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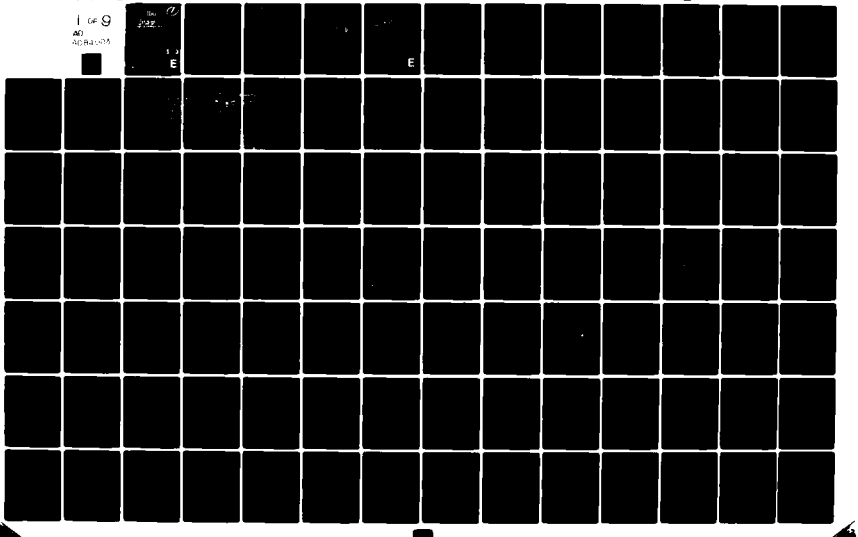

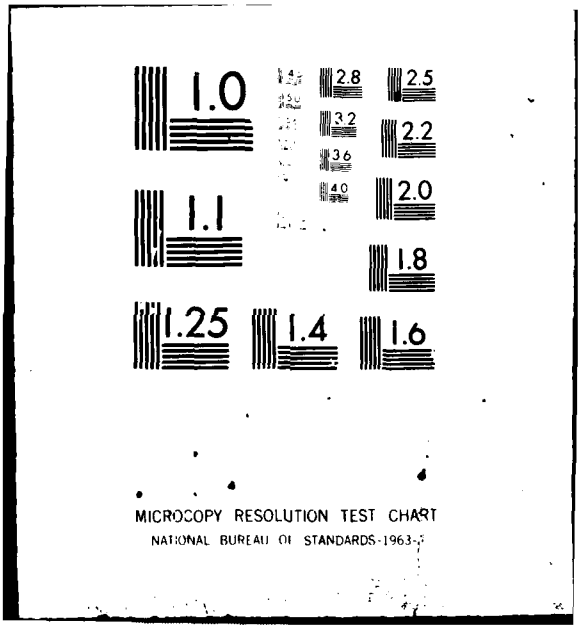
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A COMPREHENSIVE STUDY OF THE TOCKS ISLAND LAKE PROJECT AND ALTERNATIVES

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LAND USE AND SECONDARY EFFECTS OF TOCKS ISLAND LAKE PROJECT

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The purpose of this study is to help decision makers determine future water resource needs of the Delaware River Basin area and ways of meeting these needs. This report undertaken in 1975 for the U.S. Army Corps of Engineers by an independent consultant firm studies the effects of the proposed Tocks Island Lake, and Dam, pumped storage facilities and Delaware Water Gap National Recreational area on the surrounding communities, These effects are reviewed in the following broad categories: economic impacts,

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land use effects, public service, utilities and solid waste disposal impacts, environmental impacts and institutional considerations. Recreation-oriented highway travel and requirements by the major highway network in the study area are also evaluated.

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A COMPREHENSIVE STUDY OF THE TOCKS ISLAND LAKE PROJECT AND ALTERNATIVES

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LAND USE AND SECONDARY EFFECTS OF TOCKS ISLAND LAKE PROJECT

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INTRODUCTION

This "Comprehensive Study of the Tocks Island Lake Project and Alternatives" is divided into five volumes or parts as follows:

A -- Analysis of Service Areas and Resource Needs

B -- Review of Tocks Island Lake Project

C -- Analysis of Alternatives to Supply Resource Needs

D -- Institutional Alternatives

E -- Land Use and Secondary Effects of the Tocks Island Lake Project

Brief descriptions of each of these five parts is contained in the Introduction in the Part A volume. Also presented in that volume is a summary of the project's background and development; a table of contents for the complete study; and listings of Study Management Team members and Consultants involved in the study effort.

CONTENTS - PART E

Chapter	Title	Page
XXII	IDENTIFICATION OF TILP/DWGNRA IMPACTS	
	A. INTRODUCTION	XXII- 1
	1. Assumptions	XXII- 1
	2. Impact Area Definition	XXII- 2
	3. Delaware Water Gap National Recreation Area	XXII- 2
	4. Transportation Assumptions	XXII- 11
	5. Impact Summary	XXII- 15
	B. DETERMINATION OF IMPACT AREA	XXII- 27
	1. The Seven-County Region	XXII- 27
	2. Previous Definitions of Impact Areas	XXII- 27
	3. Factors for Definition of Impact Area Within the Seven Counties	XXII- 28
	4. Definition of Impact Zones	XXII 29
	5. Sussex County, New Jersey	XXII- 31
	6. Warren County, New Jersey	XXII- 36
	7. Northampton County, Pennsylvania	XXII- 41
	8. Monroe County, Pennsylvania	XXII- 45
	9. Pike County, Pennsylvania	XXII- 49
	10. Sullivan County, New York	XXII- 56
	11. Orange County, New York	XXII- 59
	C. TYPES AND DESCRIPTIONS OF IMPACTS	XXII- 65
	1. Project Impacts to Date	XXII- 65
	2. Economic Impacts	XXII- 68
	3. Effects on Land Use	XXII-165
	4. Public Services, Utilities and Solid Waste Disposal Impacts	XXII-229
	5. Environmental Impacts	XXII-360
	6. Social Impacts	XXII-430
XXIII	LAND USE PLANS AND MANAGEMENT STRATEGIES	
	A. PREFACE	XXIII- 1
	B. REVIEW OF EXISTING LAND USE PLANS	XXIII- 3
	1. Profile of Existing Plans and Studies	XXIII- 3
	2. The 1966 Sketch Plan for the Tocks Island Region	XXIII- 10
	3. The Role of TIRAC	XXIII- 19
	4. Current Programs and Related Avtivities	XXIII- 20
	C. PRESENT LAND USE CONTROLS	XXIII- 30
	1. Status of Planning and Controls at the County Level	XXIII- 30
	2. Status of Local Land Use Controls	XXIII- 36
	3. Zoning Analysis	XXIII- 58

Chapter	Title	Page
XXIII	D. LAND USE GROWTH MANAGEMENT STRATEGIES	XXIII- 85
	1. Review of Existing Land Use Patterns	XXIII- 86
	2. Elements of the Management Strategy	XXIII- 89
	3. Techniques to Enhance Tocks Island Regional Planning Objectives	XXIII-119
	4. Organization and Administration	XXIII-130
	5. Developing a System for Land Use Monitoring	XXIII-138
	6. Conclusions	XXIII-141
XXIV	ATTITUDES AND LIFE STYLES	
	A. PROFILE OF TOCKS ISLAND LAKE IMPACT AREA	XXIV- 1
	1. Population	XXIV- 2
	2. Employment Trends	XXIV- 8
	3. Social Characteristics	XXIV- 12
	4. Summary	XXIV- 19
	B. SOCIOLOGICAL ANALYSIS	XXIV- 22
	1. Lifestyle Opinion Survey	XXIV- 23
	2. Leadership Perception of Current Lifestyles in Relation to Satisfaction with Local Services	XXIV- 62
	3. Leadership Perception of Lifestyle Changes with TILP/DWGNRA	XXIV- 74
XXV	TRANSPORTATION ANALYSIS	
	INTRODUCTION	XXV- 1
	A. EXISTING TRANSPORTATION SYSTEMS	XXV- 5
	1. Highway System	XXV- 5
	2. Public Transportation System - Rail	XXV- 38
	3. Public Transportation System - Bus	XXV- 45
	4. Other Transportation	XXV- 53
	B. TILP TRAVEL DEMAND	XXV- 56
	1. Estimates of Overall TILP Travel	XXV- 56
	2. Characteristics of Travel Demand	XXV- 59
	C. TRANSPORTATION IMPROVEMENTS	XXV- 83
	1. Revitalized Rail Passenger Service	XXV- 83
	2. Expansion of Bus Service	XXV- 92
	3. Water-Based Transportation	XXV- 97
	4. Highway System Improvements	XXV- 98
	D. IMPLEMENTATION OF PROGRAM IMPROVEMENTS	XXV-115
	1. Federal Programs	XXV-116
	2. State and Local Improvements	XXV-144
	E. CONCLUDING REMARKS	XXV-148

FIGURES

Number	Title	Following Page
XXII- 1	DWGNRA with TILP	XXII- 4
XXII- 2	Impact Zones	XXII- 30
XXII- 3	Sussex County Existing Land Use	XXII- 32
XXII- 4	Warren County Existing Land Use	XXII- 36
XXII- 5	Northampton County Existing Land Use	XXII- 42
XXII- 6	Monroe County Existing Land Use	XXII- 46
XXII- 7	Pike County Existing Land Use	XXII- 52
XXII- 8	Sullivan County Existing Land Use	XXII- 56
XXII- 9	Orange County Existing Land Use	XXII- 60
XXII-10	Topography - Seven-County Area	XXII-166
XXII-11	Land Use Impact Diagram	XXII-214
XXII-12	Fire Protection	XXII-256
XXII-13	Emergency Medical Services	XXII-278
XXII-14	Existing Water Systems	XXII-304
XXII-15	Proposed Extensions of Water Systems	XXII-308
XXII-16	Existing Municipal Sewerage Systems	XXII-338
XXII-17	Excavated Period Components at Some of the Best Known Sites in the Delaware Valley	XXII-364
XXII-18	Project Impacts Upon Archaeological Resources	XXII-368
XXII-19	Predicted Traffic Increases on Major Roadways Servicing TILP Region/Estimated Trend of RHC Emissions in TILP Region	XXII-426
XXIII-1	Status of Municipal Zoning and Subdivision Controls	XXIII- 36
XXIII-2	Middle Smithfield Subdivisions	XXIII- 84
XXV- 1	Regional Highway Network	XXV- 6
XXV- 2	New Jersey Highway System	XXV- 6
XXV- 3	Pennsylvania Highway System	XXV- 6
XXV- 4	New York State Highway System	XXV- 6
XXV- 5	Proposed Expressways - New Jersey	XXV- 20
XXV- 6	Proposed Expressways - Pennsylvania	XXV- 22
XXV- 7	Existing Rail Service in Northern New Jersey	XXV- 38
XXV- 8	Existing Rail Service in Northeastern Pennsylvania	XXV- 38

Chapter XXII

IDENTIFICATION OF TILP/DWGNRA IMPACTS

XXII.A. INTRODUCTION

Tocks Island Lake and the Dam (TILP), pumped storage facilities, and the Delaware Water Gap National Recreation Area (DWGNRA) have been discussed in regard to their primary purposes and major impacts in earlier sections of this report. In this chapter, the impacts of those projects as secondary effects on the surrounding communities will be discussed. These are reviewed in the following broad categories: Economic Impacts, Land Use Effects, Public Service, Utilities and Solid Waste Disposal Impacts, Environmental Impacts, and Institutional Considerations. Summary material related to "Transportation" (Chapter XXV) and "Social Impacts" (Chapter XXIV) are included in this chapter. An overall "Impacts" Summary begins on page XXII-15.

In each area, information describing existing conditions or patterns forms the basis for a review of projected changes and influences both anticipated regardless of TILP-DWGNRA development and as a direct result. Overall economic and population projections are contained in Part A, Chapter I.

XXII.A.1 ASSUMPTIONS

The secondary impacts discussed in this chapter are those resulting from the construction of the Tocks Island Dam as authorized by Congress, the accompanying Pumped Storage Electric Power Facility, and the lake surrounding Delaware Water Gap

National Recreation Area. Differing impacts resulting from alternative means of supplying separate project purpose needs are contained in the Chapters of Part C - Water Supply Chapter XII, Recreation Chapter XIII, Electric Power Chapter XIV and Flood Control Chapter XV.

Impacts of the alternative programs comparable to TILP/DWGNRA are described and related to TILP/DWGNRA in Chapter XVI. Relative impacts due to varying developments of DWGNRA, with or without a lake and for differing visitation levels are discussed in Chapter XVIII and XIX.

XXII.A.2 IMPACT AREA DEFINITION

A preliminary basis for defining the impact area to review was the assumption of the seven counties surrounding the Tocks Island Project which were members of the former Tocks Island Regional Advisory Council. A complete discussion and refinement of this impact area follows in Chapter XXII.B.

XXII.A.3 DELAWARE WATER GAP NATIONAL RECREATION AREA

As a uniform basis for evaluation of the impacts on the region surrounding the Tocks Island Lake and Delaware Water Gap National Recreation Area, this Chapter will assume development according to the "Conceptual Development Plan" in preparation by Clarke & Rapuano for the National Park Service and the Army Corps of Engineers.

The statistics in Tables 22-1 thru 22-6 are based on the allocations on drawing number 3 of the 16 drawing supplement to the written text of the Plan. These have been modified since their prior inclusion in the Corps of Engineers 1974 Environmental Impact Statement (EIS) Supplement. This plan is being developed so that Phase I complies with DRBC Resolution #73-6, limiting design capacity of the park to not more than 42,000 persons with a total maximum annual recreation load of not more than 4,000,000 visitors. Completion of this phase was assumed as 1982 in the EIS and Clarke & Rapuano reports, but is here considered as a time period from 1982 to 1985, depending upon date of actual initiation of construction, length of construction period and initial visitation build-up.

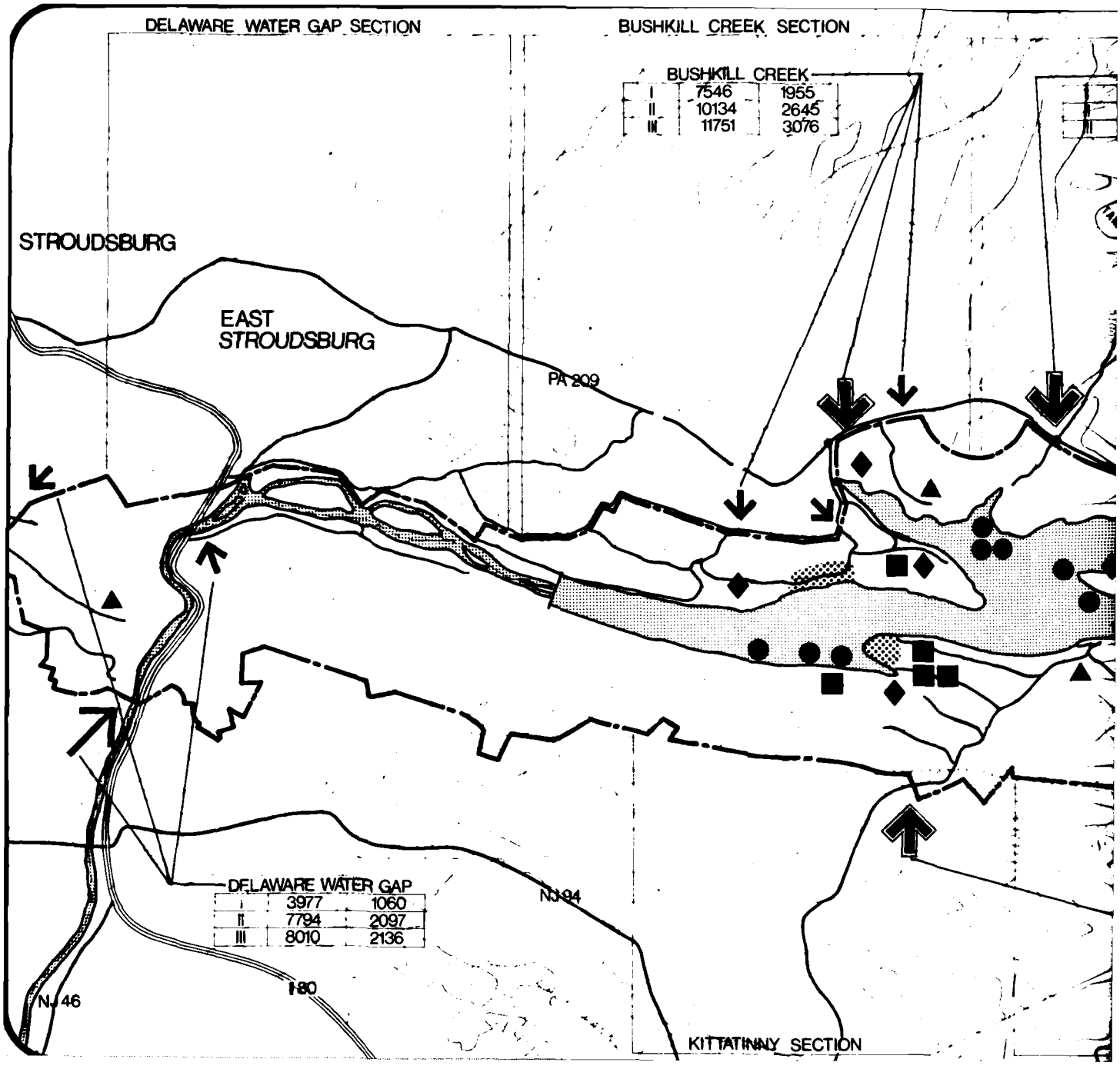
Table 22-1 describes Phase I, indicating design load and parking spaces giving an instantaneous capacity. Using Clarke & Rapuano's factor of 1.15 to account for use of several facilities by a given park visitor and also to reflect turn-over rates, the table also develops daily visitation figures and daily traffic volumes for a typical summer weekend Sunday. A percentage for sightseers is also included.

The National Recreation Area is divided into ten major recreation areas and visitation and facilities are indicated for each of these destinations in Table 22-2. Entrance points and summary statistics are illustrated in Figure 22-1.

Tables 22-3,4 and 22-5,6 respectively show the proposed expansion of the TILP-DWGNRA Conceptual Plan for Phase II - 1990 and Phase III - 2000. These increase the park annual visitation levels to approximately 7,000,000 and 10,600,000. These developments may not "proceed without further amendment of the DRBC Comprehensive Plan and such action by the Congress as may be required."[1]

1. DRBC Resolution 73-6, 1973.

This chapter describes all three phases for review of potential impacts resulting from the planned activity distribution and visitation levels, even though only Phase I could presently proceed. By so doing, a full range of impacts is evaluated. If DRBC Resolution 73-6 is maintained and no further expansion is permitted, then TILP/DWGNRA impacts at Phase I levels would become the limits of project effects and in turn would be smaller in proportion to normal growth in 1990, 2000 and beyond.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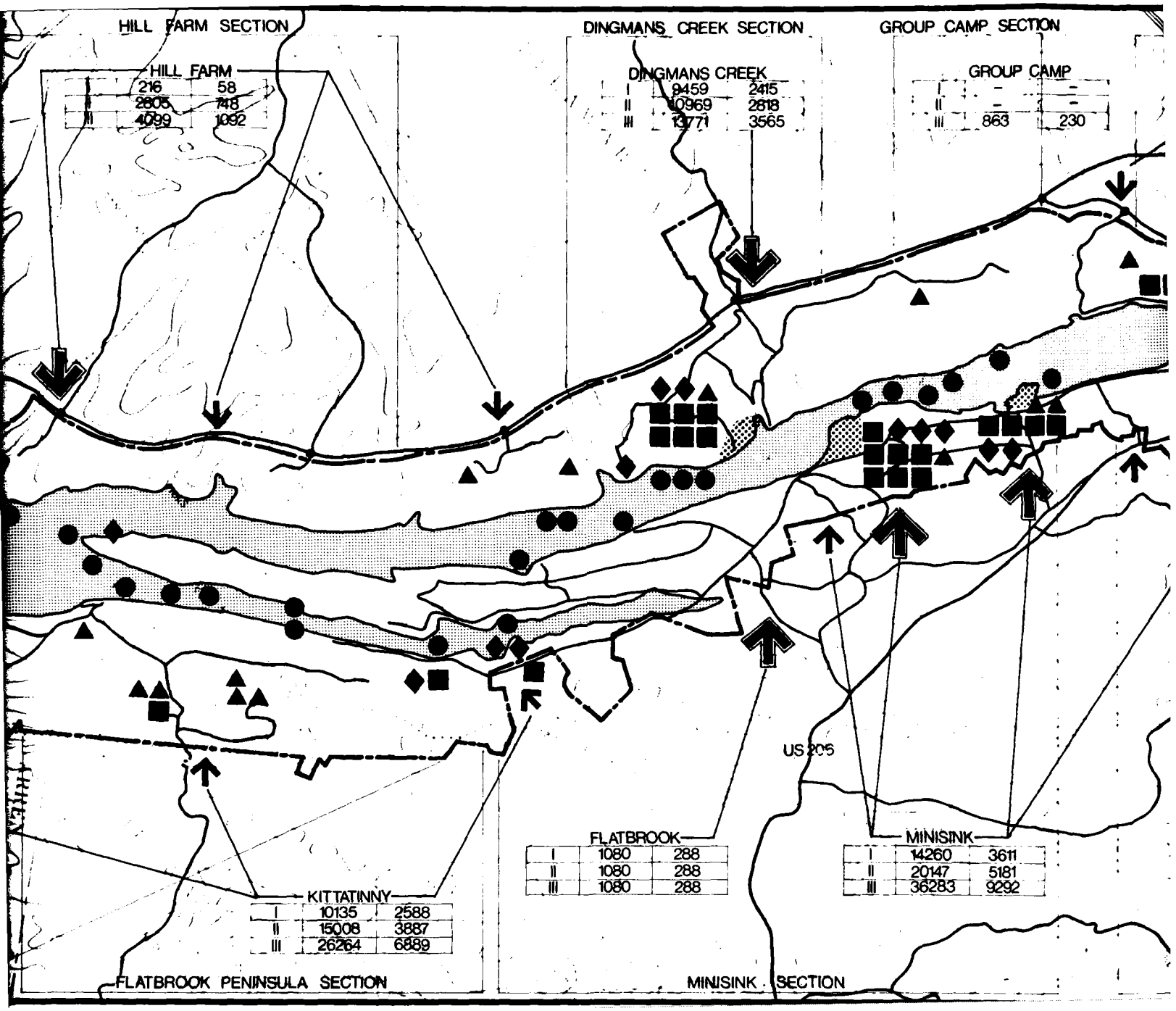
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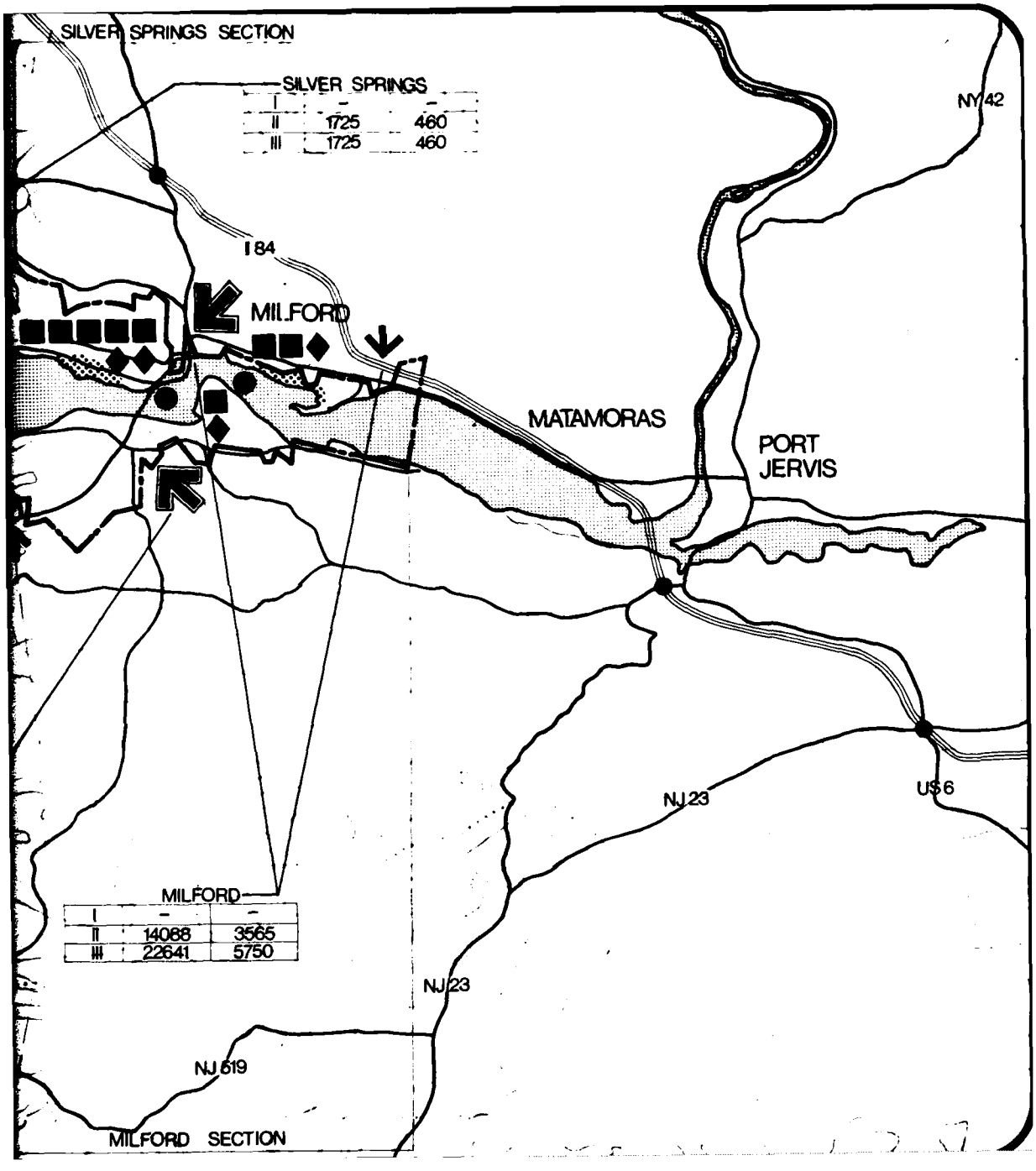
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Table 22-1 Use Distribution TIL-DWGNRA Phase I - 1982-1985

Recreation Area	Design Load	x 1.15 = Daily* Visitors	Parking Spaces	x 1.15 = Daily Traffic
Bushkill	6,562	7,546	1,700	1,955
Hillfarm	188	216	50	58
Dingman	8,225	9,459	2,100	2,415
Group Camp	-	-	-	-
Silver Springs	-	-	-	-
Milford	-	-	-	-
Minisink	12,400	14,260	3,140	3,611
Flatbrook	939	1,080	250	288
Kittatinny	8,813	10,135	2,250	2,588
Delaware Water Gap	3,458	3,977	922	1,060
Total	40,585	46,673	10,412	11,974
25% Sightseers		11,668		2,994
Total Daily Visitors		58,341		
Total Daily Cars				14,968

*Typical Summer Sunday

(Source: Clarke & Rapuano Revised Drawings #3 of 16, Conceptual Development Plan)

Table 22-2 Facilities by Recreation Area TIL-DWGNRA Phase I - 1982-1985

Recreation Area	Picnic Sites	Beaches	Boat Docks	Boat Ramps	Boat or Bike Rental	Boat-in Camp-sites	Boat Trailers Parking	Group Camps	Hike-in Camps	Food Service	Interp. Facility
Bushkill	815	3,000 person	400	10	-	-	250	-	-	X	-
Hillfarm	-	-	-	-	-	-	-	-	-	-	-
Dingman	400	5,600 person	200	6	50	-	150	-	-	X	-
Group Camp	-	-	-	-	-	-	-	-	-	-	-
Silver Springs	-	-	-	-	-	-	-	-	-	-	-
Milford	-	-	-	-	-	-	-	-	-	-	-
Minisink	340	10,000	100	8	-	100	300	-	-	-	-
Flatbrook	360	-	-	-	-	205	-	200	50	-	-
Kittatinny	650	6,000	-	-	50	100	-	-	50	X	4
Delaware Water Gap	-	-	-	-	-	-	-	-	-	-	3
Total	2,565	24,600	700	24	100	405	700	200	100	3	7

(Source: Clarke & Rapuano Revised Drawings #3 of 16, Conceptual Development Plan)

Table 22-3 Use Distribution TIL-DWGNRA Phase II - 1990

Recreation Area	Design Load	x 1.15 = Daily* Visitors	Parking Spaces	x 1.15 = Daily Traffic
Bushkill	8,812	10,134	2,300	2,645
Hillfarm	2,439	2,805	650	748
Dingman	9,538	10,969	2,450	2,818
Group Camp	-	-	-	-
Silver Springs	1,500	1,725	400	460
Milford	12,250	14,088	3,100	3,565
Minisink	17,519	20,147	4,505	5,181
Flatbrook	939	1,080	250	288
Kittatinny	13,050	15,008	3,380	3,887
Delaware Water Gap	6,777	7,794	1,807	2,079
Total	72,824	83,748	18,842	21,668
25% Sightseers		20,937		5,417
Total Daily Visitors		104,685		
Total Daily Cars				27,085

*Typical Summer Sunday

(Source: Clarke & Rapuano Revised Drawings #3 of 16, Conceptual Development Plan)

Table 22-4 Facilities by Recreation Area TIL-DWGNRA Phase II - 1990

Recreation Area	Picnic Sites	Beaches	Boat Docks	Boat Ramps	Boat or Bike Rental	Boat-in Camp-sites	Boat Trailers Parking	Group Camps	Hike-in Camps	Food Service	Interp. Facility
Bushkill	1,315	3,000 persons	400	14	-	-	350	-	85	X	3
Hillfarm	630	-	-	-	-	-	-	300	350	-	1
Dingman	400	5,600	200	6	100	-	150	-	-	X	-
Group Camp	50	-	-	-	-	50	-	-	-	-	-
Silver Springs	120	-	-	-	-	50	-	-	150	-	-
Milford	600	10,000	-	4	-	-	100	-	-	-	-
Minisink	1,500	10,000	100	13	50 bikes	170	425	-	-	-	-
Flatbrook	360	-	-	-	-	205	-	200	50	-	-
Kittatinny	1,730	6,000	-	17	50	200	430	-	50	X	4
Delaware Water Gap	510	-	-	5	-	-	125	-	350	-	3
Total	7,215	34,600	700	59	200	675	1,580	500	1,035	3	11

(Source: Clarke & Rapuano Revised Drawings #3 of 16, Conceptual Development Plan)

Table 22-5 Use Distribution TIL-DWGNRA Phase III - 2000

Recreation Area	Design Load	x 1.15 = Daily* Visitors	Parking Spaces	x 1.15 = Daily Parking
Bushkill	10,218	11,751	2,675	3,076
Hillfarm	3,564	4,099	950	1,092
Dingman	11,975	13,771	3,100	3,565
Group Camp	750	863	200	230
Silver Springs	1,500	1,725	400	460
Milford	19,688	22,641	5,000	5,750
Minisink	31,550	36,283	8,080	9,292
Flatbrook	939	1,080	250	288
Kittatinny	22,838	26,264	5,990	6,889
Delaware Water Gap	6,965	8,010	1,857	2,136
Total	109,987	126,485	28,502	32,777
25% Sightseers		31,621		8,194
Total Daily Visitors		158,106		
Total Daily Cars				40,971

* Typical Summer Sunday
(Source: Clarke & Rapuano Revised Drawings #3 of 16, Conceptual Development Plan)

Table 22-6 Facilities by Recreation Area TIL-DWGNRA Phase III - 2000

Recreation Area	Picnic Sites	Beaches	Boat Docks	Boat Ramps	Boat or Bike Rental	Boat-in Camp-sites	Boat Trailers Parking	Group Camps	Hike-in Camps	Food Service	Interp. Facility
Bushkill	1,505	3,000 persons	400	14	-	-	350	-	85	X	3
Hillfarm	630	-	-	-	-	-	-	300	650	-	2
Dingman	1,300	5,600	200	6	100	-	150	-	250	X	1
Group Camp	50	-	-	-	-	50	-	200	150	-	-
Silver Springs	170	-	-	-	-	50	-	-	300	-	2
Milford	1,250	15,000	-	4	-	80	100	-	-	X	-
Minisink	2,270	20,000	100	13	50 bike	170	425	-	280	X	2
Flatbrook	360	-	-	-	-	205	-	200	50	-	-
Kittatinny	3,030	6,000	-	17	50	250	430	750	1,175	X	5
Delaware Water Gap	510	-	-	5	-	-	125	-	450	-	6
Total	11,075	49,600	700	59	200	805	1,580	1,450	3,390	5	21

(Source: Clarke & Rapuano Revised Drawings #3 of 16, Conceptual Development Plan)

XXII.A.4 TRANSPORTATION ASSUMPTIONS

The following major assumptions are utilized in Chapter XXV to assess the impact on transportation of the development of TILP/DWGNRA and are therefore related to other impacts discussed in this chapter.

- an appropriate design condition is a typical summer Sunday afternoon when visitors would be departing from the recreation area;
- visitation will be mainly by automobiles;
- the peak traffic will be directly related to the capacity of the parking spaces, which will be developed in three phases up to a maximum of about 28,500 spaces by the year 2000; and,
- a basic measure of transportation impact is the number of lane-miles (length of highway times number of lanes) directly attributable to TILP/DWGNRA and required to handle its traffic under ultimate capacity conditions.

  In every Phase, the required number of lane-miles with or without TILP are compared to the existing lane-miles. Due to expected "normal" growth in the area, the without TILP condition is often more significant except for Phases I and II in New Jersey.

It is to be noted that sensitivity analyses assuming significant mass transit usage (that is, charter and scheduled bus service) shows that the impacts are not substantially altered from those noted with the auto-oriented condition.

Under Phase I conditions, (comparable to a peak day design load of 40,600 people, and 10,400 parking spaces) in 1985, the 1,072 existing lane-miles on the Pennsylvania highway system would require 88 additional lane-miles due to traffic growth plus 44 lane-miles due to TILP, most of it on U.S. 209 and I-80. The 1,142 lane-miles in New Jersey would require 168 additional lane-miles for normal growth plus 212 lane-miles due to TILP, most along new alignments for U.S. 206 and Route 94. New York would require no additional lanes due to TILP.

Under Phase II conditions (comparable to a peak day design load of 73,000 people, and 18,800 parking spaces) in 1990, Pennsylvania would require 137 additional lane miles for normal growth plus 113 lane-miles due to TILP (on U.S. 209 Stroudsburg by-pass, U.S. 611 and PA 33), the New Jersey highway system would require 168 lane-miles for normal growth plus 352 lane-miles due to TILP (on U.S. 46, I-80 west of U.S. 206, Route 23, Route 94 and Route 517). The 488 lane-miles in New York would require 40 additional lane-miles due to normal growth but none due to TILP.

Under Phase III conditions (comparable to a design load of 110,000 persons per peak day, and 27,700 parking spaces) in the year 2000, Pennsylvania would require 275 additional lane-miles due to normal growth plus 127 lane-miles due to TILP. (Mostly on U.S. 611 and on U.S. 209 north of Route 402. New Jersey would require 498 additional lane-miles plus 378 lane-miles due to TILP (on I-80 west of 206, Route 23 and on Route 517). The New York highway system would require 40 lane-miles for normal traffic growth plus 40 lane-miles due to TILP, mostly along I-84.

It is significant to note that the foregoing analysis merely evaluated the lane-miles required at a given year and design load with and without TILP. The lanes noted at each phase are total needed for the Phase; that is, each Phase is compared with the existing system. The following tables list the total required lane-miles by states at each Phase with (W) and without (W/O) TILP/DWGNRA compared to existing conditions.

The lane requirements summarized in Table 22-7 under the "with" and "without" columns are total values - the differences are indicative of the TILP/DWGNRA impacts at that particular year. The highway costs "with TILP" are additional to those noted to handle basic growth (W/O TILP). A portion of the "with" costs and improvements reflect construction only required in advance of their "W/O TILP" need. Since these "TILP" improvements will be required for basic growth within a period of time anyway, the attribution of their full cost to TILP/DWGNRA is not appropriate.

As emphasized in both Chapters XVI and XXV, there is very serious doubt that necessary highway improvements required to accommodate basic traffic growth will be fully implemented. Should this occur, the additional TILP traffic will cause substantial congestion during peak periods. By assuming the implementation of necessary highway improvements under both basic growth and TILP surcharge conditions, however, it is possible to separately assess the effect of TILP/DWGNRA generated traffic.

Table 22-7 Comparison of Highway Requirements With and Without TILP/DWGNRA To Existing Conditions

Number of Additional Lane-Miles Required By Major Highway Network

	Existing 1975	Phase I 1985			Phase II 1990			Phase III 2000		
		W/O	W	Difference	W/O	W	Difference	W/O	W	Difference
PA	1072	1160	1204	44	1209	1322	113	1347	1474	127
NJ	1142	1310	1522	212	1310	1662	352	1640	2018	378
NY	488	488	488	0	528	528	0	528	568	40
Total	2702	2958	3214	256	3047	3512	465	3515	4060	545
Increase	0	256	512		345	810		813	1358	

Estimated Highway Improvement Costs:
(in millions of dollars; 1974 costs)

Phase	W/O TILP/DWGNRA	Additional With TILP/DWGNRA	Total
I	$400	$240	$640
II	40	150	190
III	330	60	390

XXII.A.5 IMPACT SUMMARY

The assumptions used in this Chapter have been described. In the text which follows, the seven county region is described in detail, the areas to be most affected by the development of TILP/DWGNRA are defined, and impacts are discussed.

Townships, villages and boroughs have been listed in a series of zones roughly concentric about the borders of DWGNRA. Zone 1 will be the most affected by the Project. Zone 4 will receive little or no impacts from the Project. Zones 2 and 3 fall between in diminishing levels of impact and were determined in relation to major transportation corridors or geographic limitations.

The following paragraphs summarize the findings of this Chapter and point out the main conclusions developed in the detailed sections which follow.

XXII.A.5(a) Economic Impacts

The employment, commercial establishments and population growth that will be generated by TILP/DWGNRA are calculated on the basis of local visitor expenditures. It is estimated that visitors to the park will annually spend a total of $34,840,000 in Phase I; $63,517,000 in Phase II; and $104,157,000 in Phase III for food, transportation services, lodging, entertainment and gifts and incidentals in the seven county area. The largest expediture categories would be for food and for gifts and incidentals, which are estimated to be $35,971,000 and $32,743,000 respectively by Phase III Project development.

XXII.A.5(a)(1) Employment

DWGNRA Phase I will generate 1,810 annual jobs which will increase to 5,730 by Phase III. Employment will be directly generated by short term construction activities, long term operation of DWGNRA, and the added demand for goods and services by the visitor population; and indirectly, by the induced economic growth related to the added permanent population. The total average annual direct and indirect employment that may be attributed to TILP/DWGNRA will increase from an estimated 2,495 jobs in Phase I to 9,055 jobs in Phase III. Construction activities will require an average of 575 employees for an estimated eight year period. Most of the added employment, however, is seasonal, occurring primarily during summer months. About two-thirds of the direct and indirect employment can be expected to occur in Zones 1 and 2.

XXII.A.5(a)(2) Commercial Establishments

Visitor expenditures can be translated into increased commercial expenditures. The total number of retail establishments generated to meet the added goods and service demands will rise from 111 in Phase I to 338 in Phase III. The greatest numbers, especiably in food and lodging, will locate in Zone 1.

XXII.A.5(a)(3) Population

Employees attributed to TILP/DWGNRA generated establishments and to the Recreation Area itself will increase the area's population by 5,890 and by 18,110 in Phases I and III respectively, and will ultimately require approximately 6,450 housing units. This population increase is only a small token compared to population growth expected to occur regardless of development of TILP/DWGNRA.

XXII.A.5(a)(4) Tax Base

The impact of TILP/DWGNRA on the projected tax revenues to municipalities in the impact area is expected to be substantial in about five townships (Walpack, Sandyston, Pahaquarry, Lehman, and Delaware), primarily as a result of massive federal land purchases for the project. These townships account for 65% of the total $1,222,200 tax revenue that will be lost as a result of the removal of over 65,000 acres from the tax rolls of local jurisdictions bordering the Delaware in New Jersey and Pennsylvania. This loss may be partially offset by the increased value of land bordering the project and by possible Federal compensatory payments to local governments and school districts to replace funds lost from property tax base reductions.

The impact afforded by the extra population and commercial services attracted to the area by the increased economic activity needed to serve park visitors will increase the real property tax base and may offset the cost of services required by these developments.

XXII.A.5(b) Land Use

The Project's secondary impacts on land use are directly related to the visitor design load, the type and location of park facilities and the regional road network. A series of entrance nodes throughout the park will result in the dispersion of development keyed to major access points. The greatest impacts will be felt at primary entrances to the park region, especially the northern and southern connections to the interstate highway system, along major access roads, and in primary population areas.

A TILP/DWGNRA development based upon automobile access will further disperse impacts throughout the region. Development oriented to the commercial demands of a mobile tourist population will logically follow its movement throughout the area.

The estimated commercial and residential growth that will be generated by TILP/DWGNRA will consume approximately 5,199 acres of land by the end of Phase III. In relation to the normal growth of the area, the land requirements are minor and do not constitute a significant impact. The related effects on surrounding land-uses such as circulation, community character, aesthetic quality and natural resources will depend on the location, design and intensity of development.

Adverse effects will result if

- uncontrolled strip commercial development with unattractive roadside signs, varying setbacks, and unsightly parking lots is permitted to occur at scattered locations throughout the Region.
- incompatible uses are permitted to develop within existing communities in conflict with their existing aesthetic character.
- acceleration of growth takes place in areas which are relatively unprepared to control it.
- facilities are permitted to locate in environmentally sensitive areas such as flood plains, aquifers, areas of agriculturally rich soils or with inadequate public services.

These adverse effects, however, cannot be entirely separated from those

deriving from the normal growth patterns that are currently taking place. Adverse impacts could be mitigated if strong land-use controls and plans for the area immediately surrounding the DWGNRA are adopted. A regional development plan for the Region could guide growth to derive maximum benefit from open space and developed uses. Strong controls and imaginative planning could result in a spatial arrangement that respects invaluable environmental resources, creates an efficient transportation system, maintains a sound economic base and controls suburban and commercial sprawl.

A positive land use impact of TILP/DWGNRA is the retention of a vast area of natural scenic open space which otherwise might be exploited for development.

XXII.A.5(c) Public Services

XXII.A.5(c)(1) Police

Due to the visitor increase in the area and some TILP/DWGNRA stimulated population growth, incidence of crime and demand for traffic control and law enforcement will increase. Traffic problems will be more evenly distributed throughout the three zones along all approach roads from the major highways and the park entrances. Crime related law enforcement requirements will be more concentrated in and around visitor destinations in the Zone 1 DWGNRA perimeter areas.

Most of the Zone 1 townships are without minimum standard local police forces. These will require improvement or establishment sooner than they would have without the development of the National Recreation Area. Local taxpayers

may not be ready or able to bear the added costs.

State Police will provide law enforcement where municipal forces cannot and added costs due to this manpower demand will have to be borne by statewide taxpayers out of state budget funds. Demand for state police services will be greater than would be needed without a National Recreation Area, although quantification of this increment is difficult to determine. New Jersey State Police plans already reflect this in staffing projections for the Sussex County Region. Pennsylvania State Police will need to make similar long range provisions.

XXII.A.5(c)(2) Fire

Forest fire protection in the region is provided by state forest services. The DWGNRA personnel and equipment through mutual assistance will enhance the forest fire protection capability in the area in spite of the potential for more brush and forest fires due to increased presence of man.

Building and other non-forest fires are fought by the Region's volunteer fire departments. Those in Zone 1 will be asked or have already entered into contractual agreements to assist in fighting fires within the DWGNRA boundaries. Assistance from NPS or state forest services with appropriate rough terrain equipment may be necessary, but, unless there is an unusually high demand for help, the well-distributed volunteer fire departments should be capable of performing their function without undue hardship. The increase in the number of calls may be greater than would be the case under normal area growth.

Availability of dependable water sources will remain the most severely limiting factor in this Region in determining adequacy of fire protection coverage. Fire services in Zones 2 and beyond should be unaffected by TILP/DWGNRA.

XXII.A.5(c)(3) Emergency Medical Services

Most health needs resulting from visitors to DWGNRA will be handled by first aid services within the National Recreation Area. For those emergencies requiring more extensive care, the NPS is depending on availability of ambulance service and emergency hospital facilities in the area. Both are in adequate supply at this time. Nine ambulance services in Zones 1 and 2 are in proximity to the DWGNRA recreation centers. Based on average rates of usage for ambulance services, these should easily handle the demand through Phase I development. Later, demand caused by possible higher visitation levels could call into service ambulance companies in other Zone 2 and Zone 3 communities.

Hospital beds and emergency services are capable of meeting TILP/DWGNRA demand and have in some instances projected expansion or development programs in anticipation of the Project.

XXII.A.5(c)(4) Highway Maintenance

An incremental increase in highway and road maintenance costs of $100 per year per lane mile of road is predicted due to TILP/DWGNRA traffic increases. Approximately 40% of this cost will be on state roads, 40% on county roads and 20% on local roads.

XXII.A.5(c)(5) Water Supply

Residents of the seven county area receive their water supply from municipal systems, private water companies, or individual wells. There are many private companies serving fewer than 1,000 customers. A number of these do not meet contemporary standards and are unable to provide adequate water supplies during periods of drought.

Water quality is frequently better from municipal systems than it is from other sources. The supplies of water in the Region are more than adequate to meet present and future needs. Construction of TILP will only enhance the area's ample water supply potential.

Water for DWGNRA itself will be provided by NPS wells within the DWGNRA boundaries. Normal growth in the area will account for proposed expansions of existing water supply systems, primarily from ground water wherever possible. The peak summer TILP/DWGNRA added demand on water supply outside NRA boundaries would be approximately 5 MGD by Phase III.

Local jurisdictions often have difficulty meeting costs of development for extended water supply systems, and will need to look to federal and state agencies for assistance. Requirements for new distribution systems will be brought about more by normal growth than by TILP/DWGNRA demand.

XXII.A.5(c)(6) Sewerage

The presence of a multi-purpose lake will require much more stringent point and non-point discharge controls within the pertinent drainage basins (including

tributaries) than would be required with the free-flowing river. Since local governments are dependent upon federal and state funds to provide up to 90% of total construction costs for new facilities or facility upgrading, and demand for these monies exceeds supply, development of needed treatment facilities may lag without special TILP/DWGNRA priority assistance. Management problems, quality of facility operators and lax standards of enforcement also contribute to existing facilities' operating below full capacity.

XXII.A.5(c)(7) Solid Waste

The counties in the Tocks Region are preparing solid waste management programs or are aware of the problems involved and are investigating solutions. The basis for most planning is sanitary landfill. Carting is usually done privately. The NPS has private contracts for DWGNRA carting to approved landfill sites.

Total quantities of solid waste resulting from visitation to DWGNRA are expected to range from 153.5 tons per day at Phase I levels to 573 tons per day at Phase III.

XXII.A.5(d) Environmental Impacts

XXII.A.5(d)(1) Archeology

Site surveys and testing have revealed that the valley was one of the areas of earliest Indian settlements on the East Coast, with human occupation believed to date as early as 10,000 B. C. Only 20% of currently known sites within

the pool area have been excavated, and almost no testing on the upper terraces has taken place, making it impossible to determine the migration patterns followed by prehistoric people.

Flooding of the reservoir will render all sites below the pool elevation inaccessible. Construction of recreation and maintenance facilities and public access to more sites will result in a further loss of archeological resources. Conservation of all archeological resources of the area is preferable, but would require deauthorization of TILP. Otherwise, to comply with public laws regarding archeological preservation, a complete salvage program must be initiated to assess and mitigate advance impacts to the archeological resources.

XXII.A.5(d)(2) Historic Resources

European settlement of the upper Delaware Valley began in the early 17th century. Throughout the 350 years of its recorded history, its basic rural character has been retained, along with many structures of historic interest. Over 400 historic sites and buildings constructed before 1900 are within the DWGNRA. The majority of these lie below the permanent pool elevation, including the structures of greatest historic interest and

the Old Mine Road, one of the nation's oldest commercial highways. With the exception of a few buildings selected for relocation to Millbrook Village or historic farm complexes, most sites will be leveled before the dam is built, along with many above the pool area which are not required for NPS purposes. Due to vandalism and insufficient resources for protection and preservation, many of the oldest resources have already been razed or have deteriorated.

XXII.A.5(d)(3) Wildlife and Aquatic Biology

The Project development will lessen the available habitat for wildlife; particularly affected will be the white tailed deer. The proposed 880 acre wildlife mitigation area is not adequate to sustain the displaced wildlife. An annual influx of 4-10 million visitors will also have an adverse effect on aquatic ecology of the contiguous area.

XXII.A.5(d)(4) Water Quality

Water quality will be subjected to increasing degradatory pressure stemming from construction generated erosion, increases in sewage effluent discharges, solid waste disposal and urban runoff. The effects of increased sewage and solid wastes should be reduced by the mandates of PL 92-500 and other environmental legislation.

XXII.A.5(d)(5) Vegetation

Riverbank and flood plain plant communities will be especially subject to adverse impacts as a result of construction and operation of the Project.

Upland and slope communities will also be subject to some direct loss. Recreational use, related facilities and secondary growth in the Region will adversely affect all plant communities.

XXII.A.5(d)(6) Air Quality

The impact of additional automobile traffic visiting DWGNRA will leave the Region's air quality essentially unchanged and national ambient air quality standards will not be exceeded. This is based upon the premise that federal automobile emission standards will continue to be enforced to at least 1975 levels and that highway networks will permit free flow of traffic.

XXII.A.5(e) Conclusions:

Of the summarized TILP/DWGNRA impacts, most are similar to effects caused by normal rates of growth and development (doubling of the 1973 population by 2025); in this regard, impacts discussed in most categories can be classified as accelerations of the given impacts within a shorter time span.

There are certain exceptions which must be considered as solely attributable to the construction of the Tocks Island Dam and development of the Delaware Water Gap National Recreation Area. Among these are the permanent loss of certain historic structures and archeological sites, necessity for additional highway lane miles, and need for a series of visitor serving commercial establishments. In the long run the real impact of the project will be the sum of the components discussed, which if not properly anticipated with planning and inter-jurisdictional coordination, could lead to chaotic and incompatible development of significant portions of the Region.

XXII.B. DETERMINATION OF IMPACT AREA

XXII.B.1. THE SEVEN COUNTY REGION

At one time or another the counties which are closest to the site of Tocks Island Reservoir have been involved in studies and cooperative efforts to prepare for the proposed Tocks Island Project. These seven, Warren and Sussex in New Jersey, Northampton, Monroe, and Pike in Pennsylvania, and Sullivan and Orange in New York are the broad political jurisdictions that define the impact area to be reviewed in this section for consideration of the secondary effects of the Tocks Island Lake Project.

XXII.B.2 PREVIOUS DEFINITIONS OF IMPACT AREAS

The specific limits of the impact area have been defined in several previous studies which have provided starting points for our own consideration.

The Robert R. Nathan Report (1966) used roads exclusively as limits to define its primary impact area where the "land development pressures and opportunities will be the most intense." The boundaries were Interstate 84 to the north; Interstate 80 to the south; New Jersey 23 -- Sussex County 565 -- New Jersey 206 to the east, and Pennsylvania 402 to U.S. 209 on the west.
This definition was also used by New Jersey's Governor Cahill in his September 13, 1972 statement concerning the Tocks Island Dam.

In the Raymond and May sketch plan for the region prepared in 1966, the study was limited to four counties only -- Monroe, Pike, Sussex and Warren. The primary impact area was again defined by the Interstate Highways to the north and south. "On the west the Pennsylvania forest and game lands give a clear definition to this Impact Area. On the east the Impact Area is less definable as many of the Jersey communities here are already affected by metropolitan expansion."

When Roy F. Weston prepared his Tocks Island Region Environmental Study (TIRES) for the DRBC in 1970, he was concerned with water supply and solid and liquid waste disposal. He therefore, chose drainage basins to limit his area of study:

> "that portion of the Delaware River Basin in Orange County, New York, and in Pike, Monroe, and Northampton Counties in Pennsylvania, that drains into the Delaware River between the mouth of the Mongaup River and the southern limit of the Delaware Water Gap National Recreation Area, downstream of the Water Gap; and that portion of the Basin in Sussex and Warren Counties, New Jersey above the mouth of Paulins Kill, including the watershed of Paulins Kill."

XXII.B.3 FACTORS FOR DEFINITION OF IMPACT AREA WITHIN THE SEVEN COUNTIES

In building upon these previous definitions, the major factors which help to define those areas considered the impact areas are location relative to DWGNRA, topography, major transportation corridors, and competing influences. Specifics in each category will be discussed later in this chapter on a county by county basis.

The major topographic feature in the region is the Blue Mountain - Kittatinny Mountain-Shawangunk Mountain Ridge which traverses the region in a Northeast-Southwest direction and from much of the seven county region is a visually orienting feature as well as a significant barrier. In addition, to the west the Pocono Mountains form a more diffuse boundary both topographically and by virtue of their established reputation as a resort area with their own set of influences and development patterns.

The principal transportation corridors are the two Interstate Highways I-80 and I 84. From these as well as from the surrounding areas a series of roads will become the major routes of access to park facilities entrances. These form major corridors of impact through the seven counties.

Competing influences on impact to area development which will be more significant than Tocks Island in some sectors come from the established resort centers like the already noted Poconos in Pennsylvania and the Catskills in New York. They also come from expanding metropolitan areas like New York-Newark in New Jersey, New York-Hudson River in Orange County, and Allentown-Bethlehem Easton in southern Warren and Northampton.

XXII.B.4 DEFINITION OF IMPACT ZONES

Using these influences, this chapter will employ a tool used by

the Sussex County Department of Planning, in their "DWGNRA Impact on Sussex County Report". In each county, political jurisdictions are assigned to one of four zones for the purposes of further evaluation of impacts. The zones establish diminishing levels of impact resulting from the establishment of the DGWNRA.

Zone 1: Contiguous Impact Area

All municipal jurisdictions which contain portions of the DWGNRA, immediately border upon the Park or are nearby major population centers and will be the most affected by the development of the project.

Zone 2: Primary Access Corridors and Principal Regional Centers

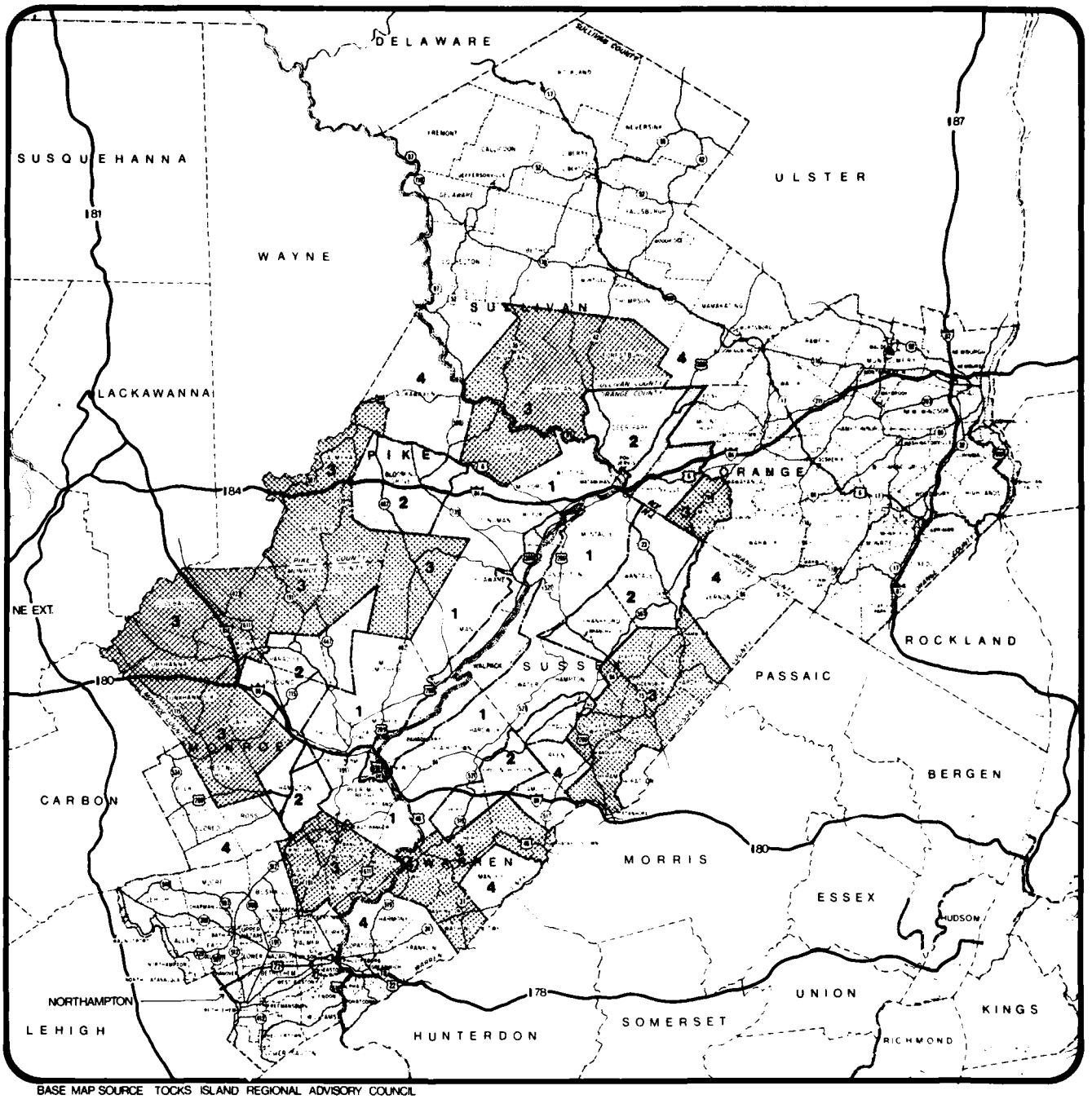
Municipal jurisdictions adjacent to Zone 1 which lie on principal transportation corridors leading to the DWGNRA or which are other principal regional centers likely to supply services to park visitors.

Zone 3: Secondary Access and Fringe Impact Areas

Municipal jurisdictions which lie further from the DWGNRA on primary access corridors, which lie on secondary access corridors, or which will be subject to diminished affects of the park.

Zone 4: Little or No Impact Areas

All other municipal jurisdictions within the counties which do not lie on transportation corridors to the DGWNRA and whose development will be primarily by other different external pressures.



BASE MAP SOURCE TOCKS ISLAND REGIONAL ADVISORY COUNCIL

0 5 10 15
SCALE IN MILES

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IMPACT ZONES

XXII

2

LEGEND

- DELAWARE WATER GAP NATIONAL RECREATION AREA
- ZONE 1
- ZONE 2
- ZONE 3
- ZONE 4

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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The following sections will describe each of the seven counties, outline the zones assigned to the townships, boroughs and villages, and describe the influences that led to these choices. In the ensuing portions of the Chapter, impacts will be discussed in detail for Zones 1, 2 and 3. These zones are illustrated in Fig. 22-2. The following discussion for each county is accompanied by an existing land use map for reference in discussion of the individual counties in this section and in the discussion of land use in section XXII.C.3.

XXII.B.5 SUSSEX COUNTY, NEW JERSEY

Sussex County lies in the northwest corner of New Jersey, and has been primarily a rural and recreation area. Until the recent completion of Interstate 80, this county was relatively inaccessible from the New York metropolitan area and remained largely undeveloped.

Now Sussex is on the fringe of the New York commuting area. Neighboring Morris and Passaic Counties to the east and Orange County New York, to the north are within the Tri-State New York Metropolitan Planning Region. To the west, Sussex County is bounded geographically by the Delaware River. To the south, Sussex borders on Warren County to which the county is most directly related by topography, road connections and similar influences.

Sussex County encompasses 526.28 square miles of varying terrain, including the Kittatinny Mountains on the west and the Reading Prong of the New England Highlands to the east. The county is dotted with glacial lakes which have traditionally been the locations of summer camps and summer

home communities.

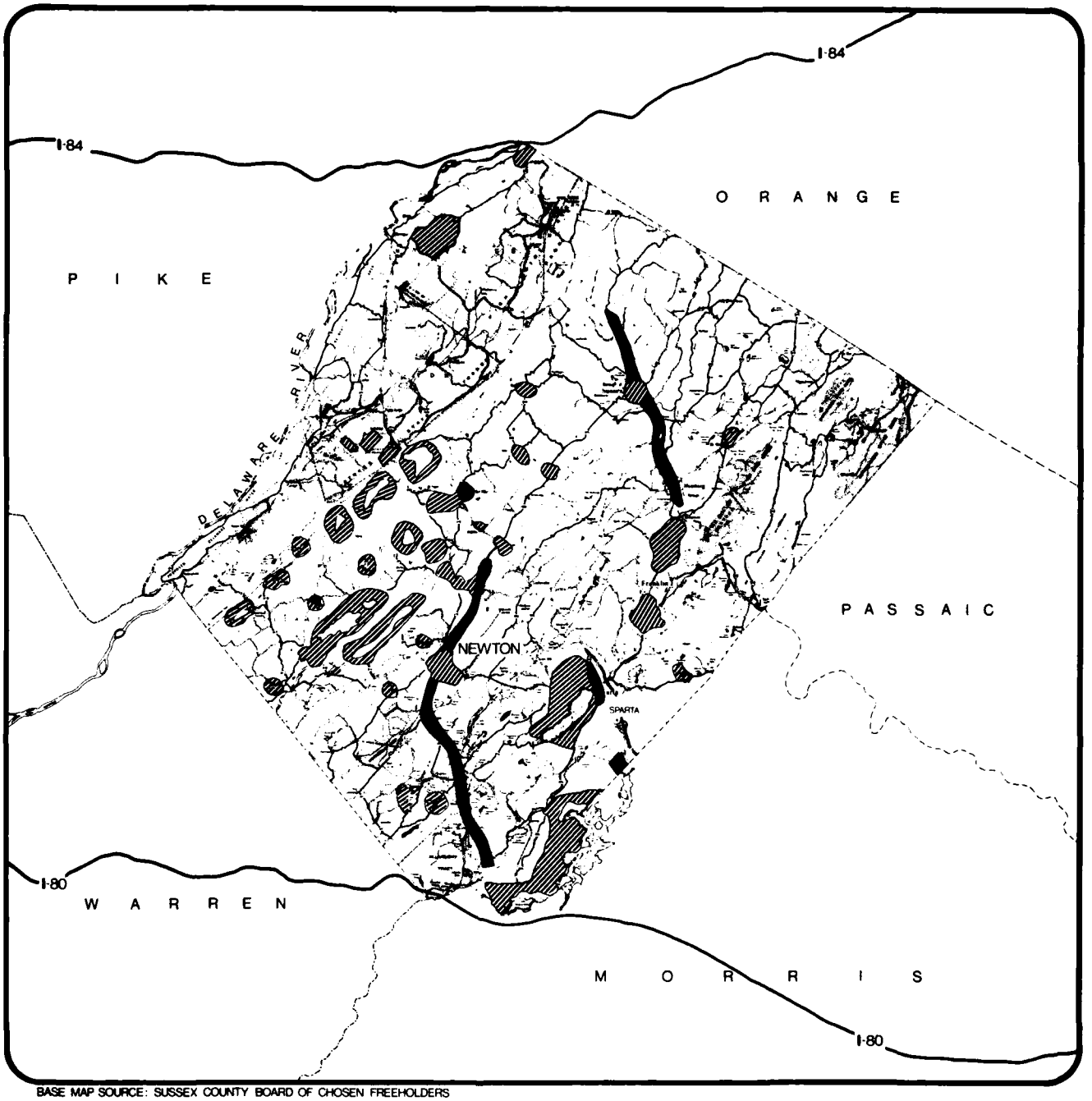
The county has no major industries; 35.9% of the land was in farms in 1971. Recreation, in effect, is Sussex County's most significant industry with seven state parks at Allamuchy (part in Warren County), Cranberry Lake, High Point, Hopatcong, Musconetcong, Swartswood and Wawayanda, Stokes State Forest, and six State Fish and Wildlife preserves.

New Jersey's largest lake, Lake Hopatcong, is located in the southeast corner of the county and the Playboy Club Hotel as well as the adjacent two ski areas, Great Gorge and Vernon Valley, are located in the northeast corner.

The following table identifies the municipalities in each impact zone:

Table 22 -8 Sussex County Impact Zones

Zone 1:	Walpack	Zone 3:	Andover Twp.
	Stillwater		Andover Boro
	Hampton		Byram
	Sandyston		Stanhope
	Montague		Lafayette
			Sparta
Zone 2:	Fredon		Hamburg
	Newton		Franklin
	Branchville		Hardyston
	Frankford		Ogdensburg
	Wantage		
	Sussex	Zone 4:	Green
			Vernon
			Hopatcong



BASE MAP SOURCE: SUSSEX COUNTY BOARD OF CHOSEN FREEHOLDERS

0 2 4 6
SCALE IN MILES

N

SUSSEX COUNTY EXISTING LAND USE

XXII
3

LEGEND

- PUBLIC OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- RURAL, AGRICULTURAL

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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XXII.B.5(a) Sussex County Zone 1

The townships in Zone 1 form a band running parallel to the Delaware River and to the DWGNRA. The township of Walpack is completely within the boundaries of the park. It was the site of some speculative second home communities until the properties were acquired by the Corps of Engineers. See Chapter XI for further discussion of this.

Major entrances to the Park in the Clark & Rapuano plan are located in these Zone 1 townships, particularly in Sandyston and Montague.

Walpack, Hampton, Sandyston, and Montague are dominated by the Kittatinny Mountain Ridge, with wooded hillsides, some farms, older houses, and small summer homes located along the river banks and around the lakes. The Old Mine Road traverses this area, beginning near the Port Jervis exit from Interstate 84 running parallel to the river all the way to the Delaware Water Gap.

On the eastern faces of the mountains, large portions of these towns lie within the boundaries of New Jersey's High Point State Park, Stokes State Forest, and Fish and Game lands.

In the township of Montague, a major development of second homes is underway at Holiday Lake with multi-family as well as single family units.

XXII.B.5(b) Sussex County Zone 2

A second parallel line of townships to the east of the primary zone will be

influenced by development pressures in the area and will be traversed by the primary access routes. These include U.S. 206 which passes through the major regional center and county seat of Newton, through Frankford and Branchville; New Jersey 23 which will be an alternate route to I-84 for visitors to the Northern end of the park and the Port Jervis area as it passes through Wantage and Sussex Boro; and New Jersey 94 as it passes through Fredon from Blairstown in Warren County to Newton as a main connector between roads leading to different park entrance points.

Commercial development already exists in this part of the county, particularly in some areas along Route 94 in Fredon, along Route 206 outside of Newton (in Hampton township) and along Route 23 in Sussex Boro and Wantage. Older commercial establishments also exist in the village centers and in the Boroughs. Branchville Center, for example, is bypassed by Route 206, though the highway does traverse the municipal jurisdiction.

Typical of the recreation second home development which has existed in this part of New Jersey is the clustering of older single family summer homes crowding the shores of Culvers Lake in Frankford.

XXII.B.5(c) Sussex County Zone 3

The remaining townships and boros classified in Zone 3 are primarily related to this same major road network of NW-SE highways leading from exit points on I-80 to the entrances of the Park and the cross roads that interconnect them. In addition to the roads mentioned under Zone 2, New Jersey Highway

15 crosses through Sparta and Lafayette; U.S. 206 continues through Andover Township and Boro, Byram, and Stanhope where there is a major interchange with I-80; New Jersey 23 continues through Hamburg, Franklin and Hardyston and County Road 617 connects 23 with 15 through Ogdensburg.

N.J. 15 is a limited access four lane highway from I-80. It bypasses Sparta Center before returning to its former two lane alignment, eventually joining Route 206. The town of Sparta is highly developed as a summer community oriented to Lake Mohawk.

Commercial establishments again follow the principal roads and the village and borough centers. Shopping centers, where they do exist in the county, are on the highways discussed and usually feature a supermarket or chain discount store with a few ancillary shops. All major shopping takes place out of the county in the more metropolitan shopping centers of New Jersey.

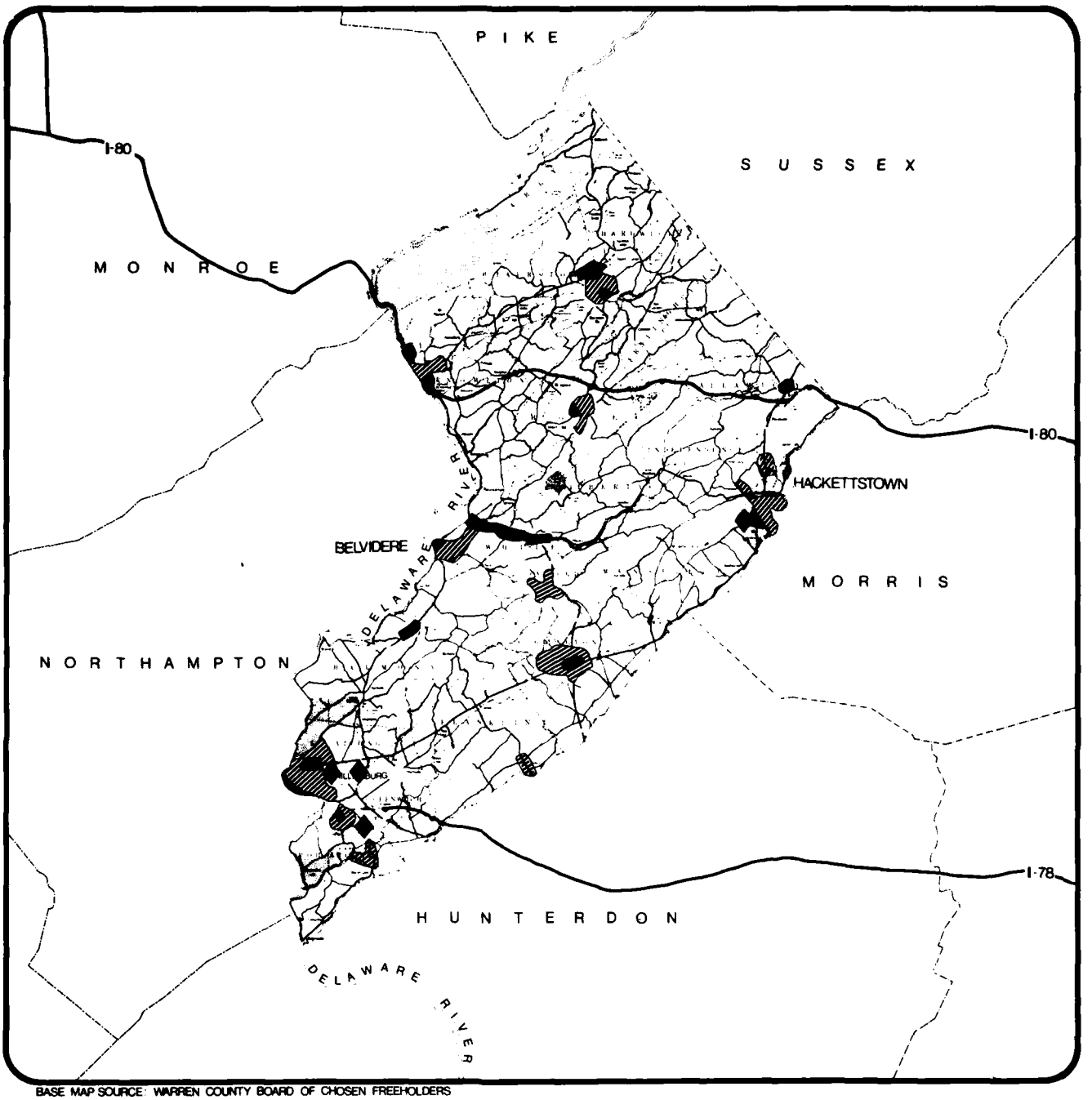
XXLL.B.5(d) Sussex County Zone 4

The township of Greene is bypassed by all major roads likely to be used by DWGNRA traffic and will therefore probably not be affected by the project. Hopatcong is already developed as a lake oriented summer colony and is also, by its proximity to I-80 and to New York, a part of the expanding metropolitan area. It may be affected if DWGNRA overcrowding produces spillover visitation to Lake Hopatcong. Vernon township is influenced by the developing New Jersey ski industry and the Playboy Club Hotel. It is,in itself, a recreation area and will draw some traffic along Route 94 for those approaching from the west on I-80.

XX.B.6 WARREN COUNTY, NEW JERSEY

Encompassing 364 square miles in western New Jersey, Warren County is situated in the southeastern portion of the Tocks Island region. The Delaware River with its sharp turns forms the western boundary, the relatively straight path of the Musconetcong defines the southeastern border and Sussex County forms the northern border. Elevations vary from 125 feet above sea level at the confluence of the Delaware and Musconetcong Rivers to 1,600 feet at the crest of the Kittatinny Mountains which dominate the landscape in the northern portion of the county. To the south, the county is characterized by rolling hills and valleys interlaced by a series of steep ridges running diagonally across the county in a southwest-northeast direction.

The northern portion of the county, where the steep terrain has limited intense development, is essentially rural. The Worthington State Forest occupies the northwestern corner from the Delaware River southward over the Kittatinny Ridge. South of the Ridge, the gradually descending and softening terrain is sparsely settled with single family dwellings scattered throughout the heavily wooded landscape. Further south where the mountains open into broad valleys and hills, agriculture becomes the predominant land use. The southern portion of the county lies within the Allentown-Bethlehem-Easton metropolitan region. It is largely urban and industrial and is one of the most intensely populated areas of the seven county region. Phillipsburg, the



BASE MAP SOURCE: WARREN COUNTY BOARD OF CHOSEN FREEHOLDERS

0 2 4 6
SCALE IN MILES

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WARREN COUNTY EXISTING LAND USE

XXII
4

LEGEND

- PUBLIC OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- RURAL, AGRICULTURAL

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home of Ingersoll-Rand Corporation is the largest of Warren County's municipalities and is directly linked via the Route 78-U.S. 22 Bridge to Easton, Pennsylvania. The growth in this region is directly related to the expansion of this urbanized core.

Unlike the other counties in the Tocks Island Region, Warren has had minimal second home development and only a small recreation based industry. The recreation homes that do exist are along Route 46 adjacent to the Delaware River. The major recreation areas include Worthington State Forest and Jenny Jump Ski Area. The State Fish and Game Commission administers the Hackettstown Hatchery in Hackettstown and may purchase land in Mansfield Township along the Pequest River for game preserves.

Table 22-9 Warren County Impact Zones

Zone 1:	Pahaquarry	Zone 4:	Mansfield
	Hardwick		Harmony
	Blairstown		Franklin
	Knowlton		Lopatcong
			Greenwich
Zone 2:	Frelinghuysen		Phillipsburg
	Hope		Alpha
			Pohatcong
Zone 3:	Oxford		Allamuchy
	White		Belvidere
	Liberty		
	Independence		
	Washington		
	Washington Township		
	Hackettstown		

XXII.B.6(a) Warren County Impact Zone 1

Virtually all of Pahaquarry Township will be included in the boundaries of the proposed Project. Much of the area is currently within the Worthington State Forest. Since the land is publicly held, there is minimal development. Ther
There are some historic structures including the Old Copper Mine and Van Campen's Inn along the Old Mine Road.

Knowlton, Blairstown and Hardwick Townships border the proposed Project on the south side of the Kittatinny Mountains. Parts of each are within the "take area." Entrances to the Kittatinny recreation site including a 6,000 person beach and to parts of the Delaware Water Gap will be through these towns. Visitors going to these areas from I-80 via New Jersey Route 521 or Route 94 will travel through Blairstown, a small village nestled in the hills.

Route 521 from I-80 to Blairstown runs through hilly terrain characterized by agricultural land uses. As a major access route to the Park, it is expected to be heavily traveled during peak months. Route 94, parallel to the Kittatinny Ridge, extends from the toll bridge at Columbia through Knowton, Blairstown and Hardwick, to Sussex County. Park visitors going through New Jersey may travel on Route 94 through Newton, in Sussex County to northern sections of the recreation area. Some strip commercial and residential development already line the road. Most of the surrounding area is in agricultural use with rural town centers

occurring at road junctions. Development along the Delaware River south of the Project Area in Knowlton consists primarily of small single family dwellings. Originally built for seasonal use, many dwellings now appear to be used year round.

XXII.B.6(b) Warren County Impact Zone 2

Zone 2 includes only Freylinghusen and Hope townships. The project's effects on these townships will be related to the I-80 interchange in Hope and to Route 94 in Frelinghuysen. I-80, expected to be a major transportation route for park visitors coming from New York, runs through relatively undeveloped or agricultural land. The Warren County section of I-80 was recen recently completed and is expected to open the area to development. While there are some roadside signs advertising the sale of commercial property, there is little current development visible from the highway or at the major interchanges. Hope and Frelinghuysen are primarily agricultural with most development following major roads.

XXII.B.6(c) Warren County Zone 3

The townships and boros classified in Zone 3 are related to the secondary road network providing access to the park. New Jersey Highway 31 runs north from Trenton and Princeton through Washington Borough and Washington, Oxford and White Townships where it joins New Jersey Route 46.

Route 46, a winding two lane road was formerly the major east-west corridor through the county. It may be used as an alternate to Route 80 for visitors going to and from the park if I-80 becomes congested, though its present two lane capacity is severely limiting. Renewed corridor related impacts may be concentrated along the road and to the south. Northern areas are protected by a steep ridge rising above the Pequest River. I-80 has absorbed most of the east-west through traffic thereby reducing problems associated with traffic congestion and demand for highway oriented commercial goods and services and development pressures. A decreased rate of growth in Hackettstown, a secondary industrial center in the eastern portion of Warren County, is related to changed transportation patterns. If overflow traffic returns to Route 46, the center of Hackettstown will once again be congested as it was prior to the completion of I-80. This section of Route 46 is essentially rural, with some commercial areas in village centers such as Buttzville, Great Meadows and Vienna.

XXII.B.6(d) Warren County Zone 4

Development pressure exerted by the outward expansion of the New York metropolitan region is likely to be the major factor in the future growth of Allamuchy. Panther Valley, a new 1,000 acre subdivision, is oriented to a permanent home market, rather than any recreation related demands. Belvidere, the county seat, lies to the south of Route 46 away from any major access road to the project. Harmony, Franklin, Lopatcong, Greenwich and Pohatcong Townships and the Boroughs of Phillipsburg and Alpha are relatively far from the project and are influenced by the Bethlehem-Allentown manufacturing area. In spite of the fact that I-78 crosses the southern tip of the county, the area's distance from the project in addition to its industrial orientation will minimize any potential effects of DWGNRA.

XXII.B.7 NORTHAMPTON COUNTY, PENNSYLVANIA

Of the three Pennsylvania counties, Northampton is the southernmost and least affected by the Recreation Area. The County's orientation is more south and west to its major population and industrial centers of Bethlehem and Easton. It is united by a joint planning commission with its neighbor, Lehigh County, across the Lehigh River which joins the Delaware at Easton.

The northern edge of the County shares its borders with Carbon and Monroe Counties. The border follows the peak of Blue Mountain, the Pennsylvania extension of the Kittatinny Ridge in New Jersey. On the southeastern edge of the mountain is a slate bench which still produces slate for roofing, blackboards and other purposes. Below this is a band of limestone which provides the materials for the County's cement industry.

Further south lines a broad valley crossed by the Lehigh River. Historic routes of transportation followed the river: shipping on the river itself, canals, railroads and finally highways. Urban industrial centers developed along these paths and Northampton County became the home of a major iron and steel industry.

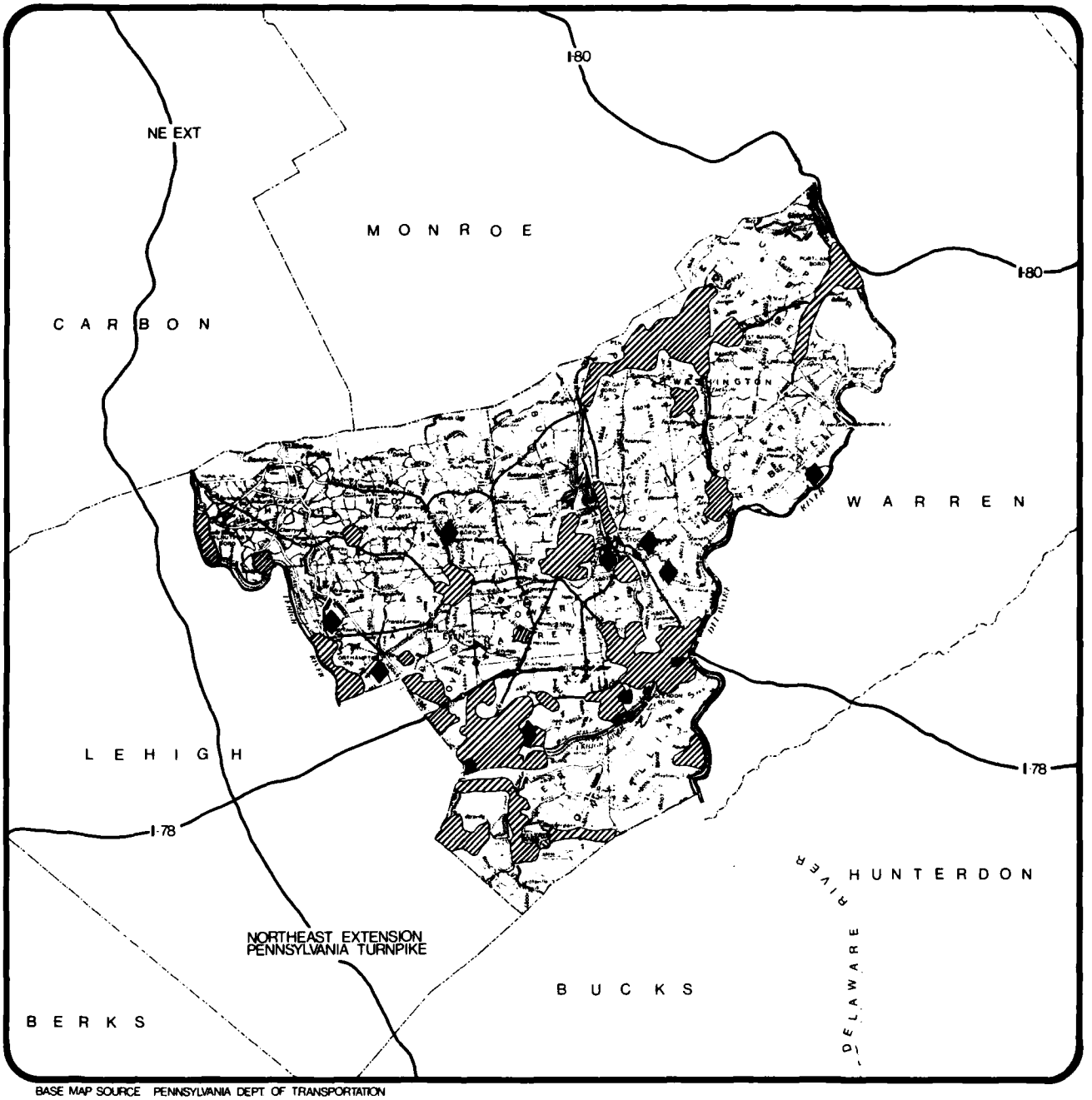
In spite of its industrial importance, according to a 1974 Pennsylvania Department of Commerce Report, 24% of the County's 379.78 sq. miles, remains in forest land and 49% in crop and pasture land. Dairy farming is the major agricultural industry. In 1972, there were a total of 910 farms in the County.

Table 22-10 Northampton County Impact Zones

Zone 1:	Upper Mount Bethel	Zone 4:	Bushkill
	Portland		Moore
Zone 2:			Chapman
			Lehigh
Zone 3:	Lower Mount Bethel		Walnutport
	East Bangor		Allen
	Bangor		Northampton
	Roseto		North Catasauqua
	Washington		East Allen
	Pen Argyl		Bath
	Plainfield		Nazareth
	Windgap		Upper Nazareth
			Lower Nazareth
			Stockertown
			Tatamy
			Palmer
			Forks
			Wilson
			West Easton
			Easton
			Hanover
			Bethlehem
			Bethlehem Twp.
			Freemansburg
			Glendon
			Williams
			Hellertown
			Lower Saucon

XXII.B.7(a) Northampton County Zone 1

A small portion of the DWGNRA is located in the northeastern corner of the township of Upper Mount Bethel. This portion of the park is on the southern slope of the Mt. Minsi side of the Gap itself. U.S. Highway 611 crosses the township, passes through the Borough of Portland and follows the river up to the Delaware Water Gap. The township is rural with minimal residential and commercial development existing along Route 611 and other state, county and township roads connecting village centers.



BASE MAP SOURCE PENNSYLVANIA DEPT OF TRANSPORTATION

0 2 4 6
SCALE IN MILES

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NORTHAMPTON COUNTY EXISTING LAND USE

XXII 5

LEGEND

- PUBLIC OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- RURAL, AGRICULTURAL

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There are some older summer homes along the riverfront and a power plant on the river below Portland.

The Borough of Portland is situated on the Delaware River surrounded by the Township of Upper Mount Bethel. At Portland, a toll bridge connects U.S. 611 with Columbia, New Jersey and a principal area interchange on I-80. There is presently no interchange or highway oriented commercial development in Portland, though this older village center has a commercial concentration located off the major roadways.

XXII.B.7(b) Northampton County Zone 3

The jursidictions in Zone 3, in addition to Upper Mount Bethel and Portland, constitute the Lehigh Northampton Subregion 5 called the Slate Belt Area. Pennsylvania Highway 512 runs parallel to Blue Mountain through the slate region. The Boroughs of Wind Gap, Pen Argyl, Roseto, Bangor, and East Bangor form a string of urban-commercial concentrations along the highway which threads through their centers and between great heaps of slate from the area's quarries.

Though the slate industry is not as active today, the urban centers remain and many people commute to Stroudsburg or Allentown-Bethlehem-Easton.

A principal access route from the Philadelphia and Allentown areas north to the DWGNRA will be via Pennsylvania Highway 33, a four lane limited access highway which connects U.S. 22 between Bethlehem and Easton with I-80 at

Stroudsburg. Route 33 crosses the Blue Mountain Ridge at Wind Gap.

The Northampton County Master Plan envisions a "Slate Belt Expressway" which would replace Route 512 and connect Route 33 with Portland. Although this is not currently high on the Penn DOT priority list, this route is a possible alternative southern approach to the DWGNRA area.

Another such route is U.S. 611 which winds along the riverfront from Easton to Martin's Creek in Lower Mount Bethel and then crosses farming land directly to Portland. This is another possible Philadelphia area route to the Gap, but the nature of the old two lane highway makes its selection less likely than the newer expressways to the west.

XXII.B.7(c) Northampton County Zone 4

The remainder of Northampton County is too remote from the DWGNRA to respond to direct impacts from the project. Easton and Bethlehem are major area industrial centers and the remaining rural townships are agricultural regions which relate to the existing urban centers and the suburban communities that surround them.

XXII.B.8 MONROE COUNTY, PENNSYLVANIA

Monroe County, like Sussex in New Jersey, has a recreation oriented economy. It includes the Delaware River west bank from the Water Gap itself to the Bushkill at Walpack Bend. Behind the river valley rises the flat Pocono Mountain region, with its glacial lakes and forested acres. Pike County to the north continues the similar character along the river and into the mountains.

A short portion of the northern County border is shared by Wayne County and to the west Luzerne County lies across a stretch of the Lehigh River. Carbon County shares the border to the southwest, and at the Gap the Monroe-Northampton border follows the ridge line of Blue Mountain.

To the north of the dominant mountain ridge lie agricultural valleys in the southwestern townships of Polk, Eldred, Ross, Chestnut Hill, Hamilton and Jackson.

Agriculture is not a major industry in Monroe County because of limited appropriate land areas, though some additional farming is found in the River areas of Smithfield and Middle Smithfield and also in the Township of Pocono. In 1971, there were 260 farms in the County.

A 1969 survey indicated, however, that 75% of the County's 611 square miles was in woodland. Much of this lies on the Pocono Plateau and is the region which contains many of the areas resort hotels and recreation-second home developments. Camelback Mountain, among other areas in the

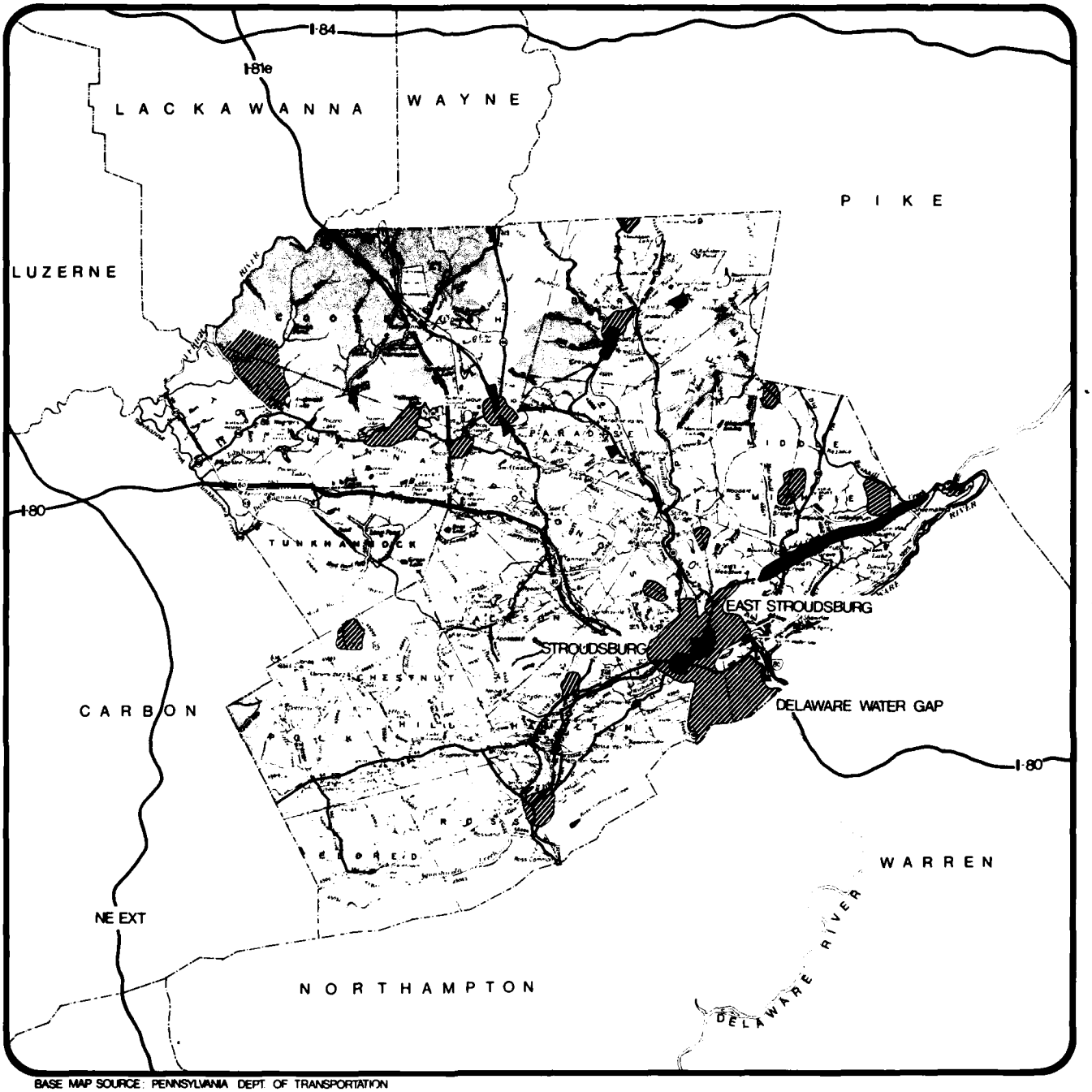
region has been developed for skiing.

The "capital" and urban center of Monroe County is the Stroudsburg-East Stroudsburg concentration. Located on either side of the Brodhead Creek which flows into the Delaware just north of the Delaware Water Gap, these two boroughs are also adjacent to a series of exits from I-80 which passes through the Gap, the Stroudsburgs and continues west into the resort area.

County industries which are largely oriented toward metal trades are concentrated around these two boroughs. In order to diversify the seasonal resort economic base of the County, the Monroe County Industrial Development Authority has been successful in attracting industries to an industrial park in the Stroudsburgs, and is planning another in the western part of the County near Mt. Pocono. A small amount of needletrade industry is located in the southwestern communities along U.S. 209.

Table 22-11 Monroe County Impact Zones

Zone 1:	Middle Smithfield	Zone 3:	Barrett
	Smithfield		Mt. Pocono
	East Stroudsburg		Coolbaugh
	Stroudsburg		Tobyhanna
	Stroud		Tunkhannock
	Delaware Water Gap		Jackson
			Chestnut Hill
Zone 2:	Price		
	Paradise	Zone 4:	Eldred
	Pocono		Polk
	Hamilton		Ross



BASE MAP SOURCE: PENNSYLVANIA DEPT. OF TRANSPORTATION

0 2 4 6
SCALE IN MILES

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MONROE COUNTY EXISTING LAND USE

XXII

6

LEGEND

- PUBLIC OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- RURAL, AGRICULTURAL

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XXII.B.8(a) Monroe County Zone 1

Zone 1 in Monroe County includes the three townships which contain the southern Pennsylvania portions of the DWGNRA. The Boro of Delaware Water Gap also includes some of the park. The two Boroughs of Stroudsburg and East Stroudsburg surrounded by the Zone 1 townships, will become, by their size and location, the major southern gateway to the DWGNRA.

Historically, hotels and resorts have been part of this area. Existing concentrations of tourist and summer facilities are found along the riverfront in Shawnee, near the Gap in Delaware Water Gap Borough and at the I-80 interchange adjacent to the Delaware River Toll Bridge. There are also new and older hotels in and around Stroudsburg and considerable tourist strip development along U.S. 209 through the Smithfields. At Shawnee a 1200 unit condominium development is already under construction in conjunction with the expansion of recreation facilities at the long established Shawnee Inn.

Though no major park facilities will be located in this part of the DWGNRA, the dam site itself is in Middle Smithfield Township. The sight-seeing attraction of the Gap is here and the principal route north to major Pennsylvania side facilities will be via U.S. 209 to Bushkill and beyond.

XXIIB.8(b) Monroe County Zone 2

The four townships of Price, Paradise, Pocono and Hamilton form a partial ring surrounding the primary impact Zone 1. They will experience the development pressures beyond the immediate park related impacts.

Hamilton Township to the south is traversed by the four lane limited access road Pennsylvania 33, bringing visitors from the south to the Stroudsburg area. This new roadway branches in Hamilton with the eastern fork carrying U.S. 209 traffic toward I-80 east and 209 north and the western fork connecting with I-80 west of Stroudsburg at Bartonsville where either 611 or I-80 continue to the Pocono Mountain resort areas.

The Cherry Creek flows north into the Delaware through Cherry Valley on the northern side of Blue Mountain. It is presently devoted to farmland, with lovely stone building village centers. Signs of suburban development from Stroudsburg already exist along new and old 209.

I-80 and U.S. 611 pass through Pocono Township. Pennsylvania 191 leads from Stroudsburg through Paradise Township to Mt. Pocono Borough and Pennsylvania 447 passes through Price Township leading north toward I-84 in Pike County. All these "spoke" roads lead into Stroudsburg and the southern end of the Recreation Area. They pass through forested lands and already developed resorts.

XXII.B.8(c) Monroe County Zone 3

Beyond the Zone 2 townships, Barrett, Coolbaugh, Tobyhanna, Tunkhannock and Jackson form another partial ring with the Boro of Mt. Pocono at the approximate center. These townships on the Pocono plateau are the sites of resort, recreation, ski and second home development communities. Many population concentrations are in areas of entirely new development unrelated to previously existing village centers. The "spoke" routes continue

out through this region and though already developing on their own, these townships will be somewhat influenced by the proximity of the DWGNRA and the traffic passing through.

Chestnut Hill Township lies further to the southwest along U.S. 209. Traffic using the Pennsylvania Turnpike Northeast Extension may come to the Stroudsburg and DWGNRA area via 209 and pass through Chestnut Hill.

XXII.B.8(d) Monroe County Zone 4

The remaining townships of Eldred, Polk and Ross are primarily agricultural and of sufficient distance from the impact area to be largely unaffected by the development of DWGNRA.

XXII.B.9 PIKE COUNTY, PENNSYLVANIA

Pike County is bounded by the Delaware River, on its eastern borders, by Monroe County to the southwest, and by Wayne County to the northwest. The Lackawaxen River flows west to east across the northern portion of the county to the Delaware River. Lake Wallenpaupack, the largest man-made lake in Pennsylvania forms a substantial portion of the northwestern border with Wayne County and provides a major recreation center in the northern part of the county.

In general, with the exception of Blue Ridge, the topographic relief of Pike County is mild. Glacial action in the region rounded the mountain tops creating a somewhat hilly, rather than rugged, mountain terrain.

Most of the soils in the County are shallow and rocky, with the exception of those in the Delaware River Plain, and are unsuitable for agricultural use or intensive urban development without adequate public services.

Pike, like Monroe County, is best known for its resorts, extensive state forests, game lands and rapidly expanding second home developments. The County's natural features characterized by an upland forest, the high hills of the Poconos and hundreds of forest encircled lakes are ideal for recreation related activities. The steep escarpments of Blue Ridge that were forged by the Delaware and Lackawaxen Rivers provide a dramatic setting for the Delaware Water Gap National Recreation Area.

Approximately 50 percent of the County is in State Forests and public and private game land. State Forests alone total 67,136 acres; Promised Land and George W. Childs are among the largest. Delaware Forest, which extends from Monroe County, encompasses a total 76,000 acres in both counties. Blooming Grove Hunting and Fishing Club owns extensive acreage in Blooming Grove Township.

In 1970, Economic Development Council of Northeast Pennsylvania estimated that only seven percent of the total 356,000

acres is developed with 86 percent remaining in woodland. Urbanized development is concentrated in the Boros of Milford and Matamoras on the Delaware River. These boroughs are linked to the nearby urban center of Port Jervis, New York, by Route U.S. 209.

While Pike is one of the most rural in the Tocks Island Region, there was substantial growth of the total number of housing units from 1960-1970. Most of the dwellings were in large subdivisions ranging from 35 to 4,000 acres. A significant portion of these are second home developments, which comprise a major percentage of Pike's total housing inventory.

The road network oriented around Interstate 84 and U.S. Route 6 will provide several alternate ways to reach the park. I-84 extends from the southern tip of Lake Wallenpaupack in Greene Township through Palmyra, Blooming Grove, Dingman, Milford and Westfall in Pennsylvania and Port Jervis and Newburgh in New York to New England. U.S. Route 6 from Scranton and Honesdale in the north runs across the northern end of Lake Wallenpaupack along the northern boundaries of Blooming Grove and Dingman to Milford Township where it intersects with I-84. It then proceeds to Milford Boro where it joins U.S. Route 209. These two major highways feed three north-south state roads 402, 380 and 739 which provide direct access to the park.

Table 22-12 Pike County Impact Zones

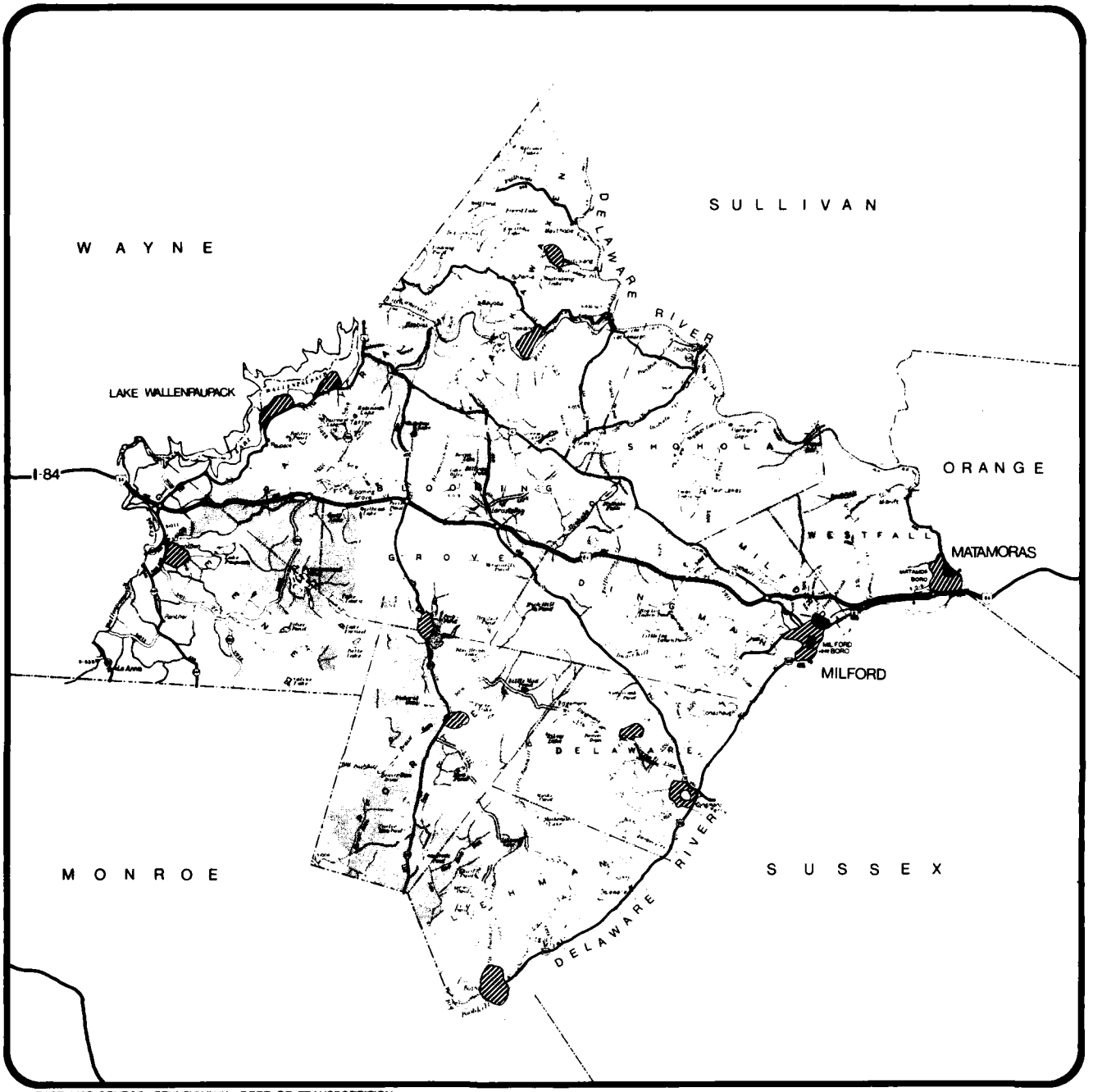
Zone 1:	Matamoras	Zone 2:	Blooming Grove
	Westfall		
	Milford Twp.	Zone 3:	Greene
	Milford Boro		Palmyra
	Dingman		Shohola
	Delaware		Porter
	Lehman		
		Zone 4:	Lackawaxen

XXII.B.9(a) Pike County, Impact Zone 1

Zone 1 in Pike County forms a parallel line directly adjacent to the park boundary. All of the municipalities are linked by U.S. Route 209 which follows the Delaware River. The road, known for its heavy truck traffic is proposed for relocation outside the park's boundary. The area between the old and new roads will be within the park and portions of the current 209 and the land to the east will be flooded by the formation of Tocks Island Lake. The new Route 209 will provide access to park entrances in Lehman, Delaware and Milford Townships including major facilities at Bushkill, Dingman and Milford. 209 will also serve as a lateral route for visitors traveling between park facilities.

There are numerous farms, several sand and gravel operations, scattered residential development and natural wooded areas in the region between 209 and the Delaware River. The river can rarely be seen from the road because of the generally flat terrain.

The heavily wooded slope on the northwest side of 209 has only occasional single family dwellings or commercial establishments.



BASE MAP SOURCE: PENNSYLVANIA DEPT. OF TRANSPORTATION

0 2 4 6
SCALE IN MILES

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PIKE COUNTY EXISTING LAND USE

XXII

7

LEGEND

- PUBLIC OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- RURAL AGRICULTURAL

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The Boro of Matamoras is situated at the northern end of the proposed project. Matamoras' developed areas are linked to Port Jervis, across the river in New York. Together the two communities form a regional commercial center in the Tock Island area. The boro is almost completely developed, with only six acres available for new construction. The relocation of 209 and the completion of I-84 should relieve Matamoras of the heavy traffic which currently bisects the community.

The Pike County seat, Milford Boro, lies south of Matamoras. It is located at a major junction of 209 and U.S. Route 6. U.S. Route 6 gives access to the Milford-Montague Bridge over the Delaware, providing interstate mobility for park visitors.

The Boro is situated on a bluff above the Delaware River. There is some strip commercial development on 209 from Matamoras to Milford. New commercial growth is occuring on Route 6 toward the I-84 interchange. Milford itself is a small village, with its center on Route 209. Its charming main street presents the character of a well maintained American small town of another era. Pinchot Estate, managed by the State Forest Service for ecological and educational purposes is in the hills above the village center. Dingman and Delaware Townships to the south are known for the rapid development of large second home subdivisions such as Brookside Development (1,200 acres), Sunrise Lake (3,000) acres and Gold Key Estates (1,292 acres).

XXII.B.9 (b) Pike County, Impact Zone 2

Blooming Grove is the only township in the Number 2 impact classification.

It is traversed by a network of four roads providing access to DWGNRA. Most development along 84 is limited to interchanges, consisting largely of small retail stores and gas stations.

Both 402 and 739 extending southward from Route 6 will provide direct access to the park area in Pike County. 402 intersects I-84 at Perch Pond and goes directly south through Porter Township. Route 739, intersects I-84 at Lords Valley, and continues eastward in a diagonal fashion through delaware township to the park. Both roads are narrow and in relatively poor condition.

Recreational development in Blooming Grove includes the Blooming Grove Hunting and Fishing Club owned by Western Heritage Incorporated, and Promised Land State Park. Hemlock Farms, a well known second home development is located south of I-84 between 402 and 739.

XXII.B.9(c) Pike County, Pennsylvania Impact Zone 3

The determination of Impact Zone 3 is somewhat irregular in Pike due to the road network and extensive public land holdings. Shohola is in Zone 3 because Route 6 only crosses its southern boundary. Most of the park related impacts will be south of the highway closer to the main focus of recreation activity.

Porter Township is crossed by Route 402 and two county roads leading to the park area. But because approximately 65 percent of the township is in state forest or fish and game land, normal impacts will be limited. The future of the area is essentially tied to the management of forest and

game land.

Palmyra was included in Impact Zone 3 because of the anticipated relationship between Lake Wallenpaupack and DWGNRA. Built by Pennsylvania Power and Light, Lake Wallenpaupack was developed for power generation and designed to provide space for recreational activities.

Vacation cottages and some permanent homes line the hilltop, wooded lake. While most of the beaches are reserved for residents, there are some public beach and boat launching facilities. The land along U.S. Route 6 and Pennsylvania Route 507 near the lake, is bustling with commercial activity, much of which is oriented toward marine recreation.

I-84 and Pennsylvania State Roads 307 and 402 cross Palmyra and Greene Townships. The effects of this road network will be somewhat similar to those in Blooming Grove, but modified by the greater distance from the park.

In general, these two townships are heavily wooded, with scattered single family dwellings on the roadside and some large subdivisions off private roads.

XXII.B.9(d) Pike County Pennsylvania Impact Zone 4

Lackawaxen Township, in the northern part of the county, is above U.S. Route 6 and its future development will probably be more closely associated with the recreation activities along the Upper Delaware River than with DWGNRA.

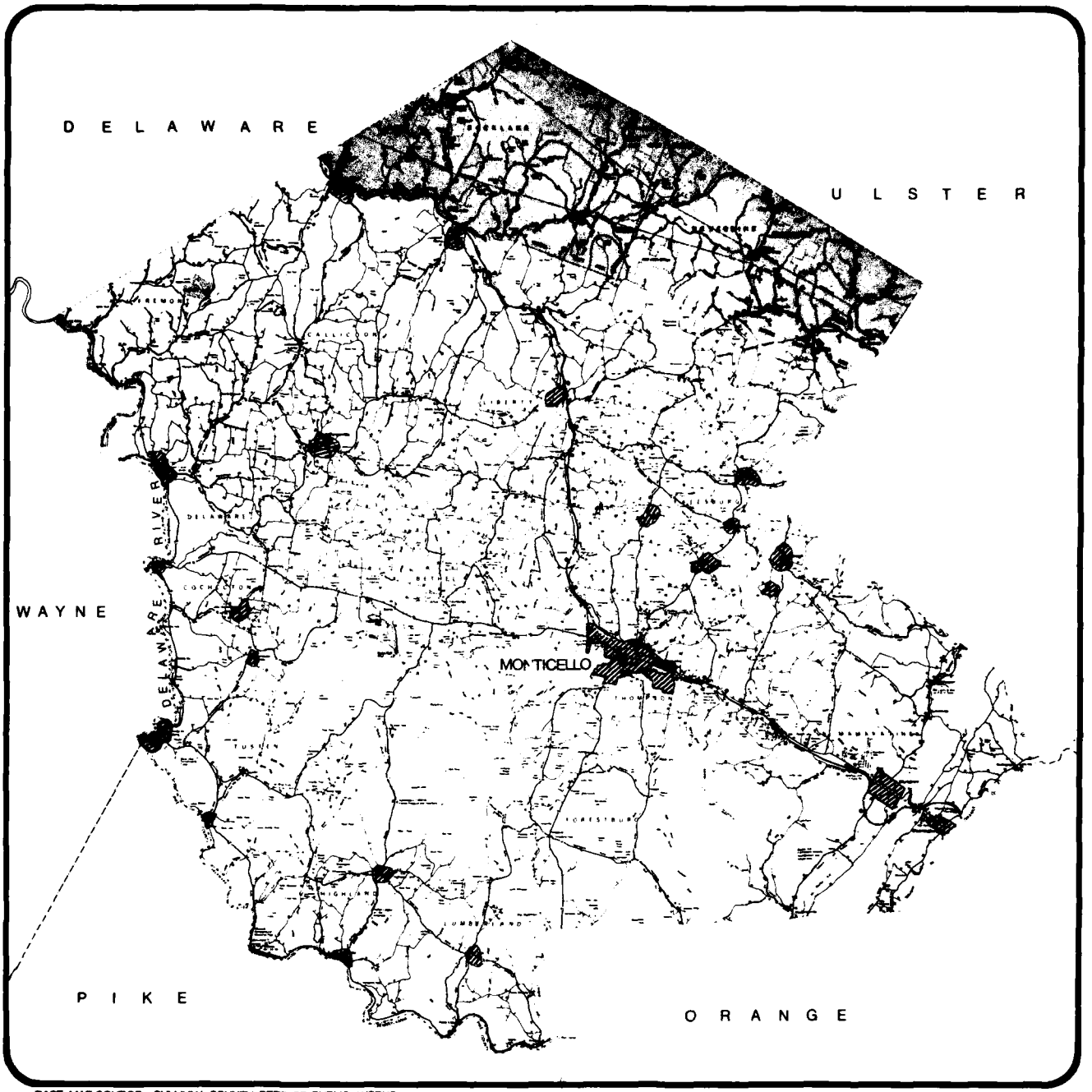
XXII.B.10 SULLIVAN COUNTY, NEW YORK

Sullivan County is the northernmost of the seven county region. It is located along the Delaware River in New York State and is included in the New York Catskill Region. To its north lies Delaware County, through which flow the east and west branches of the Delaware River. To the north and east, Sullivan shares a border with Ulster County and to the south, Orange County.

Sullivan is rural and it is also a resort area. Of its 986 square miles, in 1969 only 5.8% were devoted to active agriculture. More than 78% of the county was either woodland or brush.

There were 597 farms in the county in 1974, the largest number devoted to dairy (160) and poultry (57). Principal farming areas in the County are in the northeast between the Neversink and Rondout Reservoirs of the New York City Water System and in the northwest in the townships of Fremont, Callicoon, Delaware, Bethel and Liberty.

Sullivan County is traversed diagonally from northwest to southeast by New York Route 17, the Quickway, which is a major route connecting the New York Thruway in Orange County with the Catskill Resort area and beyond to Hancock, Binghampton and the southern tier. The County's major population centers lie along this route in Monticello, Liberty, and to a lesser extent in Wurtsboro and Bloomingburg. This is also the Sullivan County portion of the Catskill Resort area including a wide section of the towns of Mamakating, Thompson, Fallsburg, Liberty, and



BASE MAP SOURCE: SULLIVAN COUNTY DEPT OF PUBLIC WORKS

0 2 4 6
SCALE IN MILES

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SULLIVAN COUNTY EXISTING LAND USE

XXII
8

LEGEND

- PUBLIC OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- RURAL, AGRICULTURAL

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Bethel and continuing in a narrower band all along Route 17 to the Delaware County line through Callicoon and Highland and the village centers of Livingston Manor and Roscoe.

The remainder of the County to the north into the Catskill State Forest and to the south along the Delaware is largely forested and undeveloped. There are large tracts belonging to the Boy Scouts, to the Orange and Rockland Utility Company, and to hunting organizations.

Within the County, some recent second home development had begun at Davos in Fallsburg and Emerald Green in Thompson. Because of the recent state of the economy, this trend has been at least temporarily stalled.

With the exception of village center commercial and some small shopping plazas with supermarkets and a few other stores, Sullivan County shoppers go to Honesdale, Pennsylvania or Middletown, New York for any major purchasing. There are no industries to speak of in the County.

Table 22-13 Sullivan County Impact Zones

Zone 1:	(None)	
Zone 2:	(None)	
Zone 3:	Forestburg	
	Highland	
	Lumberland	
Zone 4:		
	Tusten	Neversink
	Bethel	Rockland
	Thompson	Liberty
	Mamakating	Liberty Village
	Bloomingburg Village	Callicoon
	Wursboro	Jeffersonville
	Monticello Village	Fremont
	Fallsburgh	Delaware
	Woodridge Village	Cochecton

XXII.B.10(a) Sullivan County Zones 1 and 2

No portions of the DWGNRA are located in Sullivan County; no principal routes leading to the Park pass through Sullivan County and the major population and regional centers are oriented to the Catskill resort area. No portions of Sullivan will be in the primary impact zones 1 and 2.

XXII.B.10(b) Sullivan County Zone 3

The three southernmost townships of the County, Highland, Lumberland, and Forestburg are the closest to the Delaware in the vicinity of Port Jervis in adjacent Orange County. This forested region is connected by New York Route 42 from Monticello to Port Jervis and will carry traffic traveling between Catskill resorts and the proposed park. In Thompson Township the area is developed in relation to the Monticello summer bungalow colonies, but as the road passes into the Forestburg area, woodlands, lakes and streams predominate.

New York Route 97 follows the east bank of the Delaware through Lumberland, Highland and along the entire county riverfront. This area will be affected by the proposed designation of this portion of the River as a part of the National Wild and Scenic River system. The lower townships nearer DWGNRA may be affected by wider publicity and knowledge of the river, its region and recreation opportunities and could attract some spillover visitation.

XXII.B.10(c) Sullivan County Zone 4

The remainder of Sullivan County can be considered in relation to the

Upper Delaware, the Route 17 resort complex and the Catskill Preserves to the north and will not be greatly influenced by the existence of DWGNRA. Although U.S. 209 passes through Mamakating from Kingston New York toward Port Jervis and Pennsylvania, it is primarily an existing truck route, and visitor traffic as well as some truck traffic is likely to employ the faster connections via I-84 and the New York State Thruway.

XXII.B.11 ORANGE COUNTY, NEW YORK

Orange County has a land area of 850 square miles spanning the 38 miles between the Hudson River to the east and the Delaware River to the west. The County is bounded by three New York counties, Sullivan to the north, Ulster to the northwest, Rockland to the Southwest and and Sussex County, New Jersey to the south.

Two mountain ridges extending in a northeast-southwest direction dominate the county. The highlands of the Hudson and the Ramapo Mountains form a single range across the southeastern portion of the county. Until the New York State Thruway was extended through the Ramapos, the range formed a natural barrier to the outward urban expansion of New York City.

The Shawangunk Mountains to the west are an extension of the Kittatinny Mountains in New Jersey and connect with the Catskill Mountains in Sullivan. The Catskills rise dramatically above the Upper Delaware River providing

views of the valley from Routes 17 and 211 which traverse them.

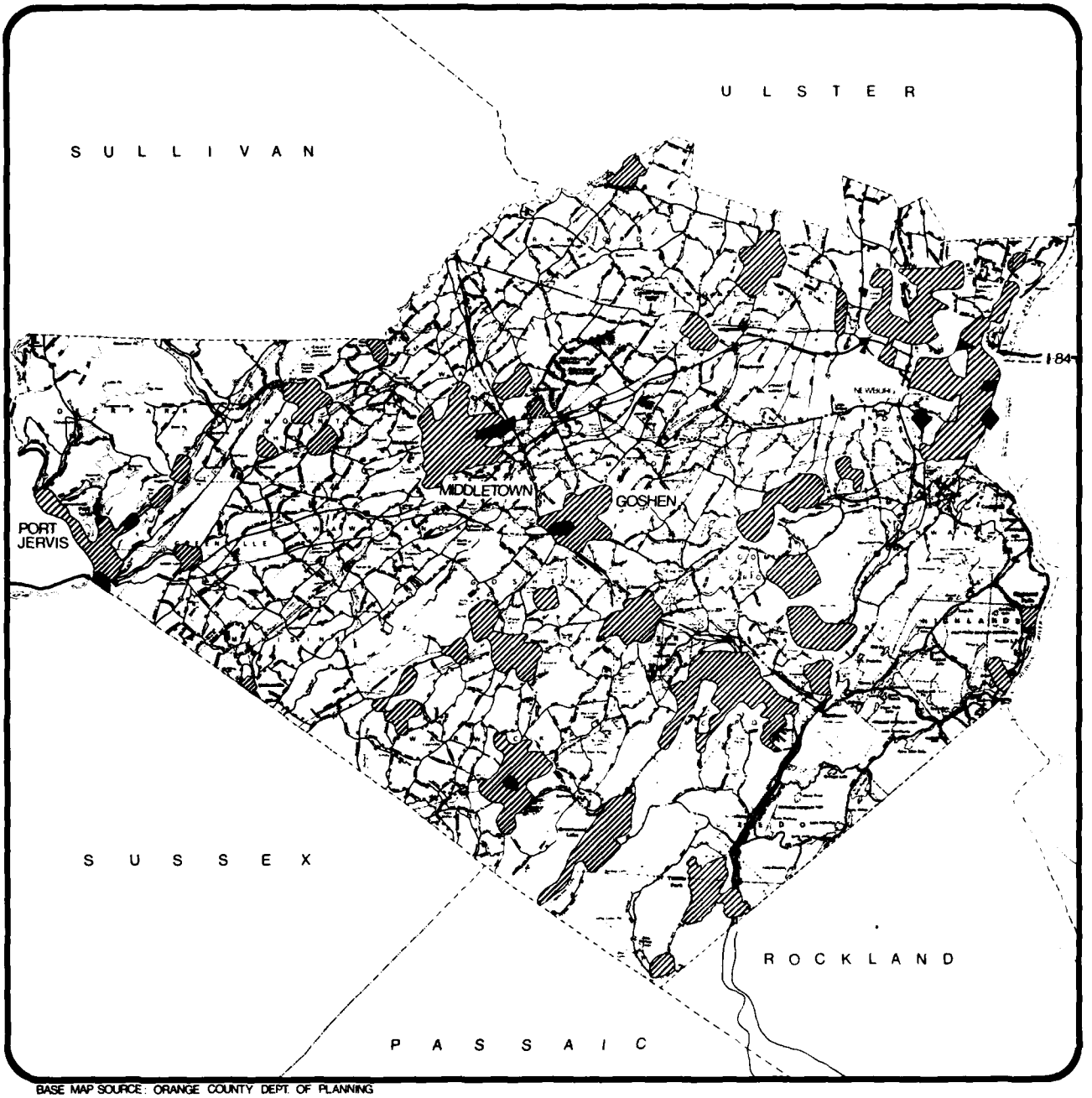
The Catskill region of Orange County is mountainous with numerous lakes and streams throughout the forested region.

The gently rolling farms and woodlands of the Wallkill River Valley lie between the two mountain ranges. The County's major population centers of Newburgh,Goshen and Middletown are located in this Valley. The areas of Deerpark and Port Jervis, to the west of the ridge are physically separated by the steep mountains but are linked to the rest of the county by I-84, U.S. Route 6 and New York State 211.

In addition to the wooded and brush lands which comprise 50 percent of the county's area, significant acreage is devoted to outdoor recreational activities. Major state parks include Harriman, Goose Pond and Highland Lakes.

In 1969, most of the county's 12,000 farms were dairy. A sizable proportion of these were located in Minisink, Warwick, Montgomery, Goshen and Crawford Townships. The county's principal industrial activity is in Newburgh. This township's industrial development, density and proximity to New York City distinguishes it from the rural and suburban areas of most of Orange County to the west.

Most of the county is still rural, though suburbanization along major transportation corridors and near existing towns is occurring at a rapid



BASE MAP SOURCE: ORANGE COUNTY DEPT. OF PLANNING

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SCALE IN MILES

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ORANGE COUNTY EXISTING LAND USE

XXII
9

LEGEND

- PUBLIC OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- RURAL, AGRICULTURAL

A COMPREHENSIVE STUDY OF THE

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rate. It is one of the fastest growing counties in the Tocks Island Region.

Table 22-14 Orange County, Impact Zones

Zone 1:	Port Jervis	Zone 4:	Wawayanda
			Warwick
Zone 2:	Deer Park		Warwick Village
	Greenville		Tuxedo Park
			Tuxedo
Zone 3:	Minisink		Woodbury
	Unionville		Highlands
			Highland Falls
			Cornwall
			Cornwall Village
			New Windsor
			Newburgh
			Newburgh Twp.
			Montgomery
			Montgomery Village
			Walden
			Maybrook
			Hamptonburgh
			Blooming Grove
			Washingtonville
			Monroe Twp.
			Monroe Village
			Harriman
			Greenwood Lake
			Florida
			Chester
			Chester Village
			Goshen
			Goshen Village
			Wallkill
			Crawford
			Mount Hope
			Otisville
			Middletown

XXII.B.11(a) Orange County Impact Zone 1

The city of Port Jervis, a major urban center in the Tocks Island Region close to the northern end of the project is the only Orange County

municipality designated as a Zone 1 Area.

It is in the tri-state region where New York, New Jersey and Pennsylvania meet. Routes 209 and I-84 cross through Port Jervis and New Jersey Route 23, and New York Route 97 lead to the city making it a logical stopping place for DWGNRA visitors from the north and northeast. As an existing center and link to the upper Delaware region, it is expected to be a focus of demand for hotel, motel and commercial facilities. The area between the I-84 entrance and Route 209 is anticipated to experience the greatest pressure for additional services.

Port Jervis first developed as a railroad center, when the Lake Erie Railroad connected it to the eastern metropolis via Goshen and Middletown in 1843. Improvement of the Erie Lackawanna Railroad facilities has been suggested as an alternative mode of transportation to the park.

The main focus of Port Jervis industrial activity is in the vicinity of the railroad tracks. The garment industry, Kolmar Laboratories, a cosmetic firm, and C & D Battery are major employers in the region. Most of the city has been developed and much of the vacant land is in the Delaware River flood plain, which will limit the type of development in the future.

XXII.B.11(b) Orange County, New York Impact Zone 2

New York Route 42 which joins route 97 along the Delaware River in eastern Deer Park will provide park access to visitors from northern New York. The roads continue into the Sullivan County townships discussed

in XXII.B.10(b). Route 209 runs along the western border of the township near the base of the Catskill ridge.

Most of Deerpark is forested and assessed at a special tax rate established by the New York State Forest Tax Law. There also is a significant amount of hunting and game land.

Development has been minimal due to poorly drained soils and steep terrain.

U.S. Route 6 and I-84 both bisect Greenville township and intersect at a major interchange in Smith's Corners. Recreation related traffic and demand for roadside services are expected to effect development at this intersection.

Like Deerpark, Greenville is essentially rural, characterized by extensive watershed areas, flood plains and severe topography.

XXII.B.11(c) Orange County, New York Impact Zone 3

New York Route 284 extending from I-84 and U.S. Route 6 through Minisink can provide an alternative route to recreation areas in New Jersey. Route 210 which runs in a northwest direction from Warwick and areas in southeast Orange County, crosses Minisink and Greenville where it intersects with Route 6. This narrow country road provides an alternative to major routes, but because it winds slowly through mountainous terrain, it is not expected to be heavily used by park visitors.

XXII.B.11(d) Orange County, New York Impact Zone 4

The recreation area is not expected to affect the remainder of Orange

County which is separated physically from the park by the Mountain ridge. The outward expansion of Orange County's existing urban centers, and the suburbanization related to the outward migration from New York City will be the dominant forces in its future development. The bulk of the County on the other side of the ridge is oriented toward the Hudson River.

XXII.C. TYPES AND DESCRIPTION OF IMPACTS

XXII.C.1 PROJECT IMPACTS TO DATE

The Tocks Island Project originally designed to meet needs for flood control, water, recreation and power has already had a profound effect on the impact area despite the fact that only partial land acquisition has been accomplished. Though the National Recreation Area is not extensively developed and its required land area only comprises a patchwork of large fragments, there already is a significant number of visitors. About 900,000 people came in 1974. A visitor center and Park Service headquarters are functioning in Warren County.

The project has affected land use, the tax structure of local municipalities, the quality of local services, planning institutions and the political environment. Its major effect has been in Warren, Sussex, Monroe, and Pike Counties. It is from this region, particularly in the "taking area" that much opposition to the Tocks Island Project originated. Many of the impacts affecting the region already have been discussed in Chapter XI as they were voiced as criticisms and concerns. Some additional comments follow as a preamble to the substantive discussion of projected impacts.

Direct impacts on local land use are related to federal acquisition of land for both the TILP and DWGNRA. The purchase of acreage to be included in the project area has already

displaced numerous farms, camps and private homes. Sandyston and Walpack Townships each lost significant portions of their land area. Ninety percent of Walpack residents were forced to relocate and Sandyston lost about fifty percent of its permanent population.

While some of the farms in the "take area" continue to be operated under lease back arrangements, the majority are not being used. The agricultural character of the river plain has been reduced. For further discussion see Chapter (XI.E.2.c.)
In addition to displacing existing uses within the project boundaries the project prevented additional development in the proposed "take area". By removing land from the private market, the project prevented construction of suburban tract proposals submitted prior to authorization and will continue to maintain the area in open space uses. TILP-DWGNRA has limited the sprawl which had already begun to creep over the sites.

Some aggregation of recreation homes in the immediate vicinity of the National Recreation Area suggests the potential force of a permanent open space area in strengthening private uses. In general, however, the amount of development that can be directly attributed to the existing NRA has not been significant.

The project has had a definite impact on the social and political atmosphere of the seven county area. The local townspeople who have direct interest in the project have participated in a controversy that

encompasses every level of government and many private interest groups. Politicization has brought them before Congressional hearings and to regional and state Planning Boards. New alliances, such as the Four County Task Force, the Save the Delaware Coalition, the Delaware Valley Conservation Association, and the now defunct Tocks Island Regional Advisory Council (TIRAC) have formed in response to the projects. The experience, while it has diverted some energy and attention from the problems of continuing growth, can be viewed as an educational one. The lessons of articulating local needs and interests in a regional, state or national context will be valuable in competing for funds and projects in the future.

XXII.C.2 ECONOMIC IMPACTS

The purpose of this section is to identify the nature and the magnitude of economic impacts; both positive and adverse; upon the seven-county impact area resulting from the construction and full development of the Tocks Island Lake Project including the development of DWGNRA and the other facilities pertaining to the fulfillment of the four authorized purposes of the project.

Part A of this Comprehensive Review Study of the Tocks Island Lake Project and Alternatives contains three sets of projections of employment, population, households and incomes for various service areas including the defined seven-county impact area. The assumptions underlying the three alternative development strategies do not incorporate TILP. Consequently the projections can be viewed as the baseline projections against which the net economic impacts attributable to the development of TILP can be identified and measured.

XXII.C.2 (a) Projected Baseline Growth

As noted above, Part A of the Comprehensive Review Study contains three alternative growth ranges for population, employment, households and incomes for each of the seven counties forming the total impact area. Population projections for the seven-county impact area as a whole range from a low level of 1,010,000 in the year 2025 to a high level of 1,725,000. The baseline population projections under each of the three development strategies -- high, medium and low growth -- are summarized below for the period 1973 and 2025.

Table 22-15 Projected Range of Population Growth Under the Three Alternative Development Strategies, Seven-County Impact Area, 1973-2025 (in thousands)

	Actual	Projected 2025		
	1973	High	Medium	Low
Sussex Co., N.J.	85.6	270.0	230.0	125.0
Warren Co., N.J.	76.4	210.0	175.0	125.0
Orange Co., N.J.	233.6	505.0	452.0	305.0
Sullivan Co., N.Y.	57.7	150.0	120.0	70.0
Monroe Co., Pa.	49.3	160.0	130.0	70.0
Northampton Co.,Pa.	221.3	370.0	330.0	295.0
Pike Co., Pa.	12.9	60.0	40.0	20.0
Total	736.8	1,725.0	1,477.0	1,010.0

Source: U.S. Department of Commerce, Series P-25, 26 and

The point of this recapitulation of the range of projected growth levels for the seven-county impact area is simply that the level of impacts resulting from the development of TILP will vary based upon: (1) the level of underutilized or over subscribed infrastructure facilities and business, commercial, service and other enterprises currently in the area; and (2) the threshold size of population and implied capacity of business, commercial, services and other activity enterprises existing in any given future year to accommodate the increased volume of visitors and outside dollar flow and thereby cushion the level of net new activity impacts. In addition, the location of TILP related primary and secondary impacts will be conditioned by the then existing local zoning, development control, taxation and other public policies as well as the availability of various public service infrastructure facilities such as roads, water and sewer and their capacity to accommodate increased service demand.

XXII.C.2(b) Approach to Impact Measurements

The impacts resulting from the development of TILP are not expected or likely to vary substantially under the various alternative development strategies. The variations in the magnitude of impacts can and will be slightly different, however, the major difference under the three alternative development strategies will be the way they are accommodated and where they are accommodated within any one jurisdiction of the seven-county impact area. Accordingly, the impact measures developed in this analysis pertain to only one development strategy -- continuance of present trend or the medium forecast levels.

The impact differences resulting under the other two development strategies are qualitatively evaluated at the end of this section.

The impact quantification discussed in the following pages should be viewed as orders of magnitude rather than a precise degree of impact and its specific geographical location.

XXII.C.2(c) Sources of Impacts and Impact Measures

The development of TILP will result in two types of major impacts, (1) short-term impacts resulting from the construction of the dam, the National Recreation Area, and the Kittatinny pump storage facility; and (2) the long-term primary and secondary impacts resulting from the influx of visitors to TILP and the employees needed to maintain and operate the National Recreation Area.

For purposes of this discussion of short-term and long-term primary and secondary economic impacts, the following impact categories have been aggregated for analysis and discussion:

1. Short-Term Impacts
    a. Construction employment
    b. Worker skills
    c. Construction expenditures -- payroll and supplies
    d. Housing for construction labor
2. Long-Term Economic Impacts
    a. Industrial growth
    b. Commercial, including retail, trade and lodging
    c. Total direct and indirect employment
    d. Growth in population
    e. Permanent housing
    f. Second home developments
    g. Cost-of-living implications
    h. Land value implications
    i. Local tax base

The short-term and long-term economic impacts upon the seven-county impact area directly attributed to the development of the Tocks Island Lake Project including the development of the national recreation area are discussed below.

XXII.C.2.(d) Short-Term Impacts

The short-term economic impacts of the Tocks Island Lake Project are associated with the construction of the dam and attendant facilities.

The total cost of the Project is estimated to be approximately $400,000,000 of which about $250,000,000 is for actual construction stretching out over a period of 7.5 years. These values are exclusive of the privately financed power facilities which will provide substantial additional construction employment and payroll. Consequently, if construction was started in 1977, the Project would be completed in 1985. Over that period approximately $50,000,000 would go towards payrolls with the remaining amounts being spent on materials, equipment and other expenses.

The primary economic impact to the seven county area of the construction of the Project would be the salaries paid to workers, much of which would be spent in the local area. Much of the amounts spent for non-payroll purposes would be in the Northeastern United States and almost all of it within the confines of the United States. The local area is expected to supply a substantial portion of the total construction materials - principally cement - which will undoubtedly boost employment in that sector over the construction phase of the Project.

The payroll amount will be disbursed in uneven portions over the eight years. In year one of construction, only roughly one percent of the total or $500,000 will be spent for payrolls. The amount of payrolls will reach a first peak in year four at $8,500,000, decline for a couple of years and then reach another peak in year seven at $11,000,000 as intensive work on the power facility takes place.

Table 22-16 Construction Payrolls by Year of Construction, Tocks Island Lake Project

	Estimated Payroll	Percent of Total
Year 1	$ 500,000	1%
Year 2	4,500,000	9
Year 3	7,000,000	14
Year 4	8,500,000	17
Year 5	5,000,000	10
Year 6	5,500,000	11
Year 7	11,000,000	22
Year 8	8,000,000	16
Total	$50,000,000	100%

Construction labor requirements will peak in year 7 of construction with an annual requirement approaching 1000 workers. Of the required construction labor, approximately 20 percent will be highly skilled; 20 percent medium-skilled and 60 percent unskilled over the course of the project.

Table 22-17 Annual Construction Labor Required By Tocks Island Projects by Year (Rounded)

Year 1	50
Year 2	400
Year 3	650
Year 4	800
Year 5	450
Year 6	500
Year 7	1,000
Year 8	750
Annual Average	575

The numbers shown above are annualized totals. At any one time during the peak summer construction months and at a time when construction activity on any one phase of the project is at a peak, employment could go as high as 2,000 in years 4 and 7.

It is anticipated that all of the construction labor needs can be met from within a 40-50 mile driving radius of the project except for 30-40 men who will be brought into the area by the general contractor for the project. Furthermore, with a construction labor force of 18,750 workers according to the 1970 Census, the seven-county area should be able to supply approximately 60 percent of the anticipated labor requirements including a major portion of the unskilled labor and somewhat smaller portions of the medium and highly skilled labor. The remaining 40 percent will consist of workers brought into the area by the construction company and workers who will commute into the seven-county area from other surrounding jurisdictions.

The availability of a substantial portion of the construction labor requirement for the project, both from within the seven-county impact area and from other adjacent jurisdictions within commuting distance is expected to minimize the housing hardship and housing impact during the construction period. It is expected that the construction contractors who will bring workers -- mainly supervisors and skilled -- to the site from outside will help in locating appropriate available vacant housing and/or provide areas where workers can place mobile homes. The estimates show that on the average only 50 to 100 construction workers - supervisors and highly skilled -- will immigrate to the project area from outside. It is

conceivable that during the peak construction activity years -- year 4, 7 and 8 that a larger number of workers from outside might reside in temporary quarters in the project vicinity. The impact of short-term fluctuation in construction work force on the area housing market is expected to be relatively small.

The construction phase of a massive project such as the Tocks Island Lake Project and attendant facilities would also,in the short-term, generate some negative impacts upon select local area communities and neighborhoods. These adverse effects will consist of increased truck traffic and worker traffic to and from place of residence to work site, noise from increased vehicular traffic as well as other construction related machinery, dust particles, mud tracks and other similar disruptive and annoying happenings associated with major construction activity. However, these adverse impacts are likely to be spread over a wide geographic area reducing the magnitude of the impact upon any one jurisdiction beyond the immediate construction sites.

XXII.C.2(e) Long-Term Impacts

The long-term economic impacts in the seven-county impact area will result from: (1) those types of enterprises and economic activities attracted to the area directly as a result of the development of TILP; and (2) the multiplier effects of such direct employment, population and income gains resulting in additional growth in supportive services and business activities. The nature and the range of impacts anticipated to occur in the seven-county area as a result of the development of TILP are discussed below.

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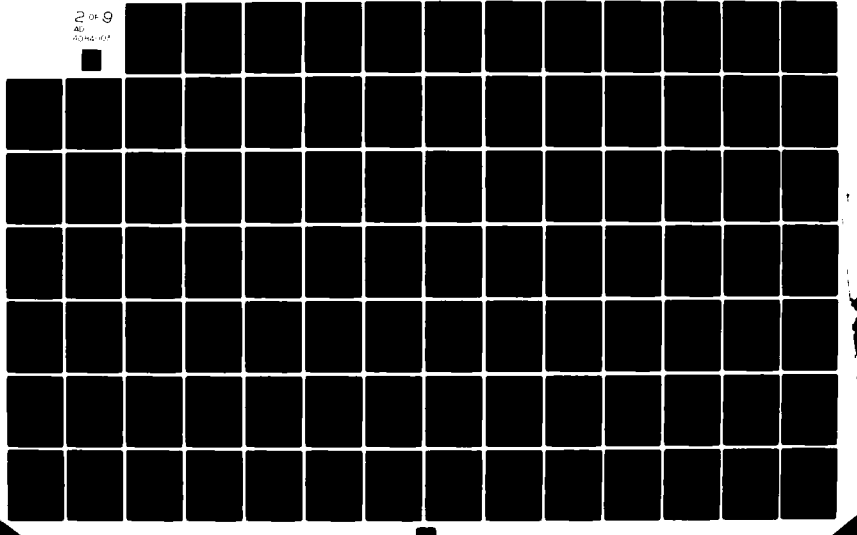

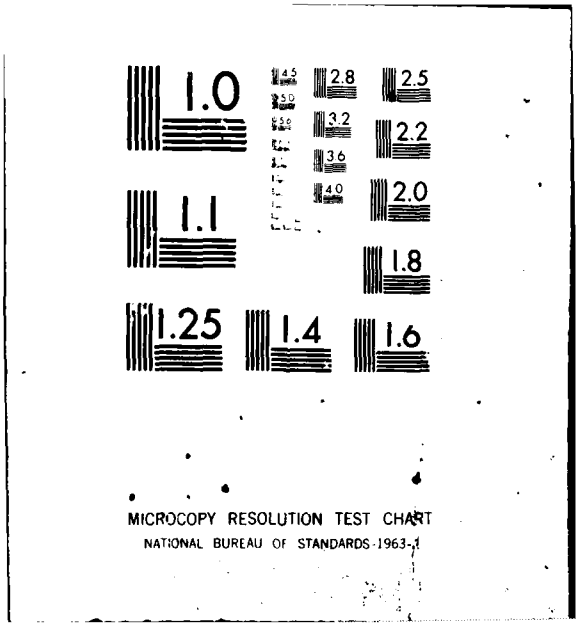
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Industrial Growth

As noted in Part A of the Comprehensive Review Study, manufacturing employment in the seven-county area is expected to continue to increase slowly over the next five decades. The development of TILP is not expected to add to this rate of growth of manufacturing activity in any measurable way over the project period. It is conceivable, however, that the augmentation of water supply by some 300 MGD resulting from the development of TILP may attract additional industrial activity in already industrialized lower and middle portions of the Delaware Basin south of the dam site. By adding flood protection, the project will allow industrial development in a greater proportion of the existing flood plain below the dam.

Commercial Growth

The long-term economic impacts upon the seven-county area resulting from the development of TILP are expected to occur, primarily in the commercial and service type activities.

The direct impacts will primarily result from the influx of visitors -- both daytime and overnight -- to the lake and DWGNRA and the quantity of their expenditures for lodging, transportation, food, entertainment and other services incurred in the local area. The direct impacts will also vary in line with the staged development and increased capacity of the recreation facilities around the lake and the national recreation area.

As assumed earlier, the proposed national park would be developed in three stages over the 1985-2000 period. At the end of completion of the first stage of development in 1985, the annual park visitations will amount to

conceivable that during the peak construction activity years -- year 4, 7 and 8 that a larger number of workers from outside might reside in temporary quarters in the project vicinity. The impact of short-term fluctuation in construction work force on the area housing market is expected to be relatively small.

The construction phase of a massive project such as the Tocks Island Lake Project and attendant facilities would also,in the short-term, generate some negative impacts upon select local area communities and neighborhoods. These adverse effects will consist of increased truck traffic and worker traffic to and from place of residence to work site, noise from increased vehicular traffic as well as other construction related machinery, dust particles, mud tracks and other similar disruptive and annoying happenings associated with major construction activity. However, these adverse impacts are likely to be spread over a wide geographic area reducing the magnitude of the impact upon any one jurisdiction beyond the immediate construction sites.

XXII.C.2(e) Long-Term Impacts

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4,000,000 with a peak-day visitation of 58,341 visitors. At the end of Phase II development in 1990, the park would be capable of accommodating some 7,000,000 visitors annually and by the completion of Phase III in the year 2000, some 10,600,000 will visit the park annually. At that point, the peak-day visitation of the park will be 158,106 visitors.

Due to the park's proximity to the large population centers of New York and New Jersey as well as Philadelphia, it is expected to receive heavy usage by people who will come for the day and return home the same day. These visitors, referred to as daytime visitors will account for 60 percent of the visitations in Phase I slightly declining to 58 percent by Phase III as overnight lodging and camping facilities become more highly developed.

Table 22-18 Total Annual Visitations by Overnight and Daytime Visitors, Tocks Island-DWGWRA, Phases I, II and III

	Phase I	Phase II	Phase III
Day visits	2,400,000	4,130,000	6,150,000
Overnight visits	1,600,000	2,870,000	4,450,000
Total	4,000,000	7,000,000	10,600,000

Despite the expected heavy usage by daytime visitors, the existence of a large-scale lodging complex and the availability of camping sites inside and outside the park will accommodate a large number of overnight visitors who will account for 1,600,000 park visitations by 1985 and 4,450,000 by 2000.

Overnight visitors to the park will be accommodated at campsites, hotels and motels, homes of friends and relatives or in their own second home. In Phase I approximately 720,000 of the 1,600,000 overnight visitors stay in hotels and motels. At the time of the ultimate completion of the park, the number of campers will surpass hotel and motel guests primarily due to the development of camping facilities in the park.

Table 22-19 Overnight Visitors Park Visitations by Type of Overnight Accommodations, Tocks Island - DWGNRA, Phases I, II and III

	Phase I	Phase II	Phase III
Camping	419,000	918,000	1,881,000
Hotel/Motel	720,000	1,356,000	1,809,000
Friends and Relatives	141,000	202,000	280,000
Own Second Home	320,000	394,000	480,000
Total Overnight Visitations	1,600,000	2,870,000	4,450,000

Total Visitor Expenditure Potential

While the visitors -- both daytime and overnight -- are in the area of the park, they will make expenditures for lodging, gasoline, food, entertainment and other goods and services. The overnight visitor will generally spend more than his daytime counterpart, $18.77 per person per day compared to $8.26 for the daytime visitor in 1985 (in 1972 dollars) reflecting lodging costs, additional food costs and a general propensity to spend more on entertainment and other incidental items.

Total annual expenditures generated by visitations to the parks are projected at $46,492,000 in Phase I increasing to $138,096,000 in Phase III.

Table 22-20 Projected Total Annual Expenditures by Visitors to Tocks Island-DWGNRA, Phases I, II and III
(1972 dollars)

Phase I	$ 46,492,000
Phase II	$ 84,000,000
Phase III	$138,096,000

Potential Expenditures in the Seven-County Area

Not all of those amounts would be spent in the seven-county area as many of the daytime visitors could be expected to fill their gas tanks before they left for the park and a small number of other persons would be traveling through the area and would not necessarily stay in local lodging facilities or eat all their meals in area restaurants. Consequently, expenditures made in the local area would be somewhat less than total expenditures.

Total local expenditures are expected to range from $34,890,000 in 1985 under Phase I to $104,157,000 in 2000 under Phase III. These expenditures would go towards transportation (including gasoline stations and other such services like car rentals), lodging (including hotels, motels and campgrounds), food (including restaurants and food stores), entertainment (including such things as golf courses, amusement parks, riding stables), and gifts and incidentals (including clothing stores, souvenir shops, and drugstores among other stores and services).

Table 22-21 Local Expenditures by Tocks Island-DWGNRA Visitors by Expenditure Type, Phases I, II and III (1972 dollars)

	Phase I	Phase II	Phase III
Transportation	$ 4,200,000	$ 7,350,000	$ 11,130,000
Lodging	4,850,000	9,473,000	17,505,000
Food	11,642,000	21,376,000	35,971,000
Entertainment	2,544,000	4,584,000	6,808,000
Gifts and Incidentals	11,654,000	20,734,000	32,743,000
Total Local Expenditures	$34,890,000	$63,517,000	$104,157,000

The largest amounts of expenditures would be in the categories of food-related expenditures and gifts and incidentals. Food expenditures are projected at $35,971,000 and gifts and incidentals at $32,743,000 of the $104,157,000 in annual local expenditures projected after ultimate development of the park.

Overall Impacts

The expenditures by visitors to the park will be translated into increased employment and a number of new commercial establishments because of the added demand for goods and services in the area. Some of this added demand will be absorbed into stores and services that are already existing in the area as well as new facilities that will be developed before the initial opening of the park. The demand which cannot be met by existing facilities will cause the creation of new business establishments serving the needs of park visitors.

The following table shows the projected potential growth of new commercial establishments and employment due to the demand for goods and services in the seven-county area directly generated by visitors to the park. Upon the initial opening of the park, Phase I, approximately 1,810 jobs will be generated on an annual basis. This will increase to 5,730 upon ultimate development of the park and attainment of the annual peak of 10,600,000 visitors. Some of these workers will be employed by existing establishments while others will work in new businesses.

The number of new businesses is expected to reach 111 upon completion of Phase I increasing to 338 after Phase III. These represent businesses that would not be developed in the area if the TILP and DWGNRA were not developed.

Table 22-22 Annual Employment and New Establishments Supportable by Expenditures by Visitors to Tocks Island-DWGNRA, Phases I, II and III

	Phase I		Phase II		Phase III	
	Establishments	Employment	Establishments	Employment	Establishments	Employment
Transportation	3	80	11	140	18	210
Lodging	8	330	15	660	30	1,360
Food	70	870	111	1,600	185	2,710
Entertainment	13	200	25	370	36	540
Gifts and Incidentals	17	330	36	580	69	910
Total Employment	111	1,810	198	3,350	338	5,730

The largest increase in both employment and new businesses is expected to come in the area of food service. The necessity of feeding the visitors to the park should result in the establishment of 185 new food-related facilities. Most of these would be hotel and motel restaurant and cocktail lounges, roadside eating places and restaurants in existing commercial centers in the seven-county area.

In addition to commercial growth caused by park visitations, the park itself will employ a number of workers. Although exact estimates have not been made by the National Park Service, the following estimate was made based on employment at other national parks and was distributed among the four counties based on projected visitation loads. It is estimated that the park will employ the annual equivalent of 150 workers in Phase I and 300 workers in Phase III. Park rangers and law enforcement technicians are discussed in Section XXII.C.4(a)(1).

Table 22-23 Estimated Park Employment by County, Tocks Island - DWGNRA, Phases I, II, and III

	Phase I	Phase II	Phase III
Sussex County	65	80	120
Warren County	15	20	30
Monroe County	40	50	50
Pike County	30	75	100
Total	150	225	300

The largest number of workers would be employed in Sussex and Pike counties, 120 and 100 respectively because they contain the areas with the greatest anticipated visitor loads.

The sum of park employment and employment in commercial establishments supported by park visitors equals the total directly generated employment. This annual employment directly generated by the park is anticipated to rise from 1,960 after Phase I to 6,030 after Phase III.

Table 22-24 Total Annual Employment Directly Generated by Tocks Island-DWGNRA, Phases I, II and III

Phase I	1,960
Phase II	3,575
Phase III	6,030

To this point, employment has been expressed in terms of the annual employment that would be generated by the park. Due to the seasonal nature of the park, however, employment will vary widely from the summer, in-season months to the rest of the year.

Therefore, for example, while average employment for the year will be 6,030 after Phase III, employment will peak at 14,500 during the summer months with a year around total of 3,200 employees. During the summer months, it is anticipated that the park and commercial establishments will add an additional 11,300 workers after Phase III to handle the heavy in-season visitor traffic.

Table 22-25 Seasonal and Year-Around Employment Directly Generated by Tocks Island-DWGNRA, Phases I, II and III

	Phase I	Phase II	Phase III
Seasonal Employment	3,700	6,700	11,300
Year-Around Employment	1,000	1,900	3,200
(Peak Season Employment)	(4,700)	(8,600)	(14,500)
Annual Average Employment	1,960	3,575	6,030

The seasonal employees would come mainly from residents of the seven-county area and college students who would come to the area for the summer months. Seasonal employment would provide jobs for housewives, high school and college students and others who may only work during the season from the seven-county area. The college students coming just for the summer months would find housing at resort hotels, in rooming and boarding houses in the area and rentals of vacation homes and apartments in the seven-county area.

Indirect Employment

The park and its visitation impact will also indirectly generate employment in the seven-county area. Persons who will work in commercial establishments and at the park will also generate demands for goods and services for food, housing, clothes, etc. This,in turn,will produce job growth in the area. Based on the annual employment levels developed before, it is anticipated that 985 jobs will be indirectly generated under Phase I increasing to 3,025 under Phase III.

Table 22-26 Inddirect Employment Generated by TILP/DWGNRA, Seven-County Impact Area, Phases I, II and III

Phase I	985
Phase II	1,795
Phase III	3,025

The total employment growth caused by the park's development is seen in the following table. Under Phase I, 2,745 jobs would be created directly and indirectly due to the park's impact. By Phase III, this would increase to 9,055 jobs.

Table 22-27 Total Annual Employment Directly and Indirectly Generated by TILP/DWGNRA, Seven-County Impact Area, Phases I, II and III

Phase I	2,945
Phase II	5,370
Phase III	9,055

Population Growth Due to Park

The employment growth generated by the park and its attendant commercial growth would cause some population growth in the seven-county area as employees established residences there. Assuming a labor force participation rate of 50 percent, slightly higher than the overall participation rate because the type of jobs created would employ a number of secondary wage earners who ordinarily may not hold jobs. Total population growth

caused by the park's development would amount to 5,890 after Phase III and 18,110 upon ultimate completion of the park.

Table 22-28 Total Population Growth Directly and Indirectly Caused by TILP/DWGNRA, Seven-County Impact Area, Phases I, II and III

Phase I	5,890
Phase II	10,740
Phase III	18,110

Permanent Housing

Housing requirements for the population generated by the park will create the demand for a number of additional housing units in the seven-county area. Some of this demand will be met by existing housing while new units will be built to meet the other part of the demand. In total, 2,000 housing units will be required by Tocks Island workers and their families by Phase I increasing to 6,450 by Phase III.

Table 22-29 Permanent Housing Requirements Generated by TILP/DWGNRA Seven County Impact Area, Phases I, II, and III

Phase I	2,000
Phase II	3,750
Phase III	6,450

XXII.C.2(f) Spatial Distribution of Impacts

The geographic distribution of the direct and induced growth within the seven-county impact area will be governed by several factors. Important among these are: (1) existing and future road networks serving the national recreation area; (2) specific entry and exit points to and from the national recreation area; (3) availability of developable land at critical nodes; (4) land values; (5) local zoning and development control regulations; (6) origin and destination of visitors to and from the national recreation area; (7) overall visitor volume; and (8) existence and location of other complementary recreation, entertainment and tourist oriented facilities within the seven-county area as second destinations. These are but a few important factors that will condition the spatial distribution of TILP related impacts upon specific jurisdictions and locations within the seven-county area. In addition to these, the existing tourist catering facilities, such as hotels and motels, restaurants and service enterprises will affect the distribution of impacts within a particular jurisdiction.

The purpose of this analysis is not to specify exact locations of TILP related growth impacts but rather to indicated where the impacts are likely to be felt in a particular jurisdiction. It is important to reiterate here that the location of specific type and even the magnitude of impacts will vary with time, availability of infrastructure, land and land values and other criteria dictating individual project or otherwise facility economics. Above all, the magnitude and location of specific types of economic growth impacts will vary based upon the specific jurisdiction's stage of overall development and the then existing economic structure -- both in type and size.

Approach to Impact Allocations

The introduction to this chapter summarized the existing and future highway improvements serving DWGNRA. It also defined four impact zones. The delineation of these impact zones was based upon a number of criteria including: (1) proximity to Tilp and DWGNRA; (2) existing and proposed highway improvements; (3) evaluation of proposed completion of major interstate highways and major intersections; (4) existing urban nodes; (5) existing physical development pattern; (6) physical and topographic characteristics; and (7) evaluation of land use plans and existing major competitive facilities.

While the determination of overall impact allocations within the seven-county area consisted of evaluation of a number of factors such as the structure of the existing retail trade, commercial, service and tourist serving sectors by country, the overall visitor volumes by development phase, origin and destination of visitors by county, existing highway and road network serving DWGNRA; two major factors -- visitor traffic pattern to DWGNRA and visitor destination by county -- were used in determining the overall allocation of impacts within the seven-county area.

Origin of Visitors

The analysis in Part A, Chapter IV, presented the likely origin of visitors to the national recreation area. The DWGNRA facility is anticipated to draw a large proportion of its total visitors from three major metropolitan regions of New York, New Jersey and Philadelphia. The following table which is based on the surveys discussed in Chapter IV, shows the origin patterns of 4,000,000 park visitors for the Phase I period. These are appropriate for impact analysis purposes.

Table 22-30 Origin of Visitors to Tocks Island-DWGNRA, Phase I, 1982-1985

Origin	Phase I	Percent of Total
Seven-County Impact Area	707,600	17.7%
Adjacent Counties	770,200	19.3
Balance, Recreation Service Area	(2,522,200)	(63.1)
North New Jersey	386,400	9.7
Newark-Jersey City	185,700	4.6
Other, New Jersey	82,800	2.1
Subtotal	(654,900)	(16.4)
New York SMSA	1,028,400	25.7
Other,New York	154,400	3.9
Subtotal	(1,182,800)	(29.6)
Philadelphia SMSA	361,000	9.0
Southern Pennsylvania	102,600	2.6
Other Pennsylvania	43,900	1.1
Subtotal	(507,500)	(12.7)
Connecticut	146,400	3.7
Delaware	30,600	0.8
Total	4,000,000	100.0%

The percentages in the above table also provide an indication of the relative visitor origin patterns for later project phases. The origin of visitors in combination with the existing and proposed highway network and the planned entry points to DWGNRA will dictate the resulting economic and other secondary impacts upon the individual counties within the impact area.

Visitor Destination by County

The Clark and Rapuano plan for DWGNRA specifies specific phasing of both the facilities and entry points to the park. The following table summarizes the anticipated visitor destinations to the park by county.

Table 22-31 Visitor Destination to DWGNRA by County

	Phase I	Percent	Phase III	Percent
Sussex	20,407	43.7%	50,495	39.9%
Warren	5,068	10.9	13,132	10.4
Subtotal	(25,475)	(54.6)	(63,627)	(50.3)
Monroe	11,523	24.7	19,761	15.6
Pike	9,675	20.7	43,099	34.1
Subtotal	(21,198)	(45.4)	(62,860)	(49.7)
Total	46,673	100.0%	126,487	100.0%

The above table shows that nearly 40 percent of all visitors in Phase III will pass through Sussex County on their ultimate destination in the park while over 34 percent will come through Pike County. In fact, it is anticipated that the total number of visitors are likely to be evenly split between the New Jersey counties and the two Pennsylvania counties.

Visitor Traffic Patterns to TILP

The calibration of the origin and destination of visitors by major routes identifies the likely impact zones and the extent of the impact resulting from visitors to DWGNRA destinations. This is discussed in the following table. Table 22-32 shows that over 47 percent of the traffic

Table 22-32 Visitor Traffic Patterns to Tocks Island Lake Project

	Phase I		Phase II		Phase III	
	T.I.L.P. Traffic	Percent of Total	T.I.L.P. Traffic	Percent of Total	T.I.L.P. Traffic	Percent of Total
Sussex	1,705	22.3%	2,690	22.8%	4,700	26.2%
Warren	1,940	25.3	3,610	30.5	3,800	21.2
	(3,645)	(47.6)	(6,300)	(53.3)	(8,500)	(47.4)
Orange	693	9.0	1,583	13.3	1,755	9.8
Sullivan	50	0.7	88	0.7	205	1.1
	(743)	(9.7)	(1,671)	(14.1)	(1,960)	(10.9)
Monroe	1,850	24.2	2,061	17.4	3,440	19.2
Northampton	200	2.6	500	4.2	570	3.2
Pike	1,222	16.0	1,290	10.9	3,460	19.3
	(3,272)	(42.7)	(3,851)	(32.6)	(7,470)	(41.7)
Total	7,660	100.0%	11,822	100.0%	17,930	100.0%

Note: Figures may not sum to total due to rounding.

to DWGNRA in the ultimate Phase III will use existing and proposed routes to DWGNRA located in two New Jersey counties while nearly 42 percent of the visitors will use roads traversing the three Pennsylvania counties.

Overall Impacts by County

The visitor traffic patterns in combination with existing commercial establishments structure provides the basis for estimating the likely impacts upon the individual counties within the impact area. The anticipated county-wide impacts are discussed below.

Transportation Related Impacts

The transportation related impacts are envisioned primarily in the addition of new gasoline service stations and employment with a small amount going to other services like car rentals. The total number of new businesses generated by the park is expected to be around three by Phase I and 18 by Phase III. In Phase I, Sussex, Warren and Monroe counties are expected to get new service stations at a key access point to the park or at a major intersection serving park traffic. Employment increases are distributed among five counties as some existing service stations would take on additional employees in addition to employment at new service stations.

Table 22-33 Projected Transportation-Related Establishments and Employment Directly Generated by Tocks Island - DWGNRA, Phases I, II, and III

	Phase I		Phase II		Phase III	
	Establishments	Employees	Establishments	Employees	Establishments	Employees
Sussex	1	20	2	30	5	55
Warren	1	20	3	40	4	45
Orange	0	10	1	15	2	20
Sullivan	0	0	0	0	0	5
Monroe	1	20	2	25	3	40
Northampton	0	0	1	10	1	10
Pike	0	10	2	20	3	35
Total	3	80	11	140	18	210

By Phase III, some 18 new service stations would be needed and additional employment would amount to 210. Sussex and Warren counties are expected to receive the greatest growth in transportation-related employment and establishments because Sussex County is projected to have the highest level of visitations and the fact that many of the visitors will be coming from the east on Interstate 80, and exiting in Warren and Sussex Counties to travel over entry roads into the park.

Lodging Impacts

Overnight visitors to the park will create the demand for 8 new lodging facilities at the time of Phase I and 30 new facilities by Phase III in the seven-county impact area. Employment in new and existing facilities is expected to grow from 330 in Phase I to 1,360 by Phase III. Lodging facilities, primarily hotels and motels, are expected to locate near park entrances, in scenic locations in the seven-county area, at major intersections and nearby existing concentrations of lodging and entertainment facilities.

Table 22-34 Projected Lodging Establishments and Employment Directly Generated by Tocks Island - DWGNRA

	Phase I		Phase II		Phase III	
	Establishments	Employment	Establishments	Employment	Establishments	Employment
Sussex	3	90	5	200	10	450
Warren	1	40	2	90	5	200
Orange	0	20	1	30	1	50
Sullivan	0	20	0	20	0	20
Monroe	2	80	3	150	6	280
Northampton	0	10	1	30	1	40
Pike	2	70	3	140	7	320
Total	8	330	15	660	30	1,360

At Phase I in the development of the park, of the eight new lodging facilities potentially supportable by park visitors, it is estimated that three would be in Sussex County, and two in Monroe and Pike counties. Of the 30 supportable by Year III, 10 would be in Sussex County, seven in Pike County and six in Monroe County. Lodging employment is anticipated growing by 450 in Sussex County, 320 in Pike County and 280 in Monroe County by Phase III due to visitors to the park.

Food-Related Impacts

Visitors to the park would create a demand for both eating and drinking places and food stores. Approximately 70 new food-related businesses would be needed by Phase I and 185 by Phase III employing 870 and 2,710 workers, respectively. These establishments would be found in hotels and motels, along highways leading to the park and entry points to the park and in existing commercial centers.

Table 22-35 Projected Food-Related Establishments and Employment Directly Generated by Tocks Island - *DWGNRA, Seven County Area*

	Phase I		Phase II		Phase III	
	Establishments	Employment	Establishments	Employment	Establishments	Employment
Sussex	22	260	40	540	66	930
Warren	10	120	18	240	25	380
Orange	2	40	4	90	6	130
Sullivan	0	20	1	40	2	60
Monroe	20	220	24	350	40	560
Northampton	2	40	4	90	6	130
Pike	14	170	21	250	40	520
Total	70	870	112	1,600	185	2,710

Source: Hammer, Siler, George Associates.

Of the 70 new establishments needed by Phase I, it is anticipated that 22 would be in Sussex County and 20 in Monroe County. Those two counties would also have the largest employment gains in existing and new food-related facilities. By Phase III, Sussex County is expected to gain 66 new establishments compared to 40 for both Monroe and Pike counties. Some 930 additional food workers would be needed in Sussex County with increments of 560 in Monroe County and 520 in Pike County necessitated by park visitors.

Entertainment Impact

While park visitors are in the area, they will generate demands for additional recreation activities, such as golf courses, amusement parks, theaters, riding stables among others. Some 13 new entertainment businesses will be needed by Phase I with 36 new establishments needed by Phase III. The projected entertainment expenditures by park visitors will support an increment of 200 employees by Phase I and 540 by Phase III in new and existing entertainment businesses. The location of new facilities, many of them land-intensive, will generally favor areas close to the greatest visitor volumes, areas where land is available and nearby other existing entertainment attractions.

Table 22-36 Projected Entertainment Establishments and Employment Directly Generated by Tocks Island - DWGNRA, Seven County Impact Area, Phases I, II, and III

	Phase I		Phase II		Phase III	
	Establishments	Employment	Establishments	Employment	Establishments	Employment
Sussex	5	60	9	110	13	150
Warren	2	30	3	50	4	70
Orange	1	10	2	20	3	30
Sullivan	0	20	1	30	2	40
Monroe	2	50	3	80	4	110
Northampton	0	0	1	10	1	10
Pike	3	30	6	70	9	130
Total	13	200	25	370	36	540

Of the 13 new entertainment businesses projected for Phase I, five are projected for Sussex County with Pike County next getting three new facilities. Upon ultimate completion of the park, as well, those two counties are expected to account for the largest number of new facilities with 13 in Sussex County and nine in Pike County.

Gifts and Incidental Impacts

A relatively large volume of visitor expenditures would go towards the purchase of gifts and incidentals like apparel, sporting goods, drugs, personal care items among others. The demand for these items would result in the potential addition of 17 new businesses in the seven-county area by Phase I and 69 by Phase III. Also, 330 new jobs would be created by Phase I and 910 new jobs by Phase III. The volume of these expenditures will favor the development of new stores catering to visitors in existing commercial centers in the area like Stroudsburg and Newton, as well as the construction of new facilities along heavily traveled routes to the park.

Table 22-37 Projected Gifts and Incidentals Stores and Employment Directly Generated by Tocks Island - DWGNRA, Seven County Impact Area, Phases I, II, and III

	Phase I		Phase II		Phase III	
	Establishments	Employment	Establishments	Employment	Establishments	Employment
Sussex	5	100	10	180	18	270
Warren	3	30	7	70	13	130
Orange	3	40	5	60	8	80
Sullivan	0	20	1	30	2	40
Monroe	4	100	8	160	14	210
Northampton	0	20	1	40	2	60
Pike	2	20	4	40	12	120
Total	17	330	36	580	69	910

As seen in the previous table, Monroe and Sussex counties are projected to receive the largest impact in this category from park visitors both in terms of new businesses and employment. Other counties expected to experience relatively substantial growth are Warren and Pike counties.

Direct and Indirect Employment and Population by County

As discussed earlier, direct employment generated by park visitor expenditures and employment in the park will cause indirect employment increases and gains in the permanent population living in the seven-county area. The three tables on the following pages depict the anticipated direct and indirect employment and population growth caused by such development in the seven-county area making up the impact area.

The largest employment gains are expected to occur in Sussex County. It is anticipated that by Phase III, 2,965 jobs will be created because of the park, this will in turn generate an additional 5,930 residents. Monroe County is expected to add 1,875 jobs and 3,750 people with Pike County right behind with 1,840 jobs and 3,680 residents. These counties would feel the primary economic impact of the park which would generate a total of 9,055 jobs and 18,110 residents in the seven county area by the end of Phase III.

Table 22-38 Projected Employment and Population Generated by TILP/DWGNRA, 7-County Impact Area, Phase I

	Direct Employment	Direct Population	Indirect Employment	Indirect Population	Total Employment	Total Population
Sussex County	(595)	(1,190)	(300)	(600)	(895)	(1,790)
Zone 1	375	250	65	130	440	380
Zone 2	185	440	110	220	295	660
Zone 3	35	400	100	200	135	600
Zone 4	0	100	25	50	25	150
Warren County	(255)	(510)	(130)	(260)	(385)	(770)
Zone 1	180	100	25	50	205	150
Zone 2	55	70	20	40	75	110
Zone 3	20	240	60	120	80	360
Zone 4	0	100	25	50	25	150
Orange County	(120)	(240)	(60)	(120)	(180)	(360)
Zone 1	75	50	15	30	90	80
Zone2	35	90	20	40	55	130
Zone 3	0	40	10	20	10	60
Zone 4	10	60	15	30	25	90
Sullivan County	(80)	(160)	(40)	(80)	(120)	(240)
Zone 1	0	0	0	0	0	0
Zone 2	0	0	0	0	0	0
Zone 3	15	60	15	30	30	90
Zone 4	65	100	25	50	90	150
Monroe County	(510)	(1,020)	(255)	(510)	(765)	(1,530)
Zone 1	390	540	135	270	525	810
Zone 2	100	230	60	120	160	350
Zone 3	20	200	50	100	70	300
Zone 4	0	50	10	20	10	70

Table 22-38 Projected Employment and Population Generated by TILP/DWGNRA, 7-County Impact Area, Phase I (Continued)

	Direct Employment	Direct Population	Indirect Employment	Indirect Population	Total Employment	Total Population
Northampton County	(70)	(140)	(35)	(70)	(105)	(210)
Zone 1	60	40	10	20	70	60
Zone 2	0	0	0	0	0	0
Zone 3	10	60	15	30	25	90
Zone 4	0	40	10	20	10	60
Pike County	(330)	(660)	(165)	(330)	(495)	(990)
Zone 1	265	300	75	150	340	450
Zone 2	55	130	35	70	90	200
Zone 3	10	180	45	90	55	270
Zone 4	0	50	10	20	10	70
Total, 7-County Area	(1,960)	(3,920)	(985)	(1,970)	(2,945)	(5,890)
Zone 1	1,345	1,280	325	650	1,670	1,930
Zone 2	430	960	245	490	675	1,450
Zone 3	110	1,180	295	590	405	1,875
Zone 4	75	500	120	240	195	740

Table 22-39 Projected Employment and Population Generated by TILP/DWGNRA, 7-County Impact Area, Phase II

	Direct Employment	Direct Population	Indirect Employment	Indirect Population	Total Employment	Total Population
Sussex County	(1,140)	(2,280)	(570)	(1,140)	(1,710)	(3,420)
Zone 1	625	400	100	200	725	600
Zone 2	390	830	210	420	600	1,250
Zone 3	105	800	200	400	305	1,200
Zone 4	20	250	60	120	80	370
Warren County	(510)	(1,020)	(255)	(510)	(765)	(1,530)
Zone 1	320	170	45	90	365	260
Zone 2	130	120	30	60	160	180
Zone 3	55	980	120	240	175	720
Zone 4	5	250	60	120	65	370
Orange County	(215)	(430)	(110)	(220)	(325)	(650)
Zone 1	115	80	20	40	135	120
Zone 2	70	150	40	80	110	230
Zone 3	10	70	15	30	25	100
Zone 4	20	130	35	70	55	200
Sullivan County	(120)	(240)	(60)	(120)	(180)	(360)
Zone 1	0	0	0	0	0	0
Zone 2	0	0	0	0	0	0
Zone 3	50	110	25	50	75	160
Zone 4	70	130	35	70	105	200
Monroe County	(815)	(1,630)	(410)	(820)	(1,225)	(2,450)
Zone 1	615	840	210	420	825	1,260
Zone 2	170	330	85	170	255	500
Zone 3	30	360	90	180	120	540
Zone 4	0	100	25	50	25	150

Table 22-39 Projected Employment and Population Generated by TILP/DWGNRA, 7-County Impact Area, Phase II (Continued)

	Direct Employment	Direct Population	Indirect Employment	Indirect Population	Total Employment	Total Population
Northampton County	(180)	(360)	(90)	(180)	(270)	(540)
Zone 1	150	80	20	40	170	120
Zone 2	0	0	0	0	0	0
Zone 3	30	160	40	80	70	240
Zone 4	0	120	30	60	30	180
Pike County	(595)	(1,190)	(300)	(600)	(895)	(1,790)
Zone 1	425	570	145	290	570	860
Zone 2	135	200	50	100	185	300
Zone 3	35	340	85	170	120	510
Zone 4	0	80	20	40	20	120
Total, 7-County Area	(3,757)	(7,150)	(1,795)	(3,590)	(5,370)	(10,740)
Zone 1	2,250	2,140	540	1,080	2,790	3,220
Zone 2	895	1,630	415	830	1,310	2,460
Zone 3	315	2,320	575	1,150	890	3,470
Zone 4	115	1,000	165	530	380	1,595

Table 22-40 Projected Employment and Population Generated by TILP/DWGNRA, 7-County Impact Area, Phase III

	Direct Employment	Direct Population	Indirect Employment	Indirect Population	Total Employment	Total Population
Sussex County	(1,975)	(3,950)	(990)	(1,980)	(2,965)	(5,930)
Zone 1	1,060	500	125	250	1,185	750
Zone 2	685	1,400	350	700	1,035	2,100
Zone 3	190	1,600	400	800	590	2,400
Zone 4	40	450	115	230	155	680
Warren County	(855)	(1,710)	(430)	(860)	(1,285)	(2,570)
Zone 1	460	200	50	100	510	300
Zone 2	235	160	40	80	275	240
Zone 3	125	850	215	430	340	1,280
Zone 4	35	500	125	250	160	750
Orange County	(310)	(620)	(155)	(310)	(465)	(930)
Zone 1	165	100	25	50	190	150
Zone 2	95	200	50	100	145	300
Zone 3	30	100	25	50	55	150
Zone 4	20	220	55	110	75	330
Sullivan County	(165)	(330)	(85)	(170)	(250)	(500)
Zone 1	0	0	0	0	0	0
Zone 2	0	0	0	0	0	0
Zone 3	95	150	40	80	135	230
Zone 4	70	180	45	90	115	270
Monroe County	(1,250)	(2,500)	(625)	(1,250)	(1,875)	(3,750)
Zone 1	845	1,200	300	600	1,145	1,800
Zone 2	335	500	125	250	460	750
Zone 3	70	600	150	300	220	900
Zone 4	0	200	50	100	50	300

Table 22-40 Projected Employment and Population Generated by TILP/DWGNRA, 7-County Impact Area, Phase III (Continued)

	Direct Employment	Direct Population	Indirect Employment	Indirect Population	Total Employment	Total Population
Northampton County	(250)	(500)	(125)	(250)	(375)	(750)
Zone 1	200	100	25	50	225	150
Zone 2	0	0	0	0	0	0
Zone 3	50	200	50	100	100	300
Zone 4	0	200	50	100	50	300
Pike County	(1,225)	(2,450)	(615)	(1,230)	(1,840)	(3,680)
Zonel	835	1,000	250	500	1,085	1,500
Zone 2	305	400	100	200	405	600
Zone 3	85	850	215	430	300	1,280
Zone 4	0	200	50	100	50	300
Total, 7-County Area	(6,030)	(12,060)	(3,025)	(6,050)	(9,055)	(18,110)
Zone 1	3,555	3,100	775	1,550	4,340	4,650
Zone 2	1,655	2,660	665	1,330	2,320	3,990
Zone 3	645	4,350	1,095	2,190	1,740	6,540
Zone 4	165	1,950	490	980	655	2,930

Permanent Housing Requirements by County

As noted before, population increases in the seven-county area would create additional housing requirements. It was estimated that 2,000 housing units would be needed in Phase I and 6,450 by Phase III. Because the greatest population increases are expected to be in Sussex, Monroe and Pike counties, these counties will also have the greatest requirements for housing as seen in the following table.

Table 22-41 Projected Permanent Housing Requirement Due to TILP/DWGNRA Impacts, Seven-County Impact Area, Phases I, II and III

	Phase I	Phase II	Phase III
Sussex	610	1,190	2,110
Warren	260	530	920
Orange	120	230	330
Sullivan	80	120	180
Monroe	520	860	1,340
Northampton	70	190	1,260
Pike	340	630	1,310
Total	2,000	3,750	6,450

Approximately 2,110 housing units will be needed by Phase III in Sussex County due to the impact of the TILP/DWGNRA with an additional 1,340 needed in Monroe County and 1,310 in Pike County.

XXII.C.2(g) Growth by Impact Zones

Generally speaking, a majority of TILP related impacts will be felt in areas close to the park and the lake along major arteries, corridors and commercial nodes. However, as close-in areas get developed and as the volume of visitors to the park increase from 4,000,000 in Phase I to 10,000,000 by the year 2000, the impacts will be increasingly felt by second and third ring zones.

While this is true for employment related impacts, it is anticipated that population and housing impacts will be felt more strongly in predominantly residential areas with available services away from the congested areas close to the park.

The impacts can be viewed as those resulting through the location of new business and commercial activity and that resulting in increased employment (due to increased market and sales) within the select, well-located existing establishments.

Lodging, food, gift and incidental service establishments will tend to cluster primarily within Zones 1 and 2. Transportation related impacts can be expected to be distributed along the major traffic corridors throughout the county. The following two tables summarize the resulting impacts expressed as new establishments and direct employment by major commercial activities by zone for the seven county area as a whole.

Table 22-42 Projected New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, By Impact Zone

	Impact Zone				
	1	2	3	4	Total
Phase I					
Transportation	3	-	-	-	3
Lodging	7	1	-	-	8
Food	50	14	6	-	70
Entertainment	9	4	-	-	13
Gifts/Incidentals	13	4	-	-	17
Total	82	23	6	-	111
Phase II					
Transportation	7	4	-	-	11
Lodging	12	3	-	-	15
Food	72	27	13	-	112
Entertainment	14	10	1	-	25
Gifts/Incidentals	25	10	1	-	36
Total	130	54	15	-	199
Phase III					
Transportation	12	6	-	-	18
Lodging	20	8	2	-	30
Food	104	47	23	1	185
Entertainment	18	12	6	-	36
Gifts/Incidentals	46	21	2	-	69
Total	200	104	33	1	338

Table 22-43 Projected New Direct Employment Generated by Expenditures of Tocks Island/DWGNRA Visitors By Impact Zones

	Impact Zone				
	1	2	3	4	Total
Phase I					
Transportation	40	30	10	-	80
Lodging	195	90	20	25	330
Food	620	160	75	15	870
Entertainment	130	60	5	20	200
Gifts/Incidentals	210	100	-	20	330
Total	1,195	440	110	75	1,810
Phase II					
Transportation	70	40	25	5	140
Lodging	380	200	45	35	660
Food	1,015	360	185	40	1,600
Entertainment	200	125	30	15	370
Gifts/Incidentals	360	170	30	20	580
Total	2,025	895	315	115	3,350
Phase III					
Transportation	110	60	35	5	210
Lodging	780	390	135	55	1,360
Food	1,550	750	340	70	2,710
Entertainment	275	180	70	15	540
Gifts/incidentals	500	275	65	20	910
Total	3,265	1,655	645	165	5,730

Tables at the end of this section (XXII.C.2(k)) show the anticipated direct and induced growth impacts by county by impact zones for each of the three phases of the park development and related visitor volume and expenditures.

It is estimated that by the year 2000 when 10,000,000 visitors will travel to the park from various origin points, some 338 new establishments can be expected to serve their variety of needs. The flow of outside dollars supporting new and existing establishments by the year 2000 will support some 5,730 new employees. These impacts can be termed direct. In addition, 300 National Park Service employees estimated to be required to maintain and operate the national recreation area will result in total direct employment of 6,030 which can be attributed to the development of TILP including DWGNRA in the seven-county area.

The anticipated direct employment and the associated population growth in the seven-county area will generate additional service needs resulting in further new employment opportunities. The induced employment will primarily cater to the increased population needs and will locate in or near the new and expanding residential areas.

Summary of Impacts

Table 22-44 below summarizes the direct and indirect growth impacts on employment, population and households by zones.

Table 22-44 Summary of Total Impacts by Zones

	Impact Zones				
	1	2	3	4	Total
Phase I					
Direct Employment	1,345	430	110	75	1,960
Induced Employment	325	245	295	120	985
Total Population	1,930	1,450	1,875	740	5,890
Permanent Housing	660	490	600	250	2,000
Phase II					
Direct Employment	2,250	895	315	115	3,757
Induced Employment	540	415	575	165	1,795
Total Population	3,220	2,460	3,470	1,595	10,740
Permanent Housing	1,130	860	1,210	550	3,750
Phase III					
Direct Employment	3,555	1,655	645	165	6,030
Induced Employment	775	665	1,095	490	3,025
Total Population	4,650	3,990	6,540	2,930	18,110
Permanent Housing	1,660	1,420	2,330	1,040	6,450

As shown in the above table, the direct and induced employment growth will increase from initial level of 4,330 employees by 1985 to 10,055 employees by the year 2000. This employment growth will result in direct and induced population growth of 18,110 persons and 6,450 new households by the year 2000. While about two-thirds of the direct and indirect employment can be expected to occur in Zone 1 and Zone 2, over 52 percent of the population growth is expected to locate in Zones 3 and 4.

XXII.C.2 (h) Impact on Second Home Development

The seven-county area is estimated to already contain well over 50,000 second homes, an amount which has grown in recent years and is expected to increase in the future with thousands of second home lots already plotted. While the park will generally enhance the seven-county area as a recreation-oriented area, its direct impact on second homes may be limited.

One reason is that the government will own the entire land area surrounding the lake and will not provide properties for the development of lakeshore homes.

While the development of TILP-DWGNRA may not lead to wholly new second home communities induced solely by the Project's existence, building out of the significant acreage already sold or still available as second home lots may be significantly accelerated.

XXII.C.2(i)(1) Land Values

Land values, particularly in the seven-county economic impact area, will fluctuate as a result of implementation of the TILP. Among the reasons for land value fluctuations are the following:

1. Increasing values.
    a. Economic activity resulting from more jobs and residents.
    b. More amenities due to the public acquisition and development of parkland recreation sites.
2. Decreasing values.
    a. Land acquired for public use and removed from the municipal real property tax roles.
    b. Possible temporary decreases due to a variety of public works construction projects in the area.

Other factors influencing land values such as accessibility by transportation routes is discussed in Chapter XXV.

Increasing Values. Economic activity generated by the TILP and DWGNRA will increase the number of jobs and residents in the impact area. From 1973 to 1985 employment will increase by 2,945 jobs and population by 5,890 people. The speculation in land attendent with growth will cause increases in land values for residential and commercial land. Little, if any, increase will occur in industrial land values because industrial employment attributable to the project will not increase during the next ten years. The reduced amount of land available for development may increase the value of remaining parcels.

Location factors will also play an important role in increasing land values. Construction of the TILP and DWGNRA will create a reservoir and recreation area surrounding which will be more land having high amenity locations.

Increases in land values are associated not only with nearness to TILP and DWGNRA but also with suitability of the land for subdivision. It is reasonable to expect that increased land values in the vicinity of a man-made lake may create a high demand for lands adjacent to it for residential subdivisions. To the extent that this land increases in value due to its superior setting, the net taxes derived from it represent a benefit to the locality in which it is located. However, if these high amenity lands cannot be provided with utilities and other urban services, their values will not increase as much as if those services or "improvements" were to become available.

Decreasing Values. Both permanent and temporary decreases in land values will occur if the TILP and DWGNRA are built. Through 1974, 16,707 acres of land have been acquired for TILP and 30,821 acres for DWGNRA. An additional 3,994 acres are to be acquired for TILP and 7,804 for DWGNRA. Conversion of these lands from private tax-paying properties to public uses which do not pay taxes or funds to local governments in lieu of real property taxes results in those lands losing their value for tax purposes. Generally, as discussed above, lands adjacent to the public land acquired for DWGNRA will increase in value to help compensate for values lost due to conversion of private land to public use.

It is also possible that temporary decreases in land values could occur in some locations due to project construction. The additions of noise, dirt and glare often associated with major construction projects could reduce the attractiveness and land values in some areas. If construction takes place around-the-clock land values could be reduced even more. Regulation of construction contractor practices could help reduce the impact of project construction on property values.

XXII.C.2(i)(2) Tax Base

This section presents an analysis of the impact of building the Tocks Island Lake Project on the tax bases of the local jurisdictions, counties, and school districts in the seven-county economic impact area.

This analysis involves in part the presentation of the area's current tax base and discussion of projected changes in municipal, school district, and county tax revenues in 1985 resulting from construction of the dam and development of the DWGNRA. This is not a detailed cost/revenue analysis but a generalized estimate of the project's impact on tax bases in the seven-county area.

Data in this subsection for local jurisdictions is aggregated by project impact zones in accordance with the determination of the components of the impact area described in Section XXII B. Revenues to counties are presented by county and state and school district revenues are presented by state.

Revenue data analyzed here represents the latest audited figures available from the comptroller's offices of the states of New York, New Jersey, and Pennsylvania. Figures cited in the current tax base section beginning on page XXII-119 in each case cover a 12-month period, but they are not comparable to each other. The dates covered by data for each type of political unit are listed below:

Municipalities and Counties

New Jersey - year ended 12/31/73
New York - cities, villages: fiscal year ended in 1972
Counties and Towns: year ended 12/31/72
Pennsylvania - year ended 12/31/73

School Districts

New Jersey - fiscal year ended 6/30/73
New York - fiscal year ended 6/30/72
Pennsylvania -fiscal year ended 6/30/74

Implicit to the analytical process is the delineation of assumptions which serve at once to simplify the task and to impart greater manageability to the data to be handled. The assumptions developed for this analysis are set forth below.

-- All other factors affecting the finances of the various jurisdictions within the impact area were held constant while projecting changes resulting directly and indirectly from the project in 1985. That is, economic growth in the seven-county impact area is assumed to proceed in the direction indicated by past trends to 1985. Therefore, tax bases will not show significant changes other than those resulting from the Tocks Island Lake Project and the DWGNRA.

-- Closely related to this point is the assumption that state audited revenue data obtained for the purposes of this analysis is typical for

each jurisdiction. Per capita tax rates would remain at or near present levels over the 12 to 13 year period and revenues from state and federal sources would remain at or around their current percentage of each jurisdiction's total revenues.

-- The major sources of revenue in 1985 will be approximately the same as those in the current period. In 1985, as now, revenues are expected to be generated mainly from real or personal property taxes. These are considered together here under the rubric "property taxes" because some jurisdictions do not have a personal property tax and it represents only five to 10 percent of total property taxes where it is levied. Intergovernmental transfers (state and federal aid), and miscellaneous non-property taxes and a "miscellaneous revenues" category are analyzed here to ensure that all revenues are accounted for.

This analysis has been limited by serious difficulties in obtaining comprehensive data. The fiscal data which has been made available is two to three years old while data a year old or less is preferable for analysis. The assumptions of continuation of past trends in the area and representativeness of available data are addressed to this difficulty.

While comparability is available within states within type of political unit, it is impossible to compare dollar amounts between states or between types of jurisdictions. Comparison is possible, however, when dollar amounts are reduced to tax rates or per capita amounts.

The degree of specificity of the revenue forecast is directly related to the specificity of the land use forecast by jurisdiction. For example, with land uses divided into the categories of residential, commercial/retail, industrial, and public, it is possible to be fairly accurate in projections of real property taxes. Since this land use breakdown is not available for the local level, the only index available on which to base property tax revenue forecasts is the population forecasts which were developed in Part A of this study and used in this section.

Existing Tax Bases

The revenues generated as municipal, county and school district taxes are categorized by the three sources which generate the greatest amount of revenue: property taxes, other locally raised taxes and intergovernmental transfers. All other revenues are grouped into a "miscellaneous" category. The relative importance of each of these sources of revenue varies greatly from state to state and from one type of political jurisdiction to another. However, in terms of the potential impact of the

Delaware Water Gap National Recreation Area and of the Tocks Island Lake Project, real property tax revenues are of primary importance.

Property Tax Revenues. Taxes on real property (land and buildings) are assessed for each type of political jurisdiction considered here. Property taxes constitute from 21.3 to 70.0 percent of county revenues, averaging 42.4 percent of all revenues over the seven counties. They are by far the most important source of revenue in the New Jersey counties of Sussex and Warren (70 percent and 64 percent of total revenues respectively), and represent about 45 percent of revenues to Pennsylvania counties.

On the municipal level, property taxes represent 37.6 percent of all revenues and over 50 percent of revenues to local areas in Orange and Sullivan counties.

In the townships and boroughs in which the U.S. Army Corps of Engineers has been actively purchasing tracts of land, property taxes accounted for 12 percent of all revenues. This is because a substantial number of acres have already been removed from the tax rolls. A more detailed discussion of the impact of federal land acquisition on real property tax revenues can be found after the projected tax base section.

School districts contained within the seven counties received between 36.5 and 61.2 percent of their total revenues in the form of property taxes.

Data on amounts received by various political jurisdictions from property taxes and the importance of these taxes for municipalities, counties and school districts is presented below.

Table 22-45 Revenue to Political Units from Property Taxes in a 12-Month Period, 7-County Economic Impact Area

Revenue Recipient	New Jersey	New York	Pennsylvania	Total	Total Revenues	Percent of Total
Municipalities in:						
Zone 1		$ 522,385	$ 933,261	$ 1,796,303	$ 8,649,513	20.8%
Zone 2	$ 747,737	352,656	135,083	1,235,476	4,616,604	26.8%
Zone 3	3,497,310	510,942	912,586	4,920,838	14,205,997	34.6%
Zone 4	2,847,182	19,436,239	8,046,647	30,330,069	73,008,454	41.6%
Total, Municipalities	$7,432,887	$20,822,222	$10,027,577	$38,282,686	$100,480,568	38.1%
Counties:						
Orange		$21,563,914		$21,563,914	$53,193,256	40.5%
Sullivan		4,930,631		4,930,631	23,102,146	21.3%
Sussex	$8,643,733			8,643,733	12,352,809	70.0%
Warren	5,458,435			5,458,436	8,461,356	64.5%
Monroe			$1,604,645	1,604,645	3,329,048	48.2%
Northampton			7,002,744	7,002,744	15,686,924	44.6%
Pike			316,464	316,464	757,595	41.8%
Total, Counties	$14,102,168	$26,494,545	$8,923,853	$49,520,567	$116,883,134	42.4%
School Districts, Total	$33,903,225	$40,047,168	$34,464,247	$108,414,640	$247,878,892	43.7%

Sources: New Jersey Dept. of Community Affairs, State Comptroller of New York, Dept. of Community Affairs of the Commonwealth of Pennsylvania, New Jersey Dept. of Education, Pennsylvania Dept. of Education,

Locally Raised Non-Property Taxes. Non-property taxes in New Jersey counties and municipalities include taxes from public activities, a business personalty replacement tax and delinquent taxes collected from prior years' levies whose source could not be otherwise determined.

New York counties may selectively impose a sales and compensating use tax. Orange County has not imposed any non-property taxes as of mid-April 1975 and the New York State Comptroller's Office does not anticipate the implementation of such a tax by that county, but Sullivan County raised over $4.4 million from a 2 percent sales tax and $145,000 from a 15 percent Harness Race Admissions Tax. The cities of Port Jervis and Newburgh imposed a Consumers Utility Tax of three percent. Of the 21 villages in the counties of Orange and Sullivan 12 exercised their option of imposing a onepercent tax on the gross income of utility companies.

In Pennsylvania, the non-property taxes are those which fall under either Act 511 of 1965 the "Local Tax Enabling Act" or Act 481 of 1947, known in that state as the "Tax Anything Act". Taxes collected include earned income, real property transfer, mercantile, amusement, and occupation privilege taxes. These taxes are optional at the municipal level.

Non-property taxes are important on the municipal level, ranging from 15 to 44 percent of total revenues for the four zones and relatively unimportant in the counties (excepting Sullivan) and school districts.

A breakdown of non-property tax revenues is presented below.

Table 22-46 - Revenue to Political Units from Locally Raised Non-Property Taxes, 7-County Economic Impact Area

Revenues Recipient	New Jersey	New York	Pennsylvania	Total	Total Revenues	Percent of Total
Municipalities						
Zone 1	$2,460,404	$101,958	$1,011,301	$3,573,664	$8,649,513	41.3%
Zone 2	$1,718,223	-	$ 336,063	$2,054,286	$4,616,604	44.5%
Zone 3	$3,802,629	$ 1,601	$1,242,868	$5,047,099	$14,205,997	35.5%
Zone 4	$3,466,992	$324,429	$6,539,118	$10,330,605	$73,008,454	14.2%
Total, Municipalities	$11,448,250	$428,053	$9,129,350	$21,005,654	$100,480,568	20.9%
Counties:						
Orange		-		-	$53,193,256	-
Sullivan		$4,571,644		$4,571,644	$23,102,146	19.8%
Sussex	$81,954			$ 81,954	$12,352,809	.7%
Warren	$50,864			$ 50,865	$ 8,461,356	.6%
Monroe			$3,109	$ 3,109	$ 3,329,048	.1%
Northampton			-	-	$15,686,924	-
Pike			-	-	$ 757,595	-
Total, Counties	$132,819	$4,571,644	$3,109	$4,707,572	$116,883,134	4.0%
School Districts, Total		$738,367		$738,367	$247,878,892	.3%

Sources: New Jersey Dept. of Community Affairs, State Comptroller of New York, Dept. of Community Affairs of the Commonwealth of Pennsylvania, New Jersey Dept. of Education, Pennsylvania Dept. of Education.

Intergovernmental Transfers. These revenues are distributed to municipalities and counties in the form of state aid, federal aid, and in the case of local jurisdictions in Pennsylvania, county aid. State aid to counties is comprised of both formula grants (for example, redistribution of revenues collected by the state from motor fuel taxes and motor vehicle licenses and fees according to established formulas) and categorical grants, which are funds to be applied only to specific projects. Federal aid is generally directed at specific programs, such as social service assistance, public works planning or civil defense equipment. Funds obtained as a result of the State and Local Fiscal Assistance Act (general revenue sharing) are included in the category of intergovernmental transfers. Revenues to municipalities, counties, and school districts from intergovernmental transfers are summarized below in Table 22-47.

Table 22-47 Revenue to Political Units from Intergovernmental Transfers, Seven County Economic Impact Area

Revenue Recipients	New Jersey	New York	Pennsylvania	Total	Total Revenues	Percent of Total
Municipalities in:						
Zone 1	$ 294,209	$ 389,788	$ 924,036	$ 1,608,033	$ 8,649,513	18.6%
Zone 2	357,635	121,913	277,524	757,073	4,616,604	16.4%
Zone 3	1,188,007	114,882	923,727	2,226,616	14,205,997	15.7%
Zone 4	1,343,613	7,156,635	5,879,460	14,379,709	73,008,454	19.7%
Total, Municipalities	$3,183,465	$7,783,218	$8,004,747	$18,971,431	$100,480,568	18.9%
Counties:						
Orange		$27,794,378		$27,794,378	$ 53,193,256	52.3%
Sullivan		11,831,080		11,831,080	23,102,146	51.2%
Sussex	$2,410,195			2,410,195	12,352,809	19.5%
Warren	2,285,309			2,285,309	8,461,356	27.0%
Monroe			$ 963,504	963,504	3,329,048	28.9%
Northampton			5,469,893	5,469,893	15,686,924	34.9%
Pike			169,205	169,205	757,595	22.3%
Total, Counties	$4,695.504	$39,625,458	$6,602,602	$50,923,564	$116,883,134	43.6%
School Districts, Total	$10,811,756	$56,676,001	$27,547,922	$95,035,679	$247,878,892	38.3%

Sources: New Jersey Department of Community Affairs, State Comptroller of New York, Department of Community Affairs of the Commonwealth of Pennsylvania, New Jersey Department of Education, Pennsylvania Department of Education.

There is very little variation between municipalities according to zones in the percentage of total revenues obtained from federal, state and county sources -- ranging from 15.7 percent to 19.3 percent. Differences are significant, however, on the county level. New York counties derive over half their revenues from intergovernmental transfers while less than one-third of total revenues are contributed by this source to New Jersey counties.

Miscellaneous Revenues. These revenues are derived from sources such as the issuance of licenses and permits, the imposition of fines and collection of forfeits, money earned from interest and rents, charges for current services rendered by municipal departments and other miscellaneous sources not otherwise identified. While the substantive contents of such a category are very fluid, it is estimated that the proportion of a jurisdiction's revenue derived from such miscellaneous sources will remain fairly constant. For school districts in New Jersey and Pennsylvania, all revenues not directly allocatable to property tax or intergovernmental transfers were attributed to "miscellaneous revenues".

Miscellaneous revenues represented less than 10 percent of county revenues except in Pennsylvania counties where they accounted for over 21 percent of all revenues. The majority of miscellaneous revenues to Pennsylvania counties are derived from departmental earnings.

In New York, these revenues also include "special activity" revenues, defined as: miscellaneous revenues and user payments received in connection with the operation of an enterprise activity. These special activities revenues comprise about four percent of the miscellaneous revenues of the two New York counties.

Table 22-48 Revenue to Political Units from Miscellaneous Revenues, Seven County Economic Impact Area.

Revenue Recipients	New Jersey	New York	Pennsylvania	Total	Total Revenues	Percent of Total
Municipalities in:						
Zone 1	$ 386,214	$ 268,878	$ 1,016,420	$ 1,671,513	$ 8,649,513	19.3%
Zone 2	450,045	44,286	75,437	569,769	4,616,614	12.3%
Zone 3	1,244,315	76,599	690,530	2,011,444	14,205,997	14.2%
Zone 4	1,212,092	8,249,614	8,506,364	17,968,071	73,008,454	24.6%
Total, Municipalities	$3,292,669	$8,639,377	$10,288,751	$22,220,797	$100,480,568	22.1%
Counties:						
Orange		$3,834,964		$ 3,834,964	$ 53,193,256	7.2%
Sullivan		1,768,791		1,768,791	23,102,146	7.7%
Sussex	$1,216,926			1,216,926	12,352,809	9.9%
Warren	666,746			666,747	8,461,356	7.9%
Monroe			$ 757,790	757,790	3,329,048	22.8%
Northampton			3,214,287	3,214,287	15,686,924	20.5%
Pike			271,926	271,926	757,595	35.9%
Total, Counties	$1,883.672	$5,603,755	$ 4,244,003	$11,731,431	$116,883,134	10.0%
School Districts, Total	$26,585,384	$4,406,875	$12,697,947	$43,690,206	$247,878,892	17.6%

Sources: New Jersey Department of Community Affairs, State Comptroller of New York, Department of Community Affairs of the Commonwealth of Pennsylvania, New Jersey Department of Education, Pennsylvania Department of Education.

Projected Tax Base

Revenues to counties, school districts, and municipalities were projected based on a series of population growth indexes based on Part A data. For all political units except Zone 1 municipalities and counties, property and other taxes were forecast on a straight per capita basis. For Zone 1 municipalities in the seven counties, property taxes were forecast based on a per capita index, subtracting revenues lost due to future federal land acquisitions, and adding five percent to account for appreciation of land values due to proximity to TILP and DWGNRA of Zone 1 communities.

The remaining privately owned properties in Zone 1 will appreciate faster than properties elsewhere in the impact area, over levels which could be accounted for by inflation, due to a variety of factors. First, Zone 1 will absorb most of the economic activity generated by the project as demonstrated in the employment forecasts presented elsewhere in this chapter. Commercial establishments in themselves generate more revenues than residential properties and the added demand for land will push up the value of parcels in Zone 1. In addition, it is assumed that the land use control institutions in some of the local governments will not only permit but encourage development to accommodate the demand at the destination point, Zone 1 municipalities. The increment in development will represent a greater tax base than would otherwise exist.

The revenues projected to accrue to the political jurisdictions within the seven-county impact area are presented below.

Table 22-49 County, School District, and Municipal Revenues by Impact Zone, 1985

Jurisdiction	Revenues Including Increment due to DWGNRA and TILP: Property Taxes	Non-Property Taxes	Intergovernmental Transfers	Miscellaneous Revenues	Total Revenues
New Jersey					
Zone 1	$ 22,000	$3,294,000	$ 412,000	$ 541,000	$ 4,269,000
Zone 2	$ 996,000	$2,288,000	$ 476,000	$ 599,000	$ 4,359,000
Zone 3	$ 5,117,000	$5,564,000	$ 1,738,000	$ 1,821,000	$14,240,000
Zone 4	$ 3,622,000	$4,410,000	$ 1,709,000	$ 1,542,000	$11,283,000
Sussex County	$13,004,000	$ 122,000	$ 3,627,000	$ 1,831,000	$18,584,000
Warren County	$ 6,628,000	$ 62,000	$ 2,775,000	$ 810,000	$10,275,000
School Districts	$46,368,000	$ --	$14,787,000	$36,360,000	$97,515,000
New York					
Zone 1	$ 533,000	$ 104,000	$ 398,000	$ 274,000	$ 1,309,000
Zone 2	$ 477,000	$ --	$ 165,000	$ 60,000	$ 702,000
Zone 3	$ 679,000	$ 2,000	$ 153,000	$ 102,000	$ 936,000
Zone 4	$23,539,000	$ 394,000	$ 8,668,000	$ 9,992,000	$42,593,000
Orange County	$26,064,000	$ --	$33,595,000	$ 4,636,000	$64,295,000
Sullivan County	$ 6,002,000	$5,565,000	$14,402,000	$ 2,154,000	$28,123,000
School Districts	$48,475,000	$ 893,800	$68,567,000	$ 5,335,000	$123,271,000
Pennsylvania					
Zone 1	$ 870,000	$1,300,000	$ 1,188,000	$ 1,307,000	$ 4,665,000
Zone 2	$ 195,000	$ 484,000	$ 400,000	$ 109,000	$ 1,188,000
Zone 3	$ 1,090,000	$1,484,000	$ 1,103,000	$ 825,000	$ 4,502,000
Zone 4	$ 8,869,000	$7,199,000	$ 6,481,000	$ 9,376,000	$ 31,425,000
Northampton County	$ 5,941,000	$ --	$ 5,987,000	$ 3,517,000	$ 15,445,000
Pike County	$ 600,000	$ --	$ 249,000	$ 400,000	$ 1,249,000
Monroe County	$ 2,100,000	$ 4,000	$ 1,261,000	$ 992,000	$ 4,357,000
School Districts	$39,599,000	$ --	$31,651,000	$14,589,000	$ 86,839,000

This table is continued on the following page.

Table 22-49 County, School District, and Municipal Revenues by Impact Zone, 1985 (Continued)

Jurisdiction	Revenues Including Increment due to DWGNRA and TILP: Property Taxes	Non-Property Taxes	Intergovernmental Transfers	Miscellaneous Revenues	Total Revenues
All Jurisdictions					
Zone 1	$ 1,425,000	$ 4,698,000	$ 1,998,000	$ 2,122,000	$ 10,243,000
Zone 2	$ 1,668,000	$ 2,772,000	$ 1,041,000	$ 768,000	$ 6,249,000
Zone 3	$ 6,886,000	$ 7,050,000	$ 2,994,000	$ 2,748,000	$ 19,678,000
Zone 4	$ 36,030,000	$ 12,003,000	$ 16,858,000	$ 20,910,000	$ 85,801,000
All Counties	$ 60,339,000	$ 5,753,000	$ 61,896,000	$ 14,340,000	$142,328,000
All School Districts	$134,442,000	$ 893,800	$115,005,000	$ 56,284,000	$306,625,000

Note: All figures in constant 1973 dollars.

The overall impact of the TILP and DWGNRA on the revenues of localities due to increases in population is small. At its largest, the share of total projected 1985 population due to the project is only five percent, and over the entire seven-county impact area is less than 1 percent.

Therefore, the additional 6,000 people attracted into the area by 1985 as a result of the project, out of a total seven-county area population of 900,000 will have very little impact on the total tax base of jurisdictions in the area. The seven-county area as a whole is projected to increase its population by 163,000 people over the 12-year period from 1975 to 1985. Adjustments made by the local areas to accommodate this growth, which represents continuation of past trends, should be flexible enough to accommodate the 6,000 person increase in full-time population attributable to the TILP.

Table 22-50 Population Increase Attributable to the Tocks Island Lake Project for Municipalities by Zone and Counties, 1985 (Phase I)

Jurisdiction	1973 Population	1985 Population Based on Past Trends	1985 Population Increment Due to TILP	1985 Population Total Projected	TILP Share of Population
New Jersey					
Zone 1	12,500	16,980	530	17,510	3.0%
Zone 2	22,500	29,190	770	29,960	2.6%
Zone 3	65,600	95,020	960	95,980	1.0%
Zone 4	61,400	77,810	300	78,110	0.4%
Sussex County	85,600	127,000	1,790	128,790	1.4%
Warren County	76,400	92,000	770	92,770	0.8%
New York					
Zone 1	8,900	9,000	80	9,080	0.9%
Zone 2	6,300	8,390	130	8,520	1.5%
Zone 3	5,000	6,500	150	6,650	2.3%
Zone 4	271,100	328,110	240	328,350	0.1%
Orange County	233,600	282,000	360	282,360	0.1%
Sullivan County	57,700	70,000	240	70,240	0.3%
Pennsylvania					
Zone 1	38,000	47,550	1,320	48,870	2.7%
Zone 2	7,600	10,400	550	10,950	5.0%
Zone 3	40,000	47,110	660	47,770	1.4%
Zone 4	197,900	217,940	200	218,140	0.1%
Monroe County	49,300	63,000	1,530	64,530	2.4%
Pike County	12,900	18,000	990	18,990	5.2%
Northampton County	221,300	242,000	210	242,210	0.1%
Seven-County Area	736,800	894,000	5,890	899,890	.7%

To get a clearer picture of the TILP's impact on local revenues, it would have been necessary to have a grasp of expenditures generated by the project. In local government budgets, property taxes is a flexible item, designed to absorb any projected deficit due to increased expenditures.

However, specific land use forecasts and exact quantifications of supplementary public services required as a result of TILP, and DNGNRA were difficult to establish and therefore it was impossible to project the property tax revenue requirements which would balance the local area budgets. Caution must be used, therefore, in interpreting the revenue forecasts made in this section since they are based only on information from one side of the cost-revenue equation.

Impact of Federal Land Acquisitions.

In preparation for implementation of the TILP and DWGNRA, the U.S. Army Corps of Engineers has been actively purchasing land in 15 townships in New Jersey and Pennsylvania. Of these townships, five have lost over 18 percent of their total acreage from the tax rolls and two have lost over 70 percent (Walpack in Sussex County and Pahaquarry in Warren County). Sussex County and Pike County have lost 19,195 and 12,034 acres respectively as of December 31, 1974 and the 15 impacted townships together have lost 47,528 acres out of a possible 343,072, or 13.9 percent of their total land area. These figures are presented in the table below.

Table 22-51 Federal Land Acquisition for TILP and DWGNRA as of 12/31/74 by Township

Township	Acres TILP	Acres DWGNRA	Acres Total	Estimated Total Acreage In Townships	Percent of Total Acreage Acquired
Sussex County	(6,100)	(13,095)	(19,195)		
Walpack	3,693	8,910	12,603	15,424	81.7
Sandyston	1,360	3,447	4,807	26,496	18.1
Montague	1,047	738	1,785	28,928	6.2
Warren County	(2,370)	(6,860)	(9,230)		
Pahaquarry	2,370	6,674	9,044	12,768	70.8
Blairstown	--	154	154	19,776	.8
Knowlton	--	32	32	16,640	.2
Pike County	(5,378)	(6,656)	(12,034)		
Lehman	3,005	2,822	5,827	30,848	18.9
Dingman	376	374	750	36,480	2.1
Milford	21	--	21	8,576	.2
Westfall	1	12	13	20,032	.1
Delaware	1,925	3,448	5,423	28,928	18.7
Monroe County	(2,859)	(3,078)	(5,937)		
Stroud	--	102	102	20,480	9.5
Smithfield	16	1,447	1,463	15,488	9.4
Middle Smithfield	2,843	1,529	4,372	33,984	12.9
Northampton County	--	(1,132)	(1,132)		
Upper Mt. Bethel	--	1,132	1,132	28,224	4.0
Total	16,707	30,821	47,528	343,072	13.9

Source: U.S. Army Corps of Engineers, Pennsylvania Association of Township Commissioners.

The Corps of Engineers has planned to acquire 23,600 acres for the TILP and 41,900 acres for the DWGNRA. These figures do not include any DWGNRA land north of Milford Bridge but includes all TILP land in New Jersey and Pennsylvania. TILP land in New York has not been fully delineated.

These figures indicate that as of the end of 1974, approximately 71 percent of known projected land acquisitions for the TILP had been made and that DWGNRA acquisitions were 74 percent complete.

The acquisitions totals to the end of 1974 have been translated into estimated property taxes foregone for the townships and counties together. The average fair market value per acre was determined based on information provided by COE of the purchase price of land acquired to date, assumed to equal the fair market value of those tracts purchased. The effective tax rate for each jurisdiction was applied to the fair market value per acre for that jurisdiction to obtain a factor for taxes foregone per acre. By multiplying this factor by the total acres acquired as of December 31, 1974, an estimate of taxes foregone by township to the TILP and DWGNRA was obtained. Walpack and Sandyston townships in Sussex County, which lost an estimated $488,000 and $196,800 in property taxes respectively, accounted for 75 percent of total foregone revenues from property taxes and 68 percent of these taxes lost due solely to the TILP.

Estimated foregone taxes by township are presented below.

Table 22-52. Estimated Property Taxes Foregone Due to Federal Land Acquisition in the Seven-County Impact Area, 1974

County/Township	Average Property Tax Revenue per Acre		Taxes Foregone		
	TILP	DWGNRA	TILP	DWGNRA	Total
Sussex County			($312,800)	($453,900)	($766,700)
Walpack	$50.12	$34.01	$185,000	$303,000	$488,000
Sandyston	$53.20	$36.10	$ 72,400	$124,400	$196,800
Montague	$52.92	$35.91	$ 55,400	$ 26,500	$ 81,900
Warren County			($ 22,200)	($ 39,900)	($ 62,100)
Pahaquarry	$ 9.36	$ 5.76	$ 22,200	$ 38,400	$ 60,600
Blairstown	$ 8.97	$ 5.52	--	$ 900	$ 900
Knowlton	$31.46	$19.36	--	$ 600	$ 600
Pike County			($ 36,300)	($ 26,300)	($ 62,700)
Lehman	$ 6.76	$ 3.86	$ 20,300	$ 10,900	$ 31,200
Delaware	$ 7.45	$ 4.26	$ 14,700	$ 14,700	$ 29,400
Dingman	$ 3.08	$ 1.76	$ 1,200	$ 700	$ 1,900
Gilford	$ 5.88	$ 3.36	$ 100	--	$ 100
Westfall	$ 7.06	$ 4.03	--	--	$ 100
Monroe County			($ 8,500)	($ 4,000)	($ 12,500)
Stroud	$ 5.61	$ 2.81	--	$ 300	$ 300
Smithfield	$ 1.92	$ 0.96	--	$ 1,400	$ 1,400
Middle Smithfield	$ 2.98	$ 1.49	$ 8,500	$ 2,300	$ 10,800
Northampton County				($ 1,300)	($ 1,300)
Upper Mt. Bethel	--	$ 1.15	--	$ 1,300	$ 1,300
Total			$379,800	$525,400	$905,200

Note: All figures in constant 1974 dollars.

Source: U.S. Army Corps of Engineers.

The impact of these land acquisitions are the greatest in Sussex County both because the factor representing land values is greater and the largest acreage was acquired in that county. It is difficult to estimate the impact of the project on Pennsylvania township revenues. Their tax rates are much lower than those for New Jersey townships and they place less reliance on property tax revenues than do most New Jersey municipalities.

The figures presented in the table above suggest that New Jersey jurisdictions have been much more impacted by the TILP and DWGNRA acquisitions than those in Pennsylvania. This relationship will continue to hold true throughout the acquisitions period. COE estimates that 11,798 acres are yet to be acquired in New Jersey and 8,618 acres have not yet been purchased in Pennsylvania.

If acquisitions proceed as planned, Walpack township in Sussex County and Pahaquarry township in Warren County will be completely absorbed by the project and Sandyston, Lehman, and Delaware townships will lose about one-fourth of their land area. Of the five counties affected by the acquisitions program as presently delineated, only one, Northampton county, will be very little impacted.

The table below summarizes the impact of the total land acquisitions program in the five counties which will lose land as a result of the project.

Table 22-53. Projected Total Federal Land Acquisition for TILP and DWGNRA and Resulting Estimated Loss of Property Tax Revenues, 1985

County/Township	Total Acres TILP	Total Acres DWGNRA	% of Total Acres in Twps.	Estimated Taxes Foregone TILP	Estimated Taxes Foregone DWGNRA	Estimated Taxes Foregone Total
Sussex County	(9,920)	(14,899)		($509,900)	($517,900)	($1,027,800)
Walpack	5,543	9,484	97.4	$277,800	$322,600	$ 600,400
Sandyston	2,050	4,537	24.9	$109,000	$163,800	$ 272,800
Montague	2,327	878	11.1	$123,100	$ 31,500	$ 154,600
Warren County	(2,544)	(10,410)		($ 23,800)	($ 60,400)	($ 84,200)
Pahaquarry	2,544	10,224	100.0	$ 23,800	$ 58,900	$ 82,700
Blairstown	--	154	0.8	--	$ 900	$ 900
Knowlton	--	32	0.2	--	$ 600	$ 600
Pike County	(7,929)	(11,284)		($ 52,600)	($ 41,700)	($ 94,300)
Lehman	3,353	5,265	27.9	$ 22,700	$ 20,300	$ 43,000
Delaware	2,495	4,332	23.6	$ 18,600	$ 18,400	$ 37,000
Dingman	799	1,649	6.7	$ 2,500	$ 2,900	$ 5,400
Milford	216	14	2.7	$ 1,300	--	$ 1,300
Westfall	1,066	24	5.4	$ 7,500	$ 100	$ 7,600
Monroe County	(3,174)	(4,138)		($ 9,500)	($ 5,000)	($ 14,500)
Stroud	--	102	0.5	--	$ 300	$ 300
Smithfield	26	2,498	16.3	$ 100	$ 2,400	$ 2,500
Middle Smithfield	3,148	1,538	13.8	$ 9,400	$ 2,300	$ 11,700
Northampton County	--	(1,196)		--	($ 1,400)	($ 1,400)
Upper Mount Bethel	--	1,196		--	$ 1,400	$ 1,400
Total	23,567	41,927	19.1	$595,800	$626,400	$1,222,200

Note: Estimated taxes foregone are in constant 1974 dollars.

Source: U.S. Army Corps of Engineers, Pennsylvania Department of Community Affairs, New Jersey, Department of Community Affairs.

Sussex County alone accounts for 84 percent of all property tax revenues lost as a result of the TILP and DWGNRA. Warren County is less affected because the property tax rates in Blairstown and Knowlton do not include any amount for local municipal purpose property taxes and Blairstown does not levy local district school taxes.

These figures represent only the anticipated property tax revenues loss due to the project based on the assumption that the tax rates would remain constant. The total revenue impact will most likely be less than presented here. The 13 remaining impacted jurisdictions could raise the tax rate or reassess remaining properties which will have increased in value above inflation levels due to their proximity to the project. The Federal Government is authorized to make payments in lieu of property taxes to areas on which its land acquisition activities have placed a financial burden; such compensation would partially alleviate the negative impact of the TILP in the revenue base of the local areas.

Summary and Conclusions.

The impact of the TILP and DWGNRA on the projected revenues to local areas in the seven-county economic impact area is expected to be substantial in about five townships (Walpack, Sandyston, Pahaquarry, Lehman, and Delaware), mainly as a result of massive federal land purchases made in preparation for the project. The primary impact to revenues in the area will result from the removal of over 65,000 acres from the tax rolls of local jurisdictions bordering the Delaware River in New Jersey and Pennsylvania. This

loss may be partially offset by the increased value of land which will border the project and by possible Federal compensatory payments to local governments and school districts to replace funds lost from property tax base reductions.

The impact afforded by the extra population and commercial services attracted to the area by the increased economic activity needed to serve park visitors will increase the real property tax base of the 7 county area. The 6,000 additional residents and the commercial services discussed in sections XXII.C.2(e), (f) and (g) will bring in additional real property tax revenues (due primarily to new construction and therefore increased taxable valuation of property). This real property tax yield may offset the cost of services required by residential commercial development from local governments.

This section has considered only the impacts of the Project on revenues in 1985, because the data base was very weak and although trend line extrapolation was feasible, it would have been practically meaningless in numerical terms. It is quite likely that by the year 2000, using Phase III population, the relative importance of population growth versus land acquisition would change. Land removed from the property tax rolls was expected to cause a major impact on the townships because their whole revenue base was suddenly decreased, while their expenditures were going up. However, 25 years after acquisition, their financial situation with respect to revenues should have stabilized, with dependency on property taxes as a source of revenues shifted to other sources. As the impact due to land acquisition diminishes with the passage of time, the impact due to additional population should increase -- while the seven counties will only

gain 6,000 people due to TILP in the 10 years between 1975 and 1985, they will gain 12,000 people in the 15 years between 1985 and 2000 due to the TILP.

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XXII.C.2.(j) Impact Differentials Through Alternative Development Strategies and Growth Rates.

The discussion of likely impacts presented in the preceding was based upon the assumption that the seven-county area will follow the growth path based upon the policies inherent in the continuance of present trend development strategies. However, if the jurisdictions pursue policies of growth maximization and attain success, the resulting infrastructure facilities, economic structure, both in terms of type and scale, will tend to minimize the direct and indirect impact of the development of TILP and DWGNRA upon the seven-county area.

Selective reductions in TILP related impacts will result because the area's economic structure would be at an advanced development stage with inherent capabilities to absorb substantial growth that is attributed to TILP.

If, however, the area jurisdictions adopted policies to limit growth and preserve local environmental resources, the relative impacts of TILP will somewhat be greater because of the low level of economic activity and supporting infrastructure activities will not be able to absorb the impact of 10,600,000 visitors. However, the location of specific impacts under this scenario will be different and conceivably be more orderly because of the strict development controls that would exist under this alternative strategy.

XXII.C.2(k) County Impact Tables

The following tables show the anticipated direct and induced growth impacts by county by impact zones for each of the three phases of the park development and related visitor volume and expenditures.

Table 22-54 Projected Transportation Employment and New Establishments Generated By Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase I

	Establishments	Employment
Sussex County	1	20
Zone 1	1	10
Zone 2	--	5
Zone 3	--	5
Zone 4	--	--
Warren County	1	20
Zone 1	1	10
Zone 2	--	5
Zone 3	--	5
Zone 4	--	--
Orange County	0	10
Zone 1	--	5
Zone 2	--	5
Zone 3	--	--
Zone 4	--	--
Sullivan County	0	0
Zone 1	--	--
Zone 2	--	--
Zone 3	--	--
Zone 4	--	--
Monroe County	1	20
Zone 1	1	10
Zone 2	--	10
Zone 3	--	--
Zone 4	--	--
Northampton County	0	0
Zone 1	--	--
Zone 2	--	--
Zone 3	--	--
Zone 4	--	--
Pike County	0	10
Zone 1	--	5
Zone 2	--	5
Zone 3	--	--
Zone 4	--	--

Table 22-55 Projected Lodging Employment and New Establishments Generated By Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase I

	Establishments	Employment
Sussex County	3	90
Zone 1	2	50
Zone 2	1	30
Zone 3	--	10
Zone 4	--	--
Warren County	1	40
Zone 1	1	25
Zone 2	--	10
Zone 3	--	5
Zone 4	--	--
Orange County	0	20
Zone 1	--	10
Zone 2	--	--
Zone 3	--	--
Zone 4	--	10
Sullivan County	0	20
Zone 1	--	--
Zone 2	--	--
Zone 3	--	5
Zone 4	--	15
Monroe County	2	80
Zone 1	2	50
Zone 2	--	30
Zone 3	--	--
Zone 4	--	--
Northampton County	0	10
Zone 1	--	10
Zone 2	--	--
Zone 3	--	--
Zone 4	--	--
Pike County	2	70
Zone 1	2	50
Zone 2	--	20
Zone 3	--	--
Zone 4	--	--

Table 22-56 Projected Food Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase I

	Establishments	Employment
Sussex County	22	260
Zone 1	14	170
Zone 2	6	70
Zone 3	2	20
Zone 4	-	-
Warren County	10	120
Zone 1	7	80
Zone 2	2	30
Zone 3	1	10
Zone 4	-	-
Orange County	2	40
Zone 1	1	30
Zone 2	1	10
Zone 3	-	-
Zone 4	-	-
Sullivan County	0	20
Zone 1	-	-
Zone 2	-	-
Zone 3	-	5
Zone 4	-	15
Monroe County	20	120
Zone 1	15	170
Zone 2	3	30
Zone 3	2	20
Zone 4	-	-
Northampton County	2	40
Zone 1	2	30
Zone 2	-	-
Zone 3	-	10
Zone 4	-	-
Pike County	14	170
Zone 1	11	140
Zone 2	2	20
Zone 3	1	10
Zone 4	-	-

Table 22-57 Projected Entertainment Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, Seven County Impact Area, Phase I

	Establishments	Employment
Sussex County	5	60
Zone 1	3	40
Zone 2	2	20
Zone 3	-	-
Zone 4	-	-
Warren County	2	30
Zone 1	2	30
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Orange County	1	10
Zone 1	-	-
Zone 2	1	10
Zone 3	-	-
Zone 4	-	-
Sullivan County	0	20
Zone 1	-	-
Zone 2	-	-
Zone 3	-	5
Zone 4	-	15
Monroe County	2	50
Zone 1	2	40
Zone 2	-	10
Zone 3	-	-
Zone 4	-	-
Northampton County	0	0
Zone 1	-	-
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	3	30
Zone 1	2	20
Zone 2	1	10
Zone 3	-	-
Zone 4	-	-

Table 22-58 Projected Transportation Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, Seven County Impact Area, Phase I

	Establishments	Employment
Sussex County	5	100
Zone 1	2	40
Zone 2	3	60
Zone 3	-	-
Zone 4	-	-
Warren County	3	30
Zone 1	2	20
Zone 2	1	10
Zone 3	-	-
Zone 4	-	-
Orange County	3	40
Zone 1	3	30
Zone 2	-	10
Zone 3	-	-
Zone 4	-	-
Sullivan County	0	20
Zone 1	-	-
Zone 2	-	-
Zone 3	-	-
Zone 4	-	20
Monroe County	4	100
Zone 1	4	80
Zone 2	-	20
Zone 3	-	-
Zone 4	-	-
Northampton County	0	20
Zone 1	-	20
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	2	20
Zone 1	2	20
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-

Table 22-59 Projected Transportation Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase II

	Establishments	Employment
Sussex County	2	30
Zone 1	1	15
Zone 2	1	10
Zone 3	-	5
Zone 4	-	-
Warren County	3	40
Zone 1	2	15
Zone 2	-	10
Zone 3	-	10
Zone 4	-	5
Orange County	1	15
Zone 1	0	5
Zone 2	1	5
Zone 3	-	5
Zone 4	-	-
Sullivan County	0	0
Zone 1	-	-
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Monroe County	2	25
Zone 1	2	15
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Northampton County	1	10
Zone 1	1	10
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	2	20
Zone 1	1	10
Zone 2	1	5
Zone 3	-	5
Zone 4	-	-

Table 22-60 Projected Lodging Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase II

	Establishments	Employment
Sussex County	5	200
Zone 1	3	80
Zone 2	2	80
Zone 3	-	30
Zone 4	-	10
Warren County	2	90
Zone 1	2	60
Zone 2	-	20
Zone 3	-	10
Zone 4	-	-
Orange County	1	30
Zone 1	1	30
Zone 2	-	-
Zone 3	-	-
Zone 4	-	10
Sullivan County	0	20
Zone 1	-	-
Zone 2	-	-
Zone 3	-	5
Zone 4	-	15
Monroe County	3	150
Zone 1	3	90
Zone 2	-	60
Zone 3	-	-
Zone 4	-	-
Northampton County	1	30
Zone 1	1	30
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	3	140
Zone 1	2	100
Zone 2	1	40
Zone 3	-	-
Zone 4	-	-

Table 22-61 Projected Food Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase II

	Establishments	Employment
Sussex County	40	540
Zone 1	24	320
Zone 2	12	160
Zone 3	4	50
Zone 4	-	10
Warren County	18	240
Zone 1	10	140
Zone 2	5	70
Zone 3	3	30
Zone 4	-	-
Orange County	4	90
Zone 1	2	45
Zone 2	2	30
Zone 3	-	5
Zone 4	-	10
Sullivan County	1	40
Zone 1	-	-
Zone 2	-	-
Zone 3	1	20
Zone 4	-	20
Monroe County	24	350
Zone 1	18	270
Zone 2	4	50
Zone 3	2	30
Zone 4	-	-
Northampton County	4	90
Zone 1	3	70
Zone 2	-	-
Zone 3	1	20
Zone 4	-	-
Pike County	21	250
Zone 1	15	170
Zone 2	4	50
Zone 3	2	30
Zone 4	-	-

Table 22-62 Projected Entertainment Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase II

	Establishments	Employment
Sussex County	9	110
Zone 1	5	60
Zone 2	4	40
Zone 3	-	10
Zone 4	-	-
Warren County	3	50
Zone 1	2	35
Zone 2	1	10
Zone 3	-	5
Zone 4	-	-
Orange County	2	20
Zone 1	-	5
Zone 2	2	15
Zone 3	-	-
Zone 4	-	-
Sullivan County	1	30
Zone 1	-	-
Zone 2	-	-
Zone 3	1	15
Zone 4	-	15
Monroe County	3	80
Zone 1	2	50
Zone 2	1	30
Zone 3	-	-
Zone 4	-	-
Northampton County	1	10
Zone 1	1	10
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	6	70
Zone 1		40
Zone 2	2	30
Zone 3	-	-
Zone 4	-	-

Table 22-63 Projected Gifts and Incidentals Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase II

	Establishments	Employment
Sussex County	10	180
Zone 1	4	70
Zone 2	6	100
Zone 3	-	10
Zone 4	-	-
Warren County	7	70
Zone 1	5	50
Zone 2	2	20
Zone 3	-	-
Zone 4	-	-
Orange County	5	60
Zone 1	4	40
Zone 2	1	20
Zone 3	-	-
Zone 4	-	-
Sullivan County	1	30
Zone 1	-	-
Zone 2	-	-
Zone 3	1	10
Zone 4	-	20
Monroe County	8	160
Zone 1	7	140
Zone 2	1	20
Zone 3	-	-
Zone 4	-	-
Northampton County	1	40
Zone 1	1	30
Zone 2	-	-
Zone 3	-	10
Zone 4	-	-
Pike County	4	580
Zone 1	4	360
Zone 2	-	170
Zone 3	-	30
Zone 4	-	20

Table 22-64 Projected Transportation Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, Seven County Impact Area, Phase III

	Establishments	Employment
Sussex County	5	55
Zone 1	3	30
Zone 2	2	15
Zone 3	-	10
Zone 4	-	-
Warren County	4	45
Zone 1	3	20
Zone 2	1	10
Zone 3	-	10
Zone 4	-	5
Orange County	2	20
Zone 1	1	10
Zone 2	1	5
Zone 3	-	5
Zone 4	-	-
Sullivan County	0	5
Zone 1	-	-
Zone 2	-	-
Zone 3	-	5
Zone 4	-	-
Monroe County	3	40
Zone 1	2	25
Zone 2	1	15
Zone 3	-	-
Zone 4	-	-
Northampton County	1	10
Zone 1	1	10
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	3	35
Zone 1	2	15
Zone 2	1	15
Zone 3	-	5
Zone 4	-	-

Table 22-65 Projected Lodging Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase III

	Establishments	Employment
Sussex County	10	450
Zone 1	6	220
Zone 2	3	150
Zone 3	1	60
Zone 4	-	20
Warren County	5	200
Zone 1	3	100
Zone 2	2	60
Zone 3	-	30
Zone 4	-	10
Orange County	1	50
Zone 1	1	40
Zone 2	-	-
Zone 3	-	-
Zone 4	-	10
Sullivan County	0	20
Zone 1	-	-
Zone 2	-	-
Zone 3	-	5
Zone 4	-	15
Monroe County	6	280
Zone 1	5	180
Zone 2	1	80
Zone 3	-	20
Zone 4	-	-
Northampton County	1	40
Zone 1	1	40
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	7	320
Zone 1	4	200
Zone 2	2	100
Zone 3	1	20
Zone 4	-	-

Table 22-66 Projected Food Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase III

	Establishments	Employment
Sussex County	66	930
Zone 1	36	520
Zone 2	24	310
Zone 3	6	80
Zone 4	-	20
Warren County	25	380
Zone 1	12	180
Zone 2	8	120
Zone 3	4	60
Zone 4	1	20
Orange County	6	130
Zone 1	3	60
Zone 2	3	50
Zone 3	-	10
Zone 4	-	10
Sullivan County	2	60
Zone 1	-	-
Zone 2	-	-
Zone 3	2	40
Zone 4	-	20
Monroe County	40	560
Zone 1	24	360
Zone 2	12	150
Zone 3	4	50
Zone 4	-	-
Northampton County	6	130
Zone 1	4	90
Zone 2	-	-
Zone 3	2	40
Zone 4	-	-
Pike County	40	520
Zone 1	25	340
Zone 2	10	120
Zone 3	5	60
Zone 4	-	-

Table 22-67 Projected Entertainment Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase III

	Establishments	Employment
Sussex County	13	150
Zone 1	6	70
Zone 2	5	60
Zone 3	2	20
Zone 4	-	-
Warren County	4	70
Zone 1	2	40
Zone 2	1	15
Zone 3	1	15
Zone 4	-	-
Orange County	3	30
Zone 1	-	5
Zone 2	2	15
Zone 3	1	10
Zone 4	-	-
Sullivan County	2	40
Zone 1	-	-
Zone 2	-	-
Zone 3	2	25
Zone 4	-	15
Monroe County	4	110
Zone 1	3	70
Zone 2	1	40
Zone 3	-	-
Zone 4	-	-
Northampton County	1	10
Zone 1	1	10
Zone 2	-	-
Zone 3	-	-
Zone 4	-	-
Pike County	9	130
Zone 1	6	80
Zone 2	3	50
Zone 3	-	-
Zone 4	-	-

Table 22-68 Projected Gifts and Incidentals Employment and New Establishments Generated by Expenditures of Tocks Island/DWGNRA Visitors, 7-County Impact Area, Phase III

	Establishments	Employment
Sussex County	18	270
Zone 1	8	100
Zone 2	10	150
Zone 3	-	20
Zone 4	-	-
Warren County	13	130
Zone 1	9	90
Zone 2	4	30
Zone 3	-	10
Zone 4	-	-
Orange County	8	80
Zone 1	6	50
Zone 2	2	25
Zone 3	-	5
Zone 4	-	
Sullivan County	2	40
Zone 1	-	-
Zone 2	-	-
Zone 3	2	20
Zone 4	-	20
Monroe County	14	210
Zone 1	11	160
Zone 2	3	50
Zone 3	-	-
Zone 4	-	-
Northampton County	2	60
Zone 1	2	50
Zone 2	-	-
Zone 3	-	10
Zone 4	-	-
Pike County	12	120
Zone 1	10	100
Zone 2	2	20
Zone 3	-	-
Zone 4	-	-

XXII.C.3 EFFECTS ON LAND USE PATTERNS

The purpose of the discussion of existing and projected land use in Sections XXII.C.3(a) and Section XXII.C.3(b) is to provide a basis for evaluating DWGNRA's effects on the region's spatial development. The sections are based on land use data, where available, and on interviews with local, regional and state agency representatives, local residents, consultant observation, and literature review. Maps of existing land uses in each county accompany the impact zone descriptions in Section XXII.B.

Section XXII.C.3(c), Impacts on Land Use Patterns, evaluates the role and importance of TILP in influencing development patterns as well as its direct implications for existing land uses. Emphasis is on those land uses in Zones 1, 2, and 3 that would most likely be affected by TILP. These include residential, commercial and industrial uses, public open space, agriculture and vacant land. Residential uses comprise the major portion of developed land in the region. Any growth related to TILP could affect the quantity and character of future residential development, the nature of local communities and the future of agriculture in the region. Changes in commercial or industrial land use can affect the aesthetic and perhaps the social character of the area, as well as the efficiency of transportation systems serving both the residents and visitors. Extensive public land holdings in the region will play an increasingly significant role in shaping regional land use patterns. Their location with respect to DWGNRA may have an effect on the location of growth.

XXII.C.3(a) Existing Land Use Patterns

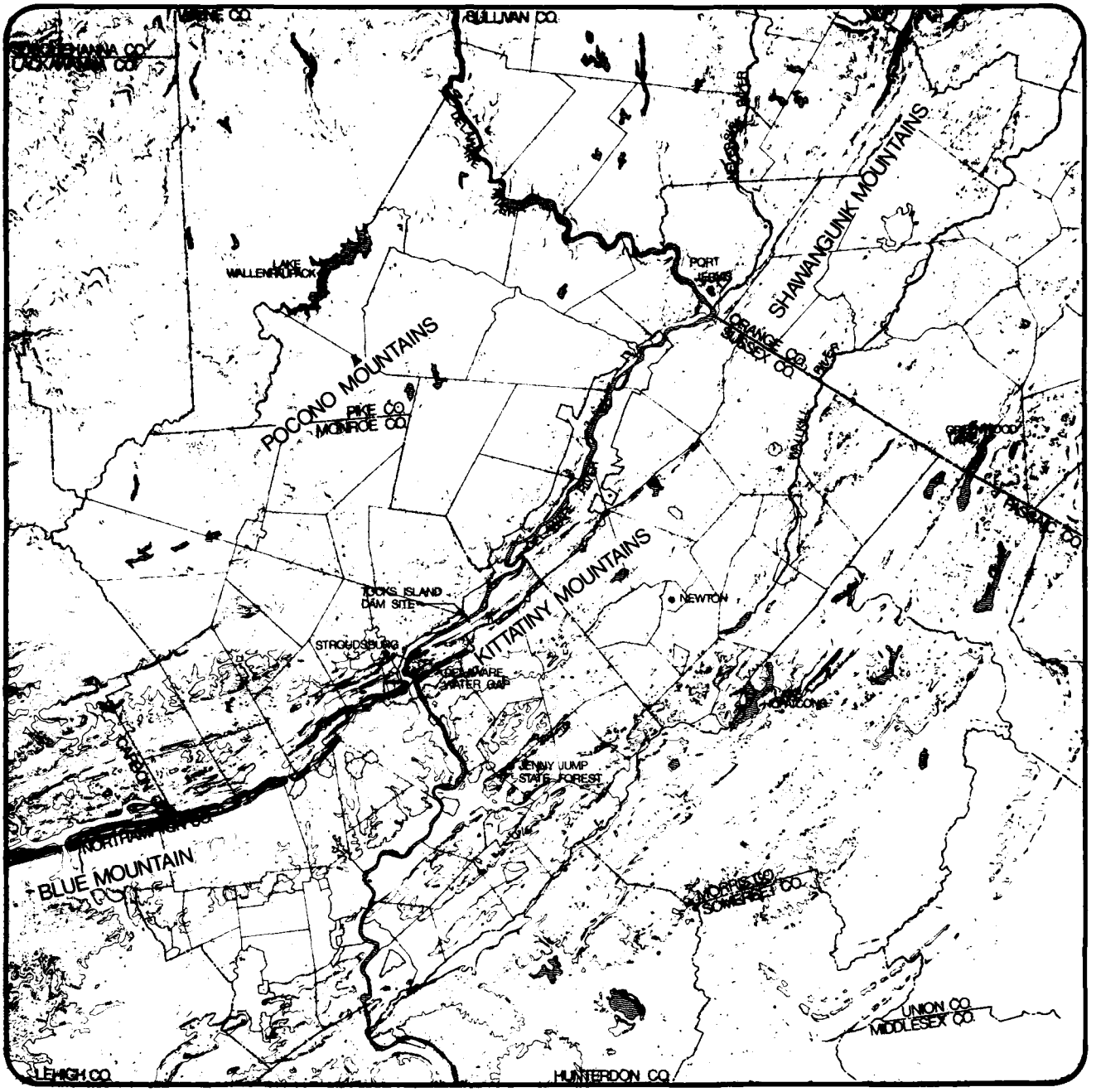
In general, while the townships and boroughs in Zones 1, 2, and 3 are united

by the influence of the Tocks Island Lake Project, they do not comprise a functionally integrated region with interdependent land uses, services or activity patterns. There is no one center at the focus of a regional transportation network which dominates commercial, industrial, social or political development. Rather, natural features, political jurisdictions, economic bases and transportation patterns have interacted to create several subregions, regional centers, rural villages, and small residential and commercial clusters throughout the area. Suburban subdivisions are dispersed throughout the region, particularly in Sussex, Warren and Monroe Counties. With their own services and utilities, they exist as separate communities in a generally rural region. The resort areas of the Poconos in Monroe and Pike Counties which exist independently of those in Sullivan County's Catskills and Sussex County's many private lake developments, contribute to the region's diversity.

Yet these diverse areas within the seven county region, sharing many of the same physical features and relative time distance from major metropolitan regions, exhibit similar qualities. Extensive forested areas and low density uses such as gameland, agriculture or recreation dominate the landscape and visually unify the area. Small well maintained rural villages and centers, such as Delaware Water Gap, Shawnee, Bushkill, Milford and Blairstown, preserve the region's link to America's historic past and symbolize the entire region's rural identity.

Residential

Residential land uses consume the largest proportion of developed land in the region. This proportion, however, varies widely among the counties, from approximately 1.7 percent in Sullivan County to 15 percent in Northampton.



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LEGEND

TOPOGRAPHY SEVEN COUNTY AREA

XXII

10

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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The intensity and pattern of residential development relates directly to population density which ranges from 571 persons per square mile in Northampton County to 21.7 in Pike County. The average density in Zones 1-3 is 78.9 persons per square mile, which is lower than that of the seven county region (191 persons per square mile). Municipalities with 1970 densities greater than 1,000 persons per square mile encompass a total 25.8 square miles or 1.2 percent of the impact area. These include Hamburg, Branchville, Stanhope, Sussex Boro and Newton in Sussex County; Bangor, East Bangor, Pen Argyl, Portland, Windgap, Belvidere, and Hackettstown in Warren County; Port Jervis and Unionville in Orange County; Milford and Matamoras in Pike County; and East Stroudsburg and Stroudsburg in Monroe County. (Refer to Table 22-69). The average density in these "urbanized" areas, the home of 24 percent of Zone 1-3 population, is 2,454 persons per square mile. These densities are low when compared to large or even medium sized cities on the Eastern seaboard. For example, Manhattan's density is about 60,000 people per square mile, and Philadelphia has approximately 15,000 per square mile.

The major portion of dwelling units in the impact area is in single family structures. Multi-family dwellings are primarily in or around urbanized centers such as Port Jervis and Stroudsburg; however, recent trends indicate that suburban subdivisions are including increasing percentages of town house units, in order to keep costs within purchase range of the younger family housing market. In 1970, 23,638 year round dwelling units or 34.5 percent of the impact area's total were in urbanized centers. The remaining units were scattered throughout the countryside in secondary rural centers and villages such as Blairstown and Forestburg, along roads in small residential clusters, or in the newer subdivisons.

Table 22-69 Land Use Tocks Island Seven County Region

County	Total Area (square miles)	Developed Area[1] (square miles)		Total	Percent	Open Space Area[3] (square miles)			Total	Percent
		Residential	Non-Residential			Agriculture	Public[2]	Undeveloped		
Sussex[a]	526.5	28.93	6.16	35.09	6.7	50.60	108.37	232.44	491.41	93.3
Warren[b]	364.6	4.65	1.16[4]	5.81	1.6	130.10	27.36	201.33	358.79	98.4
Monroe[c]	611.0	NA	NA	79.40	13.0	73.30	77.60	380.70	531.60	87.0
Northampton[d]	379.7	58.39	40.41	98.80	26.0	NA	9.18	271.72[5]	280.90	74.0
Pike[e]	543.5	NA	NA	37.20	6.8	26.20	162.21	317.89	506.30	93.2
Orange[f]	835.0	42.40	52.39	94.80	11.3	152.10	NA	588.10[6]	740.20	88.7
Sullivan[g]	986.0	18.62	23.36	41.98	4.3	58.28	30.49	855.25	944.02	95.3
Total	4,246.3			393.08	9.26				3,853.22	90.74

Notes:

1. includes all municipal and county parks.
2. includes only federal and state open space lands, state parks, forest and gamelands, and DWGNRA acreage.
3. includes water acreage.
4. assumed to be 25% of residential acreage.
5. includes agricultural total.
6. includes public open space.

Sources:

a. Sussex County Planning Department, 1975.
b. Sussex-Warren Resource Conservation and Development Project, U.S. Dept. of Agriculture, Soil Conservation Service, Somerset, N.J.
c-e. Economic Development Council of Northeastern Pennsylvania, 1973.
d. Land-Use Update, Lehigh-Northampton Joint Planning Commission, 1972.
f-g. Land Use Natural Resource, New York, 1969

These subdivisions are capturing a growing proportion of new residential construction. Suburban developments, however, are still less common in the impact area than in Zone 4 townships where there are large tracts of developable land in the sphere of New York and Allentown-Bethlehem-Easton expansion. In the impact area, large subdivisions are found around private lakes in Frankford, Stillwater, Hampton, Montague and near the Boroughs of Newton and Andover in Sussex County; in Middle Smithfield and Mt. Pocono Township in Monroe County; Lehman, Delaware, Dingman, Blooming Grove in Pike County. These newer subdivisions are generally physically and socially separate from the older communities. They provide their own water and on lot sewer systems, and often have their own security and fire services. Small convenience shopping areas serve to contain much of the activity within the community.

The second home represents a significant segment of residential land uses. In the Catskills, the second home market grew rapidly during the 1920's with the expansion of the railroad service through the area. The second homes in the Poconos grew later, during the fifties and sixties.

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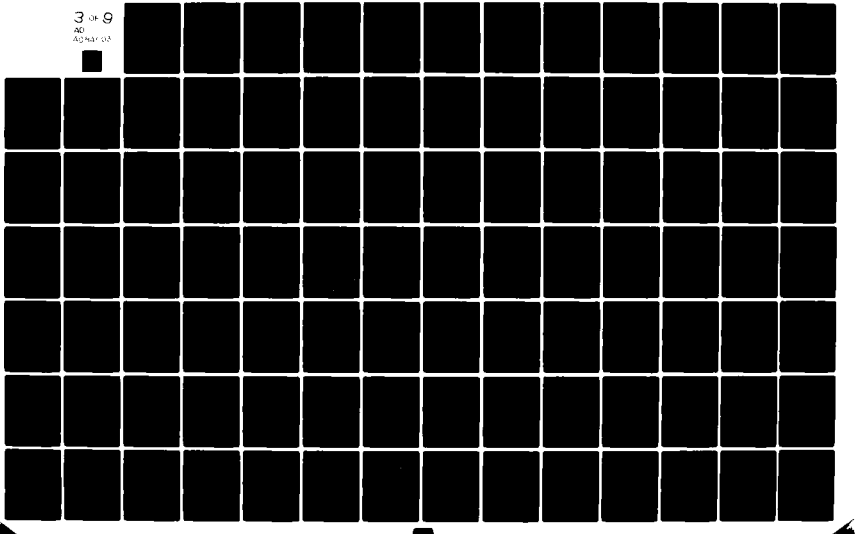

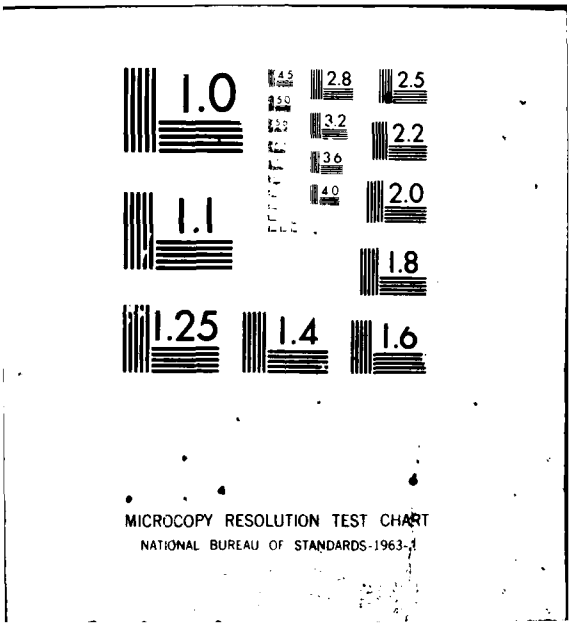
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Table 22-70 Land Area, Population Density, and Housing Characteristics
Sussex County Zones 1-3

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Sussex County		526.5	147.2	24,274	46.1
Hampton	1	24.7	84.6	634	25.6
Montague	1	44.6	25.3	397	8.9
Sandyston	1	42.1	30.9	470	11.1
Stillwater	1	29.1	74.1	821	28.2
Walpack	1	21.4	17.9	177	8.2
Branchville	2	.5	1,822.0	319	638.0
Frankford	2	34.8	79.5	778	22.3
Fredon	2	18.3	74.9	442	24.1
Newton	2	3.0	2,432.0	2,504	834.6
Sussex Boro	2	.9	2,264.0	731	812.2
Wantage	2	67.9	63.7	1,364	20.0
Andover	3	2.0	406.5	251	125.0
Andover Twsp.	3	20.4	149.0	863	42.3
Byram	3	20.6	222.9	1,277	61.9
Franklin	3	4.4	962.7	1,426	324.0
Hamburg	3	1.2	1,516.6	569	474.1
Hardyston	3	32.6	107.3	1,060	32.5
Lafayette	3	18.3	65.6	360	19.6

Table 22-70 Land Area, Population Density, and Housing Characteristics
Sussex County Zones 1-3 (Continued)

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Ogdensburg	3	2.1	1,058.0	636	302.8
Sparta	3	38.8	278.8	3,296	81.2
Stanhope	3	2.0	1,520.0	819	409.5
Zones 1-3		426.7		19,194	

Sources: (1) U.S. Census Bureau, Current Population Reports, 1970
(2) Municipality Supplement to Selected Housing Characteristics, New Jersey, 1970, compiled by N.J. Dept. of Labor & Industry, Div. of Economic Development, Office of Business Economics, Aug. 1974.

Table 22-71 Land Area, Population Density, and Housing Characteristics
Warren County Zones 1-3

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Warren County		364.6	204	24,486	67.1
Blairstown	1	30.9	79	795	25.7
Hardwick	1	17.8	33	217	12.1
Knowlton	1	25.4	68	629	24.7
Pahaquarry	1	20.0	4	39	1.4
Frelinghuysen	2	23.6	49	351	14.8
Hope	2	19.2	63	426	22.1
Hackettstown	3	3.6	2,743	2,798	777.0
Independence	3	20.4	112	621	8.8
Liberty	3	12.0	104	444	37.0
White	3	28.6	89	779	27.2
Washington	3	17.9	200	1,121	62.6
Washington Boro	3	1.9	3,127	2,092	1,072.8
Zones 1-3		235.3	140	10,312	

Sources: (1) U.S. Census Bureau, Current Population Reports, 1970
(2) Municipality Supplement to Selected Housing Characteristics, New Jersey, 1970, compiled by New Jersey Dept. of Labor and Industry, Division of Economic Development, Office of Business Economics, August 1974.

Table 22-72 Land Area, Population Density, and Housing Characteristics Northampton County Zones 1-3

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Northampton		379.70	571.0	64,028	187.0
Upper Mt. Bethel	1	36.68	91.3	1,157	31.4
Portland	1	.58	1,055.0	223	384.4
Lower Mt. Bethel	3	25.09	101.2	741	29.5
Bangor	3	1.61	3,369.0	2,032	1,262.1
East Bangor	3	.71	1,274.0	309	435.2
Pen Argyl	3	1.34	2,787.0	1,352	1,008.9
Plainfield	3	24.30	176.4	1,357	55.8
Roseto	3	.50	3,076.0	503	1,006.0
Washington	3	17.87	1,706.0	990	55.4
Windgap	3	1.43	1,587.0	733	512.5
Zones 1-3		110.11		9,397	

Sources: (1) U.S. Census Bureau, Current Population Reports, 1970
(2) Northeast Economic Development Council, Minor Civil Division, 1970 Census First Count

Table 22-73 Land Area, Population Density, and Housing Characteristics
Monroe County Zones 1-3

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Monroe		611.0	74.3	19,150	28.6
Delaware Water Gap	1	1.7	313.5	202	118.8
East Stroudsburg	1	2.6	3,036.1	2,306	886.9
Middle Smithfield	1	54.3	27.7	1,377	25.3
Smithfield	1	23.2	98.4	1,124	48.4
Stroud	1	31.4	239.6	2,603	82.8
Stroudsburg	1	1.7	3,206.4	2,203	1,295.8
Hamilton	2	38.7	77.1	1,294	33.4
Paradise	2	21.7	55.6	688	31.7
Pocono	2	35.3	52.9	981	27.7
Price	2	24.6	15.3	233	9.47
Barrett	3	51.7	47.4	1,193	23.0
Chestnut Hill	3	37.4	54.0	1,080	28.8
Coolbaugh	3	85.8	18.9	734	8.5
Jackson	3	30.0	40.4	525	17.5
Mt. Pocono	3	3.2	318.4	478	149.3
Tobyhanna	3	51.0	36.6	1,998	39.1
Tunkhannock	3	39.2	8.0	297	7.5
Zones 1-3		533.5		19,316	

Sources: (1) U.S. Census Bureau, Current Population Reports, 1970
(2) Northeast Economic Development Council, 1965.

Table 22-74 Land Area, Population Density, and Housing Characteristics
Pike County Zones 1-3

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Pike County		543.5	21.7	9,612	10.1
Delaware	1	45.2	14.8	1,167	25.81
Dingman	1	57.0	9.0	676	11.8
Lehman	1	48.2	12.9	443	9.19
Matamoras	1	.6	3,740.0	807	1,345.00
Milford Boro	1	.4	2,975.0	507	1,267.50
Milford Twsp.	1	13.0	32.1	205	15.7
Westfall	1	31.3	43.0	526	16.8
Blooming Grove	2	74.2	7.5	391	5.2
Greene	3	58.5	17.5	125	2.1
Palmyra	3	33.1	33.3	1,859	56.1
Porter	3	59.2	1.4	636	10.7
Shohola	3	44.8	12.8	627	13.9
Zones 1-3		465.5		7,969	

Sources: (1) U.S. Census Bureau, Current Population Reports, 1970
(2) Northeaat Economic Development Council, 1965

Table 22-75 Land Area, Population Density, and Housing Characteristics
Sullivan County Zones 1-3

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Sullivan Co.		986.0	53.3	47,401	48.0
Forestburg	3	56.66	8.3	408	7.2
Highland	3	50.61	27.2	992	19.6
Lumberland	3	50.42	17.0	805	15.9
Zones 1-3		157.69		2,205	

Sources: (1) U.S. Census Bureau, Current Population Reports, 1970
(2) New York State Department of Commerce, Census of Small Areas and Places, 1970.

Table 22-76 Land Area, Population Density, and Housing Characteristics
Orange County Zones 1-3

Municipality	Impact Zone	Land Area[1] (sq.mi.)	Population[1] (per sq.mi.)	Total Year Round[2] Dwelling Units	Dwelling Units (per sq.mi.)
Orange County		835.00	265.4	76,753	91.90
Port Jervis	1	2.50	3,540.8	3,334	1,333.60
Deer Park	2	69.33	63.0	1,796	25.90
Greenville	2	30.45	45.3	562	.18
Minisink	3	23.11	59.1	603	26.00
Unionville	3	.25	2,880.0	NA	NA
Zones 1-3		125.64		6,294	

Sources: (1) U.S. Census Bureau, Current Population Reports, 1970
(2) New York State Department of Commerce, Census of Small Areas and Places, 1970.

According to the 1970 census, there were 50,000 seasonal homes in the seven counties. These represented 18.8 percent of the total housing supply.

Table 22- 77 Seasonal Homes Seven County Region - 1970

County	1970	Percent of Total Units
Sussex	7,500	30
Warren	750	3
Monroe	4,800	25
Pike	5,340	55
Northampton	240	(negligible)
Orange	7,340	10
Sullivan	26,930	57
Total	50,000	18.8

Source: U.S. Census 1970

The second home is especially important in Monroe, Pike and Sullivan Counties, where it comprises a major portion of the total housing supply. Second homes may be divided into three categories: 1) new buildings on scattered individual lots; 2) simple subdivided tracts where people purchase lots to build their own homes; and 3) complete vacation home communities developed around their own recreation facilities. In Sullivan County, the majority of second homes are in the first category. In the Poconos most are in the third category. According to a survey of the "Supply Characteristics of the Vacation Home Market in the Pocono Mountain Region," most second home developments have between 1,000 and 1,500 acres, with 500 to 1,499 lots. The average size is 1,159 acres with 1,200 lots. The median lot size is between one third and one half acre and the average home size is 980 square feet.

Most recreation communities provide facilities for swimming, boating and fishing and often include a private club.

The survey found that police protection is available in 44.4 percent of the developments with fire protection and restaurants on the premises of 18.5 percent of them. Shopping centers and entertainment are available in a few instances, but schools or theaters are not available. Most vacation developments provide electricity and many, especially the larger ones provide paved roads. While sewers have not been provided in the past, in Pennsylvania this is now required for those on less than one acre lots by the Sewage Facility Act 537.

In Monroe County, townships with significant proportions of second home subdivisions include Stroud, Tobyhanna, Paradise, Chestnut Hill and Pocono. One of the largest concentrations is in Stroud Township in easy reach of Highway 80, where the majority have under 50 lots. The largest developments are in Tobyhanna where 50 percent of the subdivisions have more than 500 lots. Tracts of relatively flat land on the ridge tops facilitate the larger developments in this area. In Paradise, subdivisions located off Routes 447 and 191 are generally under 100 acres and in Chestnut Hill, most developments are along 209 and have between 20 and 150 lots.

In Pike County, second homes have tended to locate in Lehman, Dingman and Delaware and Mount Pocono and Palmyra around Lake Wallenpaupak. In Sussex County, second home developments, generally attracted to lake sites, are found in Stillwater and Hampton.

Commercial/Industrial:

Commercial land uses in the impact area consume less than 5 percent of the land area. The spatial and physical characteristics of commercial uses generally fall into one of three categories: regional center, secondary rural center, and strip commercial. They are distinguished by the size of the service or market area, concentration of uses, and economic structures.

Regional Centers:

In the impact zone, Port Jervis-Matamoras, the Stroudsburgs, Newton, and Hackettstown have the largest concentration of commercial and industrial land uses. As regional centers, they provide goods and services not available in secondary centers. Some of the following factors have acted to concentrate commercial growth: good highway linkages penetrating the market area, proximity to limited access highway interchanges, forces of economic agglomeration, the availability of public services, and the presence of governmental functions. Because they serve a market extending beyond their municipal boundaries, they are able to support a wider range of goods and services than the smaller communities in surrounding areas. The business district in Port Jervis and Matamoras, made accessible to the surrounding region by Routes 209, I-84, and 206 serves portions of Westfall, Dingman, Delaware, Shohola, and Milford Townships in Pennsylvania; Deerpark and Lumberland in New York; and Montague in New Jersey. Business is also supported by the visitor population travelling through Port Jervis to second homes and resorts in the Poconos and surrounding mountain areas. The business district in Stroudsburg and East Stroudsburg serves the surrounding townships in Monroe County and the visitor population coming to the Poconos from areas to the south. Hackettstown in eastern Warren County has been a major center in that area, but the rate of growth has fallen since

the completion of I-80 which absorbed the east-west traffic formerly using Route 46. Newton serves a broad area in the center of Sussex County. These centers, however, do not satisfy all regional shopping needs and residents frequently travel to larger shopping centers in the metropolitan areas nearby.

All of these centers suffer from limited space for development in the central business district, inadequate parking facilities, traffic congestion during peak hours, non-conforming, often mixed uses and deteriorating structures. The central business district has intruded into surrounding residential neighborhoods, often creating grey, "blighted" areas. The expansion of commercial uses has both hastened neighborhood deterioration and without area wide planning, has lacked adequate provision for parking, circulation, pedestrian mobility, and sign control. The comprehensive plans for Port Jervis and East Stroudsburg mention deterioration as a problem and suggest "renewal" of core areas. Outward expansion of these centers has been along state routes traversing or skirting the central business district.

Secondary rural centers such as Blairstown, Belvidere, Branchville, Mount Pocono, Sussex, Hope, Bushkill and Milford provide convenience goods and personal services and support some apparel and variety shops. They generally have a one to two mile service radius. The growth in these centers corresponds to population growth in the surrounding region and to the degree of traffic on through roads.

Strip development in the impact area provides goods and services to the low density population in the surrounding region, through traffic and a visitor

tourist population. The type and intensity of commercial strip development generally relates to the traffic and type of road. In Monroe County along U. S. Route 209, Pennsylvania Route 447 and in Pike County on Route 6 and 509 there are motels, camps and restaurants. Land uses along Routes 94 and 46 through Warren and Sussex Counties, New Jersey and Route 15 in Sussex include convenience stores, automobile related services and small restaurants. Community shopping centers housing large supermarket chain stores have been located on major roads approaching crowded urban cores or secondary centers such as off Route 519 near Newton, and U. S. Route 6 near Milford.

Resorts are concentrated in the Poconos in Monroe and Pike and the Catskills in Sullivan. There are approximately 14,000 hotel and motel rooms in Sullivan, Pike and Monroe Counties, the focus of commercial recreation activity in Zones 1-3. Ski resorts, camps and honeymoon lodges in Monroe and Pike County and summer resorts and camps in Sullivan are major commercial enterprises in the area.

Public Land

The significant amount of publicly owned open space in the region reflects and contributes to the area's function as an outdoor recreation center in the Mid-Atlantic region. There are 270,799 acres of state forest, park and gameland in the seven county region. With the DWGNRA land, the total amount of publicly owned open space is 318,533 acres, 11.7 percent of the region (refer to tabl-22-78). The major portion of this land in impact zones 1-3 is located in Monroe, Pike and Sussex Counties, which comprises 70 percent of the region's total (refer to table 22-79).

In Sussex, Warren and Pike Counties the state holdings seem to separate townships adjoining the Delaware river from the remainder of the County. To some extent, growth has been contained and concentrated in the area between existing DWGNRA land and state holdings. In the western portion of Pike County, Promised Land State Park and State Forest land along Pennsylvania 402 and U. S. Route 6 partially enclose the Lake Wallenpaupak recreation area setting it apart from the rest of the county. In Monroe County, State Forests in Coolbaugh and Barrett Townships form a semicircle around Mount Pocono to the northeast. These holdings can be expected to shape development in this fast growing region.

Major state parks, forests and gameland are identified in Table 22-80 - 22-82. Recent trends show that the state parks have the greatest visitation rates. The state park service in Pennsylvania reports that during peak season, camping facilities are generally at or above capacity. According to a recent newspaper article, G. W. Childs and Promised Land State Parks had to "turn people away" over the Memorial holiday weekend. If TILP/DWGNRA or other National Recreation alternates are completed, this overcrowding may be alleviated. Otherwise present heavy state park usage can be expected to continue.

Table 22-78 Distribution of State and Federal Open Space Land in the Seven County Area

County	Total State & Federal Land (acres)	Percent Total Area	Percent of Regional Federal & State Land
Sussex	69,358	20.5	21.8
Warren	17,510	7.5	5.5
Monroe	49,665	12.7	15.6
Northampton	5,876	2.4	1.8
Pike	103,814	29.8	32.6
Sullivan *	19,514	3.6	6.1
Orange	52,796	.8	16.5
Total	318,533	11.7	100.0

* Does not include Catskill State Park

Table 22-79 State and Federal Open Space Seven County Region
(acres)

County	State Park	State Forest	State Gameland, Fish & Wildlife Management Area	Other State Owned Land*	Total State Land	DWGNRA and Tocks Island Dam	Total
Sussex	26,762	14,869	7,652	880	50,163	19,195	69,358
Warren	199	6,948	1,064	68	8,279	9,231	17,510
Monroe	8,294**	86	35,347	-	43,727	5,938	49,665
Northampton			4,032	512	4,544	1,132	5,876
Pike	3,072	67,136	21,568	-	91,776	12,038	103,814
Sullivan	2,824	10,971	(incl. state forest)	5,719	19,514	-	19,514
Orange	52,783	-	13	-	52,796	-	52,796
Total	93,934	100,010	69,676	7,179	270,799	47,534	318,533

* Includes natural areas and historic sites, multi-use land
** Includes those portions of Goldsboro and Tobyhanna State Park which extend into Wayne County, Pa.

Table 22-80. Major State Parks, Forests, Wildlife Preserves and Gamelands
Seven County Study Area/New Jersey

County	State Park	Acres	State Forest	Acres	Fish & Game	Acres
SUSSEX	Cranberry Lake	11,266	Stokes	14,232	Flatbrook	1,948
	Highpoint	12,292			Hamburg Mountain	3,637
	Hopatcong	12,372			Walpack	388
	Musconetcong	15			Roy	287
	Swartswood	1,253			Hainesville	282
	Wawayanda	437				
	Allamuchy	21,502				
WARREN	Finesville	199	Jenny Jump	967	Rockport Game Farm	37
	Stephens	245	Worthington	5,824	Hackettstown Hatchery	234
					Pequest Fish & Game	260

Table 22-81. Major State Parks, Forests, Wildlife Preserves and Gamelands
Seven County Area/Pennsylvania

County	State Park	Acres	State Forest	Acres	Fish & Game	Acres
NORTHAMPTON	Jacobsburg(7)	1,000			State Game Land	4,044
	Roosevelt	100				
PIKE	Promised Land	2,342				
	George W. Childs	153				
	Bruce Lake	578				
	Gouldsboro(1)	2,800	-- Delaware(2)	72,000		
MONROE	Tobyhanna(1)	4,188			Number 127(3)	2,500
	Big Pocono	1,306			Number 38(4)	3,944
					Number 186(5)	1,000
					Number 221(6)	4.620

(1) Acreage includes the portion located in Wayne County.
(2) Acreage includes total for Monroe and Pike Counties
(3) Tobyhanna Township
(4) Jackson, Tunkhannock and Pocono Townships
(5) Jackson Township
(6) Coolbaugh, Paradise and Barret Townships
(7) Recently purchased

Table 22-82. Major State Parks, Forests, Wildlife Preserves and Gamelands
Seven County Area/New York

County	State Park	Acres	State Forest	Acres	Fish & Game	Acres
SULLIVAN	Lake Superior	1,409			Sullivan State Reforestation	575
ORANGE	Goose Pond Mountain	1,543				
	Storm King	1,369				
	Harriman(1)	22,461				
	Highland Lakes	2,901				
	Bear Mountain(2)	1,945				

(1) Harriman State Park also encompasses 23,719 acres in Rockland County.
(2) Bear Mountain State Park also encompasses 3,121 acres in Rockland County.

Agriculture

Despite the region's rural character and extensive open space lands, less than half the total area of the seven counties is used for agricultural purposes. Varying soil, topographic and climatic characteristics and population pressures throughout the region result in a disproportionate distribution of farmland throughout the seven county region as indicated in Table 22-83 below:

Table 22-83 Seven County Region: Land in Farms

County	1964 Land In Farms Acres	%	1969 Land In Farms Acres	%
Sussex	107,961	31.9	98,312	29.1
Warren	104,395	44.3	89.124	38.5
Monroe	48,369	12.3	33,518	8.6
Northampton	131,255	54.8	107,454	44.6
Pike	16,775	4.8	8,551	2.5
Orange	202,085	38.0	157,194	29.5
Sullivan	110,395	17.4	92,673	14.8
Total 7 Counties	721,235		586,826	

Source: Area Reports, United States Census of Agriculture, Department of Commerce, 1969

The severe topography, shallow, wet soils and short cool growing seasons have limited agricultural development in the Catskill and Pocono Mountain areas of the region. By contrast, the gentle rolling hills and the milder climate of

the Great Ridge & Valley physiographic region has permitted more extensive agriculturial development in Sussex, Warren and Northampton counties.

As indicated, only 2.5, 8.6 and 14.8 percent of the total land area in Pike, Monroe and Sullivan counties were used for agriculture in 1969. Farmland in this region is located primarily in valleys, along river beds and in flood plains. Dairy farming which can be adapted to the topography and short growing season of this region, is the predominant type of agriculture in all three counties. In Sullivan County the most productive soils extend east to west in the middle and northern sections of the county between the Neversink and the Rondout Reservoirs in the townships of Fremont, Callicoon, Delaware, Bethel and Liberty and in flood plains. The soils, however, are not situated in contiguous areas, and are interspersed with soils that are not rich. According to 1969 census data, Zone 3 had 17 farms totaling approximately 403 acres.

The second most important agricultural industry in Sullivan County is poultry. Over 44 percent of the total agricultural land is devoted to this use which is the highest concentration in the State of New York.

In Sullivan, Monroe & Pike counties the total amount of land in farms has been steadily decreasing in the past years. There was an average annual decrease of approximately 3,400 acres from 1964 - 1969. This has been attributed to high taxes, competition from recreational uses including second homes and resorts, permanent population, and decreasing rates of return compared to other industries.

While the number of farms has decreased, however, the average farm size and per capita productivity has increased -- especially in Sullivan County's poultry farms. In that county, for example, the Temporary State Commission to Study the Catskills estimates that the average farm size has increased from 143 to 151 acres in the past 10 years.

In Northampton, Sussex, Warren and Orange counties, the rolling hills, richer soils and less severe climate has been more condusive to agriculture than in mountainous Sullivan and Monroe counties. Northampton has the largest amount of land devoted to agricultural uses. In 1969 this was 107,454 or 44.6 of the total land area. Approximately 45 percent of the study area is being used for farm or farm related uses.

Sussex and Warren counties are noted for their farming industry, which accounted for 44 percent of New Jersey's total productive output for that industry in 1972. The major agricultural area in these two counties runs in a north-south direction to the east of the Kittatinny Mountains through the center of the counties. Stillwater, Frankford, Fredon, Wantage, Andover Boro and Andover Township, Franklin and Lafayette had over 30 percent of their total land in agricultural use in 1972. Blairstown, Knowlton, Frelinghuysen, Hope, Independence and Washington in Warren County had more than 30 percent of their total land area in farms. Table 22-84 shows that the relative proportion of farmland is highest in Zone 2 in these New Jersey counties.

In Orange County, dairy farming also predominates. The principal farming area can be found east of the Shawangunk Mountains in Minisink, Warwick, Montgomery, Goshen and Crawford townships. In Zones 1 - 3, Minisink and Greenville townships

had relatively high proportions of agriculture. Agriculture is also declining in these four counties. Again the high cost of taxes and a growing population are the most common reasons for conversion of farmland to other uses. In New Jersey, for example, despite the advantages of the Farmland Assessment Act of 1964, which allows taxation of farmland on the basis of productivity instead of the land's market value, farmers pay a higher tax than in any other state. In 1972, farmland in New Jersey was taxed at an average $21.63 an acre compared to a national average of $2.63.

The trend toward suburbanization in these counties is also a major cause of the conversion of farmland to non-farm uses. As discussed below, land that is highly suitable for agriculture, characterized by gentle terrain and good drainage is also highly suitable for development. Thus farmland adjacent to major transportation routes and convenient to existing population centers is most susceptible to development.

Unabated suburban sprawl which continues to consume valuable agricultural land has renewed interest in the preservation of agriculture in highly productive areas. All three states have expressed the desire to preserve land suitable for agricultural use because of its important function in food production, as an air and water shed and as a green belt which gives shape and form to urban development. Special farm tax assessment programs (discussed in Chapter XXIII, have been adopted in attempt to decrease the conversion of productive soils from agricultural to urban uses. This effort has, however, at best reduced the conversion rate of farmland to non-farm uses. Nowhere has the trend been reversed. Current trends indicate that approximately 30,000 acres of farm

land will be lost annually in New York State, and New Jersey continues to lose an annual 20,000 acres.

All states have initiated efforts to develop further measures to solve the problem. The New Jersey Blueprint Commission has recommended a policy to "create permanent land preserves for agricultural production and to make it an economically feasible enterprise." The provisions of the program would require each municipality to designate an Agricultural Open Space Preserve composed of at least 70 percent of its prime farmland. The program would provide a range of implementation tools including transfer or sale of development rights or easements, creation of a real estate transfer tax, special educational programs for effective management of agricultural land and establishment of a State and Municipal Open Space Agency to administer the program.

New York State's goals for agriculture as articulated in the New York State Development Plan for 1990 include the maintenance of extremely productive farm areas, the preservation of those areas of a high probability of economic success, the retention of high viability farm lands in urbanizing areas as part of an open space system and the grouping of farms into contiguous blocks instead of allowing fragmented parcels to become surrounded by non-farm uses. Pennsylvania's Land Policy Committee in the Office of State Planning & Development has started to look at the special problems of agriculture and will develop a program for dealing with them.

In all cases, the basic approach is to preserve the most productive soils. The counties have begun to follow the lead of the states in attempting to

preserve prime agricultural lands -- though none of the counties have, as yet, developed agressive policies for doing so. Prime agricultural soils in Sussex and Warren counties have been classified as Class I, II and Class III soils. As defined by the Soil Conservation Service, Class I & II soils have few limitations that restrict or reduce their use. Any limitations would require only moderate conservation measures. Class III soils have greater limitations which reduce the choice of plants or require special conservation measures. The classification is based on a rating of permeability, nutrient level and slopes. In Sussex and Warren counties there are approximately 62,690 and 102,690 acres of Class I, II and III soils. Table 22-85 shows the distribution by impact zone.

New York evaluates soils on the basis of soil characteristics and economic viability which takes size and locational characteristics, growth pressures and market potential into account. Future policy will place priority on the preservation of high and medium viability soils. The amount of soil with high and medium agricultural viability is very small or negligible in Sullivan and Orange county Zones 1 - 3.

Pennsylvania counties use the Soil Conversation soil designation in classifying their soils. Approximately 25% of the soils in Northampton 1 - 3 townships are in the Class I and II category. This comprises relatively a small portion of Northampton's total supply of prime agricultural soils.

Approximately 8 percent of Monroe's and 4 percent of Pike's soils are suitable for agricultural use. This occurs primarily along the Delaware River.

Table 22-84 Farm Land
Seven County Area, Zones 1, 2, 3 (in acres)

	Acreage	Percent of Total Farm Acreage
Sussex County[1]	120,896	100
Zone 1	16,551	12.8
Zone 2	53,969	44
Zone 3	31,116	25
Warren County[1]	83,277	100
Zone 1	16,697	20
Zone 2	16,315	19.5
Zone 3	9,584	11.5
Northampton County[2]	107,454	100
Zone 1	9,830	9
Zone 2	0	0
Zone 3	6,079	5
Monroe County[3]	89,124	100
Zone 1	NA	NA
Zone 2	NA	NA
Zone 3	NA	NA
Pike County	8,551	100
Zone 1	NA	NA
Zone 2	NA	NA
Zone 3	NA	NA
Sullivan County[4]	92,673	100
Zone 1	0	0
Zone 2	0	0
Zone 3	402	0.04
Orange County[4]	157,194	100
Zone 1	237	0.01
Zone 2	5,084	3
Zone 3	7,118	5

(1) Estimates of Land in Farms by Municipality and County, New Jersey, 1971 New Jersey Agricultural Experiment Station, Rutgers State University.

(2) Northampton County Planning Department, 1973

(3) Agricultural Area Reports, U. S. Department of Commerce

(4) Land Use and Natural Resource Inventory, New York State, 1969

Table 22-85 Agriculturally Productive Soils
Seven County Area, Zones 1, 2, 3 (in acres)

	HIGH	% County Total	MEDIUM HIGH	% County Total
SUSSEX County(1)	29,610	100	36,870	100
Zone 1	9,520	32	4,590	12
Zone 2	2,690	9	1,400	4
Zone 3	10,720	36	10,040	27
Zones 1-3	22,930	77	16,030	43
WARREN County(1)	67,500	100	30,190	100
Zone 1	11,230	16	9,810	32
Zone 2	4,340	6	5,300	17
Zone 3	5,180	8	5,700	19
Zones 1-3	29,750	30	20,810	68
NORTHAMPTON County(2)	74,445	100	95,415	100
Zone 1	3,220	4	4,670	10
Zone 2	---		---	
Zone 3	7,080	9	9,847	10
Zones 1-3	11,300	13	14,517	20
MONROE County(3)	12,267	100	21,573	100
Zones 1-3	NA		NA	
PIKE County(3)	9,623	100	18,521	100
Zones 1-3	NA		NA	
SULLIVAN County(3)	1,049	100	25,416	100
Zone 1	0	0	0	0
Zone 2	0	0	0	0
Zone 3	0	0	0	0
Zones 1-3	0	0	0	0
ORANGE County(3)	147,904	100	79,680	100
Zone 1	0	0	0	0
Zone 2	768	0.5	7,232	9
Zone 3	33,984	22	4,544	5
Zones 1-3	34,752	23	11,776	14

(1) The acres in the high category correspond to those designated by the State Conservation Commission as Open Class I and II soils. The acres in the medium classification correspond to Open Class III soils.

(2) The soils already under cultivation were classified according to soil conservation service classifications.

(3) High and medium categories correspond directly to the New York classification of economic viability.

XII.C.3(b) Future Land Use Patterns

This section discusses the emerging land use patterns in zones 1, 2 and 3 based on the population projections presented in XXII.C.2. Emphasis is on "Present Growth Trends", but any significant differences associated with high or low growth are included where relevant.

The discussion assumes that existing urban centers, major transportation routes, public facilities and services, commercial centers and natural amenities will continue to be the major variables in the future spatial development of the area. Stronger legislation concerned with environmental quality, however, should begin to prevent or limit development in environmentally sensitive or hazardous areas toward the middle of the study period. For example, flood plain management programs in New Jersey, New York and Pennsylvania will affect development of the flood plains and the COWAMP Program in Pennsylvania will control land use intensity to achieve state water quality goals. Such regulations should tend to channel growth to areas of existing development and to those with little or no constraints. Establishment or expansion of water and sewage systems in urbanized areas will further attract growth into existing population centers. As indicated in Chapter XXIII, local zoning is likely to continue to focus on the prevention of poor development resulting from conflicting uses or severe environmental degradation, rather than the encouragement of a specific growth pattern.

Without a plan or strong controls, however, growth can be expected to continue to leapfrog over the landscape, consuming the most developable areas first without regard to long range considerations for efficiency in expanding

public service systems, transportation planning or maximum use of the land to achieve economic as well as environmental and aesthetic goals. The leapfrog pattern threatens to destroy the functional integrity of the existing natural areas and agriculturally productive land. Fragmentation reduces an area's capacity to function as an air and water shed, as a buffer between incompatible uses; it significantly changes the rural character of the region. The cost of extending sewage and water facilities to such islands of development when municipal systems are established will be greater than if growth was contained in several clusters.

The following discussion identifies major areas of growth which can be expected to continue in the future and identifies general problems associated with uncontrolled growth where appropriate.

The spatial development of the broad 52-county region, as described in Part A, Chapter I sets the stage for development in the seven county area. The continued outward expansion of the New York and Allentown-Bethelehem-Easton metropolitan areas will first be felt in Zone 4 in Sussex, Warren and Northampton counties. But as employment opportunities move from the congested urban core to areas with large developable tracts of land in these zones, the pressure of suburbanization will flow to Sussex and Warren Counties, Zones 3, 2, and 1, and to Monroe County later in the study period. A concomitant, but less intense force affecting growth is related to a "pulling in" factor of people from more remote areas such as Wayne, and Ulster Counties to the north and west of the

study area.

Land use development in the region will also be affected by increasing demand for recreation opportunities. As the suburban fringe moves closer to its border in Phases II and III, the demand for recreation space in the study area will become stronger.

In general, Zones 1-3 are expected to retain their low density character and recreation oriented growth. Studies of the region by the Temporary Commission to Study the Catskills, the Economic Development Council of Northeastern Pennsylvania, and the Regional Plan Association, predict suburban development in Northampton, Warren, Sussex and Orange Counties. The relatively less expensive land makes home ownership more feasible for middle income and blue collar families who cannot afford the high costs in areas closer to the central city. The continued importance of a recreation based economy in Sullivan, Monroe and Pike Counties is stressed in the reports which emphasize the study area's functional importance in providing outdoor recreation opportunities to the larger metropolitan region.

In Phases I to III of the proposed project, forces of concentration will increase the densities in areas surrounding the existing centers of the Stroudsburgs, Port Jervis and Newton and continue to attract suburban growth in areas within their larger sphere of influence. On the other hand, opposing forces of dispersion will strengthen secondary regional centers and generate commercial development along well traveled highways.

While the Poconos and Catskills will retain their well-known resort image, a newer competing force will continue to gain strength throughout the study period. Vacation and second home communities are expected to capture greater proportions of recreation-related development. The largest resort complexes are likely to expand in an attempt to attract a year round recreation clientele. The Temporary State Commission to Study the Catskills reports that "...the resort hotels so frequently thought of as the epitome of a Catskill Vacation Spot have become less significant to the area than in the past. Recent economic conditions have resulted in the decrease in the number of establishments." Those remaining, however, have increased their capital investment and in a number of cases have expanded to a year round status. The decline in the average length of stay is shifting demand from the cottage community to the larger, more service oriented resort.

The Poconos show a similar decrease in the small cabin communities and concomitant growth of large, more modern complexes. The second home and vacation community, however, will continue to be more prevalent in the Poconos than in the Catskills.

The Stroudsburgs will remain the main population commercial and industrial center in the Pennsylvania portion of the region, though they are not expected to have extraordinarily high growth rates. (See Table 22-87.) The projected population in these two boroughs is approximately 3,357 persons per square

mile by 2005. Limited available space and higher land costs associated with a greater demand for that space will result in somewhat higher proportions of multi-family dwellings and townhouses within the boundaries of the two boroughs.

Stroudsburg's importance as a commercial and governmental center will be maintained by its proximity to I-80, and U. S. Routes 209 and 611, the availability of public services and utilities and forces of economic concentration. Those users most dependent on locating in central Stroudsburg will be most willing to pay more for scarce space. The locational advantages of the Central Business District (CBD) with respect to the whole Pocono resort area may increase the City's concentration of services and establishments oriented to a tourist population. The extent of this development, however, will be directly associated with Stroudsburg's spatial ability to absorb growth. The East Stroudsburg Comprehensive Report Plan indicates that without redevelopment of deteriorating areas, improved parking facilities and better coordination of various commercial, industrial and residential uses, the strength of the CBD to attract new growth will weaken over time.

The Comprehensive Plan study cites the following problems:

"...A number of areas having incompatible uses adjacent to each other with mixed uses in the same building...has led to a depreciation of structures and to lower land values as well as undesirable land use patterns.

... Residential uses suffer from the encroachment of commercial uses and from adverse environmental affects such as traffic and parking congestion on local streets.

... Some older sections suffer from obsolescent and poorly maintained structures and from poor neighborhood design.

... The spread of strip commercial uses along West Main and North Streets and Park Avenue will reduce efficient commercial utilization and downgrade the surrounding neighborhood.

... While vacant land exists there is not enough to fully capitalize on the potential of the entire area."

If these problems which still exist today remain unsolved, new establishments may seek locations better able to meet their needs. This will reinforce the forces of dispersion that push development outward along transportation routes.

The future growth in Stroud, Hamilton and Smithfield Townships is related to their proximity to the employment and goods and services provided by the Stroudsburgs. Easy access to Route 80 and 209 will link this area to employment opportunities to the east. The ratio of permanent to seasonal dwellings is expected to grow during the study period.

The land capability of this region, currently an agricultural area, is perhaps the most suitable for growth in Monroe County according to Soil Conservation Service classifications. Here the terrain is not as severe as the slopes in the Poconos, and the deeper sedimentary soils in the valley provide better drainage than the shallow,

generally swampy soil throughout the Poconos.

A secondary growth area in Monroe County is developing in the Borough of Mount Pocono and the Township of Tobyhanna. Set on the rounded ridge tops of the Pocono Mountains, this is one of the few areas in the north central part of the county that is relatively suitable for development. Situated on Routes 904 and 611, there is easy access to I-80, linking the area directly to Stroudsburg. Population projections show that this community will grow steadily in the next 50 years.

Concentrations of commercial recreation land uses are expected to increase in Pocono, Tobyhanna, Tunkhannock and Paradise due to the continued attractions of the mountain terrain, numerous lakes and existing recreation facilities.

The presence of camps, resorts, motels and second homes in Paradise, Pocono and Tobyhanna Townships could support a community shopping center and recreation oriented services.

Second home development generally follows the pattern of existing subdivisions with concentrations in Middle Smithfield and Blooming Grove. The second home community is gradually gaining in popularity as the number of accomodations provided by the older, small resort cottage communities decreases. The second home's share of residential construction, however, will decrease steadily in the future as permanent homes begin to dominate the market.

The Zone 1 townships in Monroe will have the County's greatest densities, increasing to approximately 572 persons per square mile by Phase III. (Refer to Table 22-86.) Increases in density associated with high growth projections would raise Zone I's share of multifamily dwellings. This area is suitable for somewhat higher density development because of its proximity to major transportation routes and gentle terrain and suitable soils.

Pike County will retain its extremely low density throughout the study period, increasing to about 73.5 persons per square mile under present growth trends. The population density of Zone 1 will be only slightly less than that of the county as a whole, but greater than in Zone 2 and Zone 3. The state lands extending from Middle Smithfield in Monroe County through Porter and the northwest portions of Lehman and Delaware Townships limit remaining developable lands. The major construction of second homes is expected to continue to dominate residential growth in these townships for the entire study period.

Intense recreation development of the Lake Wallenpaupak area will attract increasing amounts of second home development. Any infra-structure improvements and commercial development to accommodate more intense recreation use could generate permanent development, and reinforce the area as a secondary regional center.

Milford and Matamoras will dominate the county's commercial activity, though extensive development in both municipalities is limited by lack of available space. There are only six acres available for development in Matamoras. Relocation of Route 209 will reduce growth pressure in Matamoras.

Table 22-86 Population Density Projections Continuation of Present Trends Zones 1-3 (People Per Square Mile)

Municipality	1970	1985	2005	2025
Sussex County	147.2	241.2	351.3	436.8
Zone I	43.6	64.4	93.7	115.3
Zone II	149.3	184.4	266.8	318.4
Zone III	247.7	414.7	602.1	747.6
Warren County	204.0	252.3	351.0	479.9
Zone I	48.3	69.6	106.4	154.6
Zone II	52.7	94.8	194.1	323.8
Zone III	312.2	426.0	615.1	862.0
Orange County	265.4	337.7	458.6	541.3
Zone I	3540.8	3600.0	3800.0	4000.0
Zone II	59.3	84.0	123.4	159.2
Zone III	89.9	113.4	172.5	246.1
Sullivan County	53.3	70.9	93.3	121.7
Zone III	17.1	24.4	37.9	56.9
Monroe County	74.3	103.0	153.8	212.7
Zone I	219.2	284.5	417.4	571.8
Zone II	53.5	79.3	121.8	171.2
Zone III	35.2	51.0	77.3	107.5

Table 22-86 Population Density Projections Continuation of Present Trends Zones 1-3 (People Per Square Mile) (Continued)

Municipality	1970	1985	2005	2025
Pike County	21.7	33.1	49.6	73.5
Zone I	26.0	36.9	51.1	71.5
Zone II	7.5	11.4	20.2	32.9
Zone III	14.7	26.8	43.7	68.2
Northampton County	571.0	637.3	747.9	869.1
Zone I	106.1	134.3	170.9	215.5
Zone III	324.5	365.5	432.1	504.8

Table 22-87 Projected Densities For Urbanized Areas Zones 1-3, 1985,2005

	1970	1985	2005
Sussex County			
Branchville	1822	2220	2660
Hamburg	1516	1850	2133
Newton	2432	2833	3113
Stanhope	1520	2520	3615
Sussex Boro.	2264	3600	4533
Warren County			
Hackettstown	2743	3100	3250
Washington Boro	1826	1930	2163
Northampton County			
Bangor	3369	3279	3279
E. Bangor	1274	1281	1352
Pen Argyl	2737	2738	2776
Portland	1055	1137	1206
Windgap	1587	2006	2405
Monroe County			
East Stroudsburg	3036	3419	3776
Stroudsburg	3206	3294	3564.7
Pike County			
Milford	2975	3225	3450
Matamoras	3740	4316	4650
Orange County			
Port Jervis	3540	3600	3800
Unionville	2280	2800	3520

The intersection of Routes 209 and 84 will pull new growth to the north, especially those users that require large amounts of space or are oriented to the highway. Residential construction in Matamoras and Milford will be predominantly single family dwellings, but the proportion of town houses or small 1-4 unit structures is expected to rise over time. The general attraction of Milford, Matamoras (and Port Jervis across the river in New York) will generate residential growth in Westfall Township. Ultimate development of Pike County is limited by the fact that it has slopes greater than 25% in about 70% of the county, and that shallow soils throughout much of the county would require central sewage systems to support intense developments.

Port Jervis will continue to attract and generate growth within its borders and the surrounding area through Phase II, but its own internal development may be hampered by limited space, increasing congestion and incompatible uses in Phase III. *Almost 80 percent* of the land in the city has been developed and much of the remaining land has been identified as a flood area by the Department of Housing and Urban Development. A further constraint to growth is related to the limitations to sewage treatment extensions imposed by New York City.

The patterns of spatial specialization by commercial and industrial function that were identified in the Development Plan for the City of Port Jervis, New York are expected to continue to a moderate degree. Commercial users oriented to the movement of people rather than the shipment of goods will tend to cluster near the center of the city, around the crossroads leading to the Delaware Bridge and points south or west. Industrial and service activities are concentrating along the level land south of the Erie Railroad and along the abandoned Ontario

& Western rail-bed north. Service activities are proliferating at the major New York entrances to the city, and automobile related uses will be drawn to Main Street, through the center of town.

The Development Plan lists several improvements that will be necessary for Port Jervis to successfully compete for retail services with potential shopping center sites in Barryville and Monticello in Sullivan County that could serve the same market area. The improvements include:

--adequate space for expansion

--easy access to the center by a network of arterial streets and highways that is not permitted to interfere with retail activity.

--efficient circulation patterns in the immediate vicinity of the shopping establishment

--ample short-term off-street parking convenient to each establishment as well as more reserve parking lots that may be used during peak tourist seasons and for holiday shopping

--compact uninterrupted arrangement of retail establishments that will attract shoppers to one area

Steep slopes, poor soils, limited public services, and extensive flood plain lands in Deerpark will inhibit extensive growth in Orange County Zones 2 and 3. It is not likely that municipal water or sewage will be extended to these two zones under Orange County's current policy of committing services first to existing centers.

Zone 3 in Sullivan County is likely to have the lowest growth in the study area. Extensive land under New York's Forest Tax Program and large holdings by hunting

and public utility companies have limited the amount of land available for future development. Existing services are concentrated in the Villages of Eldred, Yulan, Barryville, Glen Spey, Pond Eddy and Forestburg. Proposals for future new water systems and other growth inducing facilities relate to these centers as well.

Zone 1 in Sussex County, comprising Hampton, Sandyston, Stillwater and Montague Townships are projected to have much lower densities than Zones 2 and 3 which will come increasingly under the influence of New York related suburbanization toward the year 2025. Development of Sandyston and Montague is limited by the presence of Stokes State Forest and Highpoint State Park, which separates the remaining land in these townships from the general wave of suburbanization from the east. Holiday Lakes, a second home development, will encompass 1,000 acres in the next 10 years. Garden apartments and condominiums are already emerging in Vernon and Wantage Townships, where the trend is expected to continue. The Village of Montague may develop into a regional center with the implementation of the New Jersey State Department of Transportation's proposal to improve Route 23 to a four-lane road. Similarly, the location of Hainesville near U. S. Route 206 should attract growth to this village. Highway related growth will also contribute to the continued development of secondary centers such as Branchville and the Borough of Sussex. Growth along New Jersey Route 23 and portions of Route 15 will begin to solidify strip development along these roads.

With the exception of the area around Stanhope, Hopatcong, Sparta and Newton, there is no coordinated spatial pattern of growth in Sussex County. Roads and

lakes are the primary forces of attraction. Subdivisions are located with respect to these features wherever there is space. Without adequate controls much development will continue to occur in areas with poor soils, over aquifers, in poorly drained zones, and in areas with prime agricultural soils. At the present time zoning is not based on environmental factors. For example, a tract of industrial zoning is located over Germany Flats Aquifer in Sparta Township near Route 94 and a limestone quarry has already started mining operations in this area.

Future development in Warren County is essentially tied to the outward expansion of the Allentown-Bethlehem-Easton metropolitan area in the southern portion of the county and to the suburbanization extending westward from New York along Highway 80. These forces will continue to dominate the development of these areas throughout the study period.

The northern third of Warren County in Zone 1 experienced a steadily increasing rate of growth over the past two decades and exceeded the county's growth rate in all but the 1950-1960 decade. Development in the future is expected to be steady and densities will double by 2005. The northern third is Warren County's most mountainous area and will retain its relatively low density character. Extensive state forest acreage will prevent development in the area of Blairstown and Knowlton. Development in Blairstown Village and Knowlton will strengthen their function as secondary regional centers for this portion of the county. Blairstown Center will most likely expand outward in the gentle portions of the valley that are accessible to Route 94. Unless strong measures are implemented, growth in this agriculturally rich area will result in the further conversion of farmland to non-farm uses. Northward expansion is somewhat limited by the steep terrain.

Hackettstown, a regional industrial center is identified as an area of continued growth by the Warren County Planning Department. The area north of Route 46, west of 517 has prime growth potential. Its future may be related to the residential development in Allamuchy Township. Washington Boro, located at the intersection of New Jersey Routes 31 and 57, and Oxford Borough to the north along New Jersey 31 will capture a large portion of Zone 3 development, this will result in the steady conversion of agricultural land to suburban uses.

Northampton County is perhaps the best equipped to direct its spatial development. Within Northampton Zone 3, the Bangor, East Bangor and Roseto core is slated for reinforcement as an urban center in the northern portion of the county. A major portion of development, however, will take place in areas outside the present borough boundaries due to limited available space. Growth in Washington Township is likely to encompass the northern two thirds of the township. The relocation of Route 33 ensures continued growth in Windgap where the density will increase from its current 1587 people per square mile to about 2400 people per square mile by 2005.

In general,Upper Mount Bethel is expected to maintain its rural quality, with development occurring along Route 611.

Portland Borough is designated by the Lehigh-Northampton Planning Commission as a rural center. Its growth can be associated with the I-80 interchange and the locational advantages provided by a limited access highway, and its scenic riverfront location.

XXII.C.3.(c) Land Use Impacts

Section XXII.C.2 estimated the commercial and residential growth based on projected revenues generated by the proposed project. This section identifies the areas within Zones 1-3 that will be sensitive to development pressure associated primarily with the project and looks at the possible effects of development on existing and projected land use patterns. Chapter XXIII reviews the land use control mechanisms that can be used to regulate or manage growth and to mitigate the associated potential negative effects.

In general, the spatial distribution of land-use impacts in the study area will be directly related to the design and nature of the park facility. A series of entrance nodes dispersed throughout the park will result in the dispersion of development keyed to the major access points. (Refer to Figure 22-1.) The greatest impacts will be felt at the primary entrances to the park region, especially the northern and southern connections to the Interstate Highway System. Intensity of development in these areas will generally reflect the design load capacity for each node. (Refer to Tables 22-2, 3, 4, 5, 6.) It is therefore logical to expect areas in Zone 1, near major entrances such as Sandyston in Sussex County or Milford in Pike County, to receive a large portion of DWGNRA related development.

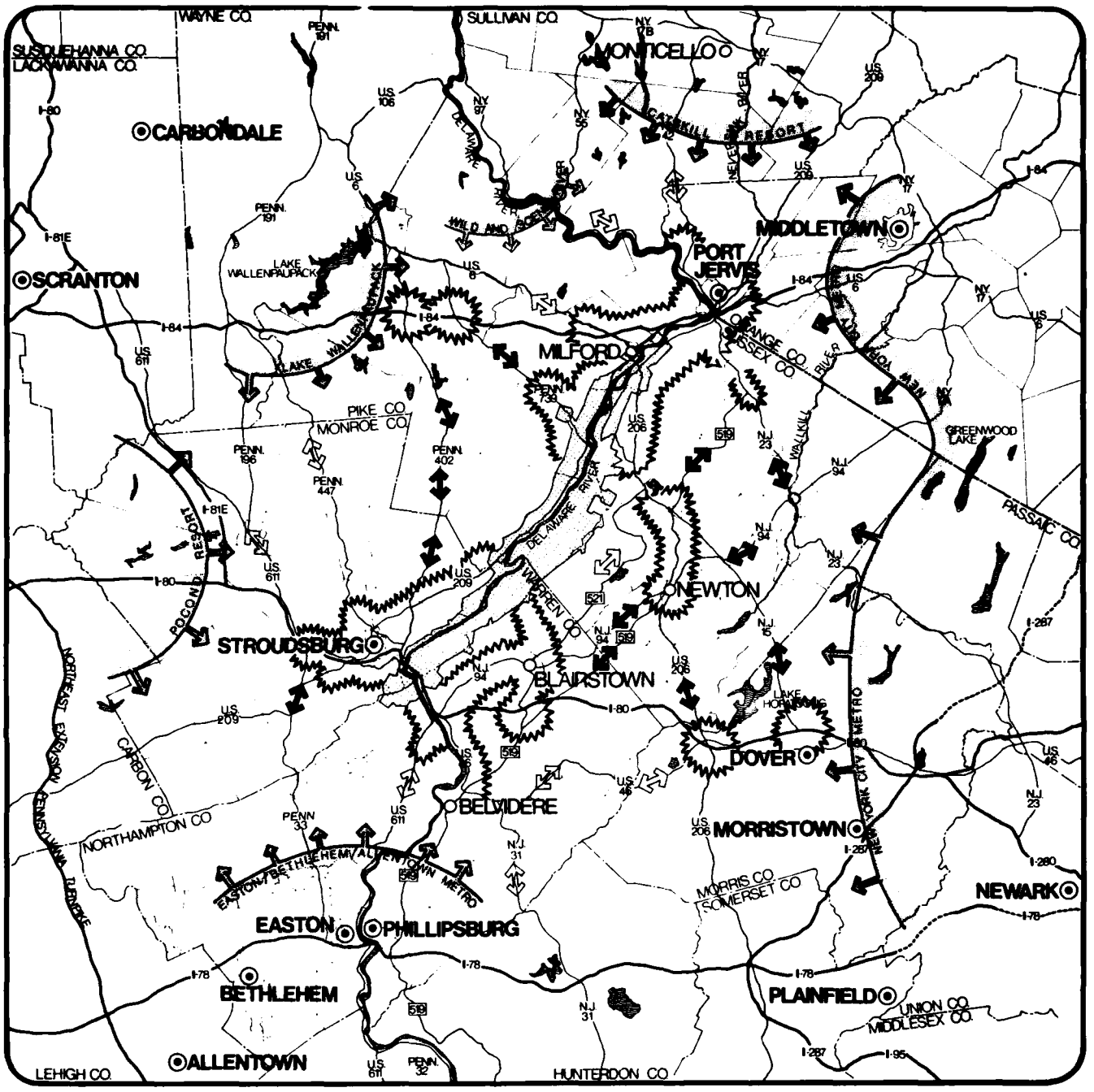
The primary dependence on the automobile is another important element that will disperse impacts throughout the region. Development oriented to the commercial demands of a tourist population will logically follow its movement throughout the area. The highway network, and traffic patterns, will thus become a major factor in determining the location of various establishments. Major interchanges

or roads where recreation traffic converges and concentrates will be highly subject to development of recreational and tourist oriented services and facilities.

The nature and degree of land use impacts will be felt on two levels: 1) the region as a whole, and 2) at specific locations. The regional effects of TILP/DWGNRA stem from the permanent preservation of 72,000 acres of open space. As the surrounding major metropolitan areas expand, the importance of this tract of open land will increase. Not only would it provide outdoor recreational opportunities to the broad region, but it could also give form to the development of the surrounding area. The ultimate effect, however, will depend on land-use policies, controls and plans for the area immediately surrounding TILP/DWGNRA. A regional development concept for the area, such as that prepared by Raymond and May in 1966, could guide growth around a regional open space network. The consolidation, or integration, of state and federal holdings could result in a spatial arrangement that respects valuable environmental resources, creates an efficient transportation system, maintains a sound economic base and controls suburban sprawl. Without planning or controls, DWGNRA could remain as a large open space oasis, with developed uses crowded along its borders.

As yet, no detailed land-use plan for the region has been formulated. Development is largely responding to economic forces and reflects the outcome of individual and isolated decisions.

TILP/DWGNRA will act as a magnet for the development of tourist oriented facilities, and influence regional traffic patterns. As local needs



LAND USE IMPACT DIAGRAM

XXII

11

LEGEND

- HIGH IMPACT ZONE
- MEDIUM IMPACT
- LOW IMPACT
- EXTERNAL IMPACT FRONT

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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are improved to meet expanded traffic volumes, growth will be increasingly patterned in accordance with the developing road structure. Chapter XXV concludes that road improvements will be required to meet the demands of project generated traffic. These improvements could generate or induce growth in areas that currently have little or no development. Major arterials and improved access roads will receive the greatest portions of growth. (Refer to Table 22-30.) The design of DWGNRA and the road structure will form the spatial framework in which specific growth nodes will occur. The effects of growth at these various nodes will relate to the particular characteristics of each site as discussed below.

Projected Land Requirements

The most direct impact of growth is the consumption of open space. Land will be required for the development of commercial establishments and permanent residential growth. As discussed earlier, commercial growth falls into five general categories: transportation, lodging, gifts and incidentals, food and entertainment. The estimated total acres that will be required for these establishments by Phase III of the project is 1612 acres. The distribution by county and by Project Phase in Table 22-88.

At an average .75 acres per dwelling unit, 9149 acres of land will be required for permanent residential uses by Phase III. (Refer to Table 22-89.)

Table 22-88. Estimated Land Required for Commercial Establishments, Phase I, II, III (in acres)

	SUSSEX	WARREN	NORTHAMPTON	MONROE	PIKE	SULLIVAN	ORANGE	Total
Phase I								
ZONE								
1	56	33	4	58	44	0	8	203
2	26	10	0	6	8	0	6	56
3	6	2	0	4	2	0	0	14
4	0	0	0	0	0	0	0	0
								273
Phase II								
ZONE								
1	93	52	19	71	66	8	17	326
2	64	20	0	12	23	0	16	135
3	13	6	2	4	4	8	0	37
4	0	0	0	0	0	0	0	0
								498
Phase III								
ZONE								
1	148	71	23	111	118	0	33	504
2	107	40	0	41	48	0	16	252
3	26	12	4	8	15	16	0	81
4	0	2	0	0	0	2	0	4
								841
TOTAL	539	238	52	315	328	34	96	1612

Table 22-89. Land Required for Permanent Dwelling Units
Seven County Region, Phases I, II, III

	Total Dwelling Units	Estimated Acres
Phase I	2000	1500
Phase II	3750	2812
Phase III	6450	4837
Total	11200	9149

The estimated total land required by all DWGNRA related development will be approximately 10,761 acres. These figures should not be viewed as absolute projections, but rather as a yardstick to indicate the relative magnitude of TILP/DWGNRA related development. When compared to an approximate 2,847 square miles of vacant land in the seven county region, the estimated land requirements to accommodate impact establishments and dwellings are small.

Of greater significance is the effect of the commercial facilities on existing land-uses, the character and visual appearance of the local communities, growth patterns and traffic circulation on local roads. The nature and intensity of the impact will depend on specific locations, density and design quality of establishments.

In general, specific locational decisions consider economic factors (e. g., land and transit costs, taxes and rent), accessibility, the availability and suitability of land, the nature of surrounding land-uses, the existing and proposed infrastructure, the market potential, the location of competing suppliers, the existence and strength of local land-use controls and design

standards. The locational advantages of particular sites will change over time throughout the study period as the above variables evolve with normal growth and development, and annual visitation loads increase. The suitability of a particular location varies according to the functional needs of each type of establishment. Thus service stations have different locational preferences than a motel or gift store. The preference for each general type of establishment is shown in Table 22-90.

Service stations and hotels and motels prefer locations near interstate and arterial interchanges and along major roads. These locations have the greatest accessibility to visitors "shopping by car". Regional centers have the highest location attraction for hotels and motels, small gift shops, restaurants, sporting goods stores and other entertainment facilities. These establishments would benefit from an existing market for goods and services provided in the immediate vicinity, as well as the attractive force created by a concentration of services. Thus a gift store located in a regional center near a hotel and restaurant can take advantage of the customers of those facilities.

Sites along well traveled roads perhaps offer the highest locational advantages for the greatest number of establishments. They are easily accessible and convenient for visitors who are merely shopping for necessities rather than special items, for those who are not familiar with the area and for people with a minimum amount of time.

The locational attraction of secondary centers and villages for all uses will

Table 22- 90 Location Preference of Commercial Establishments

Establishment	Highway Related			Intensity of Urbanization			
	Interstate Interchange	Arterial Interchange	Strip Commercial	Regional Center	Secondary Regional Center	Village	Open Space
Transportation (Station Service)	High	High	High	Medium	Medium	Low	Low
Lodging (Hotel/Motel)	High	High	High	High	Medium	Low	Low
Food (Eating & Drinking)	Low	High	High	Medium	Medium	Low	Low
Gifts and Incidental	Low	Low	Medium	High	High	Medium	Low
Entertainment (Structural)	Low	Low	High	High	Medium	Low	Low

depend on their proximity to the park, to major transportation routes and to the natural attributes of the area, and to the competing forces influencing development.

Figure 22-11 shows the relative concentration of impacts in the region. Areas of greatest impact concentration or intensity surround the northern and southern entrance nodes near the Port Jervis-Milford area and the Stroudsburgs, at major highway interchanges and along major park access routes. Moderate and low concentrations indicate greater dispersion of traffic loads and visitors in impact Zones 2-3. The regional forces that will interact with or supersede the effects of DWGNRA include the expansion of the Allentown-Bethlehem-Easton and New York metropolitan areas, the existing resort industry in the Poconos and Catskills and the recreational developments at Lakes Hopatcong and Wallenpaupak and the upper Delaware River. Possible effects of development in these areas are discussed below.

Regional Centers

The study area's regional centers, which include the Stroudsburgs, Port Jervis and Newton, can be expected to attract a relatively large portion of Zone 1's share of gift and incidental establishments, entertainment facilities and restaurants. The effect will be most pronounced in the Stroudsburgs and Port Jervis because of their location near major park entrances. A concentration of tourist oriented establishments in the center of these cities would contribute to their economic health and may act as an attractive force for other commercial facilities.

All three cities share problems posed by poor circulation, conflicting land-uses, inadequate parking and limited space. Unless steps to solve these problems are initiated, the addition of recreation oriented facilities could complicate the situation. The adverse impacts on circulation and normal activities of permanent residents, however, would occur primarily during peak season and would not be constant.

The seasonality of the visitor population poses the additional problem of defining the demand for public services and identifying an adequate level of services that would be sufficient during busiest periods but not represent an unnecessary investment in the off season. The problem is common to small cities close to regional recreational resources as in Laguna Beach, California or Provincetown on Cape Cod, Massachusetts. During peak periods, the city's services are extremely inadequate and normal activity is severely disrupted. Laguna Beach is attempting to solve its problems by seeking state funds to support additional facilities and by providing adequate buffers between recreation activities and those used primarily by the year round population.

Since TILP/DWGNRA will provide some facilities within the park, the situation is not likely to reach such extremes.

The location of facilities on major access routes leading to the cities would contribute to their outward expansion.

Secondary Centers and Villages

Secondary centers or villages near major park facilities or at the intersection of heavily used access routes, such as Blairstown, New Jersey, or Milford, Pennsylvania, will be sensitive to growth. This type of a center already has a well developed infrastructure and the charming village atmosphere would be an ideal location for lodging facilities, small shops and food establishments. Both these areas have relatively narrow streets that are not intended for large traffic volumes. A significant increase in traffic in these local streets could exceed their service capacity. The intrusion of several poorly designed structures, not visually compatible with surrounding development, would change the quaint atmosphere of the village.

The intensity of effect will depend on the number of establishments, their concentration and location with respect to surrounding uses. Street design control would minimize adverse visual impacts. Lot coverage standards, parking requirements and careful design of egress and entrance points could reduce problems of congestion and poorly interfaced land-uses.

Since a major portion of commercial establishments are expected to locate in Zone 1, there may be considerable growth pressure in or near small riverfront villages such as Delaware Water Gap, Shawnee or Portland. If attractively developed and integrated with the existing character, added growth could be an opportunity for aesthetic enhancement of these villages along with economic effect. The natural characteristics which contribute to the village's identity, such as the rolling hills near Blairstown or the Pocono slopes near Shawnee should be respected for environmental as well as

aesthetic reasons. Unplanned, out of scale growth, however, could seriously degrade the existing community character.

Recreational Areas

The Mount Pocono resort area in Paradise, Pocono and Price Townships, already oriented around a recreation based economy, can expect to have some increase in recreational facilities as a result of TILP/DWGNRA. The forested mountain terrain, with abundant streams and lakes, offers a high attraction for outdoor entertainment facilities such as camping or horseback riding. TILP/DWGNRA would further complement the ski resorts by adding new summer facilities to the region. The Project is expected to have only a minor effect on the resort facilities in Sullivan County's Catskills.

As discussed in XXII.C.2., TILP/DWGNRA is expected to accelerate the build-out rate of second home developments. This will occur primarily in Zone 1 townships such as Lehman, Delaware and Dingman in Pennsylvania, which are already known for their extensive second home subdivisions. A survey of the second home market in Monroe County indicates that proximity to major water oriented recreation facilities is one of the most important factors in selecting a second home.

Unplanned development could add to existing problems associated with construction on shallow soil, inadequate sewage and water systems and degradation of natural scenic features.

Development of TILP/DWGNRA will have only a slight effect on the construction of second homes in Zones 2 and 3. Large developments such as Hemlock Farms provide a complete array of recreation facilities and are not tied to the future of DWGNRA. Lake Wallenpaupak in the Northwestern corner of Pike County will act to pull development of some recreation facilities to its shores. The complementary use of the Lake's beach and boating facilities by DWGNRA visitors would be limited, however, by the small proportion of public facilities.

Open Land

The permanent dwelling units, camping facilities, and any other outdoor entertainment uses such as golf courses or riding stables are more likely to locate in open areas than other uses generated by the project. Unless the permanent dwelling units locate near existing population centers they will contribute to the suburban "leapfrog" development which characterizes so much of Zones 2 and 3. The consumption of land by outdoor recreation uses will not change the region's rural atmosphere. If located wisely they could be used as a buffer between developed areas and natural or conservation zones.

To the extent that growth and road improvements open new areas to development, they will contribute to the process whereby agriculturally rich lands and open space tracts are divided into smaller parcels. This could adversely affect agricultural production, particularly in Warren, Sussex and Northampton Counties and diminish the value of remaining open areas. Maximum benefit from both of these uses is contingent on their retention in contiguous parcels.

Strip Commercial Development

Generally in locating primarily on major access roads throughout the study area, the potential effect of secondary growth will be more pervasive than the estimated total number of establishments and acreage would seem to indicate. Unattractive roadside advertisements, uneven setbacks and unsightly parking lots in front of restaurants, motels and retail stores can create an initial image of a low quality resort area and impair the natural beauty and aesthetic quality of roadside views. Development along Route 209 is an existing example of what could occur. As discussed, the intensity of the impact will decrease from Zone 1 to 3 in relation to recreation traffic patterns.

The establishment of strip commercial development patterns throughout the region reduces the feasibility of developing an effective public transportation system linking DWGNRA with other major facilities and support services. Greater concentrations of facilities in fewer locations would encourage the use of public transportation, preserve valuable open space areas and scenic resources, and produce a positive visual appearance.

Chapter XXIII discusses the various tools that may be used to consolidate or protect open areas, publicly owned space and agricultural zones.

The adverse land use effects of the Project stem primarily from the location and design of the uses generated, and the highway improvements required to meet visitor needs, and are not inherent per se in the nature of recreational growth. Nor is it true that these additional

establishments will, by themselves, be the cause of serious environmental and aesthetic degradation. The normal growth that is occurring and the general quality of development controls cannot be separated from the process. On the contrary, these two factors will be important in determining the parameters of secondary impacts.

The negative aspects of development can be reduced if strong land use controls are adopted early in the project's life. While the need for controls to manage normal growth without the park is widely recognized, the project will require them at an earlier time because it will increase the rate of commercial development in Zone 1. While the project may be phased over a period of years, it will nevertheless generate a substantial portion of the secondary development in the first phase.

Conclusion

A positive land use impact of the Delaware Water Gap National Recreation Area is the retention of a vast area of natural open space of a high scenic quality. Without the project the area might have been developed for subdivisions or other private developments including recreational or commercial uses. Another positive impact of TILP would be associated with its scenic qualities as viewed from such areas as Port Jervis and Milford, whose elevation will permit lake views. While many of the transportation impacts can be viewed as being negative, the relocation of Route 209 in conjunction with the Project will constitute a positive impact as the current congestion through Milford and Matamoras will be alleviated and the accident rates decreased.

The negative impacts on land use in the surrounding region are directly related to the visitor design load, the type and location of park facilities, and the regional road network. Approximately 10,761 acres will be required to support the additional population and commercial facilities that will be generated by the Project. Most of the commercial development will be in Zone 1, while the greatest proportion of permanent housing will be in Zones 2 and 3.

Ultimately, the total effect of the Project will be the sum of the impacts on the local regions. Without imposition of a land use policy which either integrates development in the whole area or controls it according to specific local goals, the future of the area will continue to be formed solely by market forces and individual, isolated decisions. Even a small amount of development when scattered without regard to environmental guidelines, may contribute to the potentially serious depletion of open space land and natural resources.

The choice is between uncontrolled growth which conflicts with existing uses and erodes local integrity or the positive enhancement of local characteristics. Examples of both exist. Gatlinburg in Tennessee and the City of Mammoth Mountain in California, with sprawling commercial development, congested roads and nonconforming uses, represent the worst effects of recreational development. Kingston, New York and Nyack along the Hudson are examples of communities that provide a pleasant atmosphere for both visitors and residents. The development of commercial facilities in these New York communities is interwoven with the existing scale and character of the villages.

Along the Delaware, Delaware Water Gap, Shawnee, Portland, Blairstown and Milford offer excellent opportunities to build upon their existing village centers, reinforce them and develop their potential as an alternative to the uncontrolled development of the open lands along the highways.

The distribution of impacts throughout the region will affect the development patterns to the extent land use controls are exercised by the various municipalities. Decentralization of authority means that the design and implementation of a coordinated long term regional development plan which mitigates adverse project effects will be difficult to achieve.

A further adverse effect of park design has to do with its dependence on the automobile. Without an explicit policy attempt to minimize use of the private automobile, park visitors can be expected to continue to use this mode of transportation. Several types of mass transit system which could be incorporated in the park are discussed in Chapter XVIII. Unless such an attempt is made, road improvements to meet the needs of TILP/DWGNRA will be required as discussed in Chapter XXV. These road improvements will be an important factor in accelerating growth and determining the spatial patterns of development.

XXII.C.4 PUBLIC SERVICES, UTILITIES AND SOLID WASTE DISPOSAL IMPACTS

XXII.C.4(a) Public Services

1. Police

One of government's major responsibilities lies in insuring the safety of the life and property of its citizens. Police protection is a large portion of that obligation and is provided at many different levels of government. In the United States, under the 10th amendment to the Constitution, police powers are reserved for the state and local governments.

Police protection is provided at both these levels in the seven county area. Where population concentrations warrant and the tax base can support them, communities have their own municipal police forces; all other areas in this region are under the protection of the respective state police departments. Tables 22-91 through 22-97 tabulate the municipal police forces, the number of men in each, and where available, the annual costs of operation.

In addition to municipal and state police forces, there are a number of state parks and forests, which are protected by state park rangers under separate jurisdiction. The National Park Service also provides park rangers on the federal DWGNRA property.

National Park Service

The National Park Service will be responsible for enforcing rules and regulations within the park. They will also handle all traffic control required within the park boundaries, but will have no authority outside of the DWGNRA. At the present time, the NPS only has proprietorial jurisdiction over this property. This means that Federal officers can only enforce

Table 22-91 Police Protection - Sussex County Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRIS)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Hampton	1				2091		7100	3290	5590	$ 400	$ 800	X	
Montague	1			1	1131		3600	1530	2110	--	--	X	
Sandyston	1				1303		6500	1800	2510	500	500	X	Headquarters (Hainesville)
Stillwater	1			1	2158		14300	3560	4720	5368	7738	X	
Walpack	1				384			250	250	200	200	X	
Branchville	2				911		1400	1110	1330	5400	7450	X	
Frankford	2				2777		9000	3780	5470	3500	3500	X	
Fredon	2				1372		2800	2370	4060	--	200	X	
Newton	2	X	12	16	7297	1.6	9400	8500	9340	174514	212327		Headquarters - State Police
Sussex Boro	2	X	4	4	2038	1.96		3240	4080	39170	48899		Headquarters - State Pol. to be phased out
Wantage	2				4329			6130	9180	1000	2000	X	

Table 22-91 Police Protection - Sussex County (cont.) Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Andover	3			5	813			960	1130	4481	3187	X	
Andover Township	3				3040		7400	5640	8910	10257	7325	X	
Byram	3	X	7	2	4592	1.5		9590	15220		106202		
Franklin	3	X	6	6	4236	1.4		5240	6080	71035	100158		
Hamburg	3			12	1820			2220	2560	8431	9750	X	
Hardyston	3	X	8	3	3499	2.3		5500	8600	97890	132106		
Lafayette	3			1	1202		2300	1350	1910	300	510	X	
Ogdensburg	3	X	4	7	2222	1.8		3720	4560	41400	61637		
Sparta	3	X	21	16	10819	1.94		19800	29490	308968	350982		
Stanhope	3	X	5	2	3040	1.64		5040	7290	64000	75180		

Sources: Sussex Co. Overall Economic Development Program
Sussex Co. Dept. of Planning, 1974
Pop. projections, HSG
Uniform Crime Reports, State of N.J., 1973
N.J. Division of State Police
35th & 36th Annual Reports, 1972, 1973
Division of Local Social Services
State of N.J. Dept. of Comm. Affairs

Table 22-92 Police Protection - Warren County Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Blairstown	1		1	1	2189		4200	2890	4110	$ 18000	$22357	X	Headquarters
Hardwick	1		1		548		2500	1050	1910	675	675	X	
Knowlton	1		1	1	1738		3000	2540	3930	3109	2600	X	
Pahaquarry	1		1	1	71			70	70	50	50	X	
Frelinghuysen	2				1118		3400	1920	4010		100	X	
Hope	2		1	1	1140			2140	4300	500	600	X	
Hackettstown	3	X	12		9472	1.26				220536	234000		
Independence	3		1	1	2057			3260	7420	15500	16800	X	
Oxford	3	X	1		1742	.57		1940	2360	12350	19480		
Liberty	3		1	1	1229			2230	4840	4550	3200	X	
Washington Boro	3	X	8		5943	1.35		6240	6670	123724	152091		State Pol. HQ (to become specialty)
Washington Twp.	3		3	3	3585			4790	7910	16900	27100	X	
White	3				2326			3530	6140	2000	2500	X	

Sources: Uniform Crime Reports, State of N.J. 1973
N.J. Div. of State Police
35th & 36th Annual Reports - 1972,1973
Div. of Local Gov't. Services
State of N.J. Dept. of Comm. Affairs
Warren Co. Data Book 1973

Table 22-93 Police Protection -Northampton County Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1969 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Upper Mt. Bethel	1	X	1	5	3,343	.3		4,240	5,670	$15,626			
Portland	1	X	1	1	612	1.78		660	680	2,761			
Lower Mt. Bethel	3	X	1	2	2,531	.4		2,980	3,390	2,929			
Bangor	3	X	3	3	5,425	.55		5,280	5,280	43,932			
East Bangor	3	X	-	3	905	-		910	930	4,180			
PenArgyl	3	X	2	4	3,668	.59		3,670	3,720	21,496			
Plainfield	3	X	2	-	4,288	.47		5,690	7,790	7,709			
Roseto	3	X	1	5	1,538	.67		1,490	1,510	6,938			
Washington	3	X	1	1	3,037	.33		3,740	4,930	6,163			
Windgap	3	X	3	3	2,270	1.3		2,870	3,440	24,833			

Source: Lehigh-Northampton Joint Planning Commission, 1971 Data

Table 22-94 Police Protection - Monroe County Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Delaware Water Gap	1				533			500	500			X	
East Stroudsburg	1	X	12		7,894	1.5	9,600	8,890	9,820	$157,000			
Middle Smithfield	1				1,508		9,000	2,710	5,480			X	
Smithfield	1				2,285		8,000	3,490	7,660			X	
Stroud	1	X	12		7,525	1.6	10,500	11,500	18,440				
Stroudsburg	1	X	12		5,451	2.2	7,300	5,600	6,060	151,405			
Hamilton	2				2,985		5,100	4,190	5,860			X	
Paradise	2				1,207		5,100	1,610	2,340			X	
Pocono	2			4	1,870		3,800	2,870	4,690			X	Headquarters
Price	2				377		900	880	1,770			X	

Table 22-94 Police Protection - Monroe County Zones 1-3 (Continued)

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Barrett	3				2,452		7,500	2,850	3,760			X	
Chestnut Hill	3				2,021		5,800	2,800	3,910			X	
Coolbaugh	3			2	1,626		4,900	1,730	2,640	$ 7,600		X	
Jackson	3				1,212		4,500	2,010	3,850			X	
Mt. Pocono	3	X	2	2	1,019	1.96	1,800	1,220	1,680				
Tobyhanna	3	X	3	2	1,868	1.6	7,900	4,000	5,940	31,000			
Tunkhannock	3				317		1,500	620	1,300			X	

Source: Monroe County Survey Municipal Police Protection, 1972. N.E. Pa. Dev. Co.

Table 22-95 Police Protection - Pike County Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Delaware	1				671		4600	970	1460			X	
Dingman	1				518		2300	320	1230			X	
Lehman	1				624		4500	1220	2240			X	
Matamoras	1	X	1	7	2244		3100	2590	2790	$ 11000			
Milford Boro	1	X	2	3	1190		2000	1290	1380	15600			State Police HQ
Milford Twp.	1				418		1000	520	680			X	
Westfall	1				1348		2900	2550	3980			X	
Blooming Grove	2				548		3100	850	1500			X	
Greene	3				1028		3900	1480	2090			X	
Palmyra	3				1204			2700	4750			X	
Porter	3				88		900	200	360			X	
Shohola	3				574		4000	870	1360			X	

Source: Pike County Survey, Municipal Police Protection, 1972, N.E. Pa. Dev. Co.

Table 22-96 Police Protection - Sullivan County Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Forestburg	3				474			650	1480			X	
Highland	3				1377			1840	2320			X	
Lumberland	3				857			1360	2180			X	

N.Y. State Police
Ferndale Station (Liberty)
Narrowsburg Office

Source: New York State Police, Middletown, N.Y.

Table 22-97 Police Protection - Orange County Zones 1-3

Municipality	Impact Zone	Existing Municipal Police	Full-time Officers	Part-time Officers	1970 Population	Perm. Police per 1000 pop.	1970 peak seasonal pop. COE/EIS/1974 (TIRES)	Est. 1985 pop.	Est. 2005 pop.	1972 Police Protect. Budg.	1973 Police Protect. Budg.	State Police Protection	Remarks
Port Jervis	1	X	20		8,852	2.3	10,000	9,000	9,500				
Deer Park	2			6	4,870		9,200	6,280	8,410			X	
Greenville	2				1,379		2,200	2,110	3,910			X	
Minisink	3				1,366			1,950	3,150			X	
Unionville	3				576			700	880			X	

Source: Orange County Data Book, 1972.

Federal law. State and local laws must be enforced by state and local police, adding to the tasks of those agencies. The NPS is presently seeking concurrent jurisdiction which will enable it to enforce state and local law within federal property.

Administrative Policies of the National Park Service, United States Department of the Interior. Chapter VII "Use of the Parks" (1/24/75) outlines the following among the operating principles of the Parks' law enforcement program:

> "Protection of the visitor and park and concessioner employees from antisocial and criminal actions, and from hazards inherent in the park environment, is a prime responsibility of the National Park Service. The Service will work closely with other responsible Federal, State and local agencies in carrying out this responsibility.
>
> 1. Except in cases that are clearly malicious, willful, or deliberate acts, violations of regulations by visitors may be initially assumed to have occurred because of inadvertance, lack of understanding, or misinformation.
>
> 2. Enforcement activity shall have education and information as a primary objective as a means of gaining voluntary compliance with the Service's rules and regulations.
>
> 3. Law enforcement officers will use physical force only when the exercise of persuasion, advice and warning are found to be insufficient to obtain cooperation; and with due regard for their own safety and the safety of others, will use only the minimum degree of physical force necessary on any particular occasion.
>
> 4. Law enforcement officers of the Service will maintain friendly relations and work cooperatively with local, State and Federal law enforcement agencies."

At the present time, the National Park Service employs 15 permanent park rangers at the Delaware Water Gap National Recreation Area. During the summer months, these men are supplemented by 9 additional law enforcement technicians. Listed below are the projected staff levels for the park:

Table 22-98 National Park Service Ranger and Law Enforcement Staffing

Phase Year	Year Round Rangers	Seasonal Law Enforcement Technicians	Maximum Design Load	Law Enforcement Staff/1000 Visitors
Phase I 1985	25	35	40,585	1.48
Phase II 1990	40	70	72,824	1.51
Phase III 2000	60	100	109,987	1.45

Source: National Park Service/Mid Atlantic Region - Philadelphia.

The number of law enforcement staff in relation to visitors compares favorably with the level of existing police in the Tocks Island area relative to permanent population. The ratios above also represent peak day visits and would be closer to the national average of 2.1 on most days.

As noted in the policy statement, rangers will work closely with local police, but the NPS has no authority to enter into any cooperative agreements for law enforcement. In special emergencies, they can deputize local and state police to assist in handling problems within the park. At the present time, park rangers are enforcing local fish and game laws. Only under cases of extreme emergencies would local police be needed to help with law enforcement within DWGNRA boundaries.

Cases which must reach the courts are tried in Federal Court. In this area they are handled by the Federal magistrate in Stroudsburg who has, by special agreement, the authority to cover cases from both New Jersey and Pennsylvania.

Where use of jail space is required, the NPS may only use local jails which comply with minimum federal standards. The Stroudsburg jail is the only one locally which has been authorized at this time. Where a jail is used, the Federal Bureau of Prisons provides compensation at $10 per night. The figures below indicate 1974 NPS experience with local jail facilities near other parks.

Table 22-99 National Park Service Experience With Local Jails, 1974

Park	Annual Visitation	# of Uses of Local Jails
Shenandoah National Park (Virginia)	2,384,000	none
Great Smokies National Park (N. Car., Tennessee)	9,608,000 (Many transients driving thru)	57
Cape Cod National Seashore (Massachusetts)	4,322,000	none
Acadia (Maine)	2,794,000	3

Source: National Park Service Mid-Atlantic Region, Philadelphia.

The Stroudsburg jail has a capacity of 20 males. Monroe County is currently reviewing its jail facilities with the Pennsylvania Bureau of Corrections which agency has criticized the existing building. Under Commonwealth law, women

and juveniles are prohibited from placement in county jails. At the present time Monroe is forced to transfer some prisoners to facilities in Northampton County. The NPS indicates that use of jail space would be limited to overnight until federal magistrates can be reached. The retention of juveniles is virtually non-existent; Park Rangers would contact parents directly. If Monroe County jail is not available, the NPS would transfer persons to the federal detention center in Scranton.

As the park is only marginally operational at this time, some of the present experiences of area state parks can provide some indication of the law enforcement situation to be expected within DWGNRA boundaries in this part of the country.

State Parks

Use of state parks has been increasing in this region because of greater highway accessibility and because of wide interest in camping, hiking and similar activities. As a result, campsites are more often filled, and trails experience heavier use than in previous years.

The parks are supervised by state park rangers whose duties include public assistance, park operations and law enforcement. Their jurisdiction is limited to park boundaries and they enforce only state park code regulations.

Most of the park law enforcement problems are with situations of camping in unauthorized areas, use of drugs, vandalism, disorderly conduct, use of alcoholic beverages, minor robberies, traffic violations within park limits, drownings and lost persons.

Personnel is limited by state budget allocations and, at least in New Jersey's parks, this has prevented availability of sufficient manpower to provide 24 hour patrolling of the parks.

Ten to fifteen incidents of narcotics or alcohol problems per weekend in Stokes State Forest are currently not unusual. Park rangers usually evict violators, but flagrant cases are taken into local municipal courts. These become a burden not only on the court system, but also on the time required of park ranger personnel away from normal patrol duty. Cooperation between the park rangers and state police allows for expanded protection in situations which require additional manpower or which require enforcement of state or local laws and regulations.

As park usage and acreage grow, enforcement staff will have to grow accordingly. The level of training, too, is increasing in New Jersey. Rangers are now attending State Police Schools and are being required to carry firearms.

State Police

The role of the state police varies depending on the degree of urbanization of the area. In rural areas, the state police provides a full gamut of law enforcement services in the absence of local police departments. In suburban areas, the state police provides a cooperative service of partial responsibility complementary to the level of municipal police available. In urban areas, the state police supplements local police with auxiliary and statewide services which are beyond the budgetary abilities of municipalities. These include high level narcotics control, specialty investigatory services and traffic tactical patrol units.

At the state level, police regions are established with command headquarters and sub-headquarters covering various areas. In the seven counties, state police provide rural full service to a majority of the municipalities as indicated in the tables. State police headquarters covering the Zones 1-3 areas are located as follows:

Sussex County, N.J.:	Sandyston - Hainesville
	Newton
	Sussex Boro
Warren County, N.J.:	Blairstown
	Washington
Monroe County, Pa.:	Swiftwater
	Fernridge
Pike County, Pa.:	Milford
Northampton County, Pa.:	Easton
Orange County, N.Y.:	Middletown
Sullivan County, N.Y.:	Ferndale (Liberty)
	Narrowsburg Office

Most state police operations are now organized with state troopers reporting for shift duty - three shifts per day, seven days per week. New Jersey still maintains a barracks system, which assigns troopers on 28 day full work cycles where they sleep in at headquarters. This procedure is now being phased out under New Jersey's State Police Consolidation Plan, which will also place New Jersey troopers on a shift basis.

Using New Jersey's example, levels of state police service can be described:

Table 22-100 New Jersey State Police Manpower Allocation, Sussex and Warren Counties

	Existing Total Men	Consolidation Plan: Planned Troopers	Sgts. & Squad Leaders	Total	troopers available for daily 3 shifts
Blairstown	22	20	5	25	12
Hainesville	20	20	5	25	12
Newton	23	29	6	35	17
Sussex	23	--	--	--	--
Washington*	22	Specialty Services			

*Warren County will also be served from headquarters in Clinton, Hunterdon Co.

Source: Capt. John McGann
Dir. of Planning
New Jersey State Police

Under the Consolidation Plan, protection concepts will be based upon maximization of response to demand. Initially the goal will be to respond to any police call within 5 minutes. Ultimately, it is hoped, this will be reduced to 3 minutes.

To accomplish this, a system of zone and line control will be employed, with patrol cars assigned to zones established within each region. Where local police protection is provided, state police patrols can be allocated to areas without protection.

In Pennsylvania, state police are divided into troops which usually cover more than one county. In the Tocks Island Area, coordination of state police services focusing on TILP-DWGNRA is somewhat more complicated since Northampton County is in Troop M with headquarters in Bethlehem, Monroe County is in Troop N with headquarters in Luzerne County and Pike County is in Troop R with headquarters in Lackawanna County.

At the present time, Pennsylvania state police are working with an average of 15 minutes of response time. Their regions are also divided into zones with ideal planning aimed at 24 hour coverage by one man patrol per zone. per day.

Unfortunately, at the present time, due to legal difficulties with the state police academy, the Pennsylvania total state police staff is 300 men short by to attrition. This summer's class of cadets will reduce this deficit to 150, and openings will be filled as work load and vacancies demand.

As a result of these staffing problems, state police coverage in Pennsylvania cannot meet the ideal programmed manpower distribution. In addition, the national problem of budget belt-tightening has placed limitations on all department hiring policies, further restricting the ability to replace the full complement of state troopers.

New Jersey's long-range police planning has assumed the existence of Tocks Island and is preparing accordingly. Maintenance of the Hainesville station within the Consolidation Plan is only because of Tocks. This location is adjacent to the Minisink area, which, at each stage of development is planned for the greatest number of visitors. In addition, Route 206 continues to the Milford-Montague bridge, giving access to the Milford areas which also have large planned capacities in the second and third phases of development and will bring further numbers of visitors through this part of northwestern New Jersey.

The area already experiences a summer seasonal population increase. TILP-DWGNRA will further expand this demand on law enforcement services during the summer months. New Jersey is accustomed to recreation-oriented fluctuations with years of experience along the Atlantic shore communities. Accommodating this demand is a matter of personnel re-distribution as required. Manpower is made available from the State Resource Pool. During the summer months, the Educational Services Unit is inactive and the training bureau does not schedule programs. In the proposed plans, 10 additional men will be assigned to the Newton headquarters during peak demand.

At present, each state trooper costs New Jersey $31,250 annually for salary and maintenance, and pro-rated facilities costs. With 25 uniformed police officers assigned to Hainesville, the cost of maintaining this facility will cost New Jersey from $780,000 to $1,000,000 per year. This cost can only be partially assigned to TILP because if the Hainesville station were not retained, some troopers would be added to the Newton headquarters.

Pennsylvania planners are also aware of potential increased demand but are currently hindered by the state-wide manpower shortage.

Traffic control on the Interstate highway system is provided by the state police, with separate units. I-80 and I-280 in New Jersey are patrolled from headquarters in Netcong and Hackensack. Patrols are determined by line zones of 15 to 20 miles each. New Jersey's goal is to have one patol car pass any given point once every 15 minutes. Heavy traffic or emergencies may require patrols to lengthen their zones while other units are occupied.

New York State patrols are similarly assigned. A patrol post requires statistically 6.79 men. Unless new highway mileage were constructed, no new posts need be added to interstate highway patrols.

Municipal Police

Of the 83 municipalities in the three defined impact zones, only 29 have some form of full time police. The National Advisory Commission on Criminal Justice Standards and goals has prepared lengthy documents helping to define appropriate standards for police protection. Standard 5.1, Responsibility for Police Service states:

> " 1. Every police agency should provide for access to police service and response to police emergency situations 24 hours a day.
>
> 2. Every local government unable to support a police agency and provide 24-hour-a-day services should arrange immediately for the necessary services by mutual agreement with an agency that can provide them. "

Because so many of these rural townships could not provide this level of service, the state police either entirely or partially does. Standards for those who do have their own municipal departments are discussed in Standard 5.2. Combined Police Services:

> " Studies show that five sworn police officers are required to provide one sworn police officer on a full-time, around-the-clock basis allowing for days off, vacation, sick time, and other variables.
>
> To provide to the full-time deployment of two policemen, a local government would ideally need to hire 10 police officers....
>
> If fewer than 10 sworn personnel are employed, deployment on such a small scale is usually not cost-effective and often results in inadequate services. In many instances, part-time employees provide primary police services to compensate for manpower deficiencies. Some jurisdictions are unable to deploy even one officer on a 24-hour basis, and are dependent upon a telephone operator's success in reaching an off-duty policeman to answer calls for service. Consequently, any police agency employing fewer than 10 sworn officers should combine with one or more agencies to improve efficiency in delivering police services. In remote areas where there is no nearby agency, a combined or contract program with a county or State agency may be feasible.
>
> Ten police officers should be considered as the minimum effective and efficient level for an agency to operate as an independent entity."

At the present time, in the impact region, there are only 7 police departments that meet this minimum standard: Newton, Sparta and Hacketts-town in New Jersey, and Stroudsburg, East Stroudsburg and Stroud Township in Pennsylvania, and Port Jervis in New York. The remaining 22 departments are below minimum standards and must maintain cooperative agreements with either the state police or with each other where their jurisdictions are contiguous in order to provide adequate protection.

A police force meeting these minimum standards can only be supported by a reasonable population concentration demanding the service and paying for it through local taxation. The cost of a 12 man full time force can be seen by comparison of budgets shown in Tables 22-91, 22-92, and 22-94. Using the 1972 annual budget for uniform comparison, support for such a police force ranged from $151,405 to $220,536 per year.

At what point does it become necessary for a municipality to contemplate providing its own protection? The International Association of Chiefs of Police in Washington, D.C. indicates that the national average of all police employees is 2.4 per 1000 population. Sworn law enforcement officers average 2.1 per 1000. According to "Uniform Crime Reports, State of New Jersey, 1973," the New Jersey average was 2.2 per 1000, the Northwest region was only 0.9 per 1000 and the most populous northeast region was 2.4 per 1000. Averages for existing forces in the seven county area are shown on the Tables.

Consistent with this average in the approximate range of 2 officers per 1000, the state of New Jersey Department of Police is presently encouraging the State Attorney General's Office to lower from 7500 to 5000 the population level at which a 10 man local police force should be constituted. The New Jersey state police has found that by the time an area's population has grown to these proportions, it becomes too great a burden on the state police resources and begins to reach a point of municipal cost feasibility. The state police planning department will then assist over a four year period in planning and initiating the local department and will only withdraw its own services as the new department becomes effectively operational. This

is presently occurring in Vernon Township, Sussex County.

Based upon trend-line population forecasts without TILP/DWGNRA and without consideration of summer peak populations, this threshold 5000 population will require new municipal forces in a number of communities during the project development period.

By 1985 -- Phase I

Deerpark	Orange County
Washington Township	Warren County
Andover Township	Sussex County
Wantage	Sussex County

By 2005 -- Post Phase III

Independence	Warren County
Liberty	" "
White	" "
Hampton	Sussex County
Stillwater	" "
Frankford	" "
Palmyra	Pike County
Middle Smithfield	Monroe County
Smithfield	" "
Hamilton	" "

In addition, many of the townships whose existing police forces are below the minimum standards of 10 full-time officers are already at, or will be reaching the 5000 population level and should be considering expansion of their staffs.

Pennsylvania police planning follows a somewhat different pattern. State police will provide coverage within the limits of their ability. The Commonwealth leaves decisions regarding levels of municipal services to the local government and will not attempt to influence their planning processes. If a local community finds they cannot be satisfied with the level of law enforcement services provided by the state police, then it is their responsibility to initiate local police services.

At the point when a municipality in Pennsylvania has 4 full-time policemen, the state police will no longer provide patrol service in that jurisdiction. They will continue to provide back-up services and respond to calls. They will also cover shifts which are not covered by the limited size of the local force.

With the exception of Port Jervis and the Stroudsburgs, none of the Zone 1 municipalities, closest to the park related demands on their services, have minimum standard police departments. Only a few will reach the 5000 person population base within the next 30 years that might indicate initiation of their own police departments. As already noted, the state police is prepared to continue its coverage and is planning appropriately, but the presence of summer populations with or without TILP/DWGNRA increases the need for service and the addition of anywhere from 58,000 to 158,000 daily visitors on a peak summer Sunday will inevitably present greater demands for law enforcement services than projected from trend-line year round population.

Already Delaware Township has met with the Pennsylvania Department of Community Affairs to initiate studies to establish their own departments of minimum 5 and possibly 10 men. The township finds that with an average of 80 complaints of vandalism per month, the state police cannot possibly provide an adequate level of protection. In this case, local initiative was responsible for a study which indicates that even though the permanent population is only 671, the summer population of some 6000 taxpayers can and should support a police department.

New Jersey and Pennsylvania are encouraging regional cooperation where appropriate. Under consideration is a combined police department for the townships of Smithfield, Middle Smithfield and Lehman in Pennsylvania. Already the three 12 man departments of Stroud, Stroudsburg and East Stroudsburg form a cooperative unit where each force is deputized to the others and a combined pool of 36 men can be called upon to meet emergencies and to satisfy shifts in demand for services (East Stroudsburg College population reduces in summer when tourist population grows.)

According to Sergeant Joseph Monville of the Pennsylvania State Police Bureau of Research and Development, cooperative agreements such as this are often more successful than formation of joint police departments serving several municipalities whose political and socio-economic differences make unified systems difficult to agree upon.

Summary of TILP Impacts

1. Due to the visitor increase in the area and some TILP/DWGNRA stimulated

population growth, incidence of crime and demand for traffic control and law enforcement will increase.

2. The region is covered for law enforcement by state and local police forces. Until such time as municipalities have sufficient population bases to afford their own police forces, the state police will continue their rural area responsibilities. The costs of police forces are borne by the local taxpayer at either municipal or state budget levels and protection as required will be provided by one agency or the other.

3. The establishment of local police forces, in order to meet reasonable minimum standards, will be determined by population and tax base rather than by an increase in incidence of crime. The latter, however, may be the source of sufficient local discontent to initiate the process sooner or to consider forming cooperative police systems or agreements between systems with neighboring communities.

4. In New Jersey, state police planning has made provision for expected TILP-DWGNRA impact by manpower allocations and retention of the Hainesville station.

5. New York State police does not anticipate any major impact from TILP-DWGNRA except in the area of traffic control. I-84 is patrolled by state troopers and manpower distribution will not be affected by Tocks Island. Port Jervis, a Zone 1 community, already has a municipal police force which should anticipate greater demands on its services, especially in regard to traffic control in the vicinity of the I-84 interchange.

6. Similarly, the police forces in the Stroudsburgs will have a greater demand for their services. However, the three department cooperative agreement may be sufficient for adequate coverage.

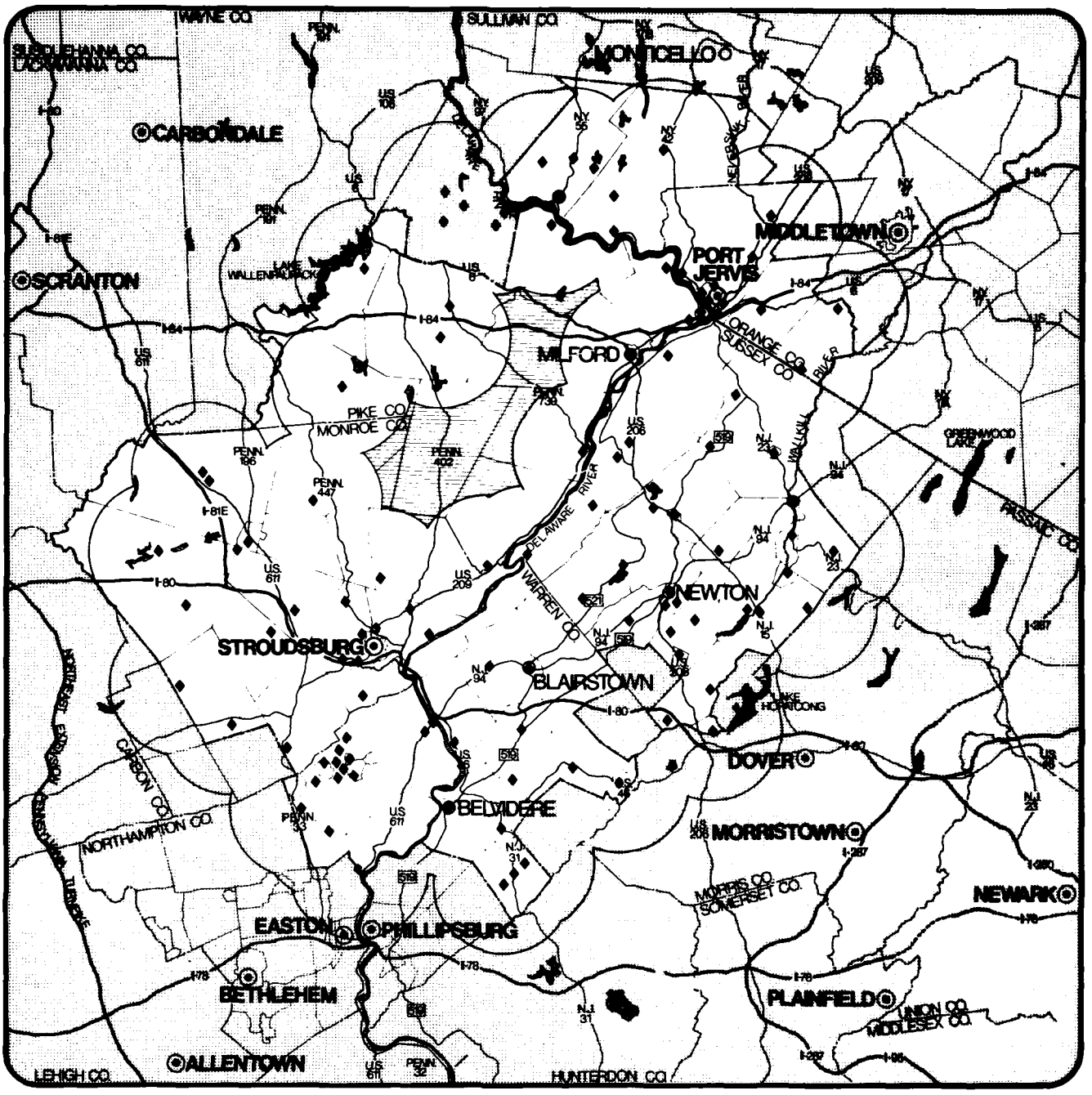
7. Pennsylvania State Police is presently hampered by a manpower shortage, but should be able to resolve this problem and make necessary planning adjustments prior to 1985.

2. Fire Protection

The largely rural seven county region is served entirely by volunteer fire departments. These departments, varying in numbers of available volunteer manpower, fire houses and equipment, are tabulated in the accompanying Tables 22-101 through 22-107. The pattern of many small companies defying regionalization is typical of the New York, New Jersey and Pennsylvania area, according to George Proper of the Fire Safety Division of the New York State Office of Local Government. Other parts of the country are served by paid on call part-time departments, by small paid or small volunteer departments at greater distance separations or by more regional systems on a contract basis to local municipalities in the area.

For the most part, there is a fire house in almost every population center. This distribution of fire houses, indicated in figure 22-12 , provides the best coverage in terms of time-distance relation to people served. According to Mr. Proper, a concentration of approximately 1000 persons would require a fire company if one did not exist. Three to four minutes to arrival of first piece of equipment is an appropriate goal.

Local volunteer fire departments are responsible for fires in buildings and structures. Forest fires are the responsibility of state fire wardens and their role is greater in regions such as this because of the extensive state forest lands on both sides of the river. In New Jersey, the State Forest Service Headquarters is in Landing near Lake Hopatcong. In Pennsylvania, the regional office of the Bureau of Forestry is in Stroudsburg.



FIRE PROTECTION

XXII

12

LEGEND

- ◆ FIRE DEPARTMENT
- •CIRCLES DEFINE A ·5· MILE RADIUS•
- LAND AREA BEYOND ZONE ·3·
- LAND AREA BEYOND ·5· MILE RADIUS

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN - PRAEGER, INC. & CONKLIN AND ROSSANT

Table 22- 101 Fire Protection Sussex County Zones 1-3

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Hampton	1	--	--	--	--	--	G,H	Protected by Branchville, Stillwater and Frankford
Montague	1	X	1		19	2	G,H	Partial service from Port Jervis
Sandyston	1	X	2	Sandyston (Hainesville) Layton	15	5	G,H	
Stillwater	1	X	2	Stillwater Swartswood	35 25	6	G,H,K	
Walpack	1	X	2	Flatbrookville Walpack Center	17	3	G,H	
Branchville	2	X	1		25	4	F,H	
Frankford	2	X	1		27	3	G,H	
Fredon	2	X	1		19	2	G,H	
Newton	2	X	3		130	6	D,H	
Sussex Boro	2	X	1		50	4	E,H	
Wantage	2	X	2	Beemerville Colesville	21 34	8	G,H	

Table 22-101 Fire Protection Sussex County Zones 1-3 (Continued)

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Andover	3	X	1		24	3	E,H	
Andover Twnp.	3	X	2	Lake Iliff Rd. Mt. Nebo Dr.	21	6	G,H,K	
Byram	3	X	2	Lake Lackawanna Cranberry Lake	25	6	G,H,K	
Franklin	3	X	1		45	4	E,H	
Hamburg	3	X	1		43	3	F,H	
Hardyston	3	X	1		34	2	G,H,K	
Lafayette	3	X	1		20	3	G,H	
Ogdensburg	3	X	1		50	3	F,H	
Sparta	3	X	3	West Shore Trail Main St., Glen Rd.	57	6	E,H,K	
Stanhope	3	X	1		35	4	E,H	

Source: Overall Economic Development Program, Sussex County Planning Department, 1974
Insurance Services Office, Newark

Table 22-102 Fire Protection **Warren County** Zones 1-3

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Blairstown	1	X	2	Blairstown Walnut Valley	34	5 (incl. 1 4 wheel dr.)	G,H,	
Hardwick	1	--	--	--	--	--	G,H	Covered by Blairstown
Knowlton	1	X	1		15		G,H	
Pahaquarry	1	--	--	--	--	--	G,H,K	
Frelinghuysen	2	--	--	--	--	--	G,H	
Hope	2	X	1		30		G,H	
Hackettstown	3	X	1		76		D,H	
Independence	3	X	1		32		G,H	
Oxford	3	X	1		39		H	
Liberty	3	X	1		20		G,H	
Washington Boro	3	X	1		40		E,H	
Washington Twp.	3	X	2		66		G,H	
White	3	--	--	--	--	--	G,H	
Belvidere	4	X	1		32		F,H	

Sources: Warren Co. Data Book, 1973
Chief Cook, Blairstown
Insurance Services Office, Newark

Table 22-103 Fire Protection Northampton County Zones 1-3

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Upper Mt. Bethel	1	X	2	Mt. Bethel North Bangor		5	unprotected	
Portland	1	X	1			3	unprotected	
Lower Mt. Bethel	2	X	1	Standt Eddy		2	unprotected	
Bangor	3	X	3			3		
East Bangor	3	X	1			2		
PenArgyl	3	X	1			3	unprotected	
Plainfield	3	X	2	Rte. 191, old Rte.115		6	unprotected	
Roseto	3	X	1			2	unprotected	
Washington	3	X	1	near Ackermanville		3	unprotected	
Windgap	3	X	1			3	unprotected	

Source: Lehigh-Northampton Joint Planning Commission 1971 Data
Blue Mountain Control, Insurance Services office - Philadelphia

Table 22-104 Fire Protection **Monroe County** Zones 1-3

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Delaware Water Gap	1	X	1		25	4		
E. Stroudsburg	1	X	1		60	6		
Middle Smithfield	1	X	1	Bushkill	25	4	Unprotected	
Smithfield	1	X	2	Marshalls Creek Shawnee	50 25	6 4	Unprotected	
Stroud	1	X	4	Analomink 5th Street Rt. 611 Poplar	80	9	Unprotected	
Stroudsburg	1	X	1	2 Companies	60	6		
Hamilton	2	X	1	Saylorsburg	40	6	Unprotected	
Paradise	2	--	--		--	--	Unprotected	Planning stages
Pocono	2	X	1	Tannersville	40	5	Unprotected	
Price	2	--	--	--	--	--	Unprotected	Covered by Marshall's Creek, Woodale Station

Table 22-104 Fire Protection Monroe County Zones 1-3 (Cont.)

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Barrett	3	X	1	Buck Hill Inn Mountain Home	50	6	Unprotected	
Chestnut Hill	3	X	2	Sun Valley Broadheadsville	20 40	2 4	Unprotected	
Coolbaugh	3	X	2	Tobyhanna (Fed. Tobyhanna Depot)	40	4	Unprotected	
Jackson	3	X	1	Reeders	40	4	Unprotected	
Mt. Pocono	3	X			50	6	Unprotected	
Tobyhanna	3	X	2	Pocono Pines Pocono Summit	30 30	4 4	Unprotected	
Tunkhannock	3	X	1	Long Pond	30	2	Unprotected	

Sources: Chief Ray Silver, Stroud Township Fire Dept.
M. Keller -- Monroe County Civil Defense, Insurance Services Office, Philadelphia

Table 22-105 Fire Protection Pike County Zones 1-3

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Delaware	1	X	1	Dingmans Ferry	50	4	unprotected	
Dingman	1	-	-		-	-	unprotected	served by Milford Boro
Lehman	1	X	1	Bushkill	40	6	unprotected	
Matamoras	1	X	1		132	4*		*includes water rescue
Milford Boro	1	X	1		57	4*		*includes water rescue
Milford Twsp.	1	-	-		-	-	unprotected	served by Milford Boro
Westfall	1	X	2	Adj. Matamoras Milrift	125 45	3* 3*	unprotected	*includes water rescue
Blooming Grove	2	X	2	Lords Valley Hemlock Farms	95 29	4 2	unprotected	
Greene	3	X	1	Promised Land (2nd under constr)	30	3	unprotected	
Palmyra	3	X	1	Tafton	60	2*	unprotected	*includes water rescue
Porter	3		-		-	-	unprotected	served by Dingmans Ferry and Lords Valley
Shohola	3	X	1	Shohola	50	2	unprotected	

Source: Pike County Soils Conservation Service

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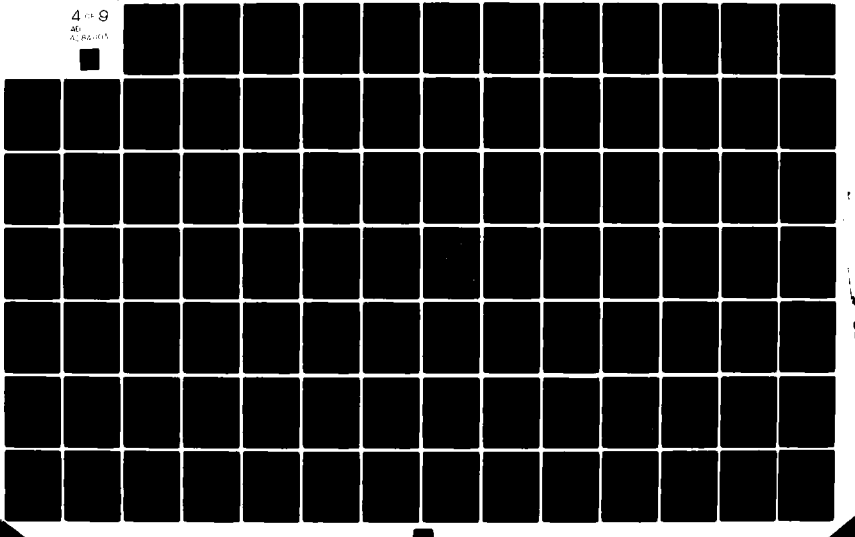

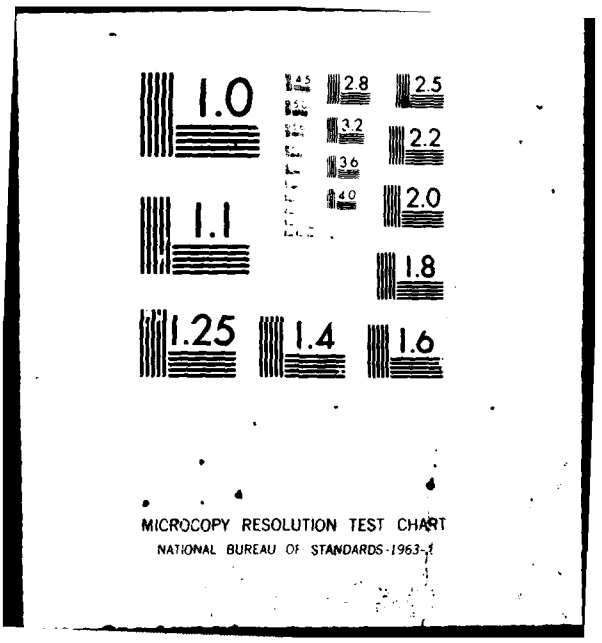
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Table 22-106 Fire Protection Sullivan County Zones 1-3

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Forestburg	3	X	1		40	4	Unprotected	
Highland	3	X	4	Barryville Yulan Eldred	140	6	Unprotected	
				Highland Lake	27	3	Unprotected	
Lumberland	3	X	2	GlenSpey Pond Eddy	60	5	Unprotected	

Sources: Monticello Fire Department
Mr. Robert Somers
Insurance Services Office, Syracuse, N.Y.

Table 22-107 Fire Protection Orange County Zones 1-3

Municipality	Impact Zone	Volunteer Fire Dept.	# Fire Houses	Locations	Volunteers	Equipment	Insurance Classification	Remarks
Port Jervis	1		6		500+	7		
Deer Park	2		3	Deer Park Sparrowbush Huguenot				
Greenville	2		1				Unprotected	
Minisink	3		1	Rutgers			Unprotected	
Unionville	3		1	Minisink				

Sources: Orange County Data Book, 1972
Insurance Services Office, Syracuse, N.Y.

In the DWGNRA according to National Park Service administrative policies,(1/24/75) measures of fire control will be employed for "any fire in a park which does not further the accomplishment of resource management objectives... Such suppression applies to fires which threaten human life, are man caused, threaten destruction of historic or natural resouces... or park facilities, or threaten resources or facilities outside of park boundaries... The National Park Service will participate in programs to control and extinguish fires originating outside a park and posing a threat to park resources and facilities."

The National Park Service has already entered into cooperative agreements with the New Jersey and Pennsylvania Forest Services for the state services to provide fire protection for all forest fires. The NPS also has cooperative agreements with ten volunteer departments surrounding the park lands for fire protection of improved property when required. These departments are Bushkill, Milford, Delaware Water Gap, Westfall, Montague, Shawnee, Sandyston Marshall's Creek and Walpack.

Local fire departments are paid for their services by the NPS on a fee schedule dependent upon the pumping capacity of the equipment employed. The maximum rate on this scale is $75 per hour for the largest equipment. The projected plan for future protection of DWGNRA envisions such cooperative agreements with all fire departments contiguous with park property. Within the park, portable pumpers are available with 50 to 250 gallon water tanks which can be placed on a pick-up truck and brought to the scene of a fire emergency. The Park Service is trying to acquire surplus army fire equipment and plans on maintaining approximately two pieces of equipment on each side of the river.

The State Forest Services have always had the responsibility for protecting these same forest lands from fire. The presence of the DWGNRA with staff and some equipment supplements the Forest Service's ability to discover and fight these fires. TILP/DWGNRA has a positive impact on the protection of the region's forests from fire.

Municipal Fire Department Standards

Minimum standards for fire protection have been established by the insurance industry and are used as bases for classification of municipalities with reference to their fire defenses and physical conditions according to the "Grading Schedule for Municipal Fire Protection" published by the Insurance Services Office. In determining these classifications, each municipality is evaluated in four areas - Water Supply, Fire Department, Fire Service Communications and Fire Safety Control. The first two areas each represent 39% of the total evaluation criteria.

Water supply is considered for adequacy and reliability of source and distribution systems. In order to be recognized, a water supply shall be capable of delivering at least 250 gallons per minute for a period of two hours or 500 gallons per minute for one hour for fire protection. This is above and beyond the daily normal consumption of water in the system. This rate of flow required for fire fighting is called the required fire flow, and is determined based upon size, construction, occupancy and exposure of buildings within and surrounding the block or group complex.

The fire department must meet minimum requirements to be recognized:

> " 1. Organization. The department shall be organized on a sound, permanent basis under applicable state and/or local laws. The organization shall include one person (usually with title of chief) responsible for operation of the department.
>
> 2. Membership. The department shall have an active membership which provides a response of at least 4 members to alarms.
>
> 3. Training. Training shall be conducted for all active members.
>
> 4. Apparatus. Response to any alarm of fire shall be with at least one piece of apparatus suitably designed and equipped for fire service. Provisions shall be made for the housing and maintenance of apparatus.
>
> 5. Alarm Notification. Means shall be provided for 24-hour receipt of alarms and immediate notification of members."

Based upon the determined required fire flow, the number of fire companies needed within a range of mileage radii are established from published tables. Depending on fire fighting equipment and types of construction to be protected, the radius from fire house to fire varies from a minimum of 3/4 mile to a maximum of five miles. The latter is established by the Insurance Services Office of New Jersey in both its standards for rural areas -- Minimum Requirements for the Recognition of Water Systems Affording Water

Supply to Fire Department Pumping Engines in Rural Areas and Minimum Requirements for the Recognition of Pumper Suction Points Affording Water Supply to Fire Department Pumping Engines in Rural Areas.

> " The fire department normally providing response to the location must be situated within 5 miles air line distance. Apparatus response must include a pumping engine of not less than 500 g.p.m. capacity carrying a supply of 2½ inch hose and standard minor equipment. Not less than 1200 feet of 2½ inch hose are to be carried on responding apparatus, except that two lengths of 1½ inch hose may be substituted for each length of 2½ inch hose, provided that not less than 800 feet of 2½ inch hose are carried."

Since the impact area is largely rural, figure 22-12 , in addition to locating all fire houses in Zones 1-3, shows the 5 mile radius surrounding each. The map clearly indicates that by this distance criterion, the area is well covered with the exception of a swath through mid-Pike County, including most of Porter Township and parts of Shohola, Milford, Dingman, Delaware and Lehman. At the present time, there is little population concentration in this area and much land is retained in state forests.

Upon review of each municipality, a rating is assigned based upon a final point score. These are divided into ten numerical classifications of which numbers 9 and 10 are considered unprotected. New Jersey converts these numbers into letters, assigning class A to 1 and 2, B=3, C=4, D=5, E=6, F=7 . G=8 is the lowest class considered protected. H=9 and K=10 -- H is a municipality with a low range score or having no recognized water supply , and K receives the lowest range of scores or has a fire department but no water supply or a water supply but no fire department, or no fire protection

at all.

Where available this insurance rating has been indicated on the Existing Fire Protection Tables 22-101 through 22-107. Almost all areas in the region are considered unprotected. New Jersey assigns grade G to many areas because it does recognize pumped water sources from lakes or streams meeting minimum standards.

Within Zones 1-3 only the following municipalities have higher than the lowest protected ratings: Bangor, East Bangor, Port Jervis, Delaware Water Gap, East Stroudsburg, Stroudsburg, Matamoras, Milford, Branchville, Newton, Sussex Boro, Andover Boro, Franklin, Hamburg, Ogdenburg, Sparta and Stanhope.

Impacts

With increases in population and associated additional construction, consumption of water will increase and required fire flow will also increase. On this basis adequacy of fire protection will parallel the development of water supply systems. This subject is discussed in this chapter, section XXII.5.b.

As population increases, the number of fire calls will also increase. This will place a heavier demand on the existing fire companies. An illustration of this population-demand relationship can be seen from the fluctuations in fire calls already existing between winter-normal population periods and peak summer population.

According to the Sullivan County Comprehensive Sewerage Study, projected 1970 peak summer population for all of Sullivan County was 223,930. The average daily seasonal population was projected as 177,680. These summer populations compare with the 52,580 permanent residents listed in the 1970 Census. Table 22-108 below shows the yearly distribution of fire calls in Sullivan County in 1974.

Table 22-108 Fire Calls -- Sullivan County, 1974

JANUARY	96	JULY	223
FEBRUARY	95	AUGUST	227
MARCH	155	SEPTEMBER	153
APRIL	241	OCTOBER	124
MAY	191	NOVEMBER	124
JUNE	137	DECEMBER	112

Source: Mr. Robert C. Somers
Monticello Fire Department

The greatest number of calls are in the holiday months -- April and May spring vacations and July and August summer vacations.

As previously noted, the area is geographically well covered by existing fire companies and fire houses. Pike County will require some new fire houses if sufficient development occurs in the mid-county area not currently within five miles of any existing fire house.

Some developments are providing their own fire and emergency services.

Hemlock Farms is one such example. Others provide some degree of window dressing, but according to local emergency officials, do not have the trained manpower capacity to be depended upon.

As population concentrates, the number of fire stations in the area increases. This is apparent from the map and from Tables 22-101 through 22-107. This is also consistent with minimum requirements, as established by the Insurance Services Office.

The existing fire companies should be able to continue covering the demand for fire calls in their respective territories.
According to Mr. Raymond Silver, Chief of the Stroud Township Fire Department, his department handled about 130 fires in 1974. Most Monroe County departments average closer to 40 or 50 per year. Even with heavier demand for weekend calls in summer, his department does not presently experience any strain not does he anticipate any if TILP DWGNRA proceeds. This opinion is also shared by Chief Frank Cook of the Blairstown Fire Department.

Theoretically, even if permanent population increases cause greater demands on fire protection services, more men will be available for volunteer service. According to several area sources, however, volunteer fire departments are generally having more difficulty in recruiting able volunteers. When population is composed of retirees or commuters, the pool of potential volunteers is greatly reduced. Nevertheless, this problem is not one that can be attributed to TILP DWGNRA.

The cost of these fire departments is borne by the local population. Some municipalities are responsible for provision of equipment and buildings. These are usually the larger jurisdictions, more able to afford the expenditure. Port Jervis, Stroudsburg, East Stroudsburg, Stroud township, are among those who do. An examination of fire budgets in the New Jersey townships exhibits a 1973 range from a high of $37,100 in Hackettstown to a low of $250.00 in Hardwick township (exclusive of Pahaquarry and Walpack, both largely taken by DWGNRA). In some of these municipalities a "millage" tax is apportioned from the local tax rate. Most departments, however, must rely entirely on fund raising programs to meet their operating expenses and to purchase new equipment as needed. Volunteers are not paid.

No fire departments in the Zones 1-3 impact area have paid fire fighters. A step toward a paid department would be required at the point when a demand of at least one or two calls every day made it difficult to provide the minimum of men required to respond to each call. At such a time, a department usually hires a number of paid drivers to be constantly available. Middletown, New York, for example, has a staff of 34 paid drivers and a population of about 22,000 people. In New Jersey, Morristown, population about 18,000 and Dover, population about 15,000, also have paid drivers.

The greatest demand on fire protection services related to TILP DWGNRA will be made upon those departments in Zone 1, whose districts are contiguous with the park borders. As noted, preliminary agreements exist between some of these and the National Park Service.

Availability of proper equipment will be one area in which demands induced by TILP/DWGNRA will be felt. Insofar as the neighboring fire services are required to fight fires and participate in rescues in the rough terrain in and surrounding the recreation area, special equipment will be needed.

The state departments who are responsible for state woodlands are equipped to handle forest fires and have rough terrain vehicles. According to Mr. Charles Thom, Fire Coordinator of Sussex County, New Jersey, a greater effort at inter-agency cooperation will be appropriate for meeting the fire protection needs of the region. He proposes that certain pieces of surplus heavy duty equipment be made available to appropriately located fire departments on the park's perimeter - specifically, he refers to M-5 army tank trucks, heavy duty water hauling tanker tractor-trailers and rescue equipment. Under specific cooperative agreements, local departments would then be able to assist in emergencies in rough terrain within and outside of the park boundaries. Without assistance, the volunteer fire departments could not sustain the costs of such specialized apparatus. The costs of regular fire equipment are now in the range of $60,000 to $70,000 for a minimum fire truck.

The New Jersey Forest Fire Service has begun making such surplus equipment available on permanent loan basis to local fire departments. The Service's own equipment is mobile and can be deployed as needed from Stillwater, Blairstown, Stokes State Forest and Mount Bethel in Mansfield Township, Warren County. A fire tower is located at Catfish Pond in the Kittatinny Mountains in Pahaquarry.

The Pennsylvania Bureau of Forestry mans three fire towers which oversee the Delaware River Valley -- Big Pocono in Tannersville, and High Knob and Birch Hill in Pike County.

Personnel and equipment stations which service the DWGNRA area are Snow Hill, Edgemere, and Owego.

There is a need for a special communication network which would link all areas of the park with the surrounding emergency services, but would not be the same frequency as local emergency networks. This would require additional park related equipment, not otherwise necessary for local fire department operations.

Emergency helicopter service would also be desirable. This could be a park service capability which would be used for rescue, emergency medical transport to nearby hospitals, and by firefighters for water drops on inaccessible fires. A helicopter for such purposes is also available from the New Jersey Forest Fire Service at Hopatcong.

Summary Conclusions

1. Except in Pike County, distribution of fire houses is currently geographically adequate in this area.

2. Water supply availability is equally critical for adequate fire protection and is presently severely limited in the area.

3. Manpower and fire companies will be able to handle normal building fire emergency increased demands due to TILP-DWGNRA, although recruitment is becoming more difficult, regardless of the project.

4. Individual review on a company by company basis will indicate availability of rough terrain equipment for fighting fires in hilly or mountainous brush and forest fires.

5. Cooperative agreements and specialized equipment sharing with the National Park Service and State Forest Services will allow for thorough regional fire rescue emergency preparedness.

6. State Forest Service capability for discovering, controlling and fighting fires is improved by cooperative presence of DWGNRA personnel and equipment.

7. Although incidence of fire may increase due to increased visitation, discovery and control of fire is improved by presence of more people.

3. Emergency Medical Services

Emergency Medical Services in the context of TILF-DWGNRA impacts can be considered as means of emergency transportation to nearby hospitals via ambulance services and emergency room and hospital bed availability at the end of the ambulance trip.

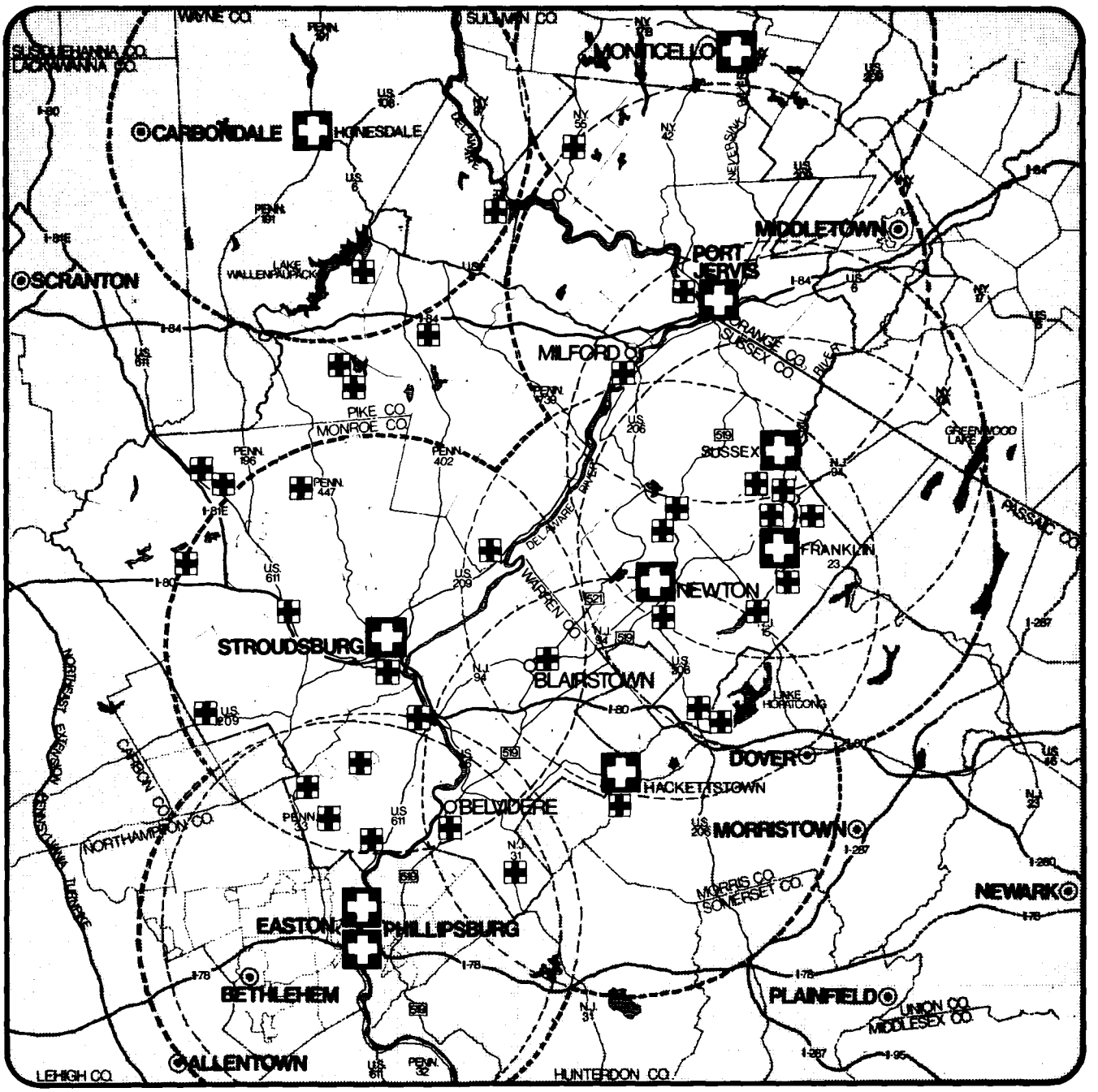
The impact area is covered by 37 ambulance services whose locations are identified in figure 22-13 . The area is served by 9 hospitals with a total capacity of 1124 beds. These locations are also identified on the same map. Existing hospitals and ambulance services by county and municipal jurisdiction are tabulated in Tables 22-110 through 22-116.

Basic requirements for establishment of emergency services were provided by the New York State Bureau of Emergency Health Services.

Table 22-109 Basic Emergency Service Needs

Population Concentration	Service Required
5000-12,000 people	1 emergency health care unit (2 technicians, 1 ambulance)
12,000-25,000	2 emergency health care units 1 physician available on 15-20 minute call.
25,000-50,000	3 emergency health care units Resident physician available
Over 50,000	4 emergency health care units On site physician

Source: Mr. Carmen Mandilla
N.Y. State Dept. of Health
Bureau of Emergency Services



EMERGENCY MEDICAL SERVICES

XXII **13**

LEGEND

- HOSPITAL
- •DOTTED CIRCLE REPRESENTS A·15·MILE RADIUS•
- AMBULANCE SERVICE
- LAND AREA BEYOND ZONE·3·

HOSPITALS

EAST STROUDSBURG	• MONROE COUNTY GENERAL HOSPITAL
EASTON	• EASTON HOSPITAL
FRANKLIN	• FRANKLIN HOSPITAL
HACKETTSTOWN	• HACKETTSTOWN COMMUNITY HOSPITAL
HONESDALE	• WAYNE MEMORIAL HOSPITAL
MONTICELLO	• SULLIVAN COUNTY HOSPITAL
NEWTON	• NEWTON MEMORIAL HOSPITAL
PHILLIPSBURG	• WARREN HOSPITAL
PORT JERVIS	• ST. FRANCIS HOSPITAL
	• DOCTOR'S SUNNYSIDE HOSPITAL
SUSSEX	• ALEXANDER LINN HOSPITAL

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT

Table 22-110 Emergency Medical Services Sussex County Zones 1-3

Municipality	Impact Zone	Hospital	Number of Beds	Emergency Ambulance Service	Location
Hampton	1			--	
Montague	1			--	
Sandyston	1			--	
Stillwater	1			--	
Walpack	1			--	
Branchville	2			X	Blue Ridge Rescue
Frankford	2			X	Sussex Co. Dept. of C.D. and Disaster Cont.
Fredon	2			--	
Newton	2	Newton Memorial	148	X	Newton Vol. 1st Aid & Rescue
Sussex Boro	2	Alex Linn Hosp.	129	X	Sussex Fire Dept. 1st Aid Sq.
Wantage	2			--	
Andover	3			--	
Andover Twnp.	3			--	
Byram	3			X	Lakeland Emergency
Franklin	3	Franklin Hosp.	35	X	Wallkill Valley 1st Aid Sq.
Hamburg	3			X	Hamburg 1st Aid Sq.
Hardyston	3			X	Hardyston 1st Aid Sq.
Lafayette	3			--	
Ogdensburg	3			X	Ogdensburg 1st Aid Sq.
Sparta	3			X	Sparta Ambulance Service
Stanhope	3			X	Amer. Legion Amb. Corps.

Source: Overall Economic Development Program
Sussex County Dept. of Planning, 1974

Table 22-111 Emergency Medical Services Warren County Zones 1-3

Municipality	Impact Zone	Hospital	Number of Beds	Emergency Ambulance Service	Location
Blairstown	1			X	
Hardwick	1			--	
Knowlton	1			--	
Pahaquarry	1			--	
Frelinghuysen	2			--	
Hope	2			--	
Hackettstown	3	Hackettstown Comm. Hosp.	106	X	
Independence	3			--	
Oxford	3			--	
Liberty	3			--	
Washington Boro	3			X	
Washington Twnp	3			--	Covered by Boro
White	3			--	
Belvidere	4			X	
Philipsburg	4	Warren Hospital	241		

Source: Warren County Data Book, 1973

Table 22-112 Emergency Medical Services Northampton County Zones 1-3

Municipality	Impact Zone	Hospital (1)	Number of Beds	Emergency Ambulance Service	Location
Upper Mt. Bethel	1			-	
Portland	1			X	
Lower Mr. Bethel	2			X	Martin's Creek
Bangor	3			X	
East Bangor	3			-	
Pen Argyl	3			-	
Plainfield	3			X	
Roseto	3				
Washington	3				
Windgap	3			X	
Easton	4	Easton Hosp.	315		

Notes:

None, Use East Stroudsburg or Easton

Source: Blue Mountain Control Wind Gap -- Telcon

Table 22-113 Emergency Medical Services Monroe County Zones 1-3

Municipality	Impact Zone	Hospital	Number of Beds	Emergency Ambulance Service	Location
Delaware Water Gap	1				
East Stroudsburg	1	County Hosp.	235	X	Hosp. Service
Middle Smithfield	1			X	Bushkill
Smithfield	1			-	
Stroud	1			-	
Stroudsburg	1			-	
Hamilton	2			-	
Paradise	2			-	
Pocono	2			X	Cent. Pocono Amb. Assoc., Tannersville
Price	2			-	
Barrett	3			X	Barrett Twnp. Vol. Corps Mountainhome
Chestnut Hill	3			X	West End Ambulance Assoc. Effort
Coolbaugh	3			2	Coolbaugh Twnp Amb. Serv Tobyhanna Army Depot
Jackson	3			-	
Mt. Pocono	3			-	
Tobyhanna	3			X	Tobyhanna Twnp Vol. Amb. Assoc. Pocono Pines
Tunkhannock	3			-	

Source: Monroe County Commissioner, 1975

Table 22-114 Emergency Medical Services Pike County Zones 1-3

Municipality	Impact Zone	Hospital (1)	Number of Beds	Emergency Ambulance Service	Location
Delaware	1				
Dingman	1				
Lehman	1			X	Bushkill
Matamoras	1				
Milford Boro	1			X	Milford Fire Dept. Ambulance Service
Milford Twsp.	1				
Westfall	1				
Blooming Grove	2			X	Hemlock Farms Volunteer Fire and Ambulance Co. Hawley, Pa.
Greene	3			2	Promised Land Ambulance Service, Promised Land Communic. Vol. Amb. (Private)
Palmyra	3			X	Tafton Fire Co.
Porter	3				
Shohola	3				

Notes:

(1) None, use Port Jervis and Wayne Memorial, Honesdale.

Source: -Emergency Medical Services Comprehensive Plan - Lackawanna, Luzerne, Pike, Wayne and Wyoming Counties, EMS Committee, Health and Hospital Planning Council of Northeast Pennsylvania, 1974.

Table 22-115 Emergency Medical Services Sullivan County Zones 1-3

Municipality	Impact Zone	Hospital	Number of Beds	Emergency Ambulance Service	Location
Forestburg	3			--	
Highland	3			X	Eldred
Lumberland	3			--	

Notes:

(1) None, use Callicoon, Liberty and Monticello

Source: Sullivan County Data Book, 1973

Table 22-116 Emergency Medical Services Orange County Zones 1-3

Municipality	Impact Zone	Hospital	Number of Beds	Emergency Ambulance Service	Location
Port Jervis	1	Doctors Sunnyside St. Francis	 48 108	X	Port Jervis Lion's Volunteer Ambulance Corps. Church St., P.J.
Deer Park	2			X	Sparrowbush (F.D.)
Greenville	2			-	
Minisink	3			X	Western Orange Co. Vol. Ambulance Corps. 299 Wawayanda Ave., Middleton
Unionville					

Source: Orange County Data Book, 1974

Population concentrations are one part of the determining criteria. The other, similar to police and fire services, is minimization of time elapsed in response to demand and in this case, travel time to nearest hospital. This should be no more than 15 to 20 minutes. Consequently, figure 22-13 shows 15 mile radius circles around each hospital (approximate equivalent to a 20 minute trip).

As with fire coverage, the area is well served by hospitals and all areas fall within the 15 mile radii of the hospitals, with the exception of mid-Pike County. There are no hospitals in that county and the low population density does not presently demand a new facility. The consequence, however, is a somewhat longer trip to Monroe County General Hospital in East Stroudsburg, Honesdale in Wayne County, or St. Francis Hospital in Port Jervis, New York.

Ambulance availability is better distributed throughout the whole impact area. No population concentrations exceed the lower category for provision of 1 emergency health care unit. In fact, several of the services maintain more than 1 ambulance.

Ambulance Capability

According to the Emergency Medical Services Comprehensive Plan, prepared for Lackawanna, Luzerne, Pike, Wayne and Wyoming counties by the Emergency Medical Services Committee of the Health and Hospital Planning Council of Northeastern Pennsylvania, a generally accepted relationship is one emergency call per day per 10,000 population.

Summarizing the Zones 1-3 municipalities in each of the seven counties, the

following table gives the total number of ambulance services, the 1970 population, the average number of people per service and the anticipated daily call rate.

Table 22-117 Existing Ambulance Service in Relation to Population

	Amb. Services	1970 Pop.	Av. # Persons per Service	Daily Call Rate
Northampton	5	27617	5523	2.8
Monroe	7	42150	6021	4.2
Pike	6	10455	1743	1.0
Sullivan	1	2708	2708	0.2
Orange	3	16759	5586	1.7
Sussex	11	61074	5552	6.1
Warren	4	35799	8950	3.6

It is apparent that under present circumstances there is adequate ambulance coverage in the region.

In relation to development of the DWGNRA, nine of the existing ambulance services are strategically located on the perimeter of the park. These are as follows: Portland, East Stroudsburg, Bushkill, Milford, Port Jervis, Blue Ridge Rescue in Branchville, Sussex County Dept. of Civil Defense and Disaster Control in Frankford and Blairstown. All are in Zone 1 except Branchville and Frankford in Zone 2.

The National Park Service will provide complete first aid treatment with each development area equipped with a first aid station. All park personnel will

be required to have American Red Cross or equivalent first aid certification. However, the Park Service intends to rely on the available local ambulance services to provide emergency transport for all needs beyond the capability of the first aid units.

The state of the art in Emergency Medical Services planning is such that clear evaluative standards are not readily available. From the following table, projected population with and without TILP are indicated with the potential number of ambulance calls estimated at one per 10,000. This number may be low for the park visitation, which has been included. The rate of accidents is generally higher in a park visitation category than it would be for a standard resident population.

Table 22-118 Zone 1 Municipalities - Average Emergency Ambulance Calls/Day Without TILP

	Population (permanent)	Anticipated Calls
1970	55487	5.5
1985	73636	7.4
2005	102790	10.3

Zone 1 Municipalities -- Average Emergency Ambulance Calls/Day With TILP

	Population (includes induced growth & peak summer Sunday visitation)	Anticipated Calls
1985 Phase I	133907	13.4
2005 Post Phase III	265546	26.6

Without DWGNRA, by 2005, an average of 10.3 calls per day for 9 volunteer ambulance services could mean at least one call for each company and more for some. With DWGNRA, this demand rises to about 3 calls for each of the ambulance companies. This burden may have to be spread over a greater number of emergency health care units. This could be accomplished by calls beyond Zone 1 to others of the 37 units within the three zones. It is also eased by more than one vehicle per company, provided sufficient manpower is available. The demand with TILP is also tabulated for peak summer Sundays, which means that taken throughout the week and over the year, the burden is not as great.

If, over time, existing services become inadequate, additional units will be required. The National Park Service is prepared to assist and cooperate as needed to see that adequate transportation to hospitals will be provided. They will have medically trained technicians available and will have station wagon vehicles which could supplement state approved out-of-park ambulances when necessary.

The cost of providing the ambulance services varies from group to group. Some are purely volunteer and operate as part of, or the same way as the volunteer fire departments. For these groups, payment is not required, and they are supported by donations. Other services do have local subscribers and payment fee schedules for non-residents. It would be appropriate for all ambulance services used by the NPS to establish a service charge schedule charged to all non-resident users of the service.

Hospital Service

The National Park Service has provided some comparative statistics for

hospital visitations from several existing National Park Facilities in 1974.

Table 22-119 **Hospital Visitations at Selected Existing National Park Facilities in 1974**

Facility	Annual Visitation	Local Hospital Units
Cape Cod National Seashore (Massachusetts)	4,322,000	15 motorcycle accidents 20 bicycle accidents 5 other type injuries 40 first aid (of 186 treated at beaches) 80 Total
Shenandoah National Park (Virginia)	2,384,000	90
Acadia National Park (Maine)	2,794,000	15

Source : National Park Service
Mid-Atlantic Region, Philadelphia

Of the area hospitals, Alexander Linn in Sussex and Hackettstown Community are new facilities. Both have eased the loads on older hospitals in the area. Newton Hospital, currently operating at 90% bed capacity, is planning for expansion. Franklin is also operating at 90% capacity, Alexander Linn at 33%, Hackettstown at 70-80%. Monroe County could add 40 beds easily if needed.

Hospital use will be largely in emergency room situations, with some bed use for serious park and traffic accidents.

For out patient services, the hospitals are will equipped and staffed. Newton hospital's emergency room presently operates below capacity. St. Francis Hospital in Port Jervis and Monroe County General Hospital in East Stroudsburg have both anticipated DWGNRA in their future planning and have emergency room capability either existing or under construction to accomodate the expected park related increased demand.

Hospitals in the region already experience seasonal fluctuations. During June, July, and August, Monroe General experiences peak loads of as many as 200 out patients per day.

During normal seasons, the emergency room has one physician on duty 24 hours per day; on weekends, 2 physicians are on duty; during the summer, 2 physicians are assigned to the emergency room and 3 are used at peak periods. The hospital is able to supplement its normal staff from area private medical practices as needed.

The following tabulation of emergency department visits to St. Francis Hospital, spread over the year, clearly illustrates the summer peaking:

Table 22-120 Emergency Department Statistics, St. Francis Hospital Port Jervis, 1974

Month	Number of Visits
January	820
February	743
March	915
April	925
May	1103
June	1215
July	1976
August	1728
September	985
October	920
November	874
December	734
Total	12,938

Total emergency department visits -- 1972: 10,403

Total emergency department visits -- 1973: 12,242

Source: Sister Mary Jeanne, R.S.M., Administrator
St. Francis Hospital of Port Jervis

Hospital emergency rooms usually run at a deficit, even though Blue-Cross-Blue Shield pays for patients having medical coverage. Transient patients often leave the hospital with bad debts which are difficult to collect. This situation would probably be aggravated with DWGNRA.

Summary Conclusions

1. NPS will provide complete first aid service in the park.
2. The surrounding area is presently well serviced by ambulance facilities.
3. Nine such facilities are on the perimeter of the National Recreation Area and will be expected to provide emergency ambulance service for NRA accidents since NPS does not anticipate providing its own ambulances.
4. Local ambulance services should establish fee schedules for use of their services by non-residents if they are expected to be readily available for use by DWGNRA visitors.
5. These may not be sufficient to provide adequate transportation by Phase III.
6. Hospital beds and emergency room services in the area appear adequate to handle TILP/DWGNRA loads and some have already made development plans accordingly.

4. Highway Maintenance and Traffic Control

Development of the major recreational area in connection with TILP will increase traffic on the road network surrounding the area. This traffic increase will result in additional costs for highway maintenance and traffic control measures by the various governmental jurisdictions. The states maintain Interstate Highways and State Highways, the counties maintain the roads, and incorporated villages and townships take care of all other roads within their boundaries.

Highway maintenance includes work that would be required to preserve the condition of the highway pavement, shoulders, curbs, drainage structures, bridges, grass slopes, landscaping, right-of-way fencing, associated traffic control devices such as signs, painted traffic lines, traffic lights, traffic control equipment, also protective devices such as guide rails and reflective delineators, as well as items related to vehicular movement such as snow removal, salting icy pavements, sanding slippery pavements, and litter collection and removal.

An assessment of the effect of increased traffic volumes on the major elements involved in maintenance costs has been tabulated in Table 22-121 .

Table22-121 Impact of Increased Traffic on Costs of Maintenance

Maintenance Item	Jurisdiction		
	State	County	Township or Village
Traffic Signs	M-2	M-2	S-1
Guide Rails	I-3	M-2	S-1
Painted Lines	M-2	I-3	M-2
Reflective Delineators	I-3	M-2	-
Pavement Elements	M-2	M-2	I-3
Litter Removal	M-2	M-2	S-1
Bridge Structures	S-1	S-1	-
Drainage Structures	-	-	-
Lighting	M-2	M-2	S-1
Traffic Lights	-	-	-
Grassed Areas	S-1	S-1	-
Trees and Shrubs	S-1	S-1	-
Fencing	-	-	-
Snow Removal	-	-	-
Salting-Sanding	-	-	-
	19	18	9 Totals

Legend:

		Wt.
-	No Impact	- 0
S	Slight Impact	- 1
M	Moderate Impact	- 2
I	Important Impact	- 3

Maintenance costs are generally accounted for under three major classifications:

Personnel and supporting organization costs

Equipment costs

Material costs

It should be noted that maintenance expenditures by a governmental unit in a given year in terms of a budgeted amount is not a true cost of annual care of the highway network. The costs of payroll control, accounting, personnel management, etc. which are provided as part of overall government

operations must be added to this amount. These are significant and should be apportioned in determining annual maintenance costs as opposed to the usually identified expenditures.

There is little useable data available to relate maintenance cost increases to increases in traffic volumes. The lane-miles of roadway, type of pavement, underlying soil conditions, and character of traffic, (trucks versus passenger car, and stop and go versus continuous flow) are more significant parameters of total maintenance cost.

To establish order of magnitudes of maintenance costs, it should be noted that the average cost of maintaining state highways in New Jersey, related to lane-miles of road is:

	Per Lane Mile
Salaries	$1,500
Materials	300
Equipment	170
Total	$2,000

From the tabulation one may infer the relative distribution of cost increases due to traffic increases.

In this discussion, capital investments, interest costs and amortization costs of new traffic control devices or measures required by a traffic increase are excluded as a maintenance item consideration.

The following factors should be considered in assessing relative importance of the various maintenance items:

Traffic Signs - Upkeep of traffic signs would be increased by higher traffic volumes, since the statistical probability of their being struck and damaged by errant vehicles would be increased. Through townships or villages, travel speeds are likely to be lower than on State and County roads and signs fewer, so that impact of vehicle impacts would be less.

Guide Railings - Costs of repairing guide railings are clearly related in large measure to traffic volumes, since railings are usually installed in long sections, and often at locations where collisions are likely to occur. Since State roads and Interstate Highways which are maintained by the State have most of the existing guide railings, the increment of cost due to more traffic would be relatively important. By analagous reasoning the costs would be somewhat less for County Roads and least for the small local governmental units.

Painted Lines - Line painting for traffic control involves small material costs but because of rapid deterioration under traffic, large personnel costs are involved. Traffic increases have a direct effect on maintenance costs. The relative distribution of cost shown is based on the fact that county roads have extensive lengths of painted lines, as do State roads; however, the Interstate Highways under State jurisdiction make lesser use of these lines. Local jurisdictions have lesser lengths of roads and hence lesser costs for repainting.

Pavement Elements - The pavement elements, such as curbing, shoulder surfacing and roadway pavement are subject to traffic induced deterioration. Aside from heavy and repeated truck loads, which would not be a significant element of the TILP/DWGNRA induced traffic after the construction phase, major causes of pavement deterioration are freezing and thawing effects of weather, and the damage caused by snow plow operations and salting of icy pavements. State roads are invariably constructed with heavy duty pavements and are designed for high volume traffic loads. The effect of increased traffic would therefore be slight. County roads are generally designed to a lesser strength requirement and would experience moderate effects of wear. Local Village and Townships roads would be more seriously affected since they are generally designed for lesser traffic loads and are of lighter construction with less attention given to sub-base conditions.

Litter Removal - Additional vehicles correlate with additional roadside litter. On a per mile basis there should be no difference between the effect of the cost increments on the three jurisdictions and collection effort would be proportional to the miles of roadway maintained. Actual increases in expenditures for litter removal would depend on the efficiency with which present collections are carried out. It is quite possible that if the present operation is less than 100% efficient no added personnel costs or equipment would be required to maintian the present level of service even though a greater quantity of waste is collected.

Bridge Structures - Increased traffic over bridges could result in some additional repairs to railings caused by vehicular impact. This should be a relatively rare occurrence. Any cost increases associated with such incidents would affect mainly State and County jurisdictions. Very few bridges are owned and maintained by township and village units, and these would be on minor roads which would not be significantly affected by TILP/DWGNRA traffic.

Lighting - Lighting standards on State highways would experience some added damage due to an increase in vehicle flows. This should occur on county and village roads to a lesser extent because of fewer light poles and generally lower vehicle operating speeds.

Grassed Areas - Trees - Shrubs - Normal maintenance of State, County and Township or Village roadside growth is limited to cutting of weeds and pruning or removal of dangerous overhanging tree limbs or removal of dead trees which could fall within the road right-of-way. Traffic increases would not affect these costs. On the State maintained Interstate Highways the planted and landscaped areas require a higher level of maintenance. It is possible to project a slight increase in costs to the State due to additional disabled vehicles on grassed areas, and shrub damage due to exhaust fumes or vehicles which run off the road.

Drainage Structures and Fencing - These items of maintenance should be unaffected by the traffic increase due to TILP/DWGNRA.

Snow Removal - Salting - Sanding - The TILP/DWGNRA generated traffic would occur mainly on spring, summer, and fall weekends. Snow removal, salting and sanding is required to keep roads passable and safe under winter conditions. These costs are therefore unaffected by increased traffic volumes, unless major winter recreation programs are developed.

Apportionment of Maintenance Cost Increases

From the numerical weights in Table 22-121 a distribution of increased maintenance costs may be inferred. On a per lane mile of road basis, state and county jurisdiction levels would each expend 40% of the maintenance cost increase and the local jurisdictions such as townships and villages would expend the remaining 20%. The actual expenditures in dollars would therefore be greatest for the state, which has the greatest number of lane-miles of roadway which will be used by TILP/DWGNRA traffic and the least total amount by the small villages and townships. Expressed as a percentage or share of a government unit's total budget, however, the impact on small jurisdictions may be most significant.

Order of Magnitude Increases

Using the New Jersey D.O.T. figure of $2,000 per lane-mile per year as a guide, and noting that major cost elements such as snow removal, salting and sanding, landscaping, fencing and bridge and drainage structure maintenance are practically unaffected by TILP/DWGNRA traffic increases, an increase in highway related maintenance costs of 5%, or $100 per lane-mile, is estimated as being attributable to TILP/DWGNRA generated traffic.

NPS Policy

At the present time the NPS has equipment rental agreements with the townships of Walpack and Sandyston for maintenance of roads in the park area. They would like to continue this policy with other municipalities wherever possible.

XXII.C.4(a)(1) Institutional Considerations Regarding Public Services

Institutional considerations of TILP/DWGNRA include the roles and linkages between the project and governments and governmental agencies. In this section the institutional considerations discussed will place special emphasis on municipal and county governments and their agencies. The roles that these institutions can play in any impact accommodation strategies will be emphasized. Accommodation strategies are keyed to responses on the part of governmental decision makers to issues associated with the provision of services by TILP/DWGNRA within the study area.

Institutional Issues (Impact on Provision of Public Services of Seasonal Homes and Tourism) Additional public services will be required to meet increased demand as a result of seasonal homes and tourism. Service areas which will require improvements and expansion are in the following areas: roads, schools, police, fire, and health. Elected officials in Pike and Monroe counties, Pennsylvania, have reported heavy service demand from seasonal homeowners within their jurisdictions. Many seasonal homeowners use their homes year round. Elected officials have stated that seasonal homeowners frequently expect comparable services to those which they received at their permanent urban residence. Rural local governments often find that it is difficult if not impossible to provide urban services to seasonal homeowners.

County officials in Warren and Sussex counties, New Jersey, and Monroe and Pike counties, Pennsylvania, are concerned for the seasonal homeowner impact mainly in the functional areas of roads and public safety. Current county roads are barely adequate to accommodate current traffic loads, and additional visitors will create even more traffic and potential public safety hazards. It is also thought that the increase in visitors will bring more criminal activity into the area and thus the need for more police protection.

(Impact of Tourism on the State Provision of Public Services) The states provide assistance for public services within local jurisdictions in a variety of areas, including funds for highways and public schools. Special state appropriations have already been sought by local governments impacted thus far by Tocks Island, and should Tocks Island be implemented increased state funds may be sought. Without these funds, local jurisdictions would have to fall back on their resources, which would limit the quality and extent of public services offered.

(Reduction of Real Property Tax Base Resulting from Public Acquisition of Lands for TILP) Townships and boroughs within Warren and Sussex counties, New Jersey and Pike and Monroe counties, Pennsylvania have lost valuable

land to the Tocks Island Lake Project. In instances where as much as one-third or one-half of a township's land had been acquired by the Corps of Engineers, the losses of tax base have been severe with the result that some areas have received state financial aid. The future of these townships as political entities is unclear. Other jurisdictions, which have lost ten percent or less of their land, are expecting increased land values (resulting from their proximity to the National Recreation Area) to cover temporarily sustained tax losses. Tax base issues are discussed in more detail in Section C.2.(i) in this chapter.

High per Unit Cost of Locally Provided Public Services if Remaining Privately Owned Parcels are Scattered) High per unit costs are associated with the provision of public services to privately owned scattered developments. It is a matter of development economics that economies can be achieved in the provision of public services if developments are concentrated in one geographical area. Increased costs associated with provision of services for scattered development include the areas of transportation (vehicles, as well as construction and maintenance of roads); personnel (for areas such as solid waste collection, fire and police protection); and capital expenditures (school construction, for example).

Local residents would also experience higher per unit costs for services if in the future local jurisdictions decided to install public services which are currently being provided to residents of private developments. In the case of water and sewer systems two factors would make future connections of private water and sewer systems with centralized systems unlikely: (1) inasmuch as development sites are scattered, public systems may not extend the required distance or public systems may have to bypass private systems when for one reason or another the jurisdiction elects not to purchase the private system; and (2) because private systems are planned for site-specific development projects and would not necessarily lend themselves to connection with other systems. Because of the existence of these private systems, the per unit cost of future public systems to serve the remaining jurisdiction's population could be prohibitive.

(Definition of "Eligible Project Costs" Preventing Federal Participation in Capital Improvement Costs Beyond Project Boundaries) The definition of "eligible project costs" prevents the Federal Government from participation in most capital improvement costs beyond project boundaries. This definition does not include important "secondary" cost impacts -- roads, water supply, sewage treatment, police, fire, ambulance, and health services -- which are sometimes provided by local governments with some assistance from state governments. The result is that the incidence of costs representing adverse impacts to surrounding jurisdictions is not shared in an equitable manner.

XXII.C.4(b) Utilities

XXII.C.4.(b)(1) Water Supply

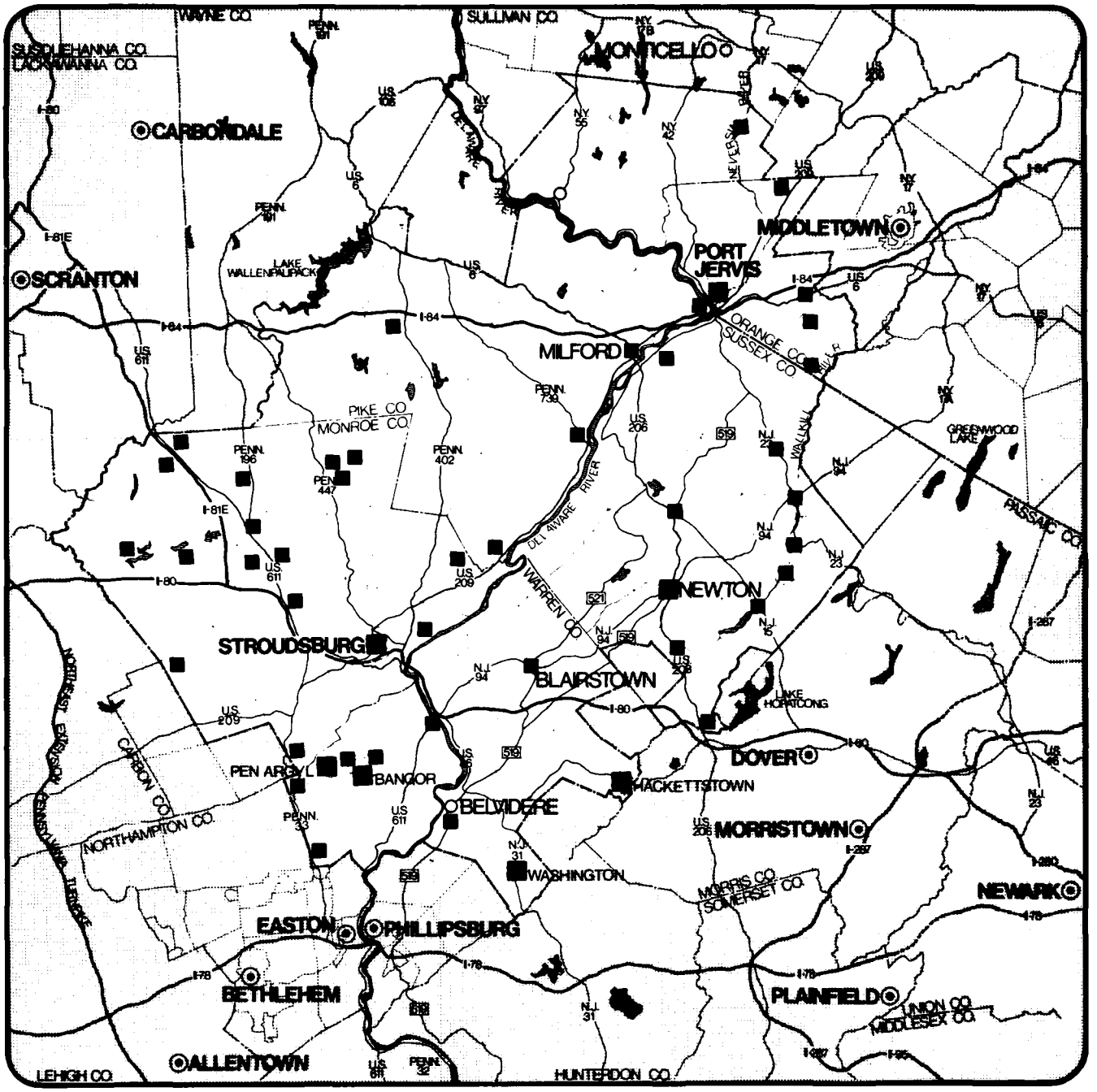
The seven county region is well endowed with water resources in flowing streams and ground water supplies. These resources are adequate to meet projected demands for the next 50 years provided they are properly managed and are not impaired by improper disposal of liquid and solid wastes. These conclusions were reached by Roy Weston in the 1970 TIRES Study for the DRBC and are reflected, as well, in the planning studies for some of the specific county areas.

Water supply in the area today is provided from some surface reservoirs, supplying primarily the largest population concentrations in Port Jervis, the Stroudsburgs and Newton, and from many underground sources. Much of the area's water supply comes from private individual wells. Some is supplied by a series of small water companies, institutional facilities or by systems developed in conjunction with private subdivision construction.

If any pattern can be established, central water systems will be found not suprisingly in the larger population concentrations and in most of the political subdivisions which are boroughs or incorporated villages (whose land areas are limited).

Tables 22-123through 22-129 describe the existing water supply systems within the three impact zones of the seven county area and these are located in Figure 22-14 .

As population grows, demand for water supply in the region will grow with it. The problems created in meeting this demand will be those of development of



0 4 8 12
SCALE IN MILES

N

EXISTING WATER SYSTEMS

XXII **14**

LEGEND

WATER SUPPLY SYSTEM WITH CAPACITY OVER .1 MGD
WATER SUPPLY SYSTEM WITH CAPACITY UNDER .1 MGD
LAND AREA BEYOND ZONE .3.

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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delivery systems, not of water supply itself.

The costs associated with ground water development ... can be expected to range from one tenth to one half those associated with surface water development. The high costs of land acquisition, reservoir construction, control of the watershed and filtration and treatment of surface water are eliminated"[1] Therefore, initial expansion of existing systems and development of new ones will utilize ground water wherever possible.

Interjurisdictional cooperation is advisable in planning and development of water resources. In many cases, existing systems have the capacity to accommodate their own projected needs as well as expansion beyond political boundaries. The larger systems of Port Jervis, the Stroudsburgs and Newton have the potential, according to the TIRES Study, for "consideration as regional facilities".[2]

Planning for the future has already been undertaken in much of the region. In Northampton County, the plans are indicated and described on a map prepared by the Lehigh-Northampton Joint Planning Commission in 1970 and in a document updating the information to 1974.[3] The existing water systems presently limited almost exclusively to the Boroughs (Portland, Bangor, East Bangor, PenArgyl,Roseto and Windgap) are scheduled for extension into certain areas of the surrounding townships, following population concentrations along principal local highways.

The plans for Monroe County are developed in the already cited report by Moody & Hess and include one new reservoir on McMichaels Creek and 128 new

Note: Sources will be found on Page XXII-333.

wells. Concentration of development and hence water needs follows roughly a "T" pattern along Route 209 from Brodheadsville in the southwest to Bushkill at the Pike County border and from Stroudsburg to Mt. Pocono on U.S. 611.

In Orange County, the Port Jervis system has capacity for expansion but only minor systems presently exist in the surrounding townships. Based on the county's present plans, the projected populations in those townships as well as topographic and geological constraints do not indicate sufficient levels of development to warrant planning of central water systems.

The "Comprehensive Water Supply Study" for Sullivan County[4] foresees a major county water system developing along the Route 17 population axis. In the Tocks Island impact region townships, however, only Merriwold in Forestburg has an existing system which is proposed for expansion. By 1990 this study also proposed separate systems be developed for the centers of Eldred and Barryville in the township of Highland. These systems would include 200,000 gallon elevated storage tanks, 2,500 and 4,000 l.f. of transmission lines respectively, and a capacity to meet the 0.22 MGD demand. They were estimated in 1969 to cost $178,000 and $232,500.

The effects of the Tocks Island Lake Project on the water supply situation are mostly beneficial. Purely on the basis of available water, the dam and lake will increase the ground and surface water potential. Using water from the lake will be a matter of allocation by permit from the DRBC and construction of necessary transmission capability by the intended users. Use of this source would only become necessary if area ground water sources were insufficient. In the Monroe County study it is indicated that

"significant cost advantages could accrue to Monroe County by using the Delaware River for water supply to meet demands in the area of Delaware Water Gap, East Stroudsburg, and Stroudsburg if the proposed Tocks Island Reservoir is completed".[5]

The TIRES Study found ground water sources lacking in the Route 209 corridor through the Smithfields and the Stroudsburgs and proposed a water main in that area directly from the Tocks Island Lake.[6]

Most of the water supply development that is implied or proposed in all these studies will be required as a result of normal growth patterns. Some of the proposed system extensions are shown in Figure 22-15. Plans were not available for Pike, Sussex, and Warren Counties.

The daily visitors ranging from 46,673 a day in Phase I to 126,485 a day in Phase III, will have most of their water supply needs cared for in the park. The National Park Service is planning to provide its own wells and the TIRES Study confirmed that "in every case there appeared to be sufficient capability to supply the entire requirements from ground water sources." [7]

In Table 22-18 the percentage of overnight visitors is indicated as 40% of the annual total in Phase I and about 42% in Phase III. To indicate the impact of the overnight visitors on the peak summer daily demand, a percentage of the peak daily visitors needs to be employed. The 40% figure derived for annual visitations assumes a more even spread through the week of overnight visitors. 25% will be used to establish the summer Saturday night load. As the table indicates, some of those overnight visitors will be using park camp facilities and their water needs have already been accounted for. Those

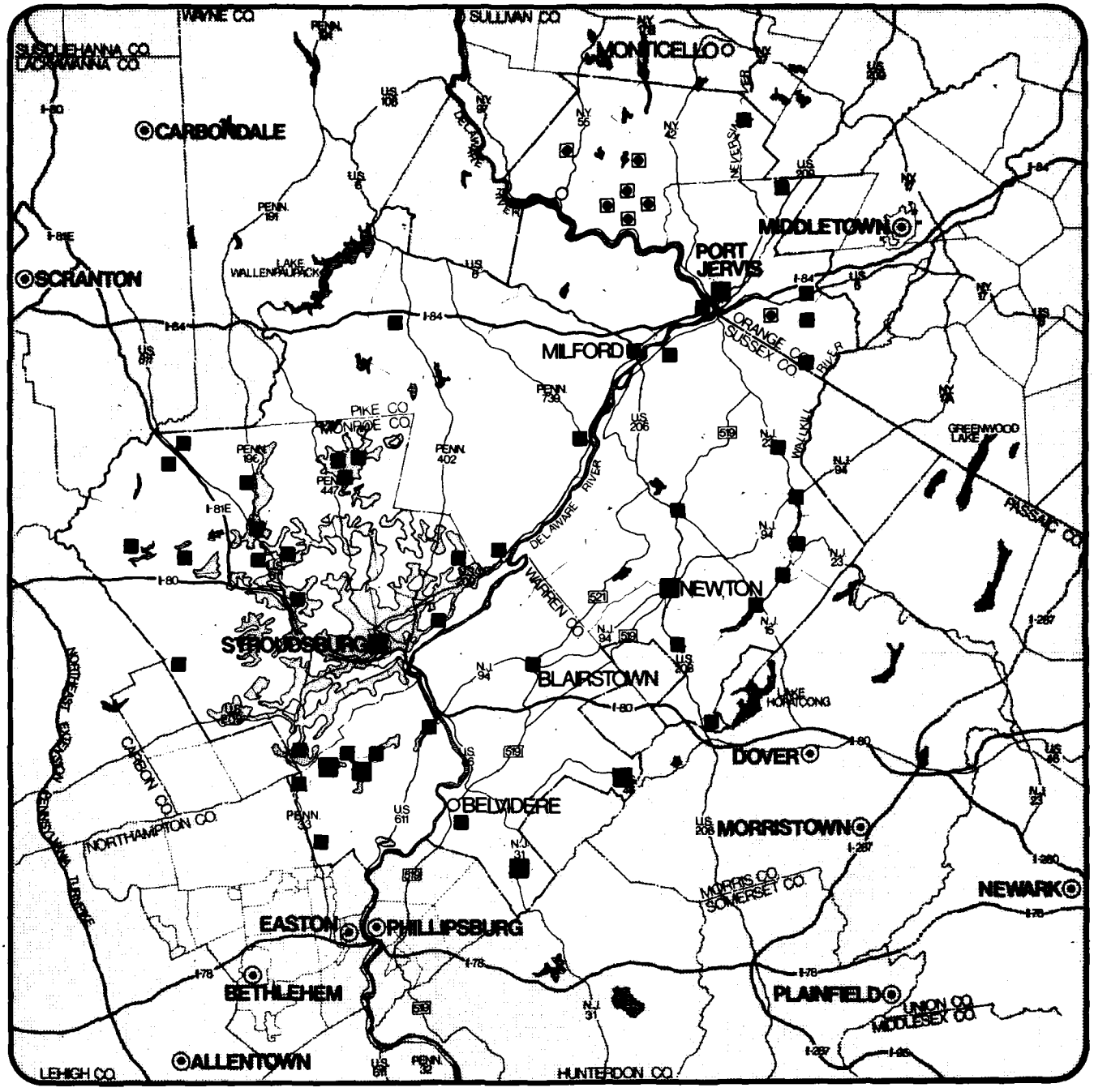
staying with friends or relatives will be accommodated by existing homes with existing water facilities. Therefore, overnight visitors directly related to TILP-DWGNRA imposing additional demand on outside the park water supply will be those staying in hotel/motels and outside the park camping. These are outlined below in Table 22-122 and are derived by percentages of total overnight person nights from Table 22-18.

Table 22-122 Peak Overnight TILP/DWGNRA Related Visitor Load on Outside The Park Water Supply

	Phase I	Phase III
Total Daily Visitors	58,341	158,106
Overnight (@25%)	14,585	39,526
Hotel/Motel	8,197	18,498
Camping Outside Park	1,867	-
Total Load (Persons)	10,064	18,498

The majority of the overnight visitors are likely to seek lodgings in the Zone 1 areas surrounding the upper and lower ends of the DWGNRA, as previously outlined in section XXII.C.2. Where these are full, the demand will spread into accommodations in Zones 2 and 3 and existing facilities beyond.

These additional 10,064 to 18,498 overnight visitors combined with the expected induced growth of an additional 5,890 to 18,110 permanent residents to the region will create an additional water demand for a combined 16,000 to 36,600 people. This demand spread over the seven county area would be approximately 5 MGD during the summer period by Phase III and represents the TILP-DWGNRA surcharge above that otherwise needed without the project.



0 4 8 12
SCALE IN MILES

N

PROPOSED EXTENSION OF WATER SYSTEMS

XXII 15

LEGEND

- PREVIOUSLY EXISTING WATER SUPPLY SYSTEMS — REFER TO FIGURE XXII 14
- PROPOSED NEW WATER SUPPLY SYSTEMS
- EXPANSION OF EXISTING WATER SUPPLY SYSTEMS
- LAND AREA BEYOND ZONE 3

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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As a general rule, as already noted, the utilization of ground water for water supply is the most economical method for individual residential, commercial or relatively small localized systems. Since this population will be fairly well dispersed throughout the area, a small part of these water supply systems will be self supplied by wells. The major portion of the water requirements will be met by public or privately owned water supply systems from expanded ground water development, as the estimated ground water yield is more than adequate for the increased summer water demand. It may be necessary, however, to transfer a portion of the surplus water supply from one area to another, or to utilize surface water from Tocks Island reservoir.

The development of well fields will require power transmission lines for pumping, and water transmission lines. These power and water transmission lines are a major capital cost item. Power transmission cost are about $105,000 per mile and water transmission would cost $180,000 per mile. Therefore, depending upon the distance from the well field and the users, it may be more economical to install an intake and pumping station with treatment facilities, and use Tocks Island reservoir water supply. An example of this economics is shown in the TIRES Study for Bushkill. The total annual costs for well fields and transmission were about $75,000 more than the reservoir withdrawal and treatment costs, or $352,078 per year and $278,000 respectively. This was for a 4.6 MGD supply.

Table 22-123 Existing Water Supply Systems - Sussex County Zones 1-3

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Hampton	1								
Montague	1	Holiday Lakes							
Sandyston	1	Kittatinny Lake Club Inc.	wells	Priv.		0.05	500	0.50	
Stillwater	1	Paulinskill Lake		Priv.					
Walpack	1								
Branchville	2	Branchville Water Dept.	dry brook well	Pub.	0.115	-	1,000	0.06	
Frankford	2								
Fredon	2								ind. wells inadequate to fair
Newton	2	Newton Water Dept.	Lake Morris	Pub.	1.25		7,700	1.20	
Sussex Boro	2	Sussex Water Dept.	Surf.	Pub.					does not want to extend into Wantage - limited capacity
Wantage	2	Baldwin Simmon Lake	wells	Priv.					
Andover	3	Andover Boro Water Dept. Newton W.D.	Und.	Pub.		0.005	120	0.01	

Table 22-123 Existing Water Supply Systems - Sussex County Zones 1-3 (Continued)

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Andover Twnshp.	3	Newton W.D.							
		Lake Iliff	Springs			0.008	100	0.011	
		Lenape W.C.	well		0.30	0.10	900	0.075	
Byram	3	Lake Mohawk Sparta W.C.	Und.& Surf.	Priv.	0.80	2.23	8,000	0.50	
Franklin	3	Franklin Boro Water Dept.	Surf.	Pub.					
Hamburg	3	Hamburg Water Dept.	Und.	Pub.					
Hardyston	3	Lake Stockholm Club	Und.	Priv.					
		Sparta Mt. Water	Und.& Surf.	Priv.		0.140	1,700	0.106	
		Lake Tamarack	Und.	Priv.					
Lafayette	3	Newton W.D.							
Ogdensburg	3	Ogdensburg W.D.	Und.	Pub.					
Sparta	3	Newton W.D. Lake Mohawk-Sparta Sparta Mt. Water Sparta Twp. W.C.	Und.& Surf.	Pub.			400	0.03	
Stanhope	3	Stanhope W.D.	Und.	Pub.					

(Sources: TIRES Study, April, 1970; N.J. Division of State & Regional Planning, 1968)

Table 22-124 Existing Water Supply Systems - Warren County Zones 1-3

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Blairstown	1	Blair Academy	Und. (2 wells)	Priv.	0.50		1,000	0.085	3 acre zoning due to water and sewer
Hardwick	1	No Public							
Knowlton	1	Mountain View Utility		Priv.					
Pahaquarry	1								
Frelinghuysen	2	No Public							
Hope	2	No Public							well supplies uneven growth constraint
Hackettstown	3	Hackettstown M.U.A.	Und. Surf.	Pub.	1.8	0.5	14,000		capable of serving 30,000
Independence	3	From Hackettstown		Pub.					
		Rockefeller Ests.		Priv.					
Oxford	3	No Public							
Liberty	3	No Public							

Table 22-124 Existing Water Supply Systems - Warren County Zones 1-3 (Continued)

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Washington Boro	3	Washington Div. N.J. Water Co.	Und. Surf.	Priv.	1.85	0.5	6,300		
Washington Township	3	Washington and Hackettstown							
White	3	Washington & Buckhorn Springs W.C.		Priv.					P.U.D.'s will require own water and sewer

(Source: Warren County Data Book, 1973; TIRES Study, April 1970

Table 22-125 Existing Water Supply Systems - Northampton County Zones 1-3

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Upper Mt. Bethel	1	From Keystone Portland and East Bangor							one acre lots required for water and sewer limits
Portland	1	Portland Boro Water Co.		Pub.	0.295			0.085	
Lower Mt. Bethel	3								proposed Martins Creek
Bangor	3	Keystone Water Co.		Priv.	5.7			2.250	
East Bangor	3	East Bangor Authority		Pub.	0.756			0.144	
PenArgyl	3	Blue Mountain Consol. Water Company	Surf.	Priv.	4.258			0.163	
Plainfield	3	Blue Mountain		Priv.				0.099	
Roseto	3	Keystone		Priv.					
Washington	3	E. Bangor Authority		Pub.					
Windgap	3	Blue Mountain		Priv.				0.204	

(Source: Lehigh-Northampton Joint Planning Commission, 1974)

Table 22-126 Existing Water Supply Systems - Monroe County Zone 1-3

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Delaware Water Gap	1	Delaware Water Gap Water Co.	Und. Surf.		0.51 0.03	0.22	1,400	0.164	
East Stroudsburg	1	East Stroudsburg	Und.	Pub.	0.439 1.8(interview)	289	20,000	2.2	capacity limited
Middle Smithfield	1	Lake in The Pines		Priv.					also other developments
Smithfield	1	Manwalamink Shawnee	Und. Und. Surf.	Priv.	0.288 0.03 0.03	0.011	1,000 190	0.015 0.015	
Stroud	1	Stroudsburg supplies 75% of town		Pub.					
Stroudsburg	1	Stroudsburg M.A.	Und. Surf.	Pub.	1.0 2.0	1.65	12,500	0.625	
Hamilton	2	Hamilton Water Co.	Und.		0.085	0.13	1,100	0.070	
Paradise	2	Wiscasset	Und.	Priv.	0.049	0.07	548	0.027	
Pocono	2	Scotrun	Und. Surf.	Priv.	0.062 0.008	0.01	54	0.005	
		(Wiscasset) Pocono Manor	Und.	Priv.	0.316	0.11	1,000	0.13	

Table 22-126 Existing Water Supply Systems - Monroe County Zones 1-3 (Continued)

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Price	2								
Barrett	3	Skytop Lodge	Und.	Priv.	0.552	0.198	1,200	0.155	
		Mountain Home	Und.	Priv.	0.216		1,200	0.13	
			Surf.		0.250				
		Buck Hill Falls	Und.	Priv.	0.51	0.66	2,500	1.5	
			Surf.		0.65				
		Canadensis		Priv.			200	0.015	
Chestnut Hill	3								
Coolbaugh	3	Pocono Farms	Und.	Priv.	0.290			0.061	
		Tobyhanna	Und.	Priv.	0.094			0.023	
		Tobyhanna Depot	Surf.	Priv.	0.562			0.388	
Jackson	3								
Mt. Pocono	3	Mt. Pocono-Fairview	Und.	Priv.	0.207	0.21	1,700	0.125	
			Surf.		0.200				
Tobyhanna	3	Naomi Pines	Und.	Priv.	0.03	0.011		0.02	
		Pocono Lake Pres.	Und.		0.068			0.015	
Tunkhannock	3								

(Source: Moody and Hess, Monroe County Water Resources Study, 1973)
TIRES Study, 1970

Table 22-127 Existing Water Supply Systems - Pike County Zones 1-3

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Delaware	1	Dingmans Ferry Water Co.	2 wells Dingmans Creek	Priv.			546		also private Pocono Mt. Lake, Wild Acres, Marcel Lake Estates
Dingman	1								some from Milford Village of The Lakes
Lehman	1	Bushkill Water Co.	2 springs 1 well	Priv.	.207		650	.060	
Matamoras	1	Matamoras Boro Water Supply	4 wells	Pub.	.482		2,000	.200	
Milford Boro	1	Milford Boro	2 springs	Pub.	.400		2,000	.200	room for expansion
Milford Township	1	Some from Milford							
Blooming Grove	2	Hemlock Farms		Priv.					
Greene	3								
Palmyra	3								
Porter	3								
Shohola	3								
Westfall	3								

(Source: TIRES Study, April 1970)

Table 22-128 Existing Water Supply Systems - Northampton County 1-3

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Forestburg	3	Merriwold C.C.	surf. +wells	Priv.	0.03	0.05	200 summer	0.02	proposed expansion
Highland	3	No Public							
Lumberland	3	No Public							

(Source: Summary Report - Comprehensive Public Water Supply Studies - Sullivan County, Nebolsine, Toth, McPhee Associates, Engineers, 1969)

Table 22-129 Existing Water Supply Systems - Orange County Zones 1 - 3

Municipality	Impact Zone	Water System	Source	Public or Private	System Capacity or Reliable Yield (MGD)	Storage Capacity (MG)	Population Served	Average Daily Consumption (MGD)	Remarks
Port Jervis	1	City system	3 Res. surf.	Pub.	3.000 (normal)		9,200	1.700	
Deer Park	2	5 priv. co's incl. Deer Park Manor		Priv.					good ground water supply
Greenville	2	Castle High Trailer Park Tri-State Trailer Park		Priv.					inadequate ground water supply proposed Rutgers Creek County Reservoir
Minisink	3	Pheasant Hill		Priv.					
Unionville	3	Village system	wells	Pub.	0.158		600	0.060	

(Source: Orange County Data Book, 1972)

Institutional Considerations

Institutional considerations of TILP include the roles and linkages between the project and governments and governmental agencies. In this section the institutional considerations discussed will place special emphasis on municipal and county governments and their agencies. The roles that these institutions can play in any impact accommodation strategies will be emphasized. Accommodation strategies are keyed to responses on the part of governmental decision makers to issues associated with the provisions of services by TILP within the study area.

Water Supply

The institutions which provide water supplies to customers within local government jurisdictions are described below. Included for discussion are local authorities (and state enabling legislative acts), as well as private water companies and individual and single site systems.

Municipal Institutions. Many New Jersey municipalities have institutions to provide their own water supply, especially if there are readily available ground water sources. In a few instances, municipalities withdraw their water directly from adjacent streams. Municipalities are empowered to develop and distribute their own supplies to their municipal water departments.

In general, municipalities can construct and operate their own water facility; they may purchase, lease, or acquire by condemnation, any water facilities, and they may issue bonds to finance acquisitions or construction. The costs of labor, land and capital have surpassed the capacity of most municipalities to develop reservoirs. Municipalities that purchase water made available from TILP and municipalities with access to supplies of quality ground water will continue to play a significant role well into the future.[8]/

Municipal water authorities in the State of New York are public benefit corporations created by a special act of the state legislature for a specific water supply activity. A water authority depends on revenues raised by water charges and this revenue base is fundamental in the operation of a water authority. Water authorities can operate on behalf of a county water district under contract with a county board of supervisors, for the construction as well as the operation and management of a water supply system. Authorities may also operate and manage a joint waterworks under contract to two or more municipalities. An authority's capital must be borrowed and secured only by the revenue of the system.

With this restriction, it can be difficult for an authority to borrow money to extend service into undeveloped areas based on forecasts of future demand or "local assurances" as they are called by the Delaware River Basin Commission. If future water demand is less than anticipated, a revenue short-fall may occur and result in the financial failure of the system.

Under the provisions of the "Municipality Authorities Act of 1945", Pennsylvania municipalities are granted the right to form authorities to provide water services within their jurisdiction. Authorities can fix, alter, charge and collect rates and other charges in the area served by their facilities at reasonable and uniform rates to be determined exclusively by them. They also have the right to borrow money, make and issue negotiable notes, bonds and to secure the payment of such bonds by pledge of revenues and receipts. Municipalities also have the power of eminent domain. They also have the right to enter into contract to supply and provide other services to and for municipalities that are not members of the authority. The authorities can by purchase or eminent domain proceedings obtain interests and/or easements and such lands, waters, and water rights as they deem necessary, after approval is obtained from the Water and Power Resources Board.[9/]

County Institutions. The role of the county (in its role as a special purpose district) in water supply has been very limited. One of the two New Jersey counties which have chosen to use the county municipal utilities authority vehicle is Sussex. Otherwise, New Jersey counties have had a

limited track record in managing water supply, but they could become more involved over the next decade.

County water districts have been permitted in New York State since 1953. The order to establish the district comes from the county board of supervisors. The district can be established without regard to local jurisdictions, except that no one district may serve just one city or village. The water district may establish rates, subject to approval by the board of supervisors. Water may be sold by a county water district within a municipality with the municipality's consent, however, the county assumes all financial obligations.

Pennsylvania's "Municipality Authorities Act of 1954" enables the formation of special districts in any county, city, town, borough, township or school district. Thus, there is no distinction between "special district" and "general purpose local government agency" authorities with respect to the purposes and scope of operation.10/

Private Companies. There are hundreds of private water companies operating in New Jersey, New York, and Pennsylvania. Most are relatively small companies serving a single development or a municipality. Some systems serve as few as 25 customers in selected developments. Powers of the private companies are comparable to those of municipalities including condemnation of private property and exclusive service areas.

Private water companies may be developed in jurisdictions upon approval of the municipal planning commission, the state environmental department

and the public utilities commission. Construction of a private system should not begin until the state's environmental department has issued a water supply permit.

The states also regulate the quality of the private water company's sources of supply.

Should the proposed private system require withdrawal of ground water in excess of 100,000 gallons a day within the drainage area of the Delaware River, the Delaware River Basin Commission (DRBC) is asked to approve. If the private water companies desire to charge for their services, the state's public utilities commission must certify the system. Some municipalities include in their land development ordinances provisions for governing the standards by which water facilities shall be constructed.[11/]

Individual Single Site Service. The individual well is the principal source of water supply for residents of the seven-county impact area. Home owners are required to include information regarding their proposed water supply when submitting plans required by local governments for building permits and zoning approvals. Requests for the drilling of individual wells must meet local standards. Individual systems may not be approved where a central water system is available or the lot is located in an environmentally sensitive area such as a flood plain. If the home owner gains approval at the local level, the next step is to contact a state certified well driller to dig the well. When water is reached, a sample is taken and the results of its evaluation are given to the home owner.

In some jurisdictions, wells are regulated by county and state boards of health. If the chosen site is on an environmentally sensitive area approvals may have to be secured from either the county or a state health department or from the state's environmental agency. There are no local or state requirements for periodic monitoring the quality of the individual water supply.

Existing Institutions. The seven counties within the impact area have the following three sources of water supply: 1. primary system or private company; 2. individual well; and 3. other. The 1970 U.S. Census of Housing defines the first system as a common source supplying running water to six or more housing units. The water may be supplied by a city, county, water district, or private water company. The second system, individual well, is defined as a well which provides water for five or fewer housing units. Water sources such as springs, creeks, and rivers are included in the "other" category.

In Table 22-130, residential water supply sources for each county in the impact area are given for 1970. Monroe and Northampton counties, Pennsylvania have the highest percentages of residential customers served by primary system or private company. Pike County, Pennsylvania, Sullivan County, New York, and Sussex County, New Jersey have the highest percentage of customers on individual wells. Overall, 69.7 percent of the impact area's customers were served by primary system or private company, 27.5 percent by individual wells and 2.8 percent by other sources.

Table 22-130 Source of Water Supply by Percentage of Housing Units, Tocks Island Lake Impact Area, 1970

Jurisdictions	Source of Water Supply: Primary System, Private Co.	Individual Well	Other	Total
Warren Co., N.J.	66.7%	28.7%	4.6%	100.0%
Sussex Co., N.J.	52.4%	44.8%	2.8%	100.0%
Orange Co., N.Y.	68.1%	30.9%	1.0%	100.0%
Sullivan Co., N.Y.	48.2%	44.7%	7.1%	100.0%
Pike Co., Pa.	43.5%	51.4%	5.1%	100.0%
Monroe Co., Pa.	82.4%	15.1%	2.5%	100.0%
Northampton Co., Pa.	73.4%	23.8%	2.8%	100.0%
Total	69.7%	27.5%	2.8%	100.0%

Source: U.S. Census of Housing, 1970.

Institutional Issues. (Proliferation of Small Systems Unable to Meet Contemporary Standards) It is estimated that there are hundreds of private water companies currently operating in the seven-county impact area. Although not all small systems are private, this is the dominant pattern. Measured against accepted minimum standards of adequate supply with a margin of safety, fire protection capability (preferably utilizing elevated storage), and trained water treatment plant personnel, many of the small systems are inadequate.

(Inefficiencies of Scale of Operation) Small systems may serve 25 to 1,000 customers. The cost for service can be as low as $32 per year ($8.00 per quarter) for well established small public and private systems. Such a low rate usually means that basic rates have remained unchanged for many years. This applies principally where plant and equipment debts have been

paid, and where there is no metering. Thus, residents receive the benefits of low overhead costs translated into moderate service charges.

Small systems (usually private) can charge as much as $200 per year. This would be typified by planned unit developments which must pass along to customers high fixed overhead expenses, including amortization of a new plant as well as a metering system, and state franchise, local property, and state corporate taxes. It has been estimated that a residential rate acceptable to the public should not exceed about $100 per year. In order to stay within the above cost guidelines and to follow the standards previously noted, a system should have a minimum of 500 customers.[12]

(Inadequate Supply Especially During Drought Periods) A problem common to many small systems is that inadequate initial planning has resulted in undersized mains, insufficient storage, and poor water quality. Thus, systems which will likely function well in normal times would have problems in times of drought due to the fact that there are no reserves upon which to fall back. Small systems are frequently adversely impacted by drought because plants were installed prior to the imposition or enforcement of contemporary standards. Upgrading the quality of public water systems is more likely because of the availability of state and federal grants, public pressures on local elected officials and higher standards of quality.

(Intergovernmental Coordination of Supply, Treatment and Distribution) Inasmuch as water resources and service areas do not follow jurisdictional

boundaries, governmental units must often coordinate their actions in order to insure an adequate supply of water for everyone. Not infrequently, the reservoir containing the water supply for one jurisdiction will be located in another. Agreements between governments are made, recognizing this fact. Also, the treatment or lack thereof, of wastewater, could affect the quality of drinking water in surrounding jurisdictions. Further, distribution of water from one jurisdiction to others is a common occurrence. The intergovernmental coordination issue touches on several others: recognition of intergovernmental dependence, willingness of one jurisdiction to cooperate with another and satisfactory financial arrangements among jurisdictions.

(Lack of State Regulations or Enforcement of Those Which Exist) States have frequently substituted guidelines for specific construction specifications in building water systems. Sometimes agreements and guarantees as part of land subdivision approval are not generally required by municipalities to assure that private water supply facilities are built and operated as planned. Furthermore, developers may build private water systems in residential developments, an action which does not require approval from the state's public utility commission. When these developer-built systems seek certification (so that a charge may be made for the water), it is too late to influence the water supply facilities which have already been provided. A combination of an insufficient number of state personnel and the lack of specifically written state standards have resulted in lax monitoring and enforcement. [13]

(Pollution of Supplies Preventing or Increasing the Cost of Their Use) Water companies which take regular quality checks on their water supply are conscious of the number and kind of pollutants which creep into their systems. Reasonable costs required to treat the water can be passed along to the consumers. In instances where pollution would require additional capital funds for plant upgrade, costs may be prohibitive unless a federal loan or grant can by secured. If funds cannot be secured, or if the quality of the water deteriorates beyond the point of safety, the water source may be temporarily closed to customers.

(Lack of Funds to Extend Service and the Metering Solution) Many owners of water systems (developers and municipalities) would like to extend their systems to include new developments or to cross jurisdictional boundaries. However, the capital required to increase the size of transmission lines, and to upgrade treatment plants to meet new quality standards are frequently lacking. Metering is viewed as one solution to raise capital. For many communities this is a major water issue where unlimited use of water has been customary. Within the seven-county impact area, it is more common to find unmetered rather than metered systems. Some communities have commercial metering, but not residential. Still other communities are moving towards totally metered systems.

(Intragovernmental Coordination of Capital Investments, Land Use Control and Maintenance of Adequate Water Supplies) The various components of local government frequently fail to function cooperatively to maintain adequate land use controls. Essentially what is often missing is a "growth management

policy" which would interface the capital requirements and land use tools necessary to maintain an adequate supply of water. This type of growth management policy is discussed in Chapter XXIII.

The capital resources of local jurisdictions differ widely. Hackettstown (Warren County), New Jersey has provided water not only for its residents but for surrounding jurisdictions. By contrast, Lower Mount Bethel Township (Northampton County), Pa., is dependent upon state aid for a new public system; and Newton (Sussex County), New Jersey has made application for a U.S. Department of Agriculture, Farmers Home Administration loan for new transmission lines. Inasmuch as capital improvements requirements for water supply are greater than the limited fiscal capabilities of most local governments, outside assistance from the state and federal governments is almost always required.

Land use control practices of local governments vary. Some jurisdictions have zoning, subdivision regulations, building codes and participate in the Federal Flood Insurance Program while others do not. Even with controls that would appear to be adequate for a community's protection, local officials frequently admit that local regulations offer little restraint to development pressures.

Thus, two elements necessary for efficient provision of water service -- capital improvement investments and adequate land use control -- are frequently missing.

(Citizen Opposition to Reservoirs Serving Other Jurisdictions) To meet one jurisdiction's water needs, it is often necessary to build a reservoir in another. When this happens, it is not uncommon for local citizens to object. The bases of their objections center around: (1) environmental degradation; (2) the taking of private property; (3) the impact on communities of outsiders who visit reservoirs for recreation and seasonal home purposes.

Most local governments limit services to within their own boundaries due to limited capacities and a desire to limit financial commitments. Some citizens feel adjacent jurisdictions which depend upon them for services should be annexed. This usually results in opposition from the jurisdiction requesting services. On the other hand, there are jurisdictions with new systems and a regional outlook which wish to reduce their per unit cost by broadening their base of operation. Generally speaking, citizens favor serving prospective customers outside their jurisdiction when it benefits them, and resisting service when it does not. 14/

Institutional Conclusions

Residents of the seven county impact area receive their water supply from either a municipal operation system or private water company (69.7 percent) and 27.5 percent by individual wells, while 2.8 percent are served by "other sources". Due to the ease of establishment, there is a proliferation of private water companies, many of which serve fewer than 1,000 customers. Many of these private systems do not meet contemporary standards and are unable to provide an adequate water supply during periods of drought. Older systems (whether private or municipally owned) with low overhead provide low per unit cost, while newer systems (whether private or municipally owned) with high overhead, result in high per unit cost.

Inasmuch as municipally owned systems are subject to periodic testing, the quality of water is frequently better than either the private system or individual wells. Local jurisdictions have difficulty in coordinating their capital investments and land use controls while maintaining an adequate water supply for residents. TILP would provide for adequate water supplies to local jurisdictions outside the area.

XXII.C.4(b)(1) Footnotes

1. Moody & Associates, Inc., Edward C. Hess Associates, Inc., Monroe County Water Resources Study, November 1973., p.48

2. TIRES Study, 1970.

3. Lehigh-Northampton Joint Planning Commission

4. Nebolsine, Toth, McPhee Associates, Engineers, June 1969

5. Moody & Hess op.cit., p.5

6. Weston op.cit. Figure 4.

7. Weston op.cit. Volume 2 Appendices p. K-7

8. Interview with the Bureau of Water Resources, Planning and Management Division of Water Resources, Department of Environmental Protection, State of New Jersey, February 4, 1975.

9. The Pennsylvania Municipalities Act and Related Laws, compiled by the Pennsylvania Municipal Authorities Association, Harrisburg, Pa., 1973 Ed.

10. Ibid.

11. Privately Owned Water Supply Systems, Joint Planning Commission, Lehigh-Northampton Counties. September 1974.

12. Ibid.

13. Ibid.

14. Interview with the Office of Program Development, Planning and Research, Department of Environmental Conservation, New York State, January 31, 1975.

XXII.C.4.(b)(2) Sewerage

Introduction

The discussion on sewerage will concentrate on the DWGNRA, Zone I, and Zone II.

A history of the various planning stages is necessary for present day perspective. In 1966, the Delaware River Basin Commission undertook the "Tocks Island Region Environmental Study" (TIRES). The purpose was to study water supply and waste disposal in the six-county region of New York, Pennsylvania and New Jersey in which TILP and DWGNRA are to be developed (Sullivan County, N. Y. was not included). The proper treatment system was chosen from five alternative treatment plans. Alternative V, accepted by the DRBC, is displayed in Appendix K of the TIRES Report.

On January 26, 1972, the DRBC adopted a policy committing itself "to construct and provide for the operation of a regional waste collection and treatment system within the TIRES area". This would be accomplished unless the local or state authorities agreed to undertake the service of liquid sewerage disposal. Alternative V from the TIRES study was adjusted to give the DRBC the opportunity to "maximize the advantages of new technology". The treatment levels for the TIRES area were set at 95% removal of BOD and soluble phosphorus over the period 1980 to 2020. The DRBC reserved the right to site the treatment facilities

DRBC Resolution 73-5 was issued on February 27, 1973. The resolution stated that existing and potential point sources of liquid wastes are subject to the mandates of PL 92-500 (FWPCA-1972). However, the TIRES study did also indicate the necessity for such treatment levels.

On September 13, 1972, Governor Cahill issued a statement which acted as the basis for a conceptual New Jersey Sewerage System Plan. Montague Township and Sandyston, New Jersey were chosen as sites for the municipal facilities to serve the centers affected by population increases. The treatment level was designated as either tertiary or secondary followed by spray irrigation. Recreational areas in New Jersey were specified to be handled by individual treatment plants.

Consultation between the DRBC and the Pennsylvania Department of Environmental Resources developed a plan providing initially for sub-regional systems serving municipal needs and some recreation areas. A regional plant was also planned at Brodhead Creek to serve reservoir tributary areas in Middle Smithfield Township and ultimately Milford and Matamoras. The general concept called for connection to municipal systems wherever possible.

The New York Department of Environmental Conservation stated a plan involving properly designed on-site systems in the vicinity of Port Jervis until 1995. After 1995, Port Jervis is expected

to support a centralized sewerage system. The system will be connected to the existing Port Jervis plant which will have undergone an upgrading to meet PL 92-500 requirements. The plant has a 2.5 mgd capacity which has been termed adequate to treat projected sewerage loads to 2020.

DWGNRA

The National Park Service Plan calls for permanent biological facilities where supportable by the necessary visitor loads. Temporary chemical units on a contract basis will be used in the smaller visitor areas and pit toilets utilized in out-of-the-way sites.

Figure 22-16 indicates locations of major existing municipal sewerage systems in the Zone 1 - 3 area.

Zone 1

Stroudsburg and East Stroudsburg are expected to undergo the greatest growth due to TILP-DWGNRA within Zone I. Average flow of the East Stroudsburg plant is 8% over capacity and the Stroudsburg plant is 37% under capacity (Table 22-131). The design capacity of both plants will have to be increased; East Stroudsburg receiving the greatest increase.

Montague and Sandyston, New Jersey are expected to have municipal facilities upgraded to tertiary treatment combined with spray irrigation.

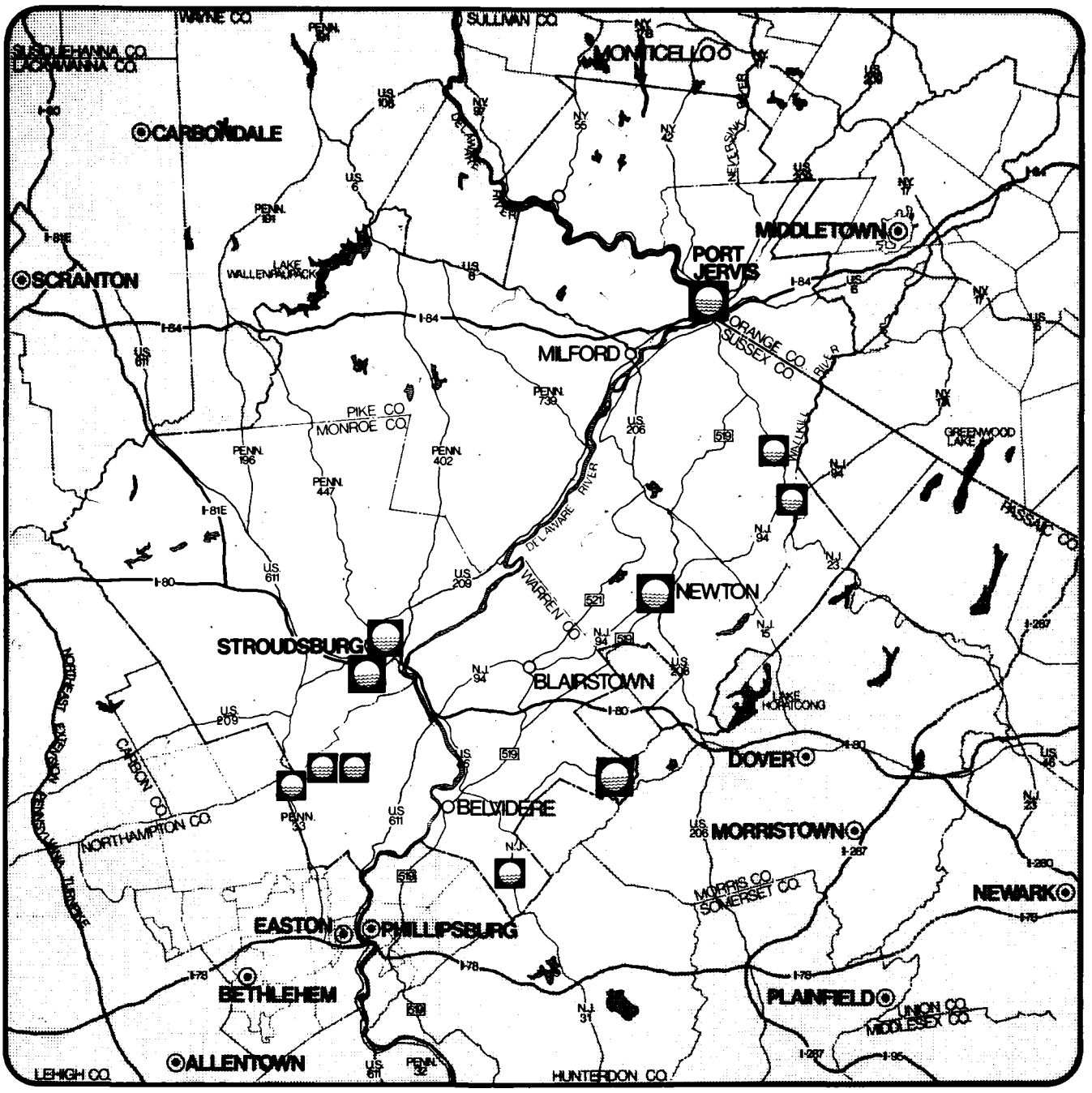
Zone 2

Zone II will be subject to growth during and after the time traffic loads to the park have been established on a steady basis. Within Sussex County, New Jersey, the design capacity of the waste treatment plants of Newton and Sussex Borough equals or exceeds the average flow. Therefore, an increase in design capacities of both plants is expected.

Table 22-131 Liquid Waste Treatment Facilities Within Major Population Centers

Millions Gallons per Day

	Design Capacity	Average Flow
Sussex County		
Newton	1.0	1.026
Sussex Borough	0.25	0.161
Franklin Borough	0.26	0.168
Warren County		
Hackettstown	1.65	0.50
Washington Borough	0.83	0.646
Orange County		
Port Jervis	2.5	1.0
Monroe County		
East Stroudsburg	1.0	1.08
Stroudsburg	1.29	0.702
Northampton		
Bangor	0.8	0.4
Windgap	0.3	0.25
Pen Argyl	0.95	0.93
Plainfield	0.04	



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SCALE IN MILES

N

EXISTING MUNICIPAL SEWERAGE SYSTEMS

XXII
16

LEGEND

EXISTING MUNICIPAL SEWER SYSTEMS

LAND AREAS BEYOND ZONE-3-

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT

Table 22-132 Average Expected Growth by County

	% Increase		
	1970 to 1985	1985 to 1995	1995 to 2005
Sussex County			
Zone 1	47	24	17
Zone 2	23	28	13
Warren County			
Zone 1	44	23	24
Zone 2	80	46	40
Orange County			
Zone 1	2	3	3
Zone 2	46	14	29
Pike County			
Zone 1	42	39	28
Zone 2	86	28	27
Monroe County			
Zone 1	30	23	20
Zone 2	75	26	22

Port Jervis will receive the heaviest growth within New York State. As stated previously, the plant will eventually be expanded (1995) to support a centralized sewerage system. At present, the plant is operating, on an average flow basis, to 40% of the design capacity.

Conclusions

The levels of treatment and placement of key treatment facilities designed to suffice the sewerage loads generated have been defined in DRBC Resolution 73-5. Treatment levels have been set at 95% soluble phosphorus and BOD removal. As such, the standards set within the TIRES area are fully in compliance with the PL 92-500 "best practicable treatment" standard.

The presence of a multi-purpose lake will require much more stringent point and non-point discharge controls within the pertinent drainage basins (including tributaries) than required by a free flowing river. The NPS has defined the mechanics of liquid waste control to be used within the DWGNRA. Studies now being performed by Roy F. Weston for the State of Pennsylvania (COWAMP) will further clarify the placement of the treatment facilities within Pennsylvania.

The visitor loads to the DWGNRA are expected to be centralized around the immediate vicinity of TILP. Thus, load centers can

be established and medium size treatment plants constructed to handle liquid waste.

Zone I and II will experience growth through 2005. The greatest increases are expected from the present to 1985 and then very slowly tapering off through 2005 (Table 22-132). Plans as stated for increased growth within the three states include upgrading treatment levels and increasing design capacities of existing plants. On-site plants are expected to suffice through 1995 when, with increased usage, centralized systems will be implemented.

Water Quality, Institutional Considerations

The following is a discussion of local government institutional relations and constraints, relative to water quality. A description of institutions on a local and state level, charged with providing water quality services is followed by an analysis of institutional issues. While the TIIP does not include a water quality facility component, the four purposes of the

project -- water supply, flood control, creation and power generation -- can affect Delaware River water quality.

Municipal and County. Wastewater disposal facilities may legally be owned and operated by municipalities, counties, townships, public utility districts, rural electric cooperatives, non-profit corporations, profit-making corporations and individuals. These facilities are often owned and operated by sewerage authorities, municipalities and townships, profit-making corporations and counties.

In New Jersey, responsibility for wastewater disposal is vested in the State Department of Environmental Protection. The Department approves sites for and installation of wastewater disposal systems, and it inspects and checks the systems four times a year. It also approves sites for and installation of individual wastewater disposal systems but does not check their functioning once they are installed. Although the Department of Environmental Protection does not exercise direct control over individual wastewater disposal systems, it does have comprehensive regulations governing them which are designed for adoption by local boards of health at the discretion of the local governing body. DEP regulates public systems serving over 20 dwellings. In addition, DEP certifies operators of all public water treatment plants and public sewage treatment plants.

There is a state-finance grant and loan program for construction of wastewater disposal facilities which has been in existence since 1968. Total expenditures for these programs through 1973 were $39 million in loans

and $112,400,000 in grants. The money has been used for regional wastewater disposal systems, treatment plant expansions and upgradings and receptor sewers. Priorities for project funding are based on stream segment values and discharge criteria. 1/

Community wastewater disposal facilities may legally be owned and operated by New York municipalities, counties, townships, public utility districts and profit-making corporations. For these facilities, the most common in rural areas are municipality, public utility districts, townships, counties, and profit-making corporations, in that order.

Responsibilities for wastewater disposal are divided between the State Health Department and the State Department of Environmental Conservation. The Health Department has jurisdiction over individual wastewater disposal and the Department of Environmental Conservation is responsible for municipal wastewater disposal. If a community wastewater disposal system is not to be used, only septic tanks are acceptable to the State Health Department as individual facilities. Local health officers approve sites for an installation of wastewater disposal systems not in subdivisions but only inspect them on a request basis. The Department of Environmental Conservation approves sites for an installation of community wastewater disposal systems and periodicially checks their functions. The state has mandatory operator certification standards for wastewater systems.

There is a state-financed program for wastewater facility construction which is tied directly to federal grant programs under the water pollution

control act amendments of 1972. The state will provide grant funds for up to 12-1/2 percent of eligible project cost if the project has been approved for federal grant funds by the U.S. Environmental Protection Agency. State grant funds are provided by the Environmental Quality Bond Act of 1972, which provided for $650 million in bond issues for water quality improvements projects. The state priority system for project grants gives highest priority to stream polluters. There is also a grant program for operation and maintenance of sewage treatment plants whereby up to one-third of annual operating expenses of a municipal treatment plant may be granted by the state if the system is operated up to its design efficiency. Only municipalities which own and operate sewage treatment plants are eligible for state aid. 2/

In Pennsylvania, community wastewater disposal systems may legally be operated by municipalities, counties, townships, public utility districts, non-profit corporations and profit-making corporations.

The State Department of Environmental Resources is responsible for regulation of wastewater disposal facilities. The Department approves sites for and installation of wastewater disposal facilities and checks their functioning on a yearly basis. In addition, the Department approves sites and installation of individual wastewater disposal systems but does not inspect them for proper functioning. The state provides design standards

for wastewater disposal facilities. Operator certification is mandatory for all operators of sewage treatment plants.

There is a state-financed grant program for construction of municipal sewerage facilities which was begun in 1968. Through the end of 1973, a total of $66,635,000 had been spent in the program. The program is designed to provide supplemental funding to projects receiving federal money under the Water Pollution Control Act Amendment of 1972. [3/]

Private Companies. Wastewater treatment plants may be owned and operated by private companies provided that local and state regulations and standards are met. These companies are usually formed in connection with residential, commercial, or planned unit developments (PUD). Normally a developer will install a private system either because the proposed development cannot be served by an existing system, or the developer decides to increase density so that on-lot septics would not be acceptable to the state. Proposals for private systems are submitted to local municipalities for review for conformance to the jurisdiction's master plan. Then, the proposed development plans are submitted to the State Environmental Protection Agency which has the ultimate responsibility to approve or disapprove the plan.

Existing Institutions. Table 22-133 provides information on residential sewage disposal systems for counties in the Tocks Island Lake impact area. The 1970 U.S. Census of Housing defines "public sewer" as that connected to a city, county, sanitary district, neighborhood, or

subdivision sewer system. It may be operated by a governmental body or private organization. A "septic tank or cesspool" is an underground tank or pit used for disposal of sewage. Units for which sewage is disposed of in some other way are included in the "other" category.

In largely rural Pike County, Pennsylvania and Sussex County, New Jersey relatively few are served by public sewer systems. Over 50 percent of the residences in three of the more urbanized counties -- Northampton, Pennsylvania, Orange, New York, and Warren, New Jersey -- are served by public sewers. Overall within the seven-county area, 47.2 percent of the customers are served by public sewer, 51.1 percent by septic tank or cesspool, and 1.7 percent fall in the other category.

Table 22-133 Sewage Disposal System by Percentage of Housing Units, Tocks Island Lake Impact Area, 1970

Jurisdiction	Public Sewer	Septic Tank or Cesspool	Other	Total
Warren Co., N.J.	50.0	48.3	1.7	100%
Sussex Co., N.J.	17.8	80.6	1.6	100%
Orange, N.Y.	53.4	45.7	0.9	100%
Sullivan, N.Y.	35.4	61.8	2.8	100%
Pike, Pa.	2.4	94.9	2.7	100%
Monroe, Pa.	28.4	67.7	3.9	100%
Northampton, Pa.	62.4	36.2	1.4	100%
Total	47.2	51.1	1.7	100%

Sources: 1970 Census of Housing, Bureau of the Census, U.S. Department of Commerce

The general pattern in the area is for settlements such as boroughs, towns, and cities to be served by municipal public systems (Figure 22-16), while open rural areas typically utilize private septic tank disposal methods.

Institutional Issues. (Lack of Funding to Build Facilities Including Local Matching Funds) Federal and state funds have been appropriated to assist local jurisdictions in constructing wastewater collection and treatment facilities. Due to widespread water quality problems, and the desire of jurisdictions to take advantage of the federal and state programs, the request for funds far exceeds the supply. Therefore, states have established priority lists whereby funds are distributed on the basis of priority rankings which are determined by each state.

Local jurisdictions depend upon outside funds for such capital investment items as wastewater systems, due to the fact that their resources are extremely limited. The state match of 15 percent of project costs along with the federal share of 75 percent results in localities having to contribute 10 percent of project costs. This is crucial for the many jurisdictions who are unable to contribute 25 percent of the cost to match the federal government's 75 percent grants. Demand for wastewater treatment facility construction funds would be greater if all the jurisdictions in need of funds would apply for them. Many jurisdictions have been discouraged from applying knowing that funds were limited, and concluding that their chances for receiving a high priority rating would be slim.

(Inadequate Treatment Capacity and Quality to Serve Local Needs) Sewage treatment plants in the seven-county impact area are generally operating at capacity. In selected cases, some plants are under sewer bans which prevents them from adding additional hook-ups unless approvals are granted by either the state or county health departments or the state's environmental agency. A few isolated plants are operating under capacity as is the case in Hackettstown, Warren County, New Jersey. Almost universally, treatment plants within the seven-county impact area need upgrading. This is evidenced by growing pollution problems which could be overcome if plants were designed for tertiary treatment and were operated according to state standards.

(Subbasin Treatment Plants Serving More Than One Jurisdiction) The dominant pattern within the seven-county impact area is for treatment plants to serve only the jurisdiction in which they are located. There are some notable exceptions, however, and such is the case for the Hackettstown Municipal Utility Authority (Warren County,New Jersey) where a municipality has actively sought to play a regional role by providing services to as many as four to six surrounding jurisdictions. Hackettstown extended its services because of demands in surrounding townships just over its border, and so that it could broaden its base of operation to reduce the per unit cost for its own constituents. There are numerous examples of towns and boroughs who have extended services just over their boundaries to accommodate built-up portions of otherwise rural townships. Otherwise, jurisdictions have concentrated primarily in serving their constituents due to a lack of capacity and lack of funds to expand capacity.

(Seasonal Resident and Tourist Needs) Currently seasonal residents make few demands on sewage treatment plants in towns and boroughs. Seasonal homes are served either by on-lot septic tanks or private companies which are independent of local government. These seasonal homes are used on occasions year round and have the potential for becoming permanent homes. In the future, if seasonal homes were constructed within municipal service areas additional capacities would be required which in turn would necessitate capital expenditures.

Facilities to serve the anticipated tourist associated with the Tocks Island Lake Project will require increased wastewater treatment capacities. To date, several new transient facilities have constructed wastewater plants for their own needs. In Stroud Township, Monroe County, Pennsylvania, a motel has constructed a wastewater treatment plant sufficient to serve not only its own needs but those of other potential business establishments and perhaps some residential units. This pattern will necessarily continue for developments too far removed to be served by municipal systems if state water quality standards are to be implemented. However, sewage facilities located within wastewater service areas will need to be upgraded and expanded in order to accommodate a significant increase in commercial connections.

(Centralized Management of Several Small Sewer Systems) Many small sewer systems sacrifice water quality due in part to poor management, resulting from a jurisdiction's inability to provide adequate professional technicians. Inasmuch as it is not uncommon to find small systems in too close geographic

proximity, a central management system would provide greater professionalism and perhaps economy of operation.

(Standards Enforced by Local Agencies) Monitoring and surveillance of wastewater treatment plants to insure that state standards are met, is frequently the responsibility of the plant's operator or a local agency. In such circumstances if it is discovered locally that the plant effluent is degrading stream quality, it is quite possible that this will not be reported to the state authority lest the unfavorable report result in orders to upgrade the plant. While the plant's operator or a local agency may be concerned over the plant's poor operations, it is unlikely that a local representative would put himself or the owners of the facility in jeopardy. Therefore, if state standards are to be applied in local communities they must be applied by state representatives who are free to make objective examinations and reports.

(Facility Operation Techniques) Wastewater treatment plants must perform according to design specifications if acceptable levels of water quality are to be achieved at local levels. If plants are not operated near design capability, their purposes are significantly negated. Interviews conducted in New Jersey have revealed that as many as one-third of the state's 800 wastewater treatment plants could improve their performance by 25 percent through use of better operations and maintenance techniques. By way of illustration, New Jersey did site visits to determine the qualifications of operators. The investigation showed that many more licensed operators were needed if wastewater treatment plants were to be operated properly. [4/]

(Intergovernmental Coordination) The various components of local government frequently fail to function cooperatively to provide adequate wastewater treatment facilities due to insufficient funding or the lack of adequate land use controls. Essentially what is often missing is a "growth management policy" which would interface the capital requirements and land use tools necessary to provide an adequate wastewater system.

The financial capability of local jurisdictions to service their own constituents differs widely. Stroudsburg (Monroe County), Pennsylvania, has a sewerage system which is currently operating at 60 percent of its design capacity. By contrast, Belvidere (Warren County), New Jersey, is dependent upon state and federal aid for a solely needed public system. Inasmuch as capital improvements for sewerage systems are sizable amounts, and because local governments have limited fiscal capabilities, outside assistance is almost always required.

Land use controls also are practiced differently among the various local jurisdictions. Some jurisdictions have maximum controls -- zoning, and stringent subdivision regulations, while others have neither.

Even with controls that would appear to be adequate for a community's protection, local officials frequently admit that local regulations offer little restraint to forceful developers. Thus, two elements necessary for adequate wastewater treatment -- capital improvement investment and land use control coordination -- are frequently missing.

Water Quality Institutional Conclusion

Residents of the seven county area are served either by public sewers (47.2 percent), septic tanks or cesspools (51.1 percent) and 1.7 percent are contained in the "other" category. Federal grant monies for wastewater treatment facilities are made available to local jurisdictions through state agencies. However, demand for these monies far exceeds the supply inasmuch as higher water quality standards as well as growth pressures have a need for public sewers. Local governments are dependent upon federal and state funds to provide up to 90 percent of total construction cost. Due to poor management, lax enforcement of state imposed standards, and inadequately trained facility operators the wastewater treatment services could be substantially improved. TILP/DWGNRA will not affect these specific water quality institutional issues except to the extent that they are exacerbated by additional residents and visitors attracted to the area.

Footnotes XXII.C.4.(b)(2)

1. Water Quality Management: New Jersey's Vanishing Options, New Jersey, County and Municipal Government Study Commission, June 1973.
2. Interview with the Office of Program Development, Planning and Research, Department of Environmental Conservation, New York State, January 31, 1975, and with local government officials within the seven-county economic impact area, March 1975.
3. Interview with the Bureau of Water Resources Planning and Management Division of Water Resources, Department of Environmental Protection, State of New Jersey, February 4, 1975.
4. Water Quality Management: New Jersey's Vanishing Options - op.cit.

XXII.C.4(c) Solid Waste Disposal and Management

Solid waste disposal is another environmentally sensitive issue which has been recognized on a national level and has become the subject of statewide review and consideration.

A complete study of solid waste management for the Tocks Island Region was prepared by Candeub, Fleissig and Associates for the Tocks Island Regional Advisory Council in August, 1969 and provides an overview of the subject for the seven county area.

Solid waste is defined in that report as including junk automobiles, rubbish, seasonal wastes (outdoor vegetation), garbage, litter and bulky wastes.

The two most often discussed available methods of disposal of solid wastes are by incineration and by sanitary landfill. Incineration, if not properly controlled, contributes to air pollution. Sanitary landfill, if properly managed can be environmentally safe and least expensive. Most other means of disposing of solid wastes are either more complex and expensive or involve technologies which have not yet been sufficiently developed to satisfy environmental and cost implications on a scale economically appropriate to the needs of this area.

State Influences

In Pennsylvania, Act 241, The Solid Waste Management Act, requires the Commonwealth through the Department of Environmental Resources, to approve or disapprove municipal plans for disposal of solid wastes. These plans must be prepared by all municipalities with population densities greater then 300 per square mile and must include locations of existing and proposed solid waste facilities. Permits must be issued by the D.E.R. and criteria for approval include topographic, geologic, hydrographic, transporation and related land use information.

In New Jersey, the County and Municipal Government Study Commission prepared a report on "Solid Waste: A Coordinated Approach". This document, published in September of 1972 reached the following conclusions:

> "While new processing technology, capable of reducing the volume of waste requiring disposal, holds much promise for the future, it has not been sufficiently developed and demonstrated to be incorporated into solid waste management systems at the present time. In the meantime, sanitary landfill disposal is the one method presently capable of assimilating the State's vast solid waste load. The Commission concludes that:
>
> . Regional landfill sites must be planned and developed, primarily by the county, at the closest feasible location to the communities using them to minimize costs of transporting solid waste while maximizing economics of scale.
>
> . The landfill sites should be planned in conjunction with existing or anticipated processing facilities, ... to reduce both the volume of waste and transportation costs.
>
> . Present landfills must be required to meet the standards of the New Jersey Sanitary Code, to ensure protection of public health and the environment. In addition, it is desirable that these landfills be screened from view, and that collection trucks using the fills be restricted as to their use of roads and hours of operation.
>
> . Planning for reuse of landfills should be done for all existing sites, and well in advance of any new sites.
>
> . In order to protect the public interest by ensuring the greatest possible return, local governments, when leasing or selling public land to private contractors for solid waste purposes should require that bids for the property be open and competitive. If the land is leased to a solid waste operator, the local government might specify in the lease that the leaser will enjoy use of the facility, either without charge or at reduced rates, for its own wastes in addition to or in lieu of monetary payments for the use of public land for privately operated solid waste facilities.

. As an inducement to municipal approval of a desirable site for regional landfill operations, the DEP, the county or counties, the municipalities to receive disposal service from the regional landfill and the municipality in which the site is located should work out equitable arrangements for establishing the site. Such arrangements could include incentive payments to the host community, tax benefits, preferential disposal rates for its own solid waste, and the like, in addition to firm guarantees that the landfill will meet health, environmental and esthetic standards, and restoration to municipal tax roles or recreational or other acceptable uses of those sites where landfill operations are terminated."

New York State is also taking a closer look at existing facilities and encouraging planning and strict environmental safeguards.

Existing Conditions

The following material describes the present level of solid waste disposal in the seven counties:

Sussex County - At the present time all municipalities maintain separate contracts with private carriers to dispose of solid wastes. Stillwater Township has a municipal Sanitary Landfill site. According to Sussex County Freeholders, it will be difficult to locate a sanitary landfill site that will be able to comply with strictly enforced Environmental Protection Administration Standards. Nevertheless, the County Planning Department indicates that Sussex is trying to organize a regional solid waste system with either a single county sanitary landfill site or a recycling facility. They hope to contract the operation to private

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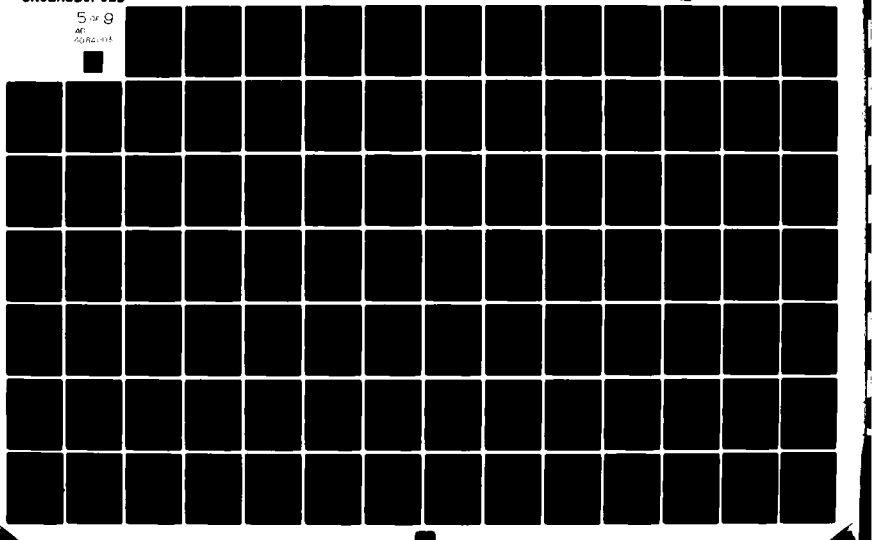

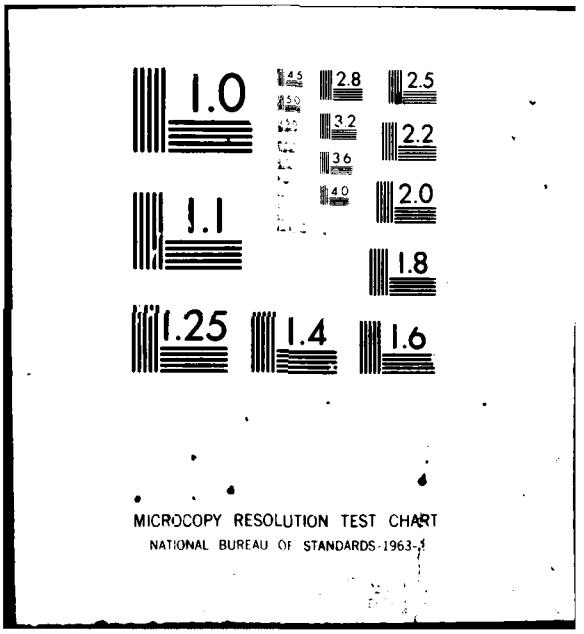
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MICROCOPY RESOLUTION TEST CHART
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haulers who would receive payments for pick up and require fees for drop off usage.

Warren County - All pick up of solid waste in the county is done privately - there is a sanitary landfill site at High Point in Franklin Township and a municipal landfill in Alpha Boro. Many of the private carters transport the material to sites outside the county in Mount Olive, New Jersey and Easton, Pennsylvania.

Northampton County - The Slatebelt Region encompassing Zones 1-3, is considered as one district in the Solid Waste Management Plan 1975-1980 prepared for the Lehigh-Northampton Joint Planning Commission by Roy F. Weston, Inc. Use of incineration already existing in Bangor and sanitary landfill are proposed. According to a Commission tabulation in 1971, Bangor had a municipal system, East Bangor and Plainfield were handled privately. Lower Mt. Bethel, Roseto, Washington Township and Wind Gap had contracts for disposal, and Pen Argyl, Portland, and Upper Mt. Bethel had individual on-site facilities.

Monroe County - There is presently no sanitary landfill site existing in Monroe County. The county contracts wtth a private company which uses a sanitary landfill site in Northampton County. The county would like to find some better technological solution for incineration or compaction but is meanwhile exploring possibilities for a county-sanitary landfill site.

Pike County - The General Authority of Pike County has recently been established to create a county-wide solid waste program. A centrally located site has been purchased in Blooming Grove Township. At present the Boro of Milford operates a sanitary landfill site in Dingman Township and Westfall has its own which is also used by Milford Township. All other areas currently transfer solid wastes out of county via private carters.

Sullivan County - At the present time the townships have avoided the issue but with stricter state supervision they will be forced to reevaluate their programs. The county will probably develop a single county-sanitary landfill site, perhaps along the Neversink Valley,with a plastic liner to prevent leachates percolating into the groundwater.

Orange County - Orange county is in the initial stages of preparing a county solid waste plan for a centrally located sanitary landfill on former State lands. A series of transfer centers would be established around the county, one of which will be the existing Deer Park-Port Jervis sanitary landfill site. Municipalities would be responsible for pick-ups.

TILP-DWGNRA IMPACTS

As already noted, 58,341 (Phase I) to 158,106 (Phase III) visitors can be expected in the area on a peak summer Sunday and 14,585 (I) to 39,526 (III)

persons may be staying overnight as well.

For the purpose of estimating the solid waste accumulation for the area, a range between 3 to 6 pounds per capita may be employed. The national average for municipal solid waste is 5.16 pounds per capita, consisting of -

	Pounds per Capita
- combined household and commercial refuse	4.60
- street and alley cleanings	0.26
- tree and landscape refuse	0.27
- park and beach refuse	0.01
- catch basin refuse	0.02
total pounds/day/person	5.16

This figure according to EPA is expected to increase to about 7 pounds per capita by 2025, unless present trends are significantly reversed and major conservation efforts are undertaken and enforced.

The N.P.S. will remove by private contractors all refuse accumulated within the N.P.S. area from visitors and general landscape refuse, or about 0.3 pounds per capita (8.5 tons/day-Phase I and 23 tons/day-Phase III) from the N.P.S. area. The private contractor will dispose of this by landfill with other municipal and commercial refuse in suitable approved landfill sites over the 7 county area. N.P.S. already has two contracts in operation -- one in New Jersey and one in Pennsylvania.

The refuse generated by visitors outside the DWGNRA will be disposed of in the same manner by municipal or private haulers to municipal or private landfill sites. This will amount to 145 tons per day for Phase I and 550 tons per day for Phase III.

The disposed material will be distributed throughout the seven-county area according to the development of the county plans previously discussed.

XXII.C.5 ENVIRONMENTAL IMPACTS

XXII.C.5(a) Archaeology in the Delaware Water Gap National Recreation Area

XXII.C.5(a)(1) Archaeological Resources

The Delaware River Valley is an area of rich archaeological and historical resources. Archaeological research in the Valley provides evidence that human occupation in the Valley occurred as early as 10,000 B.C., the end of the last ice age.

Site surveys and testing have revealed that the valley was one of the areas of the earliest Indian settlement on the East Coast. Artifactual material has been recovered showing occupation spanning the major periods of prehistoric Indian settlement. Paleo-Indian, Archaic, Transitional, and Woodland cultures are represented in the excavated material.

The composition of archaeological sites varies according to the nature of activities that took place at the site, and the duration of occupation. Excavations in the region have uncovered sites of both long- and short-term occupations. Sites of long-term occupation are usually richer in material culture (lithic tools, projectile points) or artifacts. Sites of long-term occupation indicate the variety of productive activities among the native population. Analysis of preserved

artifactual materials combined with flora, faunal, and pollen data help archaeologists to interpret adaptations of the early native populations.

Sites of short-term occupation will rarely yield sufficient artifactual material to discern coherent patterns of living. Certain interpretations of sites of short-term occupation include the notion that particular areas in the Valley were occupied by seasonally migrating hunting and gathering peoples, who may have camped very close to the Delaware River to exploit the best fishing conditions.

It is possible that there were cycles of upland to lowland seasonal migration throughout the year. However, migration patterns throughout the Delaware Valley are not exactly clear yet, as archaeologists have not had the opportunity to conduct thorough enough excavations on the upper and lower terraces. Furthermore, Kraft suggests that the Delaware Valley Indians in time became culturally distinct from surrounding populations.

> As a result of these reexaminations and reassessments I can no longer support the contentions that the prehistoric cultures of the Upper Delaware Valley were a pale reflection of the Owasco-Iroquois cultures of New York state, nor even that the Valley necessarily provided throughout time a series of stopping off places for migrant hunting-gathering peoples. I see instead a long and continuous occupation and an in situ development of Algonkian speaking peoples that would in time become known as the Minisinks or historic Munsees.*

* Kraft, Herbert C. The Archaeology of the Tocks Island Area. Archaeological Research Center, Seton Hall University Museum, South Orange, New Jersey 07079. L975. P. ix-x.

Excavation at sites of long-term occupation defines the components of the culture of the period. Four principal periods are represented in the Delaware River Valley.

1. Paleo-Indian Period

The people of the Paleo-Indian period were nomadic hunters and gatherers who hunted animals with hand-thrown spears or javelins. Seasonal migration to new areas was necessary as they depleted the supply of food resources. Archaeologist W. Fred Kinsey suggests that it is "reasonable to expect Early Man to date from 11,000 B.C. to 9,000 B.C. in this area."* Characteristic artifacts of the Paleo-Indian period have been found north and south throughout the Delaware River Valley. The fluted point is the characteristic projectile point of this period.

2. Archaic Period

The people of the next period -- the Archaic period -- were prolific in the variety and style of tools and projectile points they manufactured. Most of the archaic spearpoints are side-notched or stemmed. Mortars and pestles, choppers, and pitted and abraded stones are also characteristic artifacts of this period. The steatite bowl,

* W. Fred Kinsey, III. Archaeology in the Upper Delaware Valley. Commonwealth of Pennsylvania, The Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania, 1972, p. 330.

a stoneware cooking vessel, also appears as a significant innovation during the late Archaic period. Life in both the Paleo-Indian and Archaic periods was still a preagricultural adaptation. The people of the Archaic period migrated seasonally from resource-scarce to resource-abundant areas throughout the valley. Excavations of the Archaic component in the Delaware River Valley have mostly concentrated on late Archaic period artifacts.

3. Transitional Period

The Transitional period represents the epoch between the late Archaic and the dawning of the Woodland period. The Transitional period saw advances in the culture and adaptation of the peoples who inhabited the region, and was a period of innovation. Adaptation in this period included the beginnings of agriculture. Stoneware cooking vessels gave way to ceramics, shaped very much like the earlier steatite bowl.

4. Woodland Period

The Woodland period is especially well represented in the Delaware Valley. The early Woodland period had a hunting and gathering adaptation supplemented with agricultural experimentation. By the late Woodland period, however, hunting began to lessen in importance while the gathering of wild foods, fishing, and hoe agriculture became the principal means of food production. At most sites the archaeologic resources of the Woodland period are numerous and are better preserved

than earlier material culture. Features of the late Woodland occupation include postmold house patterns, as excavated by Kraft.* Pits used for food storage, stone caches, and refuse are characteristic at Woodland sites. Human and dog burial remains have also been excavated. The Woodland period saw the development of a varied and complex ceramic industry, and a well-developed lithic tool technology. Woodland Indians engaged in ceremonies, and symbolic artifacts such as engraved stones and pendants have been excavated.**

Figure 22-17 shows the approximate periods of occupation at some of the better known sites. All sites chosen for inclusion in this analysis have been subject excavated to some degree. The most complete work involves excavations of each period component, and less complete work involves test excavation. Occupations at a site can be ascertained only when sufficient related artifacts from the same period are discovered. The picuture of early occupations in the Delaware Valley is at best cursory, rich potential information regarding the nature of adaptation for each period remains to be excavated. When artifacts are found out of context, it is clear that people of a particular culture did at one time occupy the site; however, the relative intensity of occupation remains

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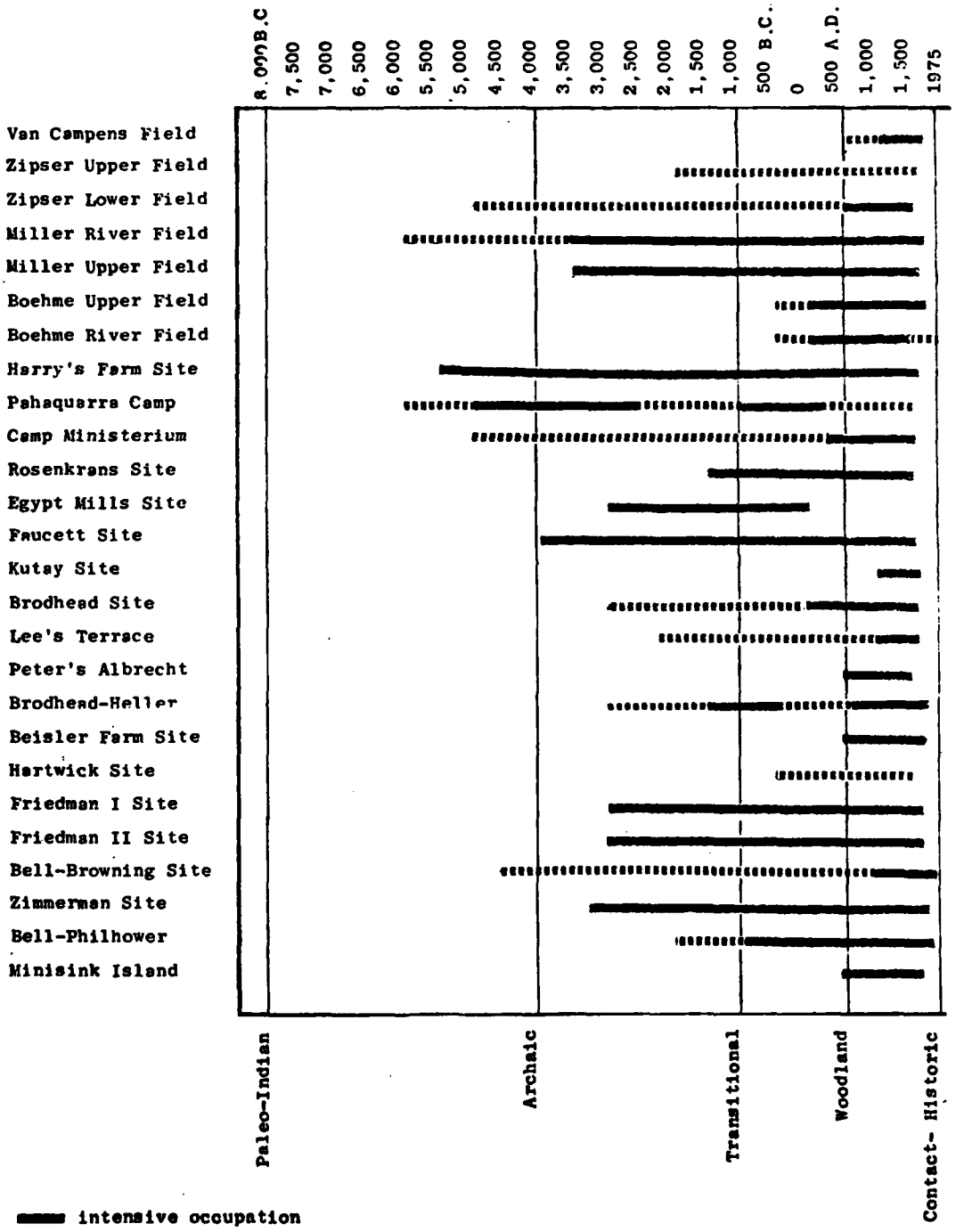
* Herbert C. Kraft, Seton Hall University Museum Excavations in the Tocks Island Area, 1968-1969 Season. Report to the U.S. Department of the Interior, National Park Services, Contract No. 14-5-950-29, September 1970.

** W. Fred Kinsey III, Archaeology in the Upper Delaware Valley. Commonwealth of Pennsylvania, The Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania, 1972, pp. 355-397.

EXCAVATED PERIOD COMPONENTS AT SOME OF THE BEST KNOWN SITES
IN THE DELAWARE VALLEY



unclear until excavation reveals a material culture inventory occurring at contiguous levels in the strata.

XXII.C.5(a)(2) Extent of Research

Archaeological investigation in the Delaware River Valley began as early as 1899,* but there were relatively few site surveys and excavations during the next 50 years. In addition to formal archaeological excavation, the land has been "surface hunted" by private collectors for many years. Inhabitants of the valley have found and collected numerous artifacts, including stone tools, pottery pieces, and other items of historic value.

Since the proposal to build the Tocks Island Dam, the National Park Service, in an effort to assess archaeologic and historic resources, has contracted with East Coast archaeologists to conduct surveys and tests in the Tocks Island reservoir area for potential archaeological sites. Site survey and testing, however, were restricted to the lower terraces and much of the information regarding archaeological sites in the upper terraces is still to be gained. While there may have been cycles of seasonal migrations, without upland testing for sites it is difficult to determine the migration patterns that prehistoric people

* W. Fred Kinsey, Archaeology in the Upper Delaware Valley, Commonwealth of Pennsylvania, The Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania, 1972, p. xviii.

followed.* Site surveys were made for specific regions, and each survey concentrated on particular areas on the New Jersey or the Pennsylvania side of the river. However, no agency was engaged to survey the valley for all possible sites in the potential impact areas. Of the currently known sites, only about 20 percent have been excavated at all.

Careful site survey and testing in the Delaware River Valley has pointed to the need for excavation at certain sites. Excavations at the Miller Field Complex, Harry's Farm, Faucett, Friedman I and II, Brodhead-Heller, Peters Albrecht, and Bell-Browning sites have been successful in recovering artifactual remains from the Archaic period. At most of these sites material culture was represented for each successive period, showing continuous occupation of the site. Excavation at these sites has contributed greatly to the understanding of the adaptations of prehistoric peoples in the valley. Cultural interpretations of the archaeological sites in the valley become very interesting, because the cultures were essential in the transition from hunting and gathering to agricultural exploitation of the land. Artifactual material such as a petroglyph find** and effigy-carved

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* W. Fred Kinsey, personal communication.

** C. Herbert Kraft, "The First Petroglyph Found in New Jersey," Pennsylvania Archaeologist, Vol. XXXV, August 1965.

faces on ceramic ware contribute to our understanding of these peoples' symbolic and culture-bearing systems. Many more sites identified and recommended for excavation in the surveys have not yet been tested. Others have been test excavated and appear to be productive material culture-bearing sites, but lack of adequate funding and time has prohibited excavation.

Further information regarding these early occupations would be valuable in defining the tenure of human occupation on this continent. These archaeological resources are significant because local events in the Delaware River Valley are important for understanding cultural events which have continental distribution.*

The only archaeological investigation expected in the immediate future is to be carried out under the supervision of the New Jersey State Museum. The work will be part of a continuation study of previously excavated sites. Intensive testing at two sites, and sampling at other sites, will be focused on the late Woodland occupations in the region. Before construction, one further excavation is proposed for the Minisink region, to uncover the original Dutch colonial settlement there. No other excavations, either to uncover more completely the previously tested sites or to survey untested areas in the valley, have been funded.

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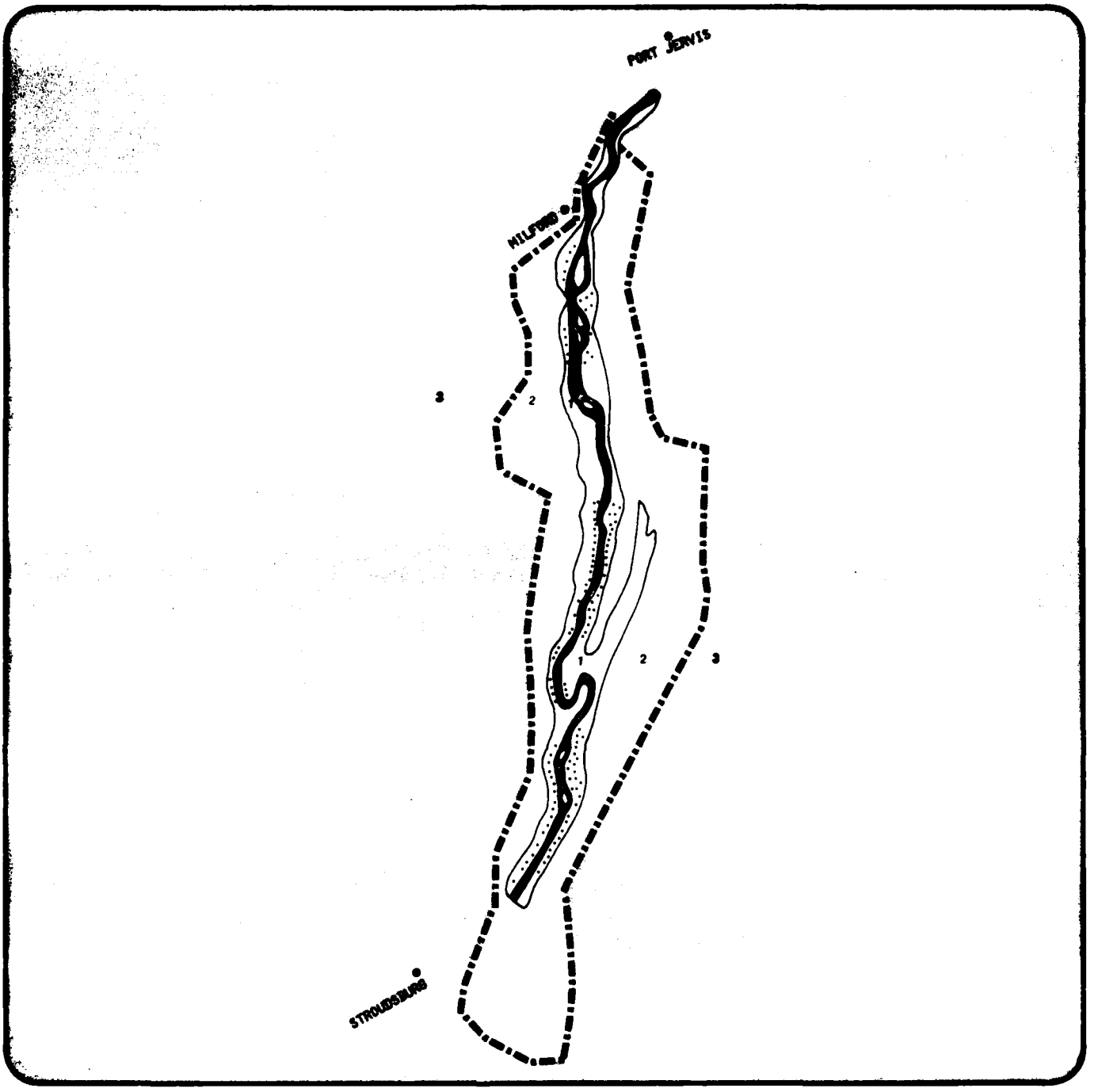
* W. Fred Kinsey, Archaeology in the Upper Delaware Valley, Commonwealth of Pennsylvania, The Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania, 1972, p. 330.

XXII.C.5(a)(3) Project Impacts on Archaeological Resources

This discussion of impacts on archaeological resources follows the definitions of impact areas given in Section XXII-B. Four impact zones are defined, but only the DWGNRA and Zone I are used in this discussion of impacts on archaeological resources. The impacts in Zones 2, 3, and 4 will be similar to those discussed for Zone 1, but to a lesser degree.

DWGNRA

The impacts caused by construction and operation of the dam and reservoir will differ from those caused by recreation. Within the DWGNRA, it is necessary to distinguish the pool zone as an adverse impacts zone. There are approximately 100 known archaeological sites in the reservoir area or below an elevation of 410 feet. Sites here tend to occur in clusters along the river. Certain sites within these site clusters will be particularly informative, but others will be less so. It would be difficult to predict the relationships among sites in these clusters before a substantial degree of excavation is complete, since certain sites will merely represent extensions of the material culture excavated at other nearby sites. It can be expected that stratified sites of long-term occupations which reveal explicit manifestations of early period cultures will be interspersed among minor sites containing only limited material culture of little informative value. However, there will sometimes be more than one major stratified site in these clusters.



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LEGEND

- RESERVOIR
- DWGNRA
- SITE CLUSTERS

PROJECT IMPACTS UPON ARCHAEOLOGICAL RESOURCES

THE MOST SEVERE IMPACTS WILL OCCUR TO SITES IN THE RESERVOIR FLOOD ZONE (AREA 1). BORDER SITES AND OTHER SITES LOCATED IN THE DWGNRA WILL UNDERGO RECREATION RELATED IMPACTS (AREA 2). THE COUNTIES BORDERING THE DWGNRA WILL UNDERGO ACCELERATED DEVELOPMENT, AND THE ARCHAEOLOGICAL RESOURCES THERE WILL BE SUBJECT TO CONSTRUCTION IMPACTS DUE TO COMMERCIAL EXPANSION (AREA 3).

XXII
18

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN - PRAEGER, INC. & CONKLIN AND ROSSANT

Adverse impacts to sites located in the pool zone can be expected. Soil disturbance caused by construction operations will severely limit stratigraphic analysis of artifacts, as well as the use of radiocarbon dating techniques. The introduction of heavy machinery for clearing operations will cause irreversible damage to sites. Locations for borrow-pit landfill, temporary roads, and other construction-related temporary facilities should be chosen carefully, in order not to disturb archaeological sites. Once the dam is operational, flooding of the reservoir will render all sites in the reservoir inaccessible. (For a more complete discussion of construction impacts on archaeological and historic resources see Chapter X, pages 23-31).

The following is a partial list of the best known sites located in the reservoir pool area which will be inundated by construction of the Tocks Island Dam and reservoir.

NEW JERSEY

Harry's Farm	Beisler Farm
Miller River Field	Sandmerier Farm #1 and #2
Miller Upper Field	* Heater Farm
Van Campen's Field	Skunk Run
Bell-Browning	Crane Site
Hartwick	Schnoor Site
Friedman I	Flatbrook Hunting Grounds
Friedman II	Teller Site
Medwin North Field	Medwin South Field
Zipser Upper Field	Zipser Lower Field
Boehme Upper Field	Boehme River Field
Scherf River Field	Scherf North Field
Blasi Field	Rosenkrans Site
Pahaquarry	Bell-Philhower
Carter Upper Field	Carter Lower Field
Grofick Site	Van Hagen's Field
Dimmicks Ferry	Hamilton South Field
Hamilton Upper Field	Hankin Field
Worthington Tract	Ratcliff Farm
* McBride Farm	

* The McBride Farm Site is broken up into nine sections, according to Kraft in Archaeological Survey and Testing on the New Jersey Side of the Delaware River from Wallpack Bend to Port Jervis in the DWGNRA, NPS P.O. #950-602 (November 1970), seven of which will definitely be inundated. The Heater Farm Site is broken up into four sections, according to Kraft, two of which will definitely be inundated.

PENNSYLVANIA

Manna	Lower Brumbaugh
Browning and Pharo #1 and #2	Brodhead-Heller
Eshback	Lees Terrace Eshback
Egypt Mills (3 sites)	Lillie Site
Hill Farm	Faucett
Zimmerman Site I	Zimmerman Site II
Medwin Site I	Medwin Site II
Ludwig	Peter's Albrecht
Beck I	Beck II
Kutay	McCarty
Newcombe Site	Walter Site
Kautz Site	Kober Site
Pardee Place	Theune Site
Michaels (3 sites)	Camp Ministerium
Camp Miller	Cottier Site
Hogback	Wolf Site
Brodhead Site	McCann
Metz Site	Cuddeback Site
Schneider Site	Kokolias Site
McCann Site	Santos
Maxaner Site	

ISLANDS

Depew	--	inundated
Mashipacong		(3 elevations: #1, 414', #2, 417', #3, 405' to 420')
Minisink	--	inundated
Poxono	--	inundated
Shapnack	--	inundated

Tocks	--	inundated
Namanock	--	inundated

Explanatory note: The recurrent use of a name indicates ownership of the site; thus more than one site is indicated by repetition of a name.

Recreational impacts are expected on archaeological sites at elevations above the pool level. A site survey of the upland area is a necessary first step in identifying potential impacts on specific sites. Without such a comprehensive survey, the locations of sites in the park will go unrecognized and valuable sites will be ruined because they are unregistered. Possible impacts on archeological sites due to recreation can be discussed in terms of increased authorized recreational pressure and increased unauthorized recreational pressure.

Increased authorized recreational pressure means that archaeological sites in the area will experience recreational pressure due to visitor loads to the park.

The DWGNRA will be primarily a water-oriented recreational area. This means that grading and construction of recreation-related facilities will occur near the reservoir boundaries. Further clearing will be necessary for the construction of National Park Service buildings and facilities.

The combination of greatly increased population and a water-oriented recreation area suggests the need for recreational support facilities such as clubhouses, boat ramps, and parking and access roads for the major beach areas. Because there has never been an adequate comprehensive site survey of the region outside of the pool zone, it is difficult to pinpoint locations where this sort of border construction might destroy a site. The possibility of uncovering particular artifacts during construction must be recognized. Sites located at the border of the lake will undergo adverse construction impacts. A site survey of the area bordering the Tocks Island Lake (above 410 elevation) would mitigate against disturbance of a major site. If potential sites are recognized at border and beach locations, the unearthing of artifactual material should be controlled by a managed approach to reconnaisiance and a professional archaeologist should be retained on call to excavate there if necessary.

Increased unauthorized pressure (without NPS sanction) on sites in the park is also probable. With the increase in population, the preservation of unexcavated archaeological resources in the park will be more difficult and, of course, the danger of vandalism of potential sites will be increased.

Following is a partial list of sites located at elevations above the reservoir floodplain. These border sites will probably be adversely affected by construction for recreation-related facilities.

NEW JERSEY	PENNSYLVANIA
Brace Farm	Croasdale Site
Nielson Site	
Splendora Site	
Kerr Site	
Pratschler (2 sites)	
Intersection of Neversink and Delaware Rivers	
McBride Farm*	
Tulley Pond	
Experimental Farm	
Heater Farm Site*	

With authorization to build the dam and reservoir, federal legislation will require increased funding for salvage archaeology. If legislation regarding preservation of archaeological and historic sites is enforced, archaeologists will have the opportunity to conduct salvage programs. Proper display and interpretation of the archaeological resources is a necessary concomitant to the salvage archaeology program.

Zone I, the contiguous impact area, will undergo accelerated development. Most development is expected in connection with transportation facilities,

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* The McBride Farm Site is broken up into nine sections, two of which are located at elevations above the floodplain. The Heater Fram site is broken up into four sections, two of which are located at elevations above above the flood level, according to Kraft, in Archaeological Survey and Testing on the New Jersey Side of the Delaware River from Walpack Bend to Port Jervis in the DWGNRA, op. cit.

park access roads, and commercial expansion of recreation-related facilities. The townships surrounding the DWGNRA borders should be included in a site survey because, while the archaeological potential of the outlying regions is unclear, development there is highly probable.

Relocation of Highway 209 to a location outside the park area may have adverse impacts upon archaeological resources in the outlying area. A survey of the proposed route should be made in order to evaluate the possibility of uncovering a site or sites in the process of road construction. Recognizing that the townships outside the DWGNRA will experience accelerated construction and population growth, and that the archaeological potential of the area has not yet been defined, it might be advisable for local townships to institute site survey and salvage procedures to mitigate against the loss of native cultural resources because of possible uncontrolled commercial growth.

XII.C.5(a)(4) Mitigation: Archaeological Resource Conservation and Salvage

Archaeological resources are a unique and nonrenewable resource. Disturbance of the soil can severely alter the information attainable from a site. The Delaware River Valley is a particularly rich area in Archaeological resources. The Archaeological information obtainable from the Valley has been and could continue to be extremely valuable in defining the prehistoric record. Destruction of the resources there,

by construction and operation of the Tocks Island Dam and reservoir could render the many sites in the Valley inaccessible and permanently damaged to the extent that they could foreseeably have no further informative value.

Traditionally the approach to archaeological resource management has been the implementation of Salvage Archaeological programs. But as the Crisis in Archaeology (i.e., diminishing availability of archaeological resources, due to rapid resource exploitation and site destruction) becomes an increasingly preeminent threat to the science, the approach offered by salvage exploitation of resources becomes less desirable.

> Salvage archaeology in the United States developed initially as a response to the recognition by the archaeological profession and by some members of government and business that the supply of archaeological sites was not infinite and that important sites once lost could never be duplicated among the supply of sites remaining, let alone be replaced. The response was to excavate sites threatened with immediate destruction to salvage as much information as possible with the time, money, and methods available.
>
> We are now beginning to realize that all sites are rather immediately threatened, if one takes a time frame of more than a few years.*

The preferred approach to preservation of archaeological resources is implementing a resource conservation model. "Our goal here is to see

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* Lipe, William A. "A Conservation Model for American Archaeology," in The Kiva, 30, Nos. 3-4, p. 214.

that archaeological resources everywhere are identified, protected, and managed for maximum longevity. Archaeological resources must be accorded a higher value by society than they are now, so that more projects will be designed to avoid sites."*

Conservation of the archaeological resources in the Delaware Valley would require the abandonment of any land altering development. This would mean the deauthorization of the TILP. Project deauthorization would reduce the time constraints under which archaeological investigation of the Valley is undertaken. Archaeologists could then work from a resource conservation framework. Due to the significance of the cultural resources throughout the Valley, it could eventually be designated an Historical preservation area which would be a source of educational benefit for generations in the future.

If congress approves the implementation of the TILP with DWGNRA, it is difficult to see how the resource management plan could be anything other than one of emergency salvage archaeology. Since the Tocks Island Lake Project was conceived all archaeology resource management strategies have been funded as salvage archaeology. It is agreed with Lipe that "Emergency salvage archaeology should be carried out only as a last resort, and should combine a strong problem orientation with additional work designed to preserve a representative sample of the data to be lost when the site or sites are destroyed."**

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* Ibid., p. 215
** Ibid., p. 213

The National Park Service, in developing its plan for the DWGNRA, is writing the master plan for maintenance, including facilities for the display of archaeological and historical resources selected for preservation. At present it appears that the Park Service intends to restore a few houses, and at least one complete village. They also hope to reconstruct a couple of farms representing various years in agriculture. This would involve the preservation of a farm with its cluster of outbuildings, and employment of people to work the farm as it was worked originally. One such farm is expected to be restored to represent early colonial subsistence farming, and another would depict farming during the Civil War period. Prehistoric archaeological artifacts should be carefully displayed in a museum, together with good interpretive data. Such a museum is proposed for the Minisink area.

In the mid-1960s, when the first salvage archaeological surveys were carried out, site surveys and testing were restricted to the pool zone of the reservoir. Therefore, no existing surveys include potential sites above a 410-foot elevation. Thus, the possibility of seasonal upland migration by prehistoric peoples is relatively unclear.

The current restudy of the Tocks Island region opens some important questions regarding the disposition of archaeological resources in the valley. The National Park Service policy on future excavations in the dam area appears to be that no more salvage archaeology will be funded

until it is decided if the dam is to be built. According to the Park Service, if the dam is approved for construction a full-scale salvage archaeology program must be conducted. Salvage areas would include floodplain zone sites, road relocations, border or air water interface sites, workers' camps, construction areas, borrow and landfill locations, and all other sites where there would be potential adverse impacts on archaeological resources. Should the entire DWGNRA (including the lake) be authorized, further surveys, mitigation programs, and facilities for display and interpretation of the archaeological and historical resources of the Delaware River Valley would be required.

Legislation such as the National Environmental Policy Act have been designed for the preservation of archaeological and historical resources. It is required by federal projects where any form of land alteration takes place that the archaeological resources in the project's potential impact area are surveyed and proper mitigating procedures are implemented for their protection. The major problem is that no comprehensive survey of the Delaware Valley has been done that includes sites in the project's potential impact area. The lack of this comprehensive survey makes it impossible to assess the entirety of cultural resources in the valley. In order to implement federal laws for the preservation of these resources the valley must be surveyed.

Archaeological resources in the Delaware Valley are significant and contribute a great deal to prehistory and an increased understanding of the native populations in the Valley. Criteria of eligibility for inclusion of properties in the National Register of Historic places should be applied to the Delaware Valley. Archaeological investigation in the Valley on both the New Jersey and Pennsylvania sides of the river has proved valuable in determining the prehistory of native American adaptations. National register criteria for evaluation include lands that "are associated with the lives of persons significant in our past, and that have yielded or may be likely to yield information important in prehistory and history."* If the dam is authorized for construction, compliance with public laws regarding archaeological and historical preservation will be essential. Under these laws, a complete archaeological salvage program must be initiated in order to assess and mitigate adverse impacts to the archaeological resources of the area.

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* Federal Register, Vol. 39, No. 34, Tuesday, February 19, 1974. p. 6403.

XXII.C.5(b) Impacts of TILP/DWGNRA on Historic Resources

The Minisink Valley is an area with an abundant supply of historic structures spanning three centuries of development. Many of the homes and churches that survive have been continuously occupied over this period, are in excellent condition, and testify to the cultural patterns and life style of the valley's people. Assessments of the value of these resources range from one historian's comments that few events of national significance took place here and that what remains tends to be old rather than historic; to the proposal by some individuals to have the entire NRA declared a National Historic Park. The latter statement is recorded here because it indicates the extreme sensitivity of this subject.

In the years that have passed since the authorization of DWGNRA by Congress in 1965, several surveys of historical structures and historical reports of the area have been contracted for by the National Park Service. Much criticism regarding the completeness and accuracy of these documents has been directed toward the N.P.S. and C.O.E. by local individuals, and private interest groups. Previously, in anticipation of the Tocks Island Lake Project and in reaction to the official surveys, supplemental and overlapping studies have been prepared and are in the process of being completed at this time by private groups or local officials.

The purpose of this section is not to compare and evaluate these reports or to determine precise dates for existing structures. It is mainly a broad view of the historic themes relative to the area and the research completed or in progress. It will attempt to indicate the basic impacts of the Tocks Island Lake Project on the historical resources and suggest policies of mitigation to these impacts. In a few cases individual sites are mentioned. However, the scope is too limited to discuss the architectural and historical merits of each structure or make recommendation that are site specific.

Historic Resources

Early penetration of the Minisink Valley by white men had occurred by 1620. Mineral resources were discovered soon after mid-century and by 1700 there existed several permanent households scattered throughout the area. Small villages, like Shawnee on the Pennsylvania side, had appeared before the mid 1700's. Generally the earliest settlers were of Dutch origin but during the first half of the 18th century immigrants included German, English and Scotch-Irish elements.

Many of the earliest buildings which survive are of masonry construction, possibly reflecting a general preference for permanent structures, due to tradition or because of the protection they offered. Sites along the river edge must have been favorites, perhaps owing to the fertile soil and the convenience of the river and valley floor for transportation. In any event several of the earliest structures above

the dam site are located below the pool elevation, as are most of the buildings built before 1900.

Beginning around 1750 and continuing through the Revolutionary War period, several skirmishes between white settlers and Indians occurred. These are related to the French and Indian War but stemmed it seems primarily from local land disputes. In response to the frequent raids a series of small fortresses and block houses were built along the valley. Westbrook House in Sussex County and the Abraham Van Campen House in Warren County are near the sites of two of these. Most of the remaining sites are known although the structures have been reduced to ruins or have disappeared completely. At least 4 are located within the recreation area.

During the Revolution the valley was often a convenient route for the movement of troops between New York and Trenton. The Issac Van Campen Inn, located opposite Shapnack Island was one site of encampments used by General Gates in 1776 and Count Pulaski in 1778. During the entire period of the French and Indian Wars and the Revolutionary War, several houses were destroyed and many of the residents fled to more secure areas further South.

By 1800 the valley was again growing in population and prosperity. Milford and Stroudsburg were well established towns by mid-century. Logging took place during the 18th and 19th centuries and log rafts were used to transport the timbers downstream to the south. The old copper mines in Pahaquarry Township were reopened around 1900, but were not commercial successes. Slate was processed for building purposes at Slateford, below the gap.

Nonetheless, the valley remained primarily agricultural and was largely by-passed by the industrial development that took place during and after the Civil War in the tri-state area. This may account for the fairly sizeable inventory of early structures that remain in basically their original condition. The majority are farm buildings and their out buildings. Popular styles from every period are represented, from simple unadorned masonry and frame buildings of the 18th century to the classic revival and Victorian houses of the 19th century.

During the middle of the 19th century the area began to develop as a major resort area, and remained so up through World War II. The gap was accessible by train from New York and Philadelphia in three or four hours and became the site of many hotels and small inns. Although several of these Victorian Hostelries burned or were put to other uses as the appeal of the valley to the well-to-do began to wane, some survive as reminders of a lost era.

Throughout the history of the Minisink, the Delaware River and Valley remained a major transportation link between the area and points beyond. Coal arks and Durham boats and log rafts were once numerous on the river, having been used to transport local or upstream produce and resources to ports down river. Ferry boats appeared in the 18th century to move goods and people across rivers at important points. Dingman's Ferry was established in 1750 and Decker's Ferry at Wallpack Bend in 1756. The Daniel D. Decker House (c. 1800) still survives. Although one or more of these simple craft still operated in the early 20th century, river traffic ceased to be commercially important in the upper

Delaware as railroads and other means were used for transport. Bridges began to replace many of these earlier means of fording by mid 19th century, but all of the earliest structures have been washed away by periodic floods.

Old Mine Road, which runs along the New Jersey shore from the Gap to Port Jervis and on to Kingston, New York, was used before 1700 to haul ore from the copper mines in Pahaquarry. It is reputedly one of the oldest and longest commercial roads in the country. Although it is now paved and portions may have been realigned, most of the original right-of-way has been in continuous use for 300 years.

Research

Historic data for the Delaware River Valley in the form of deeds, military records, correspondence, etc., date back to the time of its initial exploration by Europeans. Since the second half of the 19th century numerous studies and surveys of the area and of specific events and historic themes which mention the Tocks Island area have been written. Local historic societies and individuals as well as museums have collected records and artifacts of local sites and structures.

Following the authorization of the National Recreation Area, the National Park Service contracted historians and architects to prepare more detailed studies of the immediate locale. The purpose of these was to assess the historic value of buildings within the park and to determine the role of the valley relative to events of regional as well as national significance. In the mid-nineteen sixties, a general history of the area was prepared which contained detailed information on major events, the pattern of development, and over 350 structures. This report was followed by a separate study in three parts with more narrative histories of specific

sites, and two separate on-site surveys of 215 buildings within the recreation area. Further research was proposed to develop more detail of historic themes for interpretive purposes, and to prepare a complete survey of all structures within the park. This survey was required for development of a master plan and to decide which buildings should be saved. However, by this time both the Corps of Engineers and the National Park Service had already prepared preliminary plans for major developments within the area, and land acquisition and demolition were in progress.

In early 1974 a team of professionals representing several disciplines conducted an on-site survey of all sites previously researched plus approximately 100 additional structures and a report was prepared representing a compilation of their recommendations. A survey of remaining structures not previously studied was published in January of 1975. Prepared by a local architect, the survey includes photographs and simple line drawings of approximately 275 buildings that are 50 years old or more. Each was evaluated for its architectural and historic merit and some attempt was made to determine the extent to which the original structures were preserved or altered to serve modern needs. While this survey goes a long way in filling the gaps left by previous surveys, historic documentation of each structure is not included.

On the basis of all surveys conducted to date, each building within the park will be placed in one of eight categories previously established by the Service. These designations indicate which structures will be nominated to the National Register, be removed or relocated, or be used for interpretive or utilitarian purposes in the future. Each of the categories are described in Table 22-134, below and the approximate number of structures within each is indicated, excluding those of modern origin which are being considered for demolition. Over 450 of these existed at the time of the 1974-75 survey.

Table 22-134 Recommended Action For Structures Within DWGNRA

Categories Used in Evaluation	Spring 1974 Survey	Late 1974 Survey	
		Pool Area	Non Pool Area
I. Those buildings which are sufficiently significant to be eligible for nomination to the National Register of Historic Places. These should be relocated, if that is necessary for their preservation.	123	13	8
II. Buildings to be used by the National Park Service until it becomes impractical, from a management or economic standpoint to use them. At that point the NPS policies for declaring properties surplus will be applied, if demolition, relocation or removal is being considered.	72	15	16
III. Buildings not to be nominated to the National Register, but recommended for relocation, for interpretive uses.	23	3	2
IV. Buildings within the proposed pool area which should be held until such time as the dam is built. These are buildings of quality which it would not be feasible to relocate.	18	18	-
V. Buildings which lack historical or architectural significance, and may be removed.	51	101*	53*
VI. Buildings which should be saved but which are not considered individually eligible for nomination to the National Register.	5	-	17
VII. Buildings which may be removed after significant materials have been salvaged by the National Park Service.	20	18	9
VIII. Buildings whose exteriors should be stabilized to prevent further deterioration.	3	3**	1
Total	315	171	106

* Included are two structures suggested for category II
** Two of these are in categories II or VI

A considerable amount of public criticism concerns the status of historic and archeologic sites in the area relative to legislation on historic preservation. To comply with the National Environmental Policy Act, Executive Order 11593, and the published procedures of the Advisory Council on Historic Preservations (Federal Register Vol. 39, No. 18, Friday January 25, 1974) the NPS is required to locate, inventory, and nominate all sites, buildings, districts and objects under their jurisdiction that appear to qualify for listing on the National Register of Historic Places. The basic criteria for a site to be considered for listing is included in these documents. At present only one or two buildings in the Port Jervis vicinity have been so nominated, along with the Old Mine Road Historic District (Federal Register, Vol. 39, No. 89 Tuesday, May 8, 1974).

Although listing on the National Register is not a command to preserve, it requires that the structure or site be fully researched and documented in order to determine how best to serve the public interest. Once a building has been nominated, it is entitled to the same protection under Executive Order 11593. State and local agencies may also nominate buildings to either the National Register or to state registers. However, this action has largely been deferred until a list prepared by NPS has been submitted. Forty sites which the Service considers worthy of nomination appear in Table 22-135 along with the priority rating of each. As a result of ongoing research, the order of priorities is in constant flux.

Inasmuch as the only research planned at this time is the documentation required for structures which will be listed on the National Register, sites which do not so appear may require further attention in view of the fact that so many exist with the park. A relatively small percentage will be required for park use.

Table 22-135 National Park Service Priority Rating of Forty Historic Sites (March, 1975)

Priority	Category*	Name	Tract Number
1	1	Pierce House	12400
2	1	Robert's Kitchen	10839-1
3	4	Abraham Van Campen House	615-2
4	1	Slateford Farm Complex (5 buildings)	121
5	1	"Gun Factory"	10839-4
6	4	Westbrook (Bell) House	10639
7	1	Ennis House	10464
8	1	Armstrong House	11220
9	1	Birchenough House	3420-2
10	4	Issac Van Campen Inn	7111-1
11	1	Calahan House	12522
12	1	Peter's Valley (Bevans) (24 houses & 10 out buildings)	8401-27
13	4	Old Shimer House	11221
14	1	Emery House	8901
15	1	Capt. Shoemaker House	2919
16	4	Edna Covert House	12635
17	4	Wallpack Center (8 houses & 2 out buildings)	8203-06
18	1	Harry Houck House	8005-1
19	1	Tinsmith's Shop	7423-1
20	4	Eshback House	8300
21	1	Aspinall Electric Generator	11316-2
22	4	Gersham-Bunnell House	6800-2

Table 22-135 National Park Service Priority Rating of Forty Historic Sites (March, 1975) - continued -

Priority	Category*	Name	Tract Number
23	1	Salamovka	6541-4
24	1	Young House	8412
25	1	Dr. Roe House	8419
26	1	Tots Gap Complex	324
27	1	Andrew Snable House	8220-1
28	1	Wm. Allen House	12118
29	4	John Wesley Van Auken House (Ennis Ferry House)	8855
30	4	Cuddeback House	11442-2
31	4	Marie Zimmerman House	11504
32	4	Lime Kiln	7820-1
33	1	Millbrook (10 buildings 5 out buildings)	6500
34	4	Cold Spring Farm Spring House	2123
35	1	Bensley House	7446
36	4	Zion Lutheran Church	1502
37	4	Der Ramer House & Barn	11222
38	1	Hill House	-
39	1	John Michael House	1359
40	1	Millville Village Ruins	-

* Category 1 is defined as buildings worthy of nomination to the National Registor of Historic Places which lie outside the flood zone. Buildings in category 4 lie within the flood zone, and are also considered worthy of nomination.

Evidence of historic value of a site or structure received after it has been removed or inundated will be of little value. Surveys now in progress or completed by local authorities should be used by the Park Service for the purpose of preparing a master plan. One report is presently being written for sites within Warren County through the offices of the County Planning Commission.

Project Impact

This discussion deals mainly with the impacts in the lake area, and the balance of DWGNRA. Outside the recreation area, some impact on historic sites is to be anticipated as a secondary effect of the proposed project.

Lake Area

Over 250 buildings constructed before 1900 are located below elevation 410, the permanent pool level. Included among these are many of the earliest structures within the valley. Those structures which are not considered of significant value to warrant the expense of relocation to higher ground before construction of the dam and reservoir will be razed or partially dismantled for salvaging items of historic value. Buildings of quality will be photographed and documented, but ruins of former structures and historic sites will be inundated. In spite of the fact that the Old Mine Road Historic District has been nominated to the National Register of Historic Places, approximately 12 miles of the right of way will be submerged between the dam and Van Campen's Creek and between Flatbrookville to within a mile and a half above Shapnack Island. The remaining portion will be widened and relocated in some areas to accommodate heavier traffic loads. Towns to be flooded include Bushkill, Flatbrookville and Dingman's Ferry. Sites of former towns to be inundated are

Minisink and an unidentified site near De Pue Island.

A partial list of buildings and sites located within the lake area is shown on Table 22-136 below. Site designations are keyed to John Cary's History Study of The Proposed Tocks Island National Recreation Area. The status indicated was derived from several sources, including the Historic Research Management Plan prepared by Frank B. Sarles and F. Ross Holland for the National Park Service, and excerpts from the Corps of Engineers Comments on the National Park Service Historic Information Plan. Additional information was obtained from site observation and discussions with local residents and members of the Park Service. Since much of this information is dated, many buildings have been omitted from the table and the status for some structures may be in error and not reflect present NPS policy. The Service is presently finalizing a list of all remaining structures with their recommendations. However, it has not been approved and is therefore not ready for public distribution.

The Park Service has received a commitment from the Corps that where feasible, dikes would be constructed to protect from flooding those buildings or areas of greater significance which could not be relocated. At present, consideration is being given to diking Walpack Center and Peter's Valley, if necessary, since the two hamlets contain over forty buildings and border the high water line. Such measures were discussed at one time for three sites in particular that are of great local concern, namely: the Isaac Van Campen Inn and Abraham Van Campen farm house on the New Jersey side and the Zion Lutheran Church in Pennsylvania. In the case of the latter, a structural survey undertaken has revealed that the brick walls would not withstand the shock of relocation.

Table 22-136 Historic Structures Chart *

Site Number	Name	Date	Description of Status
Pennsylvania			
M-3	Site of former Kittatinny House (Inn)	1833-1890	Below dam. May not be acquired.
M-4	Site of Water Gap House (Inn)	1871-1915	Below dam. May not be acquired.
M-9	Site of Sawmill	1798	Below dam. May not be acquired.
M-53	Zion-Lutheran Church	1851	Will be flooded. Vandalized and damaged after acquisition. Will be razed if dam is constructed.
M-58	Robacker House and Summer Kitchen	Late 1700's	In construction area. Demolished.
	Newcomb		Brick and stone building in construction area. To be razed.
	Walter		Old frame structure. Will be flooded. Demolished.
	Henry Kautz Farmhouse		Stone house with outbuildings. Demolished. In construction area.
P-1	Site of Hyndshaw Fort	1756	Will be flooded.
P-2	Grist Mill, Bushkill	c1760	Wood. To be flooded. Relocation considered.
	Farrington House and Outbuildings		To be flooded. House and smokehouse demolished.
	Dewitt Barn & Woodshed		To be flooded. Relocation considered.
	Cold Spring Farm & Spring house	late 1800's	To be flooded. Home demolished. Relocation considered for stone spring house.
P-4	Corner Gift Shop Bushkill	c1790	Will be flooded and razed.
	Heller Clark Mill		Will be flooded. Relocation considered.

Table 22-136 Historic Structures Chart (Continued)

Site Number	Name	Date	Description of Status
P-6	Raymondskill Battlefield	April 1780	On high ground. Portions may be developed for recreation.
P-7	Dutch Reform Church, Dingman's Ferry	1837	Will be flooded. Relocation considered.
P-9	Dingman Academy	c1813	Demolished.
P-10	Dingman House, Inn	1870	Near pool edge. To be razed.
P-12	Yellow Frame House	1810	- To be razed.
P-13	Old Stone House at Dingman's Toll Bridge	1815	Stone, will be flooded. To be razed after salvage of special features.
P-14	Brownie Holliday House	c1860	Frame. Will be flooded. To be razed.
P-65	Union School House (last one room school-house in Pike County)		Near park boundary.
New Jersey			
S-67	Christopher Decker House	1837	Will be flooded. To be razed.
S-59	Second Shimer House	-	In ruins.
S-58	Shimer House	c1777	Near park boundary. To be preserved.
S-57	New Minisink Reformed Church	1819	
S-62	Armstrong House (Raftsman Inn)	-	On park boundary. Preservation considered.
S-56	Stoll Store Building	Early 1800's	Preservation considered.
S-39	Everitt House	1750	Will be flooded. Demolished.
S-45	Black Farmhouse	1795	Will be flooded. To be razed.
S-55	Old School House	-	Above pool.
S-24	Warner House	-	Demolished.

Table 22- 136 Historic Structures Chart (Continued)

Site Number	Name	Date	Description of Status
S-63,64	Site of Church and Cemetary	1737	Recreation areas considered in area.
S-66	Site of Blockhouse	1756	Adjacent to planned recreation facilities
S-40	Johannes Westbrook (Bell) House	1701	Will be flooded. Relocation considered.
S-49	Ennis House	1751	May be flooded. Preservation considered.
S-43	Fuller House	1751	Preservation considered.
S-41	Anson Johnson House	c1800	
S-42	Gumaer House	c1838	Frame. To be razed.
S-46	De Pue House (Alonzo)	before 1800	Preservation considered.
S-38	Frank Stoll House (Heron's House)	c1830	Will be flooded. To be razed.
S-6	Dr. Roe House	1830	To be preserved.
S-11	Young's House		To be preserved.
S-8	Robert Stoll House	c1780	To be preserved.
S-7	Dutch Reformed Church	1826	To be preserved.
S-10	Jane Layton House	1810	May be flooded by Flatbrook Inlet. To be razed.
S-32	Bensley House		To be preserved.
S-95	Isaac Rundle House	Early 1800's	Will be flooded. To be razed.
S-19	Isaac Van Campen Inn	1740	Stone. Will be flooded. Relocation considered expensive and possibly unfeasible. Considered most important building in park. Barn demolished.
S-98	Jacob Roe House	Very Early	Edge of pool. May be razed.

Table 22-136 Historic Structures Chart (Continued)

Site Number	Name	Date	Description of Status
S-96	Cornelius Gunn House	c1814	Edge of pool. May be razed.
S-94	Hull House (dwelling)	1822	Edge of pool. May be razed.
S-93	Daniel Knight House	-	Edge of pool. Demolished.
S-92	Samuel Cole House	Early 1800's	Edge of pool. Demolished.
S-48	Site of Fort Namonock		Will be flooded.
S-20	Fort Shapnack Foundation		Will be flooded.
S-21	Symes-Rosenkrans Cemetary		Adjacent to possible recreation facilities.
S-91	Richard Layton House	c1807	To be razed.
S-97	Dayton Cole House	1760	To be razed.
S-15	Albert Knight House	Early 1800's	Will be flooded. Relocation considered.
S-18	Rosenkrans House	1807	Will be flooded. To be razed.
S-16	Daniel Decker House	c1800	Will be flooded. To be razed.
W-43	Millbrook Methodist Church	1860	Original structure burned, reconstructed.
W-10	Abraham Van Campen House	1725	Stone, will be flooded. Relocation considered expensive.
	Van Campen's Farmhouse		Relocated to Millbrook.
	Old Delaware Water Gap Railroad Station	c1900	Brick. Considered for interpretive uses. May not be acquired.
	Wallpack Center		May require diking
	Bevans		May require diking.

* The status of buildings on this table is based on the assumption the dam and reservoir are not deauthorized. Data does not reflect latest N.P.S. priority rating.

The other two buildings, while admittedly of high quality, would require great expense and effort to move. The Inn has been the subject of several studies. All three are well below the pool level and diking is no longer considered practical. If the dam is constructed, the Park Service feels they must go.

DWGNRA

Outside the pool area the impact will be somewhat less severe. Present policy is to save structures of value for further use either as part of interpretive programs or for utilitarian purposes. Besides those used for residences by park personnel, a handful may be left on their original site and some will be relocated to the living farms and restored village complexes. While this will be of educational value to many visitors, the historic value will be reduced in that the buildings will have lost their actual "spot of location."

Relocation of buildings has been minimal so far, but as Table 22-136 indicates, losses have been great. Land acquisition began prior to the preparation of a final plan for historic preservation and the initial Corps policy permitted former owners to salvage whatever they wanted from their homes, including the structure. Displaced residents often left with the doors, windows, cabinets, and other pieces of antique value, leaving behind an open shell. Although remedial work may have been possible to save what was left, in many cases the buildings were destroyed by bulldozers.

The Park Service maintains a permanent staff within the acquired portion of the NRA, but its size and resources are limited by available funds. State and local police no longer effectively patrol those areas which are federally owned. As a result, many buildings which were in tact after they were vacated have been broken into by squatters who vandalized the interior. A fire destroyed the interior of the Zion Lutheran Church including the pews and wall paneling, and as a result of later exposure to the winter weather, the interior wythe of salmon brick is so soft, relocation would be impossible. Boarding was removed from some windows of the Isaac Van Campen Inn, and also as a result of exposure, deterioration of the building was accelerated to the point where it is now considered unfeasible to relocate the structure without spending several hundreds of thousands of dollars.

Outside DWGNRA

The impact of the recreation area to the surrounding country side and towns is not as quantifiable. Blairstown, New Jersey and Milford, Pennsylvania straddle access routes to the park entrances. Milford will be adjacent to one of the most heavily developed recreation sites in the park. Both towns possess areas containing numerous buildings that date back to the early part of the 20th century or earlier. Without adequate controls the antiquarian charms of these areas could be smothered by the pressures of modern commercial development.

Mitigating Action

It has been suggested by many residents of the area that present occupants be allowed to remain within the park, and where practical or convenient continue to operate their farm or business. Present policy of the Park Service does permit inholdings of private land within older parks. Acquisition of

these lands is anticipated to follow a concept of "willing buyer", "willing seller", until such time as the use of inholdings is considered incompatible with a park or creates a threat of immediate damage. This policy is presently operative in DWGNRA for individual cases, on a lease-back agreement, but the recreation value of the land will preclude its extensive use. The immediate value of this policy to the historical issue is that all sites would remain occupied and the vandalism that has occurred could be avoided in the future.

One action which alone would be the most effective in reducing the impact to historic resources is deauthorization of the dam and reservoir. Structures within the proposed flood area which are scheduled for relocation or demolition could, under a plan for DWGNRA without a lake, remain intact on their original sites. Many of those of little historic importance possess great charm and would add immeasurably toward preserving the rural character if used for some utilitarian purpose. In preserving 10,000 acres of dry land that would otherwise be inundated, sites of historic interest without buildings (Old Mine Road and the fort sites) would add considerably to the value of the historic interpretive program.

It is recognized that other areas of equal or possibly greater historic significance may exist in the northeast region. This discussion is not of large enough scope to weigh the merits of each or to assess the need or demand for a national historic park within the region. However, sufficient resources still exist in the Tocks Island area to develop an historic preservation program that would be a national and regional asset regardless of the park's basic purpose. What is needed is a definitive course of action and plan which will assure the maximum preservation of sites and structures of importance. It would appear that the Corps and NPS are at last moving in this direction, but further delay and conflicts at this time can only result in a loss of historic resources.

Consultants Contacted

1. W. Fred Kinsey III, Franklin & Marshall College, North Museum, Lancaster, Pennsylvania

2. Herbert C. Kraft, Seton Hall University. Seton Hall University Museum, South Orange, New Jersey

3. Lorraine Williams, N.J. State Museum

4. David Kimball, National Park Service

5. Wilfred Husted, National Park Service (Salvage Archaeology Program)

6. John Bond, National Park Service

7. Henry Magaziner, National Park Service (Historic Structures Survey)

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Legislation

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XXII.C.5(c) Aquatic Biology

An annual influx of 4-10 million visitors will not be beneficial to the aquatic ecology of the contiguous area. Oil and gas spillage from motor boats and litter are common pollution problems associated with reservoir-oriented recreation. The precise degree of development impacts upon the TILP aquatic system (e.g., fish kills, standing crop, species composition) cannot be delineated without an Environmental Impact Statement performed on each of the development elements. However, information developed as a result of the "Tocks Island Lake and Alternatives Study" can be utilized to present the following general impact analysis.

Sedimentation loading from road and bridge construction throughout the basin can affect the aquatic environment (X.A.3). Sedimentation loss during proposed road construction is not as potentially hazardous to the Delaware River waters as is bridge and/or dam construction. Because of the direct nature of the sediment and COD loading to the smaller tributaries in the DRB, construction of bridges across DRB streams (e.g., a proposed 209 crossing of the Bushkill) can be damaging to the aquatic system. Large-scale mainstem projects introducing sediment loads to the river (e.g., a possible additional crossing of the mainstem at the Delaware River Bridge) present comparable but less severe problems due to the dilution factor present in the mainstem. Phasing of construction operations in order to avoid anadromous fish runs

and resident fish spawning would partially mitigate the short-term aquatic impacts associated with road and bridge projects.

Urban development in areas surrounding the DWGNRA resulting from implementation of the Tocks Island Lake Project will affect the aquatic biology of Tocks Island Lake and downstream waters. Increased heavy metal and nutrient flow into the tributaries streams via storm water run-off will add to the present inorganic and organic pollution loads. Street surface contaminants, especially the loadings of COD and heavy metals (cadmium, lead, copper, and possibly zinc), may have a damaging long-term effect upon the aquatic environment. Though the specific changes attributable to recreational use and associated development are not predictable, the net result of these aspects of TILP is generally expected to be adverse to the ecology of the receiving waters.

XXII.C.5(d) Wildlife

Development for public use with an associated influx of 4-10 million annual visitors to the proposed Tocks Island Reservoir, and any private development outside the DWGNRA, will lessen the available habitat for wildlife. Existing habitat areas would be converted into campgrounds, resorts, homes, and recreation areas (such as beaches, public landings, and boat docks). Construction of roads and bridges will result in additional loss of habitat and feeding areas. The destruction of this potential habitat will further strain the 880 acres proposed as mitigation area. Even if recreationally associated development is minimal, this 880 acre area is not adequate to sustain the displaced wildlife. Proper wildlife management practices within the contiguous area is of utmost importance.

Animals will be disrupted by human activity. Particularly affected will be the white-tailed deer. Forced into surrounding hills where suitable vegetation is sparse and niches currently occupied, a population decline is imminent as competition would be heightened (Chapter X.A.4). Proposed campgrounds and resort areas should be managed to provide maximum habitat and feeding areas, such as planting native species of plants and clearing. Other mammals, reptiles, and amphibians, will be similarly affected as outlined in Chapter X.A.4. Shorebird habitat will also be compromised, since oldfield communities would be destroyed by flooding (Chapter IX.C.3). Any additional loss to

shoreline development will degrade this situation. Recreation on the lake would disturb indigenous waterfowl unless recreation-free areas are designated. Development would further enhance the potential for regional elimination or disruption of rare or endangered species, such as the bald eagle, bog turtle, and porcupine. Other rare or endangered animals that could be affected by the attendant visitor population and structural development are mentioned in Chapter IX.C.3. Undoubtedly the incidence of deer and small animals being killed and injured by motor vehicles will increase substantially as well.

The introduction of dogs, cats, and housepets into the region will place further pressure on "prey" populations and cause a concomitant disruption. Man, as a result of his activities, also attracts certain species of animals that thrive on his existence. Particularly, this would include a net migration of urban bird types, such as sparrow and starling.

XXII.C.5(e) Water Quality

The water quality of both surface and groundwater resources in the TILP-DWGNRA impact area will be subjected to increasing degradatory pressure. This pressure will stem from construction-generated erosion, and the attendant increases in sewage effluent discharges, solid waste disposal and urban runoff generation produced by the new residents and facilities.

Erosion and subsequent increases in stream turbidity will occur due to construction activities, especially construction of transportation systems. As mentioned previously in X.A.5 and XVI.C., all the affected states have regulations limiting the magnitude and duration of such turbidity increases on stream quality. Various methods are available (Processes, Procedures, and Methods to Control Pollution Resulting From All Construction Activity, U.S. EPA, 1973) to eliminate or limit such turbidity increases. Mitigation measures based on these and other control criteria should be included in the environmental assessments of these individual developments.

The effects of increased sewage and solid wastes should also be reduced by the mandates of PL 92-500 and other environmental legislation. As mentioned previously in Chapter VI.B., the important goals of this act are to provide for the preservation and enhancement of fish and aquatic habitat by 1983 and the complete removal of all pollution

from surface waters by 1985. Because the dam will require at least eight years to complete, these goals should have been met for many existing development areas and will have to be met for any new development. Possible contamination of groundwater from landfill sites will not be significant due to the strict regulations of the affected states. Advances in landfill design and operation and the increasing emphasis placed on resource recovery and proper disposal of hazardous waste will further protect groundwaters.

The outlook for control of urban runoff is somewhat more cloudy as few funding programs have been established to plan, design and construct systems to effectively collect and treat urban runoff. Studies now being conducted in the area under the Commonwealth of Pennsylvania's Comprehensive Water Quality Management Program (COWAMP) will be determining the present and future extent of the urban runoff problem, control measures able to solve the identified problem and funding and institutional arrangements to implement the solution.

XXII.C.5(f) Vegetation

XXII.C.5(f)(1) Impacts of TILP-DWGNRA Development and Recreation on Vegetation

Much of the riverbank and floodplain vegetation will be lost during construction of the dam. From the dam to the Delaware Water Gap some riverbank and floodplain vegetation will remain, especially on some of the islands and near the Water Gap. Some streambank vegetation will remain along the tributary streams as well, but most vegetation along the tributaries is ravine and upland forest vegetation, not riverbank and floodplain types. The riverbank and floodplain vegetation on the islands and near the Water Gap will experience the greatest recreational impact because this vegetation is near the center of activity. Established trees will remain, but herbaceous plants, small shrubs, and tree seedlings will be disturbed. Squirrel corn, painted cup, and bee balm (Oswego tea) are rare plants known to grow below the dam, and other rare plants are believed to grow there also. Construction will have reduced the range of these species considerably and recreational pressures will reduce their populations further because these rare species are attractive flowers that are likely to be picked.

The dam will stablize the stream flow and eliminate extremes of flood and drought. This stabilization will also eliminate or reduce the deposition of new, fertile silt on the floodplain. Conditions will be more favorable for the common plant species but specialized floodplain species will probably be unable to compete successfully with these more aggressive species.

Tributary floodplain communities will be subject to some recreation impacts but to a lesser extent than mainstream communities, because they will be less accessible and will be used for less concentrated recreational activities. Any new structures (for example, picnic facilities) along the tributaries would probably be built in areas where the floodplain is relatively wide because other areas along these streams are too steep. Even such small developments would have some deleterious effect on the rather unusual floodplain plant community.

Some of the streambank and floodplain species will become established around the shores of the reservoir if some source of their propagation remains. Some of these plants, especially the more hydrophylic species, may be considered "nuisance" plants and efforts will be made to prevent or control their reestablishment. Such measures will prevent improvement of habitat and community succession.

Below the dam to the Water Gap, flood protection provided by the dam will encourage development of the floodplain. Some natural floodplain, riparian, and cultivated plant communities will be replaced by recreation facilities especially beaches and related structures. Additional flood control measures, which would require additional clearing and disturbance of vegetation, would be needed for more intensive development.

Lowland Forest

The lowland forest that remains after reservoir construction will support extensive recreational use and possibly some structural development. Much of the land recreation activity will take place in the lowland forest, especially where it is near water activity facilities. This forest type will experience extensive pressure from pedestrians, hikers, and possibly horses, motorcycles, or even automobiles. This pressure will reduce germination and survival of seedlings. Mature trees will be able to withstand the pressure although they will be subject to vandalism and possibly fire. Picnic and camping facilities are expected to be located in the lowland forest. A few such facilities would not appreciably degrade the botanical values of the forest, but large picnic areas and campgrounds would require substantial clearance. Other structural recreation facilities such as lodges, cabins, or playgrounds may be located in the lowland forest, although specific plans are not yet available. Such facilities would degrade the quality of the plant community, as many trees, shrubs, and herbaceous plants would have to be cleared for construction and fire control. Plant communities other than lowland forest would be more appropriate for structural recreation facilities.

Slopes and Upland Forests

Slopes and upland forest will be used less for recreation than lowland forests because they are farther from the centers of activity and

because the slopes are unsuitable for most types of development. Hiking and equestrian trails are expected to be the principal recreation facilities in the slopes and upland forests. Clearing and maintaining these trails will have some impact on the vegetation, especially the lower growth. User impacts will be minor. If camping is allowed, impacts will be slightly greater, especially if sites for camping vehicles and motorhomes are provided. The use of open fires will pose a hazard.

The degree of impact is related to the ease of access to a given area. The flatter ridgetops will experience more severe impact than the forested slopes because construction there is more feasible. In potential development areas, many hardwoods will be removed including oaks, hickories, tulip tree, maples, cherry, and beech. The upland forests are particularly interesting because they are transitional between northern and southern hardwood forests and include many representatives from both regions.

Oldfields

Oldfields, particularly those that have not yet been recolonized by trees, are prime sites for development. Upland oldfields are especially susceptible to structural development. Plants that will be lost from the more recently abandoned oldfields are mainly introduced colonizers, and the impact of their loss, in itself, will be minor. Development will, however, prevent succession to an intermediate stage

in which native trees and shrubs begin to colonize and the habitat is extremely good for wildlife, especially deer. When more advanced stages of oldfield communities are disturbed for development, existing rather than potential wildlife habitat is lost and the chances of removing rare or unique plants increase. In later stages impacts of removing oldfield vegetation are comparable to impacts of removing forest vegetation. More clearing is required to develop sites that have relatively mature, successional communities and such sites are somewhat less susceptible to heavy development and more susceptible to recreational use.

Even if the dam is built, the floodplain oldfields will be unsuitable for most types of building development unless additional flood protection is provided. Because the dam will greatly reduce flooding, a true floodplain vegetational community will never redevelop. If these oldfields are left undisturbed or used only for light recreation, many of the riverbank species will return. The species that depend on periodic flooding will be permanently lost from most of the region, but the riparian community that will develop is potentially interesting botanically and valuable for wildlife.

Cultivated Fields and Pastures

Cultivated fields and pastures in the TILP area have become much less extensive. Most of the floodplain cultivated fields were abandoned when the Tocks Island dam seemed imminent, and most of the upland

fields and orchards had been abandoned earlier. Those fields still in cultivation are subject to the same types of impacts as oldfields. Developing existing cultivated and pasture plant communities would deplete a food source for humans but the impact on wildlife or interesting floral elements of the region would be minor. If abandoned and left undeveloped, these fields would undergo the same type of succession as oldfields. It may be possible to retain some of the fields and pastures under cultivation, but most are expected to be developed or abandoned.

Scrub-oak Barrens

Recreational use or development on or near the top of Kittatinny Ridge would disrupt the scrub-oak barren community that occupies much of the ridgetop. This plant community has significance as an interesting botanical community and is unsuitable for development and most recreation. If made readily accessible, this community could be destroyed by visitors who would find the scrubby, impenetrable vegetation detrimental to their recreational use. Lack of access would prevent such abuse.

The scrub-oak barren community is quite fragile, and any modification of environmental conditions would either destroy it or induce succession toward a different community. Any erosion-causing development would be especially detrimental, as the soil is very thin and poorly developed.

This community type is an interesting example of adaptation to adverse conditions, is unsuitable for development, and should therefore be preserved.

Excessive fire control would induce succession toward a chestnut oak/pitch pine forest. Development adjacent to the scrub-oak barrens would require fire control, but additional fire hazards would still be introduced. Succession could proceed in three possible directions:

1. Fire control could be effective and the scrub oak would be replaced by chestnut oak.
2. Fire control could prevent small fires so that less frequent, larger, more destructive fires would devegetate the ridgetop and erosion would remove the small amount of soil available.
3. Fire control could be totally ineffective and the community would remain as it is.

Controlled burning has been practiced for many years, thus perpetuating the scrub-oak barren community and reducing the hazard of more destructive fires. The primary purpose of controlled burning has been to encourage the growth of blueberries. Structural development and most types of recreation would be incompatible with the maintenance of the plant community. Limited hiking would be acceptable although much of the vegetation is nearly impenetrable, and designated paths would have to be maintained to preserve the remainder of the community from random disturbance.

Acid Bogs

No acid bogs are within the DWGNRA as presently planned, although one or more could be included if the boundaries were expanded slightly. In the Poconos, farther from the DWGNRA, acid bogs are relatively common. Accommodations built for tourists visiting the Tocks Island recreation facilities would also increase access to the Poconos. With some protection and limited access (by foot only), the unusual acid bog plant communities can be enjoyed without becoming appreciably degraded. Projects that would alter the drainage, increase siltation or dilution, or facilitate access by large numbers of people would destroy or degrade the quality of the acid bogs within the sphere of influence of such projects. Some of the more interesting plants whose numbers could be reduced if acid bogs are managed poorly include Andromeda, (or bog rosemary) and swamp laurel -- two rare plants in the heath family -- and purple pitcher plant and round-leaved sundew, two insectivorous plants.

Cliff Vegetation

Cliff flora will be subject to increased pressures with the development of the recreation area. The Milford Cliffs are already easily accessible and the spectacular view is expected to make these cliffs very popular with tourists. The specialized plant community will be subject to extensive presssure by the millions of annual visitors. Strong protective measures will be needed if the unique plant community is to be

preserved. The dangerous rubble cap at the edge of the cliff is an asset to the plant community in that it protects part of the clifftop vegetation from human pressures. Increased accessibility to the cliffs at Matamoras and the Water Gap would subject these plant communities to the same pressures as the Milford Cliffs. Even with present limited accessibility, development of the recreation area would increase the number of visits to these cliffs. The Water Gap cliffs, which are already popular for climbing, are expected to become even more subject to the same kinds of pressure. Plant communities will be disturbed by future recreational use. Impacts are expected to be slight, but some protective measures may be needed to preserve the more sensitive vegetation. Because the soil is thin, dry, and exposed to winds, even mild erosion could be extremely detrimental to the unique cliff plant communities. Some of the characteristic cliff plants that might be depleted are mountain spleenwort (a fern), goat's rue (a plant in the pea family), rock harlequin (a plant in the fumitory family) and a native prickly pear cactus. Turkey corn, in the fumitory family, is a rare plant that might be further depleted with increased recreational use of the cliffs.

Talus Vegetation

Talus, the loose rock at the base of the cliffs, is very unsuitable for recreational use. Climbing on talus slopes is difficult and dangerous but will probably be done, especially if the recreation area is

developed. Even relatively light recreational use of talus can be quite deleterious to the fragile plant community there. Until a plant is well established on a talus slope, even a slight disturbance threatens its survival. Burial, crushing, root exposure, and loss of substrate are all hazards to talus plants, and recreational use will intensify these hazards. (It should be noted that some of the existing talus will be inundated by the reservoir).

Ravine Bank Vegetation

The steepness of the ravine banks will help protect the plant communities from adverse impacts. Development of the ravine banks themselves is impractical, but construction or heavy recreational use near the edges of the ravines would cause erosion and subsequent vegetation loss. Operation of the reservoir will raise the water level of the streams at the bottoms of the ravines, causing a shift toward more riparian species.

Use of the ravine streams for water-related recreation should have little impact on the ravine bank vegetation. Vegetation near boat docking, picnicing, or swimming areas will be subject to more pressure than the other vegetation along the ravines. Vegetation of the gentler slopes of the ravines is most vulnerable to the adverse impacts of recreational use. Bridges across the ravines would cause additional disturbance of vegetation. In general, however, the quality of the ravine plant communities is expected to be preserved.

XXII.C.5(f)(2) Secondary or Growth-Induced Impacts on Vegetation

Vacation homes or resorts will probably be developed on upland ridge-top forest communities and both upland and lowland forests along major access routes, notably I-80, 84, and 206, as well as along secondary routes. Along the major routes commercial developments will require clearance of additional forest land. Relocation of route 209 will disturb substantial amounts of upland forest vegetation and associated commercial and urban development will further disturb the forest on the Pennsylvania side.

Upland cultivated and oldfield plant communities will be subject to urban, commercial, and recreation-related development. Road construction will also affect these plant communities.

They are mixed with the upland forest communities and are generally located along or near existing access routes. Accessibility and the relative ease of clearing these types of plant communities make them especially vulnerable to development.

Scrub-oak barrens are not very suitable for development but it is expected that just outside DWGNRA, especially in Sussex and Warren Counties, New Jersey, growth will extend into or near these stands. Even if not developed, changes in hydrology and fire patterns will modify the succession.

Some acid bogs may be drained and filled to accommodate growth, but such development would be associated primarily with recreation in the Poconos and only secondarily with DWGNRA.

Cliff and talus slope plant communities are not expected to be directly affected by growth.

Ravine bank vegetation will be most disturbed at the crossings of the relocated Route 209.

Rare and Endangered Plants of TILP/DWGNRA

The following is a partial list of rare, endangered or unique plant species in the TILP/DWGNRA and adjacent areas. These plants will be subject to direct impact through clearing or inundation or indirect impact through recreational use or related development.

Table 22-137 Rare Plants of TILP/DWGNRA Area

Ferns

Schizaceae - Curly grass family

Lygodium palmatum

Climbing fern

Polypodiaceae - Fern family

Athyrium pycnocarpon

Glade fern

Camptosorus rhizophyllus

Walking fern

Matteuccia struthiopteris

Ostrich fern (Not on Trimbley's or Faubrothers' list but largest known stand occurs on reservoir site)

Flowering plants

Graminaeae - grass family

Trisetum pennsylvanicum

Swamp oats

Lemnaceae - Duckweed family

Star duckweed

Lemna triscula - a very small floating aquatic plant

Liliaceae - Lily family

Chamaelirium luteum

Blazing star

Orchidaceae - orchid family

Habenaria cilliaris

Orange orchis

Isotria medeoloides

Small whorled pogonia

Calopogon pulchellus

Grass pink orchid

Corallorhiza trifida

Early coral root

Liparis lilifolia

Twayblade

Table 22-137 (Cont.)

Liparis loeselii

Loesel's yellow twayblade

Aplectrum hyemale

Putty root

Aristolochiaceae - Birthwort family

Aristolochia serpentaria

Virginia snakeroot

Ranunculaceae - Buttercup or crowfoot family

Clematis verticillaris

Purple clematis

Trollius laxus

Spreading globe flower - rare on east coast but fairly common in Rocky Mountains

Fumariaceae - Fumitory family (part of poppy family in Trembley's list)

Dicentra canadensis - Flood plain -- locally abundant

Squirrel corn

Dicentra eximia - Cliffs

Turkey corn

Crassulaceae - Stonecrop family

Sedum rosea - Rare in DWGNRA area but fairly common in Arctic and Rocky Mountains

Saxifragaceae - Saxifrage family

Tiarella cordifolia

Foam flower

Rosaceae - Rose family

Waldsteinia fragarioides

Barren strawberry

Polygalaceae - Milkwort family

Polygala paucifolia

Fringed milkwort

Aquifoliaceae - Holly family

Ilex montana

Mountain holly

Araliaceae - Ginseng family

Panax trifolius

Dwarf ginseng

Table 22-137 (Cont.)

Ericaceae - Heath family

Andromeda glaucophylla - Sphagnum bogs

Andromeda

Kalmia polifolia - Sphagnum bogs

Bog laurel

Gentianaceae - Gentian family

Gentiana linearis

Closed gentian

Oleaceae - olive family

Chionanthus virginicus - Depue Island

fringe tree

Hydrophyllaceae - waterleaf family

Hydrophyllum canadense

Broad-leaved waterleaf

Labiatae - Mint family

Monarda didyma

Oswego tea, bee balm -- stream banks in Reservoir area

Scrophulariaceae - Figwort family

Castilleja coccinea -- in reservoir area, floodplain and damp meadows

Scarlet painted cup

Orobanchaceae - Broom - rape family

Conopholis americana

Cancer root

Caprifoliaceae - Honeysuckle family

Lonicera canadensis

Fly honeysuckle

Viburnum alnifolium - Ravines

Hobblebush

Campanulaceae - Bellflower family

Lobelia dortmanna -- stream banks

Water lobelia

XXII.C.5(g) Air Quality

An air quality review was performed to investigate the general magnitude of the impact additional automobile traffic induced by the Tocks Island Lake Project would have upon the region. It was concluded that the region's air quality will essentially remain unchanged and that national ambient air quality standards would not be exceeded. This conclusion is based upon the premise that Federal automobile emission standards will continue to be enforced at least to this year's (1975) level, and that improvements to the region's roadway network and park facilities will be properly designed to insure the free flow of traffic. The following is a discussion of the analysis and the rationale behind the conclusions.

The air quality of the study region is presently good. Although little ambient air monitoring has been performed in the region it can be assumed, because of the limited number of emissions in the area and the climatology of the region, that the background concentrations of air pollutants are below National Ambient Air Quality Standards.

Air quality is commonly assessed on both a regional and a local basis. On the regional scale the photochemical oxidant concentration is of concern because it is the end product of two major automobile pollutants, reactive-hydrocarbons and oxides of nitrogen. On the local scale carbon monoxide is of concern because of its known health effects at high concentrations and because it is also a major pollutant emitted from automobiles.

XXII.C.5(g)(1) Regional Air Quality Impact

Regional Air Quality is determined by the combination of an area's topography, climatology and emissions of pollutants. It can be assumed that neither the topography nor the climatology of a region will change over a long period, therefore, future air quality will be determined by future emission levels. Reactive-hydrocarbons are the major primary pollutant involved in photochemical oxidant formation and so reactive-hydrocarbon emissions can be used to indicate an area's future oxidant trends.

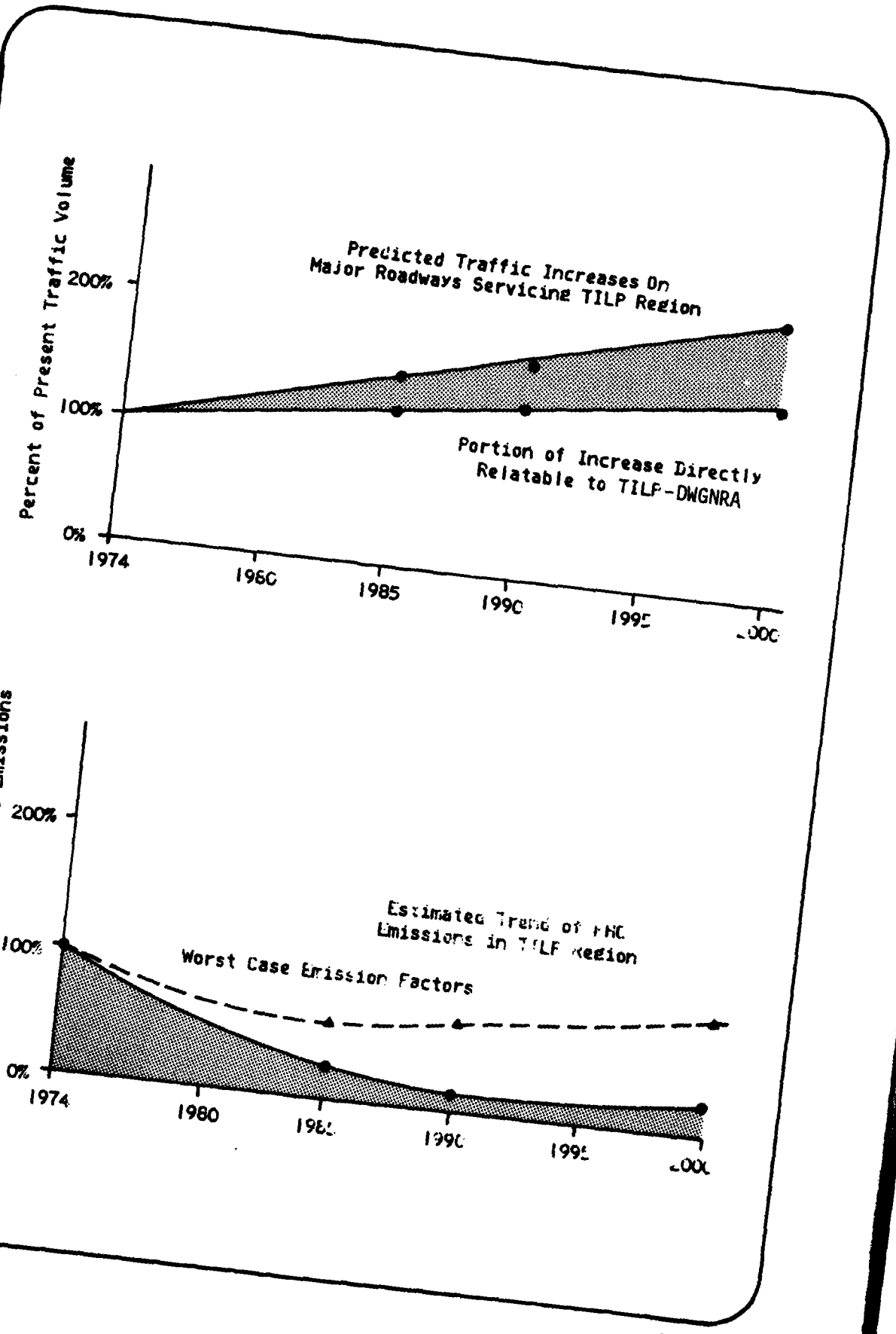
Future reactive-hydrocarbon emission levels of the Tocks Island region were calculated by applying automobile emission factors to estimates of future traffic volumes. The results of these calculations indicate that a regional decrease in photochemical oxidants is likely to occur in future years. The anomaly of more cars and less emissions is due to automobile emission control devices presumably becoming more effective.

The traffic volume estimates used in making the reactive-hydrocarbon predictions are included in Chapter XXV of the report. It is anticipated that, by the year 2000, summer Sunday traffic will approximately double on roadways servicing the TILP-DWGNRA region compared to present traffic volumes. TILP-DWGNRA is expected to induce approximately 15 percent of the area's traffic by 1985; (20 percent by 1990 and 30 percent by the year 2000, if phases II & III are implemented).

The remaining portion of the future traffic volume increase on the local roadway network will be induced by factors other than TILP-DWGNRA.

A questionable factor in making future emission estimates is the present indeterminant state of automobile emission control regulations. The U.S. EPA in early 1975 postponed the 1977 federal automobile emission standards until 1978. Emission factors based upon this postponement and EPA methodology (AP-42) were used in making the reactive-hydrocarbon estimates. In addition, the situation of emission control standards remaining at 1975 levels indefinitely was assessed as a worst case emission factor situation.

The result of the regional air quality analysis are depicted graphically in Figure 22-19. The region's reactive-hydrocarbon burden will be lower than present levels through the year 2000 because the rate of traffic growth will be below the rate of reduction in automobile emissions. If automobile emission standards are not upgraded above today's levels, however, emission levels by the year 2000 will be approximately at the same level they are presently and increasing. Therefore, this analysis points to the importance of implementing more stringent standards in order to further reduce the reactive-hydrocarbon burden. The reduction in the region's future reactive-hydrocarbon burden if more stringent emission standards are implemented indicates that the area's future photochemical oxidant levels will also be reduced.


Percent of Present Traffic Volume
200%
100%
0%
1974
1980
1985
1990
1995
2000
Predicted Traffic Increases On
Major Roadways Servicing TILP Region
Portion of Increase Directly
Relatable to TILP-DWGNRA
Percent of Present RHC Emissions
200%
100%
0%
1974
1980
1985
1990
1995
2000
Worst Case Emission Factors

XXII.C.5(g)(2) Local Air Quality Impact

High carbon monoxide concentrations exceeding federal standards can occur in metropolitan areas or along heavily travelled highways. Such exceedances in rural areas are typically limited to several hundred feet downwind from roadway sources and happen only during worst case meteorological conditions of low wind speeds combined with surface based temperature inversions. Such conditions commonly persist on only a few days per year. Best and worst case emission factors were addressed as in the previous regional analysis.

Predicted maximum carbon monoxide concentrations along several roadways in the TILP region are listed in Table 22-138. These peak-hour concentrations depict a situation which might occur on the rare occasion when peak-hour traffic and worst-case meteorological conditions coincide. The peak-hour concentrations do not exceed the federal carbon monoxide standard of 35 parts per million/1 hour but are significantly high enough to merit closer examination and mitigation measures. Similarly estimates of the maximum 8-hour carbon monoxide concentrations indicate that this standard will likely be approached but not exceeded. In almost all cases, concentrations will be below 1974 levels due to the automobile population having better emission controls than exist presently.

Table 22-138 Estimated Maximum Downwind Carbon Monoxide Peak-Hour Concentrations Along Several Major Roadways

Best Case Emission Factor	1974	1985	1990	2000
Route 23	6	2	2	2
I-80 (East of I-308)	11	2	2	2
I-84	6	1	1	1
DWG Bridge	11	2	2	2
Worst Case Emission Factor				
Route 23	6	7	8	10
I-80 (East of I-308)	11	7	8	8
I-84	6	4	4	4
DWG Bridge	11	7	8	8

* Peak-hour - worst case meteorological conditions 50' downwind of roadway, vehicle speed = 50 mpg. Concentrations do not include background levels which are 1 ppm or less.

One of the best mitigation methods available for reducing high carbon monoxide concentrations is to properly design highway improvements and park facilities. This procedure involves attempting to keep traffic free-flowing and alleviating congested areas. Another method to reduce the impact of high carbon monoxide concentrations is to locate improved portions of roadways away from sensitive receptors such as schools and hospitals. Roadway improvements such as those discussed in the traffic section will be necessary to assure that local carbon monoxide concentrations will be below standards. All highway improvement and new park facility design plans should be individually assessed from an environmental standpoint when they are formulated in detail.

XXII.C.6. SOCIAL IMPACTS

The following social impacts (anticipated in the Tocks Island Lake Impact Area) are discussed fully in Chapter XXIV, Life Styles and Attitudes. A summary of those impacts are presented below.

XXII.C.6.(a) Environmental Changes due to TILP/DWGNRA and the Displacement of Local Residents

The favorable environment or general livability is considered to be one of the area's strongest points. Residents describe the townships and boroughs as a "good place to raise a family", within an environment of security and one that is relatively free of crime and the threat of criminal activity. This environment is also stable so that growth is accommodated over time. The environment is friendly inasmuch as most residents live in communities in which they were born and others move into these communities to "settle" permanently.

However, this environment is beginning to change due to an increase in tourism (and accompanying traffic) and new developments. Widespread land speculation and the displacement of local residents to make way for the TILP have shifted existing settlement patterns and set the backdrop for general urban development.

Many local residents have been uprooted from homes they have known all their lives. This has necessitated relocation either within or outside the Tocks Island Lake Impact Area.

XXII.C.6.(b) Current TILP Area Demographic Profile and Potential Conflicts Between Residents and Visitors

The demographic profile of the Tocks Island Lake Impact Area shows that the area is rapidly growing (24 percent increase between 1960-1973); the population is evenly split between rural and urban; households are decreasing in size and increasing in number; and that total personal income increased by 154.7 percent between 1959-1962.

Economically, the impact area has experienced steady growth between 1960-1972, with 50,000 new jobs added, almost all in the nonmanufacturing category. New employment was mostly in the areas associated with tourism and recreation.

Data on social characteristics reveal that impact area residents are older (11.0 are 65 and over compared to 9.9 for the United States); that the area reflects the national scene in having slightly more females than males; and that the area's non-white population is 3.6 percent (compared with 12.5 percent nationally) roughly one-fourth of the non-white population represented by the national composition.

The area's work force is predominately blue-collar and income for most residents is concentrated in the lower-middle and middle-income brackets.

The typical Tocks Island Area resident portrayed in the profile is a white man or woman, living in an urban or rural environment, employed as a blue-collar worker, and earning a low or middle-income wage.

With an influx of DWGNRA visitors and additional permanent residents, it is estimated that the demographic profile of the seven-county area will undergo shifts in the years ahead. The area will likely become more urban, younger, have a greater percentage of non-whites, and enjoy a better average family income. This new profile will reflect a gradual transition from rural to urban. As the change occurs, there will likely be conflicts between the old established rural patterns and the newer urban patterns.

XXII.C.6.(c) Local Perception of Current Lifestyle and DWGNRA Visitor Impact

Community leaders in the seven-county area express satisfaction with local services such as public schools, recreation, shopping, local government, fire protection, medical services, and housing. Schools and housing are the areas least mentioned, and therefore assumed to require less immediate attention. Recreational opportunities rank high as an amenity of enormous importance, and one which is significant for current lifestyles. Local government is highly personalized, so that citizens enjoy participation and control of local decisions. Shopping for day-to-day items and some durables are considered satisfactory, and limitations on selections are accepted as one of the trade-offs that goes with a rural lifestyle.

Local volunteer fire companies and hospitals are important sources of community pride, and are assessed to be adequate at the present time. However, in these two latter areas, outside demands from visitors (in addition to local utilization) are beginning to raise concerns that these services are over-taxed.

The areas in which community leaders express a growing dissatisfaction are environment, transportation, and public safety -- all related to an influx of visitors and growing urbanization. The environment, once considered "pure", is now being threatened by automobiles, emissions, seasonal developments, and the heavy utilization of recreational areas. Roadways are assessed to be adequate for normal traffic, but inadequate for peak seasonal weekends. With more visitors, public safety problems have increased with vandalism being the chief offense.

Overall, community leaders emphasize the area's positive aspects -- rural country living, friendliness, and beautiful scenery -- as well as their satisfaction with local services. Concern is expressed when leaders perceive that changes can alter the lifestyle they currently enjoy.

XXII.C.6.(d) DWGNRA Impact on Public Safety

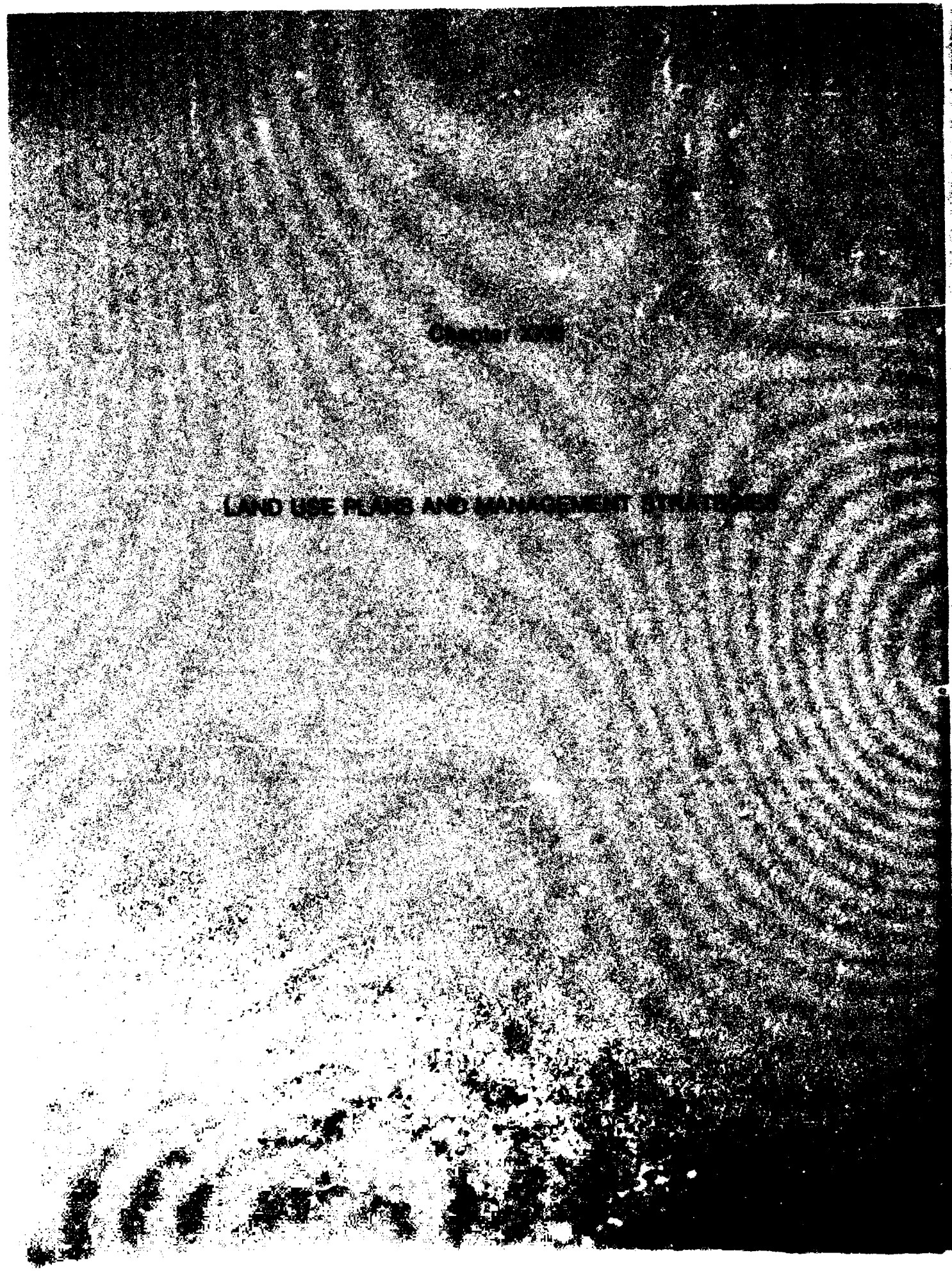
Public safety is an area of increasing dissatisfaction due to a rise in the incidents of vandalism and of drug abuse and public hazards, associated with increased automobile traffic. With the introduction of many visitors

and new permanent residents, trust relationships among citizens of the seven-county area (which are believed to have minimized criminal activity) have broken down. Concern in the public safety area is directly correlated with changes in the environment due to greater urbanization. A rise in crime is particularly alarming in the impact areas because supposedly rural areas are relatively free of criminal activity. In fact, many residents shift their place of residence to the country to escape crime which is usually associated with urban areas.

XXII.C.6.(e) Racial Concerns

Although normally expressed covertly, racial concerns (in relation to the type visitor DWGNRA will attract) are surfaced in conversations with people throughout the seven-county area.

Residents and elected officials have stated that they expect the park to be visited by a large number of minority groups from Philadelphia and New York City. The basis for their expectations is the fact that the park is already making an appeal to a diversity of racial and cultural groups. Concerns expressed center not so much on minority group visitation of the park itself but their activities, cultural expressions and lifestyles, (as expressed in the communities) before and after they leave the park.



XXIII.A. PREFACE

The planning and control of land uses is a balancing process. Differing goals, objectives or options are weighted and selections are made. Thus, the land use planning process involves the basic value conflicts within American society. It involves selections between the values of an individual and the values of the "community", or between those of the local community and those of the region. A plan succeeds to the extent that it charts a balanced course between these varying objectives, a plan fails to the extent that it defers choices or ignores the balancing process.

The future of the Tocks Island region is being forged in the interaction between its own rural community environment and the external pressures exerted by the surrounding metropolitan regions. The predominant development trends in suburban and second home communities and recreation opportunities have not changed radically in the intervening years since the initial authorization of the Tocks Island Lake Project in 1962. But new attitudes towards growth and growth management have shifted priorities. Growth is no longer evaluated solely on the basis of economic benefit. Environmental quality and the quality of life have become more important values.

An analysis of the secondary impacts of the Tocks Island Lake Project and the DWGNRA is presented in Chapter XXII. This chapter is intended to review the various existing land use plans and controls on land use development for the seven county impact area, and to indicate alternative strategies for managing the regions land use development in the future.

As indicated in the preceeding chapter, there are two sets of development pressures occurring in the seven county region. One is the growth and patterns of change which are currently occurring. These are the existing suburban expansion into the rural areas of Sussex and Warren Counties, the expanding recreation, resort and vacation home developments, and the continued growth of the existing regional centers. It has been projected in Chapter I of this study that the continuation of present growth trends will result in a 100 percent increase in the seven county 1973 population by the year 2025.

The second set of pressures are those associated with the Tocks Island Lake Project and the Delaware Water Gap National Recreation Area. The population increase due to the project's impact has been indicated to be in the range of 18,000 persons or a minor portion of the total projected population growth.

The controversy over the Tocks Island Lake Project has served to expose the inadequacy of local planning programs and land use controls in the region. It has awakened a recognition of need for these programs and management of the growth process. In terms of land use regulatory tools, the region has already been impacted since the initial authorization of the project in 1962. Those townships bordering directly on the Project Area began adopting plans and zoning ordinances before the less "threatened" municipalities in order to protect themselves against anticipated adverse impacts. This process has continued to radiate outward to the suburban fringes on the east and into the Pocono regions in the west.

XXIII.B. REVIEW OF EXISTING LAND USE PLANS

The adoption of the Delaware River Compact in 1961 and the formation of the Delaware River Basin Commission created a unique basin wide regional authority for resources planning and management. The Commission, under the Compact is responsible for development and effecting "plans, policies, and projects relating to the water resources of the Basin." The Comprehensive Plans by the DRBC reflect their undertaking of this responsibility. Insofar as water resources management, prevention of pollution, and the institution of flood control measures can be considered land use related planning, DRBC intiated some of the first plans for the Tocks Island Region, subsequent to the Delaware River Basin Report by the Corps. However, it was not until 1966, with the publication of the Nathan DWGNRA Impact Analysis Report, that attention was focused on accomodating and planning for the future growth of the region. In the text which follows, various land use plans and related studies are surveyed starting with the Nathan Report.

XXIII.B.1 PROFILE OF EXISTING PLANS AND STUDIES

The most important land use related studies for the Tocks Island region are as follows:

1. Nathan Associates (1966): Potential Impact of the Delaware Water Gap National Recreation Area on Its Surrounding Communities: prepared for the Pennsylvania State Planning Board and the New Jersey Division of State and Regional Planning.

This study analyses and quantifies the impact of the DWGNRA on the region. The impact area definition, the population and growth projections and the impact analysis contained in this Nathan Report have become the data source for many of the subsequent studies. This Nathan Report included an analysis of the existing economic conditions of the impact area, projections for future DWGNRA visitation levels, estimates of the traffic generated, as well as the impact of the project on the local community. (The impact area was defined in the Nathan Study as the Pennsylvania Counties of Monroe and Pike and the New Jersey Counties of Warren and Sussex.) To accommodate the impacts, the Nathan Report recommended a concentration of growth in the existing regional centers and the use of scenic highway programs to restrict commercial development. This approach formed the basis of the concurrent Raymond and May "Sketch Plan For The Tocks Island Region" (1966).

The importance of the Nathan Report is that it was the first study to consider the future impacts of TILP and the DWGNRA and provided projections for the region's future population growth to 1985. The Nathan Report population projections for Monroe and Pike Counties more or less match the estimates prepared in this study and included in Chapter I. However, those for Sussex and Warren Counties greatly exceed the Chapter I estimates, as they reflect the peak levels of suburbon development of the late 60's. The Nathan Report estimate for the annual visitation, and visitor origins are similar to those contained in Chapter XXII, with the exception that their percentage of visitors originating for the seven county region is considerably less than the Chapter XXII estimates.

In 1967 Nathan & Associates supplemented their previous impact analysis by a subsequent study of the effect of the DWGNRA on the New York counties of Sullivan and Orange. This 1967 study concluded that DWGNRA would offer Sullivan County a

a chance to revitalize its tourist and resort business, but would have little effect on Orange County except in the area immediately surrounding Port Jervis. This 1967 report was written prior to the completion of Interstate I-84 but its determination that DWGNRA would only impact the future land uses in the Port Jevis area is consistent with this study's analysis.

2. Raymond & May Associates (1966) Preface To Planning: A Sketch Plan For The Tocks Island Region : prepared for the Pennsylvania State Planning Board and the New Jersey Division of State and Regional Planning.

This study presents a recommended Sketch Plan for the development of the region based on the findings of the Nathan Report and the 1966 DWGNRA Master Plan prepared by the National Park Service. Since it is the only land use plan for the region as a whole, it is discussed further in Section XXIII.B.2 of this Chapter. The Sketch Plan presented an overall guide for the regions' development and served as basis for subsequent plans, such as the TIRES Study.

3. Roy F. Weston, Inc. (1970) The Tocks Island Region Environmental Study (TIRES) : prepared for the Delaware River Basin Commission.

This study is a three volume report on the future planning needs for optimum water supply and waste disposal facilities in the Tocks Island Region. The recommendations of this study for a regional waste collection system were later modified by DRBC Resolution Number 73-5 to provide a system of local collection and treatment facilities in Sussex and Warren Counties and a centralized sewage

treatment facility for Monroe and Pike Counties. The regional area on which the TIRES study is based includes approximately 1,000 square miles defined primarily by the limits of the Delaware River Drainage Basin within the seven county area. This TIRES Report includes an analysis of the existing land uses. economic conditions and transportation patterns of the study area with peak season growth projections to the year 2020. The determination of the existing land use patterns included in the TIRES Study were developed with the participation of the Tocks Island Regional Advisory Council (TIRAC). The transportation and highway improvements required for the region were based on the prior studies prepared for the New Jersey and Pennsylvania Departments of Transportation.

The major contributions of the Weston Study for future land use planning were its population projections based on the summer peak season estimates and projections for future water and sewer needs. The analysis of existing land uses in the report were descriptive and did not include a detailed inventory. Although a diagram indicating future land use patterns was presented based on the Raymond & May Sketch Plan, the TIRES Study concluded that the development proposals contained in the Sketch Plan could be easily invalidated due to inadequate planning and zoning controls at the local level. Therefore, the TIRES Study based its projections and recommendations for future needs on the prevailing growth patterns. In discussing the relationship between land use planning goals and the future public utility needs, the TIRES Study concluded that "the goal of optimum planning and control of land use in the Tocks Island Region has not yet been reached, and that the protection of public health and water quality requires consideration of the probable land use, which may be vastly different from the optimum concept..."

4. U.S. Army Corps of Engineers, 1974, Supplemental Data Report and Supplemental Information to the 1971 Environmental Impact Statement, Tocks Island Lake Project:

This 1974 Supplemental EIS Report by the Corps included an analysis of secondary impacts and mitigating measures including impacts on land use. In their analysis the Corps utilized the economic projections of the 1966 Nathan Report, and the Pennsylvana and New Jersey State Departments of Transportation highway studies. The impact statement noted that the current patterns of land use development will be accelerated by the project and that there was a lack of local planning controls for dealing with the anticipated land use changes.

5. Clark & Rapuano, 1974, Tocks Island Lake and Delaware Water Gap National Recreation Area; Conceptual Development Plan (Draft Report); prepared for the Army Corps of Engineers and the National Park Service.

This Draft Report contains the most recent Conceptual Master Plan for the National Recreation Area. It results from a study jointly sponsored by the Corps and the National Park Service to coordinate and update the various master plans which have been separately prepared by each agency for the recreation facilities to be developed in conjunction with the Tocks Island Lake Project.

In this master plan the facilities to be provided and their staged development are described, as well as the effects of the project on the surrounding land areas. In comparison with the earlier 1966 DWGNRA Master Plan by the National Park Service, the number of beach areas was reduced from eight to seven, and the family camping facilities were eliminated. The elimination of the Flatbrook Beach facilities

in the Clark and Rapuano Report resulted in a slight redistribution of the design load among the remaining swimming facilities. The elimination of the family camping facilities from the recreation area will stimulate the growth of comparable facilities external to the recreation area as indicated in Chapter XXII.

Other regional plans affecting land use development include the various roadway master plans and feasibility studies by Edwards and Kelcey for the New Jersey Department of Transportation and the Pennsylvania Department of Transportation "Highway Impact Study for DWGNRA". These studies indicated the various future highway improvements required to accommodate the recreation area generated traffic. Both of these studies analyzed the traffic generated by the DWGNRA based on the original master plans of the Park Service. As the Clarke & Rapuano Master Plan slightly modified prior NPS and Corps master plans and it revised the traffic forecasts accordingly.

In addition to the regional land use plans and related studies, there are master plans for several of the individual counties within the Tocks Island region, such as the adopted plans of Sussex, Warren and Lehigh-Northampton Counties. However, with the exception of Lehigh-Northampton, these plans were prepared in the early 1960's and have not been revised to reflect current conditions, although revisions are now in progress. The most up-to-date planning at the county level is contained in the individual county water and sewerage facilities plans. These plans, in order to assess the future utility service needs, include population projection soil analyses, housing growth projections, and estimates for various other land use elements. For those counties without recent master plans, these utility plans have attained an interim land use master plan role.

The status of the master plans at the municipal level, resembles that of the counties although they tend to be more relevant due to their limited geographic base. Of particular note, are the master plans for the municipalities of Port Jervis, Deerpark and Greenville in Orange County, which were prepared at the end of the 1960's. The first two used the Middletown Area Plan as a framework and recommended that future development continue to be concentrated around existing development areas. The plan for Port Jervis emphasizes the City's regional quality and recommends the combined renewal of its deteriorating sections, along with new development to strengthen its focus as a regional center.

An example of joint planning at the local level is the "Comprehensive Master Plan" for the Tocks Island Planning District by Raymond and May (1968) sponsored by the Monroe County Planning Commission. This Plan, for the Townships of Smithfield, Middle Smithfield, and Price, provides a joint development plan to cope with the anticipated growth associated with Stroudsburg's expansion and the impact of the DWGNRA. Like most studies done during this period of rapid growth at the end of the 1960's, the population projections on which the master plan is based, are almost twice what is now perceived to be the case due to recent economic trends. Although this master plan was never adopted by any of the municipalities involved, it represented an important step in joint planning between local municipalities. The recent formation of the Pocono Mountain Council of Governments comprised of five municipalities in the Stroudsburg area is a continuation of this joint planning process.

XXIII.B.2 THE 1966 SKETCH PLAN FOR THE TOCKS ISLAND REGION

The preceeding survey has indicated the major studies to date which influenced the planning for the future needs of the Tocks Island region. Of these, the only one which attempted to outline a future land use growth pattern was the Raymond and May 1966 Sketch Plan.

Contents of The Plan:

This Raymond and May 1966 Sketch Plan was not intended to be a precise plan for development, but rather a general indication of desirable objectives. The Plan's proposals were suggestive rather than specific and were designed to foster consideration of a series of guidelines on a regional basis for the future development of the Tocks Island area. It was not ever officially adopted by any state or local government. However, being the initial planning study for the impact region, jointly sponsored by New Jersey and Pennsylvania, it has continued to influence subsequent plans for the area. As an indication of this influence, the 1970 TIRES Report prefaces its future land use section with the statement that, "the Sketch Plan was adopted as the basis for future land uses ... however, realizing that the Sketch Plan was only intended to be a generalized concept of how future land uses should be directed, it was updated (but) ... its underlying premises and assumptions were accepted."

Therefore, as subsequent plans have tended to stand on the shoulders of the Sketch Plan, this plan has been selected as a framework for discussion.

The Tocks Island region impact area which formed the geographic base for the

Sketch Plan was comprised of the major portions of Monroe and Pike Counties in Pennsylvania, and Warren and Sussex Counties in New Jersey. Within this area, the northern and southern boundaries were taken as the Interstate Highways I-84 and I-80, with the boundary on the east being the lead edge of the New York metropolitan suburban fringe, and on the west, the mountains and public forest, parks and game lands bisecting Monroe and Pike Counties. This impact zone was essentially identical to that determined previously in the Nathan Report, only specially refined to reflect actual physical barriers and existing development patterns.

The planning objectives stated in the Sketch Plan were as follows:

- "to serve as a guide to regional development..."
- "to create a pattern of development..."
- "to promote unified development of the region..."
- "to preserve the area's rural and natural character..."
- "to promote regional concern for aesthetic appearance, design and quality of the area"
- "to provide a circulation system that will (provide efficient) access to DWGNRA...(improve intra-regional circulation)... provide access and protect the approaches to DWGNRA... and take advantage of vistas and scenic attractions..."
- "to provide increasing opportunities for private investment consistent with public policy..."

The basic generating factors effecting regional growth outlined in the Sketch Plan remain unchanged. They are; the major access highways and their interchanges; the existing regional centers; the resort and seasonal home development patterns of the region; the major lakes and waterways around which most of the new housing

development is focused; the major public and private recreation areas, and the modest industrial growth characteristics of the area. From these existing patterns of development, the Sketch Plan outlined a composite growth scheme composed of three categories. The following paraphrases these Raymond and May growth proposals:

1. Reinforcement and extension of the existing open space system by regulation of the waterways and lakes of the region, expansion of publicly owned land, and the interconnection of present public land holdings. The basic components of this open space system included the DWGNRA, existing state parks, forest and game lands and unbuildable ridges, gorges, swamps and lands bordering streams and rivers.

2. Reinforcement of existing settlement patterns to maintain and accentuate present community size distinctions comprised of the following categories:

- primary regional centers such as the Stroudsburgs and Newton, which currently serve as a major commercial, employment, and public facilities centers for the region with a future population range of 25,000 to 50,000 persons.
- secondary regional centers such as Branchville, Blairstown, Montague, Milford, etc., offering commercial activity and goods on a community scale with a future population in the range of 5,000 to 10,000 persons.
- rural town centers such as Hope, Stillwater, Layton, Bushkill Falls, offering local shopping and tourist gift shops, with a future maximum size of 200 to 300 houses.
- lake villages and resort development areas such as Culver, Owassa, Hemlock Farms, Lake Pocono, etc., which are combined second home and permanent home communities, for which an average density of two homes per acre was suggested.

- low density areas comprising wooded and agricultural areas, which give the region its current rural character. The maximum densities recommended for these areas were in the range of 10 to 50 houses per square mile, the low figure applying to the agricultural lands.

3. The development of a highway system comprised of the following components:
   - the major existing interstate highways such as I-80 and I-84, connecting the region into the northeast highway network.
   - limited access scenic highways such as the proposed Foothills Freeway and the relocated Route 209 to distribute traffic around the recreation area and to provide north-south connections to the interstate system.
   - state arterial highways connecting the limited access highways with the secondary roads serving the recreation area.
   - the use of highway by-passes around existing towns to limit and concentrate strip commercial development.

The Sketch Plan also contained a series of general recommendations for the implementation of its objectives. These included regional coordination of planning efforts, development of the plans' proposals by the Tocks Island Regional Advisory Council (TIRAC), and adoption at the local level of the necessary regulatory powers, codes, zoning, etc. It also recommended the formulation of long range programs for the maintenance of open space, establishment of a scenic highway system and control of development at highway interchanges; and the passage of ordinances to protect the aesthetic qualities of the local environment. Having thus set the stage with visions of the future and suggestions for implementation, the Sketch Plan passed the responsibility on to TIRAC and the local communities to implement.

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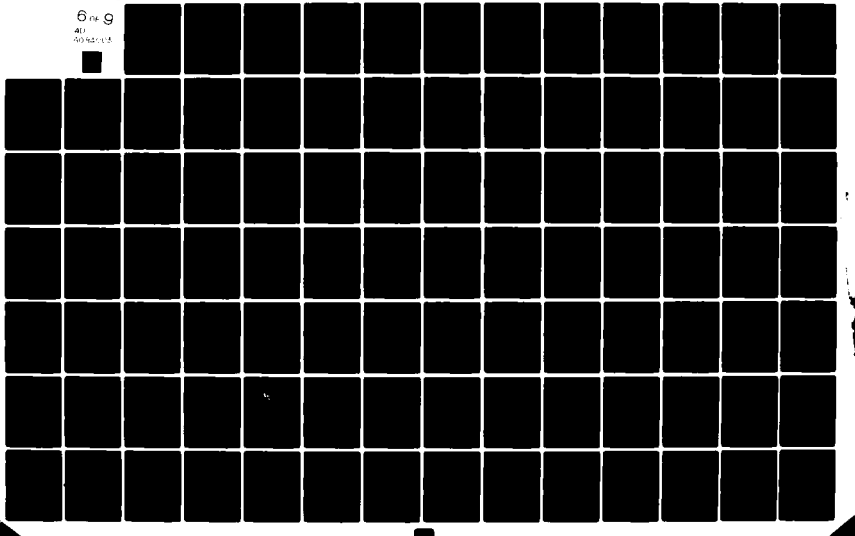

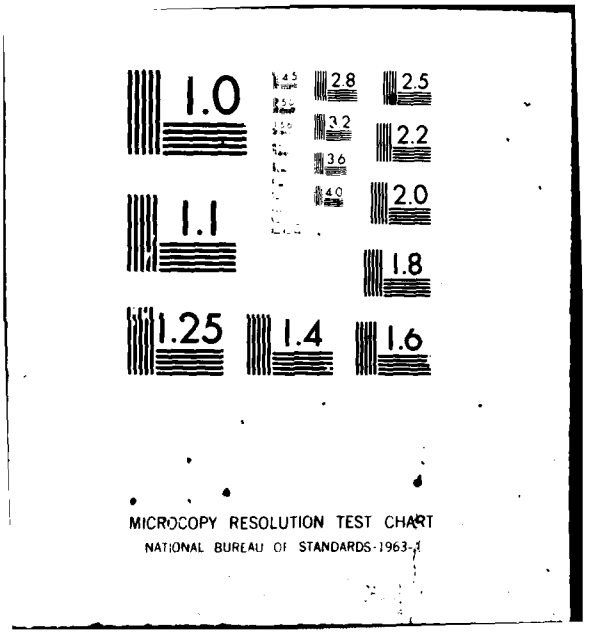
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Analysis of The Plan:

One cannot question that open space is the key determinate of the physical, aesthetic, and economic character of the seven county area. The area's extensive unbuilt acreage, consisting of farmlands, forests, water bodies and meadows, visually expresses much of the local heritage and culture.

Open space serves very specific purposes. There are ecological benefits including preservation of flora and fauna, separation of adjacent developed areas, air and water purification, and control of runoff. There also are a series of visual benefits such as preservation of distinctive natural land forms and features, and maintenance of the bucolic character historically associated with the region's landscape. In addition, there are direct economic benefits including the maintenance of the tourist and agriculture businesses, and the indirect economic benefits related to maintenance of a desirable living and working environment which serves to stabilize the area's population and economic base.

The above purposes, which characterize virtually all objectives of open space preservation programs, can be directly construed as the maintenance of public health, safety and welfare.

Even by the most liberal population projections, open space will remain the predominant land use in the seven county region well into the next century. By 2005, the developed area will be at least double the present total of approximately 10% of the region's 4,246.3 square miles. Currently, 11.7% of the region, 497 square miles, falls within various state and federal preserves. However, it is not quantity, but the quality and distribution of open space which will determine the accomplishment of the Sketch Plan's objectives. Current

patterns of distribution give an understanding and directions to future public actions. Shortages relative to the regional norm (11% of total county area) are found in Orange County .8%; Sullivan County 3.6%; Northampton County 2.4%; and Warren County 7.5%. However, Monroe County with 12.7%, Sussex County 20.5% and Pike County 29.8%, exceed the regional average. The greatest priority should be given to the areas of greatest value and in the areas of greatest growth, such as Northampton and Orange Counties. Thus, acquisition efforts should center around heavy use areas, and an open space policy should be the key public policy tool to direct the current random development patterns in a way which prevents despoilation of the region.

In the decade since the Sketch Plan was prepared, there have been significant changes relating to open space preservation in the region. In Sullivan County, in New York, the proposed wild and scenic river designation for the Delaware River between Port Jervis and Hancock will extend the open space corridor from DWGNRA northward. In New Jersey under the state and local portions of the green acres program a total of 14,373 acres in Sussex County and 10,619 acres in Warren County have been acquired for public use during the period from the original bond issue in 1961 to 1975. Two of these acquisitions have increased the public holdings in Stokes State Forest and Highpoint State Park by 1,756 and 743 acres respectively, which was recommended by the Sketch Plan to limit development in this critical impact area. In Pennsylvania, comparable action is required in Northampton County under the Project 500 and other state open space programs to increase the amount of public open space. Although there have been no significant increases since 1965 in the state land holdings, in Monroe and Pike Counties, both of these counties already have extensive acreage committed to public use.

The objectives of the Sketch Plan relating to the aggregation of future growth in existing regional centers, and preserving the existing differences between rural, secondary, and regional communities has been reflected in the planning studies at the county and local levels. In theory, this concept cannot be faulted, and if attained will preserve the existing character provided the necessary growth management controls are adopted. The difference between planned growth and actual growth is the degree to which regional objectives are accepted at the various levels of government including the local townships. Past trends have not reflected this aggregation principle. For example, the combined population of Stroud, Stroudsburg, and East Stroudsburg in 1960 was 19,196 and in 1970, the population only grew to 20,870 when the rest of the county was growing by 20 to 30 percent.

Also, the spacing of major highways can destroy the desired growth patterns. If one looks at a map of Sussex County, one realizes that there are a series of parallel diagonal approach roads from the New York/New Jersey metropolitan region. These are Routes 23, 206, 15 and the proposed Kittatinny Highway, three of which branch off from Interstate I-80. The distances between these roads as they cut across Sussex County and the separations between the communities of Swartswood, Branchville, Sussex Boro and Colesville is not great enough to accommodate or control the development of a series of centers of varying densities as proposed in the Sketch Plan. The Raymond & May future land use map confirms this impression.

If the objective is to preserve the density differences in the existing settlement patterns, then bolder measures are probably required to overcome the lack of local controls and the number of major highways. Instead of trying to preserve all three different scales of community density patterns simultaneously, the emphasis

should be placed on the two extremes and hope that the variations in between are achieved as a by-product. Strong measures should be adopted that will provide for the expansion of the existing regional centers of Newton, Hackettstown, Stroudsburg, and Port Jervis by public investment in expanded infra-structure such as sewers and centralized water systems. To date, the provision of centralized sewer and water systems have reflected existing settlement patterns, and have not been used as a measure to direct or control growth.

At the other extreme, agricultural conservation measures such as those proposed by the N. J. Blueprint Commission should be provided for preserving key farming areas. Conservation districts should be established to preserve the unique community character of towns such as Blairstown, Shawnee, and Milford.

The growth of second home communities is also changing existing settlement patterns. In the rural forested areas of Pike County, the population of these new vacation communities with their own internal services and community facilities, sometimes exceed the populations and densities of the town in which they are located. In areas where a whole series of new communities have been developed historical settlements have been lost. This has created a proliferation of new communities rather than the aggregation and preservation called for by the Sketch Plan.

The Sketch Plan is the most specific in dealing with the various highway improvements required to accommodate the projected visitor design loads to the DWGNRA. The extent and staging of the necessary highway improvements are reviewed in Chapter XXV, which follows in this Report.

The concern expressed in the Sketch Plan regarding uncontrolled highway related development and the recommendation that a federal scenic highway program be

utilized to prevent strip commercial development from occurring along the major access routes, should be emphasized. This is especially true in regard to Route 209 in Pennsylvania which in its relocated alignment will parallel the western boundary of the DWGNRA, from Bushkill to Milford. Although development on the park side would be controlled by the adjoining federal lands, there are no current plans, such as excessive condemnation, or purchase of development rights to control uses on the other or western side. Currently the stretch of this highway between Stroudsburg and Bushkill is subject to commercial strip type development.

The control of development along the major scenic routes would be best provided by a federal scenic highway program. The Federal Highway Administration sent a report to Congress in September, 1974, recommending the following points regarding the establishment of a scenic highway program. Congress has not yet taken any action on this matter. These points are, of course, subject to modification by the Congress.

1. Authorize the Secretary of Transportation to designate and establish scenic highway routes.
2. Authorize state, county and local communities to also designate scenic highway routes.
3. Authorize the Secretary to approve federal aid projects for the acquisition of scenic resources and lands, and also to restrict development of publicly owned rest areas.
4. Authorize each state to use funds from allotted highway appropriations (except interstate funds) for purchasing land to use in scenic highway development.

XXIII.B.3 THE ROLE OF TIRAC

The Tocks Island Regional Advisory Council was founded in 1965 and continued to exist as a regional council of governments engaged in planning until December, 1974. It was created "to promote, on a cooperative, but voluntary basis, comprehensive study, planning, and solution of the various local and regional, health, safety and general welfare problems created by the Tocks Island Lake Project and the Delaware Water Gap National Recreation Area." TIRAC's financial support came from contributions by the participating counties (initially six counties, which became seven in 1967 when Sullivan County joined) as well as HUD 701 type grants. When TIRAC lost its HUD financing status in the 1970's, it was unable to complete several of its planning programs with the limited resources from county contributions.

The major accomplishments of TIRAC were to stimulate intergovernmental cooperation betwen the planning agencies of the various counties and to encourage local municipalities, through their county leadership, to institute planning control measures to preserve the essential environmental qualities of the region. In the period from 1965 to 1974, the majority of the current local master plans and zoning ordinances were adopted, which in part was due to the TIRAC efforts.

Although the agreement creating TIRAC stated that one of its specific purposes was to "study and/or develop a comprehensive master plan for the proper growth and development of the region...", it never succeeded in producing such a plan. The only land use planning that can be attributed to TIRAC was its participation in the land use sections of the Weston 1970 TIRES Report. It

did, however, produce a series of reports dealing with the adequacy of planning for the region, a report on the development pressures affecting rural lifestyles and a regional solid waste treatment plan. The latter was never officially adopted by any of the participating counties although aspects of its proposal have been incorporated into subsequent studies. Although TIRAC was never able to develop the planning proposals contained in the Raymond and May Sketch Plan, it did produce a series of regional design programs on preserving the essential scales of community development advocated in the Plan.

When it became evident that TIRAC would be disbanded, the counties of Monroe, Pike, Warren and Sussex formed the Four County Task Force in July, 1974 to continue the inter-governmental coordination role of TIRAC related to TILP and the DWGNRA. Although the Four County Task Force is primarily concerned with issues directly related to the Federal Project, its members anticipate establishing a formal interstate council of governments in the future, with a broadened joint planning role.

XXIII.B.4 CURRENT PROGRAMS AND RELATED ACTIVITIES

Federal Land Use Legislation:

A subcommittee of the House Committee on Interior and Insular Affairs is currently reframing Representative Udall's bill for land use planning legislation. The new bill would set up an Office of Land Use in the Interior Department to make grants to the states for the study of land resources, and to develop and maintain land use inventory systems. If this revised version

includes the major 1974 proposed provisions, the states would have three years after enactment to develop a land use program for non-federal lands to include the following:

- policies and objectives relating to future needs
- an inventory and methods for the control of critical environmental areas of concern
- promotion methods for the continued use of prime food and producing lands
- a policy for the review of large scale subdivisions or developments to assure the adequacy of the project design in terms of environmental and open space preservation objectives
- a requirement that the states assume the role of guiding the use of land in areas affected by key facilities
- a requirement that the states consider regional impact of major developments
- a requirement that the states encourage development and land use patterns to conserve energy

Of these items, the one most cogent to the Tocks Island region is the assigning to the states a major role in guiding the land use development around key facilities. Part of the reason for the demise of TIRAC was the failure of the states to assume this role. The Tocks Island Impact Area Protection Act of New Jersey would have provided for such a state role in the future planning for the Tocks Island area, but was not adopted. The recent announcement that in Florida the state is stepping in to plan the impacted Florida Keys region south of the Everglades National Park is an example of strong state action in the absence of local planning effort.

National Park Service:

The National Park Service (NPS) is presently undertaking in-house preliminary planning of the DWGNRA without TILP by developing and evaluating a series of alternatives described in Chapter XVIII. These alternatives are considering a variety of facility mixes, locations and transportation modes. NPS has also contracted with a division of NASA to develop an inventory of basic resources (primarily natural resources) and establish impact relationships with various intensities of people usage. This is being plotted on a two acre grid for the entire DWGNRA land holdings and the immediate surrounding area (approximately a three mile wide strip beyond the NRA boundaries). Upon completion, this data and ratings will allow NPS to establish the park's holding capacity based on the potential impacts of various human activities and to test the effects of various locations of activities proposed by NPS plans and others on their immediate surroundings. It is highly likely that the NASA work will alter the proposed instant capacities in the Clarke and Rapuano Plan and the NPS past and present planning. This analysis approach, just now being utilized at DWGNRA, has become a standard component of all NPS planning nationwide.

NPS guidelines also recommend that NPS planning assistance be offered to local communities adjacent to major park facilities. The implementation of this guideline is often tempered by the realities of a local situation and NPS's continually under-funded and under-staffed working conditions. In the seven county region, strong "home rule" political preferences are likely to reject any suggestion of assistance from NPS, even if their manpower made this a possibility. In any case, the NASA planning data should be shared with local planning agencies.

Pennsylvania:

Currently Pennsylvania has no comprehensive land use policy. The Pennsylvania Office of State Planning and Development is now preparing an interim statewide land policy program to be completed in 1975 under the guidance of an interagency task force composed of six state agencies. This program includes the study of flood plains, forest land capability, state recreation inventory, land area requirements by different land use categories, housing trends and projections, and basic economic and demographic projections. Portions of this study have already been completed and others are in progress. The various areas of investigation are similar to those contained in the federal land use legislation areas discussed previously. The Flood Plain Information Report, the Forest Lands Capability Study, and the land requirements through 1980 have been completed. When the entire study is finished it is assumed that the state will enact legislation to modify its current land use related programs to provide a means for monitoring and dealing with current land use issues and trends.

The Pennsylvania Comprehensive Water Quality Management Plan (COWAMP) involves an overall study of each of the major drainage basins to determine water quality effects of the various land uses in the basin area. For this purpose the state has been divided into nine planning study areas. A three year study under this program is being conducted by Roy F. Weston Inc. on the upper portions of the Delaware River Basin, which include Pike and Monroe Counties. The Weston Study is attempting to determine what kinds of land use intensity can be achieved within a certain range of water quality standards. This type of study will have broad implications for future land use plans of the area and will provide a catalogue of environmental amenities and values that presently exist in the

study area.

Currently, the state programs which could have the greatest effect on preserving open space, and retarding the conversion of farm lands in the seven county area are: Act 442, which has an under-utilized provision which permits the use of land banking to preserve critical environmental areas; the Project 500 Bond Program which provides matching funds for local parks and recreation facilities; and the 1974 Farm Land Assessment Bill which provides for reduced tax assessments on farm lands in active use based on a seven year commitment. Senate Bill No. 1 to provide comparable flood plain zoning to the New Jersey legislation has not yet been adopted. The latter requires local governments to pass zoning ordinances controlling development in flood prone areas in accordance with the standards set by the state Environmental Quality Board. If a local government fails to act on such zoning measures the state is permitted under the proposed legislation to assume this authority.

Currently, the legislation having the greatest effect on the quality of land use development in the seven county region is the Sewage Facilities Act of 1967. This act requires all municipalities to prepare sewage facility plans based on a ten year projection period, for state Department of Environmental Resources approval. Once the plan has been approved, all subsequent developments must be in accordance with the approved plan or else the plan must be modified to accommodate the proposed development.

The state has delegated full planning and zoning controls to municipalities, townships and counties. The 67 counties all have planning commissions, some

highly sophisticated such as Leigh-Northampton and Bucks. The ten state regional planning agencies are primarily advisory agencies and are participating in the interagency study of land use.

New Jersey:

New Jersey, as in the case of Pennsylvania, has no comprehensive land use policy. The attempts in New Jersey to adopt land use legislation such as the proposed Community Planning Act have not succeeded in the past and are not being reintroduced. The New Jersey equivalent of the New York State Land Use Inventory System (LUNR) was initiated but additional funding is needed for its completion.

The adopted legislation which affects land use development in the seven county area is: the Realty Improvements and Sewage Facilities Act, requiring state review and the provision of sewage systems in subdivisions of 50 lots or more; the Green Acres Program which has two components, a state acquisition program, and a 50/50 matching funds program for the local communites, and the Farm Lands Assessment Bill. The latter does not entail the long term commitment of the legislation of the other two states and modifications have been suggested by the New Jersey Blueprint Commission on Agriculture to insure the preservation of a certain percentage of the prime agricultural lands as special districts. New Jersey has adopted flood plain zoning which is currently being used to manage development of the flood plains.

New York:

The New York State Development Plan of 1971 contains general projected land use

developments throughout the state. The future land uses projected for 1990 include four basic categories of Urban, Farming, Rural, and Natural Open Space. More detailed information on the existing land uses in the Tocks Island Region is provided by the State Land Use and Natural Resource Inventory (LUNR) from which land use inventory and mapping for 51 different types of use is available.

The New York legislation effecting open space preservation and land use development is similar to the other two states. The Agriculture and Markets Law of 1971 provides for the formation of agricultural districts and tax reductions based on an eight year commitment on acreages of 500 or more. The Forest Tax Law provides for analogous tax reductions for forest lands. For developments of 50 lots or more New York has comparable legislation to that of New Jersey which stipulates that such major subdivisions must be provided with a central sewage system. To close an important loophole in the law, under which developers can subdivide land into a series of 49 unit developments, Orange County is encouraging its municipalities to adopt provisions under their subdivision regulations to tie the provisions of the law to original ownership of the land to be subdivided.

In contrast to the other two states, New York has strong power plant siting legislation. Under the N. Y. S. Public Services Law Article VII, utilities must obtain a certificate of environmental compatability and need prior to site preparation for transmission lines (both electric power and fuel/gas), and Article VIII establishes a state board to review the environmental compatability of power plant siting.

The state agencies for coordinating land use planning activities are in the process of being reorganized. Under this reorganization a Division of State Planning has been established in the Department of State, whose role will be to administer state planning programs and to review and coordinate the plans of the state "line" agencies (i. e., Transportation, Parks, etc.). Local planning and legal assistance is to be handled by the Division of Community Affairs. Legislation authorizing state planning of critical environmental areas that would supercede local zoning has been defeated in the legislature.

Economic Development Council of Northeastern Pennsylvania:

The Economic Development Council of Northeastern Pennsylvania (EDNCP) forms one of the uniform planning districts in the State of Pennsylvania. EDCNP, whose region includes Pike and Monroe Counties, provides research, planning and development, and public information services for its member counties and is a coordinating agency for a series of federal and state programs for the region. Currently it is conducting a land use inventory study for its region, which is scheduled tc be completed in 1975. This study is to include an analysis of land suitability and environmental development constraints. For rural areas which do not have a planning staff, such as Pike County, EDCNP plays a major role in providing basic planning information which is not available at the local level. EDCNP also undertakes comprehensive planning programs for individual counties as in the case of Schuylkill County.

Delaware River Basic Commission:

The Delaware River Basin Commission (DRBC) Comprehensive Plan does not specifically deal with land use plans for the Region. However, under the Compact DRBC

does undertake regulatory measures related to the management of water resources, and the implementation of NEPA regulations which could have a considerable influence over future land use planning and development. The position of DRBC in regard to land use planning and land use controls is directly related to the enabling legislation of its member states. Since the states have given to the local municipalities control over land use development, DRBC is not involved in land use control and planning, except indirectly through the regulation of water resources. Examples of the latter are the current DRBC program for the mapping of the flood plain land uses of some 100 communities in the Basin, which is being financed by HUD grants, and its water quality studies such as the TIRES study.

Summary:

The Tocks Island Region currently lacks adequate land use planning at both a state and local level. The only existing land use plan for the region which attempted to provide a framework for guiding future development is the Raymond and May Sketch Plan of 1966. The intended refinement of the Sketch Plan by TIRAC was never achieved. Most of the local county plans are out of date in terms of the rapid development which has taken place since the authorization of the Tocks Island Lake Project in 1962. In short, there is no ongoing regional planning process at the moment which can cope with major changes like TILP/DWGNRA.

The New Jersey Tocks Island Area Protection Act attempted to correct this deficiency but was not adopted. That act recommended a two step planning process. The initial step called for the adoption of an "environmental design"

for the area, the second, the preparation of a master plan. The various plans to date have only succeeded in partially fulfilling either of these steps, and in varying degrees and for varying political jurisdictions.

Regardless of the fate of TILP and DWGNRA, if the Tocks Island Region's aesthetic and environmental qualities are to be protected and preserved, more effective mechanisms and plans are required to guide its future land use development. The isolated plans and land use control measures of the local municipalities cannot be expected to identify and preserve priority areas in terms of the region as a whole. In the face of the rapid growth and change which is and which will continue to occur, the states, DRBC, or other regional agencies must play a more active planning role in addition to their current regulatory role in the area's natural resources preservation. Without this planning component, the regulatory role is limited to a "shot gun" approach of preserving environmental quality, and long range actions which would be the most cost-effective are not identified and not implemented. In Section D of this chapter various land use management strategies are discussed to meet these future needs of the region.

XXIII.C. PRESENT LAND USE CONTROLS

XXIII.C.1 STATUS OF PLANNING AND CONTROLS AT THE COUNTY LEVEL

Table 23-1 reflects the general level of planning activity for each county in the seven county region. Currently, all of the counties have planning commissions or planning boards appointed by the governing body of the county. The enabling legislation of the individual states establishes the role of county planning commissions. In general, this role is advisory to both the county governments and those of the individual municipalities, and includes the preparation of county wide comprehensive and specific subject plans, preparation of general development standards, assistance to the local municipalities in the preparation of their plans, ordinances and regulations, and review of proposed developments adjoining county roads and crossing municipal boundaries. Although the enabling legislation provides local municipalities with the power to control their own land development, the county planning commissions, through their planning staff, establish the overall county development objectives. As the demand for improved county infra-structure increases (utilities, roads, etc.) in the seven county region, so has the role of the county planning commissions and utility and transportation agencies. Those counties with more urbanized development patterns, such as Lehigh-Northampton and Orange Counties, tend to have more active planning programs; those that are the most rural, such as Pike County, do not have an overall development plan or policy.

With the exception of Pike County, all of the other six counties maintain a professional planning staff. Pike County, in addition to not having a planning staff, also lacks a county engineer, so the planning commission operates without any full time professional assistance. Monroe County does have an assistant planner and county engineer, but it does not have the necessary planning staff to perform planning studies. The other counties maintain active planning departments,

Table 23-1 Planning Activity By County (1975)

	Planning Commission	Planning Staff	Comprehensive Plan Dated	Comprehensive Plan Adopted	Comprehensive Plan Revision	Development Standards Dated	Development Standards Adopted	Utility Plan Water	Utility Plan Sewers	Utility Plan Waste
Sussex	X	X	X (62)	X (63)	IP	X (70)	X	X (68)	X (68)	IP
Warren	X	X	X (61)	X (63)	IP	X (70)	X	X (70)	X (70)	-
Lehigh-Northampton	X	X	X (64/69)	X	IP	X	X	X (66/70)	X (66/70)	X (71)
Monroe	X	X	IP	-	-	X (65/69)	X	X (73)	X (71/73)	-
Pike	X	-	-	-	-	-	-	-	IP	-
Sullivan	X	X	X (62)	-	-	IP	-	-	-	-
Orange	X	X	IP	-	-	X (73)	X	IP	IP	X (71)

Notes:

X = Signifies Presence (Year Adopted/Revised)
IP = In Progress

although the planning department in Sullivan County is limited.

Comprehensive Plans:

In all cases, except for Pike and Sullivan Counties, there are on-going Comprehensive Planning Programs, the most extensive of which are in Sussex, Lehigh-Northampton and Orange Counties. In both Orange and Sussex Counties the natural resources and land use inventory portion of their plans are scheduled to be completed in 1975. Orange County is developing a computerized land use inventory for the entire county similar to the New York State LUNR System which will allow the county to maintain an on-going inventory of land use changes.

The Sussex County master plan adopted in 1963 is out of date and is in the process of being revised. Prepared in 1962, it anticipates a large population increase and "extensive commercial possibilities due to the Tocks Island Project". The Warren County master plan prepared in 1961 preceeds the authorization of the Tocks Island Project, and is also being revised. Although not a master plan, the recent "Sussex-Warren Resource Conservation and Development Project Report of 1974" provides a valuable inventory of the natural resources and the economic,recreation industrial, and transportation conditions in both counties. It recommends the development of land use plans and decisions "which will maintain the rural atmosphere that many people have come to seek".

The Comprehensive Plan for Monroe County has not been completed. The draft report of 1974 contains an inventory of vacation home developments,a mapping of natural resources as well as sensitive environmental areas. It recommends an increased role by the county government in obtaining public open space through a county parks

acquisition program, encouragement of farmers to take advantage of the Pennsylvania Farmlands Assessment Act, and the utilization of Open Space Lands Act No.442 which allows the county to purchase development rights of environmentally sensitive areas.

The Lehigh-Northampton Joint Planning Commission is in the process of revising their earlier 1969 Comprehensive Plan for 1990. In 1974 they completed a series of issue reports to be included in the revised Comprehensive Plan dealing with land use controls, agriculture, regional shopping centers and sensitive environmental areas.

Development Standards:

Five of the seven counties of the Tocks Island region have adopted development standards, the exceptions are Pike and Sullivan Counties. Sullivan County is in the process of preparing model subdivision regulations and design standards. The lack of model standards in Pike County is reflected in lack of control exercised by the Planning Commission over developments in the various townships.

The Pennsylvania Municipalities Planning Code grants its counties the right to exercise a greater degree of control than that provided in the enabling legislations of the other two states. This is reflected in the subdivision regulations of Monroe County. These regulations include requirements for subdivisions of three or more lots; controls on mobile home developments; requirements for compliance with state sewage and water requirements, as well as design standards for streets; commercial and industrial subdivisions; and minimum residential lot size requirements. Monroe County also has the authority to review and approve subdivisions where the municipality has no regulations of its own. In contrast, the Warren and Sussex County planning boards, have less authority due to the limits

imposed by the New Jersey enabling legislation. The official review powers of Warren and Sussex counties are restricted to those subdivisions which will affect drainage onto county roads and subdivions within 200 feet of a municipal boundary. The Warren and Sussex development standards directly relate to their review powers and include standards for roadways, roadway drainage, shade trees, and soil erosion controls.

The development standards adopted in Orange County are contained in their 1973 Model Subdivision Regulations. Their roadway and environmental standards are more extensive than those of the other counties, and include design standards for streets, drainage improvements, parks and open space, soil group criteria, controls for sewage and water systems, and recommended administrative procedures. Although the Orange County design standards are more extensive, their review powers are similar to those of the New Jersey counties with some exceptions. In Orange County the review of subdivisions adjoining county roads and municipal boundaries includes developments of two lots or more within 500 feet of county roads and municipal boundaries, as opposed to 200 feet in the New Jersey counties. In addition, Orange county does have the power to review and comment on local municipal zoning ordinances.

Utility Plans:

Four of the seven counties; Sussex, Warren, Lehigh-Northampton, and Monroe have adopted sewerage and water plans. Pike County is currently preparing a sewage facilities plan in order to comply with Pennsylvania 1967 Sewage Facilities Act. Orange County is preparing both water and sewage plans. Sullivan County has no utility plans in progress. In regard to disposal,only

Lehigh-Northampton and Orange Counties have adopted solid waste disposal plans and the Orange County plan is currently being implemented. The latter includes the construction of a central incineration plant at New Hampton with a series of transfer stations throughout the county.

In general, the county governments within the Tocks Island Region can play a vital policy and monitoring role over development within their jurisdiction, to insure that municipalities are adequately equipped to control future growth patterns. However the lack of a Pike County planning program in any form could seriously effect the environmental qualities of the entire region. In terms of the seven counties, which comprise the Tocks Island Region, Pike and Sussex frame about two thirds of the external environment of the recreation area. The northwestern portion of Sussex County is partially protected by the New Jersey Stokes State Forest, and High Point State Park, which will limit available land for development in the Montague/Sandyston region. In Pike County, on the other hand, the state forests and parks are further inland, providing more land for development between DWGNRA and the state lands.

The relocation and improvement of Route 209 at the National Recreation Area's western boundary, coupled with the absence or inadequate zoning controls in the Pike Townships, makes it essential that the Pike County government assume a more active role in directing its future. Currently the most significant control over development in Pike County is the D.E.R. administration of the Pennsylvania Sewage Facilities Act. However, the D.E.R. requirements are regulatory devices which should be augmented by a planning program at the county and municipal levels.

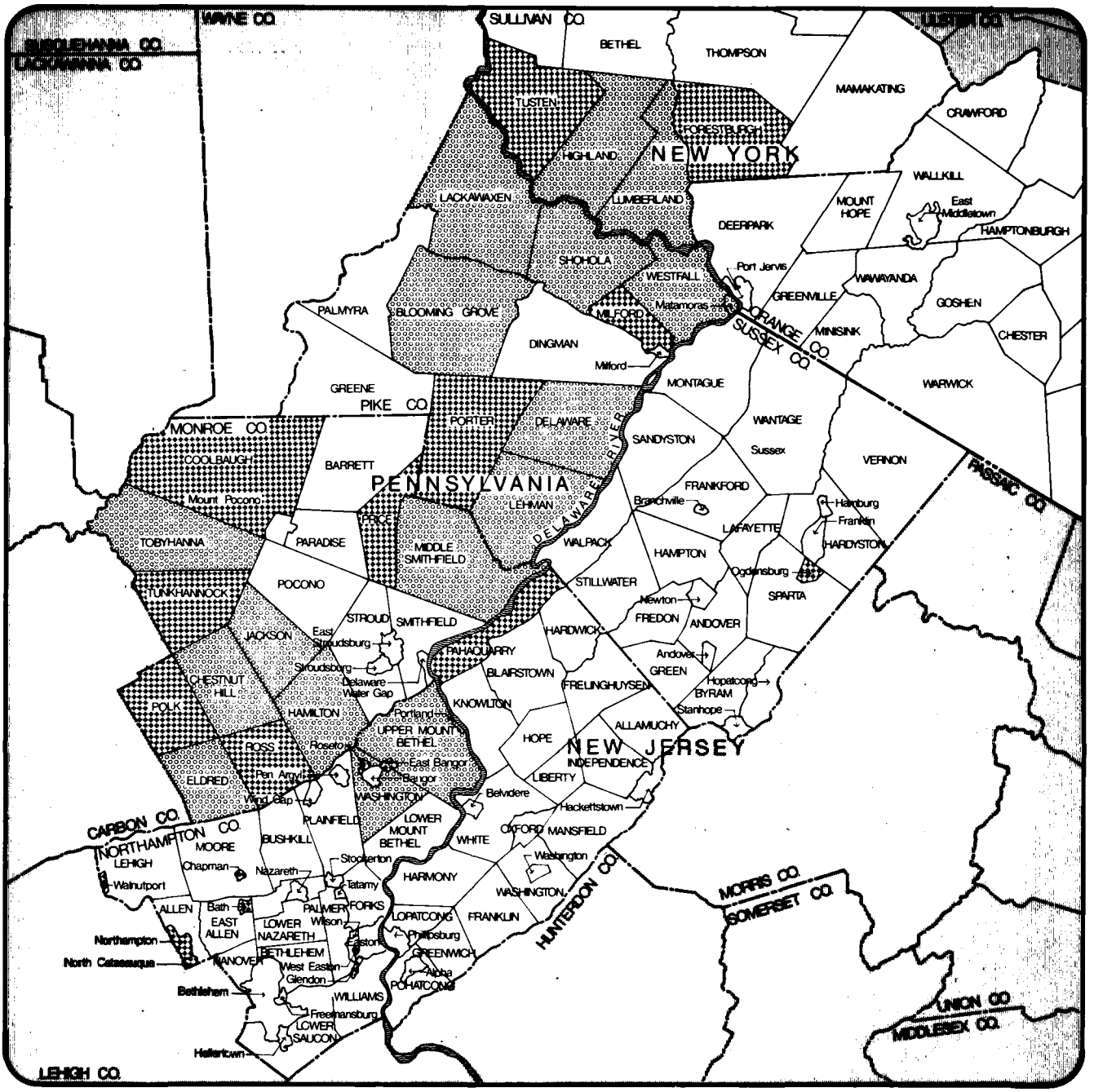
XXIII.C.2 STATUS OF LOCAL LAND USE CONTROLS

The three most important elements of local land use control are a comprehensive plan to assess fugure needs; subdivision regulations to regulate the division of land in terms of the community infrastructure; and a zoning ordinance to regulate the uses of the land. These three items should ideally be prepared as a package in which the comprehensive plan establishes a framework and guidelines for the community as a whole, and the subdivision and zoning regulations are the tools or police power to effect the plan.

Tables 23-2 through 23-8 indicate the status of these three basic land use controls for each municipality within the seven county region, including the date adopted or revised. Also indicated is whether the municipality has adopted a building code, a trailer or mobile home ordinance, and whether the municipality has flood hazard areas identified under the National Flood Insurance Program. For reference purposes, the impact zone in which the municipality is located as determined in Chapter XXII and the municipal form of government are also tabulated.

The data tabulated is derived from a series of composite sources including the New Jersey Division of State and Regional Planning, EDCNP, county planning agencies and in some cases from town clerks of the individual municipalities. The listing merely indicates the presence or absence of a given land use control mechanism, and does not measure its adequacy. In a subsequent section the provisions included in the local zoning ordinances are discussed.

In general, almost all of the municipalities in Orange, Warren, Sussex and



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SCALE IN MILES

N

STATUS OF MUNICIPAL ZONING AND SUB-DIVISION CONTROLS

XXIII

1

LEGEND

- BOTH ZONING AND SUBDIVISION
- SUBDIVISION ONLY
- NO SUBDIVISION / NO ZONING

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT

Lehigh-Northampton counties have adopted comprehensive plans, subdivision regulations and zoning ordinances. In Monroe, Pike and Sullivan counties, the percentage of the municipalities which have adopted these three basic tools is considerably less. In terms of zoning alone, the percentage of townships without an adopted zoning ordinance is 30% in Sullivan County, 50% in Monroe County and 85% in Pike County. Figure 23-1 illustrates the municipalities without zoning and/or subdivision regulations as of April, 1975.

Sussex County

In Sussex County, there are a total of 24 municipalities of which 17 have adopted comprehensive plans, 23 zoning ordinances and 22 subdivision regulations. All of the municipalities have adopted a building code, and all but one have adopted some form of controls on trailers or mobile homes. Every one of the municipalities have planning boards of which approximately 50% approve applications directly without referring the decision to the municipal governing body. All have zoning boards of adjustment with the exception of Ogdensburg which does not have a zoning ordinance. The Sussex County planning board is currently assisting the townships of Stillwater, Fredon and Hampton to prepare a joint master plan.

Warren County

Of the Warren County 23 municipalities, 16 have adopted comprehensive plans, 22 zoning ordinances and 21 subdivision regulations. The only township without zoning and subdivision regulations is Pahaquarry, which is in the process of being totally acquired for the National Recreation Area. All of the municipalities

have adopted a building code. Everyone of the municipalities has a planning board of which approximately 75% have direct approval powers without having to refer decisions to the local governing body. Only one, White Township, has special planned residential development regulations, and six townships have environmental commissions.

Monroe County

In Monroe County there are 20 municipalities of which 8 have adopted comprehensive plans, 9 zoning ordinances and 15 subdivision regulations. The townships of Chestnut Hill, Coolbaugh, Hamilton, Jackson and Tobyhanna are in the process of preparing zoning ordinances and Coolbaugh is also preparing subdivision regulations. Only 4 townships have adopted a building code, and 9 have trailer or mobile home ordinances. Generally, the townships with the least land use controls are located in the southern and western parts of the county. The only township bordering on the National Recreation Area without a zoning ordinance is Middle Smithfield.

Pike County

Of the 13 townships in Pike County, only one (Dingman) has an adopted comprehensive plan, three have adopted zoning ordinances and 10 have adopted subdivision regulations. An additional three townships are currently preparing comprehensive plans and four are preparing zoning ordinances. Only one township has adopted a building code, and seven have adopted trailer ordinances. In general, the townships in Pike County do not have adequate land use controls. Considering those municipalities which physically

border on the National Recreation Area lands, only two have a zoning ordinance and one of these (Milford Borough) is a 1939 ordinance which needs to be revised. One of the townships (Milford) adjoining the National Recreation Area, has no zoning ordinance nor subdivision regulations, and neither are currently under consideration.

Sullivan, Orange and Northampton Counties:

Sullivan County has a total of twenty municipalities of which three have been determined to be within the TILP/DWGNRA impact zones 1, 2, and 3. Of these three impact zone municipalities, none have a comprehensive plan, one (Forestburg) has a zoning ordinance, and two have subdivision regulations.

Orange County has a total of 39 municipalities of which five are located within the zone 1, 2, and 3 impact area. Three of these five have adopted comprehensive plans, the other two have plans but they were never adopted. All of the five municipalities have adopted zoning ordinances and all except Port Jervis have subdivision regulations.

Northampton County has a total of 38 municipalities of which ten are within the determined impact zone. Of these ten municipalities, six have adopted comprehensive plans, six have adopted zoning ordinances, and seven have adopted subdivision regulations. The Township of Upper Mount Bethel, which is located in the northeastern part of the county along the Delaware River, does not have a zoning ordinance.

Table 23-2 Sussex County Development Controls by Muncipality (1975)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Andover (Boro)	3	MC	R	X	-	X (71)	X	X	X	-	
Andover Township	3	C	AP	X	X (60)*	X (62/73)	X (59/73)	X	X	ID/P	(2)
Branchville	2	MC	AP	X	-	X (73)	X (64/69)	X	X	ID	
Byram	3	C	AP	X	X (67)*	X (66/73)	X (53/70)	X	X	ID	(2)(3)
Frankford	2	C	R	X	X (67)	X (68/73)	X (60/67)	X	X	ID	(1)(2)
Franklin	3	MC	R	X	X (67)	X (67/72)	(NA)	X	X	ID	(2)(3)(4)
Fredon	2	C	R	X	X (69)	X (62/73)	X (57/72)	X	X	ID	(5)
Greene	4	C	R	X	X (73)	X (70/72)	X (64)	X	X	ID	(3)
Hamburg	3	MC	AP	X	X (74)	X (67/72)	X (63)	X	X	ID	(2)
Hampton	1	C	R	X	X (63)	X (65/72)	X (58/73)	X	X	ID	(2)
Hardyston	3	C	R	X	X (67)	X (67/72)	X (59/72)	X	X	ID	(1)(2)
Hopatcong	4	MC	R	X	X (69/73)	X (59/73)	X (54/73)	X	X	ID/P	(2)(3)
Lafayette	3	C	AP	X	-	X (73)	X (63/73)	X	X	ID	(2)
Montague	1	C	R	X	IP	X (70/73)	X (70/73)	X	X	-	(1)(2)(3)

Table 23-2 Sussex County Development Controls by Muncipality (1975) (continued)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Newton	2	MC	R	X	X (68)	X (60/73)	X (60/67)	X	X	ID	(2)(4)(5)
Ogdensburg	3	MC	R	-	-	-	IP	X	X	ID	
Sandyston	1	C	AP	X	X (60/75)	X (61/75)	X (60/73)	X	X	-	
Sparta	3	C	R	X	X (70/70)	X (65/74)	X (68/68)	X	X	ID	(1)(2)(3)
Stanhope	3	MC	R	X	X (60)	X (57/72)	X (55/72)	X	X	ID	(2)
Stillwater	1	C	AP	X	X (64)	X (66/73)	X (64/73)	X	-	-	(2)(3)
Sussex Boro	2	MC	AP	X	IP	X (72)	X (71)	X	X	ID	(2)
Vernon	4	MC	AP	X	-	X (66/73)	X (65/67)	X	X	-	(2)(3)
Walpack	1	C	AP	X	X (67)	X (67)	X (60/63)	X	X	-	(2)
Wantage	2	C	AP	X	X (68)	X (68)	X (59)	X	X	-	(2)

Source: N.J. Department of Community Affairs Bureau of Local Managment Services; Sussex County Planning Dept.

Notes:

(1) PRD Special Provisions
(2) Site Plan Review Provisions
(3) Environmental commission
(4) Urban Renewal Authority
(5) Housing Authority
* Revisions in Progress

Abbreviations

C = Township Committee
ID = Identified Flood Hazard Areas
ID/P = Township Participating in the National Flood Insurance Programs as of 2/28/75
IP = Ordinance Being Drafted
MC = Mayor Council
NA = Not Adopted
X = Signifies Presence (Year adopted/Revised)
R = Referral Type
AP = Approval Type

Table 23-3 Warren County Development Controls by Muncipality (1975)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code **	Trailer Ordinance	National Flood Insurance Prog.	Other
Allamuchy	4	C	AP	X	X (67)*	X (67/74)	X (62/73)		X	ID	(2)
Alpha	4	MC	AP	X	IP	X (66)	(NA)		X	-	
Belvidere	3	MC	AP	X	X (61)	X (61)	X (61)		X	ID/P	(2)(3)
Blairstown	1	C	AP	X	X (62/73)	X (65/73)	X (62/73)		X	ID	(3)
Franklin	4	C	AP	X	X (62)	X (64/72)	X (60/72)		X	ID	(2)
Frelinghuysen	2	C	AP	X	X (67)	X (67)	X (67)		X	ID	
Greenwich	4	C	AP	X	X (73)	X (58/74)	X (58/74)		X	ID	
Hackettstown	4	MC	AP	X	X (75)	X (65/73)	X (66/72)		X	-	(2)(3)
Hardwick	1	C	R	X	X (63/75)	X (65/72)	X (71/72)		X	ID	
Harmony	4	C	R	X	(NA)	X (68/72)	X (68/72)		X	ID/P	
Hope	2	C	AP	X	X (64)	X (66)	X (61)		X	ID	(3)
Independence	3	C	R	X	(NA)	X (65/71)	X (60/73)		X	-	(3)
Knowlton	1	C	AP	X	X	X (64/74)	X (64/71)		X	ID	
Liberty	3	C	AP	X	IP	X (65/70)	X (63)		X	ID	

Table 23-3 Warren County Development Controls by Muncipality (1975) (continued)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Lopatcong	4	C	AP	X	(NA)	X (57)	X (59)	X	-	ID	
Mansfield	4	C	AP	X	X (64)	X (64/73)	X (66)	X	-	ID/P	(2)(3)
Foxford	4	C	R	X	X (59)	X (63/73)	X (61/72)	X	-	ID	(2)
Pahaquarry	1	C	-	-	X	-	-	X	-	-	
Phillipsburg	4	CM	AP	X	X (72)	X	X (59/64)	X	-	ID/P	(4)
Pohatcong	4	C	AP	X	-	X (59)	X (59)	X	-	ID/P	(3)
Washington Boro	4	CM	AP	X	X (63)	X (63)	X (63)	X	-	-	(2)
Washington Township	4	C	AP	X	X (60)	X (60)	X (57/73)	X	-	ID	(3)
White	3	C	AP	X	X (71)	X (71/73)	X (72/73)	X	-	ID/P	(1)(2)(3)

Source: N.J. Dept. of Community Affairs, Bureau of Local Management Services: Warren County Planning Dept.

Notes:

(1) PRD Special Provisions
(2) Site Plan Review Provisions
(3) Environmental Commission
(4) Urban Renewal Authority
(5) Housing Authority
* Revisions in Progress
** Not Available

Abbreviations:

C = Township Committee
ID = Identified Flood Hazard Areas
ID/P = Township Participating in the National Flood Insurance Programs as of 2/28/75
IP = Ordinance Being Drafted
MC = Mayor Council
NA = Not Adopted
X = Signifies Presence (Year adopted/Revised)
CM = Council Mayor
R = Referral Type
AP = Approval Type

Table 23-4 Northampton County Development Controls By Municipality (1975)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Allen	4	BS	R	X	X (69)	X (69)	X (68)	-	-	ID	
Bangor	3	MC	R	X	X (68)	X (67)	X (68)	X	-	ID/P	
Bath	4	MC	R	X	-	X (56)	-	-	X	ID	
Bethlehem	4	MC	R	X	X (60)	X (55/70)	X (60)	X	-	ID/P	(1)(4)(5)
Bethlehem Twsp.	4	BC	R	X	X (64)	X (62)	X (60)	X	-	ID/P	
Bushkill	4	BS	R	X	X (67)	X (67)	X (73)	-	-	ID	
Chapman	4	MC	-	-	-	-	-	-	-	ID	
East Allen	4	BS	R	X	X (70)	X (70)	X (71)	-	-	ID/P	
East Bangor	3	MC	R	-	-	-	-	-	-	ID	
Easton	4	MC	R	X	X (13/71)	X (28/65)	X (46/66)	X	-	ID/R	(1)(4)(5)
Forks	4	BS	R	X	X (68)	X (56/68)	X (62)	X	-	ID	(1)
Freemansburg	4	MC	R	X	-	X (69)	X (50/70)	-	-	ID/P	
Glendon	4	MC	R	X	-	X (50)	-	-	-	ID	
Hanover	4	BS	R	X	X (72)	X (63)	X (63/73)	X	-	ID/P	(1)
Hellertown	4	MC	R	X	X (69)	X (68)	X (69)	X	-	ID/P	

Table 23-4 Northampton County Development Controls by Municipality (1975) (Continued)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Lehigh	4	BS	R	X	X (68)	X (67)	X (68)	-	X	ID	
Lower Mt. Bethel	2	BS	R	X	X (71)	X (72)	X (71)	-	X	ID/P	
Lower Nazareth	4	BS	R	X	X (62/68)	X (66/70)	X (63)	-	-	ID	
Lower Saucon	4	BS	R	X	X (64)	X (63)	X (58)	-	X	ID/P	
Moore	4	BS	R	X	X (73)	X (73)	X (65/70)	-	X	ID/P	
Nazareth	4	MC	R	X	X (69)	X (69)	X (69)	X	-	ID	
Northampton	4	MC	R	X	X (72)	X (60/73)	-	-	X	ID/P	
North Catasauqua	4	MC	R	X	-	X (55)	-	-	-	ID	
Palmer	4	BS	R	X	X (62)	X (50/73)	X (55/73)	X	-	ID/P	(1)
Pen Argyl	3	MC	R	X	X (68)	X (69)	X (69)	X	-	ID/P	
Plainfield	3	BS	R	X	X (71)	X (71)	X (59)	-	X	ID/P	
Portland	1	BS	R	X	X (66)	X (66)	-	-	-	ID/P	
Roseto	3	MC	R	-	-	-	-	-	-	ID/P	
Stockertown	4	MC	R	X	X (72)	X (73)	X (70)	X	-	ID	
Tatamy	4	MC	R	X	X (65)	X (64)	X (64)	-	-	ID	

Table 23-4 Northampton County Development Controls by Municipality (1975) (Continued)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Upper Mt. Bethel	1	BS	R	-	X (67)	-	X (73)	-	X	ID	
Upper Nazareth	4	BS	R	X	X (68)	X (69)	X (67)	-	X	ID	
Walnutport	4	MC	R	-	-	-	-	-	-	ID/P	
Washington	3	BS	R	-	X (69)	-	X (73)	-	X	ID/P	
West Easton	4	MC	-	X	-	X (52)	-	-	-	ID/P	
Williams	4	BS	R	X	X (69)	X (69)	X (69)	-	-	ID/P	
Wilson	4	BS	R	X	X (62)	X (59/72)	-	X	-	ID/P	
Wind Gap	3	MC	R	X	X (68)	X (68)	X (68)	-	-	ID	

Source: Lehigh-Northampton Joint Planning Commission.

Notes:

(1) PRD Special Provisions
(2) Housing Code
(3) Code Enforcement Program
(4) Redevelopment Authority
(5) Planning Staff

Abbreviations:

BS = Board of Supervisors
ID = Identified Flood Hazard Areas
ID/P = Township Participating in the National Flood Insurance Programs as of 2/28/75
IP = Ordinance Being Drafted
MC = Mayor Council
NA = Not Adopted
X = Signifies Presence (Year adopted/Revised)
R = Referral Type

Table 23-5 Monroe County Development Controls by Municipality (1975)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Barrett	3	BS	R	X	-	X (66)	X (62)	-	-	ID	
Chestnut Hil	3	BS	R	-	-	IP	X (72)	-	-	ID	
Coolbaugh	3	BS	R	-	IP	IP	IP	-	-	-	
Delaware Water Gap	1	MC	R	X	X	X (70)	X (70)	-	X	ID	
East Stroudsburg	1	MC	R	X	X (63/72)	X (69/73)	X (63)	X	-	ID/P	(1)(2)(3)
Eldred	4	BS	R	-	-	-	X	-	X	ID	
Hamilton	2	BS	R	-	X	IP	X (73)	-	X	ID	
Jackson	3	BS	R	-	-	IP	X (73)	-	-	ID	
Middle Smithfield	1	BS	R	-	(NA)	-	X (75)	-	X	ID	
Mt. Pocono Boro	3	MC	R	X	-	X (74)	X (71)	X	X	ID	(1)
Paradise	2	BS	R	X	X	X (70)	X (69)	-	X	-	
Pocono Twsp.	2	BS	R	X	X (72)	X (71/73)	X (68/72)	-	X	ID	(1)
Polk	4	BS	R	-	-	-	IP	_	_	ID	
Price	2	BS	R	-	(NA)	-	-	-	-	ID	

Table 23-5 Monroe County Development Controls by Municipality (1975) (Continued)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Ross	4	BS	-	-	-	-	-	-	-	ID	
Smithfield	1	BS	R	X	X (70)	X (73)	X (70)	X	X	ID/P	(1)
Stroud	1	BS	R	X	-	X (67)*	X (66/67)	-	X	ID/P	(1)
Stroudsburg	1	MC	R	X	X (66)	X (72)	X (63/66)	X	-	ID/P	(1)(2)(3)
Tobyhanna	3	BS	R	-	X	IP	X (69)	-	-	ID/P	
Tunkhannock	3	BS	-	-	-	-	IP	-	-	ID/P	

Source: Monroe County Planning Commission & Municipal Officials.

Notes:

* Revision in Progress
(1)P.R.D. Special Provisions
(2)Housing Code
(3)Code Enforcement Program

Abbreviations:

BS = Board of Supervisors
ID = Identified Flood Hazard Areas
ID/P = Township Participating in the National Flood Insurance Programs as of 2/28/75
IP = Ordinance Being Drafted
MC = Mayor Council
NA = Not Adopted
X = Signifies Presence (Year adopted/Revised)
R = Referral Type

Table 23-6 Pike County Development Controls By Municipality (1975)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Blooming Grove	2	BS	R	-	-	-	X (71)	-	-	ID	
Delaware	1	BS	R	-	-	-	X (61/72)	IP	X	ID	
Dingman	1	BS	R	X	X (74)	X (74)	X (70)	X	X	ID	
Greene	3	BS	R	-	-	-	X (67)	-	X	ID	
Lackawaxen	4	BS	R	-	(NA)	-	X (71)	-	-	ID	
Lehman	1	BS	R	-	IP	IP	X (70)	IP	-	ID	
Matamoras Boro	1	MC	R	-	-	IP	X (74)	IP	-	-	
Milford Boro	1	MC	R	-	-	X (39)*	-	-	X	ID	
Milford Twsp.	1	BS	R	-	-	-	-	-	X	ID	
Palmyra	3	BS	R	X	(NA)	X (70)*	X (69)*	-	X	ID	(1)
Porter	3	BS	R	-	-	-	IP	-	-	-	
Shohola	3	BS	R	-	IP	IP	X (71/75)	IP	-	ID	
West Fall	1	BS	R	-	IP	IP	X (70)	-	X	-	

Source: Cooperative Extension Service, Pike County. Township Clerks.

Notes: (1) PRD Special Provisions

Abbreviations:

IP = Ordinance Being Drafted
MC = Mayor Council
NA = Not Adopted
R = Referral Type

Abbreviations:

BS = Board of Supervisors
ID = Identified Flood Hazard Areas
ID/P = Township Participating in the National Flood Insurance Programs as of 2/28/75.
X = Signifies Presence (Year adopted/Revised)

Table 23-7 Sullivan County Development Controls by Municipality (1975)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Bethel	4	S	X	X	X (66)	X (67)	X (65)	X	-	ID	
Calicoon	4	S	X	-	-	-	X	X	-	ID	
Cochecton	4	S	X	X	-	X	X	-	X	ID	
Delaware	4	S	X	X	-	X	X	-	X	ID	
Fallsburg	4	S	X	X	X (65)	X (68)	X (65)	X	X	ID/P	(1)
Woodridge Village	4	M	X	X	X	X	X	X	X	ID	(1)(2)
Fremont	4	S	X	-	-	IP	X	X	X	ID	
Forestburg	3	S	X	X	-	X	IP	X	-	ID	
Highland	3	S	X	-	-	-	X	X	-	ID/P	
Liberty	4	S	X	X	X (66)	X (66)	X (65)	X	X	ID	
Liberty Village	4	M	X	X	X (65)	X (67)	X (65)	X	X	ID/P	(1)
Lumberland	3	S	X	--	-	--	X	-	X	ID	
Mamakating	4	S	X	X	X	X	X	X	X	-	
Wurtsboro Village	4	M	X	-	X	IP	X	X	X	ID	
Bloomingburgh Village	4	M	X	-	X	-	X	X	X	ID	

Table 23-7 Sullivan County Development Controls by Municipality (1975) Cont'd

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Neversink	4	S	X	X	X	X	X	X	X	ID	
Rockland	4	S	X	X	X	X (68)	X (68)	-	X	ID	
Thompson	4	S	X	X	X (64)	X (71)	X (67)	X	X	ID	
Monticello Village	4	M	X	X	X	X	X	X	X	-	(1)(2)
Tusten	4	S	X	-	X	IP	IP	-	-	ID	

Source: Sullivan County Planning Dept.

Notes:

(1) Housing Authority
(2) Urban Renewal Authority

Abbreviations:

ID = Identified Flood Hazard Areas
ID/P = Township Participating in the National Flood Insurance Programs as of 2/28/75
IP = Ordinance Being Drafted
M = Mayor and Trustees
NA = Not Adopted
S = Supervisor and Town Board
X = Signifies Presence (Year adopted/revised)

Table 23-8 Orange County Development Controls by Municipality (1975)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Blooming Grove	4	S	X	X	NA	X (53)	X (69)	X	X	ID	
Washingtonville Village	4	M	X	X	X	X	X	X	-	ID/P	
Chester	4	S	X	X	IP	X	X	X	X	ID	
Chester Village	4	M	X	X	-	X	X	X	-	ID	
Cornwall	4	S	X	X	NA	X (71)	X	X	-	ID	
Cornwall Village	4	M	X	X	IP	X	X	X	-	ID/P	
Crawford	4	S	X	X	IP	X (59)	X (59)	X	X	ID	
Deerpark	2	S	X	-	X (60)	X (70/72)	X (60)	X	X	ID	
Goshen	4	S	X	X	(NA)	X (68)	X (67)	X	X	ID	
Goshen Village	4	M	X	X	(NA)	X	X	X	-	-	
Greenville	2	S	X	X	X	X	X	X	X	-	
Hamptonburgh	4	S	X	X	IP	X	X	-	-	ID	
Highlands	4	S	X	X	X	X (68)	X (68)	-	X	ID	
Highlands Falls Village	4	M	X	X	X	X	X	X	X	ID/P	
Middletown	4	S	X	X	X	X (67)	X (59)	X	-	-	(1) (2)

Table 23-8 Orange County Development Controls by Municipality (Continued)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Minisink	3	S	X	X	(NA)	X (71)	X (62)	X	X	ID	
Unionville Village	3	M	X	X	(NA)	X	X	X	-	ID	
Monroe	4	S	X	X	X	X (65)	X (60)	X	X	ID	
Harriman Village	4	M	X	X	X	X	X	X	-	ID	
Monroe Village	4	M	X	X	X	X	X	X	-	ID	
Montgomery	4	S	X	X	(NA)	X	X	X	-	ID	
Maybrook Village	4	M	X	X	(NA)	X	X	X	-	-	
Montgomery Village	4	M	X	X	X	X	X	X	-	ID/P	
Walden Village	4	M	X	X	(NA)	X	X	X	-	ID	
Mt. Hope	4	S	X	X	(NA)	X	X	X	X	ID	
Otisville Village	4	M	X	-	(NA)	-	X	X	-	-	
Newburgh	4	S	X	X	(NA)	X (60)	X (69)	X	-	ID	
Newburgh Town	4	S	X	X	(NA)	X	X	X	-	-	
New Windsor	4	S	X	X	(NA)	X (65)	X (59)	X	-	ID/P	

Table 23-8 Orange County Development Controls by Municipality (Continued)

	Impact Zone	Form of Government	Planning Board Type	Zoning Board	Comprehensive Plan	Zoning Ordinance	Subdivision Regulations	Building Code	Trailer Ordinance	National Flood Insurance Prog.	Other
Port Jervis	1	S	X	X	X	X (47/71)	-	X	X	ID/P	(1) (2)
Tuxedo	4	S	X	X	(NA)	X (66)	X (61)	X	X	ID	
Tuxedo Park Village	4	M	X	X	(NA)	X	X	X	-	-	
Walkill	4	S	X	X	X	X	X	X	X	ID	
Warwick	4	S	X	X	X	X (64)	X (64)	X	X	ID/P	
Florida Village	4	M	X	X	(NA)	X	X	X	-	ID	
Greenwood Lake Village	4	M	X	X	(NA)	X	X	X	X	ID/P	
Warwick Village	4	M	X	X	X	X	X	X	X	ID/P	
Wawayanda	4	S	X	X	(NA)	X	X	-	-	ID	
Woodbury	4	S	X	X	X	X (53)	X (53)	X	X	ID	

Source: N.Y.S. Office of Planning Services
Orange County Planning Dept.

Notes:

(1) Urban Renewal Authority
(2) Housing Authority

Abbreviations

BS = Board of Supervisors
C = Township Committee
ID = Identified Flood Hazard Areas
ID/P = Township Participating in the National Flood Insurance Programs as of 2/28/75
IP = Ordinance Being Drafted
M = Mayor and Trustees
MC = Mayor Council
NA = Not Adopted
S = Supervisor and Town Board
X = Signifies Presence (Year Adopted/Revised)
CM = Council Manager
R = Referral Type
AP = Approval Type

Participation in The Federal Flood Insurance Program:

Those municipalities with identified flood hazard areas under the Federal Flood Insurance Program, were indicated in the preceeding tables. The reason for including this information in a tabulation of development controls is twofold. One, these flood hazard areas, although sometimes minor in extent, represent an area in which development or further development should be controlled. The other reason is that for many of the rural townships, notice from the federal government that they have recognized flood hazard areas is causing a new environmental awareness. This, no doubt, will be reflected in the future revisions to their zoning ordinances whether they elect to join the program or not.

Of 178 jurisdictions within the seven county area, 45 or 25 percent were participants in the HUD Flood Insurance Program as of February 28, 1975. Only 25 of the 108 jurisdictions not participating in the program, do not have flood hazard areas. Table 23-9 below, indicates the geographic distribution of these communities relative to DWGNRA impact zones.

Table 23-9 County Participation in National Flood Insurance Program, Delaware River Basin Seven County Area, February 28, 1975

Impact Zone	Participate in the Program	No Participation in Program		Total
		Hazard Area Identified	Not Identified as a Hazard Area	
Zone 1	5	12	7	24
Zone 2	1	12	3	16
Zone 3	8	27	6	41
Zone 4	31	57	9	97
Total	45	108	25	178

Sources: National Flood Insurance Program, U.S. Department of Housing and Urban Development

The number of HUD Flood Insurance Program participants will undoubtedly increase before the cut-off date of July 1, 1975. Key reasons why jurisdictions have not yet passed participation resolutions include limited time commitments of many local officials, the lack of understanding of program requirements, and lack of clear definitions of flood plain areas.

Traditionally, few land use restrictions of any type have been adopted and enforced in some of these local communities. Communities which elect to join the HUD Flood Insurance Program must restrict development in designated flood plain areas based on HUD guidelines. Failure to enter the HUD Flood Insurance Program means communities may be denied both direct federal financial assistance and federally related financing by private lending institutions for projects proposed within flood hazard areas. Flood plain zoning regulations must be locally enforced, which places addition burdens on local inspection, enforcement officers, and elected officials.

Because flood control projects are long range, not of immediate concern, and may involve benefits for surrounding jurisdictions as well, local communities are hesitant to invest. For the above reasons, a typical local attitude may be that flood control prevention is the responsiblity of a higher level of government.

As part of the National Flood Insurance Program, DRBC is undertaking the mapping of flood plain land uses for approximately 100 communities in the Basin area, which includes communities such as Port Jervis in the Tocks Island Region.

DRBC has also established a Flood Regulation Advisory Committee, composed of representatives of the member states, to prepare standards for future flood plain use.

XXIII.C.3 ZONING ANALYSIS

Zoning is essentially a means of insuring that the land and natural resources of a community are properly utilized in terms of the needs of the community as a whole. It ensures that different land uses are properly situated in relation to each other and that each use has adequate space and can be properly serviced within the community infrastructure.

In the past ten years, the concept of zoning has been changing. Its earlier role of merely limiting building height, building bulk, lot sizes and population density has been modified in recent ordinances to include the role of preserving the community's natural resources and aesthetics. The Township of Greenville, New York ordinance is an example of this trend.

In the preceding section, the comprehensive plans, subdivision regulations and zoning ordinances currently adopted in the seven-county region were presented. In this section, a survey of a selected number of zoning ordinances is presented and their contents discussed. Using the TILP/DWGNRA impact zones as determined in Chapter XXII, all of the zoning ordinances of the municipalities within the first or primary impact zone are surveyed as well as representative ordinances from municipalities in the other zones. In those cases where an ordinance could not be directly obtained, telephone interviews were conducted with planning board chairmen, town clerks, zoning officers, etc. A check list of more than 38 zoning items was prepared to analyze the specific features of the ordinances of the various communities selected. Tables 23-10 through 23-12

Table 23-10 Survey of Zoning Ordinances of Selected Sussex and Warren County Townships

	Sussex County				Warren County			Sussex County					Warren County	
	Montague	Sandyston	Hampton	Stillwater	Hardwick	Blairstown	Knowlton	Wantage	Frankford	Branchville	Newton	Fredon	Frelinghuysen	Hope
Impact Zone Number	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Zoning Ordinance - Year Adopted	1970	1961	1965	1966	1965	1965	1964	1968	1968	1973	1960	1962	1967	1960
Zoning Ordinance - Year Reviewed	1973	1974	1972	1973	1972	1973	1971		1973		1973	1973		1964
Revision in Progress	Y	Y	Y	Y	Y	Y	Y	Minor	N	N	N	Minor	Y	Y
Number of Residential Zones	2	6	1	2	1	2	3	1	2	2	3	1	2	2
Minimum Lot Size - 1,000 sq.ft.	43.6	7.5-200.0	43.6	15.0-60.0	43.6	0-43.6	21.8	43.6	43.6		12.7	43.6	43.6	43.6
Maximum Coverage				10-20%	15%	20-30%						25%		20%
Minimum Dwelling Size - sq.ft.		1,000			1,100		1,200	1,000	1,000			1,200		
Maximum Building Height - Stories	2	2½	2	2½	2½	2½	2	2	2½		2	2	2	2½
Row House/Garden Aparment Controls	PR	Y-R	IP	Y-R	PR	PR	N	PR	PR	PR	R	IP	PR	R
Maximum Density - Dwelling Unit/Acre	1		1	4	1			1	1		12	1	1	2
Second Home Controls	Y	Y	N	IP	Y	N	Y	Y	Y	N	Y	Y	Y	Y
Number of Commercial Zones	1	5	2	5	1	2	3	2	1	1	5	1	3	3
Minimum Lot Size - 10,000 sq.ft.		D	4.0	1.5		Varies	8.7	21.2	2.2		2.2	2.2	2.0	21.8
Maximum Coverage		D	35%-U	15%	25%	20%	40%		U		Varies	35%		10%
Motel Controls	Y	D	Y	P	PR	Y	Y	Y	Y	N	N	PR	Y	IP
Shopping Center Controls	Y	D	Y	N	PR	Y	PR	N	Y	N	N	N	Y	IP
Service Station Controls	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	IP
Commercial Strip Controls	Y	Y	Y	N	Y	Y	Y	N	Y	N	Y	N	Y	IP
Residential Use Permitted	Y	Y-R	Y	Y-R	Y	Y	N	Y	Y-R	R	Y	Y	Y	Y
Number of Industrial Zones	0	B	1	B	1	1	1	1	1	0	2	3	1	0
Minimum Lot Size - 10,000 sq.ft.		D	4.0	4.4	20.0	21.8	8.7		13.1		8.7	8.7	8.7	
Type of Industry Permitted		L	L	L	L-M	L	L	L-M	U		L-M	L-M	L	
Residential Use Permitted			N	Y-R	N	Y	N	Y			N	N	Y	
Number of Agricultural Zones	B	B	B	0	1	1	2	0	B	0	1	B	B	0
Number of Conservation Zones	0	0	IP	0	1	1	IP	0	0	0	0	0	0	0
Miscellaneous Zones	0	1-Flood Plain	0	0	0	2-Airport	0	0	0	1-Vacant Zone	0	0	1-Flood Plain	IP-Historical
Other Controls														
Off-Street Parking	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y
Site Landscaping	Y	D	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Billboards and Signs	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Mobile Homes	Y	PR	Y-R	PR	PR	Y	PR	PR	Y	PR	PR	PR	PR	PR
Junkyards	Y	PR	Y	PR	PR	Y	Y	Y	Y	Y	Y	Y	Y	Y
Quarry/Soil Removal	Y	Y	IP	Y	Y	Y	Y	IP	Y	N	N	Y	Y	Y
PUD/PRD Ordinance	Y	D	N	Y	PR	PR	PR	N	Y	PR	N	PR	N	IP
Sewer and Water	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y
Flood Plain	N	Y	IP	N	N	Y		N	N	N	Y	Y	Y	IP
Environmental Controls	Y	Y	N	Y	N	Y	Y	Y	N	N	Y	Y	IP	Y
Population - 1970 Census	1,131	1,303	2,091	2,158	584	2,189	1,738	4,329	2,770	911	7,297	1,372	1,118	1,140
Area - sq. miles	44.6	42.1	24.7	29.1	17.8	30.9	25.4	67.9	34.8	0.5	3.0	18.3	23.6	19.2

KEY: Y = Yes, signifying existence
N = No
R = Restricted or regulated
U = Unrestricted
PR = Prohibited
IP = In progress or being considered

A = Based on subdivision ordinance only
B = Uses permitted but covered in different zone classification
C = Determined by FAR
D = Subject to zoning board approval
E = Determined by provisions-and-bonus formula
L = Light Industry Permitted

M = Medium industry permitted
H = Heavy industry permitted

SOURCE: Zoning/Subdivision Ordinances and Telephone Interviews April 1975

NOTES: Sandyston - Data based on proposed new ordinance expected to be adopted in May 1975
Hardwick - Data based on current ordinance; a new ordinance is expected to be adopted in May 1975

Table 23-11 Survey of Zoning Ordinances of Selected Monroe and Northampton County Townships

	Monroe County						Northampton County	Monroe County			
	Delaware Water Gap	East Stroudsburg	Middle Smithfield	Smithfield	Stroud	Stroudsburg	Upper Mt. Bethel	Hamilton	Paradise	Pocono	Mount Pocono
Impact Zone Number	1	1	1	1	1	1	1	2	2	2	2
Zoning Ordinance - Year Adopted	1970	1969	A	1973	1968	1972	A	IP-A	1970	1971	1974
Zoning Ordinance - Year Reviewed		1973			Minor Amendments				N	1973	1974
Revisions in Progress	Y	Y		Y	Y	Y			Y	Y	
Number of Residential Zones	2	4		2	3	4			2	2	2
Minimum Lot Size - 1,000 sq.ft.	12.5-20.0	7.5-12.5	21.7-43.6	10.0-20.0	10.0-30.0	6.0-20.0	10.0	43.5	20.0-40.0	43.2	D
Maximum Coverage		30%		35%	20-50%	30-50%			20-30%	35%	15%
Minimum Dwelling Size - 1,000 sq.ft.											
Maximum Building Height - Stories	2½	2½		2½	2½-3	2½-6			2½	2½	3
Row House/Garden Apartment Controls	Y-R	P	D	Y-R	Y-R	Y-R			PR	Y-R	Y-R
Maximum Density - Dwelling Unit/Acre	3	12		6	14	14			2		D
Second Home Controls	Y			Y	Y	Y			Y	Y	Y
Number of Commercial Zones	2	4		1	2	3			1	1	1
Minimum Lot Size - 10,000 sq.ft.	0.5	0.4-0.5		0.3	U-2.0	0.5			3.0	43.2	U
Maximum Coverage		50-80%		35%	U-50%	50-80%			35%	40-60%	
Motel Controls	N	N							Y	Y	Y
Shopping Center Controls	N	N		Y					Y	N	Y
Service Station Controls	Y	Y		Y					Y	Y	Y
Commercial Strip Controls	N	N		Y					N	N	N
Residential Use Permitted	Y	Y		N		Y			Y	Y	Y
Number of Industrial Zones	1	2		1	1	1			B	1	1
Minimum Lot Size - 10,000 sq.ft.	1-2	1.0-1.2		4.0	2.0	1.0				21.8	U
Type of Industry Permitted		U		L-M	50%	L			L-M	L	L
Residential Use Permitted	Y			N						N	N
Number of Agricultural Zones	B	0		B	B	B			B	0	B
Number of Conservation Zones	1	1		0	1	0			0	1	0
Miscellaneous Zones	0	1-Hospital		0	1-Recreation	1-Open Space			0	1-Recreation	0
Other Controls											
Off-Street Parking	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y
Site Landscaping	N	Y	Y	N	Y	Y		N	Y	N	N
Billboards and Signs	Y	Y		Y	Y	Y	N	N	Y	Y	Y
Mobile Homes	Y-R	Y	Y-R	Y-R	Y-R	Y-R	Y-R	Y-R	PR	Y-R	Y
Junkyards	Y	Y		PR		N	N	Y	Y	Y	Y
Quarry/Soil Removal	N	Y		Y	Y	Y	N	N	Y	N	Y
PUD/PRD Ordinance	N	Y		Y	Y	Y	N	N	Y	Y	Y
Sewer and Water	Y	Public	Y	Y	N	Public	Y	Y	Y	Y	Y
Flood Plain	Y	Y	Y	Y		Y	N	IP	Y	Y	IP
Environmental Controls	Y	Y		Y	Y	Y	N		Y	Y	Y
Population - 1970 Census	533	7,984	1,508	2,285	7,525	5,451	3,343	2,985	1,207	1,870	1,019
Area - sq. miles	1.7	2.6	54.3	23.2	31.4	1.7	36.7	38.7	21.7	35.3	3.2

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SOURCE: Zoning/Subdivision Ordinances and Telephone Interviews
April 1975

Table 23-12 Survey of Zoning Ordinances of Selected Pike, Orange and Sullivan County Townships

	Pike County							Orange County			Sullivan County
	Milford Boro	Milford Township	Dingman	Delaware	Lehman	Westfall	Palmyra	Port Jervis	Greenville	Deer Park	Lumberland
Impact Zone Number	1	1	1	1	1	3	3	1	2	2	3
Zoning Ordinance - Year Adopted	1939	N	1974	A	IP-A	IP-A	1970	1947		1970	1975
Zoning Ordinance - Year Reviewed	N							1971		1972	
Revisions in Progress	Y	N	Y	N			Y	Y		Y	Y
Number of Residential Zones	1		3				2	2	2	2	1
Minimum Lot Size - 1,000 sq.ft.	IP: 9.6		21.8-43.6	15.0-43.6			43.6	6.0-7.5	E	10.0-40.0	43.6
Maximum Coverage	N		20%				30%	25%	40%	20-35%	D
Minimum Dwelling Size - 1,000 sq.ft.								0.6	0.8	C	
Maximum Building Height - Stories	2½		2½				2½	2½	E	2½	D
Row House/Garden Apartment Controls			Y-R				Y	Y-R	Y	Y	D
Maximum Density - Dwelling Unit/Acre			4				5		E		I
Second Home Controls	N		N				N		Y		N
Number of Commercial Zones	1		1				3	4	2	2	IP
Minimum Lot Size - 10,000 sq.ft.							2.0	0.2-0.5	E	1.0	
Maximum Coverage	N		50%				40-60%		E	C	
Motel Controls	N		N				Y	N	Y	Y	
Shopping Center Controls	N		N				N	Y	Y	Y	
Service Station Controls	N		N				N	Y	Y	Y	
Commercial Strip Controls	N		N				N	N	Y	Y	
Residential Use Permitted	Y		N				Y	Y-R	Y	Y	
Number of Industrial Zones	0		1				B	1	1	1	0
Minimum Lot Size - 10,000 sq.ft.			21.8					1.0	E	4.0	
Type of Industry Permitted			L					L-M	L-M	L	
Residential Use Permitted			N				Y	N	Y	Y-R	
Number of Agricultural Zones	0		0				0	0	B	B	B
Number of Conservation Zones	0		0				1	0	1	0	IP
Miscellaneous Zones	0		0				0	0	0	0	0
Other Controls											
Off-Street Parking	N		N				Y	Y	Y	Y	Y
Site Landscaping	N		N				Y	Y	Y	Y	IP
Billboards and Signs	Y		Y				Y	Y	Y	Y	IP
Mobile Homes	PR	Y	Y-R	Y-R		Y-R	Y-R	Y	Y-R	Y-R	Y-R
Junkyards	Y		Y				Y	Y	Y	Y	IP
Quarry-Soil Removal	N		N				Y	N	Y	Y	Y
PUD/PRD Ordinance	N		Y				Y	D	Y	Y	N
Sewer and Water	Public	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Flood Plain	+ IP		N				N	Y	Y		IP
Environmental Controls			N				N	Y	Y	Y	IP
Population - 1970 Census	1,190	418	518	671	624	1,348	1,204	8,852	1,379	4,370	857
Area - sq. miles	0.4	13.0	57.0	45.2	48.2	31.3	33.1	2.5	30.45	69.3	50.4

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A = Based on subdivision ordinance only
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L = Light industry permitted

M = Medium industry permitted
H = Heavy industry permitted

SOURCE: Zoning/Subdivision Ordinances and Telephone Interviews
April 1975

summarize the results of this survey.

It should be stated that in order to arrange the information (some of it obtained through telephone interviews) in tabular format, nuances such as the extent to which one municipality has and does enforce environmental standards as compared with another municipality, could not be shown. However, generally the data is comparable within each county. To clarify some of the nuances and to focus on the major features of each ordinance, the following are a series of notes on each township tabulated:

Sussex and Warren County Townships, New Jersey - Impact Zone 1 -

MONTAGUE, Sussex County - The minimum lot size is one acre. Row houses and garden apartments are not permitted. This municipality does not have a conservation district, and off-street parking is uncontrolled.

SANDYSTON, Sussex County - Sandyston expects to adopt a completely new ordinance in May 1975. The new zoning is to be based on a revised master plan adopted in February 1975 and will provide for 292 acres zoned as flood plain. The township has stringent billboard and sign controls. Mobil home parks are not permitted and junkyards are banned. More than 70 percent of the town's 42.1 square miles are publicly held as state forest land, New Jersey fish and game reserves and the Federal TILP/DWGNRA lands, all of which are tax-exempt.

HAMPTON, Sussex County - Currently this township is revising its multi-family provisions. Its present zoning provides for a minimum lot size of one acre. Minimum lot size requirements for commercial and industrial zones are 40,000 square feet. It is considering flood plain controls.

STILLWATER, Sussex County - Stillwater considers its ordinances effective, but contemplates revisions to increase minimum lot size based on environmental standards (e. g., soil). Currently, its minimum residential lot sizes range from 15,000 to 60,000 square feet. Second home controls are in progress. Row houses and garden apartment units are permitted within the PRD area.

HARDWICK, Warren County - This municipality has a fairly comprehensive zoning and subdivision ordinance based on a master plan adopted in 1960, but plans substantial revisions such as increasing the minimum residential lot size from one acre to two, three or four acres, limiting its commercial district to a single five-acre tract and eliminating its industrial zone altogether. These revisions are based on an environmental assessment in the revised master plan of soil conditions, drainage, topography and environmentally sensitive areas. The existing controls of motels, mobile

homes, junkyards (not permitted), signs and billboards, site landscaping, etc., appear to be stringent, but there are, at present, no specific environmental standards set forth.

BLAIRSTOWN, Warren County - The Chairman of the Planning Board reports that there are poor soil conditions in this 30.9 square-mile municipality, and therefore small lot subdivisions are not permitted. Five-acre minimum lots are required in its industrial zone. Noise, odor, waste, heat emission, and vibration regulations are included in the zoning ordinance.

KNOWLTON, Warren County - This is a 26 square mile municipality that has nuisance ordinances but no real environmental performance standards. About 90 percent of this township's land is zoned agricultural, about 5 percent is residential and the remainder is mostly industrial. Although a conservation zone does not at present exist, one is contemplated. Row houses and garden apartments are not permitted.

Sussex and Warren County Townships, New Jersey - Other Impact Zones --

WANTAGE, Sussex County - This 67.9 square mile township allows neither row houses, garden apartments, mobile homes nor PRDs.

It has no conservation zoning, although flood plain controls do exist to a small extent. About 10 square-miles have been designated for commercial and industrial zoning. Quarry and soil removal controls are being considered.

FRANKFORD, Sussex County - About 90 percent of this municipality's 34.8 square-miles is devoted to residential zoning. Within its residential districts the minimum lot size required is one acre. Row houses and garden apartments are not permitted. It does have motel, shopping center, service station and commercial strip controls. Its PRD ordinance requires a minimum lot size of 30,000 square feet with a maximum permitted coverage of 15 percent.

BRANCHVILLE, Sussex County - The zoning ordinance for Branchville was adopted in 1973. The town clerk indicates that the ordinance has not existed long enough to show either its weak or strong points. Only existing multi-family housing is allowed, but despite the ordinance's recent vintage, it has no off-street parking, site landscaping, billboard and sign controls, nor environmental performance standards.

NEWTON, Sussex County - The building inspector states that the zoning ordinance has often been amended. This comparatively small (three square-mile) municipality has set aside about 50 percent of its land for residential purposes, 25

percent for commercial use, and the remaining 25 percent for industrial use. It does have terrain and erosion controls.

FREDON, Sussex County - The zoning ordinance, initially adopted in 1972, is not now based on a master plan. The latter is now being developed. Allocations for residential, commercial and industrial land acreage are 90 percent, 4 percent, and 6 percent, respectively.

FRELINGHUYSEN, Warren County - Frelinghuysen's zoning ordinance and master plan were adopted in 1967, and have had no major revision since. However, revisions are now in progress. The minimum lot sizes for residential uses are one acre, for commercial 20,000 square feet and for its industrial zone two acres. Only light industry is permitted, and the township exercises control over shopping centers, service stations, as well as the aesthetic aspects of zoning such as billboards and site landscaping. Quarry/soil removal regulations are already in effect and additional specific standards for environmental performance are being considered. Mobile homes are not permitted, and on-site sewer and water installations, both of which require permits, are inspected by the township's building inspector.

HOPE, Warren County - Hope Township has had a subdivision ordinance since 1961. Its zoning ordinace was adopted in 1964 and based on a master plan of the same date; all three are in the process of being revised because the township feels that the current ordinances are no longer adequate to cope with development since the completion of Route I-80. The current zoning ordinance requires a minimum lot of one acre in the residential zone and five acres in the commercial zone. Maximum coverages are 20 percent and 10 percent, respectively, with a maximum density of two dwelling units per acre in regulated row house/garden apartment developments. There are some environmental performance standards, but controls of motels, service stations, commercial strips, etc., are only in the planning stage. The town intends to set aside one acre as a historical zone.

Monroe and Northampton County Townships, Pennsylvania - Impact - Zone 1 --

DELAWARE WATER GAP, Monroe County - The minimum residential lot size is 12,500 square feet with central sewer and water and 20,000 square feet without. The minimum lot size for commercial zones is 5,000 square feet and for industrial zones 12,500 square feet. The attorney for Delaware Water Gap's planning commission indicated that the type of industry is not defined. Revisions are in progress.

EAST STROUDSBURG, Monroe County - East Stroudsburg, more urbanized than the majority of the communities surveyed, has four commerical zones whose minimum lot size ranges from 4,000 to 5,000 square feet and 2 industrial zones with minimum lot sizes of 10,000 to 12,500 square feet. Maximum coverage in the commercial zones is 80% while in residential zones the maximum coverage is 40%. The minimum residential lot size is 7,500 square feet. Multifamily development is permitted with a density of up to 12 units per acre. The special use zones include one hospital zone and one that is a flood plain where residential use is permitted by special permit only.

MIDDLE SMITHFIELD, Monroe County - The township of Middle Smithfield adopted its subdivision ordinance in 1975 and does not as yet have a zoning ordinance.

Under the subdivision regulations, the minimum lot size is one half acre for lots with access to central sewer and water, three quarters of an acre for lots with central sewer only, and one acre for lots with no sewer and water. Other provisions in the subdivision regulations recommend off-street parking and site landscaping but without specific requirements.

SMITHFIELD, Monroe County - Smithfield adopted its zoning ordinance in 1973; revisions are planned that would provide a small commercial zone, and an industrial zone. It is also planned to divide the existing residential zone into two districts, one "moderate density" and the other "light density." At present, minimum residential lot sizes range from 10,000 to 20,000 square feet. For cluster developments, no more than 1.5 times the maximum residential density (6.5 dwelling units per acre) is permitted. Motel controls and site landscaping are not specifically mentioned

STROUD, Monroe County - This township has two districts zoned as commercial, one as industrial, and three for residential uses. The minimum lot size for all zones varies depending on the availability of public sewer and water. Maximum coverage and building height varies within each zone and use type. In the residential zones, minimum lot sizes range

from 10,000 to 30,000 square feet. Multifamily housing is permitted but regulated. There are an additional two zones, one of these is classified as open reserve/ single family, and the other recreation and conservation. The latter has a 10 acre minimum parcel requirement.

STROUDSBURG, Monroe County - Stroudsburg has four residential zones and permits building of up to six stories in both multifamily residentail and the industrial/commercial zones. Maximum coverage in the latter is 80%. Motel, shopping centers, service stations and commercial strips controls are not very specific.

UPPER MOUNT BETHEL, Northampton County - This township has a subdivision ordinance only. Mobile homes are permitted in trailer parks provided they conform to standards of a separate mobile home ordinance. Soil removal and environomental standards adhere to state regulations.

Monroe County Townships, Pennsylvania - Other Impact Zones --

HAMILTON, Monroe County - Hamilton adopted a subdivision ordinance in 1973 and is in the process of preparing a zoning ordinance revision in order to qualify for

Federal flood insurance. A master plan has been completed but not adopted. The minimum lot size is one acre. The township requires a permit for on-site sewage.

PARADISE, Monroe County - The community of Paradise has had a zoning ordinance based on a master plan since 1970. Revisions are in progress which will reduce commercial restrictions in residentially zoned districts and increase the minimum residential lot sizes. Light industry, for which no specific zone is provided, is permitted in the commercial zone, as is residential use. Row houses are permitted to the extent that they do not exceed more than two families per 20,000 square feet. Motels and service stations are regulated and there are limited sign controls.

POCONO, Monroe County - This township requires one acre minimum lots for both residential and commercial use but permits a coverage of 40%-60% in its commercial zone and not more than 35% in the two residential ones. Minimum lot size in the industrial zone is five acres, with only light industry permitted. Row houses, garden apartments and mobile homes are permitted but regulated. Pocono has one conservation and one recreational zone, regulated by the township's park board.

MOUNT POCONO, Monroe County - Mount Pocono's one commercial and one industrial (light industry) zones have no minimum lot size requirements. The residential minimum lot sizes vary depending on whether central sewer and water systems are provided. Three stories is the maximum building height. Row houses and garden apartments require special permits. Motel, shopping centers and service station controls are in effect. Parking, signs and billboards, mobile homes and soil removals are regulated.

Pike County Townships, Pennsylvania - Impact Zone 1 --

MILFORD BORO, Pike County - Land use controls in this municipality are based solely on a 1939 zoning ordinance, which contains one residential and one commercial zone. Minimum residential lot size is 9600 square feet. Mobile homes are prohibited. The Commercial zone contains no provisions for minimum lot size or maximum coverage or roadside development controls for shopping centers, service stations or motels. Bill boards are prohibited and flood plain zoning is being considered.

MILFORD BORO, Pike County - This municipality does not have a zoning or subdivision ordinance, and none is contemplated. Land use controls consist of a sewer ordinance and a trailer park ordinance adopted in 1965. Trailers are allowed on 1/5 acre lots if provided with water and sewer connections. This municipality also, has no building code.

DINGMAN, Pike County - Land use controls consist of a zoning ordinance adopted in 1974, and a subdivision ordinance adopted in 1974. Building code revisions are currently in progress. Minimum residential lot size is 11,000 square feet with central sewer and water, and one acre without either. Garden apartments and mobile homes are permitted. The latter must be provided with central sewer and water, and the minimum lot size is limited to 1/5 of an acre. There is one commercial zone which permits 50% lot coverage with on specified minimum lot size. No commercial strip controls exist for shopping centers, service stations, or motels. Sign controls rather than billboard controls are provided. There are P. R. D. Provisions in the subdivision regulations for special districts.

DELAWARE TOWNSHIP, Pike County - This municipality has no zoning ordinance and none is being considered. Land uses are controlled only by a subdivision ordinance adopted in 1961 and revised in 1972. Minimum lot size for development without water and sewers is one acre, with either it is one half acre and with both it is 15,000 square feet. The mobile home ordinance specifies a one acre minimum lot size. The subdivision ordinance is currently being revised.

LEHMAN, Pike County - Revisions to the township's zoning ordinance are currently being completed. The township subdivision ordinance, adopted in 1970 was revised in 1974. A new master plan will underlie the current zoning revisions. The towship sewer ordinance is also being revised to conform to state standards. There is no building code, and building permits are used to control new construction starts.

Pike County Township, Pennsylvania - Impact Zone 3 --

WESTFALL, Pike County - Westfall only has subdivision regulations which were adopted in 1970 and revised in 1974. It is currently preparing a master plan and a zoning ordinance. The minimum lot size under the subdivision regulations is 22,000 square feet. Trailers are permitted. The town does require building permits.

PALMYRA, Pike County - Palmyra is one of the few townships in Pike County that has a zoning ordinance. Palmyra's master plan has existed for several years but has never been adopted. This plan is now in the process of being updated, as is the zoning ordinance which was adopted in 1970. The major revisions are necessitated by the new roads constructed since the original ordinance. The minimum lot size in Palmyra is one acre with a maximum coverage of 30% for its two residential zones. There also are three industrial zones and one conservation zone.

Orange County Township of Port Jervis, New York - Impact Zone 1 --

PORT JERVIS, Orange County - Land uses are controlled by a zoning ordinance adopted in 1946 and revised in 1971. All review functions are provided by zoning review board. No subdivision ordinance exists. The zoning ordinance is based on a master plan which is being revised. Residential zones, comprising 60 - 65 percent of Port Jervis' land area, require a 6,000 square-foot minimum lot size. Mobile homes are controlled and the planned Residential Development Ordinance is administered by the Zoning Board of Appeals. Garden apartments are only allowed by permit. Commercial zone requirements contain provisions regulating commercial strip uses, including shopping centers, service stations and motels. Billboard and sign controls are included. Environmental performance standards are enforced, as well as sewer and water controls, flood plain zoning and site landscaping.

Orange and Sullivan County Townships, New York - Other Impact Zones --

GREENVILLE, Orange County - Land use in this municipality is controlled through a recently adopted zoning ordinance that is very effective. Residential, commercial and industrial lot sizes are determined by a formula. Residential zones allow garden apartments, planned residential communities and mobile homes, with restrictions. Commercial controls extend from a 1,000 square-foot minimum lot size to roadside commercial strip controls covering shopping centers, service stations, and billboards and signs.

Study of the zoning law of the Town of Greenville provides one with a significant and interesting case study. Examination of the text provisions and map constituting this ordinance reveals that many other municipalities in the Tocks Island region could gain considerably by tailoring the favorable attributes of the Town of Greenville Zoning Ordinance to suite their own individual purposes. Some of the many virtues of the Greenville ordinance follow:

1. A one-page listing clearly sets forth the various portions of this sophisticated ordinance.
2. Unlike the vast majority of zoning ordinances, there is an abundance of workable definitions. Not only is there a thorough coverage, the lucid explanations preclude the problem of the definitions needing definition.
3. Interpretation is facilitated in a number of ways. One example is a clear-cut narrative that anticipates many problems frequently present in zoning, such as interpretation of district boundaries.
4. The regulations discuss important matters that often are overlooked in land use control (e.g., tree removal, forest improvement operations, etc.).
5. Non-conformance provisions in zoning ordinances often create more problems than they eliminate. In the Greenville ordinance these provisions furnish specific guides concerning alterations, exceptions to indefinite continuance, and restoration-after-damage safeguards.
6. Although planning board site plan review is becoming increasingly prevalent in zoning ordinances, it is rare to find as useful a site plan section as is found in the Greenville Zoning Ordinance. It not only deals with the requirements of proposed submissions with great partic-

ularity, but also with the practical, if mundane, aspects of site plan review such as the administrative details of renewal requirements.

7. The merits of including performance standards in zoning ordinances have received more attention lately. Nonetheless, in too many instances ordinances contain either skimpy, superficial performance standards replete with platitudes, or detailed engineering specification type standards that are beyond the enforcement competence of even large, well-trained building inspection staffs.

8. Residents and municipal officials are often apprehensive about mobile home courts or parks. The Greenville Zoning Ordinance meets this concern head-on by spelling out procedural site plan review and development standards in a thorough but concise fashion. The often troublesome matter of renewal applications is presented in five short paragraphs.

9. Rather than use the prevalent practice of repeating special conditions (i.e., special permits, exceptions, etc.) in a duplicating and overlapping manner, the Greenville Ordinance consolidates them in one article for the convenience of public officials, developers and citizens.

10. Similarly, provisions relating to administration (e.g., violations, issuance of building permits and certificates

of occupancy) and procedures for amendments avoid confusions frequently found in ordinances. In particular, the clarity of the zoning map is to be commended. The district classification system incorporates current, useful practice (e.g., such as Highway Interchange Service Area, Ridge Preservation and Designated Town Center).

In general, it is a highly sophisticated ordinance, dealing with a formula system for determining minimum lot sizes, under which the developer is given lot area incentives by turning over design, siting, landscaping, and coloration review and approval to the township. The ordinance also weighs this formula towards preservation aspects of various ecological zones within the township. It also provides for community trust or bonded homeowner associations to own and maintain open spaces within a development.

DEER PARK, Orange County - Land use controls consist primarily of a 1970 zoning ordinance with amendments through 1972. A subdivision ordinance was adopted during the 1960's and amended in 1971. Extensive revisions are currently being made to the comprehensive plan. Residential lot sizes range from 10,000 to 40,000 square feet. Garden apartments and mobile homes are allowed with restrictions. Residential uses are permitted in commercial and industrial districts. Commercial land use regulations specify 1,000 square-foot minimum lot sizes

and cover roadside commerical developments including shopping center , motels and service stations, as well as billboard a sign controls. Extensive environmental performance standards are reflected in an agriculture zone, site landscaping requirements, sewer and water controls and soil removal controls.

LUMBERLAND, Sullivan County - Land uses are presently controlled by an interim zoning ordinance adopted to conform to eligibility requirements of the National Flood Insurance Act. A subdivision ordinance was adopted in 1972 and revised in 1974. A resolution authorizing the existence of a zoning board of appeals has been passed recently, but members have not yet been appointed. The municipality enforces building, sanitary, and multiple use occupancy codes. Minimum residential lot size is one acre, and garden apartments and mobile homes are permitted but tightly regulated. There are no commercial zones as there are presently only four commercial establishments. Sign and billboard controls are being contemplated. Environmental performance standards and a conservation zone will likely be added to the zoning ordinance. Approximately 60 percent of this municipality is owned by the Orange and Rockland County Utility Company.

Zoning Analysis Conclusions

The quality of township ordinances ranges from poor or non-existent in Greene and Milford Townships in Pennsylvania to very comprehensive in Greenville and Port Jervis in Orange County, New York. The former are in largely rural areas where there has been no need for extensive regulations in the past. Almost all communities are in the process of preparing new ordinances or revising existing ones. Areas with traditionally few specific local regulations, while recognizing the need for upgrading, will usually plan less stringent revisions than those more heavily populated or more quickly developing communities that already have fairly strict provisions.

In short, some districts in the proposed Tocks Island area will continue to lag behind others in their basic zoning provisions.

In terms of the ordinances reviewed, the following general comments can be made:

1. Special exception uses may undermine the intent of zoning ordinances unless regulated intelligently.
2. Strip commercial development is not restricted in several areas, particularly in Pennsylvania.
3. Residential zoning as it now exists in the area encourages the development of suburban sprawl.
4. Agriculture is an important element of the region,

yet few townships have land zoned exclusively for this purpose.

5. Sign regulations exist in nearly every township, yet investigation indicates that existing controls are either inadequate or not enforced in any area.

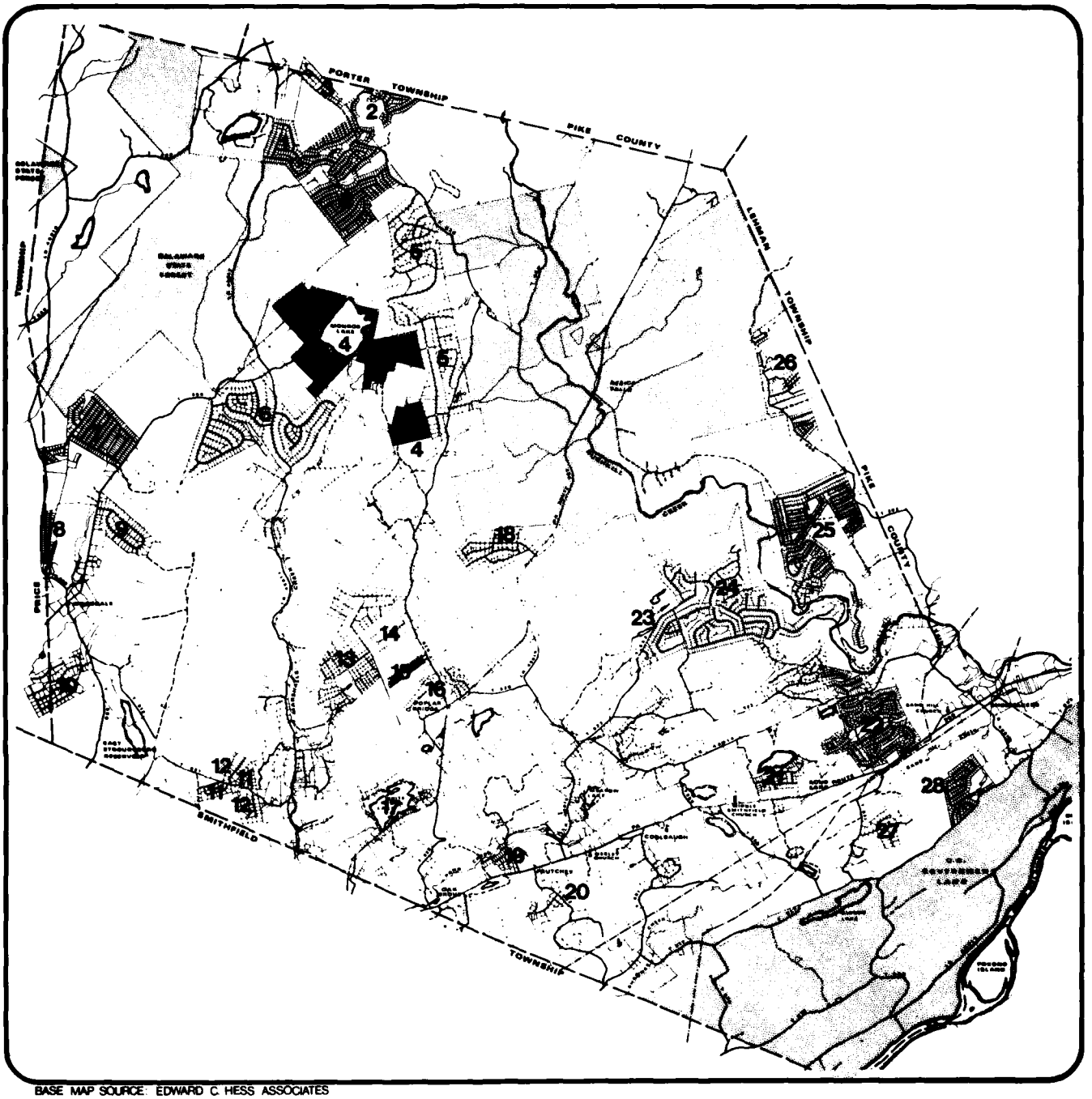
A major incentive for many communities in the Tocks Island Lake area to either revise existing zoning or draw up their first ordinance is the availability of Federal flood insurance under the National Flood Insurance Act of 1968. However, unless there is additional assistance provided at state and county levels, it is anticipated that adequate controls may not be instituted in some of the more rural areas until rapid and uncontrolled development has become an irreversible situation. Townships which do not now possess the necessary regulations and which are close to the DWGNRA may become the choice locations for new business and strip development. In all cases, upgrading of the present level of enforcement will be necessary in order to make these regulations meaningful.

As an example of the needs and problems related to zoning in the region, figure 23-2 illustrates the current development patterns of the municipality of Middle Smithfield, which borders the National Recreation Area just north of Stroudsburg. In terms of land area, Middle Smithfield, with 54.3 square miles, is the largest township in Monroe County, of which 17% is in public land holdings, and approximately 26% is composed of wetlands unsuitable for building. Its permanent population growth of 46% between 1960 and 1970 was

the third highest in the county and as a major second home community area, its summer peak season population has been estimated to be three times that of its year-round residents, or 5,728 persons in 1975.

With the exception of review by the county, the development patterns have occurred without any form of local regulation by either zoning or subdivision ordinances. As noted previously, the township still does not have a zoning ordinance and its first subdivision regulations were not adopted until 1975. The subdivision lot lines indicated reflect the number of lots filed, which are being developed at an estimated build-out rate of 2% per year according to the town's sewage feasibility study. As roughly 90% of the town's soils have been classified as having severe difficulty in effectively supporting on-site, sub-surface waste disposal systems, and only two of the town's resort developments are considering limited central sewage systems, the current uncontrolled effects of development will have a major impact on future costs to be borne by the town in terms of construction of adequate sewer facilities and road improvements. If the community had adopted adequate land use controls previously, development patterns such as those represented by Winona Lakes could have been avoided, and the extent of central sewer facilities to be provided could have been reduced.

Although the example chosen represents a community without zoning, many of the other Tocks Island Area municipal zoning ordinances do not provide for the variety of densities and uses required to alter the outcome.



BASE MAP SOURCE: EDWARD C. HESS ASSOCIATES

0 895 1790 2685
SCALE IN FEET

N

MIDDLE SMITHFIELD SUB DIVISIONS

XXIII **2**

LEGEND

1 MOON RIDGE - 100 LOTS
2 LEISURE LANDS - 742 LOTS
3 PINE GLEN - 39 LOTS
4 LAKE MONROE - 1391 LOTS
5 POCONO FORESTED ESTATES - 47 LOTS
6 WILDERNESS ACRES - 308 LOTS
7 POCONO WILD HAVEN ESTATES - 261 LOTS
8 POCONO HIGHLAND LAKE ESTATES - 89 LOTS
9 WOODDALE COUNTRY ACRES - 70 LOTS
10 WOODLAND TRAIL - 60 LOTS
11 PAYTON PLACE - 49 LOTS
12 SAFARI - 39 LOTS
13 POCONO HEIGHTS - 318 LOTS
14 COOLBAUGH HEIGHTS - 25 LOTS
15 POCONO MOBILE HOMES - 98 LOTS
16 POPLAR BRIDGE - 44 LOTS
17 WHITE HERON LAKE CLUB -
18 CASTLE ROCK -
19 FOX HOLLOW - 36 LOTS
20 MURRY HILL ESTATES - 12 LOTS
21 FOUR SEASONS COUNTRY CLUB - 76 LOTS
22 LAKE OF THE PINES - 510 LOTS
23 EASTERN POCONO PARK -
24 WINONA LAKES - 1200 LOTS
25 MT. TOP ESTATES - 489 LOTS
26 TIMOTHY LAKE ESTATES - 53 LOTS
27 KOELMEL FARMS - 31 LOTS
28 WINONA LAKES SOUTH -

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN - PRAEGER, INC. & CONKLIN AND ROSSANT

XXIII.D. LAND USE GROWTH MANAGEMENT STRATEGIES

Listings and discussions of the major land uses and environmental problems in the Tocks Island Seven County Region and the potential impacts of the development of TILP/DWGNRA on these existing trends has been presented previously in Chapter XXII. The question to be addressed here is how can this scenic rural environment, which is primarily a recreation oriented region, be protected and preserved in the face of inevitable growth and the accelerating influence of the TILP/DWGNRA project? This question is made even more critical by the analysis in the prior sections of this Chapter, which determined that the on-going planning process and dependence on existing land use controls are not adequate to deal effectively with this problem. The answer to this question cannot be a single isolated course of action. Discussed here is a series of alternative measures for dealing with the preservation of the essential regional environmental and aesthetic qualities, by accommodating and managing growth, rather than attempting to totally prevent it from occurring.

To ascertain future management strategies, it is helpful to review the existing land use patterns. To understand why and where land development occurred, relationships pertaining to physical features, public facilities and existing land use development trends have to be understood.

XXIII.D.1 REVIEW OF EXISTING LAND USE PATTERNS.

The Tocks Island region is characterized by certain general features. It is composed of large tracts of land retained to safeguard water supply, rural land used for agricultural and related uses, and large resort areas, parks, forests, camps and game lands. In short, the Tocks Island Region has for decades supplied nearby metropolitan residents with recreational opportunities. Clearly, then, these open space or low density land uses have afforded the Region such advantages as environmental protection, aesthetic delight, recreation, employment, and other economic benefits. Of special note is the existence of large areas devoted to state forests and game lands, private hunting and fishing clubs in Monroe and Pike Counties, in addition to the state parks. These mean that encroachment by other uses is thwarted, and open space is protected. Given the objective of preventing future contamination of open space and related uses, one growth management strategy would be to use open space measures to constrain development in other areas.

The region's commercial resort uses include hotels, motels, lodges and related uses that have served tourists for many years. Although most of the region's camps are in Pennsylvania, they are spread throughout. Especially in New Jersey major highway routes are being used for the nearby installation of businesses. Frequently, these are not designed primarily for the traveling public. Such establishments as supermarkets and automobile dealerships are directed to people within the subregional market areas. Since residential development is increasing, shopping centers and service areas are following.

The region is not devoid of industrial activity. Because of the presence of railroads, concentrations of industry are found in Port Jervis and the Stroudsburgs area. On a scattered basis along rail lines and highways there are industrial installations in Monroe, Warren and Sussex Counties. In Deerpark Town they parallel the Neversink River.

Residential development in the region includes subdivisions and other housing types. One subdivision of 3,500 lots covers 935 acres. Clearly both year-round suburban residences are to be found as well as second home seasonal usage. Dispersed throughout the Region, the second home recreational subdivision will merit extensive comment later in this Chapter. One of the reasons for focusing on this particular land use is that recreation type second homes are attracted to lake sites and rugged scenic areas which must be of special concern in the formulation of land use management strategies. Even before the inception of the Tocks Island proposals, there was formidable increase in such seasonal housing units. The increased significance of this land use leads to concern about locational and other controls.

Leisure home and recreational lot developments manifest themselves in lot sizes as small as 6,000 square feet in the New Jersey portion of the Region. High density development in a rural setting is consequently a reality. In

its Fifth Annual Report, the Council on Environmental Quality has cogently noted that "with recreational developments...the long-term costs of development to both property owners and the public may be greater than in most areas, and there may be more urgent need for effective controls" (p. 21).

In connection with leisure home and other land usage, it must be recognized that even without the development of the Tocks Island Project and the DWGNRA, there already exist in the region significant development attractions. For example, the Delaware State Forest in Pennsylvania includes vast state forest and game lands. At natural and man-made lake sites, vacation homes have been constructed on an intensive basis. Both on individual lots and in special parks, mobile homes exist throughout the region. There are a few apartment buildings in Port Jervis and the Stroudsburgs.

It is anticipated that areas which are currently developed will, in the future, become the most densely developed. Consequently, the three primary regional centers are expected to be the Newton, Port Jervis and Stroudsburg urban centers. On a lesser scale, eight other regional centers have been designated by prior studies, as well as third-level or rural municipal centers. Future land use plans and development suggestions concerning the Region have been prepared, and the problems of effectuating the various land use and environmental objectives have been set forth. (Indications of the aforementioned can be found in the Raymond and May Sketch Plan and the Weston TIRES Study.)

Without repeating the bulk of this accessible material setting forth the Region's land use, it is clear that regulation of all waterways and their shores is a needed and valid component of any land use management strategy that is devised. Similarly, action must be taken concerning publicly owned open land acquisition.

Concerning private land uses, accommodation between environmental and developmental needs are the central problem. Although there has been some consideration of what is involved in the implementation of any land use plan prepared for the Region, there has not been a thorough review of the land use management strategies that might be employed to accomplish the various land use and environmental objectives.

XXIII.D.2 ELEMENTS OF THE MANAGEMENT STRATEGY

XXIII.D.2(a) Introduction to the Management Tools

Having gained some recognition as to why land use management strategies are necessary, the subsequent tasks are clear. There is a need to examine what the elements of such management strategies are, who are the entities to employ them, and how these strategies are to be put to work.

Three elements constitute our arsenal of land use control weapons. This trinity entails: (1) the use of government power to tax, (2) the use of development controls which governments have through their authority to provide various public facilities and services, (3) and the use of governmental police power through

its enactment and enforcement of regulatory measures. Although the primary legal techniques for effectuating land planning which would enhance environmental and developmental goals are the police force regulations such as zoning and subdivision ordinances, there is a need to examine the full panoply of devices. Other types of governmental intervention must be considered. For in addition to regulation, public finance manifested in the form of taxation, expenditures for public facilities and improvements, and public acquisition of land (frequently being eminent domain) can play enormous roles in a land use management strategy for the Tocks Island region. To illustrate the range of issues involved in a discussion of land use, environment, and the aforementioned tools, it would be well to focus on a topic that is most pertinent to the Tocks Island Region (e. g., the anticipated continued growth in leisure homes and recreational developments).

As indicated previously, leisure homes are not a new phenomenon in the Tocks Island region. However, witnessing their mushrooming growth in Lake Tahoe, Cape Cod, and other such areas, one must give special land use control attention to their accelerated use in the Tocks Island region. This especially is true in light of the Council of Environmental Quality finding that "the leisure home subidivision of today is likely to become the permanent settlement or suburb of tomorrow and should be viewed as an early form of urbanization". (Fifth Annual Report, p. 24.) Even more pertinent are the following CEQ observations: "many rural communities initially welcome second home developments in the expectation that they will provide property tax revenue and income for the local economy." (P.25.) They usually do, but they also create costs. Local governments often end up bearing the cost of increased demands the developments place on such

public services as fire and police protection, road maintenance, water supply, solid waste disposal, and sewers.

As long as recreational subdivisions remain seasonally occupied, these costs are likely to be lower than the property tax revenues generated by the development. However, as soon as residences become permanent, costs to the host community will rise rapidly as schools, medical facilities, and other public services are required.

Usually in land use control program formulation, building and housing codes play a subservient role to other police power regulations of real property. But given the fact that public costs will be especially high if leisure homes are originally built to low standards, there must be, in the Tocks Island region program, special attention paid to the existence and continuous effective enforcement of suitable building and housing codes. Similarly, to avoid septic field problems, poorly constructed roads, and developmental difficulties, particular caution in the use of modern subdivision regulations is demanded. As the CEQ Report notes, "Not only will the costs of low quality development be higher to the government, but they will also be higher to the home owners. Inadequate insulation, poor drainage and insufficient heating capacity may be small problems during summer weekends, but they become major concerns at other times of the year" (p.25). Not only must the elements of a land use management strategy deal with the land use problems generated by second homes, such developments may create serious environmental problems too. Careful design and review of public facilities can avoid many of these difficulties. But in any event, there must be recognition of the fact that inadequate septic systems can pollute streams or aquifers causing public health dangers. Silt can clog streams because of erosion. Put in the language of the Council of Environmental Quality Report, the point becomes only too clear. "These environmental problems can cause particular difficulty because the most desirable sites for recreational developments are often in fragile environments unsuitable for housing development ..." (p. 25).

Generally it is the private sector which determines where, how, and when land use development of one type or another will happen. But the initial governmental action (whether through regulation, taxation, or provision of public facilities and services) exerts an enormous primary force in affecting the relative profitability of alternatives. Since governmental actions can be most directly controlled by the public, it is upon these actions that most of our strategies must center.

XXIII.D.2(b) The Taxation Element

As important as federal taxation is in affecting private developmental decisions, it is clearly outside the direct control of municipalities and other governmental jurisdiction. In addition, it is not a precise tool for land use control. Yet a proposed environmental protection tax would to some extent remove the discrimination in depreciation rates by providing the same rates for older buildings that have been significantly rehabilitated as for new buildings. Not only could this help improve older buildings in the Tocks Island region needing rehabilitation, this concept could be reinforced and applied to valuable historical and architectural buildings in the region and elsewhere.

Preferential assessment is another example of using taxation as a land use control device. It is a means of reducing the tax burden on land such as the many farms in the region which may be important to preserve. Recognizing that The Center For Analysis of Public Issues at Princeton University reported that about $48 million in extra taxes was paid by non-farmers in 1972 due to the New Jersey preferential taxation, and that other serious criticisms resulted, preferential taxation still cannot be cavalierly dismissed. At least two factors should impede such dismissal. First, the goals of a preferential tax assessment can be implemented in a fashion that recognizes lost tax revenues. For example, California and New York have adopted laws instituting reimbursement for municipalities which

incur a loss because of preferential assessment. It may also be useful in the furthering of farmland preservation in the Tocks Island region to restrict land eligible for preferential assessment to particular areas. These pre-designated tracts might be those that are in the path of greatest development pressure and that should be preserved in accord with a regional future land use plan. Even though loose preferential assessment legislation can allow land speculators to exact advantage from this land use control, an additional reason for continuation exists. There is some evidence that indicates that the scheme does impede the conversion of agricultural land into urban uses.[1] Pennsylvania does have conversion penalties (e.g. rollback penalty) to reinforce the incentive to preserve land in agricultural, forest, and open space uses. The New Jersey penalty to control conversion is a tax, similar to a conveyance tax which is imposed at the time the land use is changed. In that Pennsylvania's rollback penalty requires the owner to pay an amount equal to several years worth of the additional property taxes he would have had to pay had his property not received the benefit of preferential assessment, it appears that the Pennsylvania approach is more likely to attain the requisite objectives.

Difficult problems in property tax administration need solving if the assessing of real estate located in the Tocks Island region is to yield results that accord with plans for it. For example, the current demand for private sector land uses will push up the price of agricultural land to values much higher than can be supported by agricultural use. These higher values will further intensify economic pressures on agriculture. Farmers will be given added cause to sell their land and reap capital gains. Speculative buying and selling of agricultural lands will increase. Orderly land development and the preservation of the economic position of agriculture in the Tocks Island region will be

frustrated if drastic remedies are not applied expeditiously and with rigorous enforcement.

Perhaps a more effective approach to control land use in the region would be a specific unit property tax. This would entail the development of a system that would carefully adjust related tax rates as applied to different classes of property (e.g. land, various categories of residential and commercial use). Use of such a system could favor desired land use patterns.

The three states in the region (and the other governmental entities) need to be guided by a comprehensive land use control program that includes integrated tax policies and practices. Hawaii is a rare example of a state that has a comprehensive state program of land use control that relates taxation to development. It might be worthwhile to study possible application of the Hawaii system to the Tocks Island region.

Under the Hawaiian scheme, low land taxes are used in areas designated for un-intensive use. Conversely, in areas for planned intensive uses, high real property taxes are used. The Hawaii Land Use Commission and Director of Taxation Programs are harnessed to achieve coordination of regulation and taxation. After the districting of all lands in either an urban, rural, agricultural, or conservation area, the taxation director is required in his classification system to consider the land use zoning. Another Hawaiian attempt to have regulation and taxation work in tandem is the practice of not increasing assessments on structures for six years after repairs have resulted from redevelopment, rehabilitation, and the use of police power.

To reduce traffic congestion, air pollution and other problems caused by the use of the private passenger automobile, a commuter tax might be applied. Directing the proceeds of such a tax to encourage commutation to the Tocks Island region by mass transportation would yield a multitude of benefits. A thorough program of using taxation as a land use control device requires that the revenue raised by the tax be put to work controlling the untoward results of the activity taxed. Another of the many ways in which this carrot and stick approach could be used would be to diminish incompatible, nonconforming land uses. Because of the special importance of the Tocks Island region as an American showcase, the vast expenditures of money incurred and to be incurred, it would make sense not only to apply our best current thinking concerning land use management strategies, but also to engage in controlled experimentation that would be of use in the region and elsewhere in the nation. Consequently, application of nonconformance use tax that would meet constitutional statutory and case law requirements might be in order. Levying of an excise tax upon such nonconforming uses based on their added costs to the public might be instrumental in encouraging property owners to remove offensive uses or sell them or improve them. Taxes directly related to development could balance the community's needs, the needs of new residents and tourists, and the desires of builders, developers, and their supply and service entourages.

Control of the timing and location of development in the Tocks Island region mandates that in addition to the use of zoning and other regulatory devices, tax policy be harnessed to achieve land use control objectives specified in the plans for the area. Examples abound of taxation being used for such salutory purposes.[2] Wisconsin counties have been buying tax delinquent land and exchanging these parcels, where necessary, to serve open space goals.[3]

Wisconsin law requires that land be assessed at its full market value. Rather than over-estimating the potential of land because of the speculation in land values fostered by scattered development,land is assessed in accordance with its development potential. Owners of agricultural land under Minnesota's Green Acres Law are authorized to receive deferments in property taxes.[4]

Taxation as a planning and control device can provide the Tocks Island region with a multitude of implementation opportunities. But it must be remembered that taxation (as compared for example with regulation) lacks precision. Even though the federal income tax does have a tremendous effect on land use and development, it is not a precise tool for governmental use to effect building in a specific place.

XXIII.D.2(c) The Public Improvements Element

The Weston TIRES Study (p. 91) comments that "there have been expressions of concern that adoption of a generalized sewerage plan for the region will promote development of land not in accordance with optimum land use. Such concern is based on an assumption that sewerage systems will be constructed in undeveloped areas, without regard for a sound land use plan". Clearly land use in the Tocks Island region may be advantageously controlled, in part by well planned sewerage systems and other public facilities and services. Having been confronted with an era of accelerating change, current methods of providing public facilities and services in the region must be continuously monitored and modified to meet these new circumstances. New sewers, highways, garbage disposal plants, etc., will have to be built to meet the needs of more people.

It must be recognized that although most land development decisions in the Tocks Island region will stem from the private sector, there will be increasingly more crucial points of public intervention. These points of public intervention will need a vast amount of improvement from current practices if planning and control are to yield better environmental development solutions. It is clear that so far, on both the environmental and developmental fronts in the region (and elsewhere in the United States) the record leaves much opportunity for reform.

If there is sincerity about working out accommodations between the region's environmental and development needs, one set of instruments that is available is better use of public investments. Sewers, water, roads, utilities, etc., in short, the infra-structure, determine what property will or will not be developed, and at what densities. On occasion, these public investments have provided the speculator, corrupt politician and his coterie, with opportunities to rip off the public. This is especially so when we are aware of the fact that often, the funding of new public facilities has more of an impact on particular land areas than tax and regulatory practices. In addition to the influence of highways on Tocks Island regional land values and development decisions, primary attention should also be paid to new sewer determinations.

One specific matter that should be carefully checked is the tendency for developers to move immediately to the end of a new line so that they can take advantage of both the available sewer and the lower land costs available in fringe areas. Expensive leap-frogging should be avoided because it adds to problems of planning other public facilities. It will add to wasteful land

sprawl and added energy costs. Construction of major interceptor sewers have to be staged to the extent feasible so that there is coordination with the extension of other public facilities. All of this of course has to be in accord with a comprehensive land use plan.

Large regional treatment plants with associated sewers are advantageous in their basic cost factors. Compared to a number of smaller treatment plants, as far as water quality is concerned, these systems offer economies of scale in construction and operation. The large regional plants require less highly trained personnel and less monitoring than smaller treatment plants. But just as in the case of sewers, there is a need to be careful about the over design of capacity in the regional plant. This is especially true in an area such as the Tocks Island region with its seasonal home building potential. Patently, the purchaser of a seasonal home or a recreational lot has more locational choice freedom than with his primary residence. Although a series of smaller but individually expandable plants might be more expensive in such instances, the municipality will retain more control over development. This type of approach would also provide municipalities with broader alternatives to coordinate the expansion of waste water treatment facilities with other public facilities programs.

There is evidence that highways lead to pressures for business development of nearby land. Requisite land use control has to be directed to the type of road that is involved. For example, in the Tocks Island region (as elsewhere) strip commercial development probably will be promoted by arterial and radial highways.

Though it is easy enough to comprehend that public investments are important in the location and timing of private development, the matter of control is complicated by various factors.

1. It is difficult to firmly determine which areas in the Tocks Island region should be encouraged to develop and which should not. Consequently, for example, disapproval of sanitary sewer extension requests in the region may require more strength of resolve than is now prevalent.

2. Since many of the facilities being planned and constructed are needed for immediate purposes, it is difficult to purposely shape development to the extent desirable.

3. Since there are now myriad planning construction and financing agencies involved in providing such facilities as sanitary sewers, the inherent lack of coordination means conflict and frustration.

4. Complete coordination for different facilities is difficult.

From a public facilities standpoint (and many others), it is clear that solutions cannot be realized by municipal jurisdictions and resources within the region. Similarly local regulation will be inadequate to deal with the ultimate 10,600,000 annual visitations to the National Recreation Area; or to effectively monitor about one billion dollars in new housing investment on both sides of the river that are anticipated in the next twenty years; or the sewage that is expected

to increase from 6.4 million gallons per day in 1970 to 16.9 million gallons per day in 1990 in the Paulins Kill and Flatbrook drainage basins.

Land use and environmental considerations make it only too clear that no municipality on its own can do an adequate job of regulation. Can a municipality by itself keep its waterways clean if its upstream neighbors pollute them? Can a particular municipality provide flood protection if its neighbors do nothing about controlling their drainage problems? Can an individual municipality effectively maximize its environmental advantages when it is confronted with an onslaught of recreational and tourist development? There is no question, then, that most of the problems which will face the Region both as a consequence of the DWGNRA and from expansion of the New York-New Jersey metropolitan area can be remedied only by Region-wide regulation.

The states and DRBC are the existing regional institutions which could perform this role. Although DRBC does not participate directly in land use control, it does play an important role in coordinating and regulating the basin's water resource concerns. An analysis in terms of the states follows.

XXIII.D.2(d) The Land Use Regulatory Element

It is clear from study of the enabling legislation of New York, New Jersey and Pennsylvania that the regulatory focus is on the municipal level. From the above analysis it is also clear that the states or other regional organizations must become involved in a portion of the land use regulations now in the hands of municipalities, as well as improve the guidelines for the exercise of municipal powers. The discussion which follows on the land use regulations of

the states emphasizes the regional aspects relevant to the Tocks Island area. Comments relating to pertinent existing and proposed legislation in New Jersey follow. Subsequently the discussion will deal with the Pennsylvania and New York counterparts. In addition applicable land use regulations from other jurisdictions and other regions of the country are presented.

XXIII.D.2(d)(1) New Jersey Land Use and Regional Planning Legislation

Sections 40:27-1 to 40:27-11 of the New Jersey Statutes Annotated set forth the County and Regional Planning Act. These sections do provide for the organization, responsibilities and procedures to foster county and regional planning. Notwithstanding these statutory provisions (which contain, among other items, sections dealing with county review and approval of all subdivisions; review and approval of site plans for land development along county roads) even those jurisdictions which are area-wide lack the power to act effectively. In addition, within the Tocks Island Region part of New Jersey (and elsewhere in the state) there is a background of only intermittent intra- and intergovernmental regulatory coordination and cooperation.

Sections 40:55-53 and 40:55-53.1 do provide a beginning mechanism for inter-municipal control. Notice to adjoining municipalities is required whenever a hearing is mandated in respect to planning, zoning, approval of subdivisions, granting of variances, or establishing or amending an official map involving property situated within 200 feet of an adjoining municipality. Notice to the state and county is required whenever a hearing is necessary in respect to planning, approval of institutions or establishing or amending an official map involving property abutting upon or adjacent to a state highway or county road.

In the section dealing with proposals which the master plan may cover (40.55-1.11) one notes that "the master plan may include in its scope, areas outside the boundaries of the municipality which the planning board deems to bear an essential relation to the planning of the municipality." There follows commendable language to the effect that "the studies in connection with the master plan shall be conducted whenever possible with the cooperation of adjacent planning agencies." Under the proposed legislation, Senate # 3054, provisions are included that could lead to more effective inter-municipal

cooperation. For example, Article 3, Section 9, paragraph d. provides that "The master plan shall include a specific policy statement indicating the relationship of the proposed development of the municipality as developed in the master plan to (1) the master plans of contiguous municipalities,(2) the master plan of the county in which the municipality is located, and (3) any comprehensive guide plan.

Of significance to the Tocks Island region are existing New Jersey Sections 58:16A-50 to 58: 16A-66.New Jersey legislation gives the state power to regulate or ban construction in areas bordering streams or rivers. If a municipality does not adopt their own regulations which must specify minimum state standards, within 12 months after the delineation of any flood hazard area, and at least 12 months after the promulgation of standards by the New Jersey Dept. of Environmental Protection, the state will impose its own restrictions on flood plain development. Municipalities are allowed to adopt more stringent legislation to supplement state regulations. It is suggested that ordinance should carefully define the floodways, flood hazards and flooding areas within the municipality. These and other pertinent terms are defined in Section 58:16A-51 of New Jersey Statutes Annotated.

Given the likelihood that the proposed New Jersey Senate Bill #3054 will be adopted in the near future and given its relevance to a consideration of land use regulation in the Tocks Island region, extensive discussion is warranted. One must not only understand its provisions and the contrasts with existing legislation, one must also comprehend its essential purposes and characteristics.

As the past president of the New Jersey State League of Municipalities, George Hagemeister pointed out at an April 3,1975 hearing on Senate # 3054 conducted by the Senate Committee on County and Municipal Government, "New Jersey bears the unenviable distinction of being the only state in the Union whose zoning enabling legislation has never been substantially revised since enacted in 1928 and whose planning legislation is over 20 years old. After almost two decades of efforts, the New Jersey State League of Municipalities has been successful in preparing a comprehensive, strictly municipal land use enabling act incorporating into one law zoning, planning, PUD, site plan approval, master plan and official map legislation."

Some of the high points of the proposed municipal legislation are (1). It broadens the statutory municipal powers of zoning, planning and land use control. For example, the proposed Article 8 dealing with zoning requires "such ordinance shall be adopted after the planning board has adopted the land use element of a master plan and all of the provisions of such zoning ordinance or any amendment or revision thereto shall be either substantially consistent with the land use element of the master plan or designed to effectuate such plan element." An amendment or revision which is inconsistent with or not designed to effectuate the land use plan can only be adopted by an affirmative vote of a majority of the full authorized membership of the government body with reasons for so acting recorded in its minutes, (2) Senate # 3054 spells out in detail streamlined procedures to be followed before the planning board and board of adjustment. It eliminates the need in most cases of appearing before two boards to

obtain land use approval. Gone is the duplication of review and the previous overlapping has been reduced to a minimum. For example, the absurd procedure whereby an applicant desiring a variance was forced to submit an application for a building permit, knowing full well that it would be denied by the buildings inspector has been eliminated, (3) Governing bodies will no longer be compelled to participate in granting use variances and subdivisions, (4) Under Senate # 3054, planning boards are granted the statutory power of site plan review. Now they do not have this power. (5) Provisions for off- site improvements are included. (6) Design control districts for areas containing buildings of historical, architectural or cultural merit are included.

This simplification of the municipal regulatory process can only result in more efficient and effective work by the respective municipal bodies. This increased efficiency will translate into reduced costs of local government. Senate # 3054 is a set of procedural standards which can be more easily followed than the existing hodge-podge of enabling legislation. The proposed legislation can be more readily adhered to by all participants in the municipal land use regulatory process. Even though the opportunities and the instances of review are increased, all review comes with mandatory time periods to ensure against unnecessary delay. Mutual extensions, in certain instances,are allowed. This should help assure timely decisions.

These then are some of the many advantages to be gained in the Tocks Island Region by the adoption of Senate # 3054. Before specifically comparing provisions of this Act with existing legislation, perhaps words

of criticism are useful;

1. S-3054 does not provide a resolution of the problems which characterize the County Planning Act --- problems similar to those which S-3054 would rectify on a municipal level --- and unless the County Act is similarly corrected, the task of a full procedural land use revision cannot be considered complete. Obviously, separate legislation would be necessary to remedy County Planning Act problems, and we are, therefore recommending the undertaking of such a project.

2. In concert with the recently adopted tort liability law (NJSA 59:1-1 et seq) attention should be given --- although it is not in S-3054 --- to the situation whereby municipal officials without authority, deprive an applicant of his right to have a request granted and, if so determined, should be compensated because of such denial for any damages incurred.

3. There is a need --- unaddressed in S-3054 --- to provide a constant upgrading and education of planning board and zoning board members in order that they may learn the basics of sound planning and keep abreast of new developments and innovations in the area of planning and zoning --- in much the same way that building inspectors and tax asessors are continually trained through extension service courses.

Of course one must go beyond the examination of enabling legislation and ascertain the degree of usage and enforcement. A vivid case in point is the

existence in the statute books of New Jersey Statutes Annotated 40:55-1.12. In the beginning of this section which deals with the preparation of municipal master plans are contained the following mandatory (and wise) words, "In the preparation of the master plan the planning board shall give due consideration to the probable ability of the municipality to carry out, over a period of years, the various public or quasi-public projects embraced in the plan without imposition of unreasonable financial burdens." Generally this sensible caveat has gone unheeded. To cite one of many examples, for many years the State of New Jersey's Hackensack Meadowlands Development Commission (HMDC) had spent vast sums of money for planning and zoning studies pertaining to this extremely well-located land about the size of Manhattan. Inquiry concerning one of the many municipalities constituting the Hackensack Meadowlands District reveals that although the HMDC projected an increase from the municipality's current 13,000 population to 43,000 persons resulting from HMDC zoning, no projection concerning public facilities or services was undertaken by the state. Having adopted this sophisticated zoning scheme, it was incumbent for the master plan to also include another pertinent element mentioned in the enabling statute(see Article 5, Section 10 of Chapter 404 of the 1968 laws of New Jersey). This includes a plan for the financing and programming of capital improvements and other related elements of growth and development, including the social implications of any proposed development and advances related to any subject included in the plan.

There are lessons in all of this for the Tocks Island Region. If a system for monitoring the effects on a special area are available, many benefits can

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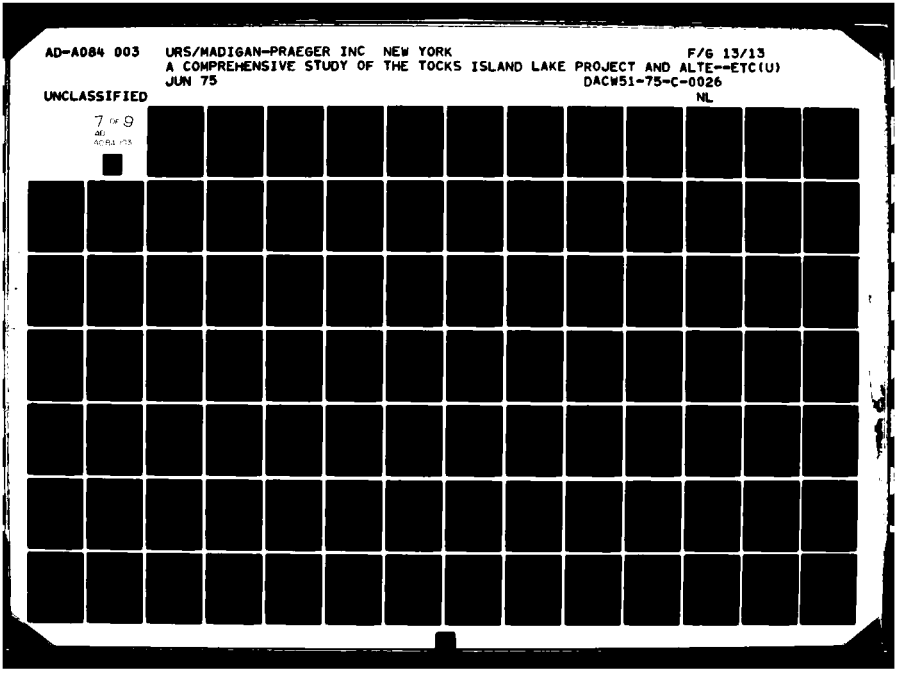

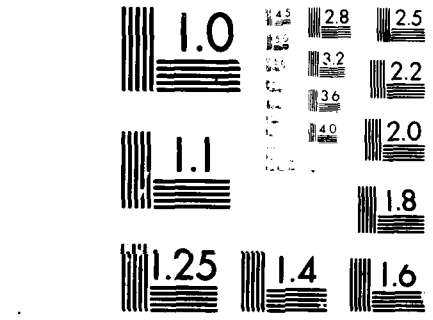
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accrue. For example, a sound cost-sharing system for the provision of new facilities and services between private developers and governmental entities can be formulated without relating public improvements planning to regulation responsible land use planning and control are thwarted. Since it is impossible to know the projected strain on the ability of Tocks Island region municipalities to finance such public facilities and services without such an overall capital improvements program and prerequisite review, these municipalities will be placed in the position of having to play Russian roulette. Senate 3054, Article 4, does provide the mechanics of such capital improvements programming and project monitoring. This type of regulation should be made mandatory and directly applicable to the Tocks Island region.

Concerning the practical and immediate issue of municipal regulation of subdivisions, it is well to recognize that S3054 spells out in detail the contents of such an ordinance (see Article 6, section 29, paragraph (2)). This is in marked contrast to the general provisions of the current 40:55-1.14. Interestingly enough the S3054 provisions resemble Section 503 of the Pennsylvania Municipalities Planning Code (Act 247, as amended by Act 93/1972).

Among the many benefits that would apply to municipalities in the Tocks Island region are use of open space reservation provisions in S3054 (Article 6, section 29, paragraph (2)(e)); opportunities to enforce clear-cut enabling statute legislation that provides for the contribution of off-tract water, sewer, drainage, and street improvements, and explicit standards for the establishment of open space organization.

Since lot selling before approval and speculative premature subdivision activity is a problem in the Tocks Island region, it is well to note S3054 provisions dealing with penalties; suits by municipalities; and other relief provisions. S3054 coincides with the existing Section 515 of the Pennsylvania legislation by subjecting persons selling before approval to penalties of up to $1,000. Each lot disposition may be deemed a separate violation. New Jersey's current 40:55-1.23 provides that such persons shall be subject to a fine not to exceed $200 for each parcel, plot or lot so disposed.

Condominium and cooperative structures and uses have been popular in resort areas such as the Tocks Island region. Consequently the clarification of regulatory approach in the proposed section 46 of S3054's Article 6 bears notice. The new proposed legislation specifies that it should be construed and applied with reference to the nature and use of the condominium or cooperative structures or uses without regard to the form of ownership. Confusion is removed by the Act's statement that, "No development regulation shall establish any requirement concerning the use, location, placement, or construction of buildings or other improvements for condominiums or cooperative structures unless such requirement shall be equally applicable to all buildings and improvements of the same kind not then a there after under the condominium or cooperative form of ownership..."

In connection with apartment proposals and other controversial land uses, there is the likelihood that referendum or popularity contest techniques might be used in the region - despite cases invalidating such approval procedures. Article 8, section 49, paragraph (b) of S3054 states that "No zoning ordinance and no amendment or revision to any zoning ordinance shall be submitted to

or adopted by initiative or referendum."

Zoning ordinance standards are authorized in S3054 Article 8 that could further flexibility of housing density, design and type. Districts for residential cluster, planned unit residential development, planned unit development, commercial and industrial clusters are allowed. For particular uses or classes of uses, reasonable standards of performance and standards for provision of adequate physical improvements (e.g. off-street parking and loading areas, marginal access roads and roads, other circulation facilities and water, sewerage and drainage facilities) can be established.

Recognizing the increased popularity of employing conditional usage and site plan review in land use regulation, S.3045, Article 8, section 54 allows a municipality to include in its zoning ordinance a mechanism whereby conditional uses are to be granted by the planning board according to definite specifications and standards which must be clearly set forth with sufficient certainty and definitiveness to enable the developer to know their limit and extent. The planning board has to grant or deny an application for a conditional use within 95 days of submission of a complete application by a developer to the administrative officer, or within such further time as may be consented to by the applicant.

The potentials of joint exercise of planning and land use control powers are of great significance to municipalities in the Tocks Island Region. As indicated at the outset of this discussion concerning regulation, there now exists statutory provisions concerning county and regional planning and control (sections 40:27-1 to 40:27-11). However, as has been pointed out, there is a need for substantial bolstering. Various provisions in Article 10 of S.3054 would help achieve this. For example, section 72 of Article 10 creates a regional board of adjustment; section 73 provides for the appointment of joint building officials, zoning offices

and planning administrative offices; and section 74 allows for joint administrative functions (e.g. planning administration functions).

One of the difficulties within the land use regulation field is the tendency for ordinances and their administration to go unexamined over many years. As indicated previously from the very nature of the Tocks Island Region there is a need for thorough and regular monitoring. Therefore Article 11, secion 76 of S.3054 is extremely important. According to this section: "The governing body shall, at least every 6 years, provide for a general reexamination of its master plan and development regulations by the planning board which shall prepare a report on the findings of such reexamination, a copy of which shall be sent to the county planning board and the municipal clerks of each adjoining municipality. The 6-year period shall commence with the adoption or termination of the last general reexamination of such plan and regulations. The first such reexamination shall be completed within 6 years after the effective date of this act.

Such report shall state:

a. The major problems and objectives relating to land development in the municipality at the time of such adoption, last revision or reexamination, if any.

b. The extent to which such problems and objectives have been reduced or have increased subsequent to such date.

c. The extent to which there have been significant changes in the assumptions, policies and objectives forming the basis for such plan or regulations as last revised, with particular regard to the density and distribution of population and land uses, housing conditions, circulation, conservation of natural resources and changes in State, county and municipal policies and objectives.

d. The specific changes recommended for such plan or regulations, if any, including underlying objectives, policies and standards, or whether a new plan or regulations should be prepared."

The vexing problems of moratoriums and interim zoning are occurring in the Tocks Island Region. Article 11 of S.3054 (section 77) could deal with these problems

as follows:

"Moratoriums; interim zoning.

a. The prohibition of development in order to prepare a master plan and development regulations is prohibited.

b. A municipality may adopt a reasonable interim zoning ordinance not related to the land use plan element of the municipal master plan without special vote as required pursuant to subsection 49 a. of this act, pending the adoption of a new or substantially revised master plan or new or substantially revised development regulations. Such interim zoning ordinance shall not be valid for a period longer than 1 year unless extended by ordinance for a period no longer than an additional year for good cause and upon the exercise of diligence in the preparation of a master plan, development regulations or substantial revisions thereto, as the case may be."

XXIII.D.2(d)(2) Pennsylvania Land Use Regulations

Land use regulations in Pennsylvania concerning land development merits attention. The jurisdiction of County planning in that state includes the adoption of such ordinances. Article V.,section 502 of the Pennsylvania Municipalities Planning Code provides for counties adopting subdivision and land development ordinances for municipalities which do not have such ordinances. Until the municipality has its own in effect and a certified copy of such ordinance is filed with the County planning agency, the County regulations apply.

Article VI, Section 602 of the aforementioned code provides counties with the powers of enacting, amending and repealing zoning ordinances for the municipalities that do not have them. The enactment of a zoning ordinance by any municipality whose land is subject to county zoning acts as a repeal of the County zoning ordinance within the municipality adopting such ordinance.

In Bucks County, Pennsylvania, an effort is being made to encourage growth in designated development areas through the provision of full public services and

utilities planned for five-year periods. Keeping in mind the paramount goal of preventing scattered development and sprawl without discouraging development in general, the Bucks County Planning Commission proposal has stressed a development sector concept. This would be superimposed on individual municipal plans. As long as a municipality's zoning did not conflict with broader county sector designations, the local zoning would prevail. The county has been analyzed as to the different types of areas within it. For example, under the "Resource Protection" classification, the policy position taken is that development would endanger natural, recreational, and historic resources. Land afflicted with flood hazard problems, precipitous slopes, and areas of outstanding historic and scenic interest are within this "Resource Protection" category.

For another category of land, "Rural Holding" (i.e. agricultural and forest land), the County Planning Department finding was that development pressures were not intense. Consequently, whereas the emphasis is to be prohibition in the "Resource Protection" areas, in the "Rural Holding" areas the approach would focus upon the use of regulation and withholding of public services to discourage growth. All of the categories are to be reviewed annually. "Rural Holding" lands are to be revised on the basis of market demand analysis. To implement this plan of using different designations of land, an official map of spelling out areas for preservation, rezoning, public investments would serve as a guide. Clearly, the degree of cooperation between the private and governmental sectors responsible for planning, development and capital budget has to be at a maximum to effectuate this scheme.

Clear-cut, acted-upon policies of allowing development in certain areas, even at high densities, while reserving other land for ecological, recreational and other

such purposes makes sense.

The land use planning and environmental objectives of the Tocks Island Region can be integrated into the zoning of the various municipalities by the use of section 606, Article VI of the Pennsylvania Municipalities Planning Code. This section provides that each zoning ordinance must contain a statement of community development objectives. This statement may be supplied by reference to the community comprehensive plan as may exist and be applicable or to a statement of legislative findings of the governing body of the political sub-division having a bearing on the community comprehensive plan. The factors that are included are: land use, density of populations, and location and function of streets and other community facilities and utilities, together with any other factors that the municipality believes relevant in desceibing the purposes and intent of such ordinance. In short, section 606 does provide a means for relating zoning to planning.

Under section 703 of the Code's Article VII.,Planned Residential Development is tied into the comprehensive planning. This section reads: "Every ordinance and all amendments thereto...shall be based on and interpreted in relation to the comprehensive plan for the development of the municipality....Every application for approval of a planned residential development shall be based on and interpreted in relation to such comprehensive plan."

Pennsylvania's Sewerage Facilities Act 537 provides the state Department of Environmental Resources (D.E.R.) with a formidable land use regulation tool. D.E.R. is required to review and approve, or disapprove, municipal sewage plans. These plans must delineate land which is developed for purposed for development within a ten year period, and the corresponding provisions of sewage services or facilities. This act is a powerful tool which will greatly aid in the fostering

of a Tocks Island Region plan. Under its regulation, all municipalities must prepare and adopt sewage plans for all land within their jurisdiction. These plans must consider all aspects of zoning, planning, population estimates, engineering and economics to delineate those areas needing sewage service within 10 years, after 10 years and any area not needing service in the forseeable future. These sewage plans must be renewed and commented upon by local planning agencies, with area-wide jurisdiction, for consistency with overall programs of planning for the area. This local review must be completed before the D.E.R. review, which has the power to approve or disapprove plans. Through the passage of Act 537 and the adoption of subsequent regulations for its administration by the Environmental Quality Board, the installation of faulty or limited sewage disposal systems has been curtailed.

The Pennsylvania Bureau of Forestry has developed forest resource plans which call for zoning to control lumbering and mineral activities within the forest resource plans and special areas (e.g. ecologically valuable, historic, geologic, aesthetic) have been set aside. Relatively undisturbed wild areas have been identified to be managed so as to retain their undeveloped character. Existing and potential municipal watershed areas have been indicated, and areas have been identified where timber management should or should not be applied. Application of this approach with effective regulation can be of value to the Tocks Island Region.

XXIII.D.2(d)(3) Special New York State Park Legislation

Important parallels exist between regulatory possibilities for the Tocks Island Region stemming from New York State legislation relating to the Adirondacks Park and the Lake George Park. When one considers the similarities relating to natural resources, recreational impact, growing population, intermingling of

public and private land, a great variety of other common denominators, one realizes that there are lessons to be disseminated. In this discussion we will focus on the land use to regulatory facets of the two New York State parks. That is not to say that we should ignore organizational, administrative and other lessons that can be learned from them and applied to the Tocks Island Region. Similarly, one should consider tailoring comparable experiences (e.g. Tahoe Lake, Pinelands) to the Tocks Island Region.

Section 805 of the New York State Executive law specifies requirements for the preparation of a land use and development plan for the Adirondack Park. The land use and development plan for each area of the Adirondack Park is is required to contain recommendations for implementation. These must include specific legislative, administrative and budgetary suggestions for private, local and state action to implement the objectives of the plan to insure the optimum conservation, protection, preservation, development and use of the unique scenic, historic, ecological and natural resources of the park. Recommendations for implementation may include among other items a system of major project review, legal remedies for aggrieved persons and procedures for state administration and enforcement of the plan in cooperation with local governments.

Section 806 of the New York State Executive Law provided for interim-development controls . The New York State legislature found that development was taking place in the Adirondack Park which threatened the accomplishment of the basic purposes of the legislation. Mindful of the imminent danger to the integrity of the area, many detailed substantive and procedural safeguards were established to bolster interim development controls. It is suggested that in an empirical fashion review of this, related legislation, and enforcement be undertaken for the Tocks Island Region.

Regulations restricting the use of signs and advertising devices in the Lake George Park area are dealt with in section 43-0115 of the New York State Environmental Conservation Law. This section sets forth the objectives to be attained, the exemptions and exceptions (e.g. governmental signs); and provisions pertaining to rules and procedures to effectuate the purposes of the legislation. Broad powers of the Lake George Park Commission (as provided in section 43-0107) include:

1. encouraging of individuals, corporations, associations, and organizations to preserve and enhance the natural scenic beauty of Lake George and lands within the Lake George Park;
2. adopting, sponsoring and encouraging the use of various legal documents so that park real property owners may voluntarily prohibit, restrict, and control the use of the park for commercial purposes;
3. establishing rules, regulations and procedures by or pursuant to which the Commission may authorize or permit a necessary or desirable use of land or preventing unnecessary hardships in an individual or particular instance by altering or modifying in whole or in part any restriction contained in any conveyance to or agreement with the Commission or which the Commission has power to alter or modify;
4. cooperating with and assisting municipalities within the park in the preparation and adoption of zoning laws and other local legislation prohibiting and regulating property for commercial purposes. Commercial usage in zones are dealt with in section 43-0111. This is primarily a procedural outline.

XXIII.D.2(d)(4) Learning from Other Jurisdictions

Applicable to the Tocks Island Region are not only the New Jersey, New York and Pennsylvania land use regulations mentioned. New and innovative state, regional

and special purpose and area legislation has been emerging since the sixties from various parts of the nation. Although there is a need to supplement the 1971 Council of Environmental Quality Study, The Quiet Revolution , with additional and critical materials, this report can still serve as a useful core. In particular one should note its discussion (pp.291,292) of the Tahoe Regional Planning Agency, the key issues of land use regulation as related to the various levels of government (pp.314-325), and indications of future directions.

The trend is for state and regional agencies to provide standards for local land use decisions, and even to assume some zoning powers in special circumstances. But this function also has a local character which is unlikely to disappear. The policy objective should be to expand local power that more competently and honestly meets state or regional environmental and land development standards.

If this is not done by more municipalities, it is probable that the states will get into the regional planning act. With the approval of Congress, California and Nevada entered into the Tahoe Regional Planning Compact. Regional planning was to be undertaken for the area within the two states that encompassed Lake Tahoe. The power to adopt all necessary policies, legislation and budgets was given to the Tahoe Region. El Dorado and Placer Counties in California refused to pay. People v. County of El Dorado centered on a writ of mandate to compel such payment.[6] In response to the county's contention that the compact usurped powers expressly reserved to local governmental bodies, the court concluded that the preservation of the qualities of the Lake Tahoe area required planning and regulation beyond the scope of local authorities. A super-agency was allowed to plan and regulate the land use in a detailed fashion.

Of interest is the idea of developing state and regional standards for evaluating the impact of local land use controls. Because of magnitude, location, or type of a particular land use proposal, states and regional authorities would be permitted regulatory power or pre-emption over local control. Attempting to keep land use controls on the local level to a maximum extent, some states are allowing all land development to be first reviewed at the municipal level and then at the regional or state level.

The need for coordinating state and regional level regulations with local administration is apparent. The American Law Institute's work on a Model Land Development Code has pursued the coordination objective by allowing local governments that formulate land use controls consitent with state or regional standards to exercise important land use powers, such as those dealing with planned unit development and land banking.

XXIII.D.3 TECHNIQUES TO ENHANCE TOCKS ISLAND REGIONAL PLANNING OBJECTIVES

Having discussed the various management elements and their ability to carry out a number of the Tocks Island Regional Objectives, we next turn to an analysis based on the function approach. This analysis focuses on several of the land use development and planning issues facing the Region, and illustrates the application of aspects of the management elements discussed previously. Included in the discussion which follows, are the techniques to be utilized in protecting the highway landscape, preserving open space and

special uses, and improving local planning and zoning provisions.

XXIII.D.3(a) Highway Protection Measures

Protection of scenery along transportation routes is of special importance in the Tocks Island Region. Without action in this regard it could mean that a cruel hoax would be played on millions of people who would seek a brief respite from urbanization by visiting a Tocks Island Region replete with ugliness along its transportation corridors. It is therefore necessary that techniques be devised that would minimize landscape pollution and enhance aesthetics along transportation routes.

There are essentially four major ways of dealing with the problem: persuasion, incentives, public regulation of private development and positive action by governmental or quasi-governmental agencies. What is needed are synergistic systems that would use these remedies to achieve aesthetic and other objectives. Although attempts to promote non-regulatory techniques should be encouraged, perhaps by developing a combination of police power and partial compensation devices, if the goals would be achieved, realistically, we must recognize the heavy dependence on the use of the police power. This approach of course has had the virtue that it does not cost the taxpayer a penny; a multitude of cases and legal commentary have attested to the proposition that

aesthetics is a proper goal of public regulation. Prodigious achievement has included the widespread upholding of the exclusion of advertising signs. Restrictions on signs along new interstate highways has been validated.[7] Retroactive provisions compelling the removal of signs after a comparatively short amortization interval have also been upheld.[8] Indeed, Vermont has adopted a policy that sign regulation is a regulation of an easement of view rather than aesthetic restriction on private property.

Another innovation has centered around the creation of special zoning districts for scenic zones. These might pertain to restrictive roadside service zones. It is clear that in areas where tourism is important, the aesthetic considerations have been found to coincide with significant economic factors.

Highway routing and design, public acquisition and development of land and vistas in corridors, and regulation of private uses of the corridor land are not the only types of action that can be taken. To cite another example, some scenic areas should be left as they are. Not all potential corridors have to be developed with auxiliary visitor facilities. Some highways need only be taken past views.

In Vermont there was a detailed analysis of the primary scenic values in the State. This type of classification into a number of categories can be undertaken for the Tocks Island Region. Then the legal tools for each category can be formulated. Then there can be determinations made concerning property acquisition, police power regulation, and possible acquisition of less-than-fee rights.

A skillful program of acquiring less-than-fee-rights could provide needed flexibility to guarantee minimum public regulation. The legal rights that the public should retain can be carefully spelled out to denote those rights which are important in a particular situation.

XXIII.D.3(b) Open-Space and Land Use Control by Acquisition

Substantial sums have been appropriated to the New Jersey Department of Environmental Protection from the State Recreation and Conservation Land Acquisition Fund created pursuant to New Jersey Green Acres Bond legislation. The purpose is for the acquisition of lands by the State for recreation and conservation. Though these funds are badly needed in various portions of the State, the obvious need to further the goals of the Tocks Island Region with Green Acres and comparable efforts should not be overlooked.

In addition to acquisition opportunities offered by Green Acres, land banking possibilities should be acted upon. The Advisory Commission in Inter-governmental Relations has suggested that Metropolitan Land Corporations be created under state enabling legislation to buy and condemn land. This type of corporation would be given broad planning, execution and disposal power to promote land banking. The doctrines of public uses for public purposes as they affect the acquisition of land are amenable to the acquisition of predominantly vacant land which has been afflicted by poor subdivision practices of the twenties. Speculative land activity in the Poconos illustrates this point.[9] It should be clear that restrictive regulations imposed on property owners to effectuate public goals that are not widely accepted will be afflicted by findings that they are arbitrary, unreasonable or confiscatory.

After all these years, the one regularly cited example in the United States similar to the Scandinavian practice of municipalities owning developing fringe lands and lands within their borders is Mountain Lakes Borough, New Jersey. This municipality owns a little more than one square mile of its total three square miles. The borough officials have sold land for private development only as they believe their government can publicly finance the costs of private development.

Exactly what lessons applicable to the Tocks Island Region can be learned from this experience: Unless there is the requisite checking of alleged innovations elsewhere, the probability exists that the same mistakes will be made in the Tocks Island Region over and over again. We need knowledge of what is applicable across-the-board and what is special in each municipality. If land banking is to be sensibly used in the Tocks Island Region, we need to know how land can be held back in the bank until the market is ready to absorb it in accord with regional objectives. What happens when intense economic and political pressures mount?

Suburban development districts might be created to provide a means whereby the legal powers of governments in the Tocks Island Region could be focused upon its unique problems. Another purpose would be to acquire control over land in a special unit of municipal government (roughly modeled after drainage districts) by purchase or option. Supplementing acquisition powers (excluding, however, the power of eminent domain), suburban development districts might be permitted the power to plan, to enter contracts with developers, and a variety of governmental powers such as taxation and borrowing. This unit of government would only function through the development period. Since development situations vary considerably in the region, the flexibility offered by the special district is of merit.[10]

Acquisition of interests less than the fee (the highest and most extensive interest which a person can have in real property) has been frequently advocated lately for obvious economic and political reasons. By the use of this technique the government buys or condemns the right to the use of the land. The owner, however, retains the title and possession. California may be cited as a pioneer by its allowing in 1959 local governments the specific power to acquire less than the fee interests in land for a variety of open space objectives.[11] In 1963, the California Departments of Water Resources, Parks and Recreation, Fish and Game, and Finance were authorized to acquire land along a specific freeway and aqueduct.[12] The state's Department of Public Works was required to use federal highway funds for the purpose of buying land or scenic easements along highway rights-of-way.[13] Authorized also were lease-back arrangements.[14] Strategic acquisitions of estates,farms, golf courses, stream valleys might, for example, be made and leased back to the owners subject to proper land use controls.

A technique of open space preservation designated as "compensable regulations" that falls between governmental acquisition and non-compensatory regulation has the virtue of striving for greater flexibility and resourcefulness. Jan Krasnowiecki and James C. N. Paul have initiated this technique.[15] Controls on development similar to zoning are imposed with governmental assurance that the owner will receive the fair market value when his property is sold.

The fair market value is ascertained before the imposition of the restrictions. Nothing is paid to the owner unless and until he sells his property. The amount that is then paid is the difference between the sales price (determined at a review board supervised public auction) and the earlier assessed value. Appropriate adjustments are supposed to be made for inflation. If sale prices are less than the guaranteed compensation, the government placing the restrictions is to make up the difference.

Although the combination of the elements of police power and the power of eminent domain is to be commended, it is subject to some obvious criticisms. It is complex. Difficulties in enforcement and cost prediction are only too apparent. It is doubtful whether there will be widespread enthusiasm for throwing away the use of the police powers and absence of any cost to government. The political problems that can be stirred up through compensable regulations have been noted (i.e. favoritism, arbitrariness). This device is likely to be perverted by widespread groups eager for another suburban exclusion tool ,if not carefully watched.

Another technique for the achievement of open space and other goals, Development Rights Transfer (DRT), can be easily abused. To illustrate the significance of the DRT approach, we first assume that a particular municipality has designated an area as open space and has prohibited development therein. The land use development potential in that area

is transferred to another district or districts where supplemental development is deemed feasible. DRT attempts to address the economic consequences of public regulation upon the burdened and benefited. If managed in an equitable and competent fashion, DRT could alleviate some of the economic problems that defuse laudable governmental land use and environmental programs that seek to enhance open space, historic preservation, and other goals.

But, as one of the proponents of the DRT movement has warned, "the pick and shovel work to be done on DRT's legal, planning and economic ramifications is herculean."[16] One can only agree with Professor John Costonis of the University of Illinois Law School when he advises that DRT's benefits necessitate the undertaking of enlarged municipal space management responsibilities, courage, and vigilance over the risks of impropriety and incompetence that can accompany this discretionary land use technique. But there is nothing inherently inseparable between a specific piece of land and its development rights, just as students of the law know a contract right and its holder can be separable.

"Why condemn government and landowner to an absurd game under which the labels 'police power' and 'eminent domain' control whether government pays nothing despite the severity of the landowner's losses or whether the government pays all even though the measure, marginally scaled down, might have been perfectly valid as a police power enactment?" questions Costonis. It seems clear that a carefully monitored DRT program, grounded in an

able and reputable planning process that has identified precisely the goals to be achieved and worked out means to accommodate those objectives in accord with public interests, should be tried.[17]

XXIII.D.3(c) Improvement of the Planning and Zoning Process

Responsible direction of development requires that locational and timing dimensions be included in an effective land use control system. Provision and maintenance of municipal facilities and services on an economically sound basis dicattes that spatial location and timing be properly controlled. Prevention of premature and sporadic development in unripe places also requires this. Surely there is the need to strike a satisfactory balance among various uses of land. Finally, spatial location and timing devices must be integrated.

In Construction Industry Association of Sonoma County v. City of Petaluma, Judge Lloyd H. Burke of the U.S. District Court for the Northern District of California, ruled unconstitutional the City of Petaluma's growth timing policy. Specifically, a provision which limited new residential construction to 500 units a year was invalidated. Judge Burke held that the basic constitutional rule is that no city can regulate its population growth numerically so as to preclude residents of any other area from traveling into the region and establishing residence therein. Concerning the city's reviewing development applications after the court's ruling, Judge Burke said that the municipality could rely on traditional zoning and community planning considerations as long as they were not used as a screen

for policies based on numerical quotas. The court seems to be drawing a line between valid and invalid restraints on travel by finding only specific numerical quotas an unconstitutional exercise of the police power.

To guide development into proper locations within the region, there must first be an environmentally sound plan as to where future land uses are to be situated. Such a plan should clearly be cognizant of ecological and other vital factors to protect and enhance the public interest. Assuming this type of a future land use plan upon which to base implementation, the next step is to fashion a synergistic system of using the three major devices (regulation, public facilities and services, and taxation).

More realistic analysis would lead to better use of the workhorse of American land use control - zoning. One is aware of the many justified attacks that have been hurled upon zoning. In its almost sixty years of existence, it certainly has not brought about a millennium in the development of American community. Yet it would be obtuse to overlook the considerable change that zoning has wrought, or to attempt to relegate it to an insignificant role. There is still a multiplicity of generally unused zoning devices that would accommodate the requirements of private property ownership and public power regulation. Enough legal and planning ammunition now exists to protect the visual quality of communities, and for the promotion of other beneficial Tocks Island regional attributes. Their utilization depends on the willingness and ability of the communities to utilize these devices.

One example of a useful answer to the type of questions that Tocks Island region municipalities will be confronted with, can be gained from Gay Head, Massachusetts. To prevent random and untoward commercial development, an example of performance zoning was used by one of the small towns on Martha's Vineyard. Gay Head, is a town of about six square miles that increases from a regular population of 118 (based on 1970 census) to about 1,000 people during the summer months. The town has no industry and the extent of its commerce is limited to some tourist stands. Until 1872, Gay Head was an Indian Reservation. To this day, many of its permanent residents are descendants of the original Indian settlers. Whereas the visiting summer residents are comparatively affluent, the permanent residents are in a lower economic bracket.

Land prices have increased in recent years from $1,000 an acre to $10,000 an acre or more. Housing starts have multiplied and on a prominent seaside location, an unattractive clump of new houses has been recently built. In this rural area, as in others, there was great opposition to the enactment of a zoning ordinance as the community is not particularly receptive to government regulation. Adding to the townspeople's reluctance to accept the notion of traditional zoning, were deep feelings and knowledge about the land and the lack of a pre-existing land development pattern.

To accommodate the conflicting factions in the town, performance zoning rules governing how land use activities would have to perform were prepared. These rules sought to provide a townwide mix of activities, and environmental control. However, the zoning regulations did not fix a spatial pattern of land use.

Conventional zoning regulations (e.g. dealing with use lot size, setback building height, structural density, etc.) are supplemented by performance conditions applicable to all potential commercial and industrial land use development. Once the various performance conditions are met by the industrial or commercial applicant, a special permit is granted. Performance standards for Gay Head limit the density of traffic generated by non-residential use. Parking, storage, loading, and screening standards are provided to protect adjacent residents. Similarly, the standards deal with potential odor, dust, fumes, land erosion, surface drainage, and pollution problems. Before a large development can be approved, detailed site plans and an impact statement have to be submitted by the proponent of a particular proposal. The probable effects of the proposal on the town's fiscal situation - vehicular traffic, pollution, housing, utilities, surface drainage, ground water consumption, increased refuse disposal, land erosion or loss of tree cover, blocking of areas, and harmony with surrounding development - are considered. Zoning in Gay Head is another instance of land control that stresses performance rules and required impact studies.[18]

XXIII.D.4 ORGANIZATION AND ADMINISTRATION

So far, this discussion of a Land Use Management Strategy for the Tocks Island Region has dealt with why such a strategy is needed, and what the required elements are. It is our task now to consider who would be involved in using the various tools.

With the establishment of regional policies, plans, controls and systems for guiding the character of future growth relative to the various levels and

agencies involved, creative opportunities exist to provide alternatives to the mistakes of the past.

The current difficulty as to what controls should be exerted at a local level and what should be transferred to a regional level is only recently being resolved in a few places and in an isolated fashion. In general, controls at the regional level should deal with such area-wide private development decisions as: (1) household density; (2) major centers for shopping and industry, (3) public utilities, facilities, and transportation systems that involve the entire Tocks Island area. As to what controls are to be shifted to what levels, an examination of the division of controls during the last few years reveals a paucity of action. As of this moment, the infusion of federal money, and a technology that transcends intermunicipal boundaries, has meant little diminution of local political power. Only in an isolated and piecemeal fashion has analysis of the problem encompassed consideration of whether there is: (1) adequate control over an area of appropriate size; (2) proper division of tasks within the area; (3) an effective administrative structure.

Recent legislation in our newest state, Hawaii, is of significance to the concept of statewide land use regulation, for the Hawaii Land Use Law furnishes a tool for implementing regional planning on a state-wide basis. A Hawaiian state administration agency has the responsibility of designating broadly basic land use categories (i.e., urban, rural, agriculture, and conservation) for different parts of the state. The responsibility of the local governments is to provide detailed regulation shaping the character of the permitted uses. Not only can this

legislation be viewed as an inroad into the powers of local government as government as generally conceived, its "agriculture only" use zones, must be looked at from another vantage point. Since this legislation creates the "agriculture only" zone on a permanent basis rather than as a holding device, its effects on the property owners must be considered.

How land-use control proposals promoting greater centralization fare in an older state with a tradition of strong and well established local autonomy is an even more instructive example. Recently the American Society of Planning Officials (A.S.P.O.) engaged in a study dealing with new directions for planning, zoning, and related legislation for the Connecticut Development Commission. Among A.S.P.O.'s recommendations relating to the State of Connecticut are the following: A state agency for planning and development would have (1) power to promulgate rules and regulations interpreting and effectuating statutes relating to land-use controls; (2) adopt and administer land-use regulations for land areas of statewide importance; (3) review all local and regional land-use regulations; (4) prepare model land-use control and development ordinances which local governments could adopt, in whole or in part by reference; (5) review and comment upon all bills submitted to the legislature dealing with land-use regulation. A.S.P.O. further suggested that a quasi-judicial division of this state agency should be empowered to hear and decide all appeals on land-use regulations cases from localities rather than a court. It is interesting to learn, in light of prior discussion of regulation and taxation, that A.S.P.O. also suggested that the Connecticut legislature study techniques to equalize and reduce the burden of local taxation. The

hope is that the difficulties resulting from local financial problems will be minimized.

The extent to which Connecticut will adopt and execute A.S.P.O.'s vigorous recommendations is unknown. But is is patent that states that would use A.S.P.O.'s comprehensive approach would remove such current deficiencies as fragmentation, complexity and confusion, commonly associated with current land use controls and policies.

One of the accepted (and limited) techniques presently in use to cope with metropolitan problems of fragmentation is for states to grant extra-territorial land use control jurisdiction to older municipalities. A key problem in granting this extraterritorial power has been to define precisely its extent in areas of overlapping jurisdiction. The prevalent rule provides that overlapping jurisdictions be divided by a line equi-distant from the corporate limits. Under recent North Carolina legislation, municipalities can agree on a boundary line founded on existing or projected patterns of a development within the area.

Similarly, the federally promoted Metropolitan Councils of Government will, in the future probably have an effect on intermunicipal land use control. Voluntary associations of elected public officials from governments of a metropolitan area (such as Detroit, San Francisco, Atlanta, Seattle, New York, Washington, Los Angeles, Des Moines, Dallas, Fort Worth, Hartford, Wichita, San Antonio) will encourage functional, geographical, intra-governmental agency coordination as to land use.

Even without such Metropolitan Councils of Government cooperation, we can anticipate land use control law changes that will take into better account the realities of city-county relationship. Kentucky, for instance, now requires that a city (and the designation "city" is generously applied in Kentucky to hundreds of sparsely settled communities) must first contact the county to ascertain whether the latter wishes to sign an agreement establishing a city-county planning unit. Once the county agrees to the formation of a combined unit, no other city may organize a city planning unit. It does have the option to join the city-county planning unit. Upon the county's refusal to approve an agreement to form a joint unit, the city has the power to form an independent one. This planning unit has extra-territorial jurisdiction for subdivision regulation that extends five miles beyond the city's boundary lines. Other land use regulations may be granted extra-territorial jurisdiction if the fiscal court approves.

County land use control powers are being increased elsewhere. Examples are beginning to appear from different parts of the nation. County or metropolitan planning agencies in New York State now have the power to review proposed zoning changes, special permits, variances, and all proposals along any state or county road. Attempts at areawide coordination have been spurred in Indiana by requiring that all planning and land use control power in the Marion County-Indianapolis metropolitan area, reside in a counywide agency. County zoning in Illinois covers cities, villages, and incorporated towns that have not passed their own ordinances.

Not only are illustrations of state and county legislative controls over municipal land use cropping up, we may yet have a system of zoning appeals that is not replete with parochial perversion of the rule of law, and one which discourages zoning boards from being free and easy with their largess. Kansas has offered one solution to the problem of strengthening the quasi-judicial role of zoning boards. Its cities and counties are now empowered to create joint boards of zoning appeals if these cities and counties have established joint planning commissions. Bearing in mind the fact that in New Jersey a similar proposal to have a county zoning board that originated at the start of this decade (and favored by many Garden State lawyers) has not been adopted by the legislature, we can be impressed by the Kansas innovation.

However, in New Jersey since 1965 the law requires that notice of any hearing in "respect to planning, zoning, approval of subdivision, granting of variances, or establishing or amending an official map involving property situated within 200 feet of an adjoining municipality" be given to the municipal clerk ten days before a hearing. Since devices to promote inter-municipal cooperation are especially important for large central cities, the Illinois Interagency Referral Law which "provides for planning agency review of plans for all public improvements by all state and local agencies that apply to the City of Chicago" is also worthy of future examination.

As one reviews the examples of governmental cooperation concerning land use controls that have resulted from legislation adopted during recent

years one finds that the establishment of a much needed hierarchy of interrelated administrations to deal with development problems from the local community level through the state and region to the nation, is proceeding at a painfully slow pace. Some exceptions notwithstanding, generally the land use controls tend to stress the primacy of the local units of government and the traditional approaches of zoning and subdivision regulations. Citing often mentioned problems, traffic, millions of sub-standard dwellings, an environment becoming increasingly more polluted, and vast deterioration of commercial areas, the Chamber of Commerce of the United States, recently found that these problems defy traditional piece-meal approaches. To achieve more effective land use control (and related concerns such as better transportation) within our system of federalism, we will have to multiply many fold the current pace. Adjustment of our governmental structure to yield maximum cooperation to achieve clearly focused objectives will have to accelerate greatly.

Specific governmental organization suggestions to provide more effective land use control have been set forth in a comprehensive manner by the Advisory Commission on Intergovernmental Relations. If we compare the many bold and broad suggestions of A.C.I.R. with the feeble and isolated changes that have actually been adopted, it is evident that we have a long way to go before our governmental schizophrenia is cured.

A partial list of approaches that A.C.I.R. recommends to improve regional service includes authorization of: (1) voluntary transfer of governmental

functions from cities to counties and vice versa; (2) creation of regional area study commissions dealing with local government structure and services; (3) establishment of regional area planning bodies. The states are to strengthen co-ordination by: (1) creating agencies to help regional areas; (2) establishing programs of financial and technical aid; (3) providing for vigorous standards for new municipal incorporation; (4) helping obtain and conserve open land in and around regional areas; (5) enacting legislation allowing municipalities to use extraterritorial planning and land use control where effective county control is absent; (6) providing legislation to encourage a diversity of housing prices by restricting zoning power in metropolitan areas to larger municipalities and to county government; (7) enacting legislation that would authorize adoption of uniform housing, building, zoning and planning codes by municipalities. An expanded role for the national government is also envisioned. This would include taking the following steps: (1) supporting regional planning agencies on a continuous basis;(2) assisting states and regional agencies in an enlarged manner; (3) facilitating interstate compacts by advance Congressional consent; (4) stressing regional planning agency review where such federal aid programs as airports, highways, public housing, hospitals, waste treatment installations, etc. are involved. To deal effectively with a variety of emerging substantive land use control problems we need the strengthened governmental structure that will result by the adoption of these suggestions.

XXIII.D.5 DEVELOPING A SYSTEM FOR LAND USE MONITORING

The preceding material has dealt with the impacts of the Tocks Island Region with the suggested use of various land use controls, and recommendations concerning organization and administration. There remains a need to consider a system to find out which measures are working and which are not. Which land use control measures perform acceptably in some circumstances but not in others? There is a need for a system that would show officials and developers where public facilities are available or scheduled for completion. Where will development of particular areas impose severe overloads in communities. In light of the New Jersey Supreme Court's decision in Southern Burlington County N.A.A.C.P. v. Mt. Laurel there is a need to ascertain whether the housing requirements of various groups are being ignored.

Facts and trends in a development information system must be used to intelligently forecast for the future. Answers to difficult questions must be resolved in a factual fashion. What happens if municipalities take no new initiatives concerning land use control? What would the various alternative actions do to land values? What does the use of various alternatives do to air and water quality? to roads, sewers, water mains and other public facilities and utilities? to municipal tax burdens?

A development information system will not solve growth problems in the Tocks Island Region. But it will provide a clearer understanding of what is happening. Consequently the primary work performed by the Office of Research and Statistics of the Fairfax County, Virginia in developing a Handbook For Creating An Urban Development Information System deserves study and application in the formulation of land use management Strategies.

Presently the best understanding of what the system is, what it does, how it works and its myriad possible uses for the Tocks Island Region is derived from a review of the easily available Fairfax County Handbook. However to provide the reader with some appreciation of its significance, a brief statement follows.

Fairfax County officials are getting answers to such questions as how many people and living units will be added to the County, if present trends continue in each of the next five years? What will be the impact of this growth on sanitary sewer treatment plants, schools and other pubic facilities? What is the current and future fiscal impact of existing and proposed land use controls?

The Urban Development Information System (UDIS) is a process of combining regularly collected data concerning land use in formats and reports meaningful to decision makers. A particularly important function of this monitoring procedure is to reduce the uncertainty of the impact of decisions. UDIS monitors and records the physical growth and condition of specific geographic areas in very practical terms relating to the use of land and municipalities. UDIS furnishes pre-use reports of existing

conditions. Short-term population and land use forecasts of three to five years are based on immediate market pressures and public regulatory activity. All data gathered for UDIS is use-oriented. Specific applications for UDIS were designed long before the data gathering effort began. Each data element was evaluated for the cost of collection and its applicability. These are six primary files described in the Fairfax Handbook. The first includes an Inventory of land parcels. A second file describes the sanitary sewer network. The remaining four data files monitor the ongoing Construction process. Staff analysts interrelate the six files to monitor both what currently exists and what land use changes are likely. The files include rezoning case petitions, residential building permit records; status reports for each residential and non-residential project. The present and potential applications include such important topics as opportunities as examining growth incentives, sewerage treatment capacity, effects of the rezoning process, and testing the impact of land use control proposals. In the Tocks Island Region, the aforementioned applications and others (e.g., descriptions of environmental dimensions, environmental impact from proposed development cost-revenue impacts of alternative development patterns, etc.) could yield land use management strategies of great utility.

XXIII.D.6 CONCLUSIONS

Decisions will have to be made on future patterns of development within the Tocks Island Region. The task will not be easy, but these decisions concerning many levels of government must be made carefully, for they will determine crucial matters of growth. What must be remembered is that these decisions will have to be made in any event. If they are made with the fragmentary organizational and administrative apparatus of the past, the results will be at best haphazard and uncoordinated. With the requisite organizational and administrative structure for land use planning that will include an efficient and representative system of citizen participation, the Tocks Island Region can truly reflect the vast amounts of time, labor, money and aspirations poured into it.

Practical problems such as the building of new sewers and highways for the region, solid waste disposal and a great number of others will continue to mount. These are rightfully the concerns of all levels of governemnt and must be coordinated across boundaries dividing political jurisdictions. Therefore, the most effective role and powers for each level of government must be clearly defined.

An organizational and administrative mechanism to accomplish more integrated land use management strategy for the Tocks Island Region might use the following questions as a framework:

(1) What division of power and responsibility can be made between the public and private sectors to effectively cope with the complexities of land use control?

(2) What should be the allocations of governmental power and responsibility between the different levels of government to assure that beneficial results accrue?

(3) How can public policy best blend the tools of incentive and prohibition?

(4) How far does one go with the regulation of use by public investment and by tax policy?

Haphazard approaches and limited answers to these questions will not remedy the problems involved in achieving the potentials of the Tocks Island Region.

Some suggestions that would aid in the realization of these potentials include: (1) organizational and administrative mechanisms that deal with entire ecological systems instead of small parts of them; (2) constant analytical examination of the roles that various governmental and private actors are playing in the land use planning and control scene; (3) comparison as to what is happening in analogous areas (e.g., Adirondacks Park; Lake Tahoe, etc.), and (4) enhancement of administrative policies that maximize intermunicipal cooperation and consolidation of services. Surely the Tocks Island region should be the beneficiary of the virtues of our federal system and surely the region should gain the benefits resulting from experimentation in other parts of the nation.

Throughout this Chapter it has been emphasized that the current focus of land use control is on the individual municipalities which comprise the Tocks Island region. Yet it has also been noted that the local governments in general are either unwilling or unable to regulate land use on any basis beyond their own immediate concerns. In short, there is no on-going overall planning process capable of dealing with the regional impacts caused by a major federal project. In the foreseeable future, this prevalent "Home Rule" aspect to land use control is not expected to change, unless altered by the states or indirectly by federal land use policy legislation.

In presenting management strategies, the tools for improving land use management at all levels of government were stressed. These included suggestions for the local governments to improve their existing land use control mechanisms and their inter-governmental cooperation; suggestions for the counties to become more involved in the review and coordination of the local controls as well as in the use of infrastructure improvements to guide growth patterns; suggestions for the states to establish an overall land use policy for the control of those land uses and facilities of state-wide interest such as natural hazards (flood plains), natural resources, historic areas, and key facilities (airports, highways, water, sewers, and other major public development); and suggestions for regional agencies to increase their coordination role, and to integrate a planning framework into their regulatory process. In each of these areas, examples were provided for the decision makers to consider, review, evaluate, modify or apply to improve the total synergetic system of the land use management process.

Regardless of the fate of TILP/DWGNRA the application of a portion or all of these are needed. If the Project is constructed, the condition becomes more urgent.

In the latter case, the states would probably have to step in as was done by Florida in the case of the Everglades National Park. However, the difference is that Florida was able to act under its 1972 Land and Water Management Legislation. For New Jersey and Pennsylvania, a measure similar to the New Jersey proposed Tocks Island Area Protection Act would have to be adopted before meaningful state guidance could be provided. Although D.R.B.C. cannot participate directly in land use control, indirectly its water resources management role and enforcement of environmental regulations affecting these resources could play a vital interstate coordination role.

Ultimately, the individual states will have to weigh their own costs and benefits of recapturing a portion of the land use powers currently vested in their own local municipalities. From the examples given in this Chapter and from the experiences of the eleven states which have adopted land use policy legislation and those of relevant regional authorities, such a weighing process should begin.

Footnotes to XXIII.D.

1. A. Robert Koch, Harriet H. Morrill and Arthur Hausmann, Implementation and Early Effects of the New Jersey Farmland Assessment Act (New Brunswick, Rutgers, Experiment Station Bul. 830)

2. Ann Louise Strong, Open Space for Urban America (Washington, D.C. H.U.D. 1965) p.45

3. Section 70.32 Wisconsin Statues

4. Minnesota Chapter 60 Extra Session of 1967

5. Bucks County, Pennsylvania Planning Commission, Techniques for Guiding Development of Bucks County (Doylestown, Pennsylvania, Bucks County Planning Commission, 1970).

6. People v. County of El Dorado, Superior Court of California, ERC 1010 (1971).
United Advertising Corp. v. Raritan, 11 N.J. 144, 93A.2d.362(1952); United Advertising Corp. v. Metuchen, 42 N.J.1,198A.2d.447 (1964).

7. Moore v. Ward, 377S.W.2d.881(ky.1964); New York State Thruway Authority v. Ashley Motor Ct., 10 N.Y.2d.151, 176N.E.2d.556, 218 N.Y.S.2d.640 (1961).

8. Grant v. Baltimore, 212 Md.301, 129 A.2d.363 (1975).

9. Stephen Sussna, "Remedying Premature Subdivision", New York Law Forum, Vol. IVII, No. 4, 1972, pp.1050-1065

10. The Suburban Development idea is discussed by Marion Clawson in Journal of the American Institute of Planners, 26:619-83.

11. CAL. GOV. CODE Sec. 6950-54 (West 1966)

12. CAL. GOV. CODE Sec. 7000 (West 1966)

13. Id;infra Note 20

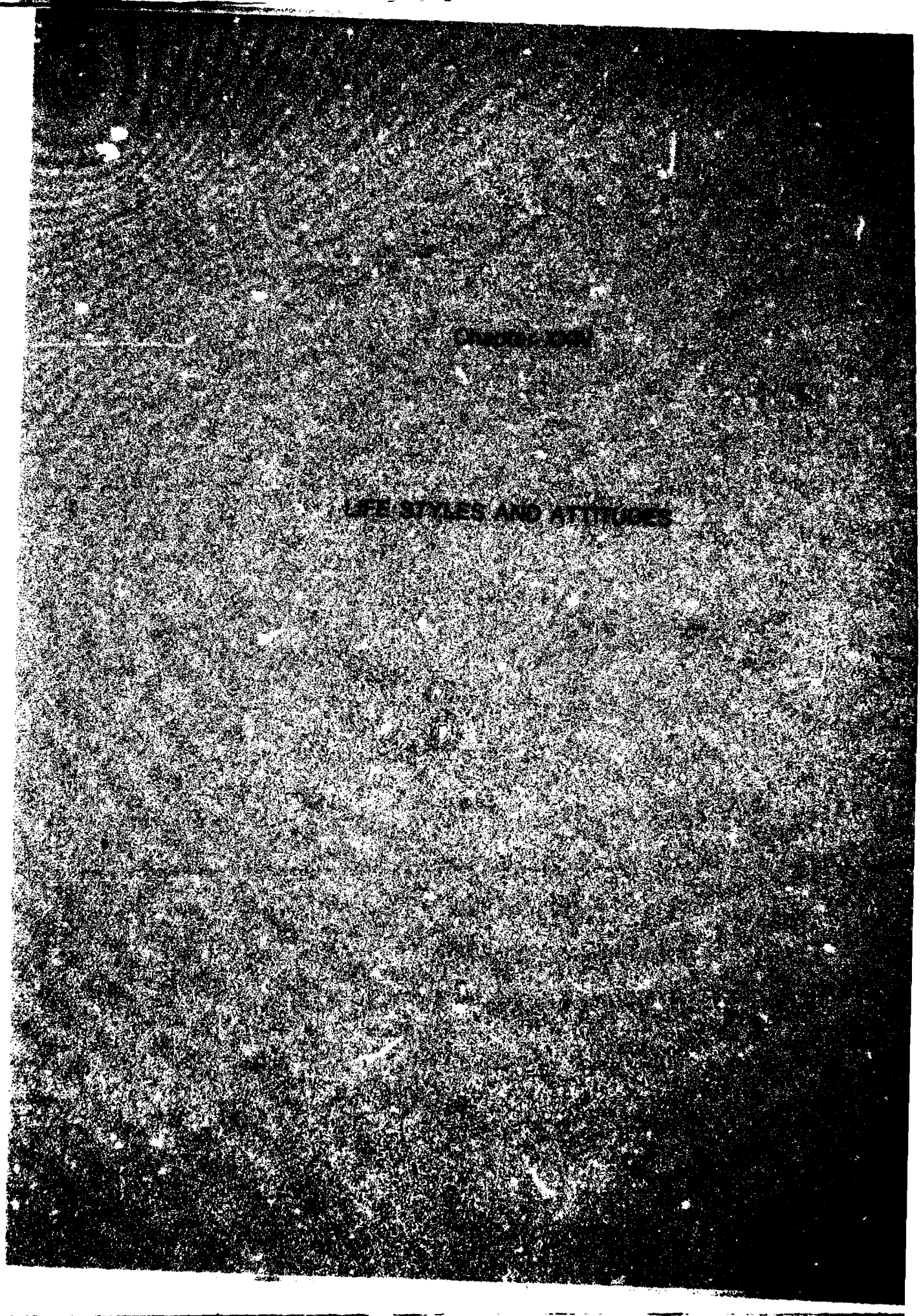
14. CAL.GOV.CODE Sec. 7001 (West 1966)

15. The legal features of the proposal (together with an open space act draft) are presented by: Jan Krasnowiecki and James C. N. Paul, THE PRESERVATION OF OPEN SPACE IN METROPOLITAN AREAS, UNIVERSITY OF PENNSYLVANIA, vol. 110, at 179-239 (1961). For the Proposal, illustrations, and useful notes see: Jan Krasnowiecki and Ann Louise Strong, COMPENSABLE REGULATIONS FOR OPEN SPACE. JOURNAL OF THE AMERICAN INSTITUTE OF PLANNERS, Vol. XXIX, No. 2 (May 1963).

16. John J. Costonis, "Whichever Way you Slice It, D.R.T. is here to Stay" A.S.P.O. PLANNING, July, 1974, p. 15.

17. See also, Jerome G. Rose: "Psychological, Legal and Administration Problems in the Proposal to Use the Transfer of Development Rights (TDR) as a Technique to Preserve Open Space, "Urban Lawyer, Fall 1974 919-927.

18. Kevin Lynch and Philip B. Herr, "Performance Zoning: The Small Town of Gay Head, Massachusetts Tries it" Planners Notebook Washington, D.C., American Institute of Planners, 1973, Vol. III, NO. 5, October 1973


LIFE STYLES AND ATTITUDES

The purpose of this section of the report is to analyze the lifestyles and attitudes of residents who live in the seven-county area. Lifestyle is defined to mean the routinized activities which are reflected in the value structure of impact area residents.

The following discussion contains three sections. First, is a profile of the Tocks Island Lake Impact Area and includes data on population, employment, and social characteristics. Second, is a sociological analysis of lifestyles, in which residents define their current lifestyles and attitudes and estimate how they will be affected if the Tocks Island Project is implemented. Third, is an analysis of how community leaders believe future lifestyles will be impacted assuming the implementation of the Tocks Island Project.

XXIV.A. PROFILE OF TOCKS ISLAND LAKE IMPACT AREA

The Tocks Island Lake Area is defined to include the following seven counties: Warren and Sussex counties in New Jersey; Orange and Sullivan counties in New York; and Monroe, Northampton and Pike counties in Pennsylvania. The seven-county area as defined is considered the primary impact area. In this overview are data on population trends -- including

-- rural/urban distribution and household formation, employment trends, and social charactertistics including age, sex, race, occupation and income.

XXIV.A.1. POPULATION

The population of the seven-county Tocks Island Lake Impact Area increased from 591,618 in 1960 to 736,800 in 1973 resulting in a gain of 145,182 people (24.5 percent) over the 13-year period. This rate of increase was faster than the nation as a whole during the same period. As shown in the following table, Orange County, New York experienced the largest absolute increase (37,923 between 1960-1970); and 11,943 between 1970-1973). Sussex County had the highest percentage increase -- 57.4 percent, between 1960-1970; and 10.4 percent, between 1970-1973.

Table 24-1 Population Trends, Tocks Island Lake Impact Area

	1960	1970	1973	Gain, 1960-70		Gain, 1970-73	
				Amount	Percent	Amount	Percent
Warren	63,220	73,960	76,400	10,740	17.0%	2,440	3.3%
Sussex	49,255	77,528	85,600	28,273	57.4%	8,072	10.4%
Orange	183,734	221,657	233,600	37,923	20.6%	11,943	5.4%
Sullivan	45,272	52,801	57,700	7,529	16.6%	4,899	9.3%
Monroe	39,567	45,422	49,300	5,855	14.8%	3,878	8.5%
Northampton	201,412	214,545	221,300	13,133	6.5%	6,755	3.1%
Pike	9,158	11,818	12,900	2,600	29.0%	1,082	9.2%
Total, T.I.L. Impact Area	591,618	697,510	736,800	105,892	17.9%	39,290	5.6%

Sources: U.S. Census of Population, 1960 and 1970. CPR P-25 and 26 and Hammer, Siler, George Associates.

The seven-county impact area contains a diverse mixture of counties ranging from medium-sized Orange and Northampton counties with over 200,000 residents to relatively sparsely populated Pike County with only 12,900 residents in 1973.

XXIV.A.1(a) Urban/Rural Distribution of Population

The population of the Tocks Island Lake Impact Area is evenly balanced between urban and rural residents. Just over 50 percent of the population was considered urban by the Bureau of Census in both 1960 and 1970. Despite the suburbanizing trends in Orange and Sussex counties, population growth was evenly split between urban and rural sectors. The rural population declined in only two counties, Northampton (Allentown and Bethlehem) and Warren counties. Sullivan, Monroe and Pike counties maintained mostly rural population as seen in the following table.

Table 24-2 Urban/Rural Distribution of Population.
Tocks Island Lake Impact Area, 1960 and 1970

	Urban		Rural		Percent Urban	
	1960	1970	1960	1970	1960	1970
Sussex	18,225	29,887	31,030	47,641	37.0%	38.5%
Warren	32,137	43,338	31,083	30,622	50.8%	58.6%
Orange	93,139	113,317	90,595	108,340	50.7%	51.1%
Sullivan	9,926	10,284	35,346	42,296	21.9%	19.6%
Monroe	13,744	13,345	25,823	32,077	34.7%	29.4%
Northampton	138,341	153,583	63,071	60,216	68.7%	71.8%
Pike	-	-	9,158	11,818	0%	0%
Total, T.I.L. Impact Area	305,512	363,754	286,106	333,010	51.6%	52.2%

Source: U.S. Census of Population, 1960 and 1970.

In 1970, 52.2 percent of the Tocks Island Lake Impact Area's population was living in rural areas. This represented only a slight change from a 51.6 percent urban share in 1960. Three counties had more urban than rural residents including Northampton, Orange and Warren counties in 1970. The others had a greater proportion of rural residents with Pike County being considered 100 percent rural.

XXIV.A.1.(b). Household Trends

In 1973, the impact area had 230,250 households, an average of 3.2 persons living in each occupied housing unit. As a result of declining birth rates in recent years resulting in a general trend towards smaller households, the number of households increased at a faster rate than the rate of growth of population over the 1960-73 period. The number of households increased by 29.6 percent over the 1960-73 period compared to a 24.5 percent gain in population over the same period.

The number of households increased from 177,652 in 1960 to a 1973 total of 230,250 in the Tocks Island Lake Impact Area generally reflecting population change by county. However, the average number of persons living in each household declined from 3.33 in 1960 to 3.20 in 1970 resulting in a slightly more rapid household growth rate.

Table 24-3 Household Trends, Tocks Island Lake Impact Area, 1960-1973

	1960	1970	1973	Gain, 1960-70 Amount	Gain, 1960-70 Percent	Gain, 1970-73 Amount	Gain, 1970-73 Percent
Warren	19,233	23,271	24,269	4,038	21.0%	998	4.3%
Sussex	14,434	22,809	25,176	8,375	58.0%	2,367	10.4%
Orange	53,919	65,607	69,297	11,688	21.7%	3,690	5.6%
Sullivan	14,112	16,934	18,655	2,822	20.0%	1,721	10.2%
Monroe	12,112	16,674	16,175	2,562	21.2%	1,501	10.2%
Northampton	60,712	68,632	72,038	7,863	13.0%	3,406	5.0%
Pike	3,130	4,130	4,544	1,000	42.0%	414	10.0%
Total, T.I.L. Impact Area	177,652	215,988	230,250	38,336	21.6%	14,262	6.6%

Sources: U.S. Census of Population, 1960 and 1970, Current Population Reports, P-25 and P-26

XXIV.A.1 (c) Total Personal Income Trends

As seen in the following table, total personal income in the seven-county impact area increased from $1,249,000,000 in 1959 to $3,181,000,000 in 1972, a gain of $1,932,000,000, or 154.7 percent over the period.

Table 24-4 Total Personal Income Trends, T.I.L. Impact Area
1959-1972 (In millions of current dollars)

	1959	1969	1972	Change, 1959-69 Amount	Change, 1959-69 Percent	Change, 1969-72 Amount	Change, 1969-72 Percent
Warren	$ 129	$ 262	$ 337	$ 133	103.1%	$ 75	28.6%
Sussex	98	245	333	147	150.0%	88	35.9%
Orange	400	820	1,065	420	105.0%	245	29.9%
Sullivan	101	187	229	86	85.1%	42	22.5%
Monroe	76	150	186	74	97.4%	36	24.0%
Northampton	430	776	978	346	80.5%	202	26.0%
Pike	15	38	53	23	153.3%	15	39.5%
Total, T.I.L. Impact Area	$1,249	$2,478	$3,181	$1,229	98.4%	$703	28.4%

Sources: U.S. Department of Commerce, Survey of Current Business (May, 1974)

As shown in the above table, the largest dollar gain in personal income over the 1959-72 period occurred in Orange County while Pike and Sussex counties had the fastest rate of total personal income growth over the 1959-72 period.

Eliminating inflation-caused increase by using constant 1972 dollars, real personal income in the seven-county impact area increased by $1,389

million, a real gain in income of 77.5 percent over the 1959-72 period. The real gain in total per capita income amounted to $1,288 or 42.5 percent over the 1959-72 period. These income trends are shown below.

Table 24-5 Comparison of Total Personal Income in Constant and Current Dollars, Tocks Island Lake Impact Area, 1959-1972

	Millions of Current Dollars	Millions of Constant 1972 Dollars	Constant Dollars Per Capital Income
1959	$1,249	$1,792	$3,029
1969	$2,478	$2,827	$4,053
1972	$3,181	$3,181	$4,317
Gain, 1959-72			
Dollars	$1,932	$1,389	$1,288
Percent	154.7%	77.5%	42.5%

Sources: U.S. Department of Commerce: Survey of Current Business (May, 1974)

XXIV.A.2 EMPLOYMENT TRENDS

The structure of the seven-county impact area economy can be described and characterized as: (1) predominantly oriented to and dependent upon the recreation and tourist-related activities, and (2) dependent upon manufacturing and processing activities. The individual county economies making up the total impact area vary from predominantly oriented to and dependent upon manufacturing activity as a source of jobs and income (Northampton and Warren counties) to heavily service-based economies of

Pike, Sullivan and Sussex counties. The economy of Orange and Monroe counties represent a relatively balanced mixture between the manufacturing and non-manufacturing activities.

Generally, the Tocks Island Impact Area has experienced steady economic growth as reflected in its employment gains. Over 50,000 new jobs were added to the impact area during the 1960-1972 period. Orange County had the largest numerical gain in jobs with Sussex and Northampton counties also having sizable employment gains as shown in the following table.

Overall, the Tocks Island Impact Area had 250,700 nonagriculutural wage and salary jobs in 1972 compared to 197,700 in 1960. The largest employment concentrations are found in Northampton and Orange counties, which between them contain over 60 percent of at-place employment in the T.I.L. Impact Area.

Table 24-6 Total Non-Agricultural Wage and Salary Employment
Delaware River Basin 7-County Impact Area, 1960-1972
(Thousands)

	1960	1970	1972	Gain, 1960-1970 Amount	Gain, 1960-1970 Percent	Gain, 1970-1972 Amount	Gain, 1970-1972 Percent
Warren County	19.6	25.0	25.7	5.4	27.6%	1.7	2.8%
Sussex County	9.5	16.8	19.6	7.3	76.8%	2.8	16.7%
(New Jersey Portion)	(29.1)	(41.8)	(45.3)	(12.7)	(43.6%)	(3.5)	(8.4%)
Orange County	53.0	70.0	69.2	17.0	32.1%	-.8	-1.1%
Sullivan County	20.8	22.2	22.9	1.4	6.7%	.7	3.2%
(New York Portion)	(73.8)	(92.2)	(92.1)	(18.4)	(24.9%)	(-.1)	(- .1%)
Monroe County	14.8	20.3	22.9	5.5	37.2%	2.6	12.8%
Northampton County	78.2	90.0	87.5	11.8	15.1%	-2.5	-2.8%
Pike County	1.8	2.6	2.9	.8	44.4%	.3	11.5%
(Pennsylvania Portion)	(94.8)	(112.9)	(113.3)	(18.1)	(19.1%)	(.4)	(.4%)
Total, 7-County Impact Area	197.7	246.9	250.7	49.2	24.9	3.8	1.5%

Sources: Pennsylvania Department of Labor and Industry; New York State Department of Labor, Employment Review, 1972; New Jersey Department of Labor and Industry

The seven-county impact area economy had in 1972 proportionately more manufacturing jobs (33.3 percent) than the United States as a whole (26.0 percent) despite the fact that several of the counties concentrate heavily on tourism and other service activity.

Table 24-7 Manufacturing and Nonmanufacturing Employment Trends, Tocks Island Lake Impact Area, 1962-1972
(Thousands of Workers)

	1962	1972	Gain, 1962-72 Amount	Gain, 1962-72 Percent
Manufacturing	78.2	83.7	5.5	7.0%
Nonmanufacturing	123.8	167.6	43.8	35.4%
Total	202.0	251.3	49.3	24.4%
Percent of Total:				
Manufacturing	38.7%	33.3%	11.2%	
Nonmanufacturing	61.3	66.7	88.8	
Total	100.0%	100.0%	100.0%	

Sources: New Jersey and Pennsylvania Departments of Labor and Industry, New York Department of Labor: Employment Review, U.S. Department of Commerce: County Business Patterns, 1962 and 1972

As shown in the above table, manufacturing employment in the impact area increased by 5,500 while 43,800 nonmanufacturing jobs were added to the economy during the period between 1962 and 1972. Consequently, while the percentage of manufacturing jobs remained high compared to national averages, primary growth occurred in the nonmanufacturing portion.

Nonmanufacturing employment in Pike, Sullivan and Sussex counties is concentrated in the trade and services activities reflecting the tourist and recreation related nature of their economies.

XXIV.A.3. SOCIAL CHARACTERISTICS

A major area of concern over the Tocks Island Lake Project is the potential effects of the intrusion of tourists and the attendant commercial, residential and other developments upon the lifestyle of the impact area residents. While the subject of lifestyle impacts will be treated later in this chapter, the following illustrates the existing social characteristics of the impact area residents and presents a brief sketch of their present way of life.

XXIV.A.3.(a). Age, Sex, Race

Age, sex and racial profiles provide insights into the social structure of the residents of the seven-county impact area. As shown in the following tables, the impact area has a slightly older population, with fewer non-whites and about the same male/female ratio relative to the Northeast, United States and the nation as a whole.

Table 24-8 Distribution of Population by Age Group, Tocks Island Lake Impact Area, Northeast and United States

	Percent of 1970 Population in Age Groups			
	0-17	18-65	65 and Over	Total
Warren	33.4	55.3	11.3	100.0
Sussex	37.1	53.6	9.3	100.0
Orange	34.4	54.8	10.8	100.0
Sullivan	31.2	55.7	13.1	100.0
Monroe	30.4	57.6	12.0	100.0
Northampton	31.0	58.4	10.6	100.0
Pike	30.2	53.1	16.7	100.0
T.I.L. Impact Area	33.0	56.0	11.0	100.0
Northeast	32.7	56.7	10.6	100.0
United States	34.4	55.7	9.9	100.0

Source: U.S. Census of Population, 1970.

As shown in the preceding table, the Tocks Island Lake Impact Area has a relatively older population as is the case with many rural areas. The area has experienced some out-migration of the young often after high school graduation seeking economic opportunity in the larger cities. Sullivan and Pike counties have particularly large portions of their populations over 65 years of age. Sussex and Orange counties have a relatively larger proportion of population under 18 years of age. Overall, 11.0 percent of the impact area population in 1970 was 65 years of age or older compared to 10.6 percent for the Northeast and 9.9 percent for the nation as a whole. Pike and Sullivan counties had particularly large portions of elderly residents with 16.7 percent and 13.1 percent, respectively of their population over 65. Sussex and Orange counties were the only counties to match or exceed the national percent of population under 18 in 1970.

The 7-county area (as shown in the table below) as a whole follows the Northeast and United States pattern of having slightly over half of its population female. The two New York counties have run counter to trend, having had under 50 percent female population in 1960. In 1970, Sullivan County continued to be an exception, while nevertheless approaching a balance of males to females. Orange County, while having a lower proportion of females than any of the New Jersey or Pennsylvania counties in the area, reversed its 1960 ratio to reflect the 7-county pattern.

Table 24-9 Distribution of Population by Sex, Tocks Island Lake Impact Area, Northeast and United States

	1960		1970	
	Male	Female	Male	Female
Warren, N.J.	30,687	32,533	35,411	38,468
	48.5%	51.5%	47.9%	52.1%
Sussex, N.J.	24,414	24,841	38,100	39,428
	49.6%	50.4%	49.1%	50.9%
Orange, N.Y.	92,343	91,391	109,894	111,763
	50.3%	49.7%	49.6%	50.4%
Sullivan, N.Y.	23,275	21,997	26,762	25,818
	51.4%	48.6%	50.9%	49.1%
Monroe, Pa.	19,399	20,168	21,752	23,670
	49.0%	51.0%	47.9%	52.1%
Northampton, Pa.	99,557	101,855	105,138	109,230
	49.4%	50.6%	49.0%	51.0%
Pike, Pa.	4,489	4,669	5,731	6,087
	49.0%	51.0%	48.5%	51.5%
Total, 7-County Area	294,164	297,454	342,788	354,464
	49.7%	50.3%	49.2%	50.8%
Northeast	21,726,294	22,951,525	23,563,005	25,477,698
	48.6%	51.4%	48.1%	51.9%
United States	88,331,494	90,991,681	98,912,192	104,299,734
	49.3%	50.7%	48.7%	51.3%

Source: U.S. Census of Population, 1960 and 1970.

The two New York counties, Orange and Sullivan, which contained 38.7 percent of the total seven-county area population in 1960, accounted for 75.2 percent of the area's non-white population; while the three Pennsylvania counties, Monroe, Northampton and Pike, with 42.3 percent of the area's 1960 population only accounted for 19.7 percent of its non-white population.

These relationships were still very much in force in 1970, when 75.8 percent of the area's non-white population resided in the New York counties, which contained 39.3 percent of the area's total population. Also, Pennsylvania's percentage share of the total population was twice as large as its percentage share of the non-white population.

Table 24-10 Percentage of Total Population Contrasted with Non-White Population, Tocks Island Lake Impact Area, 1960 and 1970

	1960		1970	
Impact Area Counties Within:	Percent of Area Population	Percent of Area Non-white Pop.	Percent of Area Pop.	Percent of Area Non-white Pop.
New York	38.7	75.2	39.3	75.8
New Jersey	19.0	5.1	21.7	5.7
Pennsylvania	42.3	19.7	39.0	18.5
TOTAL	100.0	100.0	100.0	100.0

Source: U.S. Census of Population, 1960 and 1970.

As shown in the table below, in most of the 7 counties, the non-white population increased at a much faster rate than the white population, with Sullivan County, New York and Northampton County, Pennsylvania showing the fastest rates of increase for the non-white population relative to rates for the white population. Overall, non-white percentage for the seven-county area were 2.7 and 3.6 for 1960 and 1970, as compared to 7.1 and 9.7 for the Northeast and 11.4 and 12.5 for the nation as a whole. Thus, for 1970 the impact area contained roughly one-third the non-white population of the Northeast and one-fourth that of the nation.

Table 24-11 Distribution of Population by Race, Tocks Island Lake Impact Area, Northeast and United States

	1960		1970	
	White	Non-white	White	Non-white
Warren, N.J.	62,642	578	72,936	943
%	99.1	.9	98.7	1.3
Sussex, N.J.	49,026	229	77,024	504
%	99.5	.5	99.3	.7
Orange, N.Y.	173,786	2,948	206,351	15,306
%	94.6	5.4	93.1	6.9
Sullivan, N.Y.	43,258	2,014	48,719	3,861
%	95.6	4.4	92.7	7.3
Monroe, Pa.	38,925	642	44,689	733
%	98.4	1.6	98.4	1.6
Northampton,Pa.	198,937	2,475	210,452	3,916
%	98.8	1.2	98.2	1.8
Pike, Pa.	9,140	18	11,762	36
%	99.8	.2	99.5	.5
Total	575,714	15,904	671,933	25,299
%	97.3	2.7	96.4	3.6
Northeast	41,522,467	3,155,352	44,310,504	4,730,199
%	92.9	7.1	90.3	9.7
U.S.	151,831,732	20,491,443	177,748,975	25,462,951
%	88.6	11.4	87.5	12.5

Source: U.S. Census of Population, 1960 and 1970.

XXIV.A.3.(b). Occupational Groups

The Tocks Island Lake Impact Area in 1970 had a relatively large proportion of working-class blue collar workers and a smaller proportion of managers and professionals than the Northeast and the nation. However, occupational profiles within individual counties give some contrasting characteristics as shown in the following table.

Table 24-12 Distribution of Workers by Occupational Group, Tocks Island Lake Impact Area, Northeast and United States, 1970

	Percentage of 1970 Workers by Occupational Group				
	Professional Technical and Managerial	Sales and Clerical	Blue Collar	Services	Total
Warren	18.5	20.0	50.4	11.1	100.0
Sussex	25.0	23.6	41.4	10.0	100.0
Orange	23.5	22.5	40.4	14.0	100.0
Sullivan	23.3	20.7	34.1	21.9	100.0
Monroe	19.5	20.5	46.3	13.7	100.0
Northampton	17.2	19.5	52.8	10.5	100.0
Pike	24.2	19.5	42.1	14.2	100.0
T.I.L. Impact Area	20.8	21.0	45.5	12.7	100.0
Northeast	24.1	27.2	36.6	12.1	100.0
United States	23.1	25.1	39.0	12.8	100.0

Source: U.S. Census of Population, 1970.

Over 45 percent of Tocks Island Lake Impact Area residents were blue-collar workers compared to 36.6 percent for the Northeast and 39.0 percent of the nation's workers. On the other hand, 20.8 percent of the impact area's

residents were professional and managerial workers compared to 24.1 percent and 23.1 percent for the Northeast and United States, respectively. Sussex County has the highest precentage above the national norm in professional and managerial residents while only Sullivan County had a lower percent of blue-collar workers.

XXIV.A.3.(c) Income

Most of the Tocks Island Lake residents are concentrated in the lower-middle and middle-income brackets in 1970. Smaller portions of its families were on the extreme ends of the income spectrum than either the Northeast or United States. Only Sussex County had more than national average of families earning over $25,000 and it was still well below averages for the Northeast. Pike and Sullivan counties were the only counties with greater than average concentrations in the lowest income bracket.

Table 24-13 Distribution of Families by Income Level, Tocks Island Lake Impact Area, Northeast and United States

	$0 $4,999	$5,000- $9,999	$10,000- $14,999	$15,000- $24,999	$25,000 and over	Total
Warren	14.4	34.6	32.4	15.6	3.0	100.0
Sussex	11.5	32.3	32.2	19.0	5.0	100.0
Orange	15.8	33.2	30.8	16.5	3.7	100.0
Sullivan	21.6	35.9	26.5	12.6	3.4	100.0
Monroe	18.2	40.7	27.7	11.3	2.1	100.0
Northampton	13.5	36.3	32.1	14.7	3.4	100.0
Pike	23.5	38.5	24.2	11.5	2.3	100.0
T.I.L. Impact Area	15.2	35.0	30.9	15.4	3.5	100.0
Northeast	15.5	31.4	28.7	18.6	5.8	100.0
United States	20.3	32.5	26.6	16.0	4.6	100.0

Source: U.S. Census of Population, 1970

As shown in the above table, Tocks Island Lake Impact Area residents were concentrated in the $5,000-$15,000 income category in 1970. Almost 66 percent of the families fell into this category compared to just over 60 percent in the Northeast and 59 percent for the United States. Only 3.5 percent of the population made over $25,000 and 15.2 percent under $5,000, lower than regional and national averages.

XXIV.A.4. SUMMARY

The foregoing data has compared the Tocks Island Lake Impact Area (county by county) with the Northeast and the United States in terms of population, employment trends, and social characteristics. The principal findings have shown that the area is rapidly growing (24 percent increase between 1960-1973); the population is evenly split between rural and urban; households are decreasing in size and increasing in number; and that total personal income increased by 154.7 percent between 1959-1962.

Economically, the impact area experienced steady growth between 1960-1972, with 50,000 new jobs added; almost all in the nonmanufacturing category. New employment was mostly in the areas associated with tourism and recreation.

Data on social characteristics revealed that impact area residents are older (11.0 percent are 65 and over compared to 9.9 percent for the United States); that the area reflects the national scene in having slightly more females

than males; and that the area's non-white population is 3.6 percent (compared with 12.5 percent nationally).

The area's work force is predominately blue collar and income for most residents is concentrated in the lower-middle and middle-income brackets.

The typical Tocks Island Area resident portrayed in the profile is a white man or woman, living in an urban or rural environment, employed as a blue collar worker, and earning a low or middle-income wage.

Based upon the foregoing and a substantial number of personal interviews with local leaders and residents, a broad, generalized and brief description of the present lifestyles follows.

The immediate impact area of the T.I.L. project is relatively isolated from the metropolitan influences of the New York Region. Most of the people live and work in small towns and in rural areas. This provides them with a lifestyle sharply contrasting with that of the more urban areas. Generally speaking, area residents possess a more relaxed, less congested, more informal lifestyle than their urban counterpart. These areas have fewer of the so-called "urban problems" of the metropolis. The environment is pure, government is more accessible and everything seems to be more in control. A conservative philosophy prevails with its resistance to change and distrust of strangers and persons different from themselves

reflecting a less stratified social hierarchy and the lack of significant segments of various racial or ethnic groups.

Local governments are often part-time operations in these rural/small town areas. Often there are few full-time paid employees and many of the government's functions are carried out by voluntary help and part-time employees. The people feel closer to their government because there are fewer of them and they can often take a direct role in its operation.

Generally, satisfaction with local government services is high. People consider local school systems and other government functions to be of good quality. Government officials are thought to be honest and well-meaning.

Many have consciously chosen their way of life over its urban alternative. They have forsaken commuting over congested roads and on mass transit for any economic benefit that might bring. They have rejected the hostile attitude of aggressiveness and frenzied activity inbred in the city in return for a more leisurely pace, more friendly working environs and less crowding.

For many, it is an escape from urban problems. Air pollution, crime and racial conflict although not unknown in the more rural setting are less constant threats than in the city. The feeling is that they can cope with these problems while the big city has been enveloped by them.

For the most part, there is skepticism about change and a certain "coolness" to outsiders, a particularly important factor in their attitudes towards Tocks Island visitors. They are satisfied with a simple lifestyle and do not want to introduce new undefined influences in their lives.

The range of shopping, entertainment and service facilities and the range of economic opportunities is not as great as in urban areas. Home entertainment is a primary source of recreation, shopping is normally done in small shopping areas with a limited variety of merchandise and certain vital services like medical care are not always immeditately accessible or as good as found in urban areas. However, impact area residents have consciously or by default traded these urban-type benefits off for the sake of maintaining their existing lifestyles.

XXIV.B. SOCIOLOGICAL ANALYSIS

Following the demographic profile of impact area residents in the preceding section, this present discussion analyzes current lifestyles and attitudes, and lifestyle impacts likely to result in the implementation of the Tocks Island Lake Project. To gain an understanding of lifestyles and attitudes in the seven-county area, 500 residents (statistically, randomly selected) were surveyed and over 130 community leaders were interviewed to determine their perception of current lifestyles and their knowledge and attitudes about the T.I.L.P.

The results of these two efforts are discussed along with an analysis of lifestyle impacts assuming new community development patterns and changes in public services.

XXIV.B.1 LIFESTYLE OPINION SURVEY

Between February 25 and March 2, 1975, 500 telephone interviews were conducted by a nationally known professional public opinion research firm to learn about the awareness of and attitudes toward the Tocks Island Lake Project of residents in the seven-county area to be affected by its future development. Every attempt was made to have the survey conducted impartially, unbiased, and objectively, so that the interviewees would be free to respond as they saw fit. Since there is a variation in the population density among the counties as well as a factor of relative proximity to the dam/lake development, it was essential that the attitudes of residents be investigated separately for each county. In order to have enough interviews to make analysis meaningful, a minimum of 50 interviews were obtained in each of the counties. The actual sample for each county is shown below:

New York

50 Orange County
50 Sullivan County

New Jersey

100 Warren County
75 Sussex County

Pennsylvania

100 Monroe County
75 Northampton County
50 Pike County

500 Total

On February 20, 1975, prior to the start of the bulk of the interviewing, 20 test interviews were conducted by phone with residents of the seven country impact area in order to test the procedure and the content. Following this test procedure, minor revisions were made and the following survey form was utilized.

TIME BEGUN:_____ COUNTY:_____

1- Sidney Hollander Associates 2500 Maryland Ave. Baltimore, Md. 21218 301-467-8565 #4069
Feb.1975

2-

Good (afternoon/evening). I'm.....of Sidney Hollander Associates. We're
3- conducting a study with residents in this area to find out what you think of your area as a place to live.

1. What do you like about living in your community?

4- _____

_____

5- _____

_____

6- _____

_____

_____

2. What would you say is the single most important problem facing residents in your community?

7- _____

_____

8- _____

_____

9- _____

_____

_____

3. What (else) don't you like or think can be improved in your community?

10- _____

_____

11- _____

_____

12- _____

_____

_____

4. Well, in general, would you say your community is a good place to live or not?

13-1 ☐ YES, GOOD

-2 ☐ NO, NOT GOOD

5a. Are you aware of the proposed Tocks Island Lake Project?

14-2 ☐ NO
[READ DESCRIPTION.
SKIP TO QUESTION 6.]

-1 ☐ YES [CONTINUE:]

b. What do you know about the Tocks Island Lake Project?

15- _____

_____

16- _____

_____

17- _____

_____

_____

c. Where did you get most of your information about the project?

18-1 ☐ NEWSPAPERS
-2 ☐ RADIO
-3 ☐ TV
-4 ☐ PUBLIC MEETINGS
-5 ☐ FRIENDS
☐ OTHER [SPECIFY:] _____

d. Do you feel you have adequate and accurate information on the Tocks Island Lake Project?

19-1 ☐ YES
-2 ☐ NO

6. How do you think the Tocks Island Lake Project will affect you and your family?

20- _____

_____

21- _____

_____

22- _____

_____

_____

7. How do you think the Project will affect the community?

23- _____

_____

24- _____

_____

25- _____

_____

_____

8. If the Tocks Island Lake Project is implemented, what do you think the biggest problem will be?

26- _____

_____

27- _____

_____

28- _____

_____

_____

9a. The Project has two major parts to it. One part consists of building a dam which will create a lake covering 12,000 acres. Another part is developing a national recreation area covering 47,000 acres. Would you say, in general, that you favor <u>both</u> parts of the Project, only <u>one</u> part of it, or neither?

29-1 ☐ FAVOR BOTH

-2 ☐ FAVOR ONE [ASK:] b. Which part do you favor? 30-1 ☐ DAM AND LAKE

-3 ☐ NEITHER -2 ☐ RECREATION AREA

c. Why do you feel that way?_____

31- _____

_____

32- _____

_____

33- _____

_____

_____

10. Is this your permanent residence or is it a second home?

34-1 ☐ PERMANENT RESIDENCE
-2 ☐ SECOND HOME*

11. In what village, town, township, borough or city is this?

35- _____

36-

12. In what county is this?

37- _____

38-

13a. How long have you lived in [REPEAT ANSWER IN 12] county?

39-1 ☐ LESS THAN ONE YEAR
-2 ☐ ONE YEAR, BUT LESS THAN THREE
-3 ☐ THREE YEARS, BUT LESS THAN FIVE
-4 ☐ FIVE YEARS, BUT LESS THAN TEN } [SKIP TO QUESTION 14]
-5 ☐ TEN YEARS OR MORE

IF INTERVIEWING IN *SECOND HOME* (QUESTION 10), SKIP TO QUESTION 14.

ALL OTHERS, CONTINUE:

b. Where did you live before moving here--I mean in what county and what state?

40- _____

41- _____

14a. Are you employed?

42-1 ☐ YES [ASK:] → b. Do you work in this county?
-2 ☐ NO 43-1 ☐ YES -2 ☐ NO

15. Are you in your

44- ☐ 20's, ☐ 30's, ☐ 40's, ☐ 50's, ☐ 60's, or over?

Thank you.

RESPONDENT IS: 45-1 ☐ MALE -2 ☐ FEMALE TIME ENDED:_____

NAME_____ INTERVIEWER_____

ADDRESS_____ DATE_____

CITY/STATE_____ZIP_____ VERIFIED BY_____

PHONE NUMBER_____ DATE_____

The study design for the survey is such that it maximizes the amount of information about the project that might be obtained from the respondent. Thus, it was hypothesized that some proportion of the respondents would not be aware of the project and therefore presumably are not currently for or against it. A short description of the project was read to these people and they were asked to react to it, thereby providing some insight into the initial perceptions of the residents in the impact area. Analysis of such information will provide further indications of the strengths and weaknesses of the proposed development from the point of view of citizens in the area.

In each county, half of the interviews were to be with women and half with men, In order to maximize the chances of finding men and working women at home, interviewing hours were limited to late afternoons, evenings and weekends. In addition, when the phone was answered, the interviewer asked to speak first to the man of the house. If he was not available, the woman was interviewed. A random sample of telephone numbers to be called was selected from the current editions of the telephone books covering each of the counties. Up to three attempts were made to reach each number included in the sample until county quotas were met.

During the course of the interview respondents were asked whether they were aware of the proposed Tocks Island Lake Project (Question 5a). Those who knew about the project were asked what they knew and the source of their information. Those who were not aware of the project were read a statement describing it as follows:

"The Tocks Island Lake Project provides for the construction of a dam on the Delaware River, roughly five miles above the Delaware Water Gap and seven miles northeast of Stroudsburg, Pennsylvania. The dam will form a 12,000 acre reservoir which will extend 37 miles upstream to Port Jervis, New York. The Project will provide flood control, water supply, hydro-electric power and recreation. The reservoir will also serve as a focal point for a 47,000 acre recreation area to be developed by the National Park Service."

In the survey results that follow, tabulations are shown for total respondents and for each of the seven counties. The percentages under the total column are based on the weighted figures (so that each county's importance is related to its population), while percentages for each county are based on the number of interviews from that area.

A computer print-out of the survey is on file with the consultants.

The characteristics of the respondents are shown below in answers to questions 10; 12; 13a, b; 14a, b; and 15. Answers to these questions revealed that those interviewed generally were permanent residents (71 percent having lived in their county longer than 10 years), who work in the county where they live (45 percent out of 62 percent employed), and are at the upper end of the age range (44 percent are 50 years old or older).

Question 10:

"Is this your permanent residence or is it a second home?"	Total	New York		New Jersey		Pennsylvania		
		Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Is permanent residence	97%	100%	94%	99%	99%	96%	95%	92%
Is second home	2	-	6	1	-	4	4	8
Refused	1	-	-	-	1	-	1	-

Question 12:

"In what county is this?"

Orange County, N.Y.	32%	100%	-	-	-	-	-	-
Sullivan County, N.Y.	8	-	100%	-	-	-	-	-
Warren County, N.J.	10	-	-	100%	-	-	-	-
Sussex County, N.J.	11	-	-	-	100%	-	-	-
Monroe County, Pa.	7	-	-	-	-	100%	-	-
Northampton County, Pa.	30	-	-	-	-	-	100%	-
Pike County, Pa.	2	-	-	-	-	-	-	100%

Question 13a:

"How long have you lived in [this] county?"

Less than one year	3%	2%	6%	-	3%	2%	5%	2%
One year, but less than 3	8	10	4	9%	10	10	5	10
3 years, but less than 5	7	2	4	3	8	7	12	10
5 years, but less than 10	11	10	12	3	17	9	12	14
10 years or more	71	76	72	85	62	72	66	62
Don't know	*	-	2	-	-	-	-	2
Totals	100%	100%	100%	100%	100%	100%	100%	100%

Question 13b:

"Where did you live before moving here--I mean in what county and what state?"

Permanent residents for less than three years	10%	12%	8%	9%	13%	11%	8%	8%
Moved within impact area	1%	2%	-	1%	-	3%	-	4%
Moved from outside impact area	9	10	6%	8	11%	7	8%	4
Don't know	*	-	2	-	3	1	-	-
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

*Less than 0.5%

Question 14a,b:

"Are you employed?" "Do you work in this county?"	Total	New York		New Jersey		Pennsylvania		
		Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Yes, am employed	62%	61%	58%	61%	59%	54%	68%	48%
Work in county	45%	47%	52%	41%	35%	46%	45%	28%
Don't work in county	16	14	2	19	24	8	20	20
Refused	1	-	4	1	-	-	3	-
No, not employed	38	39	42	39	41	46	32	48
Refused	*	-	-	-	-	-	-	4

Question 15:

"Are you in your...?"

20's	14%	6%	24%	15%	11%	16%	20%	10%
30's	25	35	16	23	26	13	21	18
40's	17	18	16	20	26	16	12	14
50's	23	18	24	24	18	24	30	16
60's or over	21	23	18	18	19	30	17	36
Refused	*	-	2	-	-	1	-	6
Sex: Men	50%	51%	48%	50%	50%	50%	48%	50%
Women	50	49	52	50	50	50	52	50
Totals	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

*Less than 0.5%

The findings of the survey are as follows:

XXIV.B.1(a) Attitude Toward the Community

Almost all of the residents believe that their community is a good place to live. The greatest dissatisfaction appears in Sullivan County where about one in ten feel negatively about the community. As will be seen in the material that follows this level of dissatisfaction is related to the lack of jobs in the county which appears to be a greater problem than is the case in the neighboring areas.

Question 4: "Well, in general, would you say your community is a good place to live or not?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sulli-van	Warren	Sussex	Monroe	North-ampton	Pike
Yes, good place to live	97%	100%	88%	97%	95%	96%	97%	100%
No, not good	3	-	12	2	5	4	3	-
Don't know	*	-	-	1	-	-	-	-
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

*Less than 0.5%

Positive Aspects

The country living is volunteered by more citizens than any other reason for liking their area. Friendliness of neighbors and proximity to various facilities also emerge as positives.

Question 1: "What do you like about living in your community?"

	Total	New York		New Jersey		Pennsylvania		
		Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Mention something liked	91%	90%	98%	90%	95%	87%	89%	100%
Country living/Quiet	45%	43%	60%	47%	68%	37%	33%	60%
Friendly people	26	39	34	30	16	17	16	26
Close to facilities	11	6	4	15	5	11	20	6
Beautiful scenery	10	6	22	8	18	18	5	22
Good schools	8	12	4	9	9	2	5	4
Not crowded	7	6	8	6	7	9	8	6
Recreation area	6	6	8	1	11	8	4	2
Close to cities	5	2	2	4	5	3	8	2
Close to work	5	4	6	5	1	4	7	-
Clean	4	2	6	7	3	1	7	2
Fresh air	4	2	14	2	8	8	3	6
Good shopping centers	3	6	-	2	3	5	1	2
No/Little crime	3	2	8	4	1	3	3	6
Community services	2	2	4	4	1	-	3	-
Low/Reasonable taxes	1	2	2	1	-	1	1	-
Climate	1	-	4	1	3	3	-	4
Employment opportunities	1	2	-	2	-	-	-	-
Everything liked	2	-	2	5	1	5	1	10
Other likes	6	8	2	6	1	6	8	-
Nothing liked	4	4	2	4	3	4	4	-
Don't know	5	6	-	6	2	9	7	-
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Note that the level of response in Sussex, Sullivan, and Pike counties for country living and/or beautiful scenery. It follows that some discontent will result if residents perceive these factors as being threatened.

Some verbatim comments illustrative of most frequently volunteered reasons for liking their communities follow:

Country living/Quiet

It's an authentic American town with a community atmosphere because of sturdy roots. It's a real rural town.

It's up in the mountains and I like it because it is quiet.

I live in a small town.

It's a nice place to live because it's quiet and it's rural.

It's nice and peaceful out in the country.

A good place to live. There's not too much city hassle.

We're in the country. There is lots of room, plenty of space, and all is nice and quiet.

It's in the country with no pressures, tensions for the hustle-bustle of a metropolitan city.

It's open, remote and quiet.

It's nice country and there's lots of room.

Friendly people

The people who live here are nice, like my neighbors.

Everyone gets along fine.

The people are very friendly.

I like it very much. The people are friendly and everyone has been nice to me since I moved here three years ago.

Everyone is friendly and help one another out.

A nice friendly little community. My nieghbors are nice and we all work together.

They are very friendly and you get to know everybody.

The people are there if you need them. It's friendly and everyone is nice.

Close to facilities

My location is close to town.

It is handy to everything. You can walk into town easily. It's just near everything.

We have a little bit of everything within easy reach.

We have shopping centers close by.

It's a good location -- a respectable area and within easy distance to schools, stores, and everything else.

Stores are within walking distance, and the schools are close by.

We're close to shopping and close to bus service.

It's near to the bank and near the main street.

I like the convenience of schools and stores right near you.

It isn't a big metropolitan area, but it has all the conveniences of a major city.

Beautiful scenery

It's very scenic here.

I like the beauty of the natural surroundings; there are a lot of beautiful things to appreciate.

From my house there is a beautiful view.

It's a beautiful place to live.

I love the woods and the mountains.

The area is very pretty.

The mountains around here are beautiful. The scenery is nice.

I like the forests and the animals and things like that.

It's beautiful in all seasons.

Problems

About one in five respondents feel there are no community problems and consequently offer no shortcomings that they would like to see improved. It is interesting that residents of Pike County seem most satisfied with

the status quo. The table on the next page combines replies to the single most important problem facing community residents as well as an identification of other possible improvements.

Discontent is primarily related to economics -- high taxes, unemployment and the general economic climate. As far as the environment itself is concerned there are complaints about roads, too rapid growth, lack of transportatation and community facilities, quality of government, and the need for recreation areas.

It seems significant that only one percent (taking into consideration that this is a weighted figure based upon population) of the respondents mentioned the Tocks Island Lake Project as a "problem". In four counties -- Orange, Sullivan, Warren and Sussex -- there was no mention of TILP; while in Monroe and Pike (where awareness of the project is highest) seven percent and two percent respectively, of those surveyed mentioned TILP as a problem.

Question 2: "What would you say is the single most important problem facing residents in your community?"
3: "What (else) don't you like or think can be improved in your community?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Mention problem(s)	77%	78%	82%	78%	86%	75%	72%	66%
High taxes	22%	33%	20%	28%	37%	4%	7%	12%
Unemployment	13	18	32	12	16	10	3	10
Economic problems	9	10	6	7	4	10	11	-
Improve/Repair roads	8	6	8	4	12	9	9	8
Growing too fast	8	12	-	8	16	7	3	8
Lack of public transportation	8	10	8	4	8	4	7	2
Quality of government	7	10	12	3	5	5	5	-
Need community services	6	-	8	9	13	6	7	10
Need recreation areas	6	6	8	10	7	5	4	4
Crime	5	4	-	3	-	4	11	2
Need better police protection	3	-	4	6	4	3	4	2
Lack of housing	3	2	2	2	-	9	3	-
Need better schools	2	-	-	11	7	3	-	2
Unfriendly people	2	-	2	3	3	5	4	-
Need shopping areas	2	-	2	3	4	2	4	2
Drug problem	2	2	2	3	-	3	3	-
Rundown homes	2	-	2	3	-	4	3	-
Too many on welfare	1	4	-	-	-	-	-	-
Cost of electricity/fuel	1	2	-	1	-	2	-	6
Help for elderly	1	-	2	2	1	2	-	-
Tourists	1	-	2	-	-	1	1	6
Tocks Island Lake Project	1	-	-	-	-	7	-	2
Need more medical services	1	-	2	1	3	-	-	-
Other problems	11	8	6	10	12	14	16	10
No problems	19	20	16	17	13	22	21	28
Don't know	4	2	2	5	1	3	7	6
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Replies to Question 2 and Question 3 are very similar, with the latter shown above.

Residents expressed themselves as follows about community problems:

High taxes

Real estate taxes are too high.

There are too many tax exempt organizations, so the money to fund them comes from the little taxpayer.

Taxes are too high, and there are too many of them.

Taxes are too high, extremely high for this community.

Our taxes are too high because we don't have any industry.

It's expensive to live here. Taxes are too high, higher than in the township.

We are retired, and I don't like to have to pay taxes for schooling.

They keep increasing the taxes every year.

Our taxes are too high and you are paying too much on your property. We can't get anything for our money in this community. We need industry in the area; with industry our taxes might be lower.

High taxes are excessive, especially the property taxes for schools.

If the taxes go much higher, it will be impossible for the middle-income man to pay.

Unemployment

There isn't enough manufacturing to take care of the people living here.

We need employment. There's no industry; it's just a resort. Open it up to industry and maybe it will be a half decent place to live.

They could use a lot more industry so the employment would be available.

We need industry in this area. All the government people think we need is recreation, and that's not helping us.

We don't have enough work and our hourly rate is lower than most other counties.

Unemployment is the most important problem. The stores are closing down. We need another factory for the people to work in.

There's no work. I can't find a job.

There's a lack of work and jobs in our area.

Economic problems

The fuel oil crisis has made it so expensive to get fuel.

A big problem is the lack of money and the economy. The way it has been lately is, I suppose, the main problem here.

Money is tight. I run a lodging place and tight money ruins business.

We need to adjust to the inevitable decline in the American economy.

The economy has slowed down.

The major problem in our community is inflation.

Inflation causes the price of everything to keep going up.

Cost of living is so high.

Improve/Repair roads

The dirt roads are not taken care of. They never cover up the potholes.

We need drains on the roads.

We have trouble getting out the back road in winter. It's three miles long and in the winter it really gets icy.

We need road maintenance. Our roads are stone and not paved. It's a real mess to drive through these roads with a car.

There's an awful lot of summer traffic and there aren't any through roads. We need better roads.

Our roads are old and the balance is terrible. We don't have modern, smooth roads and too many people are killed on them.

Repairing of roads in this area is really poor.

There's a lack of state highways from here to metrpolitan areas like New York City.

Some roads are all broken up and can't be passed when the weather is bad.

Growing too fast

We need better laws to enforce growth patterns.

There aren't enough schools in the area now to take care of the population growth.

Too many people are coming in here to live.

It's building up too fast. There are too many people and buildings.

It's becoming too commercial.

We need to keep city people out. They are not welcome here. We don't like them coming here.

It used to be nice and quiet and then there was an influx of people and new developments in the community.

Things are developing too fast for our means to handle them.

I feel that the growth should be planned so that facilities don't get ahead of the people or vice versa.

The thing I don't like is the lack of control of growth and development by the county planning commission.

Lack of public transportation

They only have cabs and the cabs are too expensive. I'd like to see a bus service for the town.

If we want to get somewhere we need a car. If they only had a bus on the corner or some mass transportation.

There isn't enough transportation after 4 p.m.

No public transportation is available.

We have problems getting our children to and from school. The schools are seven miles away.

Lack of transportation makes it difficult for people who don't have cars to get around.

There are not enough transportation services that go out of the town. If you don't have a car you're handicapped.

There's no way for the older people to get around. There's a lack of transportation to the store and the drug store. We're alone and can't get out much on our own.

Need community services

We don't have any water and sewerage systems. Everybody has their own well and their own septic system.

The streets should be kept cleaner, and we need better snow removal.

There is no public sewerage system, just individual disposal of sewage.

The fire department and the police are not doing a good job.

We need garbage picked up more frequently.

Utilities are poor and service is poor. Any kind of service is very poor.

We need street lighting in our area.

The area is littered with cans and papers.

Quality of government

The elected powers can't get together.

The mayor and city council just can't agree on anything.

The local government is corrupt.

Our county government is almost non-existent. If the government is improved, everything would be improved.

Get the crooked officials out of local government. They're cheating taxpayers. They let them dig a pit for mining gravel in a residential neighborhood. It was very dangerous and noisy. It was dirty politics that got the mine open.

We need better political leadership. The politicians don't know where they're going with the taxes.

I think all the little Boards should be combined to make one big one.

The honesty of the political officials needs improving.

Need recreation areas

More parks and recreation areas are needed.

We need recreation. It would improve the community immensely if we can get the kids off the streets.

We need recreation facilities for young people. There is nothing for the kids to do.

We could use a Senior Citizens' club.

We need a lake or recreation area we could use for families to go on picnics and camping and things like that.

We don't have any recreation areas around here for children and teenagers. We should have bowling alleys and roller skating areas.

XXIV.B.1(b) Attitudes and Opinions

Awareness

Almost half of the residents (44 percent) in the seven-county area say they are not aware of the proposed Project. This 56 percent "awareness" is a weighted figure and reflects the total population of the respondent's county. Thus, heavily populated Orange and Northampton with 43 percent

and 55 percent awareness, respectively, pull the total figure down. Less populous counties -- Pike, Monroe, Warren, and Sussex -- all have over 70 percent project awareness. Awareness is lowest in the New York counties (which are farther removed geographically from the project area) where local newspapers would not normally carry TILP news. (Newspapers are identified in Question 5c as the principal source of information about the TILP). Awareness is highest in Pike and Monroe counties (which are contiguous to the project area) where word-of-mouth and local newspapers are responsible for providing regular TILP news. Mentioned most often are the proposed dam and the recreation area planned for the Tocks Island Lake Project. The matter of people losing their homes is volunteered by one in seven.

Question 5a: "Are you aware of the proposed Tocks Island Lake Project?"
b: "What do you know about the Tocks Island Lake Project?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sulli-van	Warren	Sussex	Monroe	North-ampton	Pike
Aware of Project	56%	43%	36%	70%	74%	89%	55%	92%
Will build dam	22%	16%	6%	34%	18%	45%	21%	48%
Recreation area	20	8	16	26	30	39	21	40
People losing homes	13	14	4	15	16	14	13	10
Will provide electricity	4	4	6	8	4	9	1	12
Will supply water	4	2	2	2	9	6	4	4
For flood control	4	-	2	3	11	3	5	2
Is controversial	3	-	-	6	8	9	3	10
Will harm environment	3	2	2	5	5	7	3	6
Will attract people	2	2	-	5	7	5	-	4
Will flood valley	2	-	6	4	8	2	-	6
Federal engineers involved	2	2	-	4	1	2	1	2
Taking a long time	2	2	-	-	1	9	-	10
Fiscal problems	2	-	-	2	3	2	3	4
Still studying it	1	2	-	1	-	1	-	-
Other reasons	5	4	2	3	9	7	7	6
Don't know	8	6	8	14	7	9	8	2
Not aware of Project	44	57	64	30	26	11	45	8
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Comments about the three items respondents mentioned most often when asked what they know about the project are given below.

Will build dam

They're going to build a dam for flood purposes, and also a recreation area.

They're building a dam for more energy for the city.

It's a dam and a big park.

It came up in the last voting issues. The Army Corps of Engineers want to make a dam, but we have enough of those.

It's a dam, I think. The people in the government are buying up land for it.

They're going to build a dam which will create a 30-mile lake and create energy. The park will be a national park.

They want to build a dam and use it for a power plant which we need so badly.

Recreation area

I'm for it. We need a little more space for the kids to play.

It's a resort or something.

It is supposed to be a recreation place with several miles of waterway.

Basically, they want to build a recreation area.

They're flooding places to build a national park.

It's going to be a large national park. There aren't any large parks around here, and it will be nice.

They're building a recreation park and a dam on the Delaware River.

People losing homes

I know people have been moved and money spent for nothing.

They plan to take a lot of land away from the tri-state area.

They bought a lot of land.

I read about how people moved in and took over the homes of people who moved out.

They're taking quite a bit of land and disrupting people's homes for a recreation area.

They are going to take land they shouldn't for this project.

Many people have been relocated. It is a great loss of a beautiful area.

They evicted people from their homes and took a lot of land.

Source and Adequacy of Knowledge

Newspapers are the prime source of information about the project, while word-of-mouth also plays a role.

Question 5c: "Where do you get most of your information about the Project?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sulli-van	Warren	Sussex	Monroe	North-ampton	Pike
Aware of Project	56%	43%	36%	70%	74%	89%	55%	92%
Newspapers	46%	35%	34%	61%	50%	66%	47%	76%
Friends/Relatives	5	6	4	5	9	16	-	8
Radio	2	-	-	1	8	6	1	8
Public meetings	1	-	-	1	1	1	3	-
Television	1	-	-	2	1	1	1	2
Other ways	4	-	-	4	12	7	4	2
Don't remember	1	2	-	-	1	-	-	2
Not aware of Project	44	57	64	30	26	11	45	8
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Almost half of the citizens who say they are aware of the project feel that they do not have adequate and/or accurate information concerning it. Thus, overall, only about one in four feel they are well enough informed. This point holds true for community leaders interviewed -- local government officials and business leaders -- who also felt that their information was inadequate, and often confusing and contradictory. The Army Corps of Engineers was not mentioned by any respondent as a source of information.

Question 5d: "Do you feel you have adequate and accurate information on the Tocks Island Lake Project?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Yes, have adequate/ accurate information	23%	12%	14%	33%	34%	44%	24%	44%
No, do not	28	29	16	32	37	41	23	44
Don't know	5	2	6	5	3	4	8	4
Not aware of Project	44	57	64	30	26	11	45	8
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Attitude Toward the Project

About four in ten favor the entire project while almost two in ten express approval of only the recreation area or the dam/lake. Approximately 23 percent are definitely opposed and 17 percent state that they don't know how they feel about it.

Question 9a: "The Project has two major parts to it. One part consists of building a dam which will create a lake covering 12,000 acres. Another part is developing a national recreation area covering 47,000 acres. Would you say, in general, that you favor both parts of the Project, only one part of it, or neither?"

b: [If Favors One:] "Which part do you favor?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sulli-van	Warren	Sussex	Monroe	North-ampton	Pike
Favor both	42%	41%	46%	30%	37%	28%	52%	26%
Favor recreation area only	13	18	8	15	8	20	8	8
Favor dam and lake only	5	4	6	5	4	5	5	8
Favor neither	23	21	16	32	29	39	19	46
Don't know	17	16	24	18	22	8	16	12
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Those who say they are aware of the project are more opposed to it than are those who didn't know about the proposal. Thus, Warren, Sussex, Monroe, and Pike counties (which are most aware of TILP -- see replies to question 5a) have the lowest percentage of respondents in favor of the entire project. Orange, Sullivan and Northampton counties (with the least awareness) respond most favorable in the above question.

	Total	Aware of Project	Not Aware
Favor both	42%	37%	48%
Favor recreation area only	13	11	14
Favor dam and lake only	5	6	4
Favor niether	23	29	16
Kon't know	17	17	18
Total	100%	100%	100%
Number of Respondents	(500)	(341)	(159)

A comparison of the characteristics of those who favor the entire Tocks Island Lake Project (both the dam and the recreation areas) and those who favor neither shows:

In the group that favor both	In the group that favor neither	There are relatively more people who:
*		Live in Northampton County
	*	Live in Warren County
	*	Live in Monroe County
*		Have lived in the county less than one year
	*	Have lived in the county 10 or more years
*		Don't work in the county where they live
*		Are in their 20's or 30's
	*	Are in their 60's or older

To complete this picture relatively more people who favor neither the dam or recreation area have lived in their county for 10 years or more and are over 60 years of age.

The major reason for favoring the entire Tocks Island Lake Project is the need for additional recreation facilities. Other benefits, while mentioned by substantially fewer residents, include: more electric power, water supply, flood control, and increased employment. It is interesting to note the overwhelming identification with recreation needs (27 percent favor) while other purposes of the TILP rank far down the list. Undoubtedly, the reason for this is that recreation is a tangible activity which can be enjoyed by a broad segment of the population. Electricity, water supply, and flood control are less tangible and more long range oriented.

Question 9c: "Why do you feel that way?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Favor both	42%	41%	46%	30%	37%	28%	52%	26%
Need recreation areas	27%	27%	28%	21%	26%	15%	35%	10%
Need more electricity	6	8	4	1	9	7	5	4
Need water supply	5	8	-	2	4	6	5	-
Need flood control	4	-	4	2	3	2	9	2
Good for water sports	4	8	2	2	1	3	4	-
Will provide employment	4	4	6	3	3	-	5	4
Better together	2	2	8	-	1	5	3	-
Will bring in business	1	-	4	3	-	3	-	6
Won't destroy natural environment	1	-	-	1	-	-	3	-
Avoid residential development	1	-	2	1	3	-	-	-
Other reasons	2	4	4	1	-	2	-	4
Don't know why	5	4	4	4	4	1	8	2
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Among those who prefer only one part of the plan, there is a preference for the recreation area rather than the dam because people don't want to flood the land and destroy its utility and appearance. There is some fear expressed about the possibility of the dam bursting.

Those who prefer just the dam feel that its benefits -- flood control, electricity, and water supply -- are necessary, but the rest of the project is not.

Question 9c: "Why do you feel that way?"

	Total	New York		New Jersey		Pennsylvania		
		Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Favor recreation area only	13%	18%	8%	15%	8%	20%	8%	8%
Need recreation areas	9%	12%	8%	12%	5%	10%	7%	4%
Won't destroy natural environment	2	2	-	3	3	7	-	2
Afraid dam will break	1	-	2	-	1	1	1	-
Other reasons	1	-	-	3	1	7	-	2
Don't know why	1	4	-	-	-	-	-	-
Favor dam and lake only	5%	4%	6%	5%	4%	5%	5%	8%
Need flood control	2%	2%	-	3%	1%	1%	4%	-
Need more electricity	2	2	2%	1	-	2	1	4%
Need water supply	1	2	2	1	1	4	-	2
Have enough recreation areas	1	2	-	-	1	-	1	-
Will attract too many people	1	-	4	-	1	-	-	4
Other reasons	*	-	-	1	1	1	-	2
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Most frequently mentioned as the reason for opposition to the project is the destruction of the environment, followed by the opinion that the facilities are not needed. As will be seen in the material on subsequent pages, there is considerable feeling that the new facilities will attract tourists and residents into the area and thereby change its character.

Question 9c: "Why do you feel that way?"

	Total	New York		New Jersey		Pennsylvania		
		Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Favor neither	23%	21%	16%	32%	29%	39%	19%	46%
Will destroy natural environment	8%	6%	2%	18%	11%	14%	7%	14%
Don't need it	6	12	4	4	1	7	3	2
Will attract too many people	3	-	-	5	8	13	-	16
Won't affect us	3	-	2	1	1	-	8	2
Will take private property	3	4	2	3	1	5	1	8
Have enough recreation areas	2	-	2	1	8	3	3	4
Will raise taxes	3	4	4	3	3	4	-	8
Afraid dam will break	1	-	2	1	1	3	-	-
Other reasons	1	-	2	1	1	3	1	2
Don't know why	*	-	-	2	-	2	-	-
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

*Less than 0.5%

Perceived Major Problems

About half of the residents mention some major problem ensuing from the implementation of the Tocks Island Lake Project while almost the same number of people are not able to volunteer what the biggest problem will be. Sussex, Monroe, and Pike counties have the highest proportion of respondents perceiving problems. (Public officials in these three jurisdictions, for the most part, do not favor TILP and have alerted local residents to potential problems should the project be implemented.)

Overcrowding is mentioned most frequently, with Monroe and Pike residents being especially critical on this score. As is indicated in the verbatim remarks that follow, concern with overcrowding has both quantitative and qualitative connotations, that is the number and type of people that the project will attract.

Increased traffic and destruction of the environment are also high on the list with the former problem being especially relevant to Sussex residents. (Sussex County officials believe that their road system, which they rate adequate for normal traffic loads, will be heavily impacted by Tocks Island visitors inasmuch as they are in the direct path between metropolitan New York City and the project area.)

Question 8: "If the Tocks Island Lake Project is implemented, what do you think the biggest problem will be?"

		New York		New Jersey		Pennsylvania		
	Total	Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Mention problem(s)	47%	34%	36%	51%	68%	69%	47%	68%
Overcrowding	9%	6%	4%	15%	16%	25%	5%	26%
Will increase traffic	8	2	-	8	25	15	7	8
Destroying natural environment	8	4	12	7	9	9	11	12
Money to implement plans	6	2	6	8	9	3	9	4
Loss of homes	6	8	6	5	5	3	4	2
Will need better roads	5	4	-	5	7	4	5	6
Will increase taxes	4	8	-	2	3	-	1	2
Will need tourist facilities	2	-	2	1	1	8	3	2
Crime	1	-	-	3	3	10	-	4
Other problems	4	-	6	4	4	2	9	8
Won't have any problems	6	6	18	8	7	4	3	6
Don't know	47	60	46	41	25	27	50	26
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

It is interesting to compare the similarity of some of the biggest problems cited by those who are aware of the project with those who favor neither part of the plan.

	Aware of Project	Favor Neither Part of Project	Not Aware of Project	Favor Both Parts of Project
Mention one or more problems	56%	51%	35%	49%
Overcrowding	12%	12%	6%	6%
Will increase traffic	11%	9%	3%	8%
Destroying natural environment	10%	14%	5%	7%
Money to implement plans	5%	4%	7%	7%

Those opposed to the project show an inclination to leave things as they are, since they do not wish to change their lifestyle nor, as they see it, harm the environment.

In their own words, residents speak about these problems in the following terms:

Overcrowding

There will be too many people coming in here.

It is going to bring too many people to the area. There will be a flow of all the city people to the area for the park.

It will destroy the whole area. As soon as you start this thing you'll get a low class group in here that doesn't care about the community.

More people coming in will cause problems.

We will be overcrowded for a small town during the summer.

There would be too many people up here. It will be an invasion of our privacy.

We would be overrun by a lot of undesirable people.

It might create a rash of people coming through.

Will increase traffic

More people coming in will cause problems such as traffic congestion.

There will be a traffic problem caused by people coming in from all parts of the state and not knowing where to go.

The biggest problem will be the overload of traffic on the roads.

It would take away some of our freedom. There would be more traffic and congestion. We wouldn't be able to take leisurely drives. Too many cars will be on the roads.

Milford has a traffic problem now and it will get worse with all those cars.

Destroying natural environment

How will it affect the Delaware River bottom?

The power will be harmful to fish and the animals. It may pollute the water.

It will take away the natural water slope that others use and might endanger their water.

It will have to be policed for pollution. People will throw their garbage around.

I've read that it will upset the ecological balance.

It might ruin the environment, from what I've real and heard.

Money to implement plans

The biggest problem will be paying for it.

Who's paying for this? Us?

They'll need money to do everything. They'll have to get the money somewhere.

The taxes will be raised.

Financing is the problem. Where will they get the money they have to put into the project?

High taxes will be the biggest problem.

Loss of homes

I imagine that all those people who are forced out will have to relocate.

The biggest problem will be relocating everyone.

They will have to move the people out of the flooded area and find them a place to live.

People will be losing their homes.

They are making people move out of their homes in order to build the dam.

They are putting people out of their homes.

Effect on the Community

lncrease in residents and tourists and the greater availability of recreation facilities are the two resultants of the project mentioned most often by residents. Residents of Monroe (32 percent) and Pike (26 percent) are more aware that the project will attract people. (These percentages are contrasted with the weighted total of 12 percent.) Note that those who live farthest from the proposed dam (Orange and Sullivan counties, New York) are most likely to say their their community will not be affected.

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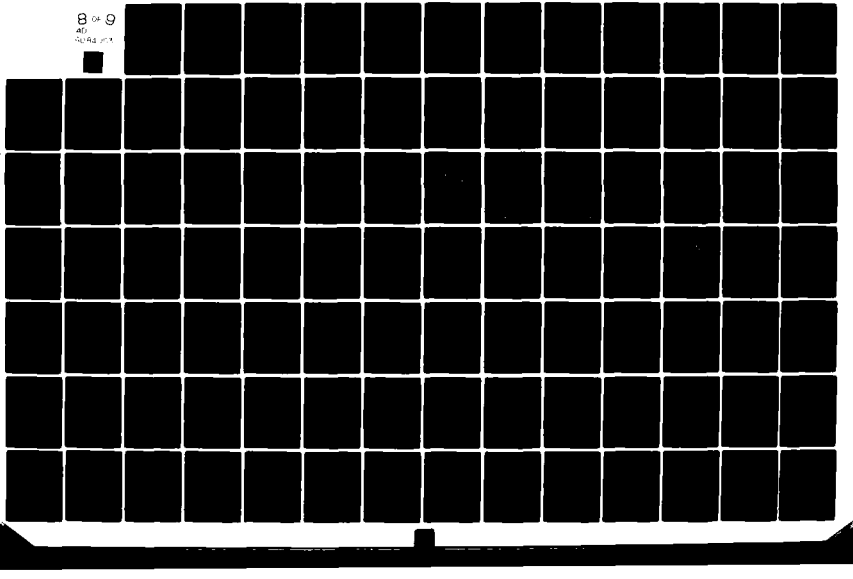

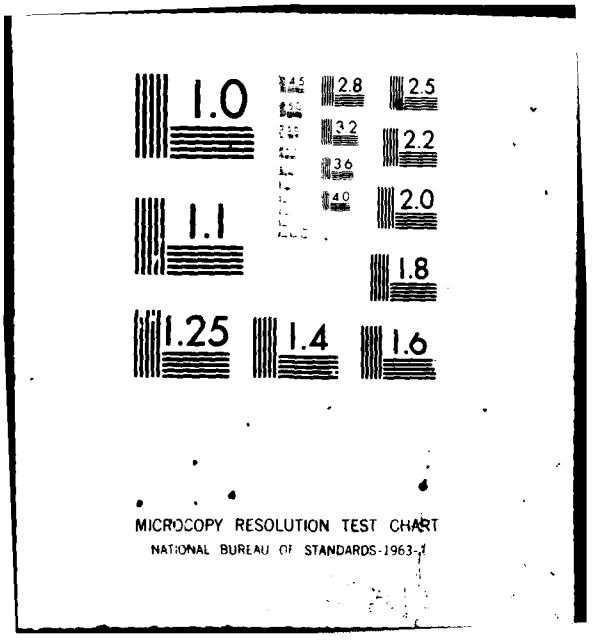
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Question 7: "How do you think the Project will affect the community?"

	Total	New York		New Jersey		Pennsylvania		
		Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Mention effect(s)	42%	30%	36%	48%	59%	67%	39%	66%
Will attract people	12%	12%	4%	11%	16%	32%	7%	26%
Will provide recreation	11	10	6	9	5	5	17	4
Will increase traffic	5	2	2	10	18	3	3	6
Will provide employment	5	6	14	4	8	5	-	2
Will increase business	4	2	2	6	11	13	-	14
Area will be less rural	3	-	2	3	1	8	4	6
Will provide flood control	3	-	-	3	1	-	7	-
Will increase tourism	2	-	2	3	-	6	4	2
Will increase taxes	2	4	-	5	1	4	-	2
Will provide electricity	2	4	2	2	1	2	1	2
Will need better roads	1	-	-	4	8	1	-	-
Will increase real estate values	1	-	4	4	5	1	-	2
Will improve water supply	1	-	-	1	1	2	3	4
Crime will increase	1	-	-	2	1	8	-	4
Other effects	6	4	10	6	11	19	3	14
Will have no effect	28	33	42	23	25	14	27	8
Don't know	30	37	22	29	16	19	34	26
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

Comments relating to objections to overcrowding the area due to the project attracting more people have been shown on XXIV-53, and to problems that could arise from anticipated increase in traffic are shown on XXIV-54. However, the fact that the Tocks Island Lake Project will provide a recreation area elicits some favorable reactions, as indicated by the quotes below:

It would provide us with a retreat for weekends to go hiking, etcetera.

It will give all of the people a place to go.

If they like recreation it won't bother them. It will be good for them.

It all depends on the individual and the type of recreation offered.

It's pretty far. The recreation area will be good to go to.

We would certainly like to have a place to go for picnics and stuff. We need places to -- everyone does. I guess they would enjoy it.

If it were to be implemented, it would be good recreation facilities. It would be available as a recreation area for everyone.

Effects on the Family

Respondents feel that the project will have less impact on their own families than it will on the community, 31 percent and 42 percent respectively. About half of all residents feel that their families will not be affected. This is substantially greater than the number giving this response about the community (XXIV-56).

The effects on the family are quite similar to those mentioned for the community (in Question 7).

Question 6: "How do you think the Tocks Island Lake Project will affect you and your family?"

	Total	New York		New Jersey		Pennsylvania		
		Orange	Sullivan	Warren	Sussex	Monroe	Northampton	Pike
Mention effect(s)	31%	26%	14%	37%	57%	54%	23%	46%
Will provide recreation	8%	6%	4%	9%	8%	6%	12%	10%
Will attract people	6	2	4	7	18	23	1	28
Will increase taxes	5	6	-	5	7	3	5	4
Will increase traffic	4	4	-	4	15	6	-	4
Will provide electricity	3	2	6	5	-	3	3	-
Area will be less rural	2	-	-	5	11	6	-	-
Will eliminate present activities	2	-	-	4	4	2	3	-
Will provide flood control	2	-	2	3	-	1	4	-
Will provide employment	2	4	2	2	1	2	-	-
Will increase business	1	-	2	2	3	5	-	4
Crime will increase	1	-	-	2	4	1	-	2
Will need better roads	1	2	-	1	1	-	-	-
Will improve water supply	1	-	2	1	-	4	-	-
Other effects	4	-	6	5	3	16	4	14
Will have no effect	50	51	66	45	34	35	55	44
Don't know	19	23	20	18	9	11	22	10
Total	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents	(500)	(49)	(50)	(100)	(76)	(100)	(75)	(50)

XXIV.B.1(c) Summary of Findings

It is not surprising that respondents to the resident survey almost without exception feel their community is a good place to live. They especially favor the country living, the friendliness of people, being close to facilities, and the beautiful scenery. Residents have chosen their rural environment with its relatively slow and deliberate pace over a faster moving urban setting. For the most part, residents live in small villages and towns in which stable populations provide the opportunity for frequent interchange with neighbors and friends. And, inasmuch as jurisdictions are geographically relatively small, distances to basic services are convenient.

Problems that most trouble those interviewed concern finances. High property taxes was the problem mentioned most frequently. This was followed by high unemployment and the general economic climate.

In the table below, there is listed a summary of the weighted (total) responses to the principal questions asked relative to TILP. Just over half (56 percent) of the respondents said they were aware of the TILP. This fact would appear startling to the residents of close-in counties (Monroe, Pike, Warren, and Sussex) where the project's 20-year history of controversy has received high visibility in the press. However, residents of Orange and Sullivan counties (geographically somewhat removed from the project) would no doubt view this level of awareness as reasonable.

Even among those who say they are aware of the project, half (56 percent aware of TILP, 23 percent adequate information) feel that they do not have adequate or accurate information. This condition can be explained in part by the project's enormous size, and the controversy with which it has been surrounded.

Of the total respondents, 42 percent favor both the dam and recreation area; and 23 percent favor neither. In addition, the recreation area received more favorable responses (13 percent) than the dam and lake (only five percent). The respondents who answered "don't know" amounted to 17 percent.

The survey showed that those who live fartherest away from the project site and know least about the project, are more inclined to favor both dam and recreation area. Conversely, those closest in to the TILP site, and most knowledgeable, are more likely to favor neither dam nor recreation area. Residents favor "recreation only" over "dam and lake only" because with the former more of the natural environment would be undisturbed.

Table 24-14 Summary of Weighted (Total) Responses, Selected TILP Questions

Questions	Total
Aware of Project (#5a)	56%
Adequate and Accurate Information on TILP (#5d)	23%
Attitude Toward Project (#9a,b)	
Favor both (dam and recreation area)	42%
Favor recreation area only	13%
Favor dam and lake only	5%
Favor neither	23%
Don't know	17%

Source: Survey replies previously given.

Benefits that are attributed to the Tocks Island Project are those of its stated purposes -- recreation, power, water supply, flood control, and employment. Recreation is by far the largest benefit anticipated.

Consistent with the residents' desire for peace and quiet in beautiful surroundings, the major problem associated with the project are overcrowding the area, increase in traffic, and destruction of the natural environment.

XXIV.B.2. LEADERSHIP PERCEPTION OF CURRENT LIFESTYLES IN RELATION TO SATISFACTION WITH LOCAL SERVICES

Sociological analysis continues in this section with an examination of local leadership interviews. Those interviews with community leaders -- local and state government officials, businessmen, and representatives of community-based organizations -- were conducted throughout the seven-county area to ascertain their perception of current lifestyles and attitudes, as well as their estimate of changes that would occur should the Tocks Island project be implemented. The table below provides an inventory of those interviews.

Table 24-15 Leadership Interviews, Seven-County Area, January-April, 1975

Jurisdiction	Local Government	State/Federal Government	Business	Other	Total
Sussex Co., N.J.	24	2	4	3	33
Warren Co., N.J.	16	1	6	-	23
Sullivan Co., N.Y.	8	-	2	2	12
Orange Co., N.Y.	9	-	1	1	11
Northampton Co., Pa.	5	3	7	3	18
Monroe Co., Pa.	12	1	2	1	16
Pike Co., Pa.	12	2	2	1	17
					130

In addition to the 130 interviews listed above, 41 interviews were conducted with state officials, 20 with federal officials, and three represented at-large interest groups. Although in the latter three categories of interviewees interviews were directed primarily toward program areas, lifestyle impressions were solicited.

The lifestyle interview guide (XXIV-72-73) asked community leaders to state their perceptions of current lifestyles in relation to their satisfaction with local public services.

Prior to an examination of the responses to the interview question, a comparison of the responses provided by community leaders with that obtained in the resident survey (as analyzed in XVI.B.1) is included below. These two sets of responses were often identical but sometimes vastly different, as the following will indicate.

On the matter of the area's positive appeals -- country living, friendliness and beauty -- the responses of the two groups were indistinguishable. The satisfaction level of the average resident and community leaders were in general agreement -- the area is a good place to live.

The two groups were dissimilar in attitudes covering the community's pressing problems. Residents responded in terms of what affected them personally -- high taxes, unemployment, and general economic woes. Community leaders were most concerned about traffic, crime, and uncontrolled growth. For residents, the quality of local government was placed ahead of such concerns as crime, housing, and schools as areas of dissatisfaction. This contrast is especially noteworthy inasmuch as many community leaders interviewed were local government officials.

Whereas approximately one-half of the residents surveyed were not aware of the Tocks Island Lake Project proposal, awareness was 100 percent for community leaders interviewed. While it was concluded in the resident survey

that the best informed citizens were most likely to oppose the TILP, community leaders based their opinion on whether or not they felt their communities would benefit from one of the four purposes of the TILP. Of the community leaders interviewed, approximately half were opposed to the project, half were in favor, and a few were undecided. It should be noted that community leaders opposition to the Tocks Island Lake Project stems in part from their awareness of potential adverse impacts within their jurisdictions and greater potential demands on government-provided public services.

Recreation is seen by local residents as the primary benefit of the Tocks Island Lake project. For community leaders (who basically believe enough recreation is already available), primary benefits are water supply, flood control and power generation.

Should the Tocks Island Lake project be implemented, major problems foreseen from the resident and leader viewpoint are similar -- overcrowding, traffic, and environmental degradation. These projected effects would spoil the tranquil and beautiful atmosphere so highly valued by Tocks Island area residents.

With the above as introduction, we turn directly to the responses obtained in the leadership interviews on current lifestyles in relation to satisfaction with local services. The following qualitative comments are not intended to be a comprehensive review of any subject area. And, responses are aggregated on a seven-county basis, so that a jurisdiction-by-jurisidiction

review is not reported. (For a county-by-county tabulation of resident replies, turn to XVI.B.1. Lifestyle Opinion Survey).

XXIV.B.2.(a). Housing

The impact area's dominant housing type is the single-family unit, usually developed on lots of 1/3 to 1/2 acre within villages and towns, but frequently sited on lots of one acre or more in the open, rural countryside. Multi-family units (low-rise and garden apartments) are located in larger towns and boroughs (Easton, Pa., and Newton, N.J.) and in some rapidly growing townships (Mansfield, Warren County). Local subdivision ordinances as well as consumer preferences have kept the number of multi-family units to a minimum. In the larger population centers, housing to accommodate the elderly and low-income families have been developed. Seasonal homes are located throughout the seven-county area but the bulk are in Monroe and Pike counties, Pa., and in Sullivan county, N.Y.

From interviews, housing (which did not surface as an issue within the area) appears to be satisfactory from the standpoint of both quality and quantity.

XXIV.B.2.(b). Public Schools

Community leaders throughout the seven-county area consider their schools satisfactory in quality. Some leaders evaluated local schools as excellent, while others spoke of overcrowding conditions, especially in rapidly growing areas such as Sussex County, New Jersey. The contributions of area colleges was noted. Inasmuch as public schools are a community's largest

and most visible investment, this area of public service is continuously monitored for performance. Although high property taxes (which include support for education) raise the concerns of many citizens, the quality of education as an issue takes second place to other issues considered more pressing.

XXIV.B.2.(c). Recreation

The seven-county area contains within its boundary numerous opportunities for recreation; namely entertainment and recreation attractions associated with the Pocono Mountains of Monroe and Pike Counties, Pa., and the mountains of Sussex County. Both areas annually draw an influx of tourists. Also, state parks as well as game and fish preserves are sited throughout the area. Hunting, fishing, boating, and hiking are popular recreational activities from which local citizens as well as seasonal visitors experience a high degree of satisfaction.

Inasmuch as many of the recreational areas and facilities are sponsored by the state governments, capital expenditures for recreation have been minimal or non-existent for most local jurisdictions. There are exceptions to this, however, such as Hackettstown, N.J., (population 11,000) which expended $600,000 in 1974 for a municipal swimming pool complex. For the most part, leaders have judged that local communities are not well equipped for passive and active recreation activities. To remedy this situation, parks, athletic fields and open space developments are being undertaken. For community leaders, recreational opportunities rank high as an amenity of enormous importance, and one which is significant for current lifestyles.

XXIV.B.2.(d). Environment

The favorable environment or general livability is considered to be one of the area's strongest points. Residents describe the townships and boroughs as a "good place to raise a family", within an environment of security and one that is relatively free of crime and the threat of criminal activity. This environment is also stable so that growth is accommodated over time, which minimizes disruptive changes.

The environment is friendly inasmuch as most residents live in communities in which they were born and others move into these communities to "settle" permanently. However, this environment is beginning to change due to an increase in tourism (and accompanying traffic) and new developments. Widespread land speculation threatens to shift existing settlement patterns and set the backdrop for general urban development. Many newer residents, whether seasonal or permanent, are characterized as not caring for the area in the same way as "old timers".

XXIV.B.2.(e). Shopping

Shopping in the average community within the seven-county area is considered satisfactory for day-to-day purchases as well as some durable goods, although selections are more limited (especially in the more rural areas) in contrast to items normally available in a metropolitan area. The dominant pattern is for those who desire a better selection to travel to a regional shopping center. This would not apply to the residents of Northampton, who live in a county which is relatively more highly urbanized, and where an ample range and selection of goods are available.

The limitations of shopping is accepted by local residents as one of the trade-offs that goes with a rural lifestyle.

XXIV.B.2.(f). Transportation

The private car is the primary mode of transportation within the area, and the poor quality of public transportation services ranks high in the list of citizen complaints. There are several areas of concern. First, existing roads do not allow for rapid movement within the area. Many roads that pass through population settlements are narrow, winding, and have dangerous curves. During peak tourist seasons, traffic problems become frustrating, and at times hazardous.

Secondly, the lack of public transportation to connect residential areas with employment centers, and to provide for the needs of the elderly, are considered crucial in some cases.

Impact area residents acknowledge that an upgrading of the roads and an introduction of public transportation would further urbanize their area. While poor transportation is a matter of concern, it also is considered a trade-off in favor of slower living pace characterized by the rural environment.

XXIV.B.2.(g). Local Government

The township level of government (characteristic of the seven-county area) has an immediate, day-by-day impact on local residents. It collects taxes,

provides services (schools), and is accessible for complaints and suggestions. Inasmuch as many townships have sparse populations (less than 3,000) local government officials are either volunteer or part-time. Because populations are stable, this results in a highly personalized government so that if dissatisfactions arise, expressions can be voiced directly to officials. Therefore, citizens have the opportunity to participate in and control local government decisions. Officials in many communities do not regard themselves as "politicians" but as local citizens exercising a local responsibility which will be passed on to others. Community leaders (many of whom were elected officials) did not offer negative comments about the quality of local government. However, results of the resident survey in the previous section did cite local government corruption and poor administration.

XXIV.B.2(h). Public Safety

This area is one of increasing dissatisfaction due to a rise in the incidents of vandalism and of drug abuse and public hazards associated with increased automobile traffic. With the introduction of many visitors, trust relationships among permanent residents (which are believed to have minimized criminal activity) have broken down. Concern in the public safety area is directly correlated with changes in the environment due to greater urbanization. A rise in crime is particularly alarming in the impact area because supposedly rural areas are relatively free of criminal activity. In fact, many residents shift their place of residence to the country to escape crime which is usually associated with urban areas.

XXIV.B.2(i). Fire Protection

The seven-county impact area is adequately served by volunteer fire departments and rescue squads, which are sources of community pride. Local fire company associations also provide a social outlet, not only for volunteers and their wives but for the community at large. The aspect of volunteerism and local community responsibility is an important part of rural lifestyle.

XXIV.B.2(j). Medical Services

Adequate medical services are available within the seven-county area, although access to those services is uneven. Residents of Pike County, Pa. have to travel outside their jurisdiction for services, while Sussex County residents have three hospitals within their boundary. Although any medical facility within the impact area may experience temporary overcrowding at a given point in time, medical services are considered satisfactory overall. In addition, hospitals are important sources of community pride.

XXIV.B.2(k). Summary

Community leaders interviewed in the seven-county area expressed satisfaction with local services such as public schools, recreation, shopping, local government, fire protection, medical services, and housing. Schools and housing were the areas least mentioned, and therefore assumed to require less immediate attention. Recreational opportunities rank high as an amenity of enormous importance, and one which is significant for current lifestyles. Local government is highly personalized, so that citizens

enjoy participation and control of local decisions. Shopping for day-to-day items and some durables are considered satisfactory, and limitations on selections are accepted as one of the trade-offs that goes with a rural lifestyle.

Local volunteer fire companies and hospitals are important sources of community pride, and are assessed to be adequate at the present time. However, in these two latter areas, outside demands from visitors (in addition to local utilization) are beginning to raise concerns that these services are over-taxed.

The areas in which community leaders expressed a growing dissatisfaction were environment, transportation, and public safety -- all related to an influx of visitors and growing urbanization. The environment, once considered "pure", is now being threatened by automobile emission, seasonal developments, and the heavy utilization of recreational areas. Roadways are assessed to be adequate for normal traffic, but inadequate for peak seasonal weekends. With more visitors, public safety problems have increased with vandalism being the chief offense.

Overall, community leaders emphasize the area's positive aspects -- rural country living, friendliness, and beautiful scenery -- as well as their satisfaction with local services. Concern is expressed when leaders perceive that changes can alter the lifestyle they currently enjoy.

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XXIV.B.2(k). Summary

Community leaders interviewed in the seven-county area expressed satisfaction with local services such as public schools, recreation, shopping, local government, fire protection, medical services, and housing. Schools and housing were the areas least mentioned, and therefore assumed to require less immediate attention. Recreational opportunities rank high as an amenity of enormous importance, and one which is significant for current lifestyles. Local government is highly personalized, so that citizens

enjoy participation and control of local decisions. Shopping for day-to-day items and some durables are considered satisfactory, and limitations on selections are accepted as one of the trade-offs that goes with a rural lifestyle.

Local volunteer fire companies and hospitals are important sources of community pride, and are assessed to be adequate at the present time. However, in these two latter areas, outside demands from visitors (in addition to local utilization) are beginning to raise concerns that these services are over-taxed.

The areas in which community leaders expressed a growing dissatisfaction were environment, transportation, and public safety -- all related to an influx of visitors and growing urbanization. The environment, once considered "pure", is now being threatened by automobile emission, seasonal developments, and the heavy utilization of recreational areas. Roadways are assessed to be adequate for normal traffic, but inadequate for peak seasonal weekends. With more visitors, public safety problems have increased with vandalism being the chief offense.

Overall, community leaders emphasize the area's positive aspects -- rural country living, friendliness, and beautiful scenery -- as well as their satisfaction with local services. Concern is expressed when leaders perceive that changes can alter the lifestyle they currently enjoy.

TOCKS ISLAND
LIFE STYLE INTERVIEW GUIDE

1. Name: _____

2. Address: _____

3. Age: _____ Sex: _____ Race: _____

4. Employed by: _____

5. Relationship to Tocks Island Lake Project. (How well informed? Envolvement - official or unofficial? Pro or con feelings?):

_____

_____

_____

_____

6. Perception of current life style (describe in some detail - satisfaction with housing, schools, recreation, environment, shopping, transportation, local politics and neighbors):

_____

_____

_____

_____

_____

_____

7. How will life styles change with the development of the lake and DWGNRA? With only the DWGNRA?

_____

_____

_____

_____

Note: Each of these interviews was carried out in person by a member of the the consultant team.

8. Should the Tocks Island project be implemented? Why? Why not? (Criticisms and concerns)

9. Are there current public service needs that aren't being met? (i.e., land use controls, police protection, sanitation, recreation, etc.):

10. Impact of Tocks Island project on public services (new demands - ability of local governments to respond to increased demands):

11. Are these views shared by others in the area? (Does the interviewer perceive his views to be representative of most people in the area?)

XXIV.B.3. LEADERSHIP PERCEPTION OF LIFESTYLE CHANGES WITH T.I.L.P./DWGNRA

The following describes lifestyle changes community leaders anticipate if TILP/DWGNRA are implemented. The economic aspects of secondary impacts are undertaken in Chapter XXIV-22, while the lifestyle changes resulting from those impacts are discussed below.

Leaders within the seven-county impact area believe that TILP/DWGNRA will bring substantial changes in current lifestyle. Some would argue that only areas around transportation corridors will be affected; while others predict that widespread urban development will engulf the entire area. While the degree and pace of the coming urban development meets with a variety of viewpoints, it is nonetheless generally agreed that lifestyles are changing now and will continue to change with increased urbanization.

XXIV.B.3.(a). Employment Opportunities

Implementation of TILP/DWGNRA will create new job opportunities within the seven-county area. For residents of Orange and Sullivan counties, New York, where unemployment is higher, new job opportunities will be especially welcomed. Industrial firms in Northampton County, Pa., (especially cement producers) are hopeful that TILP will stimulate their businesses. Retail merchants in Stroudsburg (Monroe County's retail center) anticipate new business activity with more visitors and development activities related to the dam. Visitor oriented development -- motels, restaurants, campgrounds, and service stations -- will create new job opportunities throughout the impact area.

Economic growth is considered a "good thing" and essential to the continued well being of the area. However, there are limits due to the fact that growth and change are not separated in the eyes of community leaders. The negative aspects of a larger employment base are: increased demands on community services (schools, roads, fire, police, etc.) and general growth pressures, likely to result in more people which means more housing, retail space and the like. Of course, there would be obvious positive aspects such as increased economic base and less commuting for local residents. This trade-off is more difficult for community leaders than for residents surveyed because the former are likely to enjoy more secure financial circumstances than the latter.

Urban pressures thus far have resulted in the sale of many dairy farms, and the gradual decline of agricultural employment. Service-area jobs have increased to make up for this decline. Other shifts have broken up old employment patterns and lifestyles. More employment opportunities and general development will further alter the area's rural lifestyle.

XXIV.B.3.(b) Commercial Development

Residents of the seven-county area currently enjoy shopping in the small commercial centers of villages and towns. It is not uncommon for residents to patronize the same retailers for years so that long-term relationships are established. Residents often substitute these relationships for the opportunities of better selections available at larger shopping centers.

New commercial developments to meet the needs of new people would likely be built at the edge of town or at transportation intersections. Not only would the new and established businesses compete, but the current shopping pattern would be broken, and the new pattern would usher in a new lifestyle. For the old residents, there would be more contact with strangers, more traffic and an impersonal relationship to shop owners. Inasmuch as the bulk of new development would cater to visitors and new residents, this would constitute a change in the established commerical patterns of today.

XXIV.B.3.(c). Residential Development

Residential development is anticipated to assume different characteristics if TILP/DWGNRA is implemented. Slowly, the old pattern of single family homes on large lots is giving was to more subdivision developments of 100-1,500 lots. This is expected to have a variety of lifestyle impacts. First, the communities cannot assimilate new residents (on a personal basis) if rapid growth occurs. Secondly, new housing developments will set off a ripple effect of new public service demands.

The resultant residential pattern will be characterized by higher density and new housing styles. This will cause shifts in other community development patterns, and could set up "newcomer" and "old timer" political factions within the community. Thus, new housing developments would challenge existing community structures, and impact lifestyles.

XXIV.B.3.(d). Traffic Congestion

Community leaders believe that an influx of visitors and permanent residents will crowd existing roads so that easy movement by private automobiles will be affected. More traffic can be translated into more time required to get to work, shopping, and recreation areas. Also, added traffic creates a new tempo and atmosphere. The current easy pace could give way to the tension and hassle associated with urban living. Some communities, Milford, Pa. for example, are concerned that health hazards may result from traffic increases. Traffic, therefore, is a major concern and an early indicator of population pressures which will ultimately result in lifestyle changes.

XXIV. B.3.e. Environment

TILP/DWGNRA impacts will affect water, air, noise, and forest quality according to community leaders. The quality of underground water supplies and surface streams are being threatened because of inadequate safeguards against pollutants. Local government officials are concerned that more development will further exacerbate this problem. Air quality around heavily traveled roadways is deteriorating due to automobile emissions. This is a special concern in the Phillipsburg-Easton-Stroudsburg, Port Jervis-Matomoras-Milford, and Great Gorge areas. Noise pollution, primarily caused by automobile traffic, would be of concern in the same urbanized areas.

In addition to the above, environmental concerns focus on the DWGNRA itself and how well it can stand up under the constant wear of 4,000,000 annual visitors. Some officials have estimated that the area will be "beat down" in a year or two, further deteriorating the park's natural environment for everyone. Overall the environment will be adversely impacted with more people, so that the area becomes a little less "natural" and desirable from the standpoint of general livability.

XXIV.B.3.f. Public Services

Several shifts will occur as local governments responsible for the delivery of public services respond to urban pressures. First, there will be demands for an expansion of and an increase in the quality of services. Rural residents traditionally require a minimum of services; urban dwellers are accustomed to more. Second, costs for services will rise commensurate with their expansion. Again, urbanites have long accepted higher service costs while rural residents have been more self-reliant and less dependent on local government. Third, a trend away from volunteering public services could be set in motion so that services would be delivered by more "professionals". These shifts describe the impacts which urbanization can make. For lifestyles, there is a greater dependence on local government for the provision of services, and less reliance on other residents to volunteer assistance.

XVI.B.3.(g) Summary

The sensitivity matrix (below) represents a weighting of leadership responses relative to lifestyle changes with TILP/DWGNRA in relation to

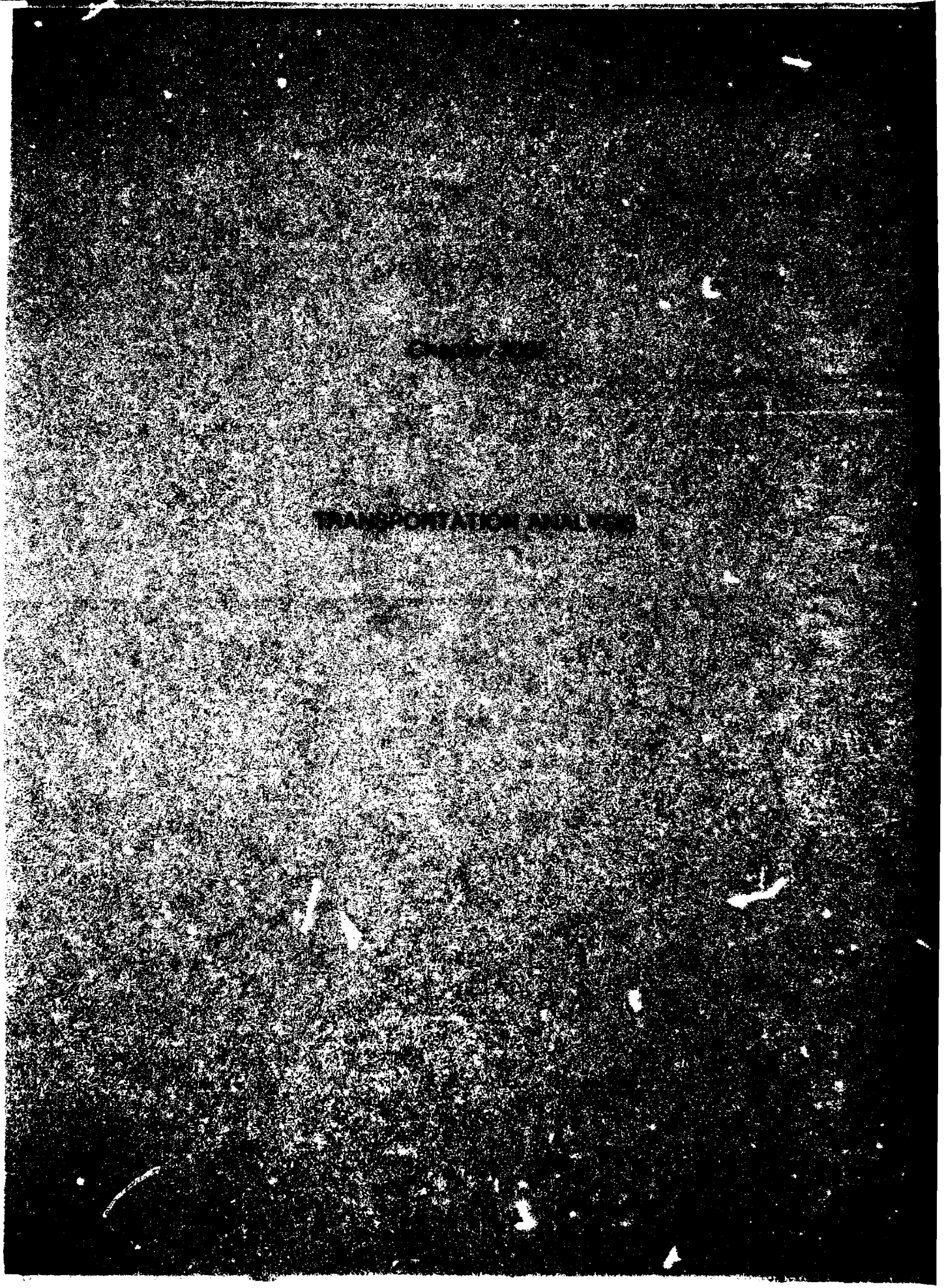
satisfaction with public services. Note that environment, public safety and roads (traffic) are considered the areas of greatest impact if TILP/DWGNRA is implemented. By way of contrast, the areas of public schools and housing barely emerged as issues. All other areas listed fall in the moderate impact category.

SENSITIVITY MATRIX

Table 24-16 Leadership Perception of Lifestyle Changes with TILP/DWGNRA in Relation to Satisfaction with Local Services, April 1975

	Perceived Changes		
Local Services	Major	Moderate	Slight
Housing			x
Schools			x
Recreation		x	
Environment	x		
Shopping		x	
Transportation		x	
Local Government		x	
Public Safety	x		
Fire, Ambulance		x	
Medical Services		x	
Employment Opportunities		x	
Roads (Traffic)	x		

Source: Consultant interviews with leaders in Monroe, Pike, and Northampton counties, Pennsylvania; Warren, Sussex counties, New Jersey; and Orange and Sullivan counties, New York.



Chapter XXV on transportation planning in the TILP, Tri-State region involves the three states of New Jersey, New York, and Pennsylvania; and locally the seven counties of Sussex and Warren in New Jersey, Pike, Monroe and Northampton in Pennsylvania, and Sullivan and Orange in New York. Basically, the two general modes of transportation in the region include the private automobile (referred herein under highways) and public transportation (principally bus and rail).

The chapter is divided into five parts: (A) the existing transportation systems, (B) TILP travel demand, (C) transportation improvements, with and without TILP, (D) implementation programs, and (E) concluding remarks.

The objectives of the studies described herein are to (1) assess the impact of TILP on the transportation system of the region, and (2) ascertain the improvements and their timing and cost which are attributable to the Project and the associated National Recreation Area. These objectives have been addressed in terms of the transportation improvements which would be <u>needed</u> to maintain an acceptable level of service, rather than on making specific recommendations which are the responsibilities of the states and other transportation agencies. Conversely, if the required improvements are not made, the levels of transportation service could deteriorate to intolerable levels with severe congestion.

The transportation forecasts and related improvements are discussed in Chapter XXV in terms of the <u>differential</u> between the Tri-State regions' transportation requirements with and without the TILP. The forecasts for the TILP-generated traffic are based on the recreational forecasts dis-

cussed heretofore in Chapter XXII. Conversely, any constraints in the transportation system would affect land use and population growth, which are also discussed in Chapter XXII.

Section D of Chapter XXV discusses the implementation prgrams which are available for financing the needed transportation improvements. Although several programs for both highways and transit are available, fundings are limited and the states in particular may have difficult decisions to make in selecting funding priorities among transportation, education and other human needs. In Section D rail funding programs are discussed in detail because this mode of transportation is presently under intensive study. Policies presently under development are therefore significant, even though in Section C the rail alternative has been minimized because of the unlikelihood of providing adequate service. Buses will probably be the most practical transit mode to implement because of its flexibility and shorter lead time for implementation.

The factors which have been considered in this chapter include (1) transportation needs, (2) costs, (3) availability of funds, (4) environmental requirements and, (5) energy (fuel) considerations.

The following major assumptions are utilized in Chapter XXV to assess the impact on transportation of the development of TILP:

- an appropriate design condition is a typical Summer Sunday

afternoon when visitors would be departing from the National Recreation area;

- visitation will be mainly by automobiles except as noted;
- the TILP peak traffic will be directly related to the capacity of parking spaces, which will be developed in three phases up to a maximum of about 28,500 spaces by the year 2000; and, a
- basic measure of transportation impact is the number of highway lane-miles (highway mileage times number of hours) directly attributable to TILP. For each Phase, the required number of lane-miles without TILP are compared with the total number of lane-miles required for highway systems with TILP.

To fulfill these objectives mentioned above, base traffic conditions were forecast and the improvements required to accommodate this increased traffic growth were determined. The traffic which could be generated by TILP was estimated and this surcharge placed over the normal or base traffic, and the additional improvements required to accommodate this increased traffic were determined.

To perform this analysis thoroughly it was necessary to assume that if improvements are not implemented, significant congestion would result and, with respect to the analyses performed herein, additional constraints affecting travel habits and TILP patronage would be created.

The following analyses follow this approach and present the improvements required to accommodate both base and TILP traffic. However, it is to be emphasized that serious doubts exist regarding the full implementation of the improvements suggested for both base and TILP traffic. The full and realistic evaluation of TILP impacts on regional transportation must therefore consider the needs outlined herein, the likelihood of their implementation, alternatives and constraints posed by non-implementation, and the range of impacts that would result from this.

XXV.A. EXISTING TRANSPORTATION SYSTEMS

XXV.A.1 HIGHWAY SYSTEM

The existing transportation system is based almost entirely on the highway and the motor vehicle. These are supplemented by a rail system which has gradually been shrinking from the extensive network of the early 1900's to the present limited (mostly freight) service. There is local service within the communities provided by taxis, generally owner-operated, and on a call basis.

The discussion which follows describes the principal element of the present transportation system, the highway.

XXV.A.1(a) Major Highways

The area of the TILP is presently served by a network of interstate, regional and local highways which provide connections to all major population centers in the region, as shown in Exhibit 25-1.

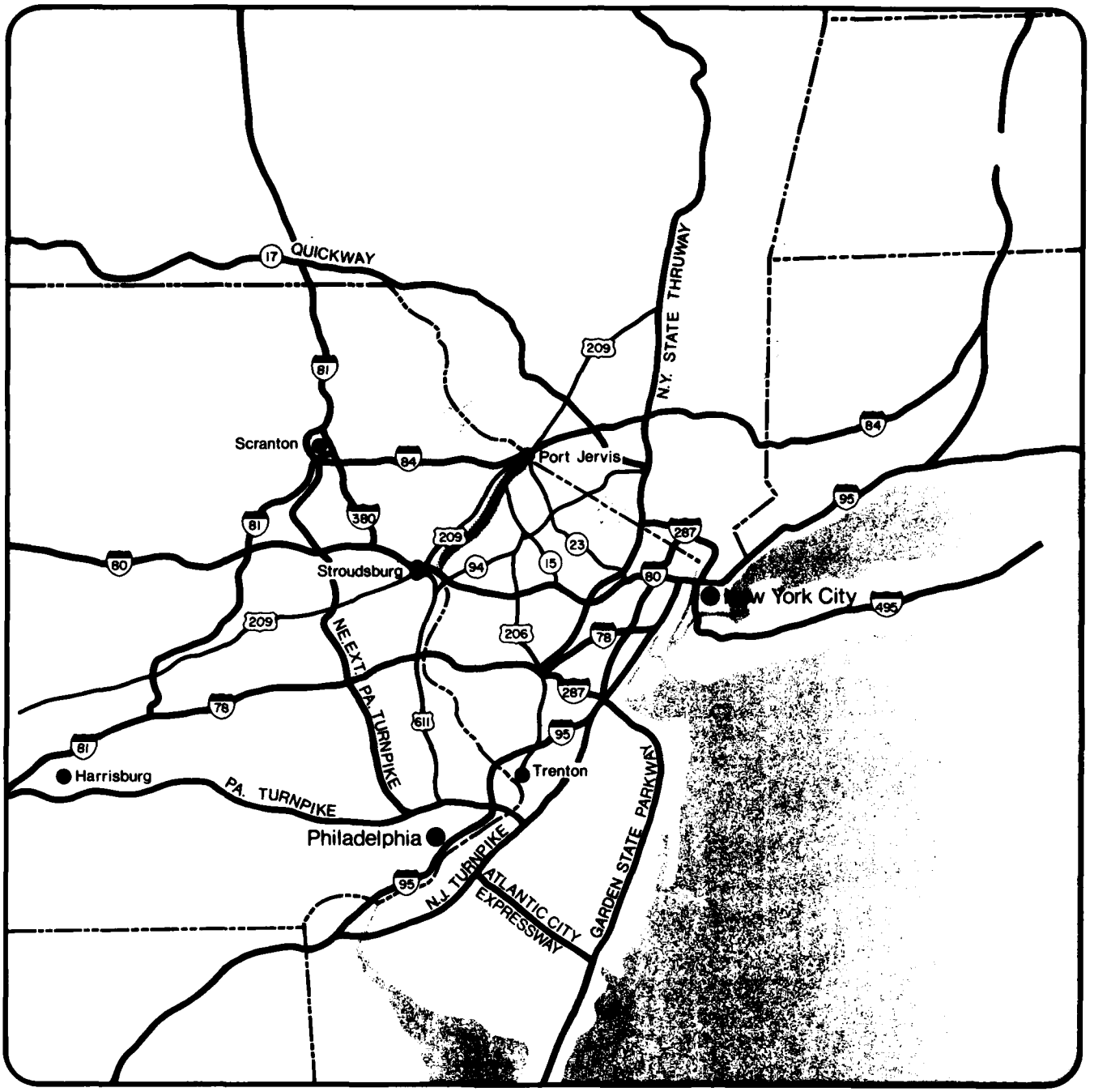
From the north end of the TILP, Interstate Route 84, with its connection to the New York State Thruway (Interstate Route 87) at Newburgh, New York, and Interstate Route 81, near Scranton, Pennsylvania, is the principal expressway to the north and the northeast, including the northern section of the New York Metropolitan Area. From the southern end of the TILP,

Interstate Route (I-80) runs east to the New York-Northern New Jersey Metropolitan Area and west through Pennsylvania to Ohio and other mid-western states. The Northeast Extension of the Pennsylvania Turnpike provides a high-speed route to the Philadelphia Metropolitan Area.

Complementing the interstate routes and Turnpike are the state and U.S. highway networks within the seven-county region directly affected by the project. In New Jersey, through Warren and Sussex Counties, the major routes are US 206 and Route 31 to the south, New Jersey Routes 15, 23 and US 46 to the east. These routes connect directly or indirectly with I-80, which presently serves as the main direct route through the southern portion of the seven-county impact area. Other routes which complete the New Jersey highway system and which would have a direct impact on the Project are also shown in Exhibit 25-2. Total mileage of routes affected by the project is approximately 460, representing about 1,142 lane-miles.

In Pennsylvania, in addition to I-80 and I-84, a number of U.S. and State routes, including US 6, 209 and 611, and Pennsylvania Routes 739, 402, 191, 940 and 33 provide access to the region, as shown in Exhibit 25-3. Total mileage affected is approximately 430, representing 1,072 lane-miles.

As shown in Exhibit 25-4, in New York State the main routes serving the TILP are I-84, with US 209 and 6, and State Routes 42, 284, 17 and 94 completing the necessary principal connections. New York Route 17, known to frequent users as the "Quickway", is an expressway serving the southern tier of New York State from the Hudson River to Lake Erie. Total mileage affected is approximately 190, representing 488 lane-miles.



0 6 12 18 24 30
SCALE IN MILES

N

REGIONAL HIGHWAY NETWORK 1

SOURCE: URS/MADIGAN-PRAEGER, INC.

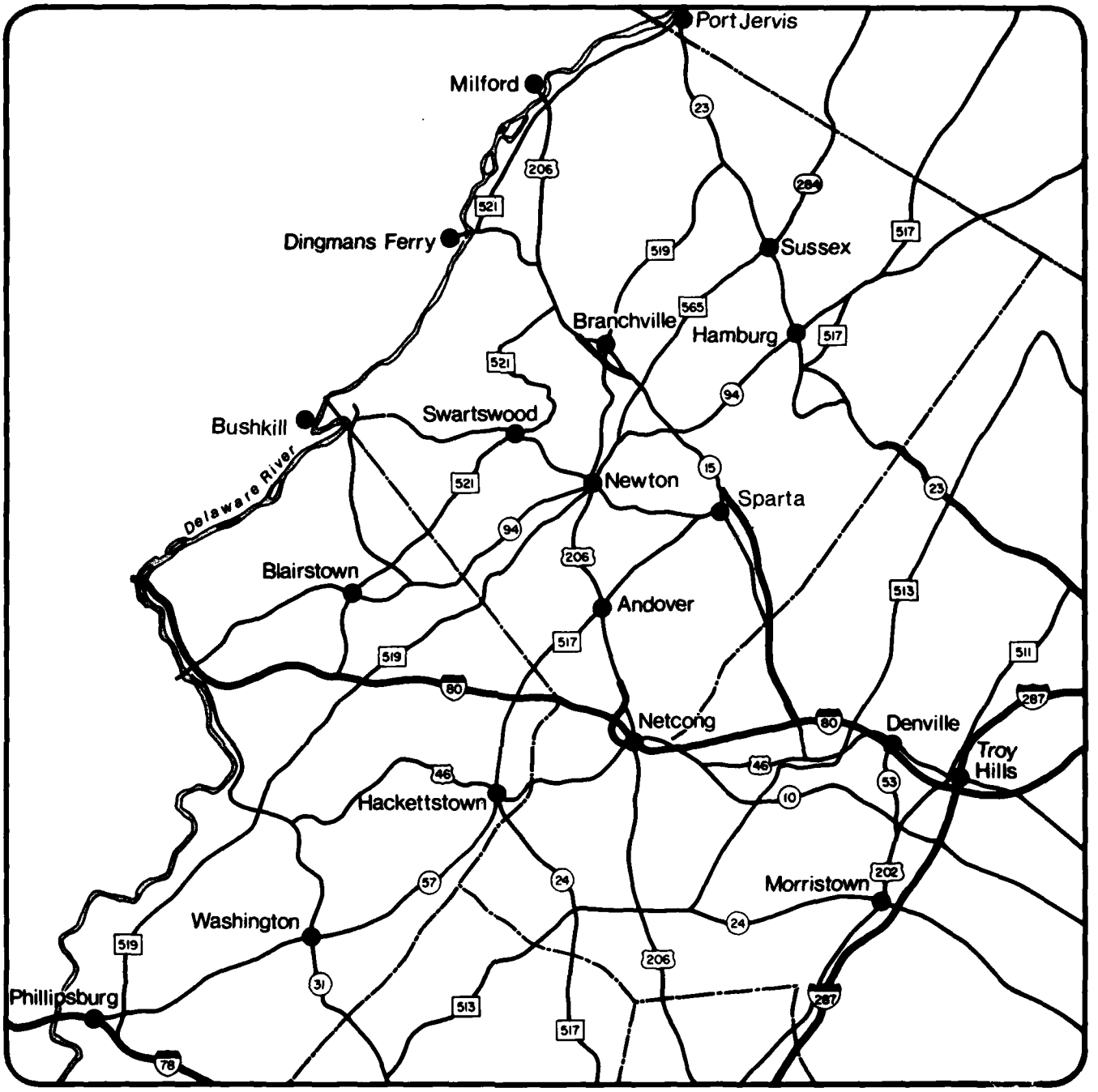
LEGEND

- EXPRESSWAYS
- OTHER MAJOR ROUTES
- 94 INTERSTATE HIGHWAY
- 94 STATE HIGHWAY
- 611 U.S. HIGHWAY

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT



0 1 2 3 4 5
SCALE IN MILES

N

NEW JERSEY HIGHWAY SYSTEM 2

SOURCE: N.J. DEPARTMENT OF TRANSPORTATION

LEGEND

- EXPRESSWAYS
- OTHER MAJOR ROUTES
- 80 INTERSTATE HIGHWAY
- 57 STATE HIGHWAY
- 46 U.S. HIGHWAY
- 513 COUNTY ROAD

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT

0 1 2 3 4 5
SCALE IN MILES

N

PENNSYLVANIA HIGHWAY SYSTEM 3

SOURCE: PA. DEPARTMENT OF TRANSPORTATION

LEGEND

- EXPRESSWAYS
- OTHER MAJOR ROUTES
- 80 INTERSTATE HIGHWAY
- 33 STATE HIGHWAY
- 6 U.S. HIGHWAY

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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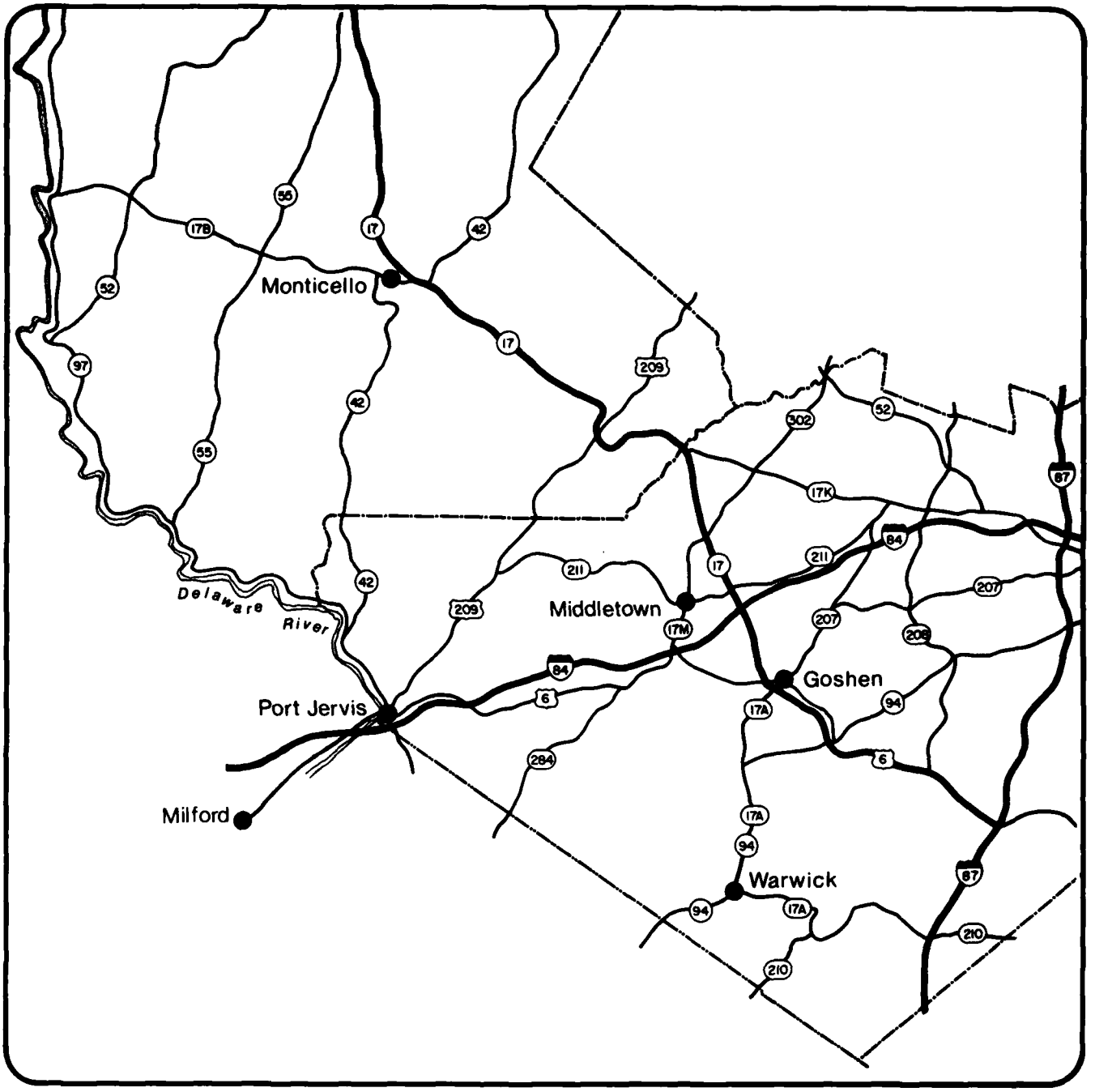


0 1 2 3 4 5
SCALE IN MILES

N

LEGEND

- EXPRESSWAYS
- OTHER MAJOR ROUTES
- 84 INTERSTATE HIGHWAY
- 94 STATE HIGHWAY
- 6 U.S. HIGHWAY

NEW YORK STATE HIGHWAY SYSTEM

SOURCE: N.Y. DEPARTMENT OF TRANSPORTATION

4

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT

XXV.A.1(b) Physical Characteristics

The highway system consists generally of three types with respect to physical characteristics and geometrics. The interstate system is the main expressway network with good alignments and grades capable of sustaining high speed and traffic capacity. Also, in the expressway system are the Pennsylvania Turnpike and a number of state and U.S. highways with similar standards as the interstate system. Typical of these are New York Route 17 (the "Quickway") and Pennsylvania Route 33.

The second type of highway includes the heavily travelled state and U.S. arterials not yet developed to expressway standards, such as Route 46, 206, 15, and 23 in New Jersey. These are generally four-lane highways with partial or no control of access and intersections at grade. Through some areas these highways have been improved to expressway standards, while along other sections they remain four-lane and even two-lane rural highways with no access control. These roads have high-type pavement and the alignments are capable of sustaining speeds in the 50 to 55 m.p.h. range. The third type of highway includes the local roads, which consist of either short state route connections or county and township roads. These are mostly two-lane roads. Alignment and grades generally follow the contours of the terrain with lengthy sections where overtaking and passing is not permitted. Some of these roads have low-grade pavement. However, near urban areas and on heavily travelled sections, these roads have been improved to higher standards to accommodate the heavier truck loads and larger traffic volumes.

XXV.A.1.(c) Typical Travel Times

Typical highway travel times in 1974 via the existing road network between points in the Delaware River area and major population centers are as shown in Table 25-1 on the following page. The table shows average travel times for both peak summer recreational periods and for weekday off-peak (non-summer) periods. The peak summer recreational periods are representative of Sunday afternoon when recreational home-bound traffic is the main component on the road and heavy volumes and slower speeds are prevalent. The off-peak periods occur on weekdays during mid-mornings and afternoons when drivers are restricted in their travel speeds by road conditions and speed limits and not by heavy volumes and congestion. The peak summer recreational travel is highly variable and could be affected by local events in some areas causing delays and increasing travel times as much as 50 percent over the average peak recreational volumes shown in the table.

Table 25-1 Typical Travel Times

Origin	Destination	Principal Approach Route	Peak Recreational (hours)	Off-Peak Non-Summer (hours)
New York City	Port Jervis	NJ 23	2 1/2	1 1/2
New York City	Dingmans Ferry	NJ 15	2	1 1/2
New York City	Delaware Water Gap	I-80	1 3/4	1 1/4
Philadelphia	Delaware Water Gap	PA 33	3	2
Baltimore	Delaware Water Gap	PA 33	**	3 1/2 - 4
Washington, D.C.	Delaware Water Gap	PA 33	**	5 - 6
Albany	Port Jervis	I-84	**	3
New Haven	Port Jervis	I-84	**	2 1/2 - 3

* Via Harrisburg, I-83 and I-76

** About one hour longer than off-peak

XXV.A.1(d) Traffic-Carrying Capacities

In estimating the traffic capacities of the routes serving the Delaware Water Gap and Tocks Island Lake area, we have been guided by the level of service concept as defined in the 1965 Highway Capacity Manual, Special Report No. 87, of the Highway Research Board. The six levels of traffic service are summarized below and illustrated in the six photographs on the following two pages, which were obtained from the New York State Department of Transportation with the permission of the Transportation Research Board (formerly the Highway Research Board).

Level of Service	Description
A & B	Free, uninterrupted flow; desirable for rural conditions. (55 m.p.h. and higher)
C	Limited freedom to maneuver; desirable for design of urban facilities, acceptable for rural conditions. (50-55 m.p.h.)
D	Approaching unstable flow; acceptable for urban conditions; tolerable for rural conditions.
E	Unstable flow; tolerable in urban areas, intolerable for rural conditions (approx. 35 m.p.h.). It is a measure of ultimate capacity.
F	Forced flow, congestion, breakdown in traffic flow, (0-30 m.p.h.)

The speed ranges mentioned above represent expressway conditions.

At Level of Service "E" (ultimate capacity), traffic flow is very unstable; it is not a condition which can be sustained, especially under rural conditions. As volume increases above the Level of Service "D", operating conditions can momentarily reach the Level "F" without reaching the maximum volume (capacity) as defined by the Level of Service "E". The capacities of the major routes in the TILP area are shown on Table 25-2.

For dual roads or multi-lane freeways where two directions of flow are separated by a medial divider, the capacity indicated on Table 25-2 is for one-directional flow. On two-lane roads with no medial islands or dividers, the capacity indicated is for two-way traffic flow. Also shown on Table 25-2 are the number of traffic lanes on each route, and their average operating speeds.

On the two-lane roads, operating speeds are indicative of roadway design conditions, mainly alignment and grades. On expressways and interstate highways, the upper range of operating speeds is limited by speed regulations. Operating speeds of 70 m.p.h. could be sustained (on the basis of the roadway design) when traffic volumes are equal to or less than the volumes corresponding to a Level of Service "A". Current speed limits, however, limit the legal speed to 55 m.p.h.

XXV.A.1(e) Present Traffic Volumes

Because of the recreational character of travel in the seven-county impact area during the summer, Sunday traffic is between two and three times as heavy as the average daily traffic for the year.

Table 25-2 Traffic Carrying Capacities: Highway System

Route Number	Location	Number of Lanes	Average Highway Speed	Traffic Volume (vehicles per hour at) Levels of Service	
				C	E (ultimate capacity)
NEW JERSEY					
519	South of U.S.46	2	45	550	1,500
U.S.46	West of N.J.31	2	50*	880**	1,800**
I-80	West of Route 94	4	55*	2,400**	3,600**
I-80	West of Route 206	6	55*	3,700**	5,200**
Route 15	South of Route 94	2	55	550	1,500
Route 23	West of Sussex	2	45	550	1,500
Route 31	South of U.S.46	2	45	550	1,500
Route 94	South of Newton	2	45	550	1,500
U.S.206	South of Andover	2	45	550	1,500
Route 23	West of U.S.202	4	50	2,400	3,600
PENNSYLVANIA					
U.S.611	South of I-80	2	45	550	1,500
U.S.209	Route 33 Overlap	4	55*	2,400**	3,600**
I-80	East of I-380	4	55*	2,400**	3,600**
Route 402	South of I-84	2	45	550	1,500
Route 739	South of I-84	2	40	550	1,500
U.S.6	East of Route 402	2	55	880	1,800
U.S.209	North of Route 402	2	55	880**	1,800**
I-84	West of Port Jervis	4	55*	2,400**	3,600**
NEW YORK					
U.S.6	East of Port Jervis	2	50	880	1,800**
I-84	West of Route 17	4	55*	2,400**	3,600**
U.S.209	South of Route 17	2	50	550	1,500
Route 42	South of Route 17	2	50	550	1,500
Route 97	North of Route 55	2	45	550	1,500
BRIDGES					
Delaware Water Gap - (I-80)		4	50	2,500**	3,400**
Milford-Montague - (U.S.206)		2	50	500	1,470

* Legal Speed Limit - designed for 70 m.p.h.
** One-way in direction of heavier flow

Typical examples of the impact of seasonal traffic are shown in Table 25-3, which follows:

Table 25-3 Seasonal Traffic as Percent of Annual Average Daily Traffic (AADT)
(As developed from data for the year 1973)

State	Route	Month	Percent of Annual Summer Weekdays (A)	Average Daily Traffic Summer Sunday (B)
New Jersey	U.S. 46	July	130	220
	N.J. 15	July	120	220
	N.J. 23	July	100	285
Pennsylvania	U.S. 209	July	110	160
	U.S. 611	June	110	195(C)
	Pa. 507	July	160	250
New York	U.S. 6 & Route 17	August	138	200
Bridges	Delaware Water Gap	July	108	220
	Milford-Montague	July	107	314

(A) Summer Sunday 24-hr. traffic divided by Summer weekday 24-hr. traffic
(B) Summer Sunday 24-hr. traffic divided by annual average daily traffic
(C) Summer Saturday average traffic

The impact of recreational travel is even more severe along Route 23 in New Jersey in the area of High Point; across the Milford-Montague Bridge, Route 206; and, on Pennsylvania Route 507 in the Lake Wallenpaupack area. It is significant that Route 23 in the High Point area does not carry heavy recreational traffic on summer weekdays as compared to Sundays.

The area of Lake Wallenpaupack does carry heavy weekday summer traffic, indicative of the impact of second-home leisure travel. Table 25-4 on the following page shows the 1974 annual average daily traffic and the design hour or summer Sunday average peak hour volumes.

As indicated in Table 25-4, summer Sunday evening peak volumes are relatively higher along the east-west routes radiating from the TILP area. These summer volumes are prevalent during the homebound portion of the recreational trip, which occurs between 4:00 PM and 7:00 PM on summer Sundays. At that time the heavier direction of traffic is carrying about two-thirds to three-quarters of the total traffic in the two directions. The summer Sunday peak traffic flows occur on weekends from Memorial Day through Labor Day weekend. High Sunday volumes occur again during the month of October, coinciding with the autumn foliage display.

In addition, holidays and long weekends may generate volumes as high as the summer Sundays. With about 14 weekends in the summer and two to three weekends in the fall, there is a total of at least 50 to 60 hours of peak traffic flow equal to those shown on Table 25-4. Similar peak flows occur on Friday evenings, except that the direction of heavy flow is towards the TILP area. Consequently, the traffic volumes shown on Table 25-4 may occur about 90 to 100 hours throughout the year.

It has been the common practice to design rural highway facilities so that they would accommodate the 30th highest hour volume during the year at a level of Service B. (In other words, during 29 hours per year, a level of

Table 25-4 Traffic Volumes and Levels of Service (1974) - Highway System

Route	Location	Annual Average Daily Traffic	Summer Sunday Avg. Peak Hour	Avg.Peak Hour as Percent of A.A.D.T.	Level of Service
NEW JERSEY					
519	South of U.S.46	5,700	900	16	D
U.S.46	West of Route 31	6,300	1,000	16	D
I-80	West of Route 94	16,500	3,300*	20	E
I-80	West of U.S.206	14,800	3,000*	20	C
Route 15	South of Route 94	6,200	1,100	18	D
Route 23	West of Sussex	3,000	740	25	D
Route 31	South of U.S.46	9,100	1,300	14	D-E
Route 94	South of Newton	5,300	950	17	D
U.S.206	South of Andover	15,300	1,950	13	F
Route 23	West of U.S.202	23,900	2,900*	-	D
PENNSYLVANIA					
U.S.611	South of I-80	4,100	750	18	D
U.S.209	South of Marshalls Creek	9,850	1,300	13	B
I-80	East of I-380	16,600	3,340*	20	D
Route 402	South of I-84	1,800	400	22	C
Route 739	South of I-84	1,300	300	23	B
U.S.6	East of Route 402	3,100	650	21	B
U.S.209	North of Route 402	12,000	1,870*	16	F
I-84	at Port Jervis	11,500	840*	15	A
NEW YORK					
U.S.6	East of Port Jervis	3,400	510	15	B
I-84	West of Route 17	14,700	1,760*	12	B
U.S.209	South of Route 17	3,850	410	11	C
Route 42	South of Route 17	3,300	670	20	D
Route 97	North of Route 55	2,150	390	18	B
BRIDGES					
Delaware Water Gap - (I-80)		16,600	3,340*	20	E
Milford-Montague - (U.S. 206)		2,740	1,030	38	D

* One-way in direction of heavier flow

less than B is tolerated.) In many cases, the 50th highest hour has been the design hour on routes with a combined recreational-commuter-commercial usage. On rural roads with average fluctuations, the 30th highest hour is approximately 15 percent of the annual average daily traffic, this percentage may go as high as 40 percent for highly recreational routes, and as low as 8 percent for urban routes, according to the Traffic Engineering Handbook, published by the Institute of Traffic Engineers in 1965. Table 25-4 indicates the percent that the average summer Sunday peak is of the annual average daily traffic. These percentages do not represent the 30th hour, but the 90th to 100th highest hour. (In other words, 90 to 100 hours per year at a lower level of service would be tolerated.) Consequently, since most of the locations are above 15 percent (at the 100th hour), it is very likely that the 30th highest hour is considerably higher than that shown in Table 25-4 because of the impact of recreational travel. In such cases, it is not economically feasible to design a highway to accommodate the 30th highest hour. Therefore, in the evaluation of the highway system which follows, the peak hour considered represents the 50th to 100th highest hour of the year.

XXV.A.1.(f) Operating Conditions on Major Routes

In New Jersey, all routes radiating from the TILP area carry heavy traffic during summer weekends. Route US 206, between Newton and south of Netcong, is operating at capacity (Level E), with above capacity (forced flow) conditions through the towns of Andover and Newton. Interstate Route 80, west of Route 94 and through the Delaware Water Gap, is

operating at level of service E on summer Sundays. All other routes carry traffic in the range of level of service D. There are some congested locations where the intersection of two major routes or traffic signal control reduce the capacity of the individual routes. These include the intersections of Routes 23 and 94, in Hamburg; Routes 15 and 206 and Routes 15 and 94, near Lafayette; Route 94, in Blairstown; and Routes 519 and 46 and Routes 31 and 46. An extremely congested location is the section where Routes 206 and 94 overlap in Newton. On the north section and through the town, forced flow conditions with delays prevail not only on summer Sundays, but also on weekdays and Saturdays throughout the year. Another congested location is Route 23. Although traffic volume data indicate level of service D along this route, forced flow (Level F) conditions occur along the four-lane divided highway section extending northwesterly from Route 202.

In Pennsylvania, Route US 209 is presently operating over capacity with forced flow conditions in the area of Marshalls Creek. Similar conditions prevail along I-80 through Stroudsburg and the Delaware Water Gap. Above capacity conditions occur at major route intersections in the Pocono Mountains resort area, including the City of Stroudsburg and along Routes 940 and 611 near Mt. Pocono in the south and the towns of Hawley and Milford in the north.

In New York State, none of the routes directly serving the TILP area appear to be operating at capacity. However, Route 23 from New Jersey and U.S. Routes 6 and 209 through New York and Pennsylvania have sections with forced flow conditions in the Matamoras-Port Jervis area.

The existing highway network (under 1974 conditions) operates at or near capacity during the peak summer Sunday hours between 4:00 PM and 7:00 PM in the impact areas of Pennsylvania and New Jersey and in the Matamoras-Port Jervis area of New York. However, it is expected that these traffic conditions would not deter further growth in recreational travel because, as drivers become familiarized with traffic conditions, they would avoid the peak hours. Conditions prevalent during the peak Sunday and Friday evening hours would gradually extend for longer periods as traffic continues to grow.

XXV.A.1(g) Proposed Improvements

Fifteen improvements related to the TILP have been incorporated in the Master Plan for Transportation by the New Jersey Department of Transportation (1972). The proposed expressways are shown in Exhibit 25-7. According to the New Jersey Department of Transportation, there have been no changes or revisions to the Master Plan since it was published. However, the financing of the entire plan for the impact area is becoming increasingly difficult and revisions are being considered. These revisions, however, would depend on many factors in addition to the decision as to the TILP and the estimates of visitation. These factors include, but are not limited to, (1) the general direction of transportation planning and financing, (2) the availability of funds and, (3) environmental requirements. For example, according to present planning by the New Jersey Department of Transportation, if annual visitation is held at 4,000,000, the Foothills Freeway may not be necessary. A list of the improvements follows, for which there are now no specific target dates established.

1. Freeways - See Exhibit 5 *

(a) Route 15. A seven-mile section by-passing Sparta was opened in 1974. An additional seven miles would extend north to Route 206.

(b) Route 23. This route is to be relocated along a new alignment from Stockholm to Port Jervis, a distance of 25 miles.

(c) Route 23 - Alternate. A new route would connect the Route 206 Milford-Montague Bridge to Route 23 Freeway in the area of High Point Park, a distance of six miles.

(d) Route 24. A new alignment would continue this freeway around Morristown to Route 206, a distance of 18 miles.

(e) Route 31. A new alignment will extend from Butzville north to Route 46 and to the proposed Foothills Expressway at Route I-80, a distance of 14 miles.

(f) Route 94. The relocation of existing Route 94 as a freeway along a new alignment will connect US 611 in Pennsylvania with Routes US 6 and NY 17 in New York State, a distance of 42 miles.

(g) Route US 206. This route will extend for 31 miles from the existing Stanhope-Netcong by-pass to the Montague-Milford bridge along a new alignment parallel to existing Route US 206. It will overlap a portion of the Route 94 Freeway by-passing the town of Newton.

*Freeways is the term used in the Master Plan. Generally the term has the same meaning as expressways. (Toll highways are expressways but not freeways)

(h) Foothills Freeway. This is an entirely new facility which will run from Route I-80 to the New York State Line. Its alignment would generally parallel the base of the Kittatinny Mountains and would extend for a distance of 36 miles.

2. Dualization of Existing Routes

(a) Route 23. Proposed widening of the existing four-lane divided highway sections of this route to six lanes, from Butler to Route I-80, a total of 11 miles.

(b) Route 31. From the Route 31 Freeway at Pennington to US 202 in Flemington, and from Flemington to the Route 31 Freeway at Oxford, a total length of 34 miles.

(c) Route US 46. From the Route 31 Freeway near Butzville to Columbia, a distance of seven miles.

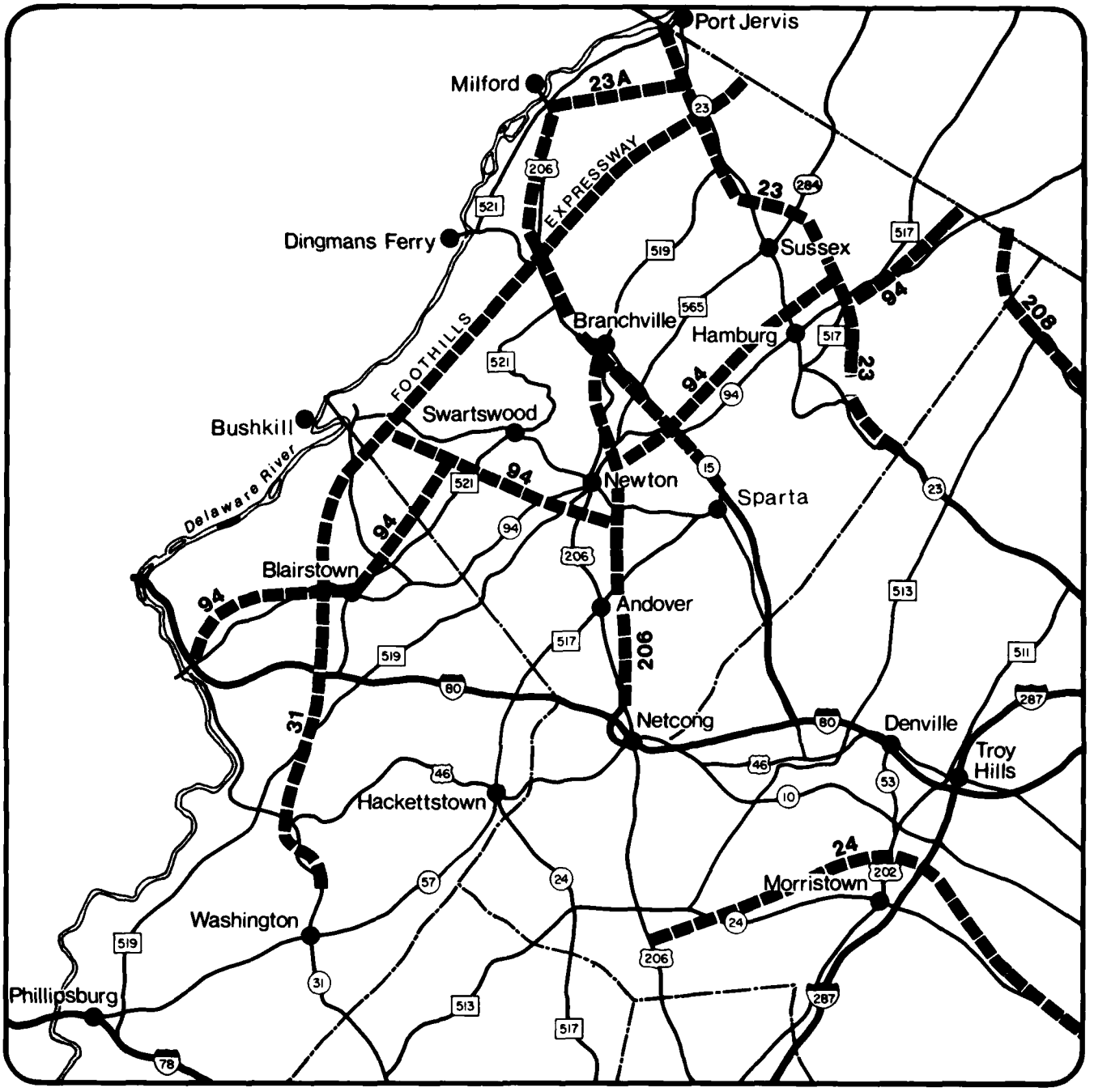
(d) Route 57. From Hackettstown to Phillipsburg-Easton area, a distance of 22 miles.

(e) Route US 206. From US 202 in Bedminster to Route I-80, a distance of 17 miles.

3. Widenings

(a) Route 15. Between US 46 in Dover and Route I-80 in Wharton, a distance of two miles.

(b) Route US 46. Between Denville and the Garden State Parkway, to be widened by an additional lane in each direction for a total distance of 23 miles.



0 1 2 3 4 5
SCALE IN MILES

N

PROPOSED EXPRESSWAYS NEW JERSEY

5

SOURCE: URS/MADIGAN-PRAEGER, INC.

LEGEND

- EXPRESSWAYS — PROPOSED
- OTHER MAJOR ROUTES
- 80 INTERSTATE HIGHWAY
- 57 STATE HIGHWAY
- 46 U.S. HIGHWAY
- 513 COUNTY ROAD

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS/ MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT

The preceding list includes only those projects which at the early stages of the analysis were considered most likely to be affected by TILP.

The Pennsylvania Department of Transportation has prepared a Preliminary Interim Statewide Highway Plan for the year 2000, in which is listed information only with respect to routes now under study. These include:

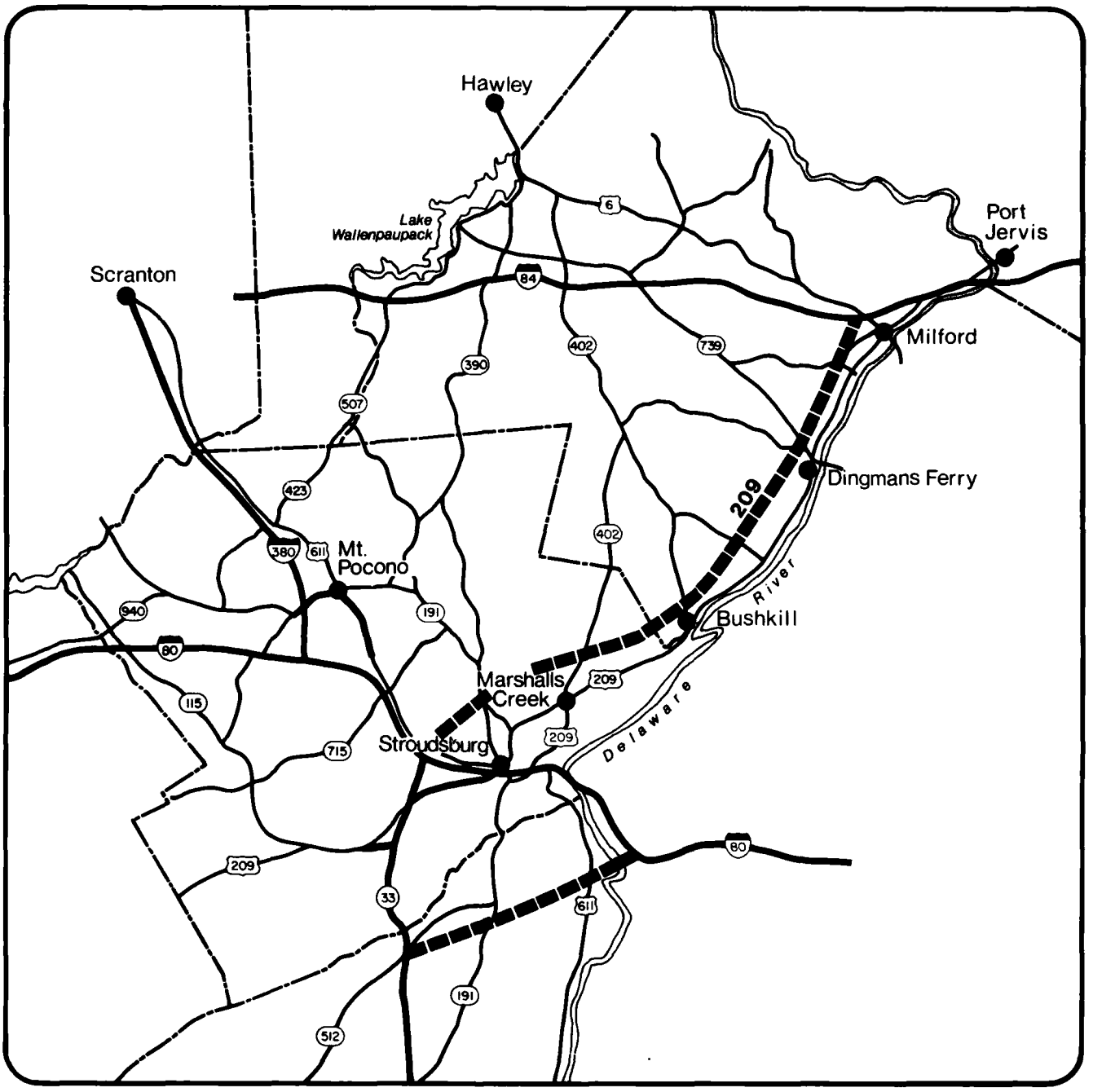
1. Route US 209. There are three proposals: (See Exhibit 6)
   (a) Dualization of the route to a four-lane divided highway from Milford to Bushkill, along the present alignment.
   (b) Relocation from Bushkill to Route 33, bypassing Stroudsburg along the west and joining Route 33 expressway at Route I-80, and improvement of the section from Marshalls Creek to I-80.
   (c) Relocation of the section from Milford to Bushkill along a new alignment from Route I-80 along the limit of right-of-way of the Delaware Recreational Area. This relocation would be necessary when existing US 209 is inundated by the Tocks Island Lake. Plans for relocation are for a two-lane expressway, but discussions are being held to upgrade this new highway to a four-lane expressway along a distance of 27 miles.
2. Route 402. Improve to two-lane modern standards.
3. Route US 209. Extension of four-lane divided highway from Brodheadsville to the Pennsylvania Turnpike Extension.
4. Route US 6. Reconstruct along new alignment from Hawley to Carbondale.
5. Route 940. Dualization from Mt. Pocono to Paradise Valley.

6. Route 191. Improvements from Paradise Valley north to Route 390 and along Route 390 to Route I-84.
7. New Road. A new two-lane link from Portland-Columbia west to Ackermanville and Route 33 Freeway with provision for four-lane divided expresway.

There are many other highway projects included in the Interim Plan for the area, but since these are not directly related to the TILP or to the Recreational Area, they have not been included in the above list.

Proposals for improvements in New York State which may affect the Lake Project are still in the Preliminary planning stage. These are:

1. Route US 209. It is proposed to widen this two-lane highway to a four-lane divided facility from Port Jervis through Orange, Sullivan and Ulster Counties to the New York State Thruway at Kingston. A request to include this road in the interstate highway system was denied by the Federal Highway Administration.
2. Route 211. From Cuddebackville to Middletown, upgrade to two-lane modern standards (24-foot pavement, 10-foot shoulders, 100-foot right-of-way).
3. Route 94. If the Route 94 Freeway is constructed in New Jersey, the New York extension through the Town of Florida to Chester would be considered.
4. Route 284. Any plans for improvement of this route depend on New Jersey for the Foothills Freeway.



0 1 2 3 4 5
SCALE IN MILES

N

PROPOSED EXPRESSWAYS PENNSYLVANIA 6

SOUCE: URS/MADIGAN-PRAEGER, INC.

LEGEND

- EXPRESSWAYS ■■■■ PROPOSED
- OTHER MAJOR ROUTES
- (80) INTERSTATE HIGHWAY
- (33) STATE HIGHWAY
- (6) U.S. HIGHWAY

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

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5. Route 42. Some sections have already been improved to modern two-lane standards, but completion is planned between Port Jervis (Route 97) and Monticello.

XXV.A.1.(h) Traffic Growth Trends

Table 25-5 shows the growth trends on the Delaware River Crossings at the Delaware Water Gap and Milford-Montague Bridges operated by the Delaware River Joint Toll Bridge Commission. Traffic crossing the Delaware Water Gap Bridge (Route I-80) has increased from about two million vehicles in 1962 to more than six million vehicles in 1974, an average annual (compounded) increase of nine percent. During the same period traffic growth over the Milford-Montague Bridge averaged 3 1/2 percent (compounded) per year. While the increase over the Delaware Water Gap Bridge has been favorably influenced by successive openings of sections of Route I-80, the Milford-Montague Bridge has lost some traffic both to I-80 and the recently opened I-84, as evidenced by the large increases on the Delaware Water Gap Bridge in 1970, 1971 and 1974 when traffic using the Milford-Montague Bridge showed very little growth. In 1972, Route I-84 was opened through Pennsylvania to Route US 6 near Milford. The route is now complete to Route 191 near Scranton. Traffic on both bridges continued to increase in 1974 despite the energy shortage and higher fuel prices.

Table 25-5 Growth Trends Delaware River Crossings

Year	Delaware Water Gap Annual Traffic	Percent Change	Milford-Montague Annual Traffic	Percent Change
1962	2,193,736		653,918	
1963	2,428,935	+10.7	697,806	+6.7
1964	2,546,155	+ 4.8	741,748	+6.3
1965	2,679,601	+ 5.2	780,025	+5.2
1966	2,936,244	+ 9.6	833,149	+6.8
1967	3,151,760	+ 7.3	854,497	+2.6
1968	3,335,086	+ 5.8	903,244	+5.7
1969	3,517,598	+ 5.5	921,220	+2.0
1970	4,016,207	+14.2	931,813	+1.2
1971	4,756,688	+18.4	945,038	+1.4
1972	5,034,929	+ 5.8	944,783	0.0
1973	5,290,979	+ 5.1	989,631	+4.8
1974*	6,072,000	+13.8	998,671	+0.9

* 1974 Total estimated on the basis of 10-month data available at time of analysis

In the Interim Report Roadway Master Plan by Edwards & Kelcey (1966), for the Impact area of Warren and Sussex County, an annual average traffic growth rate of five percent was estimated. A statewide growth rate of 3 3/4 percent per year is generally used by the New Jersey Department of Transportation for future planning purposes.

In Pennsylvania, the Department of Transportation estimated a growth of 75 percent in traffic from 1965 through 1990 in Pike and Monroe Counties (re: Highway Impact Study, Delaware Water Gap National Recreation Area, December 1966). This was based on the historical trend of growth prior to the year 1965.

Data from automatic Recorder stations in Pennsylvania (Table 25-6) show a four-year growth of about 84 percent in traffic in the three counties in Pennsylvania.

Table 25-6 Estimated and Actual Annual Average Daily Traffic AADT, Pennsylvania (A)

Location	Annual Average Daily Traffic 1969	1973	Four-Year Percent Change	Compound Annual Percent
U.S. 209, Dingman	3,937	12,415	+ 220%	+ 34%
U.S. 6, Hawley	2,231	1,690 (B)	- 24	- 7
Route 590, Lakeville	2,631(in'71)	3,738	+ 42	+ 9
U.S. 209, Smithfield	5,285	9,835	+ 86	+ 17
U.S. 611, at Route 314	4,700	6,899	+ 47	+ 10
	18,784	34,577	+ 84	+ 17

(A) In Pike, Monroe and Northampton Counties
(B) Traffic diverted to Route I-84

Except for the decrease at US 6 due to traffic diverted to Route I-84, all stations in the Pocono Mountains area had significant growth in traffic in the four-year period from 1969 to 1973. This growth could be attributed mainly to the increase in second-home building and in recreational facilities in the area during the period. However, the annual average daily traffic does not depict the true impact of second-home and recreational travel, but is a measure of the yearly traffic including permanent residents and accelerated growth trend. In effect, current traffic is at the levels estimated for 1990 in the earlier study by the Pennsylvania Department of Transportation. Similarly, the 1990 projections developed for the Master Plan for New Jersey in 1966 are compared in Table 25-7 with actual 1974 traffic volumes.

Table 25-7 Estimated and Actual Design Hour Volumes, New Jersey (A)

Location	Design Hour Volume: 1990 Traffic with Recreational Travel (estimated in 1966)(B)	Design Hour Volume: Actual 1974 Traffic (Summer Sunday)
Route 23 west of Rte.94	3,600 (C)	740
Route 15 south of Rte.94	2,100	1,100
U.S. 46 west of Rte.31	800	1,000
Route 31 south of U.S.46	2,000	1,300
Route 94 south of Newton	700 (C)	950
U.S. 206 south of Andover	2,000	1,950
TOTAL	11,200	7,040

(A) In Warren and Sussex Counties
(B) Edwards & Kelcey "Interim Report"
(C) Along proposed new alignment

Table 25-7 indicates that by 1974 about 63 percent of the traffic predicted for 1990 with the Lake Project had been realized (even without the Tocks Island Lake Project).

The development of an accurate growth trend based on the historical data for the area has been difficult because of the significant highway and land-use changes which have occurred in the late 1960's and early 1970's. Significantly, the changes have occurred since Tocks Island Dam Project was publicized and since the previous studies related to the Tocks Island Dam were completed in 1965 and 1966. These changes are evident in the comparison of traffic data presented previously for a number of locations in Pennsylvania. Also significant are the population data for the seven-county area and, in particular, for Sussex, Pike, Monroe and Warren counties, as shown in Table 25-8.

The population data indicate a growth of nearly 30 percent in the decade from 1960 to 1970 in the four counties sourrounding the TILP. Sussex County registered a gain of 57 percent. In the last three years, Sussex County population grew by more than 10 percent with Pike and Monroe Counties registering a similar growth. These data are for permanent resident population. The seasonal population (i.e., the leisure-home owners, year-round second-homes, and summer homes) is not included. The growth in this seasonal type of population has been even more dramatic. In Pike County alone it is estimated that two-thirds of the total housing permits are second-home or leisure-home permits. These are the weekend travelers on Friday and Sunday nights. Their impact is evident in the seasonal traffic data presented in Table 25-3 which indicates that traffic volumes on weekends are as high as 300 percent over the average.

Based on the estimated growth of resident population presented in Table 25-8, and a continuing growth in second homes, it is estimated that traffic in the area will continue to grow at a higher rate than the resident population growth. This trend is reflected in the growth rates listed in Table 25-5 for the river crossing traffic. Without the impact of changes in the highway system, the two bridges show a growth of about five percent annually. This is evident in the period from 1964 through 1969 at the Delaware Water Gap and Milford-Montague Bridges. Construction of Routes I-80 and I-84 has distorted the trend in the years after 1969.

Based on the previous assumptions, the following growth trends have been used in the traffic forecasts. For the entire tri-state area (seven-county region) it is estimated that traffic would continue to grow at the rate of five percent

Table 25-8 Population - Seven-County Area (in thousands)

County	State	Historical Year			Historical Average Annual Growth		Estimated Average Annual Growth			Estimated Year		
		1960	1970	1973	1960-70	1970-73	1973-85	1985-90	1990-2000	1985	1990	2000
Sussex	New Jersey	49.3	77.5	85.6	4.5%	3.5%	3.5%	2.5%	3.5%	127.0	142.5	197.0
Warren	New Jersey	63.2	74.0	76.4	1.5	1.0	1.5	1.5	1.5	92.0	100.0	118.0
Monroe	Pennsylvania	39.6	45.4	49.3	1.5	3.0	2.0	2.0	2.0	63.0	70.5	86.0
Pike	Pennsylvania	9.2	11.8	12.9	2.5	3.0	3.0	2.0	2.0	18.0	20.0	24.5
Subtotal		161.3	208.7	224.2	2.5	2.5	2.5	2.0	2.5	300.0	333.0	425.5
Northampton	Pennsylvania	201.4	214.5	221.3	1.0	1.0	1.0	1.0	1.0	242.0	252.0	273.0
Orange	New York	183.7	221.7	233.6	2.0	2.0	1.5	2.0	1.5	282.0	310.0	360.0
Sullivan	New York	45.3	52.6	57.7	1.5	2.0	1.5	1.5	1.5	70.0	75.0	86.0
Total		591.7	697.5	736.8	1.5	2.0	1.5	1.5	1.5	894.0	970.0	1144.5

per year through the year 1980. After that date, traffic growth would more nearly reflect population growth with the following rates estimated.

In New Jersey, traffic will grow in accordance with population forecasts, by a rate of 2 1/2 percent from 1980 to 1985, two percent from 1985 to 1990, and three percent in the last decade to 2000. In Pennsylvania, the rates will be three percent, two percent, and two percent, respectively. In New York State, the rates will be two percent, two percent, and 1 1/2 percent, respectively.

Table 25-9A shows the estimate of 1985 annual average daily traffic (AADT) along major routes in the seven-county area. Also presented are the summer Sunday average peak volumes and the percent that the average peak hour would be of AADT.

The estimated volumes in Table 25-9A without TILP are the result of using areawide growth trends and do not necessarily represent precise individual estimates for each particular route. Some routes may not experience the areawide trend, while others may experience a much higher traffic growth. Estimates of this type usually apply uniform growth rates to routes of similar traffic characteristics. Note also that the relationship of peak (design) hour to AADT is lower for 1985 than it was in the year 1974 (Table 25-4). The lowest percent is based on trends developed in 1963 by Bellis and Hones, "Highway Research Record" No. 27, 1963, and by Walker in "Highway Bulletin" No. 167, 1957, which indicate that as the AADT increases, the peak hour expressed in terms of percent of the AADT

Table 25-9A Estimated Traffic Volume 1985 - Highway System Without TILP

Route	Location	Annual Average Daily Traffic	Summer Sunday Avg. Peak Hour	Avg. Peak Hour as Percent of AADT
NEW JERSEY				
519	South of U.S.46	8,640	1,200	14
U.S.46	West of Route 31	9,550	1,330	14
I-80	West of Route 94	25,000	4,500*	18
I-80	West of U.S.206	22,440	4,000*	18
Route 15	South of Route 94	9,400	1,500	16
Route 23	West of Sussex	4,550	1,000	22
Route 31	South of U.S.46	13,800	1,790	13
Route 94	South of Newton	8,030	1,200	15
U.S.206	South of Andover	23,190	2,780	12
Route 23	West of U.S.202	36,240	4,350*	12
PENNSYLVANIA				
U.S.611	South of I-80	6,370	1,020	16
U.S.209	South of Marshalls Creek	15,300	1,840	12
I-80	East of I-380	25,800	4,600*	18
Route 402	South of I-84	2,800	560	20
Route 739	South of I-84	2,020	400	20
U.S.6	East of Route 402	4,815	870	18
U.S.209	North of Route 402	18,640	2,670	14
I-84	At Port Jervis	17,860	1,300*	
NEW YORK				
U.S.6	East of Port Jervis	5,030	700	14
I-84	West of Route 17	21,750	2,600*	12
U.S.209	South of Route 17	5,700	570	10
Route 42	South of Route 17	4,880	880	18
Route 97	North of Route 55	3,180	509	16
BRIDGES				
Delaware Water Gap - (I-80)		25,790	4,600*	18
Milford-Montague - (U.S.206)		4,360	1,482	34

* One-way in direction of heavier flow

decreases. The rate of decrease varies according to total highway volume carried. This "filling in of the valleys" in the hourly traffic distribution results from there being no further capacity during peak hours to accommodate more traffic.

Table 25-9B presents the projections for traffic for the years 1990 and 2000. These projections are based on population growth, assuming that traffic will grow at the same rate as population after the year 1985. Growth for routes in Pennsylvania are based on estimated population growth in Pennsylvania counties. Similarly, traffic growth for routes in New Jersey and New York State are based on population growth within the counties affected in each state. None of the projections shown in Table 25-9A and 25-9B take into account proposed or planned roadway improvements or the impact of the TILP.

The above "normal" (i.e., without TILP) growth rates, which are far below past trends, reflect the effect of the energy shortage which was particularly severe in the Northeast during December 1973 and the early months of 1974. The results of the enery shortage, which have carried through to 1975 and will continue in the future, include higher fuel prices, pressures for car pooling and a generally anti-automobile sentiment in governmental and quasi-governmental transportation planning agencies.

XXV.A.1(i) Unused Capacity of Routes at Present and In the Future

As discussed in Section XXV.A.1(f), major routes in the area are presently carrying heavy traffic; in particular, US 206, I-80 through the Delaware Water Gap, and some localized congested areas through towns and at

Table 25-9B Estimated Traffic Volumes for 1990 and 2000 - Highway System

Route	Location	Annual Average Daily Traffic		Summer Sunday Avg. Peak Hour		Avg. Peak Hour as Percent of AADT	
		1990	2000	1990	2000	1990	2000
NEW JERSEY							
519	South of U.S.46	9,540	12,820	1,335	1,670	14	13
U.S.46	West of Route 31	10,540	14,165	1,475	1,840	14	13
I-80	West of Route 94	27,600	37,100	4,970*	5,940*	18	16
I-80	West of U.S.206	24,780	33,300	4,460*	5,330*	18	16
Route 15	South of Route 94	10,380	13,950	1,560	2,090	15	15
Route 23	West of Sussex	5,020	6,750	1,050	1,350	21	20
Route 31	South of U.S.46	15,240	20,480	1,980	2,660	13	13
Route 94	South of Newton	8,870	11,920	1,240	1,670	14	14
U.S.206	South of Andover	25,600	34,400	3,070	4,130	12	12
Route 23	West of U.S.202	40,010	53,770	4,800*	6,400*	12	12
PENNSYLVANIA							
U.S.611	South of I-80	7,030	8,750	1,050	1,290	15	15
U.S.209	South of Marshalls Creek	16,890	20,590	2,030	2,471	12	12
I-80	East of I-380	28,490	34,730	4,840*	5,500*	17	16
Route 402	South of I-84	3,090	3,770	740	850	24	22
Route 739	South of I-84	2,230	2,720	535	600	24	22
U.S.6	East of Route 402	5,320	6,490	900	1,040	17	16
U.S.209	North of Route 402	20,580	25,090	2,675	3,261	13	13
I-84	At Port Jervis	19,720	24,040	2,210*	2,355*	16	14
NEW YORK							
U.S.6	East of Port Jervis	5,540	6,430	780	900	14	14
I-84	West of Route 17	24,010	27,860	3,600*	3,900*	15	14
U.S.209	South of Route 17	6,290	7,300	630	730	10	10
Route 42	South of Route 17	5,390	6,255	970	1,060	18	17
Route 97	North of Route 55	3,510	4,070	560	650	16	16
BRIDGES							
Delaware Water Gap - (I-80)		28,470	38,260	5,120*	6,120*	18	16
Milford-Montague - (U.S.206)		5,050	6,800	1,515	1,900	30	28

* One-way in direction of heavier flow

major intersections. There is very little unused capacity to accommodate future growth. The traffic estimated for the year 1985 during at least three morning hours and three evening hours on summer Sundays and three evening hours on summer Fridays, would cause above capacity (i.e., forced flow) conditions to prevail along I-80 from I-380 through the Delaware Water Gap; on Route 31, south of US 46; on US 46; on Route 15; on US 206 through Newton, Andover, Netcong and south; on Route 23, west of US 202; on US 209, between Stroudsburg and Milford and on the Milford-Montague Bridge.

Other New Jersey routes on which traffic will be approaching unstable flow (i.e., Level of Service "D") are: Route 94, south of Newton; Route 23, west of Sussex; Route 519, south of US 46; and I-80, between US 206 and US 46, east of the Delaware River. These routes would be at Level of Service "D", indicative of congestion approaching unstable flow. Further traffic growth would generate capacity and delays.

Routes 402, 739, and I-84 in Pennsylvania would be operating with more traffic congestion than that represented by Level of Service "C", indicating that any added traffic growth would cause a drop to Level of Service "E". All routes in New York State serving the area would also be experiencing similar Level of Service "C" to "D" conditions, with near capacity conditions along Routes 42 and US 209.

Table 25-10, which follows, is a summary of traffic conditions prevailing in 1974. The table includes a column, "Unused Capacity", which represents the possible additional hourly traffic which could be accommodated

Table 25-10 Traffic Volumes and Unused Capacity (1974) - Highway System

Route	Location	Annual Average Daily Traffic	Summer Sunday Avg. Peak Hour	Level of Service	Unused Capacity
NEW JERSEY					
Route 519	South of U.S.46	5,700	900	D	600
U.S.46	West of Route 31	6,300	1,000	D	800
I-80	West of Route 94	16,500	3,300*	E	300
I-80	West of U.S.206	14,800	3,000*	C	2,200
Route 15	South of Route 94	6,200	1,100	D	400
Route 23	West of Sussex	3,000	740	D	760
Route 31	South of U.S.46	9,100	1,300	D-E	200
Route 94	South of Newton	5,300	950	D	550
U.S.206	South of Andover	15,300	1,950	F	-
Route 23	West of U.S.202	23,900	2,900*	D	700
PENNSYLVANIA					
U.S.611	South of I-80	4,100	750	D	750
U.S.209	South of Marshalls Creek	9,580	1,300	D	2,300
I-80	East of I-380	16,600	3,340*	E	260
Route 402	South of I-84	1,800	400	C	1,100
Route 739	South of I-84	1,300	300	B	1,200
U.S.6	East of Route 402	3,100	650	B	1,150
U.S.209	North of Route 402	12,000	1,870	F	-
I-84	At Port Jervis	11,500	840*	A	2,760
NEW YORK					
U.S.6	East of Port Jervis	3,400	510	B	1,290
I-84	West of Route 17	14,700	1,760*	B	1,840
U.S.209	South of Route 17	3,850	410	C	1,090
Route 42	South of Route 17	3,300	670	D	830
Route 97	North of Route 55	2,150	390	B	1,110
BRIDGES					
Delaware Water Gap - (I-80)		16,600	3,340*	E	60
Milford-Montague - (U.S.206)		2,740	1,030	D	440

* One-way in direction of heavier flow

on each route before ultimate capacity (i.e., Level of Service "E") conditions are reached. While it appears that most routes would be able to absorb additional traffic, it should be realized that almost all of them are above Level of Service "C", the generally acceptable condition for rural highways. (In New Jersey, all are above Level of Service "D", which indicates that with normal traffic growth trend most of the major routes would be at or near ultimate capacity in the very near future.) Local routes, such as Routes 521 and 519, are carrying volumes of traffic at Level of Service "C" and could handle additional traffic. However, to reach these local roads leading to the DWGNRA, drivers must first travel along the already congested major roads. The unused capacities listed in Table 25-10 reflect rural highway conditions. Within towns where traffic volumes are even higher and traffic signals reduce capacities at intersections, the unused capacity is significantly less.

A particularly sensitive location is Route I-80 through the Delaware Water Gap area, including the bridge over the Delaware River, which is operating at capacity with forced flow conditions occurring throughout the summer season. Another location is Route US 209 from Marshalls Creek to Milford, Pennsylvania. In New Jersey, in addition to Route I-80 along the DWGNRA, Route US 206 is operating at capacity. US 206, particularly through the Town of Newton, is above capacity throughout the year including weekday off-peak hours in the winter.

Although Routes 402 and 739 radiate directly from the recreational area in Pennsylvania, most of the traffic generated by the recreational area

would not use these routes because traffic destined to the area originates mainly from the south, whereas the two routes are from the northwest.

The traffic volumes shown in Table 25-10 include present (1974) recreational travel to the DWGNRA. It is estimated that the present annual visitation is about 800,000. This visitation, translated into actual passenger car peak traffic on a summer Sunday, with a turnover of 1.15 percent, the peak load (assuming all vehicles parked at one time and assuming 3.75 passengers per vehicle) is reduced to about 1,950 vehicles. Under present conditions, dispersal time is estimated to be about three hours. The peak vehicular flow would be about 650 passenger cars departing from the DWGNRA in all directions. Assuming 60 percent of these to be traveling east, (as discussed in Section XXV.B.2(a)) the traffic demand on New Jersey roads is further reduced to about 390 cars during peak hours. Routes US 46, I-80, US 206, NJ 15, and NJ 23 carry about 9,000 vehicles in the direction of heavy flow away from the DWGNRA. The existing DWGNRA traffic is only about four percent of this total. Nevertheless, because of the capacity limitations now prevailing along the critical locations, such as the Delaware Water Gap Bridge, US 206 and NJ 15, the additional traffic that the system can handle over the present 800,000 visitation is limited. Larger increases in traffic undoubtedly would cause additional congestion and delays. If Sunday traffic on the routes approaching the TILP were increased by about 400 vehicles (the unused capacity) during the peak hour, principally on NJ 15, the portion of I-80/US 46 through the Delaware Water Gap, and NJ 23 in Passaic County (further growth on this route would be constrained), i.e. a possible total of 1,600,000 to 1,800,000

(i.e., 800,000 to 1,000,000 over the present 800,000) annual visitors could have been handled by the present transportation (highway) system in 1974.

With the very rapid rate of growth in traffic along I-80 and to a lesser extent along NJ 15, it is doubtful that the additional 0.8 to 1.0 million visitation (which would have been able to use the highway system in 1974) would be attained in the near future unless the planned highway improvements are implemented. A detailed discussion of visitation versus highway system is presented in Section XXV.B.2(c) and XXV.C.4.

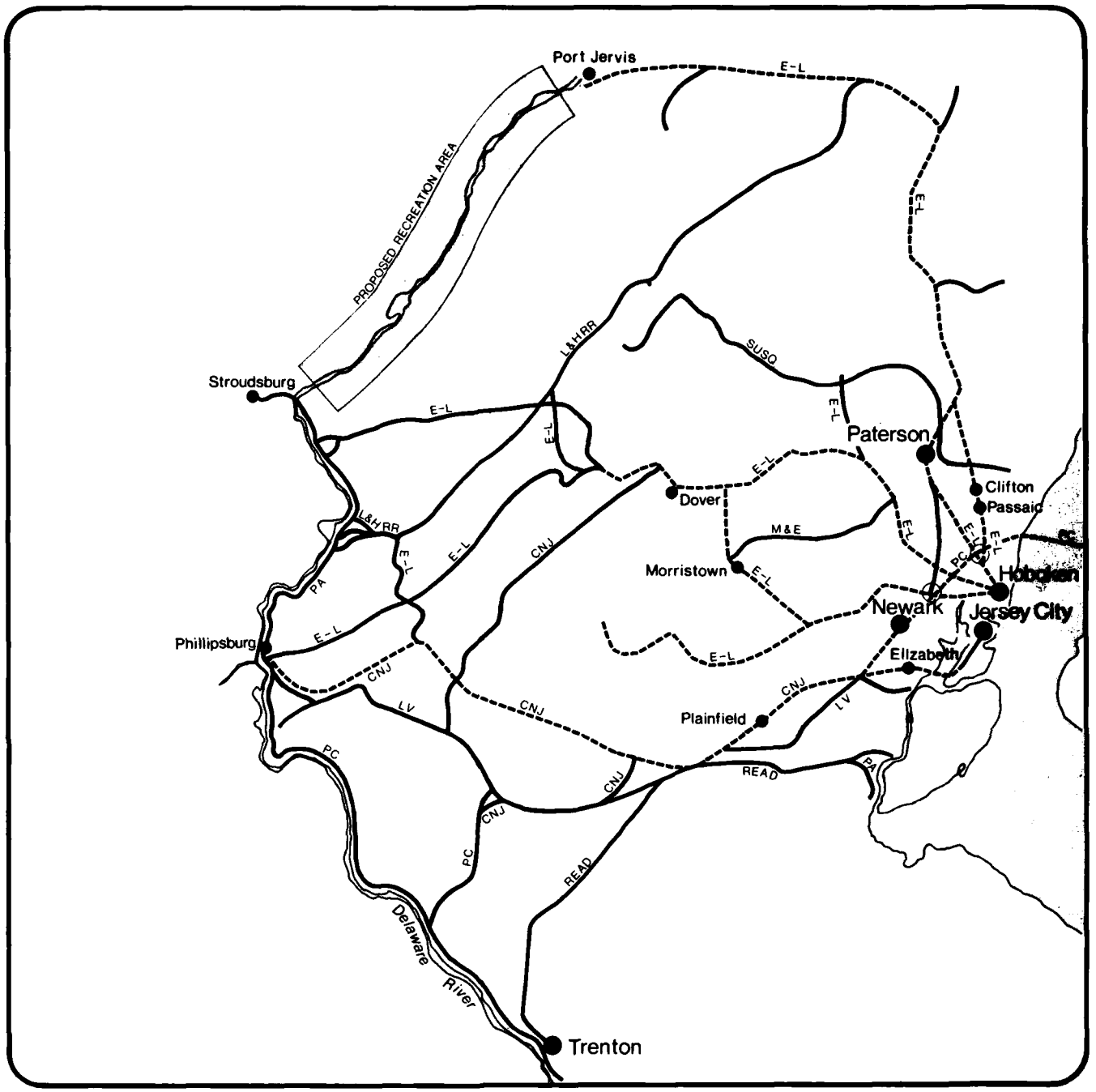
XXV.A.2 PUBLIC TRANSPORTATION SYSTEM - RAIL

XXV.A.2(a) Existing Railroad Lines

Although the TILP study area borders on several existing railroad lines, only four daily (Monday-through-Friday) and two Saturday trains service the immediate region of the proposed 37-mile-long recreation area. This service is on the Erie-Lackawanna Railroad between Hoboken, New Jersey and Port Jervis, New York. Railroads which still have freight service and/or existing trackage in the Tri-State area surrounding the Tocks Island project include the Penn Central, Susquehanna, Lehigh Valley, Central Railroad of New Jersey, the Lehigh and Hudson, Reading, and Erie-Lackawanna. (See Exhibits 25-7 and 25-8).

As seen on these maps, the existing trackage provides excellent routings from the major population centers of New York, New Jersey, and Pennsylvania, which have been forecast as the areas from which virtually all of the TILP patronage will come. Whereas the northernmost end of the proposed recreation areas is still being served by Erie-Lackawanna trains to Port Jervis, the discontinuance of passenger service into Stroudsburg by the E-L in 1960 has left the rest of the TILP region with only freight service or abandoned lines.

Approximately 40 percent of the annual visitors to TILP have been projected as coming from the New York City and Northern New Jersey areas. This region, while presently lacking any other direct rail passenger service,



0 2 4 6 8 10
SCALE IN MILES

N

LEGEND

---------- EXISTING PASSENGER-FREIGHT LINES

———— EXISTING FREIGHT LINES

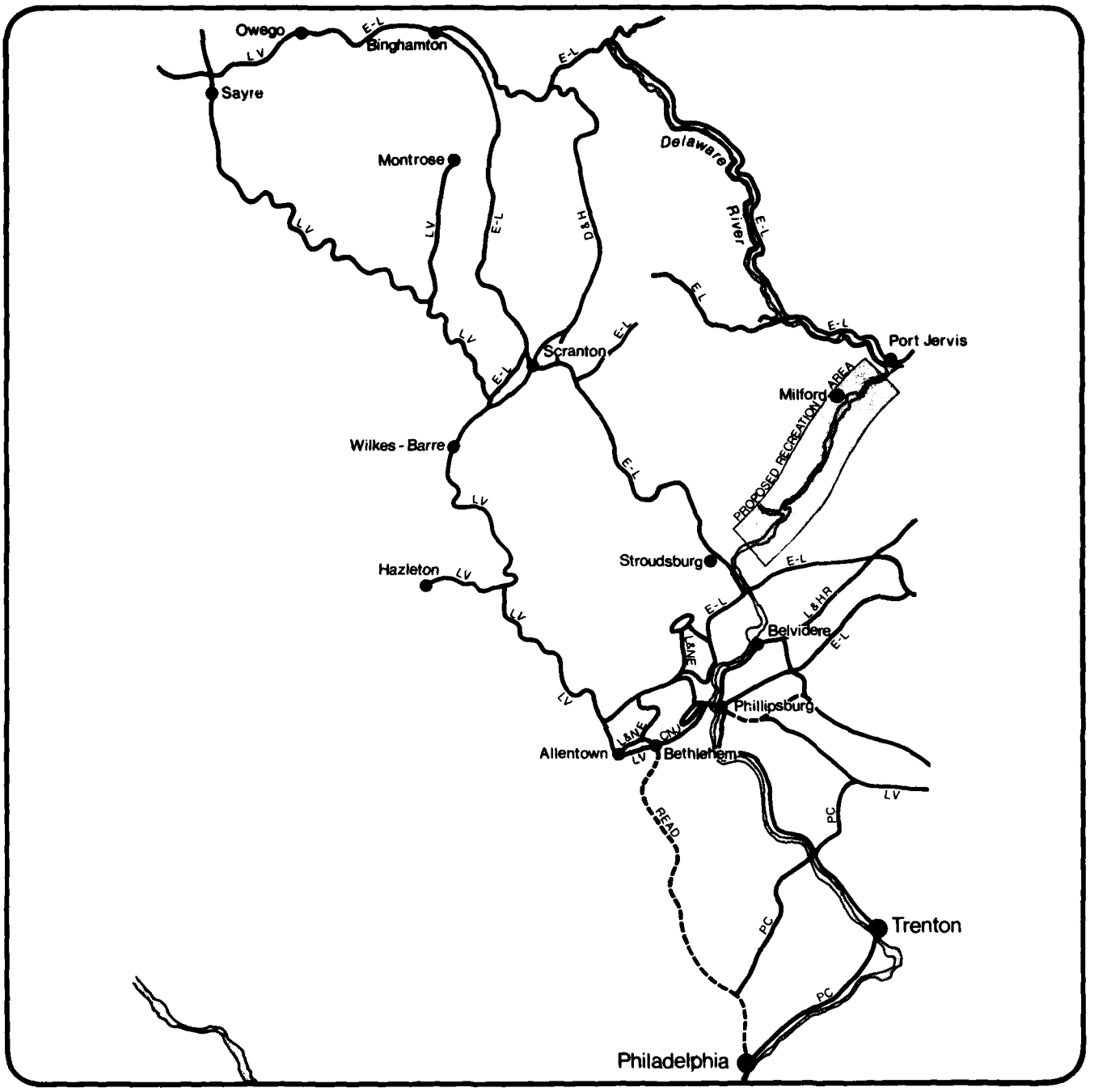
EXISTING RAIL SERVICE IN NORTHERN NEW JERSEY 7

SOURCE: URS/MADIGAN-PRAEGER, INC.

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT



EXISTING RAIL SERVICE IN NORTHEASTERN PENNSYLVANIA

8

SOURCE: URS/MADIGAN-PRAEGER, INC.

LEGEND

- EXISTING PASSENGER-FREIGHT LINES
- FREIGHT LINES

A COMPREHENSIVE STUDY OF THE

TOCKS ISLAND LAKE PROJECT & ALTERNATIVES

URS / MADIGAN-PRAEGER, INC. & CONKLIN AND ROSSANT

aside from the 87-mile Erie-Lackawanna trip from Hoboken to Port Jervis, nevertheless has numerous lines which offer a sufficient east-to-west link to the proposed site. The Erie-Lackawanna again provides the most attractive route, over its Morristown Line out of Hoboken, which now terminates at Netcong. This line extends into Pennsylvania at Stroudsburg, only five miles south of the proposed dam at the TILP. Currently still used for freight, this route was used by the E-L's famed "Phoebe Snow" to Buffalo, New York.

Other major rail links to the eastern population centers are the Central Railroad of New Jersey, formerly out of Jersey City, and now providing passenger service from Newark and Bayonne, running through Union, Somerset, and Hunterdon counties before terminating at Phillipsburg; the Lehigh Valley, which parallels the Jersey Central route further to the south before also cutting through Phillipsburg upon entering Pennsylvania; the Susquehanna Railroad from Bergen County to Sparta, New Jersey; and the Lehigh and Hudson Railroad running through the northwest part of New Jersey and the southern part of New York State through the towns of Hamburg, Franklin, Andover, and into Belvidere on the Delaware River. These lines are still in service as major freight routes.

It has also been estimated that the Philadelphia-Camden-Trenton region will be the origin for about 25 percent of the TILP annual patronage. This area also has access to the proposed site via the Penn Central Railroad's line from Philadelphia to Trenton (a major passenger corridor) and then from Trenton north to Belvidere along the Delaware River, which is still used

for freight. The Reading Railroad operates daily service between Philadelphia and Bethlehem.

North and west of the TILP, the cities of Scranton, Wilkes-Barre, Binghamton, Albany, and other communities in Pennsylvania and New York have rail lines which could concievably bring visitors to the northern and southern boundaries of the recreation site - the Erie-Lackawanna into Port Jervis and the Lehigh Valley and Erie Lackawanna into Stroudsburg.

Although many of these rail routings do not service the precise location of the TILP, the majority of expected visitors to the area can be acommodated by rail if, in the event of massive highway congestion (which is anticipated under present road capacities), careful planning can coordinate various lines to bring patrons to a common terminal point, such as Port Jervis or Stroudsburg, and provide shuttle service to the recreation area. The shuttle service has been suggested by various modes, chiefly bus. However, the possibility for ferry-type service from Port Jervis may be a practical alternative.

XXV.A.2(b) Physical Characteristics and Travel Times

The Erie-Lackawanna and Jersey Central Railroads, which are the only lines currently serving the TILP to any extent, have been the recipients of substantial operating subsidies from the State of New Jersey. This financial aid has been translated into new diesel locomotives for both railroads and modern air-conditioned coaches for the E-L. The Jersey Central has purchased used rolling stock from other railroads, which includes air-

conditioned coaches as well as a more comfortable ride compared to their previous antiquated equipment.

Most of the roadbed in the Tri-State area leading to the TILP is in good condition, although the curvatures of some of the trackage results in slow operating speeds and unattractive travel times when attempting to compete against the auto or even the bus. Evidence of this can be seen in the 87.2-mile trip from Hoboken to Port Jervis, which takes 2½ hours. Typical travel times from New York City to Port Jervis by automobile range from 1½ hours in off-peak non-summer traffic to 2½ hours during the peak recreational season. The 2¼-hour train ride does not include the time which must be alloted to travel to Hoboken, about 20 minutes from the PATH terminal at 33rd Street in Manhattan, plus allowance for waiting and transfers.

Similarly, a car ride from New York City to the Delaware Water Gap, which is adjacent to the southernmost point of the proposed Tocks Island Dam, ranges from 1¼ to two hours, depending on time and season. Before the discontinuance of the Erie-Lackawanna passenger service in 1960, trains such as the E-L's "Owl" made the 82.6-mile journey from Hoboken to Stroudsburg in about two hours. Presently, the Jersey Central's Monday-through-Friday passenger runs from Newark to Phillipsburg, with a connection to New York City's Pennsylvania Station, take two hours and twenty minutes.

The enjoyment of a train ride through this particularly beautiful region, with modern equipment and the avoidance of traffic jams, might be inducements to attract rail patronage to the TILP and offset the longer travel

times. However, even with these qualities, rail access with terminals only at Port Jervis-Stroudsburg-Phillipsburg, still leaves the traveler without directed entry into a particular site in the recreation area, unless some shuttle service is indeed provided.

XXV.A.2(c) Traffic Capacities by Rail

It has been common practice to make comparisons between a single track rail line and a highway on the assumption that a 10-car train carrying 80 passengers per car would be the equivalent of 250 passenger cars. Trains running at 1½ minutes headways would carry on the one track about 32,000 seated passengers per hour. A highway, to carry the same load, would require 9,100 passenger cars in one hour, and at least six lanes in one direction, or the equivalent of a 12-lane expressway. These comparisons, however, are valid to some extent only within the core of large metropolitan areas, e.g., New York or Chicago, where rapid transit by elevated or subway trains carry even larger volumes of passengers.

In dealing with the possibilities of rail travel to the TILP, it should be realized that rail service, to be efficient, would have to be limited to a certain number of trains running from a major population center to a major terminal in the TILP area. Efficiency would affect profitability and the need for subsidy, if any. The capacity of such a system would be determined by the equipment rather than by trackage. It is questionable whether the demand would ever reach the proportions which could reduce motor vehicle travel to acceptable levels of service (see Section XXV.B.2(c)(2) on Modal Split) unless energy considerations and major unpredictable changes

in travel habits occur.

XXV.A.2(d) Present Volumes

Whereas rail commuter travel has remained relatively stable during the last few years in the Tri-State region, patronage of the railroads for trip lengths beyond the two-hour limit (e.g., Hoboken to Port Jervis or Newark to Phillipsburg) have been in continual decline to the present insignificant levels.

Present estimates note that approximately 95 percent of trips to the TILP will be by motor vehicle. If the present access by rail (shown in Table 25-11) is not modified or expanded, this figure would appear to be reasonable.

The Jersey Central's Newark-Phillipsburg train, which began service in 1974, presently carries 50 to 60 passengers making the daily Monday-through-Friday trip. This is a higher count than the average of 18 passengers who use the Erie-Lackawanna between Port Jervis and Hoboken during weekdays. The data show that these volumes remain relatively constant throughout the year, with a substantial drop on weekends, indicating that the passengers are commuters (see Table 25-11).

The continued expansion of suburbia from the metropolitan centers might provide a market for rail links to points 70 and 80 miles from employment centers, such as Phillipsburg and Port Jervis. This experiment is clear in Jersey Central's extension of service to Phillipsburg and in the

Table 25-11 Erie-Lackawanna Railroad Passengers (1974)

Date	Hoboken to Port Jervis				Port Jervis to Hoboken			
	Train No.	Departing Hoboken Time	Departing Hoboken Passengers	Arriving Port Jervis Passengers	Train No.	Departing Port Jervis Time	Departing Port Jervis Passengers	Arriving Hoboken Passengers
Wednesday 5/15/74	57	4:30PM	495	18	52	6:07AM	35	623
	59	5:42PM	632	18	54	6:49AM	21	421
Saturday 5/18/74	71	4:00PM	139	6	70	7:48AM	10	136
Wednesday 11/13/74	57	4:30PM	503	18	52	6:07AM	20	640
	59	5:42PM	677	17	54	6:49AM	16	519
Saturday	71	4:00PM	97	5	70	7:48AM	9	97

NOTE: There is no Sunday passenger service between the two points.

planning for the PATH (Port Authority Trans-Hudson) extension from Newark to Plainfield via Newark International Airport. The absence of any weekend runs on the Jersey Central route and the very low readings of the Erie-Lackawanna's Port Jervis-Hoboken Saturday trains do not provide any significant base data by which any conclusions could be formulated for off-peak recreational travel to the TILP.

XXV.A.2(e) Unused Capacities

If improvements to the major highways leading to the TILP are not extensive and the estimates of automobile usage and annual patronage to the TILP are realized, the upgrading of mass transportation, especially with regard to the carrying capabilities of railroads, should certainly be investigated.

The presence of well-maintained, existing trackage in virtually every area from which patronage is expected only leaves the problem of direct links or shuttle service to each particular area of the TILP. This could be handled by bus, minibus, ferry or other special types of shuttle vehicle.

XXV.A.3 PUBLIC TRANSPORTATION SYSTEM - BUS

The seven-county region is presently served by a relatively adequate bus system from both the Philadelphia and New York City Metropolitan Areas. The system has generally developed as demand for service increased. With the opening of Interstate 80, major insterstate bus lines shifted their

east-west runs from the southern route along the Pennsylvania Turnpike to the more direct route along I-80 (the Keystone Expressway) to Ohio and the West. Conversely, before the opening of Route 17 (Quickway) in New York State, the main route from New York City to Binghamton and the northwest was via the Pocono Mountains regions, including Scranton as a major stop. More significant to the region, however, is the increasing service being provided by a number of bus lines, most of which are franchised lines from major operators.

XXV.A.3(a) Major Existing Routes

Bus service is presently provided to the Pennsylvania, New Jersey and New York counties in the TILP impact area by the following bus lines.

XXV.A.3(a)(1) Bus Service to Pennsylvania Counties in the Impact Area

1. Greyhound - Operates from Philadelphia and New York City to Stroudsburg in Monroe County. There are approximately five buses daily to and from New York City and two buses daily to and from Philadelphia. There is also a limited service to the Delaware Water Gap in Warren County, New Jersey. Greyhound also provides non-stop express service to the West via the Delaware Water Gap and Interstate 80, and to Scranton and Binghamton via I-80, I-380, and I-81.
2. Trailways - The Trailways Bus System comprises regional franchises with Martz serving the Poconos in Pennsylvania. Martz has three scheduled daily trips from Philadelphia to Wilkes-Barre and Scranton, with two additional

trips on Fridays and Saturdays, and an added run on Sundays. There are also extra trips on Fridays and Sundays to the resort areas of Mt. Pocono, Stroudsburg and a large number of small communities in the Pocono Mountains area in Monroe County. Even more intensive service is provided from New York City, with added runs on weekends. The New York service has convenient connections to New England. Trailways also provides service to the West via I-80 through the Delaware Water Gap.

3. Hudson Transit Lines - A Shortline regional franchise providing daily service from New York City to Scranton, Pennsylvania via Middletown and Port Jervis, New York, and Milford, Hawley, Honesdale and Carbondale, Pennsylvania. There are four daily round-trips, five on Fridays and one less on Sundays and holidays. During the summer, additional trips are scheduled on Fridays and Sundays. Hudson Transit Lines is providing one run in each direction between Hemlock Farms, Pennsylvania (Route 739) and New York City, with plans for added service in the summer.
4. Seaway Coach Lines - Provides daily service from New York City to Stroudsburg.
5. Pocono Mountain Trails - Provides service from Stroudsburg to Philadelphia. In addition, there is limited service to Scranton, Mt. Pocono and Milford. The run

to Scranton is local, servicing the smaller communities along the route. There is a weekday trip from Stroudsburg to Milford along Route 209, leaving Stroudsburg on Fridays and returning from Milford on Sundays.

As indicated by the services provided by the bus lines in the Pennsylvania portion of the seven-county region, the service is mainly non-commuting and is responsive to the recreational demand, except for the limited daily runs to Philadelphia and New York City from Scranton, Wilkes-Barre and Stroudsburg.

XXV.A.3(a)(2) Bus Service to New Jersey Counties of Sussex and Warren

1. Lakeland Bus Lines - Serving Sparta, Stanhope, Netcong and Lake Hopatcong. These services are express to New York City and provide mainly commuter service. Weekend service is increased to Sparta, Stanhope and Netcong. Lakeland also provides extensive coverage to other communities just outside the limit of the seven-county region, mainly in Morris County, with frequent runs to Dover and other communities. This service is reduced on weekends. Lakeland also serves the Hackettstown-New York City route.
2. Northeast Coach Lines - Also serves areas within the impact region, including Culvers Lake, Sussex, Newton, Lake Mohawk, Franklin, Hamburg and other

communities on the route to New York City. There are three round-trip runs on weekdays, including express service from Culvers Lake-Lake Mohawk. Only one trip is made on weekends and holidays. During the skiing season, an additional trip is made to the Great Gorge Ski Area at McAffee, New Jersey.

3. Real Transit Company - Makes approximately seven round-trips to New York City from Blairstown, Newton, Andover and Stanhope during weekdays. On weekend, the service is curtailed to two trips on Saturdays and three on Sundays.

XXV.A.3(a)(3) Bus Service to New York State Counties

1. Shortline - Provides three daily round-trips between New York City and Port Jervis, the northern point of the proposed recreation area.
2. Shortline - Also services Middletown, with seven daily trips to New York City, while eight runs are made to Middletown from the Port Authority Terminal.

XXV.A.3(b) Scheduling and Travel Times

Although the aforementioned bus lines provide only modest scheduled services, they do serve key locations throughout the TILP area which can be extended or modified to increase public transportation by bus to reach the proposed recreation site.

The major routes offer competitive travel times with the automobile, as well as schedules which reflect a definite appeal for commuting between the Tocks Island region and the New York City area. Real Transit Company, for instance, which serves the New Jersey towns of Blairstown, Newton, Andover and Stanhope, makes the trip to New York City in just over two hours. Similarly, the Shortline Bus Company, which provides daily round-trip service between Milford, Pennsylvania and Port Jervis, New York, with New York City, also takes just over two hours. The fare on both these runs is between $7.00 and $8.00. Another important route is North-east Coach Lines' service to Sussex County. From New York City, the line serves communities such as Ogdenburg, Sussex and Culvers Lake in 2½ hours. In addition, there is a special ski bus which is operated to the Great Gorge Ski Area on weekends and holidays during the skiing season.

In addition to this special ski excursion service, the bus lines mentioned above provide additional service in the summer months to meet increasing recreational travel demands in the area. Scheduling is generally extended to include weekends on routes which normally run only Monday-through-Friday, while companies which normally offer weekend service increase this service during peak recreational travel demand.

With travel times competitive with the automobile, and the flexibility of routes which buses can provide as compared with other modes of public transportation (e.g., railroads and airplanes), it is apparent that bus services to the TILP would be of prime importance in serving large numbers of visitors to specific sites, if the demand materializes and if

fares and convenience of service are such as to attract motorists who would otherwise us their own vehicles to reach the area.

Charter bus service is presently popular to the New Jersey shore resorts and to state parks and campsites in Northwestern New Jersey. If the demand develops, buses could provide a significant service to the TILP. There are no complete, reliable data available on total numbers of charter bus trips made during the summer. Bus companies generally are reluctant to release this information, and some runs are by small operators under lease agreements.

The normal growth of the Tri-State area, combined with the development of such a recreational site, would give rise to increased travel demands in off-peak hours throughout most of the year (depending upon the extent of recreational activities available). As demand develops, additional scheduled trips could be added and extensions of service by those lines now operating in the area to new areas, as well as the addition of new routes, would naturally follow the demand.

XXV.A.3(c) Carrying Capacities

Capable of providing direct access to the TILP, as well as reasonable travel times, the carrying capacity by bus could be an additional factor in making it the prime public transportation mode to the TILP. A 40 to 50-seat bus traveling to the recreation site, compared with the automobile with an average of three or four passengers, obviously would eliminate 10 to 15 automobiles from the highways leading to the TILP area, but each

bus is equivalent to three or four passenger cars in the traffic stream, depending on whether it is traveling on rolling terrain or on mountainous terrain. See Section XXV B 2(c)(2).

A dramatic use of public transportation, such as by bus, would be responsive to the present concerns of many citizens by reducing traffic and energy consumption. With relatively less congestion on the roads leading to the TILP, automobile and bus travel times would both be enhanced and would not discourage trips to the site. This could only be realized, however, if buses become the significant mode of travel to the TILP, rather than a supplementary one.

The respective State Departments of Transportation in Pennsylvania, New Jersey and New York have indicated a preference for bus transportation as opposed to undertaking the major planning task of reviving railroad passenger service into the area. In any event, an adequate fleet of buses could easily serve with greater flexibility the limited numder of visitors who could be expected to visit the TILP by rail.

The only limitation in bus transportation as compared with rail is that normally buses must share the highways with automobiles and trucks, thereby encountering the same delays during congested periods (see Section XXV.A.1 of this report). A possible alternative to the shared use of the highways is the exclusive bus lane, now in use during peak hours on the approaches to the Lincoln Tunnel in New Jersey and the Queens-Midtown Tunnel from Long Island. These operations, however, serve commuter buses

on relatively short headways and only where bus transit is of such great magnitude that it is advantageous to pre-empt a lane for their exclusive use. It is very unlikely that an exclusive bus lane could be justified on the multi-lane highway serving the TILP area. As bus usage develops, however, a detailed benefit-cost analysis could be made at that time to determine if exclusive bus lanes are justified, especially on some of the access routes to the TILP from the major highways.

XXV.A.4 OTHER TRANSPORTATION

XXV.A.4(a) Air Transportation

The nearest cities to the TILP with scheduled airlines service are Wilkes-Barre and Scranton, Pennsylvania and the more distant airport at Binghamton, New York. The Wilkes-Barre-Scranton airport is served by Allegheny, Altair and Monmouth Airlines, the latter two being commuter airlines. Scheduled service is from Philadelphia, Allentown and New York City. Binghamton has more frequent flights connecting with a wider range of cities, including Pittsburgh, Albany, Allentown, New York City, Poughkeepsie, White Plains and Williamsport. Most of the service is via commuter carriers and Allegheny Airlines. Newark Airport is closer to the TILP than Binghamton.

In addition to the two above-mentioned principal airports, there are a number of private and publicly owned airfields in the Tri-State area. In Pennsylvania, there are airfields near Lake Wallenpaupack, Scranton and East Stroudsburg. Most flights are chartered or made by privately owned

planes. In the winter, private small planes occasionally land on frozen lakes near the major resort areas and private estates.

In New Jersey, a few publicly owned airports serve charter flights, private flights and air taxi flights. Among these are the airports at Sussex, Aeroflex-Andover Field, Trinca (also near Andover), Blairstown, Hackettstown and Morristown. Other private fields supplement this service. Among these are two in Walpack and one in Montague.

In New York State, there are numerous private and public airfields, among which are the airport at Beaver Brook and Eldred (near the County Airport at Monticello), two other airfields near Routes 17 and 209, the Port Jervis airfield (near Route 209), and the airfields at Middletown and Florida (Route 94).

The above-mentioned airfields are spread almost evenly around the seven-county region. Their use is very limited, except for the scheduled flights to Wilkes-Barre-Scranton and to Binghamton. The service is almost exclusively high priced, limited to a very few, including corporate flights by private companies. Because of the nature of the proposed TILP, it is not expected that a significant amount of air traffic would develop.

VVX.A.4(b) Water Transportation

There is presently no known public means of transportation along the river within the DWGNRA. Pleasure boating is common, and in the upper section of the river from Matamoras-Port Jervis to Dingmans, organized group

excursions by canoe are frequent from early spring through the fall season. The canoes are brought back upstream by special trailer trucks.

XXV.B. T.I.L.P. TRAVELS DEMAND

XXV.B.1 ESTIMATES OF OVERALL TILP TRAVEL

Estimates of the overall TILP travel demand have been made based on two assumptions:

1. That traffic generated by the recreational area is directly related to the type and size of recreational facilities provided (i.e., recreational demand unconstrained by the transportation system).
2. That once the recreational facility reaches its capacity at the hours of peak demand, there would not be any additional visitors attracted to the area (i.e., recreational demand constrained by the recreational facility provided). The relationship between Sunday traffic, summer traffic and yearly total traffic would remain nearly constant.

All previous estimates of visitation have been based on an annual visitation figure as developed from the capacity of the facility and the type of recreational activities provided (i.e., constrained demand). No estimate has been made of the unconstrained demand, which would be the actual visitation if the number of facilities provided were expanded and added (ad infinitum) to accommodate the maximum number of visitors with no restraint on their number.

XXV.B.1(a) Based on the Capacity of the Recreational Facilities

An estimate of the travel demand based on the capacity of the recreational facilities must follow the same basic assumptions mentioned above. These relate total visitation to capacity by the use of empirical formulas developed from experience with other facilities of a similar nature. As described in Chapter XVIII, summer Sunday traffic is about 50 percent higher than the average summer traffic; total summer travel is about 80 percent of annual visitation, etc.

Circumstances may increase the usage of the facilities during "off-peak" season above that which has been estimated. This is entirely possible, as leisure homes remain one of the main components of the area's housing and weekend recreational activities which are not directly attributable to summer weather. Off-peak season activities include sightseeing, village fairs and sales, flea markets, farmers markets, antique shows, flower shows, autumn festivals, winter sports competitions, and other activities by private enterprise and community groups directly geared to the weekend visitor and leisure home resident, all outside the DWGNRA or TILP.

Furthermore, intensive use of the Park as an outdoor laboratory by schools, universities, scouts and other clubs may further add to the off-season visitation. However, the summer traffic would remain the key element in the peak demand for transportation facilities. This transportation chapter will consistently emphasize the relatively measurable day and hourly traffic loads on the transportation system, rather than the annual highly-variable load which may be significant in other impact areas of study.

The estimates of overall TILP travel demand based on the capacity of the facility are summarized below from Chapter XVIII.

Project Phase	Capacity (Persons/Peak Day)	Annual Visitation (Total Persons)
I	40,585	4,442,000
III	109,987	13,769,000

The Clark and Rapuano estimates as of 1975 are as follows:

Year	Parking Spaces	Design Load (Persons/Peak Day)	Annual Visitation (Total Persons)
1982	10,412	40,600	4,000,000
1992	18,844	73,000	7,000,000
2000	27,704	110,000	10,600,000

The significance of the above estimates with respect to transportation is mainly related to the peak (design) loads which, on a daily basis, can be related to the transportation systems. On the other hand, expressing visitation on an annual basis is difficult to relate to the transportation system because of seasonal and daily fluctuations. Consequently, as mentioned above, only peak hourly and daily volumes are considered in the discussions of transportation systems which follow.

XXV.B.1(b) Based on the Demand for Recreational Facilities

It is estimated that the demand for recreational facilities will exceed the capacity of the facilities to be provided. Nathan Associates Report

(1965) indicated a demand estimate well above 10,500,000 visitors, for for which the facilities were contemplated at that time. Subsequent studies by Edwards & Kelcey, Pennsylvania Department of Transportation, and Clark & Rapuano, have consistently cited annual visitation ranging from 4,000,000 to 10,000,000 based on facilities provided and, as mentioned previously, based on a relationship of hourly capacity of facilities to annual visitation. Chapter XVIII shows the Consultant's estimate of visitation as related to the facilities provided. The Consultant has reflected the capacity of the planned recreational and transportation facilities in developing the estimates of annual visitation rather than on unrestrained growth for recreational demand based on unlimited facilities.

XXV.B.2 CHARACTERISTICS OF TRAVEL DEMAND

All previous studies of travel demand have been based on the exclusive use of the automobile for recreational travel and visitation to the DWGNRA. With the recent emphasis on environment, energy and economic considerations, more emphasis has been placed on public transportation. However, as described previously, the demand for recreation will exceed the transportation and recreational facilities provided and the automobile will remain a major component of the traffic generated by the DWGNRA as long as accommodations for the automobile are provided as planned. The interaction among all transportation modes is presented in the following sections on Modal Split XXV.B.2(C)(2).

XXV.B.2(a) Visitor Origins

Table 25-12, which presents the estimates of the visitor origins by sector as developed by Robert R. Nathan Associates, indicates the principal visitation from the New York-New Jersey Metropolitan Areas with major visitation also from the Philadelphia Metropolitan Area, and from Eastern New York and New England. The visitor origins were estimated on the basis of automobile travel from areas within 2½ hours of the DWGNRA and for an annual visitation of 10,500,000 persons. It is estimated that the percentage distribution of automobile visitor origins would remain relatively unchanged whether the annual visitation is 4,000,000 or whether it exceeds the 10,500,000 figure shown in Table 25-12. However, the ratio of automobile travel to public transportation could vary considerably depending on the services provided and, consequently, the percent distribution of origins of visitors arriving by public transportation would be different from the percent of visitors arriving by automobile (see Section XXV.B.2(C)(2)).

The estimate of visitor origins shown in Table 25-12 was based upon 1960 population data updated to the time of the Robert R. Nathan Report (1966) and projected in the Nathan Report to a target date of 1975 for the opening of the TILP recreational facilities. Population growth has been somewhat different from that previously estimated, with Sussex, Pike and Orange Counties showing very high growth rates. In the period from 1960 to 1970, the population growth in Sussex County was 58 percent, Orange County was 21 percent, and Pike County was 28 percent. The seven-county area population grew by 18 percent. Accordingly, a revised estimate of

Table 25-12 Visitor Origin By Sector (1975)

Origin	Annual Visitation	Percent of Total
DWGNRA Counties	569,000	5.4
N.Y.-N.J. Metropolitan Area	4,705,000	44.8
Jersey Shore	829,000	7.9
Central New Jersey and Trenton	227,000	2.2
Harrisburg, Allentown and Bethlehem	576,000	5.5
Philadelphia Metropolitan Area	1,187,000	11.3
Central Pennsylvania and West	200,000	1.9
Binghamton, Scranton and Wilkes-Barre	293,000	2.8
Central New York and Albany	223,000	2.1
Eastern New York and New England	1,191,000	11.3
Other Areas	500,000	4.8
	10,500,000	100.0

Source: Robert R. Nathan, Associates (1966) Visitor Origin By Sector, Figure 6

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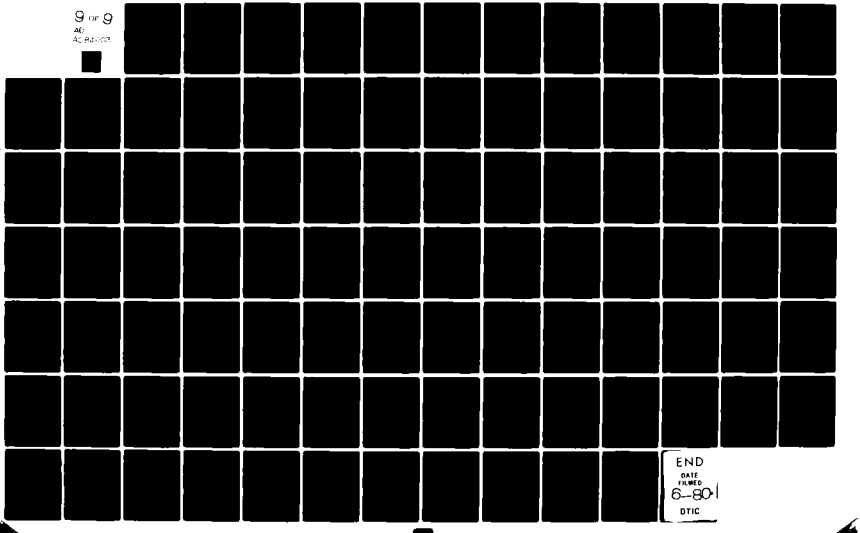

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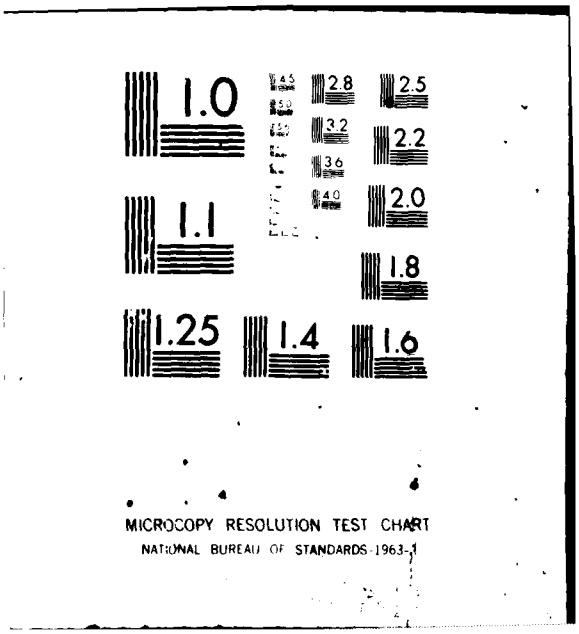
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Table 25-13 Future Visitation - Origins By Automobile Users

Origin	Percentage of Distribution of Visitor Origin		
	1985	1990	2000
DWGNRA Counties	5*	7*	8*
N.Y.-N.J. Metropolitan Areas	45	43	40
Jersey Shore	8	4	3
Trenton and Central New Jersey	2	2	3
Philadelphia Metropolitan Area	11	13	13
Harrisburg, Allentown, Bethlehem	6	6	7
Central Pennsylvania and West	2	3	4
Binghamton, Scranton and Wilkes-Barre	3	3	4
Albany and Central New York State	2	2	3
Eastern New York and New England	11	13	12
Other Areas	5	4	3
	100	100	100

* Percentage of visitors originating in the seven DWGNRA counties is taken at the low end of the estimated range to avoid understatement of approach route volumes and related impacts.

visitation origins presented as a percent of total visitation is given in Table 25-13 for the years 1985, 1990 and 2000.

XXV.B.2(b) Seasonal, Daily and Hourly Factors

As mentioned previously, the demand for the recreational facilities would exceed the capacity of the transportation system. On the basis of experience at other facilities, a pattern of seasonal, hourly and daily flows could be expected, as follows:

On the contiguous impact area and along primary and secondary access corridors, peak traffic flows would occur during summer Sundays. The peak park-bound or inbound traffic would be concentrated in three hours in the morning. These hours may extend from 8:00 AM through 11:00 AM, but may gradually occur earlier as demand increases and knowledge of the capacity limitations of the recreational facilities becomes more widespread. This condition could momentarily reduce the peaking character of inbound flow to a 2½ hour period or even less.

A reverse condition would occur in the evening or outbound period. Generally, the outbound flow would tend to concentrate in a shorter period with the majority of the recreation users extending their stay to the last minute. As capacity of the roadways is reached, the outbound traffic flow would tend to spread over a longer period. The average peak hour would initially be a 2½-hour period between 4:00 PM and 6:30 or 7:00 PM. As the levels of service of the highway system deteriorate and reach the equivalent of ultimate capacity, drivers would tend to either leave earlier or

remain until after the peak period. A reasonable approximation of peak flow in the impact area and along the access corridors mentioned above for the initial years (1985) would be 2½ hours. In later years, peak traffic would extend to three and even four hours.

As visitation increases, summer Sunday traffic would remain relatively unchanged because of capacity, but Saturday and weekday visitation would continue to grow. Presently, it is estimated that peak summer Saturday visitation would be about one-half of Sunday peak, while peak summer weekday traffic would be about 37 percent of the Sunday peak. Both weekday and Saturday traffic would continue to grow, but would not reach the capacity or peak flow conditions experienced on summer Sundays within the forseeable future.

Winter visitation would be relatively low and the impact on the highway system would not be significant. In addition, base traffic flow in winter is at a low level making conditions less severe. Areas where winter recreation facilities would be operating at capacity would not generate enough traffic to create a demand on the highway system as high as that created by the peak summer Sunday traffic.

Based upon the previous relationships of peak flows to visitation, it is estimated that the TILP and the DWGNRA would generate the following peak hour traffic flows:

Table 25-14 Summer Sunday Visitation

DWGNRA Phase	Year	Average Peak Visitation (persons)	Parking Spaces (cars)	Peak Hour Traffic (cars)	Dispersal Period (hours)
Phase I	1985	40,585	10,412	4,164	2½
Phase II	1990	72,824	18,844	6,281	3
Phase III	2000	109,987	28,502	9,500	3

Sources: Phase dates from Corps of Engineers, 1974 Supplemental E.I.S.

Visitation from Chapter XVIII and Parking from Clark & Rapuano Plan.

Automobile users based on auto occupancy of 3.75 persons per passenger car for all recreational activities except swimming, for which an occupancy rate of 4.0 is used.

XXV.B.2(c) Ability of Existing Transportation Systems to Accommodate Future Transportation Demands

Based on the peak-hour vehicular flow mentioned in the previous section, an estimate has been made of the vehicular flow on the existing highway system for the years 1985, 1990 and 2000. The estimate, which is presented in the following sections, is based on the distribution of visitor origins and destinations, with the passenger car as the major mode of transportation. The impact of public transportation is presented in Section XXV. B.2(c)(2).

XXV.B.2(c)(1) Assignments to Highway Systems

The visitor origins with the passenger car as the major or only significant mode of transportation are shown in Table 25-15, which follows:

Table 25-15 Future Visitation - Origins by Automobile Users - No Emphasis on Public Transportation

Origins	Distribution of Passenger Car Origins*		
	1985	1990	2000
DWGNRA Counties	208	440	760
N.Y.-N.J. Metropolitan Areas	1,873	2,700	3,800
Jersey Shore	333	251	285
Trenton and Central New Jersey	83	126	285
Philadelphia Metropolitan Area	458	816	1,235
Harrisburg, Allentown, Bethlehem	250	377	665
Central Pennsylvania and West	83	188	380
Binghamton, Scranton and Wilkes-Barre	125	190	380
Albany and Central New York State	85	126	285
Eastern New York State & New England	458	816	1,140
Other Areas**	208	251	285
	4,164	6,281	9,500

* Sightseeing trips 25 percent not included
** Includes Washington, Baltimore and Central New York

This visitation must be increased by 25 percent to account for sightseers. Peak-hour volumes for the year 1985 would amount to a total of 4,164 passenger cars plus 25 percent sightseers or 5,205. The volume is reached by dividing the total number of parking spaces by a 2½-hour dispersal time. With heavier volumes on 1990 and 2000, the dispersal time has been assumed

to be three hours. In all cases, the dispersal is based on 100 percent occupancy of parking areas. It is very likely that by the time these dispersal periods arrive, the parking lots would not be operating at 100 percent occupancy, but more generally in the 80 to 90 percent occupancy range to allow for normal parking space turnover. However, the assumption of 100 percent occupancy produces conservative estimates for the purposes of estimating traffic versus capacity because it generates the heaviest traffic load.

Under Phase I, in 1985 about 68 percent of the visitation would originate east and north of the Delaware River and 27 percent from areas west and south. The balance, or about 5 percent would arrive from nearby counties. This visitation would be distributed in apparently the same proportion east and west of the river with 37 percent destined to recreational areas along the west bank and 63 percent to areas along the east bank, including the section at the Delaware Water Gap.

Under Phase III, in the year 2000, the visitation from the east and north would be reduced to 62 percent, while southern and western origins would increase to 30 percent. Visitors from nearby counties would increase to 8 percent. The distribution in the recreational areas would be 74 percent east of the river, including the Delaware Water Gap section, and 26 percent west of the river.

Tables 25-16A, B, C, D, E, F, and G present estimates of the traffic generated by the TILP for Phases I, II, and III assigned to the principal routes in New Jersey, Pennsylvania and New York within the immediate impact

area, generally the seven-county region. The visitation data are based on the passenger car as the major mode of transportation.

For Phase I (1985), in order to make the proper traffic capacity comparison, the summer Sunday afternoon peak-hour volumes shown are the total for both directions, except as noted, since most existing highways are two-lane. For Phases II and III, the volume is for the same period, but in the direction of heavier flow only. It is assumed that by the years 1990 and 2000, most of the highway system would include expressways or divided highways where capacity is related to one direction of travel only. In Tables 25-16 A through G, under "Number of Lanes", the "Proposed" number of lanes are as presented in the 1972 Master Plan for Transportation prepared by the New Jersey Department of Transportation, and in the 1966 Highway Impact Study for the Delaware Water Gap National Recreation Area, prepared by the Pennsylvania Department of Transportation.

The "Required" number of lanes, which is based on two alternatives, one with the TILP and the other without the TILP, is independent of the planned improvements listed under "Proposed". The reasoning behind this approach is explained in the introductory and concluding sections of Chapter XXV. The required number of lanes have been calculated by comparing the respective peak-hour traffic estimates, shown in Tables 25-16 A through G, with the ultimate capacity estimates (i.e., Level of Service "E") listed in Table 25-2. The difference between the number of lanes required with and without the TILP could be considered directly attributable to the TILP and is a measure of its impact on the highway system. A detailed discussion

of the various highway system alternatives to meet present and future traffic conditions with and without the TILP is presented in Section XXV.C.4. Section XXV.C.5. presents the estimate of construction costs of the required improvements with and without TILP, followed by a summary of the lane-miles required for the two conditions as compared to the lane-miles on the existing highway system.

Table 25-16A Impact of Phase I on Pennsylvania Highway System - Visitation Mainly By Passenger Cars

Route	Location	1985 Traffic			Number of Lanes			
		Peak Hour Base	TILP Generated	Total	Existing	Proposed(3)	Required(4) W/out TILP	Required(4) W/TILP
US611	South of I-80	1,020	200	1,220	2	2	2	2
US209	South of Marshalls Creek to I-80	1,840	1,231	3,071	2	2	4	4
I-80	East of I-380	4,600 (1)	154 (2)	4,600 (1)	4	6	6	6
402	South of I-84	560	100	660	2	2	2	2
739	South of I-84	400	100	500	2	2	2	2
US6	East of Route 402	870	-	870	2	2	2	2
US209	North of Route 402	2,670	700	3,370	2	4	4	4
I-84	At Port Jervis	1,300 (1)	322	1,622 (1)	4	4	4	4
33	South of US209	1,900 (1)	465	2,365 (1)	4	4	4	4
	TOTAL	15,160	3,272	18,278	24	28	30	30

(1) One-way heavier flow
(2) Direction of minor flow
(3) Highway Impact Study, December 1966
(4) Based on Level of Service "E" as defined in Section XXV.A.1(d)

Table 25-16B Impact of Phase I on New Jersey Highway System - Visitation Mainly By Passenger Cars

Route	Location	1985 Traffic			Number of Lanes			
		Peak Hour Base	TILP Generated	Total	Existing	Proposed(3)	Required(5) W/out TILP	Required(5) W/TILP
519	South of US46	1,200	-	1,200	2	2	2	2
US46	West of Route 31	1,330	104	1,434	2	4	2	2
I-80	West of Route 94	4,500 (2)	462	4,962 (2)	4	4	6	6
I-80	West of US206	4,000 (2)	1,058	5,058 (2)	6	6	6	6
15	South of Route 94	1,500	622	2,122	2	4	4	4
23	West of Sussex	1,000	-	1,000	2	4 (1)	2	2
31	South of US46	1,790	104	1,894	2	4	4	4
94	South of Newton	1,200	425	1,625	2	4 (4)	2	4
US206	South of Andover	2,780	425	3,205	2	4	4	4
23	West of US202	4,350 (2)	320	4,670 (2)	4	6	6	6
517	Sparta to Newton	1,130	125	1,255	2	2	2	2
	TOTAL	24,780	3,645	28,425	30	44	40	42

(1) Six lanes to High Point State Park
(2) One-way heavier flow
(3) A Master Plan for Transportation, 1972
(4) Entirely new alignment
(5) Based on Level of Service "E" as defined in Section XXV.A.1(d)

Table 25-16C Impact of TILP Traffic on New York State Highway System - Visitation Mainly By Passenger Cars

Route	Location	Peak Hour	TILP Traffic	Total	Number of Lanes (Both Directions) Existing	Proposed	Required(2) W/out TILP	W/TILP
PHASE I 1985								
I-84	West of Route 17	2,600 (1)	572	3,172	4	4	4	4
US209	South of Route 17	570	106	676	2	4	2	2
42	South of Route 17	880	65	945	2	2	2	2
	TOTAL	4,050	743	4,793	8	8	8	8
PHASE II 1990								
I-84	West of Route 17	3,600 (1)	1,423	5,023	4	4	6	6
US209	South of Route 17	630	158	788	2	4	2	2
42	South of Route 17	970	90	1,060	2	2	2	2
	TOTAL	5,200	1,671	6,871	8	10	10	10
PHASE III 2000								
I-84	West of Route 17	3,900 (1)	1,425	5,325	4	4	6	8
US209	South of Route 17	730	445	1,175	2	4	2	2
42	South of Route 17	1,060	90	1,150	2	2	2	2
	TOTAL	5,690	1,960	7,650	8	10	10	12

(1) Direction of heavier flow
(2) Based on Level of Service "E" as defined in Section XXV.A.1(d)

Table 25-16D Impact of Phase II on Pennsylvania Highway System - Visitation Mainly By Passenger Cars

Route	Location	1990 Traffic			Number of Lanes			
		Peak Hour Base	TILP Generated	Total	Existing	Proposed(2)	Required(5) W/out TILP	Required(5) W/TILP
US611	South of I-80	1,050	500	1,550	2	2	2	4
US209	Stroudsburg Bypass (3)	1,000 (1)	1,136	2,136	-	4	2	4
US209	South of Marshalls Creek to I-80	500 (1)	500	1,000	2	2	2	2
I-80	East of I-380	4,840 (1)	260 (4)	4,840	4	6	6	6
402	South of I-84	740	100	840	2	2	2	2
739	South of I-84	535	200	735	2	2	2	2
US6	East of Route 402	900	-	900	2	2	2	2
US209	North of Route 402	1,873 (1)	820	2,693	2	4	4	4
I-84	At Port Jervis	2,210 (1)	170	2,380	4	4	4	4
33	South of US209	3,200 (1)	665	3,865	4	4	4	6
	TOTAL	16,848	4,091	20,939	24	32	30	36

(1) One-way heavier flow, except on two-lane highways where total both directions is shown
(2) Highway Impact Study (1966)
(3) New route
(4) Direction of minor flow (not included in column total)
(5) Based on Level of Service "E" as defined in Section XXV.A.1(d)

Table 25-16E Impact of Phase II on New Jersey Highway System - Visitation Mainly By Passenger Cars

Route	Location	1990 Traffic (1) Peak Hour Base	TILP Generated	Total	Number of Lanes Existing	Proposed(2)	Required(3) W/out TILP	W/TILP
519	South of US46	1,335	-	1,335	2	2	2	2
US46	West of Route 31	1,000	900	1,900	2	4	2	4
I-80	West of Route 94	4,970	750	5,720	4	4	6	8
I-80	West of US206	4,460	1,600	6,060	6	6	6	8
15	South of Route 94	1,100	700	1,800	2	4	4	4
23	West of Sussex	750	270	1,020	2	4	2	2
31	South of US46	1,320	160	1,480	2	4	4	4
94	South of Newton	870	410	1,280	2	4	2	4
US206	South of Andover	2,150	400	2,550	2	4	4	4
23	West of US202	4,800	600	5,400	4	6	6	8
517	Sparta to Newton	830	510	1,340	2	2	2	4
	TOTAL	23,585	6,300	29,885	30	44	40	52

(1) One-way heavier direction, except along Route 519 where total both directions is shown
(2) 1972 Master Plan
(3) Based on Level of Service "E" as defined in Section XXV.A.1(d)

Table 25-16F Impact of Phase III on Pennsylvania Highway System - Visitation Mainly By Passenger Cars

Route	Location	2000 Traffic			Number of Lanes			
		Peak Hour Base	TILP Generated	Total	Existing	Proposed(2)	Required(3) W/out TILP	Required(3) W/TILP
US611	South of I-80	1,290	570	1,860	2	2	2	4
US209	Stroudsburg Bypass	1,333 (1)	1,860	3,193	-	4	4	4
US209	Marshalls Creek to I-80	1,137 (1)	570	1,707	2	2	4	4
I-80	East of I-380	5,500 (1)	550 (4)	5,500	4	6	8	8
402	South of I-84	850	200	1,050	2	2	2	2
739	South of I-84	600	200	800	2	2	2	2
US6	East of Route 402	1,040	-	1,040	2	2	2	2
US209	North of Route 402	2,280 (1)	2,260	4,540	2	4	4	6
I-84	At Port Jervis	2,355 (1)	800	3,155	4	4	4	4
33	South of US209	4,000 (1)	1,030	5,030	4	4	6	6
	TOTAL	20,385	7,490	27,875	24	32	38	42

(1) One-way heavier flow
(2) Highway Impact Study (1966)
(3) Based on Level of Service "E" as defined in Section XXV.A.1(d)
(4) Direction of minor flow, not included in total

Table 25-16G Impact of Phase III on New Jersey Highway System - Visitation Mainly By Passenger Cars

Route	Location	2000 Traffic (1) Peak Hour Base	TILP Generated	Total	Number of Lanes Existing	Proposed(2)	Required(4) W/out TILP	W/TILP
519	South of US46	1,670	650	2,320	2	2	4	4
US46	West of Route 31	1,290	420	1,710	2	4	4	4
I-80	West of Route 94	5,940	770	6,710	4	4	8	8
I-80	West of US206	5,330	1,420	6,750	6	6	6	8
15	South of Route 94	1,460	800	2,260	2	4	4	4
23	West of Sussex	950 (3)	1,110	2,060	2	4	2	4
31	South of US46	1,860	360	2,220	2	4	4	4
94	South of Newton	1,170	700	1,870	2	4	4	4
US206	South of Andover	2,890	360	3,250	2	4	4	4
23	West of US202	6,400	1,110	7,510	4	6	8	8
517	Sparta to Newton	880	800	1,680	2	2	2	4
	TOTAL	29,840	8,500	38,340	30	44	50	56

(1) One-way heavier flow, except along Route 516 where total both directions is shown
(2) 1972 Master Plan
(3) Total both directions 1,350
(4) Based on Level of Service "E" as defined in Section XXV.A.1(d)

XXV.B.2(c)(2) Modal Split

The preceding section dealt with total use of the automobile by visitors to the TILP. The assumption of 100 percent visitation via automobile generates the heaviest load which could be expected on the highway system and, consequently, produces the highest level of environmental impacts resulting from motor vehicle TILP-generated traffic. The analysis of the highway system under the assumption of 100 percent visitation by automobile is thus considered conservative because it gives the worst condition that could be expected on the highways. A more realistic approach (though variable with respect to its magnitude) is to assume that a portion of the visitation would use public transportation. As discussed in Section XXV.A.3, relatively adequate bus service is presently provided to points in Zones 1 and 2 of the impact area (as defined in Chapter XXII, Section XXII.B.4). This service is provided in response to existing demand. The service, however, is limited and cannot be correlated with visitation to existing recreational facilities. A previous study(*) of the Palisades Interstate Park visitation concluded that 10 percent of all visitors to that Park arrived by bus. Although the Palisades is a different facility, it has some characteristics which make a comparison with

* Attendance Characteristics and Space Utilization for the Palisades Interstate Park Commission, by Madigan-Hyland, February 1965.

the TILP possible, including: (1) proximity to a large metropolitan area, (2) access via major limited access highways, and (3) availability of public transportation (mainly charter buses).

Studies conducted by Frederic R. Harris, Inc. for the New Jersey Highway Authority in 1966 (unpublished reports) indicate that 2,000 charter buses, carrying an average of 41.5 passengers per bus, passed the Raritan Toll Plaza of the Garden State Parkway during a total of five days on two weekends in July 1966. The total number of buses represented approximately five percent of total traffic through that toll plaza. The Raritan Toll Plaza is south of the Raritan River at the edge of the New York-New Jersey Metropolitan Area and the Parkway is the only limited access facility connecting the New Jersey Shore resort areas with the Metropolitan Area.

Under both conditions mentioned above, the modal split between passenger cars and bus results from actual demand, usage, and availability of the two vehicular modes. There were no government subsidies or any form of official emphasis on public transportation. Because of the large size of the TILP and the numerous recreational sites, it is assumed that a modal split similar to that occurring along the Garden State Parkway serving the New Jersey Shore would develop with the TILP. However, with government emphasis on public transportation, it is expected that at least 10 percent of the visitors would use public transportation.

Higher visitation by public transportation could be attained as explained

in Section XXV.C.2(b).

It is planned that visitation would be held to the maximum for which the facilities are designed. The peak visitation shown in Table 25-14 would remain unchanged. However, the peak hour traffic generated would change as shown in Table 25-17, as visitation by bus increases to 10 and 20 percent.

As shown in Table 25-17, a 10 percent visitation by public transportation results in an effective TILP traffic flow reduction of only 6.2 percent, while a 20 percent visitation by bus results in a TILP traffic flow reduction of 12.5 percent. An average load of 41.5 passengers per bus has been assumed and each bus in the traffic stream on rolling terrain is equivalent to three passenger cars, while on mountainous terrain it is equivalent to four passenger cars. The immediate impact area (Zones 1 and 2) is considered mountainous terrain.

If it were possible to attract a sufficient number of passengers to rail transportation, the effect on reducing highway congestion would be more significant than if the same number of passengers were using buses.

Any percentage of total visitation which could be encouraged to use rail transport to reach the TILP area would result in an equal percentage reduction in motor vehicle traffic on the highway system. However, these rail passengers must be transported from the rail terminals to the recreation area by a bus shuttle with a minimum of travel on local roads.

Table 25-17. Peak TILP Vehicular Flow with Increased Visitation by Bus

Phase	Year	Peak Visitation Persons	Peak TILP Vehicular Flow						
			All Passenger Cars	10 Percent by Bus			20 Percent by Bus		
				Cars	Buses	Total*	Cars	Buses	Total*
I	1985	40,585	4,164	3,748	39	3,904	3,331	78	3,643
II	1990	72,824	6,281	5,654	58	5,887	5,026	117	5,494
III	2000	109,987	9,500	8,316	88	8,668	7,392	176	8,096

* In the "Total", buses have been converted to their equivalent in passenger cars so that this "Total" may be compared with the total for "All Passenger Cars" (one bus = four passenger cars in mountainous terrain)

Revitalized rail passenger service is discussed in Section XXV.C.1.

Assuming 50 percent visitation by bus, the data for TILP generated traffic presented in Tables 16A through 16G is reduced by about 31 percent for passenger car equivalent of buses on mountainous terrain. The changes in the number of lanes required with TILP with 50 percent visitation are presented in Table 25-18.

During Phase I, the use of public transportation, even to the level of 50 percent visitation by bus, would not be significant in changing the requirements for the highway system. The additional lanes attributable to TILP are only two in New Jersey with all automobile travel. These lanes are not needed with 50 percent visitation by bus.

Under Phase II, the additional lanes attributable to TILP with all automobile travel total 20: six in Pennsylvania, and 14 in New Jersey. With 50 percent by bus, the added lanes are reduced to two in Pennsylvania, and eight in New Jersey for a reduction of 10 lanes.

Under Phase III, the only reduction would occur in New York State where two lanes less would be required. It is noted, however, that the total number of lanes required in Pennsylvania and New Jersey to accommodate Phase III traffic (even with public transportation as assumed above), excceds the Phase II requirements for the system without public transportation by eight lanes.

Table 25-18. Impact of 50 Persent Visitation by Bus (Number of Lanes in Highway System)

Phase	Pennsylvania				New Jersey				New York				Total Difference
		Required				Required				Required			
	Existing	(1)	(2)	(3)	Existing	(1)	(2)	(3)	Existing	(1)	(2)	(3)	(4)
(1985) I	24	30	30	30	30	40	42	40	8	8	8	8	2
(1990) II	24	30	36	32	30	40	52	48	8	10	10	10	10
(2000) III	24	38	42	42	30	50	56	56	8	10	12	10	2

(1) Number of lanes required to accommodate estimated normal growth without TILP
(2) Number of lanes required to accommodate normal growth plus TILP generated traffic with visitation by automobile (as shown in Tables 25-16A through 16G)
(3) Number of lanes required to accommodate TILP generated traffic with 50 percent of the visitors arriving by bus
(4) Number of lanes required for TILP generated traffic which could be avoided if 50 percent visitation by bus

XXV.C. TRANSPORTATION IMPROVEMENTS

The estimated visitation generated by the TILP will require improvements in the transportation system serving the Tri-State region, involving each of the three principal modes: highway (automobile), rail and bus. Even if the TILP is not developed, the transportation system will still require upgrading to handle the demand resulting from the expected normal growth in recreational travel and suburban development, based on present growth trend as presented in Chapter I, Appendix A. Each of the above modes of travel is discussed in this section of the report, both with and without the TILP. In addition, other practical transportation modes are discussed, including the possibility of water-based travel on the Tocks Island Lake. Impractical modes of transportation for long-distance travel, such as monorails, are costly and probably not within the range of transportation projects capable of being financed. These types of transportation facilities are practical only in terms of small-scale tourist attractions within a recreation area itself.

XXV.C.1 REVITALIZED RAIL PASSENGER SERVICE

The coordination of mass transportation facilities under the Metropolitan Transportation Authority (MTA) and the increased role of the Port Authority of New York and New Jersey and the New York, New Jersey and Pennsylvania Departments of Transportation in providing operating subsidies for the railroads in the northeast area have shown that public transportation is

recognized as an important issue in providing not only commuting services, but also leisure and recreation travel for those without automobiles, the elderly and the handicapped.

XXV.C.1(a) Rail Service With TILP

For a recreation area which would be the largest in the East and attract, initially, possibly upwards of four million persons annually, a revitalized rail service into the TILP region will decrease the dependence on the private automobile. Many of the improvements and plans for the railroads being implemented in the Tri-State area could have profound impacts on the TILP. Although the respective State Departments of Transportation contacted prefer that bus improvements be considered before rail, they nevertheless agree that railroad improvements and possible extensions in the event of such a complex would be considered. The railroads, few of which have in-depth knowledge of the proposed TILP, have insisted that any revival of passenger service over their lines would have to be discussed with the State Departments of Transportation, which presently provide the operating assistance.

The extension of service by the Jersey Central to Phillipsburg is the first evidence that rails have been revived into areas where a market truly exists, and the PATH extension to Plainfield is an example of present planning to satisfy the demand for rail service. As mentioned previously, the Jersey Central service has been established as a commuting experiment, but it reflects the fact that the State and railroads are open to such innovations. If, indeed, automobile and bus travel become intolerable, the market for leisure travel to the recreation site by rail would exist. And the possibility of some leisure homes becoming permanent residences with

commuting by rail could become a reality, thus reducing weekend base traffic. The demand could conceivably exist even if automobile travel to the area has minimal traffic problems.

The State Departments of Transportation and rail lines have channelled the financial assistance into the purchase of new and improved equipment. The presence of comfortable, air-conditioned rail cars is imperative if any rail service is contemplated for the TILP. These improvements, combined with sensible fares or family packages and reasonable schedules and travel times would be a great inducement for visitors traveling to the proposed site to switch to rail.

A plan by an Inter-Agency Task Force (MTA, Port Authority, and New Jersey DOT) to provide direct rail access into Penn Station, New York City is presently under consideration. The "DRAP" plan (Direct Rail Access Project into Penn Station) would route Erie-Lackawanna trains to join with the Penn Central tracks at some point in the Hackensack Meadowlands, possibly in Kearny or Secaucus. Engineered by the Port Authority after being enacted by the New York and New Jersey State Legislatures, the plan is currently under consideration under a federal grant application. The implications are obvious. Direct Erie-Lackawanna rail access into Penn Station is one of the Tri-State area's greatest transportation needs. This improvement, with the reduction of traveling time needed to make connections into Hoboken, could be one of the most important steps in increasing rail patronage out of the New York City area into the Tocks Island region. One of the primary characteristics of automobile desir-

ability is the directness which it provides. A direct rail link to the area of metropolitan New Jersey which provides nearly 45 percent of the annual New Jersey-New York patronage would be of major significance.

Most other areas, including the northeast portion of Pennsylvania and Southeastern New York State, Philadelphia-Trenton, and Northern New Jersey now have adequate rail lines into the Tocks Island region, as has been described. If improvements in rolling stock and direct rail access over the Erie-Lackawanna becomes a reality, the basis for excellent rail service into the TILP will have been established. The remaining planning needs for providing rail public transportation into the recreation site would be the coordinating of the various spur lines which connect with the present rail lines. These could be the starting point for shuttle service to the ten specific recreation sites proposed at the DWGNRA.

It would appear that Port Jervis or Stroudsburg would be the points which could act as terminal ends for the various rail lines, as these towns are at the northern and southern boundaries of the proposed area of development. Consideration could also be given (particularly in the event of the tunnel link to Manhattan) to restoring the Erie-Lackawanna track between Andover and Branchville, New Jersey, which has been torn up, but where the right-of-way remains. The distance from Branchville to the Delaware River (amd the center of the TILP) is about ten miles and would be an ideal point for a transportation extension westward into the site.

Port Jervis could certainly be the end point for Northeastern Pennsylvania, New York State, Northern New Jersey and New York City travelers over the Erie-Lackawanna. Stroudsburg-Phillipsburg could handle traffic over

the Lehigh Valley, Jersey Central, Penn Central, and Reading Railroads from Philadelphia and central New Jersey. All rail planning and consolidation which might be considered, however, would require some form of shuttle service. Only with the attraction of direct access to the TILP from major population centers can any form of rail service be seriously considered. Even with modern equipment, reasonable schedules, low fares, and ample luggage space, rail patronage will be insignificant unless convenient shuttle service to the site is provided.

XXV.C.1(b) Rail Service Without TILP

The aforementioned potential transportation improvements into the TILP region have been discussed on the assumption that such a recreation site would become a reality. The possibilities of reviewing passenger rail service, improving highways, establishing bus routes, and instituting other transportation modes, such as a water-based system or shuttle service, all should be considered in implementing a sound transportation plan for the Tocks Island Project.

Of equal importance, however, is an analysis of what effect future transportation plans hold for the social and economic well-being of the Tri-State area in the event the TILP does not come about. Without such a recreation area, any transportation plans for the region should be addressed to examine the effects likely to occur under normal growth trends.

Although railroad passenger volumes are very low at present, the utilization of new equipment on the Erie-Lackawanna's service between Hoboken and

Port Jervis apparently has shown a commitment to provide rail service to this region. The extension of service by the Jersey Central between Newark and Phillipsburg also points to a demand for increased public transportation in Western New Jersey. There being weekday runs, combined with relatively good bus service throughout the area, reflect the possible beginnings of suburban development even at these relatively long distances from New York City and Philadelphia. The construction of Interstate Routes 78 and 80 have also significantly opened up the Tocks Island region to the major New York City and Northern New Jersey markets. With or without the TILP, it appears that this area is ready for residential development for commuters to the large urban employment centers, particularly New York City.

Against this, at present, there exists the reverse flow of those who live in the urban centers and maintain summer/recreational homes in the Tocks Island area. With or without a recreational development site, it is probable that year-round residents would increase in proportion to the employment and transportation opportunities available not only in the large urban areas, but within the Tocks Island region as well.

The economic development of the Tri-State area without a recreational development and its subsequent impact faces a questionable period in view of a new federal plan for reorganization of the railroad industry in the Northwest and Midwest. A new 15,000-mile reorganized rail system by the U.S. Railway Association (USRA) under private ownership would consist of:

- "ConRail", including the present Penn Central (the most extensive network in the Northeast and Midwest with 35 percent of the ton miles and 36 percent of the revenue); the Reading (less the Reading's Philadelphia and Allentown markets); the Lehigh Valley (from Newark to the point where it intersects the Erie-Lackawanna west of Binghamton, New York); the Jersey Central; the Pennsylvania Seashore Lines; the Lehigh and Hudson River and the Ann Arbor Railroads.

- The Norfolk and Western Railroad, which would operate its present system, plus the Erie-Lackawanna lines from Buffalo to Binghamton and on to Newark. The USRA notes that this system would enable the Norfolk and Western, the Delaware and Hudson, and the Boston and Maine to operate as an integrated system, should they choose to do so.

- The Chessie System (Chesapeake and Ohio) would operate the Reading's Philadelphia and Allentown markets in addition to its own lines.

- The Delaware and Hudson would operate over its current lines, plus over the Lehigh Valley line from Wilkes-Barre to Allentown. The USRA states in its preliminary plan that this would protect the Delaware and Hudson's current north-south traffic and establish a "friendly" connection with the Chessie System.

Obviously, these lines constitute virtually all the rail service in the Tocks Island region. The USRA plan will hopefully reorganize the bankrupt lines into profitable and efficient carriers. Many industries throughout the area are totally dependent upon the railroads for transportation of their raw materials for production as well as the finished goods. However, the period of retrenchment characterizing the railroads in the region raises many questions over the area's economic future, for the USRA's preliminary plan could concievably leave much of the area without rail freight service. This "potentially excess" trackage as termed by ConRail has (at the time of this writing) caused much uproar from industries in the Tocks

Island area who claim that the USRA has not sufficiently analyzed the impact which the plans for abandonment would cause. Many firms have given notice that they would be forced to shut down if rail service were to be discontinued.

Vast upgrading and rehabilitation would have to take place in the area, and it is questionable whether or not the respective rail lines would undertake the work which ConRail proposes be done. Thus, although ConRail would be adversely affecting industries, who would lose their rail capabilities through abandonment, at the same time the new system could conceivably revitalize and continue rail operations for many other firms, notably the coal markets of Northeastern Pennsylvania, which would find it difficult, if not impossible, to use other transport alternatives. Of course, the trucking industry would be needed to pick up the business without rail service, and this would be another important economic stimulus in the transportation competitiveness of the area.

However, increased trucking usage causes variations in land use and highway capacities, which could result in a chain reaction of transportation problems for the Tocks Island region if rail cutbacks are severe and alternatives are not provided. The goals of the U.S. Railway Association and Federal Department of Transportation to achieve balanced transportation should be desired by all. It would appear that the efficiencies which sound transportation planning can accomplish could not help the social and economic development of the Tocks Island region, with or without a national recreational area. The impacts on local shippers and communities

have been studied by the USRA.

The USRA's conclusion regarding passenger service is to transfer the operations from ConRail to Amtrak or solvent railroads such as the Norfolk and Western or the Chesapeake and Ohio, assuming they want to include these operations. This policy would have minimal impact on the Tocks Island region, however, as the last remnant of rail passenger service is commuting as opposed to intercity travel. (The status of this service has been discussed previously.)

An important point to emphasize is that the USRA's Preliminary System Plan (February 1975) is just that - preliminary. The USRA has made it clear, and has instituted public hearings on the issue, that it will listen to any arguments on the composition of the proposed system. Therefore, it is too early to draw any definitive conclusions as to the future railroad structure and hence the complete economic situation in the Tri-State area.

Although the plans of ConRail and the USRA are in the initial stages, especially regarding the probability of minimal social and economic community impacts, the effects on the TILP area would be significant. With suburban development spreading into the semi-rural TILP area, the course of development with or without the recreation site will depend in a large measure on the future transportation services.

If, indeed, some of the rail lines in the Tocks Island region, which are presently rated as "excess" might be abandoned, ConRail has provisions that would allow this trackage to be purchased by the respective states.

The potential use of rail passenger service in the event of increased public transportation demand, with or without the TILP, can remain if careful decision making overcomes any hasty actions resulting from preliminary recommendations of rail freight and passenger service in the Tri-State area.

XXV.C.2 EXPANSION OF BUS SERVICE

As described in section XXV.A.3, there is limited daily bus service from the surrounding metropolitan areas to the southern end of the DWGNRA at Stroudsburg and on a less frequent basis to the northern end at Milford-Port Jervis. This service could be expanded and supplemented as necessary.

XXV.C.2 (a) Types of Service Improvements

There are three types of possible service improvements which can be instituted: (1) additional local stops on present express runs, (2) an expansion of the present intercity service with connecting buses to provide access to the recreation areas, or (3) the development of new bus service providing direct express access between the major metropolitan areas and each of the recreation areas within the Park. A combination of the three improvements is a likely development.

The levels of service each can provide varies. The first is the easiest to implement and would benefit Park-oriented travel; but it would reduce the level of service for intercity bus passengers. An example of this service would be a stop at Delaware Water Gap on a New York-to-Scranton express run.

Expansion of present service will mean that visitors will have to travel on a local bus route at a relatively high fare, and then transfer to another bus to go from the Park bus terminal to the recreation areas. This final link in the trip will mean up to an additional hour of traveling, including waiting time, to reach the centermost areas. In addition, it will mean the maintenance of a fleet of buses for a seasonal service.

The other type of service, which would provide direct non-stop access to the park from the surrounding metropolitan areas, would be a much more attractive service. Buses could leave from convenient points in nearby cities at scheduled times, and the visitor would be delivered right to a recreation area, making travel connections unnecessary. The cost of operating such a service by leasing buses with a suburban seating arrangement from private operators or municipal systems would be cheaper than an expansion of present service and the maintenance of a distribution service fleet. Therefore, the fare could also be cheaper on this non-stop service.

XXV.C.2 (b) Bus Transit Patronage

Patronage of a bus system to a recreation area is directly related to the perceived quality of service and indirectly related to auto accessibility. This statement is based on a preliminary draft report of a study conducted for the U.S. Departments of Transportation and Interior by VTN Consolidated, Inc. in association with the Midwest Research Institute, entitled "Public Transit Access for Recreation Areas." An examination of transit services before the widespread availability of the automobile is also used to support this premise.

Quality of Service --

Quality of service is a subjective term which includes all aspects of the transit trip having an effect on the threshold of convenience and comfort perceived by the rider. This threshold, as used in the VTN study, is the point below which users consider transportation unacceptable even when it is available.

In present transit operations providing access to recreation areas there are various discomforts and inconveniences imposed on the user. One is the lack of viable public transit on all links of the trip. There is almost always one link which has poor frequency of service, bad scheduling, or does not stop in proximity to either homes or destinations. Another is that public transit almost always requires more time than by automobile due to the indirectness and local nature of the service. Still another problem is the inability of transit vehicles to handle equipment that is commonly brought on recreation trips. The study showed that equipment requirements impede use of transit for more than one third of all out-of-city recreation trips. A fourth barrier to transit usage is the lack of knowledge as to its existence. Even where it is available, transit is almost never marketed as a competitive alternative to the automobile. A response of "No Public Transit" was a major factor as to why automobiles were used as indicated in the VTN study.

This very negative picture can be changed. If transit service were improved (as in the non-stop bus service direct to the recreation areas from various metropolitan areas), and it were marketed effectively, transit patronage would increase. For example, the Revere Beach area on the fringe of Boston is served by a rail transit link and 27 percent of the recreationists use

public transit for access. Most transit buses are idle on weekends and holidays when their usual home and work trips are not operated. Therefore, equipment is available for weekend and holiday recreational operations. The New York City Transit Authority, Transport of New Jersey and the Southeastern Pennsylvania Transportation Authority operate, in the aggregate, about 8,500 buses. There are numerous smaller operators in the region who have idle equipment on non-working days. No capital investment in buses would be required for inauguration of an extensive service between metropolitan areas and the Tocks Island Project.

Buses successfully serve holiday and special-event recreational activities with regular and charter services. These services can be made successful at Tocks Island if they are well designed and marketed. Tocks Island will also require interior circulation for visitors who have come on the bus. (Refer to section XXV.C.3 on Water-Based Transportation.) Equipment and operators for the circulation service can be drawn from the pool of regular and special assignments that are lay-overs between the morning and evening trips to and from the recreation sites. Provision of complete service is not a problem that experienced transit operators would find technically difficult.

A fleet of 1,500 buses operating at 90 percent capacity could handle approximately 60,000 passengers between centers in metropolitan areas and the ten recreation sites proposed for the project. It is not unreasonable to plan to accomodate, at one site, up to 200 parked buses during the day and early evening. All sites will not be equally attractive to

bus-borne visitors; therefore, it should not be assumed that each site will attract one-tenth of the bus fleet.

If visitors were to arrive, and later depart, by bus over a three hour period, a site requiring 200 bus (8,100 passengers) loads would experience an arrival (or departure) every 54 seconds. To a professional transit operator headways this close provide little challenge. As the buses concentrate on principal access roads near the recreation areas and on the highway approaches to the Park, the headways will become shorter. Professional, disciplined bus operators when provided with good traffic controls have no problems with headways as short as ten seconds.

Large-scale weekday bus service to the Park is more difficult to visualize. On weekdays the equipment of private and public operators is largely committed for commutation service between home and work. Large numbers of buses would not be available for recreational service.

Automobile Availability --

In the case of the Tocks Island area, the probability of transit use is even higher than in other parts of the country due to the factor of automobile availability and that many persons in the New York and Philadelphia metropolitan areas are already accustomed to using transit. In New York City, 46 percent of the population do not own a car. Just using this fact, transit demand would probably exceed capacity of a fairly good system. In addition, the Park Service could further encourage transit users by limiting

automobile accessibility to the recreation area and publicizing that fact. By controlling the vehicle capacity of the area and providing a good transit system, the visitor capacity of the area can also be controlled.

XV.C.3 WATER-BASED TRANSPORTATION FACILITIES

Water-based transportation would be possible within the DWGNRA only if the TILP is developed. It would serve, basically, two purposes: (1) internal circulation within the recreation area, and (2) interface with long-distance public transportation for the dispersion of visitors from a central terminal point. As a facility for internal circulation, passenger ferries could be used both for transportation to various parking lots around the lake and simply as a tourist attraction.

The more important use for water-based transportation would be in connection with public transportation. Buses operating from distant points might be used most efficiently through a limited number of centralized terminals near the lakefront, say in the vicinity of Stroudsburg and Port Jervis. From there, passenger ferries could disperse the tourists throughout the Park. The use of ferries instead of land vehicles (buses, trams, etc.) might offset the inconveniences associated with the change of mode through its inducement as a tourist attraction. In addition to furnishing the final link for public transportation, a ferry system could provide internal circulation for visitors arriving by automobile, thereby decreasing somewhat the need for roadways in the Park and the number of vehicle parking areas.

One limitation of a ferry system would be its practical capacity in terms of seats and headways.

A rail-ferry combination would probably appeal to the leisure traveler. Inasmuch as there are no railroad tracks capable of providing passenger service within five miles of the proposed Tocks Island Lare, however, a rail a rail and ferry service would not be feasible.

As a practical matter, the use of a ferry system on the lake as a tourist attraction might outweigh its importance as a principal link in the transportation system.

XXV.C.4 HIGHWAY SYSTEM IMPROVEMENTS

There are various highway improvements which are required to accomodate and improve the present level of traffic without the TILP, and there are also improvements which are required to accomodate future traffic growth. As shown in TAbles 25-16 A through G, the presently planned improvements as compared to required improvements are inadequate for the two alternatives: with and without the TILP. The improvements are for automobile oriented visitation. The impact of public transportation is discussed in Section XXV.B.2 (c) (2).

XXV.C.4(a) Improvement Program - Highway System Without TILP - DWGNRA

Only those routes which would be affected by the TILP have been included in the list which follows.*

XXV.C.4 (a).(1) Pennsylvania Improvements - 1985 (Table 25-16A)

(a) U.S. Route 209. A four-lane divided highway from Marshalls Creek to a suitable connection bypassing Milford to I-84 is needed to handle existing traffic. (included in present planning)

(b) Interstate 80. An additional lane in each direction from I-380 to the Delaware River Bridge would be needed. (included in present planning)

(c) Delaware River Bridge An additional lane would be needed in each direction or build additional crossing. (NOT in present planning)

Note: U.S. 611 in Pennsylvania is parallel to I-80 in New Jersey on the opposite side of the Delaware River. A possible alternative to (c) above would be the dualization of U.S. 611 to the Portland-Columbia Bridge and provision of a widened crossing at this site. (see C.4. (b) (4) (a)) In the 1951 Bond Prospectus of the Delaware River Joint Toll Bridge Commission for the construction of the Portland-Columbia Bridge, it is stated with reference to this bridge that: "The proposed plan of the bridge and approaches makes provision for the later construction of a companion structure immediately adjacent to the presently proposed bridge, should a future

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* Where the requirement is in agreement with current planning by the Departments of Transportation of Pennsylvania, New Jersey and New York, a notation is added: "included in present planning."

increase in traffic warrant the additional capacity. Each bridge would then provide one-way two-lane highway crossing." In this case, the two additional lanes required on I-80 in New Jersey [see XXV.C.4(a)(2)(a)] could be deferred to the year 2000 by splitting the traffic along both sides of the river. Present planning by the Pennsylvania Department of Transportation proposes a new four-lane connection from Portland-Columbia southwest to Route 33 near Windgap. (See Exhibit No. 6.)

XXV.C.4(a)(2) New Jersey Improvements - 1985 (Table 25-16B)

(a) Interstate 80. Six lanes are now needed from the Delaware Water Gap to Route 94 and U.S. 46 (NOT in present planning. See note in preceding section as possible alternate.)

(b) Route 31. Need four lanes along Route 31 from US 46 south to I-78. (included in present planning)

(c) US 206. Need four-lane divided freeway bypassing Newton and extending past Andover to Netcong. (included in present planning)

(d) Route 15. Need extension of four-lane freeway from present Sparta bypass to US 206. (included in present planning)

(e) Route 23. Extend six lanes to NJ 94 near Hamburg. Inasmuch as this would be along a new alignment, the new construction should extend four-lane to existing NJ 23 northwest of Sussex (in present planning).

(f) US 206. Complete dualization (four lanes) of the section from Route 15 past Branchville to Route 521 (Minisink-Dingmans Branch); acquire right-of-way for extension to the Milford-Montague bridge within a few years. (included in present planning)

XXV.C.4(a)(3) New York State Improvements - 1985 (Table 25-16C)

(a) Two-lane higher standards for increased capacity and safety are needed along Route 42 between Monticello and Port Jervis. (Included in present planning.)

(b) Two-lane higher standards for increased capacity and safety are needed along US 209 from I-84 to Route 17 probably needing a bypass of the Port Jervis urban area. (Included in present planning with future widening to four lanes.)

XXV.C.4(a)(4) Pennsylvania Improvements - 1990 (Table 25-16D)

(a) A two-lane Stroudsburg bypass for US 209 is needed, but because of heavy truck traffic and future requirements, four lanes are initially considered in the State's planning. No additional improvements would be required through 1990. This does not preclude improvement of the highway system along routes not related to TILP, which have not been included in this analysis.

XXV.C.4(a)(5) New Jersey Improvements - 1990 (Table 25-16E)

No additional improvements would be required in the New Jersey highway system along the routes affected by TILP. Improvements on local and country roads may be necessary to accommodate continued normal growth.

XXV.C.4(a)(6) New York State Improvements - 1990 (Table 25-16C)

(a) Interstate 84. This route would require widening to six lanes from the New York State Thruway past Route 17 through Port Jervis. (NOT included in present planning.)

XXV.C.4(a)(7) Improvements to Accommodate Traffic Forecasted for the Year 2000 (Without TILP) (Tables 16F, G and C)

The major improvements presently foreseen are:

(a) Interstate 80. Eight lanes would be required from I-380 through the Delaware Water Gap to US 46 and Route 94, and easterly to I-287 and add tow lanes to the connection along US 209 to Marshalls Creek (this latter one is included in present planning). The alternative to using US 611 on the west side of the Delaware River should be studied when the need arises as mentioned previously.

(b) Pennsylvania Route 33. Widen this four-lane expressway to six lanes from I-80 to I-78. (NOT included in present planning)

(c) New Jersey Route 94. Four lanes would be required. In The New Jersey Master Plan for Transportation (1972), the route is proposed along a new alignment as an expressway extending from I-80 to the New York State Line. The sections overlapping US 206 and 23 should carry additional lanes. The number of total lanes should be determined after more detailed study.

(d) New Jersey Route 23. [See XXV.C.4(a)(2)(e)] This would need a four-lane expressway from the new construction (XXV.C.4(a)(2)(e)) to Matamoras-Port Jervis. There is also need for eight lanes in the area of Passaic County, just beyond the immediate

impact area (the extension is included in present planning).

(e) US 206. Six lanes required from Route 15 to Route 521 and four lanes to the Milford-Montague Bridge. (included in present planning)

(f) Milford-Montague Bridge. New twin bridge required and extend dualization road to relocated US 209. (NOT included in present planning).

XXV.C.4(b) Improvement Program - Highway System With TILP-DWGNRA

A number of improvements would be required in addition to those mentioned above to accommodate the added recreational traffic generated by the TILP. Only the added improvements directly attributable to the lake project are listed below. It should be emphasized that these improvements are in addition to those mentioned previously and which are required to accommodate normal traffic growth, Because of the TILP, some of the improvements listed in previous sections may have to be undertaken earlier. Proper notation is included in these cases.

XXV.C.4(b)(1) Pennsylvania Highways - 1985 Phase I (Table 25-16A)

(a) Route 402. Improve alignment and grades for higher capacity two-lane facility. (included in present planning)

(b) US 209. The Stroudsburg bypass would be required in Phase I (1985) instead of 1990. Also, the construction of US 209 from Marshalls Creek to I-84 should be upgraded to a four-lane expressway along the new alignment with provision for future widening to six lanes. [See XXV.C.4(a)(1)(a)] (included in present planning with no provision for six lanes)

XXV.C.4(b)(2) New Jersey Highways - 1985 Phase I (Table 25-16B)

(a) Route 94. Reconstruct as a four-lane expressway by 1985 instead of 2000, as mentioned previously, from I-80 to the Newton bypass including NJ 94A to Kittatinny. (included in present planning)

(b) US 206. Upgrade the proposed four-lane expressway to provide six lanes in the future. (six lanes NOT in present planning)

(c) Route 521. Reconstruct this access route to the Minisink Section as a four-lane divided highway. (NOT in present planning)

(d) US 206. Reconstruct the section from Route 15 to Milford-Montague Bridge as a four-lane divided highway, with six lanes from Route 15 to Route 521 (Minisink Section). Without TILP the section from Route 15 to Route 521 would be needed in 1985 and in the year 2000, this section would need six lanes and the dualization (four lanes) would be extended to the Milford-Montague Bridge.

(e) Route 517. Complete improvement of a two-lane highway between Newton and Sparta with provision for four lanes in the future. (four lanes NOT in present planning)

(f) Route 519. Improve to higher standards from US 46 to I-78. (NOT in present planning)

(g) Route 521. Improve to higher standards with provision for future dualization the section from US 206 to Blairstown. (NOT in present planning) See XXV.C.4(b)(8)(a).

XXV.C.4(b)(3) New York State Highways (Table 25-16C)

No additional improvements are required to accommodate the TILP traffic during Phase I and II.

(a) Interstate 84. Eight lanes would be required from Port Jervis to route 17 under Phase III in the year 2000. Added capacity would be needed beyond Route 17. A possible alternative would be an entirely new east-west route generally parallel to the New Jersey border. [XXV.C.4(b)(8)(c)]

XXV.C.4(b)(4) Pennsylvania Highways - 1990 Phase II (Tables 25-16D)

(a) US 611. Widen to four lanes. This is independent of and in addition to the possible alternative of using this route as a relief I-80 through Delaware Water Gap. (NOT in present planning.)

(b) Route 33. Add one lane in each direction in 1990 instead of 2000 without TILP. (included in present planning)

(c) Milford-Montague Bridge. Widen to four lanes or construct twin structure for a four-lane crossing. Extend four lanes to relocated US 209. This would be required in the year 2000 without TILP. (NOT included in present planning)

(d) Route 739. Higher standards (alignment, shoulders and grades) for increased capacity are needed on the existing two lanes. (NOT included in present planning)

XXV.C.4(b)(5) New Jersey Highways - 1990 Phase II (Table 25-16E)

(a) US 46. Widen to four lanes from US 80 (west terminus) to Route 519 and extend to reconstructed NJ 31. (included in present planning)

(b) Interstate 80. Eight lanes would be required under Phase II in 1990 instead of 2000 from the Delaware Water Gap eastward. (NOT included in present planning)

(c) Route 521. Widen to four-lane divided highway from US 206 to Swartswood. See XXV.C.4(b)(8)(a)

(d) Route 23. Relocate to expressway standards the Route 521 section between Route US 206 near Montague and NJ 23 at High Point.

XXV.C.4(b)(6) Pennsylvania Highways - 2000 Phase III (Table 25-16F)

(a) US 209. Widen to six lanes from the Stroudsburg bypass to the Dingmans Creek section (Route 739) (NOT in present planning)

XXV.C.4(b)(7) New Jersey Highways - 2000 Phase III (Table 25-16G)

(a) Route 521. Widen to four-lane divided highway from Swartswood to the proposed east-west section of the NJ 94 freeway. See XXV.C.4(b)(8)(a).

XXV.C.4(b)(8) Highway System Alternatives

Sections XXV.C.4(b)(1) through (7) above present the improvements on the existing and proposed highway system as required with or without TILP. The following additional conclusions have been reached with respect to the highway system.

(a) Foothills Freeway. The 1972 Master plan includes this north-south expressway (see Exhibit 25-5) extending along the eastern perimeter of the DWGNRA. This entirely new facility was proposed to serve a dual purpose: to connect I-80 with I-84 and as a major access to the DWGNRA. The Consultants' traffic analysis does not include a review of interstate highway needs. However, the Foothills Freeway is not necessary to accommodate the TILP traffic in any of its three phases. This conclusion is based

on the assumption that visitation will be controlled by advance warning or other means and traffic is held at the levels estimated as shown on Tables 25-16B, 25-16E, and 25-16G and if required improvements to Route 521 and the Route 94 Expressway are completed.

(b) New Access Routes to TILP in New Jersey. Without the Foothills Freeway, new access routes might be necessary from the Kittatinny section southeasterly and northeasterly to the proposed Route 94 Expressway. These could be a short two to three mile two-lane spur to the Route 94A Expressway and an improved four lanes along existing local road from Millbrook area to Blairstown. A similar spur would be required from Wallpack Center to improved Route 521.

(c) Access Routes to TILP in Pennsylvania. It is assumed that proper connections would be provided from the relocated US 209 to the Park gates, with or without the TILP.

(d) Additional East-West Route. An additional east-west connection could be an alternative to increasing the number of lanes on New Jersey Route 23 through Passaic and east under Phase III. A possible alternative would be a connection from Route 23 Expressway near Route 284 or from the proposed Route 94 Expressway near Vernon to the proposed Route 208 Expressway near the Passaic County Line.

XXV.C.5 ESTIMATES OF COST - HIGHWAY SYSTEM IMPROVEMENTS.

Estimates of cost of the planned improvements are presented in the 1966 Highway Impact Study DWGNRA prepared by the Pennsylvania DOT and in the 1972 Master Plan prepared by the New Jersey DOT. The estimates have been revised by the Consultant to reflect the increases in construction costs from those dates to December 1974 using standard construction cost indices. For those facilities which are not included either in the Pennsylvania Study or in the New Jersey Master Plan, an order of magnitude estimate of cost has been assumed based on a comparison with similar facilities for which costs are available.

The costs are for the improvements listed in Section XXV.C.4 which do not include routes which would not be affected or used by TILP traffic. The order of magnitude cost estimates are as follows:

Phase I (1985) Construction Costs

Pennsylvania Highways

Without TILP	
US 209 north of Marshalls Creek, I-80 and Delaware River Bridge	$112 million
Additional with TILP	
US 209 south of Marshalls Creek (required in 1990 without TILP) and Route 402	52 million
Total Costs with TILP	$164 million

New Jersey Highways

Without TILP

I-80 from Bridge to Route 94,
US 206 from I-80 to Route 521
to Dingman's Ferry, Route 31,
Route 15, Route 23 Hamburg Section $277 million

Additional With TILP

Route 94 from I-80 to Newton
and completion of US 206 to Milford
Bridge (both required in 2000 without
TILP), Route 521, Route 517 and Route 519 184 million

Total Costs With TILP $461 million

New York Highways

Without TILP, US 209 and Route 42 $ 9 million

Phase II (1990) Construction Costs

Pennsylvania Highways

Without TILP

US 209 south of Marshalls Creek
(Required under Phase I with TILP) $ 37 million

Additional With TILP

Route 33 and Milford-Montague
Bridge with Spur to US 209
(Required in 2000 without TILP)
US 611 and added Bridge and Route 739 81 million

Total Costs With TILP $118 million

New Jersey Highways

None Required Without TILP

Additional With TILP

US 46, I-80 (required in 2000 without TILP), Route 521, and Route 23 connection to Milford Bridge	$ 76 million
Total Costs With TILP	$ 76 million

New York Highways

Without TILP

I-84 Port Jervis to Route 17	$ 12 million

Additional With TILP

None	0
Total Costs With TILP	$ 12 million

Phase III (2000) Construction Costs

Pennsylvania Highways

Without TILP

Route 33 and Milford-Montague Bridge with Spur to US 209 (Required in 1990 with TILP) and I-80	$ 44 million

Additional With TILP

US 209, Marshalls Creek to Dingmans Ferry	6 million
Total Costs With TILP	$ 50 million

New Jersey Highways

Without TILP	
Route 94 from I-80 to New York State Line (I-80 to Newton needed in 1985 with TILP), US 206 from Route 15 to Milford-Montague Bridge (needed in 1985 with TILP), I-80 (needed in 1990 with TILP) and Route 23	$282 million
Additional With TILP	
Route 521 additional east-west connection to Route 23	38 million
Total Costs With TILP	$320 million

New York Highways

None Required Without TILP	
Additional With TILP	
I-84	$ 12 million
Total Costs With TILP	$ 12 million

Section XXV.C.4 describes the required improvements on the highway systems needed to accommodate the traffic generated by TILP in addition to normal traffic growth. For an assessment of the relative impacts of both normal growth and TILP traffic the number of additional lanes must be related to

the length of highway to be improved. Thus, lane-miles have been estimated for the highway systems by multiplying the number of lanes by the length of highway section to be improved. A comparison between existing lane-miles and required lane-miles needed to accommodate future traffic with and without TILP is presented in the following section. For convenience, for the added lane-mileage, reference is made to the project description as presented in Section XXV.C.4. Example: (a)(1)(a) refers to improvements required on US 209 as described in Section XXV.C.4(a)(1)(a).

Pennsylvania Highway System

	Existing highways, impact area (See Exhibit 3, following page XXV-6)		432 miles
	Equivalent lane-miles		1,072
Phase I (1985)	Improvements required without TILP		
	Projects (a)(1)(a), (b) and (c)		+88 lane-miles
	Additional required with TILP		
	Projects (b)(1)(a) and (b)		+44 lane-miles
		TOTAL	1,204 lane-miles
Phase II (1990)	Improvements required without TILP		
	Project (a)(4)(a)		+44 lane-miles
	Additional required with TILP		
	Projects (b)(4)(a), (b), (c) and (d)		+74 lane-miles
		TOTAL	1,322 lane-miles
Phase III (2000)	Improvements required without TILP		
	Projects (a)(7)(a), (b) and (f)		+138 lane-miles
	Additional required with TILP		
	Project (b)(6)(a)		+14 lane-miles
		TOTAL	1,474 lane-miles

Under Phase I, approximately 54 existing lane-miles would be flooded by the lake. These are to be replaced by 108 lane-miles. Not included above are the upgrading of two-lane Routes 739 & 402, a total of 106 existing lane-miles.

New Jersey Highway System

	Existing highways, impact area (See Exhibit 2, following page XXV-6)	462	miles
	Equivalent lane-miles	1,142	
Phase I (1985)	Improvements required without TILP		
	Projects (a)(2)(a) through (f)	+168	lane-miles
	Additional required with TILP		
	Projects (b)(2)(a) through (g)	+212	lane-miles
	TOTAL	1,522	lane-miles

Under Phase I without TILP about 102 lane-miles would be abandoned or replaced by new highways totaling 232 lane-miles. With TILP, an additional 38 lane-miles would be replaced by 76 lane-miles.

Phase II (1990)	Improvements required without TILP		
	None	-	
	Additional required with TILP		
	Projects (b)(5)(a) through (d)	+140	lane-miles
	TOTAL	1,662	lane-miles

A total of 12 lane-miles would be abandoned or replaced by 24 lane-miles.

Phase III (2000)	Improvements required without TILP		
	Projects (a)(7)(a) through (f), except (b)	+330	lane-miles
	Additional required with TILP		
	Project (b)(7)(a)	+ 26	lane-miles
	TOTAL	2,018	lane-miles

New York Highway System

	Existing highways, impact area (See Exhibit 4, following page XXV-6)	192	miles
	Equivalent lane-miles	488	

Phase I (1985) No additional lane-miles required with or without TILP. However, upgrading two-lane roads [Projects (a)(3)(a) and (b)], totaling 80 lane-miles, would be necessary without TILP.

Phase II (1990)	Improvements required without TILP		
	Project (a)(6)(a)		+ 40 lane-miles
	No additional required with TILP		-
		TOTAL	528 lane-miles
Phase III (2000)	No improvements required without TILP		
	Additional required with TILP		+ 40 lane-miles
		TOTAL	568 lane-miles

In the tabulations of lane-miles presented in this section, some of the lane-miles of improvements noted as required for TILP are those which will be required to handle normal or base traffic growth in subsequent years. Their cost or need should thus not be fully attributed to TILP. For example: in Table 25-19, in the Concluding Remarks to this chapter, Phase II (1990) with TILP requires a total of 3,512 lane-miles as compared to a total of 3,515 lane-miles needed 10 years later (Phase III-2000) without TILP.

XXV.D. IMPLEMENTATION PROGRAMS

Discussions of transportation improvements are wasted unless these plans become realities. Economic, environmental, social, political and other institutional safeguards must be addressed before the transportation projects are constructed. Indeed, many of these safeguards are prevalent in the Tri-State New Jersey-New York-Pennsylvania area surrounding the Tocks Island Lake Project.

The analysis of anticipated highway congestion and the improvements needed to relieve it, the potential for providing passenger rail service to the site, increasing bus lines into the area, and initiating any new form of transportation which could aid public transit, all face limited allocations of resources -- in the TILP case, mostly financial and environmental.

Although this section of Chapter XXV discusses all the programs available for both public (bus/rail) transit and highways (private automobile), it should be emphasized that many of the rail programs in particular may not be useful in connection with the TILP for the reasons explained heretofore in Section XXV.C. These rail programs are discussed below, however, to present a complete summary of available funding.

This section of Chapter XXV is divided into two parts. The first and larger part discusses Federal programs, while the shorter second part discusses State programs, particularly the State matching of Federal funds.

XXV.D.1 FEDERAL PROGRAMS

The following Federal programs are divided into two categories: (1) rail/bus programs and, (2) highway programs. As mentioned in the various highway programs discussed under Section XXV.D.2(b), certain Federal highway funds can now be used by cities for public transportation.

XXV.D.1(a) Rail/Bus Programs Available for TILP Improvements

Concerning public transportation, the capital required for implementing recommended improvements for TILP is as significant as that needed for highway modifications, with the additional problem of justifying such expenditures for modes of travel which are expected to be used to a considerably less degree than the automobile. The rail improvements which have been discussed herein have indicated the absence of any direct rail access into the recreation site. The need for a direct rail link into the TILP has been emphasized as one of the most important characteristics which any form of rail service must possess if it is to be considered as a viable alternative to automobile travel. However, the United States Railway Association has estimated (December 1974) that the cost of constructing one mile of single track, exclusive of signal, drainage or land costs, is close to $450,000. Justification for this type of expenditure must receive careful consideration when allocating resources in implementing transportation improvements.

XXV.D.1(a)(1) ConRail

The United States Railway Association (USRA) was created under the Regional

Rail Reorganization Act of 1973 in order to plan for the restoration of adequate service on bankrupt railroads in the Midwest and Northeast. All of the lines which service the TILP are included in the proposed Con-Rail system, the new railroad structure mentioned in Section XXV.C.1(b) (Rail Service Without TILP). This concept, if it becomes a reality, would have profound effects for the Tocks Island region economically and socially, with or without the recreation site. The USRA has placed a $10 billion price tag on the total program for the Midwest and Northeast railroads.

Although the precise cost of the improvements needed for the lines in the Tocks Island region have not been estimated, it will be substantial. Hopeful of showing a pre-tax profit of $161 million by 1980 (after sustaining a first-year loss of $91.4 million), ConRail had suggested that its funding by the Federal Government be through a Consolidated Facilities Corporation (ConFac), which would have acquired the right-of-way and structures of the lines which have been conveyed to ConRail and would use government-provided or guaranteed funds to rehabilitate its rights-of-way and structures, then making them available to ConRail for operation as a transportation system. ConFac is no longer being considered.

i) Funding for ConRail

The language of the Rail Act states that "...to carry out the purposes of

this Act...the Association is authorized to issue bonds, debentures, trust certificates, securities, or other obligations...and the aggregate amount which may be outstanding at any one time shall not exceed $1.5 billion, of which the aggregate amount issued to the Corporation shall not exceed $1 billion." Of the aggregate amount of obligations issued to ConRail by the Association, "...not less than $500 million shall be available solely for the rehabilitation and modernization of rail properties acquired by the Corporation under this Act...." In addition, the Secretary of Transportation is authorized to provide "emergency assistance" funding to the bankrupt carriers so they can "...maintain and provide service at a level no less than that in effect on the date of enactment of this Act." The Secretary is also authorized to provide loan-guarantee assistance for maintenance and improvement of the plant of the participating bankrupt railroads. Overall, funding under the Rail Act totals more than $2 billion.

The Rail Act authorizes $90 million for each of two years to meet the Federal share of the 70 percent subsidy cost. If matched completely by the state in which the rail lines are located, nearly $130 million would be available for the subsidy program for 6,200 miles of light density lines. The Association has determined that these funds are adequate to continue in operation all of the light density lines not included in ConRail.

Under the Title IV Program, 50 percent of the subsidies granted by the Federal Government are apportioned to the states on a formula basis based

on rail mileages in each state. The states involved and their entitlement funds are as follows: $4,500,000 each for Illinois, Michigan, Indiana, Ohio and Pennsylvania; $4,095,000 for New York; $2,880,000 for Virginia; $2,610,000 for West Virginia and; $1,350,000 each for Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Delaware, Maryland, New Jersey and the District of Columbia. These amounts can be supplemented from the discretionary funds of the Secretary of Transportation, which constitute 50 percent of the Federal support program.

A state in the region becomes eligible for subsidy payments when it has established a statewide rail plan that meets the requirements of the Federal Railroad Administration as defined in the "Federal Register" on January 28, 1975.

Of note to the Tocks Island region, particularly the northeast area of Pennsylvania, is the provision in the Rail Reorganization Act which states that lines not now included in ConRail will also be reviewed from the standpoint of service to areas holding fossil fuel reserves. Recommentations concerning specific lines largely or solely because they serve fossil fuel reserves will be included in the Final System Plan of ConRail.

On rail lines required to reach economically recoverable reserves, if service is provided now, it will be continued whether viable or not. Where the line does not pass the USRA viability test, however, service will be maintained on an "on demand" basis and only so long as no major repairs are required on the line. At such times as repairs are required,

the line will fall into the category described below.

On those lines required to reach economically recoverable reserves and where there is not now service, the Association proposes that such lines be considered for "rail banking" and that this concept be developed in conjunction with the Final System Plan. This provision of "banking" has never been attempted before. Basically, it would mean any right-of-way property be held by a "banker", possibly the USRA or a state or county agency, to be kept intact in the event future use of this property is required to reach any recoverable reserves.

The lines recommended in the Preliminary System Plan, either for continued service or rail banking, are based on the best available information the Association could obtain to date. The Association will continue to work with the Federal Energy Administration, Department of Interior, the National Coal Association and the region's coal-producing states to make a more accurate estimate of where economically recoverable coal reserves exist.

ii) Effects of ConRail Improvements - New Jersey

The recommendations contained within the Preliminary System Plan of the USRA should improve rail competition in the State of New Jersey. By consolidating the operations of the Lehigh Valley, Jersey Central, Penn Central and Reading Railroads, it is asserted to be possible, because of the additional traffic flows being handled by one railroad (ConRail), to schedule more through trains to and from specific destinations in Northern

New Jersey, For example, it is anticipated that through trains will be operated from the west directly to the major ConRail yards in Northern New Jersey. These trains would arrive already pre-sorted so that upon arrival, major groups of cars can be transferred immediately to industrial yards and even to major customers in the Northern New Jersey area. This should substantially improve service.

Competition would also be maintained and strengthened in Northern New Jersey by the recommendation that the eastern portion of the Erie-Lackawanna be transferred to and operated by either the Norfolk & Western or the Chesapeake & Ohio Railroads. Integrating the operations of the eastern half of the Erie-Lackawanna into one of these solvent railroads should enable service to be improved to existing Erie-Lackawanna customers in Northern New Jersey, resulting in single carrier service to more points in the Midwest.

In terms of rehabilitation, more than $1 million of the ConRail rehabilitation funds have already been authorized for capital projects in Northern New Jersey. Future rehabilitation projects will include upgrading the former Lehigh Valley main line from Allentown to Newark, as well as the former Reading main line from Philadelphia to Boundbrook, New Jersey. Also, the Lehigh & Hudson River Railroad will be upgraded substantially, as it will become part of the main line route between New England and the South under ConRail.

iii) Effects of ConRail Improvements - New York

The USRA's Preliminary System Plan has included the following recommendations that will improve rail service for the State of New York. Most important, the Plan recommends that the portions of the Erie-Lackawanna from Buffalo and Hornell, New York, east through Binghamton to Port Jervis, New York, and north to Rochester, Syracuse and Utica, New York, be transferred to and operated by either the Norfolk & Western or the Chesapeake & Ohio Railroads. In so doing, the USRA has recommended, at a minimum, that rail competitive service be maintained in Syracuse, Buffalo and Albany, New York. Rail competition is said to be maintained in the Metropolitan New York Area through the availability of a second-line haul carrier (the Erie-Lackawanna successor) at Newark.

The transfer of the eastern portion of the Erie-Lackawanna to a solvent carrier would also assure that the Delaware & Hudson/Boston & Maine east-west route into New England would be maintained and strengthened, because it would be tied to a stronger carrier than the bankrupt Erie-Lackawanna. The Preliminary System Plan has also maintained the north-south competitiveness of the D&H route by granting the D&H trackage rights from Binghamton, New York to Allentown, Pennsylvania over ConRail. In Allentown, the D&H would connect with the Chesapeake & Ohio.

iv) Effects of ConRail Improvements - Pennsylvania

Rail competition in Pennsylvania will be improved if the recommendations included in the USRA's Preliminary System Plan are implemented. In place of fragmented responsibility, the Plan calls for single carrier line haul

service which would be created with an attendant improvement in car supply, rate making and service responsibility.

Service should also be improved to ConRail customers at smaller points if the Plan recommendations are adopted. It would be possible -- with the merged Reading, Penn-Central and Lehigh Valley traffic flows -- to make more sophisticated car sorts at origin locations and reduce the requirements to handle cars enroute to their destinations, expediting the service.

The Proposed Regional Rail system also strengthens rail service competition into the Wilkes-Barre-Scranton area, as the eastern portion of the Erie-Lackawanna would be transferred to an operation of the Norfolk & Western or the Chesapeake & Ohio Railroads, thereby strengthening the service capabilities of this portion of the Erie-Lackawanna. Service would also be maintained and improved on the former Erie-Lackawanna route from Buffalo to Northern New Jersey via Binghamton, New York. The Allentown-to-Phillipsburg main line of the former Lehigh Valley has also been recommended for upgrading to main-line status under ConRail.

v) ConRail Staging and Related Considerations

Emphasis throughout this chapter has been given to the preliminary status of the USRA's report. Because of the uncertainty of what final structure ConRail would assume, the effects on the TILP cannot be entirely formulated. Public hearings on the Preliminary System Plan of the USRA are tentatively scheduled to be completed at the end of April 1975, with a Final System Plan to be sent to Congress by the USRA on July 26, 1975. The Final

System Plan is to become effective after 60 days of continuous sessions of Congress, beginning July 26, 1975, if neither the House nor the Senate disapproves the Plan. The USRA hopes that ConRail can become operational early in 1976.

The Transportation officials of the respective Departments of Transportation of Pennsylvania, New Jersey and New York, and private lines affected by ConRail have viewed any transportation improvement plans as contingent on the results of ConRail. This appears to be sound policy, as the provision which allows any excess trackage not included in the ConRail system to be made available for State purchase, could conceivably be used for rail service to the TILP.

XXV.D.1(a)(2) Direct Rail Access Project (Staging and Funding)

One of the most important improvements for rail transportation in the New York Metropolitan area would be the "Direct Rail Access Project" (DRAP) under consideration by an inter-agency task (including the Metropolitan Transportation Authority, Port Authority of New York and New Jersey, Erie-Lackawanna and states of New York and New Jersey) force would allow electric Erie-Lackawanna trains to connect with Penn Central tracks in the Hackensack Meadowlands and then proceed into Pennsylvania Station, New York City.

Present estimates for such a connection are $350 million, which would be a considerable saving over the $800 million cost for a new rail tunnel to New York City for the Erie-Lackawanna. Various property, excise and

sales taxes or a rail ticket surcharge may be included in the subsidy program available to the Metropolitan Transportation Authority. Although this transporation improvement is comtemplated irrespective of TILP, it would provide one of the most important benefits for transportaion access to the proposed recreation site, reducing time travel presently required to reach the Erie- Lackawanna at Hoboken via PATH.

This plan is currently under study and has the support of the New York and New Jersey DOTs and state legislatures. It is hoped this connection can be implemented in the near-term future.

XXV.D.1. (a)(3) Amtrak

The National Railroad Passenger Corporation, created by Congress to upgrade rail passenger service in the nation, has provisions requiring that experimental routes be instituted once each year. Although Amtrak officials contacted do not have immediate plans of examining service to TILP until a market for such service exists, an Amtrak experimental run during the peak season from a large urban area such as New York City or Philadelphia to the largest recreation area in the East would be a distinct possibility. An example of Amtrak cooperation when the passenger tourist demand exists occurred during the summer of 1974, when Amtrak ran a special train (in addition to its two Seattle-Chicago trains to supplement rail service to the "Expo 74" in Spokane, Washington. However, local (state) subsidies are required to partially pay for any operating loss which may occur for such a service.

XXV.D.1.(a)(4) Federal Grant Programs

If an increased demand for public transportation resulted from TILP, the Federal programs available to state and local agencies to implement transportation improvements would be considered. The Urban Mass Transportation Administration along with the Federal Railroad Administration provide various capital improvement grants, loans, technical study grants, and research and demonstration programs to assist public agencies in the acquisition, construction, reconstruction and improvement of facilities and equipment for use in mass transportation service in urban areas.

i) Federal Railraod Administration - Research and Development

Objective

The objective of the FRA's research and development (R & D) is to explore the potential of new technology to improve ground transportation. Under this program, contracts are awarded for various R & D programs and demonstrations. The R & D effort includes studying materials, aerodynamics, vehicle propulsion, vehicle control, communications, guideways, and testing of new systems, components and techniques. These demonstration programs are conducted to evaluate the contributions of High Speed Ground Transportation in the efficiency and economy of intercity transportation of people and goods. All public or private, profit or nonprofit organizations with adequate technical competence may submit proposals to the Office of Research, Development and Demonstrations. Unlike many DOT programs, there is no standard sharing arrangement; Federal participation depends upon the specifics of each project and is a specified part of the negotiated contractual agreement.

Eligibility

This would appear to be one of the best means of implementing any rail improvements into TILP, as any public or private, profit or nonprofit organization with adequate technical competence may submit proposals. This requirement would easily be fulfilled by any of the Tri-State Departments or Transportation in conjunction with the various rail lines.

Related Considerations

Even without TILP, the Tri-State region's rail lines are capable of receiving aid under the Federal Railroad Safety Act of 1970, where the FRA is charged with development of a comprehensive railroad research program. Its objectives are to provide research for the improvement of the railroad industry structure, to improve freight car management and freight services, and to solve critical railroad safety problems. Increased participation by private industry is encouraged. Contracts are awarded for research which deals exclusively with conventional railroading, including industry structure, freight car management systems, improved service and railroad safety research.

ii) Urban Mass Transportation Administration Programs

Urban Mass Transportation Administration (UMTA) programs include (1) demonstration grants, (2) capital improvement grants, (3) loans, and (4) technical study grants.

Demonstration Grants

Under the Urban Mass Transportation Act of 1964, which was ammended ten

years later, any transportation improvements to be funded from these Acts must be used for the demonstration of system facilities, equipment, techniques and methods to carry people and goods within metropolitan areas speedily, safely, without polluting the air, and in a manner that will contribute to sound city planning.

The clause noting that the demonstration project must move people through "metropolitan" areas may allow financial aid to be available for bus/rail programs to TILP. As mentioned herein, although the TILP area is not presently urbanized, it may be available for UMTA funding in connection with transit routes connecting it with the New York and Philadelphia metropolitan areas. The following programs, with $13 million in aid available for fiscal 1975, are those which any transit improvement to TILP, from the large urban areas, could utilize.

Capital Improvement Grants

The purpose of this program is to assist state and local agencies in providing adequate mass transportation; encouraging the application of new technology; and promoting transit improvement programs that are consistent with regional goals and objectives. Federal funds are granted to assist public agencies in the acquisition, construction, reconstruction and improvement of facilities and equipment for use in mass transportation service in urban areas. Assistance may be for bus, rail or other conveyance.

While only public agencies are eligible to apply for and receive Federal

funds, private transportation companies may participate through contractual arrangements with public agencies. The Federal share of project costs for approved grants is 80 percent.

Loans

Under this program two kinds of direct loans are made available. Capital Improvement Loans are provided to finance the acquisition, construction, reconstruction and improvement of facilities and equipment for use in mass transportation service in urban areas. These loans are made only where no financial assistance is otherwise available and they must be repaid within 40 years.

Loans are also provided for the advance acquisition of real property to be used in planned mass transportation systems. These loans must be repaid within 10 years or become part of a capital grant project for the construction of the planned mass transportation systems.

Technical Studies Grants

Under this program, state and local public agencies are assisted in carrying out studies relating to management, operations, capital requirements, and economic feasibility; preparing engineering and architectural surveys, plans and specifications; and conducting similar activities in preparation for the construction, acquisition, or improved operation of mass transporation systems, facilities and equipment. Technical study funds can also be used to finance the mass transportation element of coordinated transportation planning on the state and local

levels. The goal is to assist state and local agencies in developing and improving coordinated urban transportation systems.

This program could substantially benefit the Tocks Island region with or without TILP in order to strengthen the private rail/bus lines throughout the area.

Related Considerations

Federal, state and local officials, as well as any private enterprises responsible for implementing any transportation improvements in the Tocks Island region, have unanimously maintained a wait-and-see attitude. before investing in large expenditures for public transportation programs. With such large costs for extending rail lines, widening highways and purchasing bus equipment, it would appear pertinent to maintain this policy. The difficulty, however, is that many of the funds available for public transportation improvements are available over the next few years and are significant sums which could conceivably be lost if any appreciable delay in implementation occurs.

If the market for increased public transportation occurs, there would appear to be ample programs and funds available to aid in establishing transportation access to TILP, and also to strengthen the Tocks Island region's transportation economy without a recreational site.

XXV.D.1.(b) Highway Programs Available for TILP Improvements

In addition to the programs specifically available for any public transportation improvements, there exists equally significant legislation which would assist any highway implementation projects as have been recommended in this chapter.

Programs of assistance through the Federal Highway Administration are designed to assist State highway departments (or divisions of their Department of Transportation) in constructing the Interstate Highway System, building or improving Primary, Secondary, and Urban System roads and streets, improving urban mass transit capacity, and increasing highway safety. Funding for the various Federal-aid programs is provided through the Highway Trust Fund and from revenues from various highway-user taxes. The funds may be used for planning, engineering, right-of-way acquisition, new construction, improvement, roadside beautification, and rest areas. All projects in urban areas of more than 50,000 population must be based on a continuing comprehensive planning process. This is carried out by area-wide planning agencies who are designated to integrate plans for all modes of transportation. These agencies are funded through the States according to a formula developed by each State. Some county and local roads and streets are part of the Federal-aid systems and are eligible for improvement, but only through State Highway department (or State DOT) initiative and action. In order to receive aid, the State highway departments (or State DOT's) submit their programs of desired projects to the State-level (Division) offices of the Federal Highway Administration for review and approval.

As of the beginning of fiscal 1974, the Federal Highway Administration has been involved in the area of public mass transit. Under certain conditions, funds previously earmarked for Interstate and Urban Systems projects can be replaced by a like amount in general funds for rail and bus mass transit capital improvements. In succeeding years, increasing amounts of Urban System funds will be available, first for the purchase of buses, and then for the construction, reconstruction, and improvement of rail transit facilities and purchase of rail as well as bus rolling stock. In addition, all apportionments may be used for the construction of exclusive bus lanes, highway traffic control devices, bus passenger loading areas and facilities, and fringe and transportation corridor parking to serve mass transportation passengers.

The passage of the Federal-Aid Highway Act of 1973 provides the single greatest impact for transportation improvements into the proposed TILP. This legislation provides $17.9 billion for continuing and new Federal-aid highway improvement and construction programs over the 1974, 1975 and 1976 fiscal years. A major provision in the Act has opened up the Highway Trust Fund revenues for use in mass transit projects. Other highlights of this far-reaching Act and their applicability to TILP transportation improvements follow.

XXV.D.1(b)(1) Interstate Highway System - Modification and Revisions

The 1973 highway legislation authorizes Federal funds to continue construction of the Interstate Highway System and a new timetable for states to notify the Secretary of Transportation if they intend to build any

remaining Interstate segments. The Act allows states to trade funds from unwanted large urban area Interstate segments for an equal amount of Federal mass transit aid from general funds. Whereas this would not concern the TILP since Interstate segments in the area are finished, it has been mentioned to show the Act's commitment to mass transit funding. It is an important provision in 1973 legislation not directly applicable to TILP highway improvements.

XXV.D.1.(b)(2) Primary, Secondary and Urban Highway Systems and Funding Apportionment

The 1973 Highway Act increases funding for the major Federal-aid highway systems other than the Interstate highways from the 1973 level of $1.425 billion to a three-year total of $6.54 billion. These increases result from: (1) a change in policy to accelerate modernization of non-interstate roads, and (2) a need to provide additonal Federal assistance for the transition from 50 percent Federal and 50 percent state matching for these programs to the 70-30 matching ratio which took effect with the start of fiscal 1974.

The Act also eliminates the previous single authorizations for the Primary and Secondary Systems combined with their urban extensions, and substitutes categories for rural and urban portions of these systems. Rural-urban funding equality results from substantially increased funding for the Federal-Aid Urban System.

The TOPICS (Trafic Operations Program to Increase Capacity and Safety)

program was eliminated as a specific category, but TOPICS-like traffic flow improvement projects, such as selected grade separation at intersections, lane widening, the upgrading of traffic control devices (signs, pavement markings and signals) and traffic channelization, are made a part of regular highway improvement activities.

Authorizations for the four highway systems are tabulated in the following table.

	Fiscal Years		
	1974	1975	1976
	(in millions of dollars)		
Rural Primary	$ 680	$ 700	$ 700
Rural Secondary	390	400	400
Subtotals-Rural	$1,070	$1,100	$1,100
Urban Extensions	$ 290	$ 300	$ 300
Urban System	780	800	800
Subtotals-urban	$1,070	$1,100	$1,100
Totals	$2,140	$2,200	$2,200

Under the Act, apportionment of rural Primary and Secondary funds among the states is based one-third on state land area, one-third on population of rural areas, and one-third on the mileage of specified mail routes.

An additional $47 million for three years is set aside to assure that each state's rural Primary System apportionment at least equals the total Primary System apportionment received in fiscal 1973.

Federal-aid Urban System funds are to be apportioned on the basis of proportionate population of urban areas over 5,000 population rather than urbanized areas over 5,000 population.

No state will receive less than one-half percent of the respective apportionments.

These provisions are of great significance to the TILP highway improvements. The Tocks Island area presently consists of rural primary and secondary roads and with the possibilities of this area becoming more urbanized, it might be in the unique position of possibly being eligible for funding through all four highway systems. This would however, depend on similar levels of funding after fiscal 1976.

The improvements discussed in this chapter regarding relocation, extensions or widening of highways throughout the TILP region may benefit significantly from the sizeable amounts of aid available through the 1973 Federal Highway Act.

XXV.D.1(b)(3) The Urban System

The Federal-aid Urban System is expanded significantly under this legislation.

Urban systems are to be designated in each urbanized area and in other urban areas selected by state highway department (and DOTs). These systems must serve the major activity centers and terminals, and include

high traffic volume arterial and collector highway routes. No route on the Urban System can be part of any other Federal-aid road System.

Preliminary studies indicate that about 190,000 miles will be eligible for the Urban System, a six-fold increase from the present 30,000 miles (which includes streets eligible for TOPICS funds under previous law).

Routes on the Urban System must be selected by appropriate local officials, with the concurrence of state highway departments; and, in urbanized areas, in accordance with the comprehensive urban transportation planning process.

Approximately $525 million (70 percent) of the total fiscal 1974 Urban System apportionment will be made available to urbanized areas of more than 20,000 population, based on "fair and equitable" formulas developed by each state and approved by the Secretary of Transportation. If a state does not have such a formula, the funds must be allocated within the state in proportion to population. Each incorporated municipality of 200,000 or more population must also be accorded "fair and equitable treatment" in the expenditure of Urban System funds.

Any discussion of urban system improvements for TILP, although not directly in the seven-county study area, possibly can be implemented in the large cities of 200,000 or more where trips to and from TILP originate. In this case, if heavy demand develops local officials could request financing of improvements as part of a comprehensive plan or possibly through Federal legislation.

XXV.D.1(b)(4) Public Mass Transit

As has been mentioned, for the first time, states will be allowed to use highway-dated Federal revenues for rail and bus mass transit capital improvements.

In fiscal years 1974 and 1975, urbanized areas can decide, under certain conditions, not to use Urban System funds for roads and receive a like amount in general funds for transit. Procedures for this transfer are generally the same as previously discribed for Interstate System substitutions, except that the Federal matching share will be 70 percent. [see Section XXV.D.1(b)(2)]

Also in fiscal 1975, up to $200 million of Urban System apportionments can be used, at local discretion, for the purchase of buses.

In the fiscal year 1976, the entire $800 million apportionment of Federal-aid for the Urban System will be available for the construction, reconstruction and improvement of rail transit facilities and purchase of rail or bus rolling stock.

This diversion will not take place in fiscal years 1975 and 1976, however, if an Urban Transportation Trust Fund or some other method of assured financing for highways and mass transit has been established before the effective date.

The Federal share of transit projects will be 70 percent.

The Act further provides that:

. beginning in fiscal year 1974, all Federal-aid system apportionments may be used for the construction of exclusive bus lanes, highway traffic control devices, bus passenger loading areas and facilities, and fringe and transportation corridor parking to serve mass transportation passengers. These uses were formerly limited to Interstate, Urban System and Urban Primary and Secondary funds, with certain restrictions.

. the Federal Highway Administrator may authorize a state to make publicly-acquired rights-of-way on any Federal-aid highway available for public mass transit facilities, without charge, if sufficient land exists to accomodate safely both highway and nonhighway modes.

The importance of this provision should be obvious in view of the many recommendations for public transportation which have been discussed. State and local officials contacted have emphasized that this portion of legislation is possibly the most important step in implementing transportation improvements for TILP access. Although these officials have maintained that they must wait to see not only if TILP will be a reality, but if a demand for public transit to the site exists, they have acknowledged that improvements discussed in this chapter for TILP access would be significant under this legislation.

Additional provisions of the Federal-Aid Highway Act of 1973, possibly applicable to the proposed recreation site, are discussed on the following pages.

XXV.D.1.(b)(5) Bicycle and Pedestrian Facilities

Money apportioned for the urban and rural Primary and Secondary Systems and the Urban System can be used to construct pedestrian walkways and separate or preferential facilities for bicycles,in conjunction with Federal-aid highway projects. Funds authorized for forest highways, forest development roads and trails, parkways, Indian reservation roads and bridges, public lands highways and public lands development roads and trails are also permitted to be used for constructing bicycle routes and pedestrian walkways. A maximum of $2 million per state and $40 million per fiscal year may be used for these projects.

A 70 percent Federal-30 percent state matching ratio is required.

XXV.D.1 (b)(6) Forest Highways and Public Lands Highways

Annual authorized Federal funding is continued at the fiscal 1973 levels of $33 million for forest highways and $16 million for public lands highways.

XXV.D.1.(b)(7) Priority Primary Routes

This new program provides for priority improvement of high traffic sections of the Federal-aid Primary System which connect to the Interstate System. Initial selection of routes and their estimated cost of improvement should

have been reported to Congress by July 1, 1974. Approximately 10,000 miles are expected to qualify.

Authorization for the program is $600 million. Apportionments among the states will be made on the basis of one-half of the apportionment formula used for rural Primary roads (one-third on state land area, one-third on population of rural areas and one-third on mileage of specified mail routes) and one-half in accordance with the formula used for urban Primary and Secondary highway extensions (based on proportionate population of urban areas over 5,000 population).

The matching ratio is 70 percent Federal-30 percent State.

XXV.D.1. (b)(8) Highway Beautification

The Act provides authorization of $1.5 million annually for fiscal 1974, 1975 and 1976 from general funds for administrative expenses of the highway beautification, junkyard and signboard control programs.

The Act contains no authorization for outdoor advertising or junkyard control. The Congressional Conference Committee report, however, says that this should not be construed as a discontinuance of these programs. The present program remains in force and the conferees expect that the Secretary of Transportation will not invoke the 10 percent penalties

for failure of the state to comply with highway beautification requirements where such failure is the result of the lack of availability of Federal matching funds.

XXV.D.1. (b)(9) Special Bridge Repair and Replacement Program

A total of $175 million is authorized to continue the special bridge repair and replacement program established under the Federal-Aid Highway Act of 1970. This money is provided solely for work on Federal-aid highways; the Federal share of program costs is 75 percent.

XXV.D.1.(b)(10) Rural Highway Public Transportation Demonstration Program

A two-year total of $30 million, including $20 million from the Highway Trust Fund, is authorized to encourage the development of public mass transportation systems on rural highways. Bus purchases, traffic control devices, passenger shelters, and parking facilities are eligible for funding.

XXV.D.1. (b)(11) Summary

With the Federal Aid highway Act of 1973 showing a concern for public transportation while also increasing non-Interstate route modernizations, the proposed TILP could only expect to benefit. Of primary concern, however, is the fact that these large authorizations for highway funding are for the fiscal years 1974-1976, which would mean that to receive maximum benefit of both highway and mass transit support, the plans would have to be implemented almost immediately unless funding is extended. The improvements and concepts recommended for highways and public transit all can be found as qualifying for Federal aid under this far-reaching Act, with or without TILP, and whether or not this region becomes urbanized quickly. The comprehensiveness of the Federal Aid Highway Act 1973

includes rural primary and secondary roads, urban primary extensions, as well as an Urban System of designated roads to serve urban areas. The improvements under any of these categories would directly benefit the immediate Tocks Island region as well as any major urban centers whose roads could serve as routes to the recreation site.

The Federal Aid Highway Act of 1973 not only strengthens the highway programs of the nation, but also the commitment of the Federal Government to aid in public transportation. The $200 million available in fiscal 1975 for bus purchases and $800 million available in 1976 for subways or rolling stock are prime examples of this. The Act also authorizes funds that may be used on any Federal aid system for the construction of exclusive or preferential bus lanes, highway traffic control devices, bus passenger loading areas and facilities (including shelters), and fringe and transportation corridor parking facilities to serve public transportation passengers. Provisions such as these can be of great significance for TILP, in view of the diversification of transportation plans which have previously been discussed herein. The concern for balance between highway and mass transportation projects is indeed reflected in the Federal Aid Highway Act of 1973. Hopefully, the compromise of opening up the Trust Fund for mass transit projects will reduce much of the social, environmental and even political problems in implementing many of the TILP transportation plans which indeed could be realized under the 1973 Act.

Additions to the 1973 Act have occurred with the passage of the Federal Aid Highway Amendments of 1974. This measure includes increased funds for rural primary and secondary highways, bridge replacement program, and

rural public transportation demonstration program; an extension and funding for Federal carpooling encouragement program; authorization for the Secretary of Transportation to build or to repair access roads up to 35 miles long to public recreation areas on certain lakes; and creation of bikeway demonstration programs. Total funding is $752.8 million.

In addition to the various Federal Highway and Railroad Administration Programs, the UMTA legislation and Federal-Aid Highway Acts of 1973 and 1974 combine to provide unique and far-reaching provisions to which the transportation improvements recommended herein can be applied. Although it is too early to see what specific legislation can be applicable because of the uncertainty of the total composition of TILP, it would appear that many of the provisions discussed herein could aid in implementing any of the recommended transportation improvements.

XXV.D.2 STATE AND LOCAL PROGRAMS

Many of the new Federally-funded transportation programs discussed heretofore in Section XXV.D.1 involve 20 to 30 percent State matching funds or comparably significant sums. Producing such funds can be difficult because the states have other demands on their limited resources, such as education and other human needs. The methods by which these funds are allocated and budgeted in the three states is outlined below.

XXV.D.2(a) Pennsylvania

The State of Pennsylvania provides matching funds for Federal Assistance Programs on an evenly-split basis between Harrisburg and local areas involved in any project. The funds are available through a general transportation fund of the State, made up of various property user taxes. Bond improvements are developed every six years and reviewed annually by the State legislature. Local areas must raise their funds from local sources.

For projects which are not Federally-supported, Harrisburg and the local community each contribute 50 percent matching funds through the same source procurement.

XXV.D.2(b) New Jersey

In New Jersey, all tax and bond funds earmarked for transportation improvements go into the general treasury and are appropriated year by year

by the legislature for specific segments, Funds (raised from property taxes, sales and excise taxes, etc.) are applied to the Federal funds available for any specific highway or mass transit project, i.e. the 20 percent share required in UMTA projects matched by 80 percent Federal funds. Similarly, for highway projects requiring 10 percent matching funds for any Interstate project and 30 percent for non-Interstate proposals, the State again provides these funds through the general treasury or bond issue funding without local assistance.

XXV.D.2(c) New York

Any matching programs for transportation projects in New York State are handled as in New Jersey and Pennsylvania through a general treasury of tax sources from which the legislature appropriates funds to match the Federal monies. UMTA projects are split 15 percent State funding and a 5 percent local share to make up the required 20 percent. Highway projects are in a transitional stage in New York State. Whereas previously any highway project needing 30 percent matching funds was picked up entirely by the State, a proposal is now under review by the legislature to have the State pay the 30 percent matching funds only for those improvements on the State highway system. Any improvements outside the system would be matched in the full 30 percent by specific local communities. To date, however, the State continues to pay the entire 30 percent for all other non-local highway improvements.

XXV.D.2.(d) Toll Roads

Toll road financing for highways is an alternative to the normal method of financing through state taxation and transportation bond issues. Although Federal funding is not available for new toll roads, except possibly for toll-free connecting links, if the trafffic volumes warrant, toll roads have the advantage of getting the entire highway built when it is needed instead of waiting for tax or State bond funds to become available, which is usually on a piecemeal basis. The three states of New Jersey, New York and Pennsylvania have the toll road method of financing extensively; the following toll agencies are now in operation in the three states.

- o New Jersey Turnpike Authority
- o New Jersey Highway Authority (Garden State Parkway)
- o New Jersey Expressway Authority (Atlantic City Expressway)
- o New York State Thruway Authority
- o Pennsylvania Turnpike Commission
- 0 Delaware River Port Authority
- o Delaware River and Bay Authority
- o Delaware River Joint Toll Bridge Commission
- o Port Authority of New York and New Jersey
- o Triborough Bridge and Tunnel Authority
- o New York State Bridge Authority
- o Niagara Falls Bridge Commission
- o Nassau County Bridge Authority
- o Cape May County Bridge Commission

Toll road financing generally involves the sale of revenue bonds which are sometimes guaranteed by the state with respect to annual debt service coverage of net revenues after paying for maintenance and operating expenses. Other financing arrangements are also available.

XXV.D.2.(e) Local Road

The other highway improvements on the county or other local level are financed through funds allocated annually to the projects in the local budget.

XXV.E. CONCLUDING REMARKS

Summarizing the preceding analyses, under Phase I conditions (comparable to a 4,000,000 annual visitation, a peak day design load of 40,000 people and 10,400 parking spaces) in 1985, the existing 432 miles of the Pennsylvania highway system, consisting of 1,072 lane-miles, would require an additional 88 lane-miles for regular traffic growth plus 44 added lane-miles to accommodate the TILP-generated traffic. All the added lane-miles would be along US 209 and I-80. The existing 462-mile (1,142 lane-miles) New Jersey highway system would require an additional 168 lane-miles for normal growth plus 212 lane-miles to accommodate TILP added traffic. Most of the added lane-miles would be along I-80, US 206, Routes 15, 23 and 31 for normal growth. With TILP, the additional improvements would be along Routes 94, 517, 519 and 521. The 192-mile (488 lane-miles) in the New York highway system would not require any additions, except improvements to higher standards along two-lane Routes 42 and US 209 (see Table 25-19).

Under Phase II conditions (comparable to a 7,000,000 annual visitation, a peak day design load of 73,000 people and 18,800 parking spaces) in 1990, Pennsylvania would require 137 additional lane-miles (US 209 and Stroudsburg by-pass) without TILP plus 113 lane-miles to accommodate TILP-generated traffic; the latter mostly along Routes 611 and 33. The New Jersey highway system would not require any additions to accommodate normal growth (over 1985 requirements), however, an additional 352 lane-miles

would be needed because of TILP. These would be on Routes US 46, US 206, I-80, 517, 519, 521 and 23. In New York State, an additional 40 lane-miles would be required for normal traffic growth, mostly along I-84, but none because of TILP.

Under Phase III conditions (comparable to a 10,600,000 annual visitation, a design load of 110,000 persons per peak day and 27,700 parking spaces) in 2000, Pennsylvania would require an additional 275 lane-miles (to the existing system) to accommodate normal growth with 127 additional lane-miles because of TILP. The New Jersey highway system would need 498 additional lane-miles to the existing system for normal growth plus 378 lane-miles to accommodate TILP-generated traffic. The New York State highway system would need 40 lane-miles for normal growth plus an additional 40 lane-miles for TILP-generated traffic.

The growth rates used in projecting future traffic through 1985 are based upon past trends in resident population and summer homes. For the period 1985-2000, traffic was estimated to grow at a more moderate rate in accordance with the intermediate population projection made in Chapter I. It is significant to note that the traffic analysis discusses in detail the traffic load with and without TILP. The lane-miles noted at each phase are compared with the existing systems. The following table lists the total required lane-miles by State without (W/O TILP and with (W) TILP as compared with the existing highway systems.

Table 25-19 Requirements by Major Highway Network

	Existing (1975)		Total Required Lane-Miles					
	Road Mileage	Equivalent Lane-Miles	Phase I (1985) W/O	Phase I (1985) W	Phase II (1990) W/O	Phase II (1990) W	Phase III (2000) W/O	Phase III (2000) W
Pennsylvania	432	1,072	1,160	1,204	1,209	1,322	1,347	1,474
New Jersey	462	1,142	1,310	1,522	1,310	1,662	1,640	2,018
New York	192	488	488	488	528	528	528	568
TOTAL	1,086	2,702	2,958	3,214	3,047	3,512	3,515	4,060

It is seen that even without TILP a substantial increase in the highway system is required to accommodate the expected growth. In the long-range forecast (for the year 2000) the greatest part of the need is, in fact, due to base traffic growth requirements. TILP would accelerate some of those requirements to Phases I and II of the project. For instance, as shown in Table 25-19, the total lane-miles required in 1990 (Phase II) with TILP is almost equal to the number of lane-miles required in the year 2000 without TILP.

As noted in the introduction to this chapter, the preceding analyses outlined the improvements required to accommodate both base and TILP traffic together with associated costs. It is evident that there is a significant likelihood that the improvements suggested for base traffic accommodation, as well as TILP surcharges, will not be fully implemented. Substantial

traffic congestion and disruptions are thus anticipated over the forecast period even without TILP and, if no other provisions are made for TILP travel, this congestion and disruption at peak weekend times will be substantially increased by the proposed TILP.

There appear to be three courses of action available to partially meet possible shortcomings regarding the implementation of highway and related improvements. The first involves the use of other modes of transportation that are not highway based; the second involves the use of highway oriented mass transportation; and the third involves the reduction of TILP travel demand by curtailing facility capacity.

With regard to rail transportation, while many potential rail lines are in existence, as discussed heretofore in Section XXV.A. two intermodal transfers would be required for a typical one-way trip to TILP. A bus or other conveyance would have to be taken to the railroad station near a major originating point, such as in Philadelphia or New York, and a bus or comparable vehicle would have to be taken from Stroudsburg or from another terminal location to final destinations within the National Recreation Area. It is our judgment that this type of service is not responsive to demand with respect to potential TILP patrons, due primarily to the inconvenience of two switches in travel mode and the attendant time penalties and inconvenience.

Regarding bus transportation, as noted previously, approximately 60,000 people per day could visit TILP by such means and, if properly routed and scheduled, the demand for such service would exist and these buses would be substantially utilized. However, the shift of even this large a portion of potential TILP patronage to bus transportation would not necessarily have a major beneficial impact on the regional highway system and approach routes. Assuming, for example, a bus load of 40 and an average auto occupancy of between three and four, a bus could replace between 11 and 12 passenger cars. However, particularly in hilly terrain, the bus may be the equivalent of four passenger cars with respect to traffic conditions. That is, with respect to congestion, each bus may produce traffic problems equivalent to four automobiles. Reduction in equivalent autos due to the massive use of buses thus is not nearly as great as might be first indicated. For the worse case conditions, noise impact could be higher and air pollution would remain relatively unchanged as compared to 100 percent auto visitation. In addition, since base traffic is growing at a significant rate and TILP traffic is only a part of the total traffic on major approach routes, the shift to buses would only affect that portion of the total traffic.

Because of the foregoing, the beneficial results with respect to highway traffic conditions due to a bus oriented mass transportation system to TILP will be limited. However, it would serve urban areas, such as New York City and Philadelphia, where the need would be the greatest.

The remaining course of action is to restrict TILP traffic by limiting the capacity and usage of the National Recreation Area. The character of permitted usage could also be based upon transportation constraints and requirements such as the favorable treatment of those visitors coming by rail or charter bus along selected routes. Should there be serious lags with respect to implementation of needed highway improvements, this last course of action should be given serious consideration.

Another basic concern related to recreation-oriented highway travel is the possibility of "turn-away" traffic. This traffic and associated problems occurs when recreational facilities to which the traffic is originally destined are filled to capacity. When confronted by closed gates, this traffic will often use local roads to other entrances or alternative recreational areas, public or private. These potential "turn-aways" may amount to significant local traffic volumes and impose burdens on local recreational sites and public services.

The potential for such difficulties will only exist on a relatively few peak days during the summer and may be significantly reduced by proper advance planning to both notify potential users of capacity conditions and by the accommodation of "turn-aways" via efficient routing to alternative sites. While special measures appreciably reduce the foregoing problems, the cost of implementation and the fact that they will not be completely successful is an impact which should be taken into consideration.

In conclusion, TILP-oriented transportation projects are only a small part of the transportation improvements for which the three states of New Jersey, New York and Pennsylvania will have to plan in the future. Whether these improvements are indeed built will depend on priorities for transportation projects elsewhere in the three states and on other demand for the limited financial resources of the state and Federal governments.