transportation Bond Fund supplanted the state's Transportation Trust Fund in 1999. While the Transportation Trust Fund continues to draw approximately $405 million per year from nine cents of the 10.5 cent per gallon state tax on gasoline, at current funding levels, the entire revenue will be required to pay back debt under the Trust Fund's $900 million borrowing capacity and no new projects will be able to be paid for by the fund. The 1999 Statewide Transportation and Local Bridge

FIGURE 33: TRANSPORTATION TRUST FUND EXPENDITURES



Source: New Jersey Department of the Treasury, Office of Management and Budget

Bond Act established a $500 million bond fund intended to primarily address the current backlog of local bridge repairs. In July 2000, Governor Whitman signed legislation renewing the Transportation Trust Fund, creating a four-year program with annual spending authorizations of $900 million for state fiscal year 2001 and $950 million for state fiscal years 2002 through 2004, providing a total of $3.75 billion in road and transit projects. However, the availability of these funds is contingent on passage of an amendment to the New Jersey Constitution in November 2000 that would dedicate a portion of funds from existing taxes, the petroleum products receipts tax and sales tax revenue on new motor vehicles, to support the Trust Fund.

The New Jersey Department of Transportation (DOT) and the New Jersey Transit Corporation consider the *State Development and Redevelopment Plan* in a number of programs and planning strategies. The department maintained the Local Aid for Centers program since 1995 as a discretionary program fund for municipalities that have designated Centers. This program has grown from funding $1 million in projects in seven designated Centers in 1995 to $1.25 million for projects in nine Centers in 1999.

Designated Centers are considered in assessing priorities for highway systems management and new capacity projects. The State Plan Policy Map's structure of Planning Areas, Centers and Environs has been incorporated into the transportation department's highway access management regulations.[75]

The department's Transportation Enhancement Program, which provided $12 million in federal TEA-21 funds for local projects in FY2000, requests that applicants provide information on a municipality's participation in the State Planning Commission's planning process.

The department has also initiated efforts with the Office of State Planning to develop unified municipal level economic and demographic projections to guide project design. New Jersey Transit's new *Handbook on Planning Transit-Friendly Communities* complements the Center-based strategies of

[75] *N.J.A.C.* 16-47-1.1 et seq.

the *State Development and Redevelopment Plan*. The Office of State Planning participates in all New Jersey Transit rail service corridor studies.

User fees such as gasoline taxes are an important source of revenue for transportation projects. New Jersey Transit's operating ratio (the proportion of operating costs recovered from users through fees for services rendered) is in the range of 50 percent, among the highest operating ratios among transit agencies in the United States.[76] However, the extent to which user fees for transit services should be relied upon relative to general transportation related sources, such as the gasoline tax, and state general fund sources is continually debated.

TRANSPORTATION TRUST FUND

The Transportation Trust Fund has been the largest source of the state's general fund capital construction revenues since 1995. The Special Transportation Fund is an account within the state general fund that authorizes capital projects for transportation. This fund contains both the state appropriations and federal funds. The Transportation Trust Fund Authority reimburses this fund for the state component of transportation project expenses.

Transportation capital projects are funded at the discretion of the Transportation Trust Fund Authority.[77] The Transportation Trust Fund was created in 1984 as the first stable funding source for capital improvement programs of the New Jersey Department of Transportation and New Jersey Transit. The Transportation Trust Fund is funded through the state general fund, dedicated motor fuel taxes, toll authority contributions, heavy truck/diesel fees, and bonding. The Transportation Trust Fund Authority is permitted to issue its own bonds and to handle bonding and investment responsibilities associated with the Transportation Trust Fund. Therefore, the authority is able to use a combination of debt and pay-as-you-go funding. The sum of investments and appropriations are used to cover both the existing debt service on bonds and the expenses of operation and maintenance. Funds that are left over may be applied to capital programs.

Until 1991–1992, annual state general fund appropriations constituted the majority of the New Jersey Department of Transportation capital program. Historically, the fund received $331 million per year in revenue while appropriating $565 million per year for capital projects. Revenues to the TTF from the state were cut to $155 million in FY 1993 and $183 million in FY 1994 while the same level of appropriations were continued, however. The new Transportation Trust Fund approved by the Legislature and voters in 1995 represents a reversal of the historic declines. In FY 1997 the amount of motor fuels tax constitutionally dedicated to the Transportation Trust Fund increased by 4.5 cents to a total of seven cents per gallon, increasing the amount of revenues constitutionally dedicated to the TTF from $100 million to $280 million. This and other funding leveraged a state funded share of the program that appropriated amounts up to $700 million per year. The majority of these funds were from "pay as you go" financing. In addition, the existing debt was to be refinanced over twenty years, through bonding against a revenue stream. In 1999, the debt ceiling was increased to allow up to $900 million in borrowing beginning in Fiscal Year 2000 due to lower than anticipated financing costs for the Transportation Trust Fund.

[76] *Transportation Choices 2020: Statewide Long-Range Transportation Plan*. New Jersey Department of Transportation. July 1995.
[77] *Transportation Choices 2020, Statewide Long Range Transportation Plan*, Final Draft, New Jersey Department of Transportation, pages 88–92, March 1995

The Trust Fund projects listed in the New Jersey Department of Transportation's FY2000 capital program plan total $950 million, which includes, consistent with past practice, $50 million in "overprogramming" in New Jersey Transit projects to increase flexibility. There is no overprogramming in the Department of Transportation project list. Federal funds for these projects are assumed at a total level of $1.047 billion, including $708 million from the Federal Highway Administration, $339 million from the Federal Transit Administration, and $8 million from the Federal Aviation Administration.

Trust Fund state aid funds are allocated on a county-by-county basis under a statutory and regulatory formula. Implementing a memorandum of understanding signed in June 1993 between the State Planning Commission, the New Jersey Department of Transportation and New Jersey Transit, designated Centers are considered in the Department's priority evaluation for assessing highway systems management and new capacity projects. Transportation Trust Funds support the Local Aid for Centers program of the New Jersey Department of Transportation.

TEA-21 / TRANSPORTATION IMPROVEMENT PROGRAMS

The federal Transportation Equity Act for the 21st Century (TEA-21) requires that each state develop an annual single, statewide multimodal Statewide Transportation Improvement Program (STIP). In New Jersey, the STIP consists of a listing of statewide line items, programs, and the regional Transportation Improvement Program (TIP) projects, all of which were developed by Metropolitan Planning Organizations (MPOs). These improvement programs contain local and state highway projects, statewide line items and programs, as well as proposed public transit projects.

New Jersey has three Metropolitan Planning Organizations (MPOs) whose primary responsibility is to plan for transportation improvements. These organizations are the Delaware Valley Regional Planning Commission, the North Jersey Transportation Planning Authority, and the South Jersey Transportation Coordinating Commission. In order to receive federal capital funding, each MPO is required by federal legislation to develop a Transportation Improvement Plan (TIP). The Transportation Improvement Program is a list of proposed improvements and is formed as the result of a consensus building process. Through these programs, projects become eligible for federal aid, which is distributed by the New Jersey Department of Transportation.

The Department of Transportation estimates that $6.7 billion in state and federal revenues will be available to support the state's transportation improvement programs during the three fiscal years from FY2000 through FY2002. The actual budgeting of federal and state funds for projects within the MPO areas is a product of the development of the three regional transportation improvement programs, the Statewide Transportation Improvement Program, and the annual capital program. From year to year there may be significant variations in the amount of funds actually programmed within an MPO area, as needs and specific project implementation schedules dictate.

The Transportation Enhancements Program created under ISTEA, maintained under TEA-21 and administered in New Jersey by the Department of Transportation since fiscal year 1994 provides federal funds to local governments for projects that provide:

- facilities for bicycles or pedestrians;
- scenic beautification or streetscape improvements;
- historic preservation and rehabilitation; or
- mitigation of water pollution due to highway runoff.

STATUTES

- The Transportation Trust Fund Authority Act of 1984[78] was most recently amended in 1999.
- In preparing its urban supplement to the State Transportation Plan, the New Jersey Department of Transportation must consult with the Office of State Planning for recommendations for meeting the transportation needs of urban areas pursuant to *N.J.S.A.* 27:1A-5.10.
- Applications to create a Transportation Development District, and the subsequent district transportation improvement plans, must certify that the creation of such a district would be in conformity with both the county master plan and the adopted State Development and Redevelopment Plan pursuant to *N.J.S.A.* 27:1C-4 and 5.

BOND ACTS

As a result of the 1999 amendments, the Transportation Trust Fund has a statutory annual limit on bond issuance of $900 million per fiscal year. If the limit is not reached in a given fiscal year, the remaining balance may be issued in a subsequent fiscal year resulting in more than $900 million in bonds being issued in a given fiscal year.

A 1996 state bond act[79] authorized $205 million Dredging and Containment Facility Fund for dredging projects for New Jersey's ports and waterways, including funds to develop environmentally safe methods for managing dredged material as follows:

- $185 million for dredging and deepening navigation channels from the New Jersey/New York port region and the decontamination and disposal of dredged material from the New Jersey/New York Port,
- $20 million for dredging navigation channels not in the Port of New York/New Jersey region.

These bond funds were expected to leverage as much as $1 billion in federal HR-6 Harbor Dredging and Cleanup funds as well as from the Port Authority of New York and New Jersey.

In 1989, the Railroad Right of Way Preservation Fund was established as part of the $155 million New Jersey Bridge Rehabilitation and Improvement and Railroad Right of Way Preservation Bond Act, creating a $25 million fund for acquiring or preserving rail corridors for future use.

The Statewide Transportation and Local Bridge Bond Act of 1999 provided for $500 million in funds for transportation projects. Of this amount, $250 million is set aside for grants to county and municipal governments for the costs of the rehabilitation and improvement of structurally deficient bridges carrying county or municipal roads, including railroad overhead bridges. The remaining $250 million is available for other transportation projects, including transit, statewide bridge repair, rail freight, airports, bikeways, and interchange improvement projects.

[78] *N.J.S.A.* 27-1B-1 et seq.

[79] Port of New Jersey Revitalization, Dredging, Environmental Cleanup, Lake Restoration and Delaware Bay Area Economic Development Bond Act.

TABLE 65:
TRANSPORTATION CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Transportation Trust Fund Authority of 1984	$900 million per year	N/A	$209,159,422
Dredging and Containment Facility Fund of 1996	$205,000,000	N/A	$19,989,887
Railroad Right of Way Preservation Fund of 1989	$25,000,000	N/A	$0
Statewide Transportation and Local Bridge Bond Act of 1999	$250,000,000	N/A	N/A
TOTAL	**$1,380,000,000**	**N/A**	**$229,149,309**

Note: Remaining funds include committed and uncommitted fund balances as of June 30, 1999.
N/A = Data not available.
Source: New Jersey Department of the Treasury, Office of Management and Budget

Farmland Retention

PROGRAMS

Agriculture plays an integral role in the prosperity and well-being of the state as well as providing a fresh and abundant supply of food and fiber for its citizens...; agricultural land resources face an imminent threat of permanent conversion to non-farm uses…; the retention and development of an economically viable agricultural industry is of high public priority for New Jersey…[80]

The State Agriculture Development Committee (SADC) administers capital programs for farmland preservation in association with County Agricultural Development Boards. The SADC is an agency of the New Jersey Department of Agriculture that was formed in 1983 as part of the Right to Farm Act. The SADC administers three capital-intensive programs that are the major tools for farmland preservation in New Jersey. These programs are Fee Simple, Easement Purchase, and the Eight-Year Program. These programs provide compensation to land owners who deed restrict their property as farmland and soil and water conservation funds for land owners who participate in the Eight-Year Program.

- Under the Fee Simple program, the state purchases farmland in fee, then deed restricts it as farmland and sells it. This option is advantageous to the land owner who does not want to farm any longer, but would like the land to remain agricultural.
- Easement Purchase represents a permanent deed restriction of property as farmland and compensates the owner for development rights. With this program the farm owner retains

[80] [Second Reprint] Assembly, No. 70 State of New Jersey Introduced October 6, 1994, Green Acres, Farmland and Historic Preservation and Blue Acres Bond Act of 1995

the land, but deed restricts it as agricultural use in exchange for payment. This program provides a cost share arrangement with the counties. The state may provide up to 80 percent of the purchase, and 100 percent in emergency situations.

- Under the Eight-Year Program, land owners that formally agree to keep their land in agriculture for eight years become eligible for state cost sharing for soil and water conservation projects approved by the State Soil Conservation Committee.

The State Agriculture Development Committee may base its priority rating for farmland preservation projects in part on the Planning Area in which the project is located as identified in the State Development and Redevelopment Plan.

The Garden State Farmland Preservation Trust program will provide the dominant share of funds for the farmland preservation program over the next 10 years.

STATUTES

The State Agricultural Development Committee was created in 1983 with the Right to Farm Act.[81] The Agriculture Retention and Development Act[82] created County Agricultural Development Boards and the process for receiving funds for farmland preservation.

BOND ACTS

The Farmland Preservation Bond Act of 1981[83] was a $50 million fund that has now been completely expended. This fund permanently protected 11,500 acres of farmland. $3 million of this fund was dedicated to soil and water programs.

The Open Space Preservation Bond Act of 1989[84] contained a $50 million fund, also fully expended.

Some capital funding from the Green Acres, Clean Water, Farmland and Historic Preservation Bond Act of 1992[85] was dedicated to farmland preservation. This Bond Act created a $50 million fund that provided up to $8 million for easement purchase and $5 million for the fee simple program.

The Green Acres, Farmland and Historic Preservation and Blue Acres Bond Act of 1995 included $50 million for preserving farmland for agricultural use production.

On November 3, 1998, New Jersey voters approved a constitutional amendment that dedicated $98 million annually in state sales and use tax revenue for the years 1999 to 2009 to finance open space, farmland, and historic preservation. From 2009 to 2029, this measure will provide for the payment of debt on up to $1 billion in revenue bonds issued by the Garden State Preservation Trust authority by dedicating an amount sufficient to pay the debt, up to $98 million annually. Of this amount, approximately $60 million per year in state funds totaling $600 million over 10 years will be dedicated to leveraging local and private funds to reaching an established goal of 500,000 total acres of permanently preserved farmland by 2009. Any Garden State Preservation Trust bonds relying on the state sales and use tax revenue provided in this dedication must be issued by 2009. This constitutional amendment did not raise any existing tax or authorize a new tax but dedicated annually a portion of future revenues from an existing tax.

[81] *N.J.S.A.* 4:1c-1 et seq. (P.L. 1983 c. 31)
[82] *N.J.S.A.* 4:1c - 11 et seq. (P.L. 1983 c. 32)
[83] P.L. 1981 c. 276, amended in 87 P.L. 1987 c. 240
[84] P.L. 1989 c. 183
[85] P.L. 1992 c. 88

TABLE 66:
FARMLAND RETENTION CAPITAL FUNDING SUMMARY

BOND ACT	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Farmland Preservation Bond Act of 1981	$50,000,000	$0	$163,435
Open Space Preservation Bond Act of 1989– Farmland Preservation Portion	$50,000,000	N/A	$1,675,322
Green Acres, Clean Water, Farmland and Historic Preservation Bond Act of 1992– Farmland Preservation Portion	$13,000,000	N/A	$4,324,210
Green Acres, Farmland and Historic Preservation and Blue Acres Bond Act of 1995– Farmland Preservation Portion	$50,000,000	N/A	$25,174,389
Garden State Preservation Trust Fund of 1999	$600,000,000	N/A	N/A
TOTAL	**$763,000,000**	**N/A**	**$31,337,356**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available or not applicable.
Source: New Jersey Department of the Treasury, Office of Management and Budget

Health and Environment

- The Environmental Infrastructure Financing Program of the New Jersey Environmental Infrastructure Trust and the New Jersey Department of Environmental Protection provides priority to projects serving Centers designated in the *State Development and Redevelopment Plan*. Over the longer term, the water quality planning process is expected to emphasize watershed-based planning in a manner consistent with that advanced by the *State Development and Redevelopment Plan*. Watershed plans would define the scope of magnitude of wastewater treatment projects that could be permitted within a defined watershed.
- The Water Supply Plan Action Program and the federal/state Drinking Water State Revolving Loan Program provide revenues for improving water supply facilities to meet current and anticipated standards.
- Watershed management planning will provide the main context for stormwater management through the implementation of nonpoint source controls. Separate state programs provide resources for flood control (both structural and non-structural measures) and dam restoration efforts. Federal funds provide revenues for mitigating stormwater runoff impacts of highways and other transportation projects.

- The Realty Transfer tax provides $45 million per year for shore protection projects. In 1995, a $15 million Coastal Blue Acres Fund was established to acquire lands in the coastal area that have or are prone to damage by storms or storm related flooding for permanent open space
- The Green Acres Program has historically received large amounts of capital funding through bond acts. Public support for investment in open space and recreation led to nine Green Acres Bond issues totaling over $1.16 billion to acquire public open space lands from 1961 through 1995. In 1999, a stable source of funding was created to set aside $98 million of state sales tax revenues per year for 10 years and to allocate up to $1.0 billion in revenue bond proceeds (paid for by up to $98 million a year of sales tax revenues beginning 2010 for up to 20 years) to preserve open space and historic resources through the Garden State Preservation Trust.
- The Garden State Preservation Trust is also expected to increase available funding for maintaining state and urban public recreation facilities.
- Most solid waste management funding resources remain targeted toward resource recovery and recycling, despite the invalidation of flow control requirements. Capital funding does not appear to be available for waste reduction efforts.

Wastewater Disposal

PROGRAMS

At the statewide level, the New Jersey Department of Environmental Protection, with the New Jersey Environmental Infrastructure Trust, is responsible for three major capital programs affecting wastewater: the Environmental Infrastructure Financing Program, the Pinelands Infrastructure Trust Fund and the Sewage Infrastructure Improvement Act.

The Environmental Infrastructure Financing Program of the New Jersey Environmental Infrastructure Trust and the New Jersey Department of Environmental Protection provides priority to clean water projects serving Centers designated in the *State Development and Redevelopment Plan*. Over the longer term, the Department has been conducting a pilot project and has recently proposed revisions to its water quality planning process that emphasize watershed-based planning in a manner consistent with that advanced by the *State Development and Redevelopment Plan*. Watershed plans would define the scope of magnitude of wastewater treatment projects that could be permitted within a defined watershed. Significantly, the proposed rules require that watershed management plans consider their relationship to the *State Development and Redevelopment Plan*.

THE CLEAN WATER ENVIRONMENTAL INFRASTRUCTURE FINANCING PROGRAM

The Environmental Infrastructure Financing Program is administered jointly by the New Jersey Department of Environmental Protection (DEP) and the Environmental Infrastructure Trust. The department provides interest free loans for half the allowable project cost to municipalities and regional sewerage authorities; the remainder of the project costs is funded through loans from the Environmental Infrastructure Trust. The trust loans are market-based loans. Thus, a municipality or regional sewerage authority receives a half market rate loan by funding with a department loan and a trust loan. The funding source for the trust is revenue bonds. Each year, revenue bonds are sold for specific projects.

The sources of funding for the DEP portion of the clean water Environmental Infrastructure Financing Program are the 1985 Wastewater Treatment Fund Bond Act, which authorized $190 million, and federal Clean Water State Revolving Fund (CWSRF) capitalization grant money. Of the $190 million authorized, $150 million went to the Department of Environmental Protection to be issued as loans and $40 million went to the trust as security for revenue bonds. About $13 million per year in loan repayments are received.

The Clean Water portion of the 1992 Green Acres fund provided $50 million for wastewater projects. $45 million of these funds went to the department and $5 million went to the trust.

PINELANDS INFRASTRUCTURE FUND

The Pinelands Infrastructure Trust Fund Bond Act of 1985[86] was originally a $30 million fund for wastewater treatment facilities needed to accommodate existing and future needs in the 23 designated Pinelands Regional Growth Areas. Funding is available for the construction of new collection systems, interceptors and the expansion and/or upgrading of wastewater treatment facilities. Eligibility to receive funding is determined according to the ranking criteria presented in the Pinelands Infrastructure Master Plan. Municipalities and regional sewerage authorities located in the New Jersey Pinelands are eligible for zero- to low-interest loans and grants from this fund. The original fund was fully appropriated and loan repayments may be reappropriated.

Projects certified generally receive a grant for 40 percent of the allowable project cost and a loan of 20 percent of the allowable project cost in accordance with project cost estimates contained in the Pinelands Infrastructure Master Plan. Planning and design costs are also eligible for funding under this program. For the local share portion of the project cost (typically 40 percent of the allowable cost), the sponsor could raise funds on its own or borrow from the DEP or the trust at half market rate.

SEWAGE INFRASTRUCTURE IMPROVEMENT ACT

The Sewage Infrastructure Improvement Act addresses point and nonpoint sources of pollution discharged from stormwater sewer systems and combined stormwater and sanitary sewer overflows.[87]

Combined Sewer Overflow Planning and Design Grants. Planning and design grants are available to eliminate dry weather overflows and to reduce solids and floatables at combined sewer overflow (CSO) points. Grants are funded through the Stormwater Management and Combined Sewer Overflow Abatement Bond Act of 1989. Low-interest loans for construction activities are available through the Clean Water Environmental Infrastructure Financing Program. Any local government unit that operates or controls a combined sewer may submit an application to the DEP for up to 90 percent of the allowable planning or design costs to be incurred.

These funds are especially useful to New Jersey's cities and other older communities which have a combined sanitary and stormwater sewer system. This fund was initially given a state appropriation of $33.5 million, of which $19 million was later repealed. The 1989 Stormwater Management and Combined Sewer Overflow Abatement Bond Act was used to finance these activities.

[86] P.L. 1985, c. 302.

[87] Further information on these programs is available on the World Wide Web at http://www.state.nj.us/dep/dwq/mface.htm

Interconnection/Cross-Connection (I/C) Abatement Planning & Design Grants. I/C planning and design grants assist municipalities with addressing improper connections of sanitary and stormwater systems. Eligibility for this program, funded by the Stormwater Management and Combined Sewer Overflow Abatement Bond Act of 1989, is limited to municipalities in Atlantic, Cape May, Monmouth and Ocean counties that discharge to salt waters. Initial planning grants are limited to $15,000, $30,000 or $50,000, based on the number of stormwater outfalls. Second round awards for up to 90 percent of eligible costs are based on the project's priority ranking based on its impact on beach and shellfishing areas. Highest priority is given to ocean, then back bay, stormwater discharges in municipalities where beach closures have occurred.

STATUTES

The statutes that relate to the New Jersey Municipal Finance and Construction Element include *N.J.S.A.* 58:25-23 et seq., 40:55D-93 et seq., 58:10A-1 et seq., 58:11A-1 et seq., 13:1D et seq., P.L. 1989, c.181 and P.L. 1990, c.28.

BOND ACTS

Bond Acts relating to wastewater treatment include:

- Wastewater Treatment Bond Act of 1985 (P.L. 1985, c. 329);
- The Stormwater Management and Combined Sewer Overflow Abatement Bond Act of 1989, (P.L. 1989, c. 181);
- Pinelands Infrastructure Trust Bond Act of 1985 (P.L. 1985, c. 302);
- The Green Acres, Clean Water, Farmland, and Historic Preservation Bond Act of 1992 (P.L. 1992, c. 88);
- The Sewage Infrastructure Improvement Act established a $33.5 million fund, *N.J.S.A.* 58:25-23 et seq. (After some appropriations, these funds were taken back to balance the state budget).

Water Supply

PROGRAMS

Water Supply Plan. The Water Supply Management Act and the Water Supply Bond Act require that any appropriations of bond funds must be for purposes listed in the Action Program that is adopted as part of the Statewide Water Supply Plan of the New Jersey Department of Environmental Protection. Originally, the 1992 Water Supply Plan included major recommendations to improve surface water supply capacity, ensure proper maintenance of aging water supply infrastructure, investigate the status of major aquifers and plan for future water supply needs. Over time, issues regarding the allocation and protection of water supplies to protect other uses and user of water resources, including aquatic and water related ecosystems, have been added to the 1996 Water Supply Plan (see Table 68).

The Drinking Water Environmental Infrastructure Financing Program. Drinking Water State Revolving Loan Funds (SRF) capitalization grants are awarded to DEP from the federal government. These funds enable DEP to provide zero or low interest 20-year loans for up to 50 percent of allowable costs to assist publicly or privately owned community water systems and nonprofit noncommunity water systems in complying with provisions of the Safe Drinking Water Act. In addition to allowances for planning and design, eligible construction projects may include

TABLE 67:
WASTEWATER TREATMENT CAPITAL FUNDS SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Wastewater Treatment Fund Bond Act of 1985	$190,000,000	$0	$640,946,457
The Stormwater Management and Combined Sewer Overflow Abatement Bond Act of 1989	$50,000,000	$27,000,000	$15,099,760
Pinelands Infrastructure Trust Fund Bond Act of 1985	$30,000,000	$8,000,000	$9,344,280
The Green Acres, Clean Water, Farmland, and Historic Preservation Bond Act of 1992–1992 Wastewater Treatment Fund	$50,000,000	N/A	$8,719,244
The Sewage Infrastructure Improvement Act	$33,500,000	N/A	$0
TOTAL	**$6,964,000,000**	**$35,000,000**	**$70,000,000**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

water treatment facilities, to address the correction of a system's non-compliance with surface water treatment requirements; to address acute violations, maximum contaminant levels, lead and copper rule exceedances or secondary drinking water regulation exceedances; for consolidation of water systems to comply with the Safe Drinking Water Act; for rehabilitation of existing water treatment facilities, water mains, pump stations or water storage facilities, or for new water storage facilities to maintain compliance with the SDWA. This financing source is used in combination with the New Jersey Environmental Infrastructure Trust, which offers loans at about market rate for the remaining allowable project costs, also for a 20-year term.

Water Supply Replacement Trust Fund. The Water Supply Replacement Trust Fund was established as a non-lapsing, revolving fund (capitalized by transfers from other bond funds) to provide low interest loans (2 percent for up to 20 years) to municipalities or municipally owned public water systems for the purpose of providing a permanent alternate water supply to persons whose principal source of potable water is contaminated or is threatened with contamination by hazardous substances.

STATUTES

- The Water Supply Management Act of 1981 (*N.J.S.A.* 58:1A-1 et seq.) defined the planning framework that established the State Water Supply Plan as a policy and strategy document for water supply investments.
- Water Supply Replacement Trust Fund, *N.J.S.A.* 58:12A-22 et seq. (P.L. 1988, c. 106)

TABLE 68:
N.J. WATER SUPPLY PLAN ACTION PROGRAM, 1995

PROGRAMS	1982–1993 WATER SUPPLY BOND ALLOCATIONS	NEW WATER SUPPLY BOND ALLOCATIONS	TOTAL WATER SUPPLY BOND ALLOCATIONS	APPRO-PRIATED WATER SUPPLY BOND FUNDS	UNAPPRO-PRIATED WATER SUPPLY BOND FUND ALLOCATIONS	PREVIOUS COMMIT-MENTS FROM OTHER FUNDING SOURCES	ANTICIPATED COMMIT-MENTS FROM OTHER FUNDING SOURCES
Major Capital Construction Projects	145,050	0	145,050	134,550	10,500	642,000	0
Water Resources Evaluations	48,650	2,760	51,410	37,181	14,229	4,320	2,360
Watershed and Aquifer Protection	16,950	23,585	40,535	8,425	32,110	0	1,150
Purveyor Infrastructure Loan Programs	160,000	40,300	200,300	141,759	58,541	0	0
Totals	**370,650**	**66,745**	**437,395**	**321,915**	**115,480**	**646,320**	**3,610**

Note: All values in thousands of 1995 dollars.
Source: New Jersey Department of Environmental Protection, September 1995

TABLE 69:
WATER SUPPLY CAPITAL FUNDS SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Water Supply Fund (Water Supply Bond Act of 1981)	$350,000,000	$93,400,000	$202,177,951
Water Supply Replacement Trust Fund of 1988	N/A	N/A	$5,279,835
Drinking Water State Revolving Fund	N/A	N/A	$1,630,923
TOTAL	**$350,000,000**	**$93,400,000**	**$209,088,709**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available or not applicable.
Source: New Jersey Department of the Treasury, Office of Management and Budget

BOND ACTS

The Water Supply Bond Act of 1981 established a $350 million Water Supply Bond Fund to provide grants and loans for projects identified in the Action Program that is made part of the Statewide Water Supply Plan. The most current Action Program was adopted in 1995.

Stormwater Management

PROGRAMS

Watershed Management. The New Jersey Department of Environmental Protection has been receiving $5 million each fiscal year from state Corporate Business Tax receipts to implement watershed management. In FY99, almost $2.5 million was allocated to contracts for grants to organizations to conduct watershed planning, monitoring and implementation (nonpoint source controls) activities. In FY00 this allocation will be reduced to $1.2 million due to expansion to the Department's watershed program and an accounting change that will free up almost $400,000 for nonpoint source projects.

Environmental Infrastructure Financing Program. Since 1997, the Clean Water Environmental Infrastructure Financing Program (EIFP) has provided zero interest loans to communities for stormwater management and nonpoint source pollution management. Funds are obtained from federal capitalization grants, state bonds and bonds sold by the Environmental Infrastructure Trust. The Financing Program allocates a minimum of $10 million dollars annually to finance stormwater and nonpoint source projects sponsored by local government units.

Because of its financing structure, the Trust has commanded better rates than are available to individual project sponsors, and using the EIFP has provided cost savings of approximately 25 percent to 30 percent compared to independent financing. The EIFP can also structure loans to allow two or more local government units to share the cost of a stormwater/nonpoint source management project. The loans are for the total eligible project costs and can extend for the useful life of the project, not to exceed 20 years. To be eligible for financing, projects must appear on the program's Project Priority List, which is updated each year.[88]

Eligible projects might include installation of new or retrofit water quality control measures for stormwater management, implementation of other structural best management practices, riparian restoration, and others that would have a water quality benefit. Examples of projects already funded include:

- Separation of combined sewers in New Brunswick,
- A new stormwater retention basin in Pine Hill,
- Rehabilitation of existing storm sewers in Kearny,
- Restoration of Colonial Lake in Lawrence by removal of nutrient-laden sediment,
- Vegetative stabilization of eroding lake banks in Mercer County, and
- Purchase of street sweepers and storm sewer cleaning equipment to be used as part of an overall storm sewer maintenance plan in Woodbridge.

Combined Sewer Overflows. The New Jersey Department of Environmental Protection provides grants and loans for CSO projects pursuant to the Stormwater and Combined Sewer Overflow Bond Act of 1989 and the Environmental Infrastructure Financing Program. These funds are especially helpful to urban communities that still have common sewer and stormwater systems. Cities can borrow funds to separate the two systems or install appropriate abatement measures. Further information regarding this program is found in the revenue analysis for wastewater treatment.

[88] Further information is available on the World Wide Web at http://www.state.nj.us/dep/dwq/mface.htm

Nonpoint Source Control Grants. Nonpoint Source Pollution Control and Management Implementation Grants are available from the New Jersey Department of Environmental Protection to implement nonpoint source controls, primarily at the local level in the 20 watershed management areas in New Jersey. Half of the funds will be allocated to priority watershed identified in the New Jersey Unified Watershed Assessment. Funds are provided through Section 319 (h) of the federal Clean Water Act. Available federal funds in fiscal year 2000 are approximately $3.3 million, double what has been received in the past, and are dependent upon the annual federal budget.

These grants are available to regional comprehensive planning or health organizations and coalitions (formal or informal) of municipal and county governments and/or local and county environmental commissions, watershed and water resource associations and nonprofit organizations 501 C (3), including, but not limited to, the following: municipal planning departments or boards, health departments or boards; county planning departments, designated water quality management planning agencies; state and regional entities entirely within New Jersey; state government agencies; universities and colleges; federal government; interstate agencies of which New Jersey is a member; and intrastate regional entities. Applicants must submit a project that meets the objectives and project criteria as outlined in an annual Request for Proposals. Applicants must provide matching funds in an amount equivalent to at least 20 percent of the total project amount requested. Matching funds may be cash or in-kind services. A 25 percent cash match is required for projects on private lands.

TEA-21 Water Quality Improvement Projects. The New Jersey Department of Transportation administers the Surface Transportation Program under the Transportation Equity Act for the 21st Century (TEA-21) in which up to 20 percent of the cost of a reconstruction, rehabilitation, resurfacing or restoration project under this program may be used for environmental mitigation, pollution abatement or construction of stormwater treatment systems.

Agriculture Nonpoint Source Grants. The New Jersey Department of Agriculture provides grants to farmers to address nonpoint sources of pollution associated with farming practices. Funding comes from state sources as well as the federal Environmental Quality Incentives Program (EQIP) program. The Department of Agriculture made $5.3 million available for nonpoint source activities in fiscal year 1999 and fiscal year 2000. Most of this money is available statewide. The EQIP program provides about $800,000 annually for pass-through grants to farmers implementing nonpoint source controls.

Dam Restoration and Inland Waters Projects Loan Program. The Natural Resources Bond Act of 1981 provided $15 million in grants that funded the rehabilitation of 23 high hazard dams. In 1992, a legislative act allocated an additional $1.7 million that funded engineering studies and designs for 30 high hazard, publicly owned dams.

The Green Acres, Clean Water, Farmland and Historic Preservation Bond Act of 1992[89] authorized the issuance of New Jersey state bonds to finance a renewable $15 million state loan program for dam restoration. These loans assist local government units, private lake associations and private dam owners in meeting the costs of dam restoration or inland water projects. Private owners must have a local government unit as a co-applicant. The loans are low interest, currently two percent, with a maturity period of 20 years. The money from the sale of the bonds and loan repayments is deposited into a revolving, non-lapsing fund, the 1992 Dam Restoration and Clean Water Trust Fund, which provides a limited but stable funding source for dam restoration projects.[90]

At present, all funds from the Dam Restoration and Clean Water Trust Fund have been allocated. As loans are repaid and when sufficient funds exist in the Trust Fund, the Department will offer additional application periods in which to distribute the funds.

Emergency Flood Control Grants. The Emergency Flood Control Fund provides 50 percent matching grants to counties and municipalities of up to $1 million per project for the acquisition, development, construction and maintenance of structural flood control facilities. No funds have been appropriated from this source since 1978, and no funds are currently available. However, the program remains viable pending future appropriations.[91]

Inland Blue Acres Program. The 1995 Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act established a $15 million Blue Acres Fund in the New Jersey Department of Environmental Protection for acquiring lands in the floodway of the Passaic River.

STATUTES

- Dam Safety Program, *N.J.S.A.* 58:4-1 et seq., *N.J.S.A.* 13:1D-9

BOND ACTS

- Emergency Flood Control Bond Act (P.L. 1978, c.78)
- Natural Resources Bond Act of 1981
- Green Acres, Clean Water, Farmland and Historic Preservation Bond Act of 1992, P.L. 1992 c.88
- Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act of 1995.

TABLE 70:
STORMWATER MANAGEMENT CAPITAL FUNDS SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Emergency Flood Control Bond Act of 1978	$25,000,000	$0	$214,673
Natural Resources Bond Act of 1981– Dam Rehabilitation	$15,000,000	N/A	$5,434,221
Green Acres, Clean Water, Farmland and Historic Preservation Bond Act of 1992– Dam Restoration and Clean Water Trust Fund	$15,000,000	N/A	$10,309,277
Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act of 1995–Inland Blue Acres Fund	$15,000,000	N/A	$2,689,385
TOTAL	**$70,000,000**	**N/A**	**$18,647,556**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

[89] P.L. 1992 c. 88

[90] Further information is available from the Program Rules, *N.J.A.C.* 7:24A-1.1 et seq. and from the World Wide Web at http://www.state.nj.us/dep/nhr/engineering/damsafety/engineer.htm

[91] Program rules are established in *N.J.A.C.* 7:23-1.1 et seq

Shore Protection

PROGRAMS

Shore Protection Fund. The Shore Protection Fund is intended to support projects to protect existing development from sea-level rise and shoreline migration through dune creation and maintenance, beach fill projects and repair of existing shore protection structures. The New Jersey Department of Environmental Protection works with municipalities and the Army Corps of Engineers on projects such as putting sand on New Jersey's beaches, rebuilding jetties, rebuilding bulkheads, rebuilding sea walls, and repairing dunes. Municipalities and counties are eligible for matching grants with a 25 percent local cost share. Loans are available for the 25 percent local share. The fund provides at least $25 million per year of revenues dedicated from the Realty Transfer tax. These funds are usually leveraged with federal HR-6 Flood Control funds, federal Shore Protection program funds and local matching grants to provide approximately $45 million per year for shore protection projects.

A ranking list is maintained based on need, the 1981 New Jersey Shore Protection Master Plan, damage assessments from the December 10, 1992 storm, and U.S. Army Corps of Engineer studies and projects.

Coastal Blue Acres Program. A $15 million Coastal Blue Acres Fund provides 50 percent grant/ 50 percent loan funding for municipalities and counties located in the state's coastal (CAFRA) area as defined and delineated in P.L. 1973, C.185 (C.12:19-4) to acquire as permanent open space coastal lands that have or are prone to damage by storms or storm related flooding. Applications are evaluated based on ranking criteria established by the bond act.[92]

STATUTES

Recent legislative action dedicated funds from the Realty Transfer Tax to shore protection programs. Prior to 1993 funds from the Realty Transfer Tax were put into the state general fund for legislative appropriation within the state budget. In 1993, the Stable Funding Bill dedicated $15 million per year from the Realty Transfer Tax to the shore protection program.

- *N.J.S.A.* 13:1D-1 et seq. Shore Protection Bond Act. Appropriations under specific chapters 356, P.L. 1983; c. 103, P.L. 1984; c. 103, P.L. 1985; and c. 94 P.L. 1986; *N.J.S.A.* 13:19-16.1 Shore Protection Fund.
- Coastal Blue Acres Fund, 1995 Green Acres Bond Act (P.L. 1995, C. 204)

BOND ACTS

- The Beaches and Harbor Fund of 1977 (P.L. 1977, c. 208) established a $30 million fund to research, plan, acquire, develop, construct and maintain beaches and harbors.
- The Shore Protection Fund (P.L. 1983, c. 356) established a $50 million fund for researching, planning, acquiring, developing, constructing, and maintaining shore protection projects. Of the total available, $40 million was allocated for state shore protection projects and for state grants to counties and municipalities. The remaining $10 million was allocated for state loans to counties and municipalities.
- The 1995 Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act established a $15 million Coastal Blue Acres Fund in the New Jersey Department of Environmental Protection for acquiring lands in the coastal area that have or are prone to damage by storms or storm related flooding for permanent open space.

[92]Further information is available on the World Wide Web at http://www.state.nj.us/dep/greenacres/index.html

TABLE 71:
SHORE PROTECTION CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Beaches and Harbor Fund of 1977	$30,000,000	$0	$1,352,821
Shore Protection Bond Act of 1983	$50,000,000 $15,000,000	$0	$11,805,343
Realty Transfer Tax (per year)	(per year)	N/A	$12,520,413
Green Acres, Farmland and Historic Preservation and Blue Acres Bond Act of 1995–Coastal Blue Acres	$15,000,000	N/A	$3,302,998
TOTAL	**$15,000,000 per year + $95,000,000**	**N/A**	**$15,000,000 per year + $27,628,754**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

Public Recreation Open Space

PROGRAMS

Green Acres Program. Capital investment in public open space and recreation land has been provided largely from Green Acres bond programs and federal grant funds. Public support for investment in open space and recreation led to nine Green Acres Bonds totaling $1.48 billion (including farmland preservation funds) from 1961 through 1995.

In addition to Green Acres Bond funds, some capital funding stems from other sources. In 1993 federal funds from the National Recreational Trails Fund Act funded twenty trails projects within New Jersey. These projects included state and county trails as well as projects with the National Park Service.

Green Acres acts as the purchasing agent for many open space and recreational projects. Administration of the open space and recreational properties is conducted by other agencies, primarily by the Division of Parks and Forestry and the Division of Fish and Game in the New Jersey Department of Environmental Protection. Development funds within bond acts serve as the funding sources for these agencies. The Division of Parks and Forestry, for example, utilizes development funds from both Green Acres and the Historic Trust.[93]

[93]Further information is available on the World Wide Web at http://www.state.nj.us/dep/greenacres/index.html

Green Acres Program funds are typically allocated as follows:

- 50 percent for state acquisition and development projects,
- 40 percent for local acquisition and development projects, and
- 10 percent for acquisition by nonprofit ("charitable conservancy") organizations.

Twenty percent of funding used for state acquisition and development projects is designated for highly populated counties qualifying under the 1995 Green Acres Bond Act, based on a 1,000 person per square mile residential density standard. Currently, these counties include Bergen, Hudson, Essex, Passaic, Union, Middlesex, Monmouth, Mercer and Camden.

In addition, funds will be set aside for local urban acquisition and development based on a percentage that will be equal to the total allocated for urban aid municipalities over the last five Green Acres Bond Acts since 1983 divided by the total allocated to all local government units in those bond acts. In its Final Report, dated February 1998, the Governor's Council on New Jersey Outdoors recommended that the state spend $8 million annually on maintenance matching grants to supplement acquisition and development funding to urban aid communities. Nonprofit organizations may receive 50 percent matching grants to a maximum of $500,000 unless the project has exceptional resource value. Local governments and qualifying nonprofit organizations[94] cannot use Green Acres funds for lands that are already permanently preserved for recreation or conservation purposes.

The Green Acres Program also establishes a process to determine the value of a Pinelands Development Credit for the purposes of preserving open space and farmland in the Pinelands.

The New Jersey Historic Preservation Office must be notified of any potentially historic buildings or structures that exist on property purchased under the Green Acres Program.

Garden State Preservation Trust. On November 3, 1998, New Jersey voters approved a referendum by a two to one margin to amend the state Constitution to create a stable source of funding for open space, farmland, and historic preservation and recreation development and to use these funds to preserve one million acres of open space and farmland over the next 10 years. The constitutional amendment allows New Jersey to set aside $98 million of state sales tax revenues per year for 10 years and to allocate up to $1.0 billion in revenue bond proceeds (paid for by up to $98 million a year of sales tax revenues beginning 2010 for up to 20 years) to preserve open space and historic resources. On June 30, 1999, the Garden State Preservation Trust Act implementing this funding source was signed into law.

Local governments are expected to leverage these state funds by nearly $100 million each year in funds for similar preservation activities. As of December 2000, 19 counties and 146 municipalities in New Jersey were authorized to dedicate a portion of their property taxes or to sell bonds to fund open space and farmland preservation and/or park development and maintenance. Other towns and counties also spend considerable tax dollars for similar purposes without established formal mechanisms to dedicate revenues. In 1999, counties and municipalities reported collecting a total of $67.7 million in open space taxes and spending $83.6 million to preserve 7,569 acres of open space and farmland. By the end of 1999, a total of 35,263 acres of open space and farmland had been preserved statewide by local governments using open space taxes. As a result of the combination of local and state dedicated revenues, the New Jersey Department of Environmental Protection estimates that over the next 10 years more than $200 million per year will be allocated to the preservation of farmland, open space, and historic resources and to the development and maintenance of outdoor recreation facilities.

The legislation signed by the governor establishes the Garden State Preservation Trust (GSPT), a nine-member board that will receive and approve projects submitted by the Department of Environmental Protection (DEP) and the State Agriculture Development Committee (SADC), at least twice a year. The GSPT will submit at least two appropriation bills each year to fund projects.

The Act also establishes the Garden State Preservation Trust Fund Account (Trust Fund) that will receive $98 million annually for 10 years. From FY2010 through and including FY2029, debt service on the bonds shall be satisfied by funds deposited into the trust fund from the general fund. These funds will not exceed $98 million during a fiscal year.

On November 16, 1999, the Garden State Preservation Trust (GSPT), the nine member board created by the passage of the Garden State Preservation Trust Act, voted to approve its first funding package, consisting of over $82 million for Green Acres open space and recreation development projects. Projects recommended by the GSPT are subsequently subject to approval by the state Legislature and the governor. This first round of funding approvals included:

- over $16 million to be spent on municipal and county government land acquisition,
- over $24 million on recreational development, including over $10 million earmarked for urban areas,
- $12 million in Green Acres funding was approved for nonprofit land preservation projects,
- $30 million in state acquisitions by Green Acres to acquire lands necessary to protect key water supplies, wildlife habitat, and recreational opportunities, all linked by trails and greenway corridors throughout the state.

In October 2000, Governor Whitman directed the GSPT to develop a strategic plan to guide future acquisitions.

Payment in Lieu of Taxes (PILOT). In its Final Report, dated February 1998, the Governor's Council on New Jersey Outdoors recommended that the state restructure the formula for in-lieu taxes, and provide $8 million to achieve this goal.

Payment in lieu of taxes is extended to municipalities in which lands are purchased by the DEP for recreational or conservation purposes by this constitutionally-dedicated money, so that municipalities do not suffer a loss of taxes due to state acquisition of lands. This does not include farmland preservation lands. Payments are made from the general fund. The program includes a 13-year declining percentage schedule and thereafter includes a $2, $5, $10, or $20 per acre payment depending on the acreage of land in the municipality owned in fee simple for recreational and conservation purposes by the state or qualified nonprofit organizations.

STATUTES

- *N.J.S.A.* 13:8A-1 et seq.
- P.L. 1983 c. 354
- P.L. 1989 c. 183
- P.L. 1992 c. 88
- Garden State Preservation Trust Act, *N.J.S.A.* 13:8C-1 et seq. (P.L. 1999, c. 152)
- *N.J.A.C.* 7:36-1

[94] As defined in *N.J.S.A.* 13:8B-1 et seq

TABLE 72:
GREEN ACRES BOND ACTS

YEAR	AMOUNT	PROVISIONS
1961	**$60 million**	(50/50 matching grants to municipal and county government) • $40 million for state acquisitions • $20 million for Local acquisitions
1971	**$80 million**	• $40 million for state acquisitions • $40 million for Local acquisitions
1974	**$200 million**	(Funding for outdoor recreational development added) • $100 million for state acquisitions • $100 million for Local acquisitions
1978	**$200 million**	(Half of the funding was to be spent in urban areas) • $100 million for state acquisitions • $100 million for Local acquisitions
1983	**$135 million**	(Beginning of the Green Trust revolving loan program. Loans made at two percent interest repayable over 20 years. Partial grants available.) • $52 million for state acquisitions $83 million for Local acquisitions
1987	**$35 million**	(New Jersey Green Acres Cultural Centers and Historic Preservation Bond Act of 1987 P.L. 1987 c. 265) • $35 million for Green Trust only
1989	**$230 million**	• $80 million for state acquisition and development • $120 million for Green Trust acquisition and development (loans and grants) • $20 million to be set aside for grants of up to 50 percent for eligible urban area acquisitions & development projects • $10 million for matching grants to qualifying tax exempt nonprofit organizations for acquisitions only
1992 (Green Acres portion)	**$200 million**	• $80 million for state acquisition and development • $100 million for Green Trust acquisition and development (loans and grants) (a minimum of $15 million must be set aside for grants up top 50 percent for eligible urban area acquisitions & development projects • $20 million for matching grants to qualifying tax exempt nonprofit organizations for acquisitions only

1995 (Green Acres portion)	**$250 million**	The Green Acres, Farmland and Historic Preservation and Blue Acres Bond Act of 1995.
		• $105,000,000 for state acquisition and development
		  • $65 million for state acquisition
		  • $40 million maximum for state facilities development
		  • $40 million general acquisition
		  • $20 million to be spent in counties with population density of at least 1,000/sq. mile
		  • $5 million for Limited Practical Use/Pinelands acquisition
		• $10 million for recreational development at Liberty State Park
		• $120 million for Green Trust loans and grants (acquisition and recreational development)
		  • $18 million set aside for grants up to 50 percent for eligible urban aid acquisition and development projects
		  • $2 million set aside for recreational development which is in compliance with the Americans with Disabilities Act
		• $15 million in nonprofit matching grants for land acquisition

TABLE 73:
PUBLIC OPEN SPACE CAPITAL FUNDING SUMMARY

Fund	Authorized	Unissued	Remaining Fund Balance
Green Acres 1961	$60,000,000	$0	$0
Green Acres 1971	$80,000,000	$0	$0
Green Acres 1974	$200,000,000	$0	$0
Green Acres 1978 (State Land Acquisition and Development Fund of 1978)	$200,000,000	$5,500,000	$1,113,052
Green Acres 1983	$135,000,000	$14,500,000	$20,538,689
Green Acres, Cultural Centers and Historic Preservation Fund of 1987 (Green Acres Portion)	$35,000,000	N/A	$0
Green Acres 1989	$230,000,000	N/A	$1,477,869
Green Trust Fund 1989	N/A	N/A	$101,058,629
Green Acres, Clean Water, Farmland and Historic Preservation Bond Act of 1992 (Green Acres Portion Only)	$200,000,000	N/A	$6,517,446
Green Trust Fund 1992	N/A	N/A	$55,225,907
Green Acres, Farmland and Historic Preservation and Blue Acres Bond Act of 1995 (Green Acres Portion Only)	$250,000,000	N/A	$1,043,072
Green Trust Fund 1995	N/A	N/A	$38,882,600
Garden State Preservation Trust of 1999	$98 million per year + $1 billion in revenue bonds	N/A	$86,454,100
TOTAL	**$1,390,000,000**	**N/A**	**$312,311,364**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

BOND ACTS

The Green Acres Program has historically received large amounts of capital funding through bond acts. Public support for investment in open space and recreation led to nine Green Acres Bond issues totaling over $1.1 billion for acquiring public open space, not including farmland preservation (see Table 72).

Public Recreation Facilities

PROGRAMS

The 1995 Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act provided, as part of a $250 million fund for the Green Acres Program, $40 million for upgrading

TABLE 74:
PUBLIC RECREATION FACILITIES CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act of 1995	$50,000,000	N/A	N/A
Garden State Preservation Trust of 1999 (Public Recreation Facilities Portion)	N/A	N/A	N/A
TOTAL	**$50,000,000**	**N/A**	**N/A**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

state park facilities and recreational areas and $10 million for recreational development at Liberty State Park.

In its Final Report, dated February 1998, the Governor's Council on New Jersey Outdoors proposed the following recommendations regarding public recreation facilities:

- Spend $15 million per year for supplements to state appropriations for capital improvements and repairs for state lands and facilities.
- Provide $14 million in annual funds to enhance the care of state-owned natural and historic resources and the care of newly acquired open space.
- Spend $8 million annually on maintenance matching grants to supplement acquisition and development funding to urban aid communities.

STATUTES

None applicable.

BOND ACTS

- Green Acres, Farmland and Historic Preservation, and Blue Acres Bond Act of 1995.
- Garden State Preservation Trust Act, *N.J.S.A.* 13:8C-1 et seq. (P.L. 1999, c. 152)

Solid Waste Management

PROGRAMS

The New Jersey Department of Environmental Protection administers several capital programs that relate to solid waste management. One of the largest programs, under the Resource Recovery Solid Waste Disposal Facility Bond Act, was started in the 1980s.

Resource Recovery Solid Waste Disposal Facility Bond Act of 1985. The Resource Recovery Solid Waste Disposal Facility Bond Act of 1985 established a $150 million loan fund, which included funds from the 1980 Natural Resources Bond Act, for high tech incinerators and ash landfills. Through funding from the state general fund, this amount was increased by $33 million to create a revolving fund totaling $183 million.

Solid Waste Services Tax Program. The Solid Waste Services Tax Program generates funds from taxes collected at landfills. These funds are collected by the New Jersey Department of Environmental Protection and distributed to counties according to each county's solid waste management plan. Counties may use these funds for any capital projects listed in their solid waste management plan.

Recycling Fund. The Recycling Fund is funded through the recycling tax, which is scheduled to expire in the near future. The Recycling Fund supports several programs:

- The tonnage component of the Recycling Fund awards grants to municipalities that provide their own recycling programs. Funds are based on documented allowed materials reported as recyclable from residential, commercial, and institutional establishments. Sources include post consumer products such as: glass, metal, aluminum, paper, paperboard, yard, and food waste.
- Some capital investment funds for equipment purchases are distributed through the county component. The primary purpose of the county component is public recycling education and recycling program planning grants. Every two years, county recycling activities may be funded through this component.
- The college component of the recycling tax provides recycling research grants to colleges and universities.
- A revolving fund provides low-interest loans to consultants or private firms for projects related to recycling.

Sanitary Landfill Facility Contingency Fund. Receipts from taxes and penalties levied upon each owner or operator of every sanitary landfill facility are deposited in this fund. The tax is levied per cubic yard of solids and per gallon of liquids. The Fund is liable for all direct and indirect damages resulting from the operations or closure of any sanitary landfill.

The Clean Water Environmental Infrastructure Financing Program. Financing for landfill construction and closure activities are available from the Environmental Infrastructure Financing Program through the DEP if associated with a water quality benefit.

STATUTES

- Resource Recovery Investment Tax, *N.J.S.A.* 13:1E-138 et seq. (P.L. 1985, c. 38)
- Solid Waste Services Tax Program, *N.J.S.A.* 13:1E-147 et seq. (P.L. 1985, c. 38)
- State Recycling Fund, *N.J.S.A.* 13:1E-96
- Sanitary Landfill Facility Contingency Fund (*N.J.S.A.* 13:1E-100)

BOND ACTS

- 1980 Natural Resources Bond Act
- Resource Recovery Solid Waste Disposal Facility Bond Act of 1985

TABLE 75:
SOLID WASTE MANAGEMENT CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Solid Waste Services Tax Program	$2.5 to $3.5 million/year	N/A	$2.5 to $3.5 million/year
Recycling Tax (State Recycling Fund)	$1.5 to $2.5 million/year	N/A	$13,652,854
Resource Recovery Solid Waste Disposal Facility Bond Act of 1985	$183,000,000	$0	$135,835,228
Sanitary Landfill Facility Contingency Fund	N/A	N/A	$29,833,926
TOTAL	**$4 to 6 million/year + $183,000,000**	**N/A**	**$2.5 to $3.5 million/year + $179,322,008**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

Public Safety and Welfare

- The New Jersey Economic Development Authority offers school districts loans to pay for infrastructure at significant cost savings. An $8.6 billion school facilities financing initiative was signed into law in June 2000.
- Since 1992, a $220 million trust fund and a $550 million capital improvement fund have been established for higher education capital construction. In addition, Chapter 12 funding provides resources for county college infrastructure construction.
- A new $45 million fund to finance public library construction was established in 1999.
- A small portion of funds for capital projects related to the arts remains available under a 1987 bond act. A $100 million "New Jersey Cultural Trust" was established in July 2000 to appropriate $10 million per year for 10 years to create a permanent, interest-generating fund for future arts grants.
- Two major state bond funds contributed to the construction and renovation of corrections facilities in the 1980s. Since then, corrections facilities in New Jersey have been primarily funded by federal grants and state pay-as-you-go capital outlays from the General Fund. In 1999, $20.9 million in federal funds were awarded to New Jersey to fund expansion of three major minimum-security facilities.
- The Garden State Historic Trust is scheduled to receive $6 million annually for the next 10 years to fund historic preservation projects, including matching grant awards.
- Several programs within which the New Jersey Home Mortgage Finance Agency (HMFA) and the New Jersey Department of Community Affairs which provide funding assistance to local governments, nonprofit organizations and developers to construct and rehabilitate housing for low and moderate income households and special needs populations. HMFA has programs to develop affordable single family and multifamily housing. The Balanced Housing program of the New Jersey Department of Community Affairs assists municipalities in providing low- and moderate-income housing in accordance with their Mount Laurel housing obligations. The Neighborhood Preservation Program in the New Jersey Department of Community Affairs provides funding to municipalities to restore housing in threatened, but still viable, neighborhoods.

Public Education

PROGRAMS

Under the Educational Facilities Construction and Financing Act, the New Jersey Department of Education approves new school building construction before a municipality may put forth a bond for construction. After a school district has a bond for construction, it may be eligible for school board debt reimbursement. School districts may also be eligible for loans from the New Jersey Economic Development Authority.

School Debt. The New Jersey Department of Education distributes funds for school board debt service. Each school district receives a "State Share Percentage" which is applied against the school district's yearly obligation. The resulting amount is then prorated according to availability of funds. The "State Share" percentage varies from district to district based on pupil counts, district income, equalized valuation and other factors determined by legislation.

EDA Loan Programs. The New Jersey Economic Development Authority (EDA) makes capital from the General Fund and from the Economic Recovery Fund available for school construction in the form of low-interest revolving fund loans.

- The Safe Schools Loan Fund provides loans for school capital projects necessary to meet health and safety code requirements, and include replacement of windows and roofing. The amount of these loans could represent up to 25 percent of the project cost. The remaining costs could be funded through EDA market rate loans or through school bonds, annual capital appropriations, or other means.
- The School Facilities Loan Fund provides loans for new construction, additions, and upgrades required to comply with the Americans with Disabilities Act (ADA). The amount of these loans could represent up to 50 percent of a project's total cost. The remaining funding could come from an EDA market-rate loan or some other source.
- Small Loans are a revolving fund for market rate, six- to 20-year loans to school districts to fund projects costing $5 million or less.
- The Educational Facilities Construction and Financing Act provides $8.6 billion in funding available to all school districts within the state. Abbott districts are required to use the EDA for construction of school facilities projects, and will have all their eligible costs paid by the state. Districts that have a state support ratio equal to or greater than 55 percent are also required to use the EDA for construction of school facilities projects. Any school district with a lower state support ratio can construct projects on its own with the option of either receiving a one-time grant for the state share of the project or annual debt service aid on the project's final eligible costs.

BOND ACTS

The Economic Development Authority used a $100 million bond act in 1993 to finance Small Loans. Funds from this bond act were used to make market rate loans available to school districts. The original funding has been expended and as loans are repaid, funds will become available.

TABLE 76:
PUBLIC EDUCATION CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Small Loans	$100,000,000	N/A	N/A
TOTAL	**$100,000,000**	**N/A**	**N/A**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

Higher Education

PROGRAMS

Institutions finance capital spending through their operating and capital budgets, including the direct issuance of debt. Institutions issue debt for both academic and auxiliary facilities. Repayment of the debt comes from institutional revenues, including dedicated fees and general sources.

Job Science and Technology Bond Act of 1984. The Job Science and Technology Bond Act of 1984 provided $90 million for higher education infrastructure. Almost all of the funds from this bond act have been fully appropriated and only a small amount of funding remains unexpended.

New Jersey Jobs, Education, and Competitive-ness Bond Act of 1988. The New Jersey Jobs, Education, and Competitiveness Bond Act of 1988 represented another capital funding source for higher education. This bond act totaled $350 million dollars, of which $325 million from this fund have been appropriated. Funds from this bond financed buildings, replacements, and some new projects.

Higher Education Facilities Trust Fund of 1993. The Higher Education Facilities Trust Fund is also structured as a debt capacity program in which the maximum debt outstanding can be $220 million. The Educational Facilities Authority issues revenue bonds backed by an annual state appropriation. The statute also created a Higher Education Trust Fund Board to review the physical plant needs of the institutions and recommend a plan for the use of additional grants from the fund. Of the initial $220 million, almost half of the funds $107.5 million, went for new construction; $94.7 million was used for capital renewal and replacement, or for extensive renovation of existing facilities; $5.6 million was used strictly to comply with codes and regulations; $6.5 million was used to acquire and renovate existing facilities; and $4.1 million was used to address infrastructure problems.

In addition to being financed through a third party, the trust fund differs from the 1984 and 1988 bond funds in three crucial respects. First the only limitation on the use of the funds is that they be used for "the cost, or a portion of the cost, of the construction, reconstruction, development, extension, and improvement of instructional, laboratory, communication, and research facilities." Second, no match is required, enabling institutions to structure projects to meet their priorities. Finally, approval by the state treasurer can renew the fund, whereas the bond fund programs were limited to their initial authorizations.

TABLE 77:
HIGHER EDUCATION CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Job Science and Technology Bond Act of 1984	$90,000,000	$0	$58,035
New Jersey Jobs, Education, and Competitiveness Bond Act of 1988	$350,000,000	$10,000,000	$11,953,225
1993 Higher Education Facilities Trust Fund	$220,000,000	N/A	$2,864,204
P.L. 1971 Chapter 12 funding (state share)	$80,000,000	N/A	$0
Higher Education Capital Improvement Fund of 1999	$550,000,000	N/A	N/A
TOTAL	**$1,290,000,000**	**$10,000,000**	**$14,875,464**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

Chapter 12 Funding. Chapter 12 funding provides resources for county college infrastructure construction. This statute, enacted in 1971, allows the state to pay for one-half the debt service on bonds issued by county governments on behalf of county colleges. The total value of bonds outstanding at any one time is limited, but as debt is retired, the new capacity can be recycled. When enacted, the total state and county debt was limited to $80 million; in 1985, the limit was doubled to $160 million; and in 1998, the debt capacity was increased again to a total of $280 million. Funds may be used for new construction or for capital maintenance, and there is not limitation on the kind of facility that can be built. Since its inception, a total of more than $375 million has been allocated through the Chapter 12 program.

Higher Education Capital Improvement Fund. The Commission on Higher Education is in the process of allocating $550 million from the Higher Education Capital Improvement Fund Act of 1999. This bond fund, created within the New Jersey Educational Facilities Authority, is designed to address the issues of "renewal and renovation" and deferred capital maintenance needs. The provisions of the Fund call for the state to provide two thirds of the debt service on the bonds, with the four-year public institutions contributing one third of the debt service. Private institutions would be required to pay one-half of the debt service. The Fund allocates deferred capital maintenance, renewal and renovation funds as follows:

- $169 million to Rutgers University
- $95 million for University of Medicine and Dentistry
- $61 million for the New Jersey Institute of Technology
- $175 million for the state colleges and universities; and,
- $50 million for private institutions of higher education.[95]

[95]Commission on Higher Education Fiscal 2001 Capital Request to the Commission on Capital Budgeting and Planning, November 4, 1999. John Geniesse, Acting Executive Director.

STATUTES

- Job Science and Technology Bond Act of 1984 (P.L. 1984 c. 99)
- New Jersey Jobs, Education, and Competitiveness Bond Act of 1988 (P.L. 1988 c. 78)
- Higher Education Facilities Trust Fund (P.L. 1993 c. 375)
- Chapter 12 funding, *N.J.S.A.* 18A:64-22.1 et seq. (P.L. 1971 c. 12)

BOND ACTS

- Job Science and Technology Bond Act of 1984 (P.L. 1984 c. 99)
- New Jersey Jobs, Education, and Competitiveness Bond Act of 1988 (P.L. 1988 c. 78)
- Higher Education Facilities Trust Fund (P.L. 1993 c. 375)

Public Libraries

PROGRAMS

In recent years, over $3.2 million has been made available to libraries in New Jersey to invest in new information technologies and Internet services through various federal, state and foundation funding sources. The New Jersey Library Construction Act[96] enacted in 1973 provided funds for library construction until the 1980's. Federal funding was available for library construction under the federal Library Services and Construction Act until the early 1990's, when reauthorization of the law in 1996 as the Library Services and Technology Act removed construction as an eligible funding item. In August 1999, new state legislation[97] established a $45 million Public Library Project Fund under the jurisdiction of the New Jersey Educational Facilities Authority and at the discretion of the Public Library Construction Advisory Board (subject to approval by the Legislature). These funds will leverage a total of $180 million for library construction through a three to one matching requirement. Eligible projects may include:

- Construction of new buildings to be used for public library purposes;
- Expansion, rehabilitation or acquisition of existing buildings to be used for public library purposes;
- Expenses, other than interest and the carrying charge on bonds, incurred after the effective date of P.L.1999, c.184 (C.18A:74-24 et al.), related to the acquisition of land on which there is to be construction of new buildings or expansion of existing buildings to be used for public library purposes, provided the expenses constitute an actual cost or a transfer of public funds in accordance with the usual procedures generally applicable to all state and local agencies and institutions;
- Site grading and improvement of land on which buildings used for public library purposes are located or are to be located;
- Architectural, engineering, consulting and inspection services related to the specific project for which application for financial assistance is made;
- Expenses, other than interest and the carrying charges on bonds, related to the acquisition of existing buildings to be used for public library purposes, provided the expenses constitute an actual cost or a transfer of public funds in accordance with the usual procedures generally applicable to all state and local agencies and institutions; and

[96] *N.J.S.A.* 18A:74-14 et seq.
[97] P.L. 1999, c. 184, *N.J.S.A.* 18A:74-24 et seq.

TABLE 78:
PUBLIC LIBRARIES CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Public Library Project Fund of 1999	$45,000,000	N/A	N/A
TOTAL	**$45,000,000**	**N/A**	**N/A**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget

- Expenses relating to the acquisition and installation of equipment to be located in public library facilities, including all necessary building fixtures and utilities, office furniture and public library equipment, such as library shelving and filing equipment, catalogs, cabinets, circulation desks, reading tables, study carrels, and information retrieval devices including video, voice, and data telecommunications equipment and linkages with a useful life of 10 years or more necessary for Internet access, but not including books or other library materials.[98]

STATUTES

- *N.J.S.A.* 18A:74-24 et al (P.L.1999, c.184)

BOND ACTS

An independent authority funds this program.

Arts

PROGRAMS

The New Jersey Green Acres Cultural Centers and Historic Preservation Bond Act of 1987 included $40 million in capital funds for construction of Art Centers. Approximately $5.3 million of the original allocation for the Arts remains available. Competitive grants ranging from $50,000 to $6,000,000 are awarded for capital development of cultural centers. To be eligible, the applicant must be a private nonprofit corporation or a unit of government operating or proposing a center with sufficient state or regional significance as defined by statute. A panel evaluates the projects of the grant applicants. Three rounds of applications have occurred to date.

A $100 million "New Jersey Cultural Trust" fund initiative was proposed for the FY2001 state budget, to be comprised of an annual non-lapsing appropriation of $10 million per year to create a permanent, interest-generating fund. The initial proposal, subject to authorizing legislation, calls for state funding to match private contributions to endowments to arts organizations (for example, nonprofit arts, history and humanities organizations, including museums and historical societies), and grants to these organizations to be awarded from the interest income generated by the trust.

[98] *N.J.S.A.* 18A:74-27

TABLE 79:
ARTS CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Green Acres, Cultural Centers and Historic Preservation Fund of 1987 (Cultural Centers Portion)	$40,000,000	N/A	$5,300,000
TOTAL	**$40,000,000**	**N/A**	**$5,300,000**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget
New Jersey State Council on the Arts

STATUTES

- P.L. 1987 c. 265 section 4.

BOND ACT

- New Jersey Green Acres Cultural Centers and Historic Preservation Bond Act of 1987 (P.L. 1987 c. 265.)

Corrections

PROGRAMS

Two major state bond funds contributed to the construction and renovation of corrections facilities in the 1980s. Since then, corrections facilities in New Jersey have been primarily funded by federal grants and state pay-as-you-go capital outlays from the General Fund. In 1999, $20.9 million in federal funds were awarded to New Jersey to fund expansion of three major minimum-security facilities.

STATUTES

There are no statutes relating to funding for this program.

BOND ACTS

- The Correctional Facilities Construction Fund of 1982 (P.L. 1982, c.120) provided $170 million for construction of new medium security prisons, a program of county assistance, and renovations and modifications to existing state facilities.
- The Correctional Facilities Construction Fund of 1987 (P.L. 1987, c.178) provided $198 million for state and county correctional facilities for planning, erection, acquisition, improvement, construction, reconstruction, development, extension, rehabilitation, demolition, and equipment.

TABLE 80:
CORRECTIONS CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Correctional Facilities Construction Fund of 1982	$170,000,000	$0	$608,843
Correctional Facilities Construction Fund of 1987	$198,000,000	$0	$14,927,056
TOTAL	**$368,000,000**	**$0**	**$15,535,899**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available
Source: New Jersey Department of the Treasury, Office of Management and Budget
New Jersey State Council on the Arts

Historic Resources

PROGRAMS

The New Jersey Department of Environmental Protection or affiliating agencies administers most New Jersey programs related to historic preservation. In its Final Report, dated February 1998, the Governor's Council on New Jersey Outdoors recommended:

- $14 million in annual funds to enhance the care of state-owned natural and historic resources and the care of newly acquired open space.
- $15 million of annual funding to historic preservation projects statewide.

New Jersey Historic Trust. The main source of funding for historic preservation in New Jersey is the New Jersey Historic Trust. The New Jersey Historic Trust was created in 1967 as a nonprofit organization affiliated with the Department of Environmental Protection and is managed by a 14-member board of trustees.

The New Jersey Historic Trust leverages funds for historic preservation through matching grants to state, local, and nonprofit agencies. These grants are used to assist in the restoration, preservation, and rehabilitation of properties listed, or eligible to be listed in the state Register of Historic Places. While state and local agency funds are matched, certain small nonprofits are eligible for funding on a 60/40 basis for projects that cost up to $100,000. The remaining funding must come from federal, local or other sources, including fund raising. The Trust also supports a revolving loan program that provides low interest loans to nonprofit organizations and local governments for the acquisition of historic properties.

Through the Garden State Preservation Trust established in 1999, the New Jersey Historic Trust will receive $6 million annually for 10 years to fund historic preservation projects including matching grant awards.

DEP Historic Preservation Program. The Historic Preservation Office, within the New Jersey Department of Environmental Protection, has limited funds available for soft costs such as engineering and planning for historic preservation. In the past the Historic Preservation Office funded capital projects, but no longer has funds for this purpose.

TABLE 81:
HISTORIC RESOURCES CAPITAL FUNDING SUMMARY

Fund	Authorized	Unissued	Remaining Fund Balance
Green Acres, Cultural Centers and Historic Preservation Fund of 1987 (Historic Preservation Portion)	$26,000,000	N/A	$0
Green Acres, Clean Water, Farmland, and Historic Preservation Bond Act of 1992 (Historic Preservation Portion)	$25,000,000	N/A	$5,761,580
The Green Acres, Clean Water, Farmland, and Historic Preservation, and Blue Acres Bond Act of 1995 (Historic Preservation Portion)	$10,000,000	N/A	$2,344,054
Historic Preservation Revolving Loan Fund	N/A	N/A	$3,289,981
Garden State Preservation Trust of 1999	$60,000,000	N/A	N/A
TOTAL	**$121,000,000**	**N/A**	**$11,395,615**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available or not applicable
Source: New Jersey Department of the Treasury, Office of Management and Budget

New Jersey Legacies Program. New Jersey Legacies Program is a new program and is in conjunction with the National Trust for Historic Preservation. This program encourages gifts of historic properties, which will be resold with protective easements.

TEA-21. Some funding for historic preservation projects related to transportation, including renovating historic railroad stations, stems from federal TEA-21 funds administered by the New Jersey Department of Transportation.

STATUTES

- P.L. 1967 c. 124 (*N.J.S.A.* 13:1b-15.111) is the enabling legislation for the Historic Trust. This law was modified in 1984 to separate the Trust from the N.J. Historic Sites Council
- PL1987 c. 20 created the revolving loans.
- PL1991 c. 41 created the matching grant program.
- PL1992 c. 88 Green Acres, Clean Water, Farmland, and Historic Preservation Bond Act

BOND ACTS

- New Jersey Green Acres Cultural Centers and Historic Preservation Bond Act of 1987. $23 million dollars was dedicated to the grant component and $3 million was dedicated to the revolving loan component.
- The Green Acres, Clean Water, Farmland, and Historic Preservation Bond Act of 1992 (P.L. 1992, C.88) provided $25,000,000 to the grants component of the Trust and since 1994, $10,100,000 has been earmarked for projects, subject to the approval of the state Legislature.

- The Green Acres, Clean Water, Farmland, and Historic Preservation, and Blue Acres Bond Act of 1995 contained an additional $10,000,000 for historic preservation projects.

Public Housing

PROGRAMS

The New Jersey Department of Community Affairs and the New Jersey Housing and Mortgage Finance Agency (HMFA) administer most New Jersey programs related to housing. HMFA is established in, but not of the Department of Community Affairs. HMFA was created from the former New Jersey Mortgage Finance Agency (MFA), which concerned itself with single family housing, and the former Housing Finance Agency (HFA), which concerned itself with large rental housing, effective January 17, 1984. HMFA now has the responsibility of both of its predecessors and allocates approximately $200 million dollars per year for the purpose of home finance.

H-Easy 2000. H-Easy 2000 (Housing and Economic Assistance Strategy) is New Jersey's current state comprehensive housing policy designed to increase opportunities and access to affordable housing, boost the economy of the state, create jobs, rebuild neighborhoods, and revitalize cities.[99] The New Jersey Department of Community Affairs, New Jersey Housing and Mortgage Finance Agency, and the Council on Affordable Housing work together in a cooperative arrangement under this policy. This housing policy uses $525,000,000 in existing resources and leverages dollars.

TABLE 82:
H-EASY 2000 PROGRAM FUNDING

Home Ownership Recovery Program	$300,000,000
Home Ownership Incentive Fund	$30,000,000
"Too Good, But Its True" Loan Program	$15,000,000
Statewide Financing Affordable Housing	$50,000,000
Rental Housing Incentive Fund	$30,000,000
Lease Purchase Program	$10,000,000
TOTAL	**$435,000,000**

Major components of this housing program include:

- Urban Homeownership Recovery Program—This program fosters increased homeownership in the cities. HMFA, through application of Mortgage Revenue Bonds, will provide $150 million of Single Family construction financing for projects that meet a diverse neighborhood approach. In addition, $100 million in permanent mortgage financing will be provided. Low down payment and 100 percent financing will be available in this program. In addition, DCA will establish a Homeownership Incentive Fund of nearly $30 million to help developers bridge financing requirements.
- "Too Good, But it's True" Mortgage Loan Program—The "Too Good, But it's True" Mortgage Loan Program is a low interest rate mortgage set-aside program for urban areas. In the initial phase, HMFA will set aside a specific pool of 30-year fixed-rate mortgages at a five percent interest rate. This program will initially focus on Trenton, Camden, Elizabeth, and Asbury Park, and will later expand to all urban areas.
- Statewide Financing for Affordable Housing Program Opportunities—HMFA will issue a request for proposal to assist developers in construction finance. HMFA will provide

[99] "H-Easy 2000: A Housing Policy for the State of New Jersey", Presented by Governor Christine Todd Whitman, State of New Jersey and Commissioner Harriet Derman, New Jersey Department of Community Affairs.

construction loans to the developers and will issue a maximum of $50 million in taxable bonds for this program.

- Sweat Equity/Affordable Home Ownership Opportunities Bonds—HMFA will set aside a potion of any bond issuance to establish this fund. The Sweat Equity/Affordable Home Ownership Opportunities Bonds provides loans to prospective low and moderate-income buyers through projects offered by not-for-profit organizations. The buyer will be required to perform construction or rehab work, hence the term "sweat equity." HMFA will issue the loans directly to the borrowers and the borrowers will repay the loan back to the fund.
- Lease Purchase Program—HMFA will provide $10 million for this program designed to help renters become owners. This program will allow families who lack a down payment, to lease an affordable property, with the option to purchase.
- Rental Housing Incentive Finance Program—This program will provide construction loan guarantees for developers of 25 or fewer affordable rental units. This program will allow nonprofit developers, who otherwise would not be approved, the opportunity to secure construction financing. HMFA will reserve up to $10 million for this project and will leverage over $30 million in construction funding.
- Increase Balanced Housing Subsidy Levels—DCA will increase its per unit subsidy levels for rentals and for sale development projects.

Balanced Housing Program. The Neighborhood Preservation Balanced Housing Program,[100] otherwise known as simply the "Balanced Housing Program" is a program of the New Jersey Department of Community Affairs created through the Fair Housing Act of 1985. The purpose of the Balanced Housing Program is to assist municipalities in providing low- and moderate-income housing in accordance with their *Mount Laurel* housing obligations. This program is funded through the Realty Transfer Tax. Municipalities may apply for loans and grants from this fund to develop affordable housing. As some of this fund represents loans, there exists a small revolving fund component.

TABLE 83:
BALANCED HOUSING PROGRAM FUNDING PROVISIONS

MUNICIPAL DISTRESS RANK	MAXIMUM GRANT NEW PROJECTS	MAXIMUM GRANT CONTINUING PROJECTS	REQUIRED MATCH
1-227	$240,000	$300,000	NONE
228-397	$160,000	$200,000	ONE TO TWO
398-567	$120,000	$150,000	ONE TO ONE

The maximum award that a municipality may receive is based on the Municipal Distress Index list published periodically by the New Jersey Department of Community Affairs, Office of State Planning.

Neighborhood Preservation Program. This Department of Community Affairs program provides funding to municipalities to restore threatened, but still viable, neighborhoods. Funding from the Neighborhood Preservation Program primarily supports single family housing rehabilitation in conjunction with other funding sources. Any activity that leads to the revitalization of neighborhoods is eligible for funding including: recreational projects, economic development projects, infrastructure and amenities (trees and benches), and civic organizations. The Neighborhood Preservation Program is funded through an annual appropriation by the state legislature and usually receives an allocation of $2 million to $3 million.

HMFA Multifamily Rental Housing Programs. The HMFA has the authority to obtain funds through bond sales and use the proceeds to provide low interest rate loans private multifamily housing units.[101] This program assists in the development of affordable rental housing in the state of New Jersey through financing multiple-unit, newly constructed, or rehabilitated rental housing. Approximately 250 current projects are financed with taxable bonds. Assistance available through this program includes:

- Multifamily Development Financing Program—This is the main HMFA multifamily housing program.
- Transitional Housing Revolving Loan Program—This program provides assistance to municipalities and nonprofit organizations that provide transitional housing for homeless and Aid to Families with Dependent Children families. "Specific Initiative" financing is also available in the form of HIV/AIDS housing initiatives.
- Low Income Housing Tax-credit Allocation Program (LIHTC)—This program, which may be combined with other tax exempt financing, helps to build new apartments or to rehabilitate apartments for low-income families.
- Community Investment Demonstration Act of 1993—Under federal legislation, the HMFA is allowed to invest $50 million from the AFL-CIO pension fund in affordable housing.
- Risk Sharing Pilot Program—In combination with federal HUD, HMFA can support riskier projects in efforts to create affordable housing.
- Construction Loan Program for Public Housing—HMFA provides construction loans to developers of public housing.

HMFA Single Family Housing Programs. Through the sale of tax-exempt bonds, HMFA provides below market rate financing for the purchase of single-family homes.[102] This program is funded through the sale of tax mortgage exempt bonds. Mortgage revenue bonds financed approximately 40,000 housing units. Assistance available through this program includes:

- 100 Percent Mortgage Finance Program—This program provides commitments to nonprofit and private developers who build Agency-approved residential units. Developers in urban areas can receive 100 percent of appraised value and other developers can receive up to 70 percent of appraised value.
- Urban Set-aside—This fund provides money for down payments, closing costs, and mortgage buy downs.
- Housing Incentive Note Purchase Program—This program provides for a note purchase agreement with the developer's lender. HMFA guarantees 30 percent of the outstanding loan balance. Projects must consist of 100 or less units and the selling price must be less than $250,000.

STATUTES

- Fair Housing Act of 1985 (*N.J.S.A.* 52:27D-301 et seq.)
- New Jersey Housing and Mortgage Finance Agency Law of 1983 (*N.J.S.A.* 55:14K-1 et seq.)
- Neighborhood Preservation Balanced Housing Program (*N.J.A.C.* 5:14-1)

[100] This program is distinct from the "Neighborhood Preservation" program described in this section.

[101] *Profile of Key Programs and Contacts for Empowerment/Enterprise Applicants*, Urban Coordinating Council, 1995 p. 11–14

[102] *Profile of Key Programs and Contacts for Empowerment/Enterprise Applicants*, Urban Coordinating Council, 1995 p. 14–15

TABLE 84:
HOUSING CAPITAL FUNDING SUMMARY

FUND	AUTHORIZED	UNISSUED	REMAINING FUND BALANCE
Balanced Housing Program	About $15 million per year based on share of Realty Transfer Tax	N/A	N/A
Neighborhood Preservation	$2–$3 million per year	N/A	N/A
NJ HMFA	Averages $250 million per year for the Single Family program	N/A	N/A
TOTAL	**$268,000,000 per year**	**N/A**	**N/A**

Note: Remaining funds include committed and uncommitted fund balance as of June 30, 1999.
N/A = Data not available or not applicable
Source: New Jersey Department of the Treasury, Office of Management and Budget

BOND ACT

The HMFA has the power to sell bonds, and the current outstanding bond balances as of June 30, 1995 were $1.2 billion for the Single Family Program and $1.2 billion for the multifamily program. On average, $250 million per year is allocated to the Single Family program.

Potential Approaches

Outlook

State and local capital outlays in New Jersey totaled $21.4 billion (in 1999 dollars) for the most recent five years of record. If this level of investment is maintained, projected revenues of over $85.6 billion may be available for capital projects through 2020.

While this projected revenue may exceed estimated infrastructure costs for this period documented in this Assessment, it is important to note that projected costs have not yet been estimated for all infrastructure components.

Potential Sources of Revenue

The availability of unissued bond funds and unexpended balances of capital funds for infrastructure projects is limited by constitutional, statutory and general accounting principle limitations on public debt and security for fund liabilities. While these amounts are typically analyzed carefully by all levels of government, a periodic comprehensive analysis and realignment or refinancing of these sources may yield additional resources.

Subject to state enabling legislation, municipalities may collect impact fees for transportation improvements, water treatment and distribution, wastewater treatment and collection, flood control and stormwater management, municipal parks and recreation facilities, public safety and related facilities, and educational facilities necessitated by residential development.

Revenue Planning

A case study by the Office of Local Government Budget Review in the Department of the Treasury, demonstrated how revenue planning could provide a more effective revenue stream for capital programs. Revenue planning is a budgeting process that looks at multi-year impacts of current year revenue and expenditure decisions.

In one municipality, the municipal tax rate was just .21, generating a bill of $356 on the average home in 1987. However, as revenue and ratables declined, the municipality began to use one-time revenue sources and maximum amounts of surplus to hold down the tax rate. In 1996, the mayor and council were forced to increase the tax rate by 77 percent because one-time revenue sources and surplus had been depleted and current obligations required a significant tax increase to replace these depleted revenue sources. By 1997, the tax rate was .53 and the average bill was $718. Elected officials were cautioned to rely on their professionals, the business administrator and the chief finance officer, to advise them on the best means of maintaining a relatively stable tax rate, while assuring the provision of an appropriate level of quality services.

Planning revenues can control and help assure decisions regarding expenditures are being prioritized. Without this:

- Salary and compensation decisions do not reflect a context of what is realistically affordable to a community.
- Capital improvements can be put off in order to arbitrarily keep taxes down and end up costing more when the decision is finally forced.
- A less necessary capital investment may be made before a necessary one.

The Office of Local Government Budget Review recommended the following rules:

- One-time revenues should be used for one-time expenditures i.e. capital improvements wholesale upgrades of longer life items, for example, the library collection or the automation system, or investment in training, or a management consultant.
- Surplus should be generated and used fairly consistently as revenue. For example, a certain proportion per year or the prior year's addition to the surplus should be included in the current year's budget.
- Existing future obligations such as capital investments, annual debt service amounts and collective bargaining agreement settlement costs be considered as part of the current budget when revenue amounts are being considered.

The Infrastructure Investment Decision Process

Decisions to raise or use revenues for capital investments for infrastructure may be assisted by the *Infrastructure Needs Assessment* in evaluating investment backlogs, investigating alternative investments, and in guiding investments away from where they are not appropriate.

The need continues for the *Infrastructure Needs Assessment* of the *State Development and Redevelopment Plan* to be part of a more comprehensive, strategic process for making decisions regarding infrastructure investments. Factors related to natural resources suitability, community suitability, and fiscal and economic capacity that are usually beyond the scope of analyses of infrastructure capacity should be taken into account. For example, changes in technology through the year 2020 can be anticipated. Changes in demand for infrastructure systems associated with changes in demographic and economic patterns can be considered. The effects of social and economic factors, such as willingness to pay and cost-benefit analyses, on capital investments may also be considered. A number of these factors were identified in 1986 by the National Council on Public Works Improvement in its study of the nation's infrastructure,[103] and provide the framework of a strategic resource investment and management process for infrastructure decisions (Figure 39) that should ultimately be expressed in the policies and other provisions of the State Plan. Implementation of this process may be substantially accelerated by state and local government compliance with the new *GASB Statement 34* standards, described at the end of this section.

Balance Needs

Integrating infrastructure needs assessment data with resource planning and management is readily achieved through a capacity-based planning process.

In the context of the State Plan, capacity-based planning involves a process of balancing four factors that sustain development:

- infrastructure capacity,
- natural resources capacity,
- community suitability, and
- fiscal and economic capacity.

Infrastructure capacity determines whether the use of existing and proposed capital facilities and land assets by development causes desired or undesired changes to the level of service provided by infrastructure systems, with reference to measures of desired levels of service and standards of quality.

[103] "The Nation's Public Works: Defining the Issues." A Report to the President and Congress. National Council on Public Works Improvement, (Washington, D.C.: National Council on Public Works Improvement, 1986), pp. 7–21.

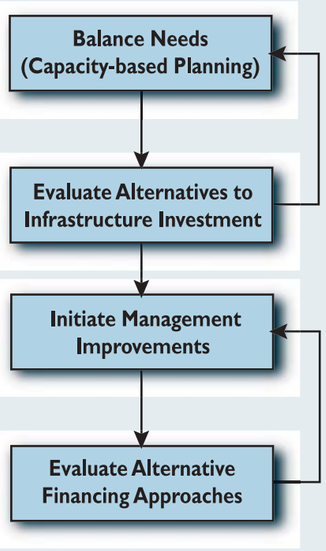
Natural resources capacity evaluates the extent to which natural resource protection objectives are achieved or environmental protection standards are violated.

Community suitability evaluates whether changes in community quality of life, historic and cultural resources, and other social and psychological factors occasioned by development are desirable or undesirable.

Fiscal and economic capacity determines the extent to which the ability to finance infrastructure and community services, absorb market demand for development units, provide for adequate supplies of reasonably priced housing, maintain a suitable labor pool, and sustain a local economy are affected by development.

The method for assessing infrastructure needs may be applied to determine infrastructure capacity over the long term (for example, a 10-year to 20-year planning horizon). For capital budgeting, more detailed and complex planning, design, and engineering analyses are required.

FIGURE 34: INFRASTRUCTURE INVESTMENT DECISION PROCESS



In the capacity-based planning context, a strategic resource investment and management system may:

- evaluate changes in natural resource protection objectives and environmental protection standards;
- identify changes in community quality of life and other secondary and tertiary impacts associated with the improvement or decline of infrastructure;
- support changes in financing mechanisms for infrastructure;
- support changes to levels of service provided by infrastructure; and
- consider alternatives among development patterns.

An increasing number of state agency functional plans, as well as the State Plan, are incorporating indicators and targets that define the levels of service that investments in facilities and services must yield. This practice was promoted at the highest levels of state government with the adoption of Sustainable State goals and indicators by the Governor's Executive Order in 1999.[104]

Therefore, as part of process for balancing numerous objectives, the infrastructure needs assessment does not yield an absolute number that represents the inevitable costs associated with a given pattern of existing and proposed development. Rather, it is intended to provide information

[104]Executive Order 96, May 20, 1999. The Sustainable State indicators, published in the report, *Living With the Future in Mind* by New Jersey Future, do not yet specify targets. Further information regarding this initiative is online at http://www.njfuture.org.

in a continuing, cyclical planning process in which the attainment of more objectives and the detail of the analysis may be increased with each planning cycle.

Evaluate Alternatives to Infrastructure Investment

When a capacity analysis indicates a demand for additional infrastructure capacity, alternatives to traditional responses in providing new capacity should first be evaluated. These include controlling the demand for services, limiting new capacity or providing capacity in alternative systems in anticipation of changes in technology and lifestyles, and increasing investments in maintaining capacity in existing systems. Fiscal, as well as physical, alternatives need to be considered also. Proposals to provide infrastructure capacity should be sensitive to the willingness of those who use or support the system to pay, to the value of benefits to growth management relative to the costs, and to the relative advantages and disadvantages of not investing at all.

Control Demand for Services

The most effective way to manage infrastructure may be to control demand for its services. Where needs are high for a given infrastructure system, the use of alternative systems may be encouraged. Access to infrastructure may also be limited to control (to induce or restrict) overall infrastructure demands (such as commonly occurs at or between interchanges of limited access highways). Peak pricing techniques, which vary rates by season, day of week, or time of day, are increasingly being used for transportation (such as higher peak hour tolls for the New Jersey Turnpike) and recreation (lower golf course fees in late afternoon), energy and water supplies. While lower demands yield higher levels of service per capita, and lower requirements for future infrastructure expansion as growth occurs, these benefits must be evaluated with consideration to changes (increases or decreases) in per capita costs.

Anticipate Technology and Lifestyle Changes

Just as railroads made canal transport obsolete, and as super highways brought a decline in rail use, future technologies are likely to make some current systems redundant or less effective. Lifestyle preferences may also alter the location, frequency, and total demand for certain services.

Maintain Infrastructure To Increase Service Life

Maintenance practices have a considerable effect on the useful life of capital facilities. Unless rehabilitation costs are factored into infrastructure costs, funding decisions will be biased and replacement costs will be increased due to the premature deterioration of infrastructure systems. Proper cost accounting can isolate maintenance and rehabilitation costs to estimate the cost-effectiveness of periodic capital maintenance versus system replacement.

Evaluate Willingness To Pay

Infrastructure standards are often developed based on criteria other than cost, and tend to obscure alternatives that trade for another level of service at a different cost. In practice, when localities are

asked to pay a greater share for state and federal projects, they often attempt to scale down the scope and cost of the projects significantly. By explicitly correlating costs to a range of service levels, tradeoffs can be quantified in terms of willingness to pay, aiding the decision process.

Compare Costs with Growth Management Benefits

Cost-benefit analyses are frequently performed for capital improvement projects. The results of these analyses may be skewed unless measures related to natural resources suitability, community suitability, fiscal and economic capacity, and demands for other infrastructure capacity are included in the analysis. Used effectively, cost-benefit analyses can compare choices among:

- alternative strategies to meet infrastructure needs, such as demand management, alternative technologies, different levels of service, and alternative growth patterns;
- alternative infrastructure expenditures, to evaluate opportunities to integrate and leverage investments leading to the improved integration of systems forming the entire infrastructure network; and
- other non-infrastructure public expenditures.

To this end, the extent to which each component of infrastructure shapes growth, rather than only supports growth, should be considered (see Table 85).

TABLE 85:
GROWTH SHAPING PUBLIC FACILITIES AND SERVICES

COMPONENT	SHAPE	SUPPORT
Transportation and Commerce		
● Roads		
Interstates/Limited Access		X
Interchanges	X	X
Arterials	X	X
Collectors	X	X
Local	X	X
● Transit		
Rail	X	X
Buses		X
Airports	X (locally)	X
Marine Terminals	X	X
● Energy		
Generation facilities	X (weak)	X
Distribution lines	X (weak)	X
Transmission lines		X
● Telecommunications		
Switching/signaling facilities	X	X
Network transport lines	X	X
Local loop transport lines	X	X
Farmland Retention	X	X
Health and Environment		
● Sewer Systems		
Treatment plants		X
Interceptors	X	X
Collectors	X	X
Service areas	X	X
Local connections		X
● Water Supply		
Reservoirs		X
Watershed protection		X
Treatment plants		X
Distribution mains	X (weak)	X
Service areas		X
Open Space and Recreation	X	X

TABLE 85:
GROWTH SHAPING PUBLIC FACILITIES AND SERVICES
(continued)

COMPONENT	SHAPE	SUPPORT
● Solid Waste		
Landfill	X (local)	X
Collection		X
Hazardous waste management	X (weak)	X
Public Health		X
Public Safety and Welfare		
● Public Education		
Elementary	X (potential)	X
Middle		X
Secondary		X
Vocational/Technical		X
Higher Education	X	X
Libraries		X
Police		X
Corrections		X
Cultural, Arts facilities		X

Evaluate Consequences of Not Investing

The cost of not investing in infrastructure may exceed the cost of providing the improvements. Current deficiencies in system condition or service are often the result of not investing in system maintenance and expansion. The Foundation of the New Jersey Alliance for Action currently is addressing this issue.

Initiate Management Improvements

If a decision is made to proceed with an investment in infrastructure, opportunities to improve the management of new infrastructure capacity should be pursued in earnest. These efforts range from improving coordination among infrastructure investments to more comprehensive, less reactive, planning-based approaches such as maintaining a life-cycle approach, building institutional capacity to manage infrastructure systems, and improving the overall timing and efficiency of investments.

Coordinate Infrastructure Investments

The stakes are high enough and resources scarce enough that the state can no longer afford to have agencies pursuing narrow, independent investment strategies. The state's collective investment must now form a larger, strategic, whole. This observation is valid for all infrastructure systems. For example, drainage, flood control, water supply, wastewater treatment and shore protection are all related through water. Investments in one system affect the need for investments in others. Unless investments are coordinated among systems and with land use to reinforce one another, funds will not be sufficient to achieve environmental protection objectives for water pollution, drought response, flooding, beneficial growth, and regulatory efficiency.

Already, a more integrated approach to transportation investments and to solid waste management, including source reduction, recycling, and disposal, is taking hold. Ultimately, a fully integrated energy and materials handling strategy could produce economic and environmental benefits and tax savings above and beyond the capital investments. Investments in school facilities, if coordinated with land use and other infrastructure objectives, can yield similar savings. In general, integrated approaches to infrastructure yield better and less costly service delivery.

Further, the comprehensive perspective of the State Plan can identify cross-agency opportunities and strategies, such as smart schools for urban redevelopment, to leverage infrastructure investments to meet multiple objectives consistent with the State Plan.

Maintain a Life-cycle Approach

Infrastructure, like the communities and people it serves, has a life of its own. A life-cycle approach is essentially a stewardship approach for managing infrastructure systems to ensure continuing service at adequate levels. Successful large corporations, the military, and leading business schools use and teach life-cycle methods, in which infrastructure managers are given the responsibility, authority, and accountability to manage the entire six-step "life cycle" of infrastructure. It is appropriate for government as well.

1. Needs assessment—to determine how much of an infrastructure improvement is needed, and its approximate cost.
2. Planning—to determine what improvements to provide, in what locations, and by what means that will serve the public need throughout the life of the system.
3. Financing—to develop a financing system based on life cycle costing that provides adequate resources for all costs, including rehabilitation and replacement, throughout the life of the system.
4. Development and operation—to build, operate, and maintain the system in a way that is responsive to changing demands throughout the life of the system.
5. Rehabilitation and replacement—to provide regularly scheduled capital improvements to maintain the system at optimum operating condition.[105]
6. Monitoring and evaluation—to periodically review the condition and level of service delivery to identify and implement appropriate adjustments.

Build Institutional Capacity

Some agencies are not designed, as corporations are, to efficiently manage multi-billion dollar systems. This can be corrected by building their capacity to plan for, invest in, and manage infrastructure. Accordingly, new procedures and relationships may be called for.

- **Clarify jurisdictional responsibility.** Each organization should be responsible from start to finish for specific facilities. Single "owners" of facilities, now scattered among levels of government, would be designated. This would, for example, eliminate "orphan" bridges. Management of stormwater drainage facilities is complicated by being dispersed among all levels of government and the private sector, and in some cases delegated to agencies with no clear management authority.

[105] Austin, Texas has found that it costs 15 times more to periodically rebuild a street than to maintain it properly. "Cities are gradually learning the wisdom of considering long-term maintenance needs before they approve a new public project in the first place. Seattle, for example, established one of the nation's most complete fiscal note processes for capital projects. Approval of any project costing more than $500,000 must be accompanied by an estimate of the facility's life span, ongoing operating and maintenance costs, expected revenue, increased or decreased private investment and the financial cost of non-implementation. A less formal fiscal-note process is used for capital projects between $100,000 and $500,000. This is having a strong impact on the way the city looks at all future capital projects. Seattle has started a major-maintenance reserve for several of its new facilities: a concert hall, an arena and an aquarium." In "Grading the Cities: A Management Report Card." The Government Performance Project. Katherine Barrett and Richard Greene. *Governing*. February 2000. http://www.governing.com/gpp/gp0cm.htm

- **Improve management information.** Inventories identifying the location, age, condition, use, and performance of each existing and planned component of infrastructure systems should be established and maintained in a form readily accessible to decision makers. Inventories should be linked to projections of population, employment, housing and land needs to support the preparation of long-range infrastructure needs assessments, medium range capital improvement programs, and short range capital budgets. Such inventories are well suited to existing geographic information system (GIS) technology; infrastructure inventories on GIS should be shared among agencies and levels of government to reduce database development costs and to enhance comprehensive planning and intergovernmental coordination.
- **Coordinate management practices.** Standardizing capital investment and budgeting practices and coordinating capital improvement programs with comprehensive and functional master plans would reduce waste due to non-standardized or duplicative assessment, accounting, and regulatory procedures. Improved coordination would reduce the effect of public agencies working against each other by preventing development of facilities with conflicting purposes in the same location, and by coordinating the provision of all necessary facilities in appropriate locations.
- **Provide oversight.** System managers should have sufficient authority, resources, and flexibility to be effective stewards of infrastructure. Accountability is also required. Independent authorities should maintain oversight over infrastructure where warranted. Comprehensive and ongoing financial, service, safety, and environmental accounting should be built into the system, however. The New Jersey Board of Public Utilities currently serves this function for some privately operated infrastructure. Similar methods could be applied for publicly owned services.

Improve Timing and Efficiency of Investments

Infrastructure expenditures tend to be subject to the ebbs and flows of economic cycles. When the economy is down, so too are tax revenues, and spending on infrastructure tends to be deferred. Deferring infrastructure investments actually tends to worsen economic decline. To stimulate the economy, take advantage of low costs, and lessen the disruption of periods of high economic activity, infrastructure is best constructed during slowdowns. Properly timed investments can therefore help smooth the economic cycle. The 1997 increase in New Jersey's Transportation Trust Fund spending cap reflected this approach, which could be more widely applied.

Evaluate Alternative Financing Approaches

Well-planned and well-managed infrastructure systems are well situated to benefit from the selection of financing approaches from among the most advantageous alternatives. Long-term measures include developing financing strategies, evaluating alternative approaches to allocating costs, and coordinating state capital budgeting with the findings of the infrastructure needs assessment and the objectives of the State Plan.

Develop Financing Strategies for Raising Capital

To accrue revenues to enable infrastructure development during downturns, financing tools which ensure a constant and dedicated flow need to be extended from successful programs such as

Green Acres, the Wastewater Treatment Trust Fund, and Transportation Trust Fund to other infrastructure systems. Among the many tools available are impact fees, user fees, value capture, tax increment financing, revolving funds, special districts, dedicated taxes, and tax exempt financing. Some hold much more promise than their current use suggests. However, the establishment of constant and dedicated revenue sources should maintain an ability to be discretionary in spending, to not impede prudent fiscal management.

Allocate Costs

Ultimately, the allocation of costs for infrastructure should be evaluated from the point of view of the consumer. The interest of the user is to obtain the benefit of public facilities and services in the most effective manner at the most reasonable cost. Costs borne by public and private sector organizations are in turn financed by their revenue base, which may include various classes of users. The infrastructure needs assessment helps to inform decisions regarding how costs should be equitably allocated among classes of users. In general, local scale infrastructure may be found to be most effectively financed by local agencies, unless the costs exceed the local benefits or ability to pay more than for other classes of users. Increasingly, costs of infrastructure allocated to the private sector, through such mechanisms as exactions for the provision of public facilities and franchises for the operation of public services, may be found to provide a more direct pass through of costs. Raising revenues from user-based financing rather than general taxation is also increasing through the use of special districts, impact fees, and direct use fees such as tolls and other user charges.

Coordinate State Capital Budgeting

The *Infrastructure Needs Assessment* should be a basis for coordinating the state's capital plan and annual capital budget among the various state agencies. It offers a consistent accounting procedure for all agencies to follow. This procedure derives long-term infrastructure needs from demands of projected population and employment using a uniform time horizon—the year 2020. It provides for a consistent analysis and reporting of long-term needs by type (backlog, rehabilitation, and new growth). It also reinforces links between capital planning and long-term comprehensive and functional planning within and among state agencies. It provides a basis by which the state's Commission on Capital Budgeting and Planning can interpret the provisions of the State Plan to ensure consistency of proposals for state spending for capital projects with the State Plan, in accordance with the statutes.

Changes in state capital planning and budgeting involving procedures for increased coordination pursuant to the State Planning Act may affect accounting procedures of the Office of Management and Budget, which may in turn require new legislation. However, fundamental coordination procedures such as the long-term time horizon for *Infrastructure Needs Assessment*, the relation of capital planning and budgeting to long-term comprehensive and functional plans and consistent projections, and the types of needs, are intended to complement, rather than conflict with, the state's existing capital budgeting practices, and should be implemented by the state agencies as part of their preparation of annual capital program requests.

Coordinate Local Capital Budgeting

New Jersey municipalities are authorized, and may be required by the Local Finance Board within the New Jersey Department of Community Affairs, to prepare and adopt a six-year capital program.[106] The New Jersey Municipal Land Use Law authorizes local planning boards to prepare annual capital improvements programs spanning six years or longer.[107] Municipalities of over 10,000 population are required to prepare a capital improvement program of at least six years identifying projects by title, estimated costs, and their anticipated financing by sources and amounts. Municipalities of under 10,000 population must prepare a capital program of at least three years, although no capital program is required if there are no annual capital budgets for the municipality for three consecutive years.[108]

A 1994 unpublished study for the Office of State Planning found that multi-year capital planning was not widely practiced among municipalities. The experience of the New Jersey Department of the Treasury, Office of Local Budget Review in its review of 63 local government, school district and local utilities authority financial practices (as of October 1999) confirms that the effective use of long term, coordinated capital budgeting is not widespread. In its 1995 study of Ventnor, the Office of Local Government Budget Review cited long-range capital planning as a "best practice":

- The Capital Improvement Program, when reviewed on a five-year basis, provides constant attention to the infrastructure of the city. The current funds are used for the rebuilding of

[106] *N.J.S.A.* 40A:4-43. *Capital budgets; definition*
The governing body may and shall, when directed by the local government board, prepare, approve and adopt a budget for the expenditure of public funds for capital purposes to give effect to general improvement programs.
A capital budget shall be a plan for the expenditure of public funds for capital purposes, showing as income the revenues, special assessments, free surplus, and down payment appropriations to be applied to the cost of a capital project or projects, expenses of issuance of obligations, engineering supervision, contracts and any other related expenditures. (L.1960, c. 169, s. 1, eff. Jan. 1, 1962.)

[107] *N.J.S.A.* 40:55D-29. *Preparation of capital improvement program*
a. The governing body may authorize the planning board from time to time to prepare a program of municipal capital improvement projects projected over a term of at least 6 years, and amendments thereto. Such program may encompass major projects being currently undertaken or future projects to be undertaken, with Federal, State, county and other public funds or under Federal, State or county supervision. The first year of such program shall, upon adoption by the governing body, constitute the capital budget of the municipality as required by N.J.S.A. 40A:4-43 et seq. The program shall classify projects in regard to the urgency and need for realization, and shall recommend a time sequence for their implementation. The program may also contain the estimated cost of each project and indicate probable operating and maintenance costs and probable revenues, if any, as well as existing sources of funds or the need for additional sources of funds for the implementation and operation of each project. The program shall, as far as possible, be based on existing information in the possession of the departments and agencies of the municipality and shall take into account public facility needs indicated by the prospective development shown in the master plan of the municipality or as permitted by other municipal land use controls.
In preparing the program, the planning board shall confer, in a manner deemed appropriate by the board, with the mayor, the chief fiscal officer, other municipal officials and agencies, and the school board or boards.
Any such program shall include an estimate of the displacement of persons and establishments caused by each recommended project.
b. In addition to any of the requirements in subsection a. of this section, whenever the planning board is authorized and directed to prepare a capital improvements program, every municipal department, authority or agency shall, upon request of the planning board, transmit to said board a statement of all capital projects proposed to be undertaken by such municipal department, authority or agency, during the term of the program, for study, advice and recommendation by the planning board. (L.1975, c. 291, s. 20, eff. Aug. 1, 1976.) *N.J.S.A.* 40:55D-30. Adoption of capital improvement program
Whenever the planning board has prepared a capital improvement program pursuant to section 20 of this act, it shall recommend such program to the governing body which may adopt such program with any modification approved by affirmative vote of a majority of the full authorized membership of the governing body and with the reasons for said modification recorded in the minutes. (L.1975, c. 291, s. 21, eff. Aug. 1, 1976.)

[108] *N.J.A.C.* 5:30-4.5 *Local Finance Board Rules and Regulations.*

various roads, streets and the purchasing of necessary equipment. The bond issues, which are related to capital projects, provide for an ongoing road restoration program and maintenance of the stormwater structures of the city.

A five-year facilities plan, annually updated and prepared in the context of an overall, comprehensive planning process tied to curriculum and demographic changes, was also recommended by the Office of Local Budget Review for school districts.[109]

The Best Practices section of each Local Government Budget Review report identifies procedures, programs and practices which are recognized by the review team for their cost and/or service delivery effectiveness. These Best Practices are considered deserving of recognition and replication in communities and schools throughout the state to possibly save considerable expense.

That the Local Government Budget Review process has identified five-year capital planning as an important part of an effective and coordinated budgeting and financial management program for local governments is significant.[110] An annual five-year capital planning cycle by local governments is well suited for, and emphasizes, assessing (and, hopefully, responding to) current, backlog and immediately emerging needs. However, using only a five-year program cannot adequately incorporate consideration of life-cycle costs, master plan build out (future development and redevelopment), or other practices that improve the sustainability of a community. Therefore, as at the state level, a long-term (20-year) infrastructure needs assessment, periodically updated (for example, as part of municipal master plan reexamination, five-year school facilities master plans, preparations for state planning Cross-acceptance), should provide the context for medium-term (five- to seven-year) capital planning and budgeting, just as the medium term capital plans provide the context and justification for the current year capital budgets.

Municipalities also have authority under the Municipal Land Use Law to review (within a 45 day period) capital projects of state, county, school district, special district and other authorities located within their jurisdiction with regard to the relationship of the proposed capital project to its adopted municipal master plan.[111]

N.J.S.A. 40:55D-31. Review of capital projects

Whenever the planning board shall have adopted any portion of the master plan, the governing body or other public agency having jurisdiction over the subject matter, before taking action necessitating the expenditure of any public funds, incidental to the location, character or extent of such project, shall refer the action involving such specific project to the planning board for review and recommendation in conjunction with such master plan and shall not act thereon, without such recommendation or until 45 days have elapsed after such reference without receiving such recommendation. This requirement shall apply to action by a housing, parking, highway, special district, or other authority, redevelopment agency, school board or other similar public agency, State, county or municipal.

[109] *Getting the Most from Local Property Tax Dollars: What Works and What Doesn't Work in Managing Public Schools and Municipalities.* New Jersey Department of the Treasury, Office of Local Government Budget Review. October 1997.

[110] 188 local governments, 95 school districts, 15 utilities authorities and six other local authorities have requested reviews by the Office of Local Government Budget Review. With nearly 250 reviews pending, this process provides a significant opportunity to establish long-range capital planning and budgeting coordinated with local master plans and long-range local infrastructure needs assessments.

[111] *N.J.S.A.* 40:55D-31. (L.1975, c. 291, s. 22, eff. Aug. 1, 1976.)

GASB Statement 34

Perhaps the most significant change in the process of infrastructure investment decision-making in recent years and in the immediate future is the issuance of *GASB Statement 34*. Nationally, trillions of dollars in public infrastructure investments are not shown in financial statements of state and local governments except as a drain on maintenance budgets. Further, the availability of relatively cheaper funds from federal programs for new construction tended to subsidize the higher life cycle costs for premature replacement caused by deferred or inadequate maintenance. This decision will require governments to publicly account for the value and condition of infrastructure assets in a way that will incorporate both value engineering and life-cycle cost considerations.

GASB Statement 34 requires all state and local governments to report the value and financial depreciation of all their infrastructure and other capital assets.

The Governmental Accounting Standards Board (GASB) is a private, nonprofit organization established in 1984 to improve accounting and financial reporting standards for state and local governments.[112] Like the Financial Accounting Standards Board, which sets accounting standards for private companies, GASB standards become the basis for generally accepted accounting principles (GAAP) for the public sector. The Financial Accounting Foundation funds both GASB and FASB.

On June 10, 1999 the seven-member GASB unanimously approved what is widely considered to be the most significant pronouncement in the history of government financial reporting, affecting more than 84,000 state and local governments in the United States. *GASB Statement 34* requires all state and local governments[113] to report in their required financial statements the value (original cost) and financial depreciation of their infrastructure assets.[114]

GASB Statement 34 requirements are intended to enable individuals (and bond rating agencies) viewing state and local government financial reports to understand the ability of a government to repay its debts and properly care for its infrastructure assets once built by:

- Determining whether current year revenues were sufficient to cover the cost of current year services.
- Assessing the service efforts and costs of programs.
- Determining whether the government's financial position improved or deteriorated as a result of the year's operations.
- Assessing the government's financial position and condition.
- Assessing the service potential of physical resources having useful lives that extend beyond the current period.

By providing greater transparency to the process of infrastructure investment, *GASB Statement 34* provides opportunities for infrastructure investments to be made with a more equitable consideration of expressed user needs as well as more responsively to overriding one-time needs.

[112] Further information is available at http://www.gasb.org

[113] *GASB Statement 34* applies to all state or local governmental entities including general purpose governments, public school districts, public benefit corporations, public utilities, public hospitals and health care providers and, through *GASB Statement 35*, public colleges and universities.

[114] Proposed technical amendments to *GASB Statement 34* were issued on Dec. 29, 2000 for comment by March 16, 2001.

GASB Statement 34 has the effect of applying to all government agencies the financial reporting requirements heretofore only required for public authorities that cover costs by charging fees for services. Private sector enterprises already routinely value their capital assets in preparing statements of net worth. The traditional accounting practices of government agencies are to emphasize accountability rather than profitability. Further, the costs and benefits of properly managing infrastructure do not often accrue to the agency responsible for the component:

- Higher property tax revenues are gained by local governments.
- Higher sales tax and income tax revenues are gained by the state's general fund.
- Costs of infrastructure failure (for example, traffic diversions, lost business) are borne by the public.

GASB defines infrastructure assets as "long-lived capital assets that normally are stationary in nature and normally can be preserved for a significantly greater number of years than most capital assets" and cites such examples as roads, bridges, tunnels, drainage systems, water and sewer systems, dams and lighting systems."

All capital assets, including infrastructure assets, are to be reported in the government-wide statement of net assets; depreciation expense is generally reported in the statement of activities. In addition to infrastructure, capital assets subject to *GASB Statement 34* reporting include land and easements, buildings, equipment, machinery and vehicles. Inexhaustible assets such as land and land improvements that do not depreciate in value are not required to be reported for depreciation purposes. Infrastructure systems that are part of a network or subsystem of a network are not required to be depreciated as long as the government:

- maintains an up-to-date inventory of eligible infrastructure assets,
- performs a condition assessment of eligible infrastructure assets at least every three years, using a replicable basis of measurement and measurement scale,
- summarizes the results, noting any factors that may influence trends in the information reported,
- estimates each year the annual amount necessary to maintain and preserve the asset at or above the established condition level,
- manages those assets using an asset management system of prescribed characteristics, and
- the government can document that these assets are being preserved.

All infrastructure assets acquired, renovated, restored or improved after the effective date of *GASB Statement 34* are to be reported on a prospective basis. All infrastructure assets acquired, renovated, restored or improved between June 30, 1980 and the effective date of *GASB Statement 34* are to be reported on a retroactive basis. If historical cost records are inadequate, costs may be estimated by calculating the current replacement value of a similar asset, adjusted for inflation.

Benefits of GASB Statement 34 include:

- Securing bonds for infrastructure rehabilitation using asset value.
- Opportunities to pool infrastructure asset values in multi-jurisdictional infrastructure banks to secure lowest financing and administration costs.
- Increased financial capability to support infrastructure and other public programs.
- Increased public understanding of the magnitude and needs for infrastructure investments.
- Basis for more effective user fees.
- Basis for more cost effective maintenance.
- Development of a nationwide framework and spatial database for infrastructure characteristics, conditions, costs and use.

The prospective reporting requirements of *GASB Statement 34* are scheduled to go into effect in three phases:

1. For entities with total annual revenues of $100 million or more in the first fiscal year ending after June 15, 1999, beginning June 15, 2001.
2. For entities with total annual revenues of $10 million up to $100 million in the first fiscal year ending after June 15, 1999, beginning June 15, 2002.
3. For entities with total annual revenues of less than $10 million in the first fiscal year ending after June 15, 1999, beginning June 15, 2003.

By 2008, all state and local governments are required to be fully compliant with *GASB Statement 34*. Phase 1 is scheduled to go into effect on June 15, 2001.

The effective date for complying with *GASB Statement 34*'s retroactive reporting requirements is four years later in each case. In certain cases, federal law may not require compliance with *GASB Statement 34*. Also, *GASB Statement 34* may not provide sufficient mechanisms to account for backlog needs that exist at the time the reporting structure is put into place. However, there are many benefits to using this approach.

- Identifying, valuating and assessing conditions for all infrastructure for all government jurisdictions using a common, integrated framework will not only help to realize the full potential of New Jersey's Infrastructure Needs Assessment, but it will greatly contribute to the activities of:
  - Federal agencies, including the Federal Emergency Management Agency, Department of Defense, and the United States Department of Transportation.
  - State and local planning, emergency management, public works and transportation agencies.
  - Private sector developers, shippers, investors and service providers.
  - Traveling public in trip planning, navigation, and incident notification.[115]

These beneficiaries may also contribute toward the costs of developing and maintaining this information base.

[115] *GASB Statement 34's Impacts on Infrastructure Management, Financing and Reporting*. Daniel L. Dornan, Infrastructure Management Group, Inc. June 2000

Recommendations for Subsequent Assessments

The infrastructure systems in this *Infrastructure Needs Assessment* far exceed the seven systems delineated in the State Planning Act. However, this Assessment is limited to compiling and analyzing data that are available and comparable for these systems statewide. In most cases, the conditions and findings of individual case studies may not be representative of conditions statewide, and therefore cannot be reasonably extrapolated. At present, locally specific data is unavailable or is inconsistent in its format or time period statewide; statewide data often lacks geographic specificity.

While data for several components has improved, for many infrastructure components the data available for the *Infrastructure Needs Assessment* was equal to, or even less suitable than (such as in the cases of solid waste disposal, energy and telecommunications), the data available for the 1992 *Infrastructure Needs Assessment*. However, improvements to much of this data may be incipient if government agencies at all levels consider the requirements for the *Infrastructure Needs Assessment.*

As part of the State Plan, the Assessment is revised and updated as part of the Cross-acceptance process. Therefore, it does not and should not substitute for functional plans and annually updated capital plans and budgets of municipal, county, regional and state agencies.

Short-range state agency capital budgets are coordinated through the state budget and oversight processes, but long-range assessments remain less well coordinated. Methods used by state and regional agencies, often independently derived, are generally not fully coordinated with regard to horizon year, demographic factors considered, service levels, financial constraints or other key assumptions. Annual county, municipal and local authority capital budgets and capital improvement programs are reviewed by the New Jersey Department of Community Affairs, Division of Local Government Services but projects are not yet submitted in a suitable format to be compiled into a database for analysis in this context. Reviews by the Office of State Planning of state and local agency capital budget project proposals have determined that these budget proposals, absent a rigorous review of additional documentation for each individual project, in themselves do not yet provide sufficient information to determine long-range infrastructure needs and often do not provide sufficient data to allow comparisons among jurisdictions. Infrastructure assessment data was rarely provided in county Cross-acceptance reports, and what was provided is similarly limited.

To increase the geographical detail and usefulness of the *Infrastructure Needs Assessment* in achieving the Goals of the State Plan and in considering future revisions to the State Plan and its Policy Map, the State Planning Commission recommends the following program and methodology:

- Implement advanced information technologies (particularly geographic information systems, Internet capabilities, and advanced modeling techniques) and data exchange among state and local agencies to more accurately geographically track development and redevelopment, infrastructure needs and capital investments

- Develop and maintain a unified series of municipal demographic and economic forecasts for consideration by all agencies and organizations in infrastructure investment planning and decision-making.
- Implement the Infrastructure Investment Decision Process, particularly the development of data for capacity-based planning
- Implement the State Plan, particularly through Plan Endorsement efforts
- Maintain and enhance the State Plan monitoring and evaluation (indicators, targets and assessments) program
- Include capital planning as an explicit component in the State Plan Cross-acceptance process.

Many of these initiatives, such as the information technology, indicators and Plan Endorsement, are already under way or are being actively programmed. For example:

- The New Jersey Department of Environmental Protection is currently investing millions of dollars in updating and consolidating its databases and integrating its data into geographic information systems accessible to state agencies through an intranet and to the public through the Internet.
- The New Jersey Department of Community Affairs is updating its entire computer network to 21st century standards that will better enable DCA agencies to coordinate projects through shared tracking and mapping databases, as well as through a computerized "whiteboard" to facilitate the exchange of information among state agencies implementing the State Plan.
- The Office of State Planning, within the Department of Community Affairs, is developing and maintaining a database to facilitate the marketing and redevelopment of brownfield sites, and is updating and integrating its growth simulation and impact assessment models with geographic information systems, as well as redesigning these models to make them easier and more effective for municipal officials and local citizens to use to evaluate their own planning scenarios in the context of the State Plan and other regional plans.

The Office of State Planning will assist agencies in defining and implementing specific efforts. If adequate resources are committed to these efforts, the *Infrastructure Needs Assessment* will grow from a periodic compilation of information to a dynamic, publicly accessible knowledge base of information to support planning, development and infrastructure investment decisions.

Definitions

Backlog Need—"Backlog need" is defined as an "infrastructure need" that corrects existing deficiencies related to infrastructure capacity and condition to serve the existing population. Examples include improvements to bridges that do not meet federal structural safety standards and must be repaired (condition), or a commuter rail line that does not have sufficient rolling stock to adequately serve the number of commuters on its lines (capacity).

Capital Facility—"Capital Facility" means any Capital Improvement constructed or erected, for occupancy, use or ornamentation, that requires permanent location on, below or above the ground, or an addition to an existing capital structure having a permanent location on or below the ground, as well as real property on which that improvement is located.

Capital Improvement—A "capital improvement" is any structure, fixture, edifice, byway, parking lot, service facility, and any other capital facility.

Capital Plan—A "Capital Plan" or "Capital Improvement Plan" or "Capital Improvement Program" is a schedule or timetable of all future Capital Improvements to be carried out during a specific time period and listed in order or priority, together with cost estimates and the anticipated means and sources of financing each project.

Capital Outlays—This assessment uses the United States Census Bureau definition of "capital outlays" as "direct expenditure(s) for contract or force account construction of buildings, roads and other improvements, for purchase of equipment, land and existing structures, and for payments on capital leases. Includes amounts for additions, replacements, and major alterations to fixed works and structures. However, repair to such works and structures is classified as current operation expenditures as are payments on operating leases."

Direct Expenditure—As defined by the United States Census Bureau, "direct expenditures" are payments to employees, suppliers, contractors, beneficiaries, and other final recipients of government payments—i.e. all expenditures other than "intergovernmental expenditure."

General Expenditure—As defined by the United States Census Bureau, "general expenditures" are "all government expenditure other than the specifically enumerated kinds of expenditure classified as Utility Expenditure, Liquor Stores Expenditure, and Employee-Retirement or other Insurance Trust Expenditure."

Infrastructure and Infrastructure Systems—The State Planning Commission defines the term "infrastructure" and "infrastructure systems," respectively, as those capital facilities and land assets under public ownership, or operated or maintained for public benefit, that are necessary to support development and redevelopment and to protect the public health, safety and welfare. Infrastructure systems include transportation, energy, telecommunications, farmland retention, water supply, wastewater disposal, storm water management, shore protection, open space and recreation, recreation facilities, solid waste management, public health care, public education, higher education, arts, historic resources, public safety, justice, corrections, public administration, and public housing.

In these respects, infrastructure is the "overhead" of capital that needs to be invested to maintain our society and our economy. Investments in infrastructure are investments in the future of our economy, environment, government and culture. These investments promote economic development and protect the public's health, safety and welfare. To assure consistency among all levels of government in how infrastructure is defined, the following criteria are recommended:

- Facilities and assets that are publicly owned or that serve the public.
- Systems of facilities and assets whose needs are generated by and which are necessary to support development and redevelopment encouraged by the *State Development and Redevelopment Plan.*

- Facilities and assets that may influence the form or the location of development and redevelopment.
- Capital facilities with a high fixed cost (> $50,000) and a long service life (> 10 years).
- Facilities and assets that are directly and substantially related to protecting public health, safety and welfare.

Infrastructure Need—For the purposes of this assessment, need for infrastructure is a measure of the extent to which desired levels of service and standards of quality for infrastructure systems are achieved and maintained given estimates and projections of demand. In a financial context, "infrastructure need" refers to the extent to which costs for infrastructure exceed expected revenues.

Intergovernmental Expenditure—The United States Census Bureau defines "intergovernmental expenditures" as "amounts paid to other governments as fiscal aid in the form of shared revenues and grants-in-aid, as reimbursements for performance of general government activities and for specific services for the paying government, or in lieu of taxes. Excludes amounts paid to other governments for purchases of commodities, property or utility services, any tax imposed and paid as such, and employer contributions for social insurance, for example, contributions to the federal Government for Old Age, Survivors', Disability, and Health Insurance for government employees.

Land Assets—"Land assets" are infrastructure components that provide for the preservation and public control of existing land resources that are sensitive to, and necessary to support, growth and development in other locations, and include, but are not limited to, parks, open space and farmland retention.

Present Need—"Present need" is defined as an "infrastructure need" consisting of "backlog needs" and "rehabilitation needs" for existing infrastructure.

Prospective Need—"Prospective need" is defined as an "infrastructure need" consisting of needs to provide and maintain new infrastructure to serve anticipated future development and redevelopment and to respond to changes in standards of service between the date of the needs assessment and the horizon year (2000–2020).

Rehabilitation Need—"Rehabilitation need" is defined as an "infrastructure need" associated with recurring, periodic improvements and/or replacements of capital facilities necessary to keep existing and anticipated infrastructure in service, at least through the horizon year of the needs assessment. "Rehabilitation needs" are distinct from, and do not include, routine operations and maintenance costs. For example, rehabilitation needs would include a roadway-resurfacing project that may take place every 10 years, but would not include routine street cleaning and patching.

Revenues—As defined by the United States Census Bureau, "revenues" are "all amounts of money received by a government from external sources—net of refunds and other correcting transactions—other than from issuance of debt, liquidation of investments, and as agency and private trust transactions. Note that revenue excludes noncash transactions such as receipt of services, commodities or other receipts in kind.

- Anticipated Revenue—In this assessment, "anticipated revenue" refers only to currently authorized sources and levels of government funding that will be available for capital projects.
- Projected Revenue—In this assessment, "projected revenue" refers to an extension of existing authorized sources and levels of revenue, or replacements thereof, into the future.

State Development and Redevelopment Plan or State Plan—The New Jersey State Development and Redevelopment Plan prepared and adopted pursuant to the State Planning Act, *N.J.S.A.* 52:18A-196 et seq., unless otherwise specified.

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Project Manager, Robert A. Kull, Assistant Director
Contributors to this report include Karl Hartkopf, Nichole Purcell, William Bauer and David Maski of the New Jersey Office of State Planning and staff members of numerous state agencies.
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For additional information:

New Jersey Department of Community Affairs
Office of Smart Growth
P.O. Box 204
Trenton, NJ 08625-0204
www.njsmartgrowth.com
Phone: 609.292.7156
Fax: 609.292.3292