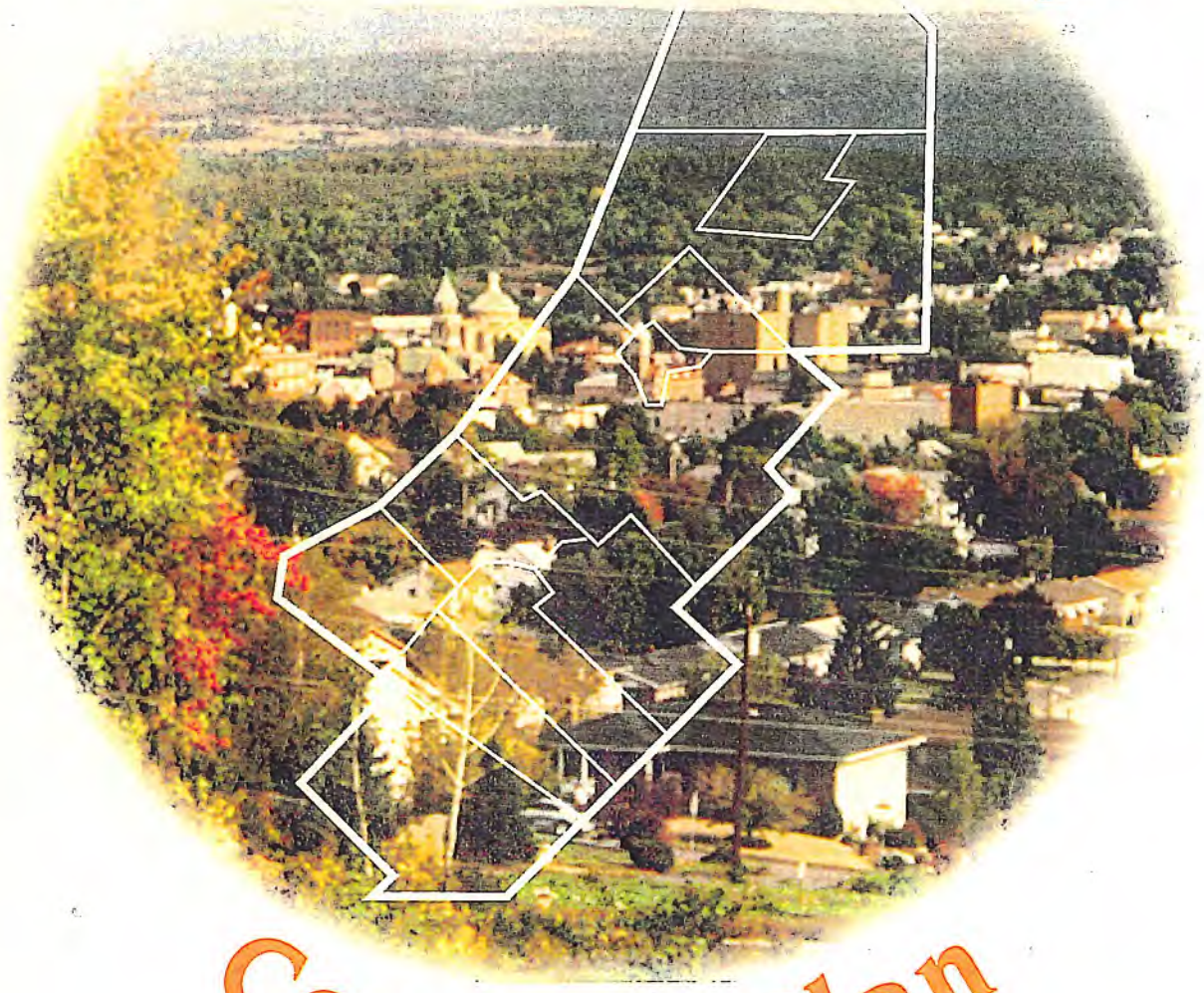
Lackawanna Valley Corridor Plan



LACKAWANNA COUNTY REGIONAL PLANNING COMMISSION

1996

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The Lackawanna Valley Corridor Plan

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Leonard Janeski, Graphics Tech.
Sharon Thomas, Secretary
Mary Liz Donato, Associate Planner
Bob Reuther, Bookkeeper/Tech.
Donna Pace, Assistant Planner
Dave Karwaski, Assistant Planner

Participating Municipalities

Archbald Borough - James McLaughlin, Mayor
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Mayfield Borough - Joseph Piwowarski, Mayor
Olyphant Borough - Michael Wargo, Jr., Mayor
Throop Borough - Stanley Lukowski, Mayor

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The Lackawanna Valley Corridor Plan

Technical Committee Agencies

Federal Highway Administration
U.S. Environmental Protection Agency
U.S. Army Corps of Engineers
Pennsylvania Dept. of Transportation
Pennsylvania Dept. of Community Affairs
Pennsylvania Dept. of Environmental Resources
Pennsylvania Game Commission

Consultant Team

Norman D. Day, Principal, Norman Day Associates
Joseph A. Bucovetsky, Project Manager (NDA)
Jeffrey L. Greene, Orth-Rodgers and Associates
Elaine Van S. Carmichael, Economics Research Associates
Marvin A. Brotter, M.A. Brotter Consulting Services
Jonathan Lane, Lane Frenchman and Associates
Michael S. Ontko

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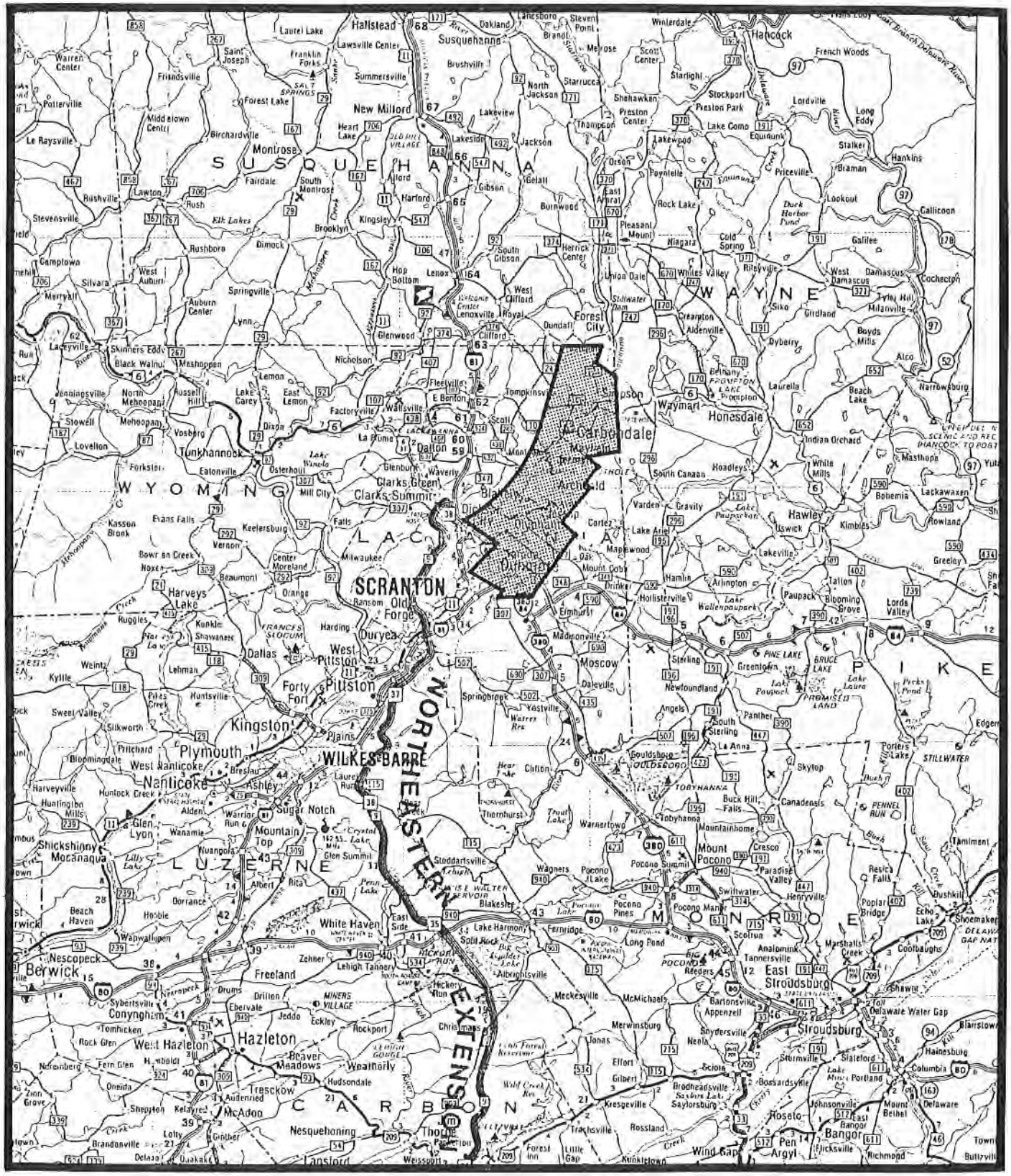
SUSQUEHANNA
WAYNE
WYOMING
LACKAWANNA
PIKE
LUZERNE
MONROE
CARBON
SCRANTON
WILKES-BARRE
NORTHEASTERN EXTENSION
Carbondale
Honesdale
Hazleton
Pittston
Nanticoke
Plymouth
Kingston
Wyoming
Dunmore
Archbald
Olyphant
Jermyn
Clarks Summit
Clarks Green
Dalton
Factoryville
Tunkhannock
Meshoppen
Montrose
New Milford
Susquehanna
Hallstead
Forest City
Waymart
Mayfield
Jessup
Moscow
Dickson City
Old Forge
Duryea
Taylor
Throop
West Pittston
Forty Fort
Wyoming
Kingston
Plains
Edwardsville
Wilkes-Barre
Ashley
Sugar Notch
Glen Lyon
Shickshinny
Mocanaqua
Nescopeck
Berwick
Conyngham
West Hazleton
Beaver Meadows
Weatherly
Freeland
Drums
Sybertsville
Tresckow
McAdoo
Nesquehoning
Lansford
Jim Thorpe
White Haven
Harveys Lake
Lehman
Dallas
Huntsville
Shavertown
Dorrance
Wapwallopen
Mountain Top
Laurel Lake
Lawsville Center
Friendsville
Forest Lake
Middletown Center
Birchardville
Le Raysville
Rushville
Stevensville
Camptown
Silvara
West Auburn
Springville
Auburn Center
Lynn
Lawton
Rush
Rushboro
Dimock
Brooklyn
Kingsley
Harford
Gibson
Jackson
Lakeside
Lakeview
Heart Lake
Summersville
Franklin Forks
Saint Joseph
Warren Center
Laceyville
Skinners Eddy
Black Walnut
Meshoppen
Lemon
Jennings Ville
North Meshoppen
Russell Hill
Lake Carey
East Lemon
Stowell
Meshoppen
Vosburg
Lovelton
Forkston
Eatonville
Osterhout
Mill City
Glenburn
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Nicholson
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Lehigh Tannery
Ebervale
Jeddo
Eckley
Rockport
Tomhicken
Harleigh
Hickory Run
Buck Mountain
Drifton
Miners Village
Christmans
Jonas
Merwinsburg
Meckesville
McMichaels
Albrightsville
Lake Harmony
Split Rock
Big Pocono
Reeders
Tannersville
Analomink
Scotrun
Long Pond
Fernbridge
Pocono Pines
Pocono Lake
Wagners
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Stoddartsville
Blakeslee
Swiftwater
Pocono Manor
Mount Pocono
Cresco
Paradise Valley
Henryville
Pocono Summit
Tobyhanna
Mountainhome
Buck Hill Falls
Canadensis
Skytop
Bushkill
Poplar Bridge
Echo Lake
Shoemaker
Marshalls Creek
Delaware Water Gap
Stroudsburg
East Stroudsburg
Bartonsville
Appenzell
Snydersville
Neola
Effort
Gilbert
Brodheadsville
Saylorsburg
Kresgeville
Bossardsville
Scotrun
Stormville
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Little Gap
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Slatington
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Easton
Nazareth
Bath
Northampton
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Nesquehoning
Lansford
Jim Thorpe

CHAPTER ONE: BACKGROUND/PLANNING PROCESS

Purpose of the Study

The Lackawanna Valley Corridor Plan was undertaken as part of the approvals process for the Lackawanna Valley Industrial Highway (LVIH), a new multi-lane, limited access highway from Interstate 81-84 in Dunmore, just north of Scranton, to just north of Carbondale (Figure 1.1). Following an alignment along the eastern tier of the Lackawanna Valley and crossing seven municipalities, the approximately 16-mile-long highway is intended to provide better mobility in the valley, improved access to the regional expressway network, and relief of traffic congestion on U.S. Route 6 and other valley roadways.

One expected result of the highway's construction is increased economic development in the valley, for both the communities the LVIH passes through and five other municipalities located adjacent to or near the route (Figure 1.2). Along with this rise in economic activity is expected to come increased traffic, particularly on existing roads that will have interchanges with the LVIH, but on many other linkages as well. Additional land development will accompany the economic activity, and a trend towards new industrial and commercial development will produce higher demands on the valley's circulation system as well as on central water and sewer services and on other types of community services as well. A cycle of economic growth may also be expected to include increased housing development.

The environmental review agencies for the LVIH's Environmental Impact Statement were particularly concerned with the environmental consequences of the expected economic development and its spin-off effects. The various federal and state agencies were looking for some assurance that development occurring as a result of the highway's construction would take place in an environmentally-sensitive manner.

In the course of reviewing the Draft Environmental Impact Statement for the LVIH, the Lackawanna County Regional Planning Commission proposed to the Federal Highway Administration that a study be undertaken to analyze the secondary impacts of the construction of the LVIH and that a framework for future land use in the valley be devised, along with transportation improvements and land development regulations, to protect environmental resources and community character.

The Lackawanna Valley Corridor Plan is that study. It is a cooperative effort

sponsored by the Federal Highway Administration (FHWA), Pennsylvania Department of Transportation (PADOT), Pennsylvania Department of Community Affairs (PADCA), and Lackawanna County through the Lackawanna County Regional Planning Commission (LCRPC). The Plan looks closely at the projected consequences of the new LVIH on twelve valley municipalities in terms of traffic, economic, environmental, land development, and other community impacts. The study has now produced an overall framework for the future development of the valley, including a Land Use Plan and a Circulation Plan, and a series of land development regulations that may be implemented by valley municipalities to ensure that new development protects community values and environmental resources.

The Planning Process

Preparation of the Lackawanna Valley Corridor Plan was accomplished largely over a twenty-month period commencing in March 1993. The Work Program Schedule (Figure 1.3) outlines graphically the process that was followed, consisting of three major phases.

The Lackawanna County Regional Planning Commission directed the Plan preparation effort, with a six-firm team as technical consultants. Norman Day Associates (NDA), a planning and urban design firm based in Philadelphia, led the consultant team in the Plan effort. The other team members were: Orth-Rodgers and Associates, Transportation Planners; Economics Research Associates, Economic Development Planners; Lane, Frenchman and Associates, Historic Resources Planners; Marvin Brotter Consulting Services, Community Liaison; and Michael Ontko, Data Systems Consultant.

The Lackawanna Valley Corridor Plan places a particular emphasis on transportation improvements. Orth-Rodgers and Associates, in conjunction with LCRPC staff, has prepared a computer-based transportation model for the area. The model has been used in determining the set of improvements to valley roads recommended in the Plan. This transportation model will remain with the County at the conclusion of the Corridor Plan study as a tool to be used into the future by LCRPC staff in the assessment of traffic conditions and road improvements. The staff of the Pennsylvania Department of Transportation have worked closely with the County and Orth-Rodgers and Associates in the development of the Circulation Plan element for the valley's Corridor Plan.

The sponsoring agencies were committed to substantial and ongoing citizen

and public agency participation throughout the planning process. There were five types of groups involved:

1) *Coordinating Committee* - Lackawanna County Regional Planning Commission, Pennsylvania Department of Transportation, and the Federal Highway Administration;

2) *Local Government Steering Committee* - representatives of all twelve municipalities, including members of governing bodies, planning commissions, and zoning hearing boards;

3) *Task Force* - representatives from a Citizens Advisory Committee, the Lackawanna River Corridor Association, and the National Park Service;

4) *Technical Committee* - representatives from state and federal agencies, including the United States Department of Environmental Protection, the United States Army Corps of Engineers, Pennsylvania Game Commission, Pennsylvania Department of Environmental Resources, and Pennsylvania Department of Community Affairs;

5) *General Public* - 3 widely-advertised presentations were made over the course of the study, oriented to the public-at-large.

In addition, newsletters were prepared throughout the course of the study and mailed to valley residents to keep them informed of progress on the Corridor Plan and upcoming presentations by the consultant team.

The first phase of the Plan preparation was devoted primarily to background data collection and analysis and the documentation of recent changes in the valley. Tasks within this phase included: Reviewing earlier planning documents and data; creating the base maps of the valley for the study; an inventory of natural and cultural features and development limitations; documentation and projections of population, housing, employment, and development activity; land use surveys; traffic counts; selection of a traffic model; market conditions reconnaissance; and the selection of appropriate computer systems to initiate a Geographic Information System (GIS) for the County's use and management of planning data into the future.

Projections of valley population, housing units, and employment were then converted into potential demand for new housing units by type and to land area requirements for new development. This investigation provided some

"ball-park" estimates of required areas for new residential, commercial, and industrial uses over the next ten to twenty years, and allowed participants in the planning process in the next phase to concentrate on potential locations, types, and intensities of new development.

Phase A concluded with a synthesis of constraints and opportunities for the valley, based on the analysis and documentation of existing conditions; the setting forth of preliminary goals and assumptions for the Plan; and the outlining of some alternative development themes for further exploration in Phase B.

Phase B was in many ways the most critical part of the process, focusing on possible directions for the development of the valley and exploring and testing alternative ideas for its future. A series of sketch maps were prepared by the consultant team illustrating different ways in which new development could occur over the twenty-or-so years. Each map was rather like a "cartoon" -- simplified version of a more detailed plan that might be prepared to guide future growth in the valley. Each alternative presented a distinct idea for the location, type, and intensity of new residential, commercial, and industrial development in the valley.

These sketch maps were presented to the various committees and at a public information meeting for review and comments. Based upon participant responses, another round of alternatives exploration took place. Selected themes from the first round were combined and refined to yield new alternatives. These were displayed in map form and in "fact sheets", outlining the numbers and characteristics of new housing units and new jobs, along with land development controls and infrastructure improvements that would be needed to carry out each alternative. This second set of alternatives was also reviewed and evaluated.

Through this process, a Preferred Alternative framework for the future development of the valley gradually emerged. The Preferred Alternative, a blend of the best features of several alternative development scenarios explored in Phase B, was then translated into a Preliminary Draft Land Use Plan for the valley.

The actual preparation of the Corridor Plan document began with Phase C. As well as the "fleshing-out" of the Plan's various elements based upon a development framework determined in Phase B, Phase C also entailed the preparation of model zoning and subdivision and land development regulations for the use of valley municipalities in implementing the recommendations of the Corridor Plan. Both the Plan document and the

model regulations were prepared in initial drafts, reviewed by various agencies and organizations, revised to final draft form, and made available to local municipalities for adoption and follow-up Plan implementation efforts.

Plan Organization

The Plan is organized into four chapters: Background/Planning Process; Existing Conditions; Growth Management Plan; and Implementation Strategy.

Chapter Two includes surveys of natural and cultural features, the current land use pattern, the road system, and the systems of public services and utilities; analyses and projections of population, housing, and employment; and an examination of the types of changes in the valley over recent years.

In Chapter Three's Land Use Plan element, a basic direction and structure recommended for the future development of the valley is identified, derived from explorations of alternative development patterns. Chapter Three also specifies the goals, policies, and individual elements that will form the basis for the management of growth in the valley.

Finally, the Plan lays forth, in Chapter Four, a specific implementation strategy and program for the County and valley municipalities to put the recommendations of the Corridor Plan into effect.

Figure 1.2 Lackawanna Valley Municipalities

Figure 1.3 Work Program Schedule

CHAPTER 2: EXISTING CONDITIONS

SECTION 1: INTRODUCTION

The purpose of this chapter is to document and analyze existing conditions in the Lackawanna Valley. In particular, this chapter seeks to develop a clear understanding of the valley's physical, demographic, social, and economic conditions, based on current circumstances and historical development. This inventory and analysis is intended to enable the County, local governments, and valley residents to identify potential problems, to determine future needs, and to develop necessary policies and strategies to respond more effectively to future growth.

The material in Chapter Two is based on a series of background studies produced during the planning process. The chapter consists of eight sections in addition to this introduction: Existing Land Use; Pattern of Change; Natural Resources; Cultural, Historic, and Landscape Resources; Population, Housing, and Employment; Circulation; Community Facilities; and Infrastructure Systems.

The Land Use section provides a description of existing land use patterns and their implications for future development. The Pattern of Change section provides an analysis of recent development activity in the valley. The Natural Resources section provides a summary of environmental factors that are capable of affecting the location and intensity of future development. Cultural, Historic, and Landscape Resources documents other environmental factors, principally man-made, that are germane to consideration of prospects for new development in the valley. The Population, Housing, and Employment section reviews selected socio-economic characteristics of valley residents, employers, and employees, and housing development. Included are population, housing, and employment forecasts. The Circulation section assesses existing conditions regarding traffic and circulation, while the Community Facilities section analyzes all public services and facilities serving the Lackawanna Valley. The Infrastructure Systems section looks at the provision for water and sewer services and public utilities.

SECTION 2: EXISTING LAND USE

Using recent aerial photography, relevant planning documents, and focused field reconnaissance, a generalized full-color map of current land use in the valley has been constructed (Figure 2.2.1). The inventory includes the traditional full range of urban land uses, such as residential, commercial, institutional, parks and recreation, industrial, utilities, and cemeteries; and major categories of non-urban uses, such as strip mines, farmland, low vegetation, and forest.

The purpose of the land use survey is to document and assess the pattern and intensity of utilization of land in the Lackawanna Valley. Based on this assessment, it is possible to evaluate the compatibility of existing uses, the extent of land consumption, and to predict the direction that future development may be expected to take in light of existing conditions. The survey also makes apparent the remaining amount and location of land available for future development.

The pattern of land use in the valley is still to a large degree a representation of the earliest settlement activities along the Lackawanna River, general topographic conditions, and nineteenth- and early twentieth-century mining industry.

Early settlement relied on the Lackawanna River for water power to operate mills and the surrounding relatively flat land on the valley floor for agriculture. The beginnings of coal mining around Carbondale in the 1820s and subsequent development of the coal fields underlying the valley from Scranton to Carbondale set the pattern for the urban places spaced along the valley floor nestling the river, the extensive mine workings and spoils areas between settlements and nudging up the valley sides, and the still-relatively-undisturbed upper reaches of the valley closer to the ridgelines.

Today stripped-mined areas and culm piles are prominent features of the area. Their presence is strong up and down the valley, interspersed with urban land uses, and more sporadic onto the foothills of the valley sides.

Residential portions of the historic communities are the most predominant urban land use. The southerly communities of Dickson City, Throop, Jessup, Olyphant, Blakely, and the southern end of Archbald together form a nearly-continuous band of residential land use along the Lackawanna River and from a half-mile to a little over a mile on either side. North of the southern end of Archbald this continuity fades, but is restored in the communities of

Jermyn and Mayfield. A break then occurs north of mid-Mayfield, and residential dominance again appears in Carbondale City.

Residential uses predominate in Dunmore, but these are in its southwest quadrant, forming an extension of residential portions of the City of Scranton.

Residential uses beyond those areas already described are limited, comprising for the most part strip development along roads heading west and east up out of the valley.

Commercial uses are mainly of two types: Relatively small-scale retail, service, and office uses intermingled with the residential uses along the floor of the valley; and newer highway-oriented retailing usually associated with US Route 6.

Of the traditional central business districts, Dunmore, Carbondale City, Olyphant, and Dickson City have significant core commercial uses, and of the highway-commercial areas, Dickson City's and Archbald's are the most extensive. A more-limited highway-commercial strip exists on the O'Neil Highway in Dunmore, just north of Interchange 55 of I-81.

The older commercial cores frequently exhibit mixing of commercial and residential uses, either through interspersed buildings containing one or the other of the two types of use, or structures containing combined uses. These phenomena are common on Drinker Street in Dunmore, for example.

The location of institutional uses is closely related to their age and size. Smaller and older school buildings, churches, municipal structures, and fire halls tend to be associated with the closely-knit urban fabrics of the older borough (and Carbondale City) cores. Newer facilities, such as the high school/middle school campuses, tend to be found at the edge of settled areas, responding to locations where vacant land of sufficient size was available for development of these relatively new complexes, and to a user population arriving by school bus or automobile from a broad catchment area.

The college campuses of Pennsylvania State University and Marywood College in Dunmore are found on either side of I-81, just west of the O'Neil Highway-Blakely Street interchange.

Parks and recreation facilities exhibit a similar pattern to that of institutions, with smaller, often older community parks part of older settled areas, and larger and more recent county, state, and federal parks in the more-sparsely

populated mid- and north-Archbald area (Archbald Pothole State Park and Aylesworth Park) and on the western slopes of the valley above Carbondale (Merli-Sarnoski Park).

Industrial areas are concentrated at the southern end of the study area, adjacent to and near I-81, at the Keystone and Mid-Valley Industrial Parks. Older and smaller industrial concentrations are found along the Lackawanna River in Carbondale City, Mayfield, Jermyn, Archbald, Jessup, Blakely, and Dickson City.

In contrast to the floor of the valley, with its mix of urban uses and mine spoils, the sides of the valley are predominantly wooded, punctuated by mine spoils in the lower elevations and by several water reservoirs further up the hillsides.

Figure 2.2.1 Existing Land Use

SECTION 3: PATTERN OF CHANGE

The record of subdivision and land development reviews by the Lackawanna County Regional Planning Commission (LCRPC) since 1983, combined with 1980 and 1990 Census data concerning housing units, several vintages of recent aerial photography, interviews with LCRPC staff, and field reconnaissance have provided information on recent development in the Lackawanna Valley.

While the population of the study area continued its slow decline of the past few decades through the 1980s (the twelve study area municipalities totalled about 67,000 people in 1990, down from 71,000 in 1980 and 81,000 in 1950), the number of households actually increased. This was due to the shrinking size of the average household: In 1980, the study area average household contained 2.75 individuals, whereas by 1990 the figure had dropped to 2.54 (see Section 6 of this chapter).

Due to the shrinkage of the average household size, even though the population was declining, new houses were still being built to accommodate an increased number of households. From 1983 to 1992, about 1400 new dwelling units were approved for construction in the study area.

Similarly, while the net number of new jobs in the county did not increase from 1980 to 1990, new plants and retail business opened to take the place of older ones closing. Over 800 acres of new commercial and industrial development was approved for construction in the study area from 1983 to 1992.

Summary statistics for land developments over the period 1983 to 1992 are presented by municipality in Table 2.3.1. Individual developments are indicated by location, type, and size on Figure 2.3.1.

Most development over the period took place in the southern half of the study area, concentrated in Dunmore, Throop, Dickson City, Blakely, Olyphant, Jessup, and the southern part of Archbald. Very little development occurred in the northern half of Archbald or in Jermyn, Mayfield, Carbondale Township, Carbondale City, and Fell.

This concentration of development in the southern half of the study area corresponds to an advantageous proximity to the City of Scranton and superior accessibility provided by Interstates 81 and 84/380 and the North Scranton Expressway. The northern half of the study area is more remote

from Scranton, and access is primarily via US Route 6, a highway with only one travel lane in each direction.

Residential development over the period was almost entirely of single-family detached units. These developments tended to be small -- of fewer than thirty dwelling units. Exceptions include Mount Margaret Estates (212 units approved) and the Swinick development (39 units) in Dunmore; Ridgeview Estates in Throop (47 units); Viewmont Estates in Dickson City (33 units); the Jo-Mike development (36 units) and Winton Village (33 units) in Jessup; Hilltop Acres (50 units) in Blakely; and Hills of Archbald (151 units approved) in Archbald.

The limitied amount of non-single-family detached housing was mostly comprised of small developments in Dunmore (9 developments totalling 91 units) and McAndrew Manor (31 units) in Archbald.

Commercial development was of two principal types -- several relatively small acreages of retail facilities in Dunmore and on Main Street in Blakely; and highway commercial retail developments, often of substantial acreage, on US Route 6 in Dickson City and Blakely. Included in the latter category are the Bell Mountain Village development of about 375,000 square feet of new retail facilities in Dickson City; the Viewmont Mall expansion, also in Dickson City; and the 29-acre Dubas development in Blakely.

Industrial development was focused on the adjoining Keystone Industrial Park in Throop/Dunmore and Mid-Valley Industrial Park in Throop/Olyphant/Jessup. During the period under study about one-third of the area of the new Mid-Valley Industrial Park (175 out of 508 acres) was developed, while infilling of the largely-developed Keystone Industrial Park also occurred. Included in the Mid-Valley developments over the ten-year period are Specialty Records (202,500 square feet), Pedmar (79,000 square feet), and Warren Diamond (30,225 square feet) in Olyphant; and Genalite (100,800 square feet) in Jessup.

Outside of the Keystone and Mid-Valley Industrial Parks, industrial developments were relatively few and generally small. Exceptions include the Pennsylvania Power and Light (PP&L) complex developed in Dunmore on 32 acres, totalling 78,400 square feet; and the Gentex expansion on the edge of Carbondale in Fell Township, comprising 18,800 square feet of manufacturing uses on fifteen acres.

Summary data for development in the study area from 1990 to 1992 are shown in Table 2.3.2. The aforementioned industrial developments comprise

76 percent of the total 1990-through-1992 square footage of industrial development (509,700 square feet out of 667,900 square feet). In a similar vein, the Bell Mountain Village development represents 80 percent of the total square footage of commercial development, and the Mount Margaret Estates development is 56 percent of the total number of single-family detached residential units shown (212 out of 381 units).

Several institutions were constructed or expanded during the period. The Valley View Middle School was built next to the Valley View High School in Archbald, the Mid-Valley Elementary School was added to the Mid-Valley schools campus in Throop, Marywood College expanded its science center in Dunmore, and LaSalle Academy was expanded in Jessup.

The Brownell Reservoir water treatment plant in Carbondale Township was built in the early 1990s, as was the Fallbrook Water Treatment Plant in Fell Township.

Table 2.3.1

Land Development, 1983-92, by Municipality

Dunmore

	Acres	Units	Comments
Single-Family Residential	306	387	All small developments except Mt. Margaret Estates.
Multi-Family Residential	10	91	
Commercial	20		
Industrial	68		

Throop

	Acres	Units	Comments
Single-Family Residential	49	112	
Multi-Family Residential	0.84	20	Very small developments.
Commercial	3		
Industrial	33		

Olyphant

	Acres	Units	Comments
Single-Family Residential	7	20	
Multi-Family Residential			
Commercial			
Industrial	154		Contains most of the already-built industrial buildings within the planned industrial park.

Dickson City

	Acres	Units	Comments
Single-Family Residential	101	64	
Multi-Family Residential	1	12	
Commercial	370		
Industrial			

Table 2.3.1 (continued)

Land Development, 1983-92, by Municipality

Blakely

	Acres	Units	Comments
Single-Family Residential	211	222	
Multi-Family Residential			
Commercial	156		
Industrial			

Jessup

	Acres	Units	Comments
Single-Family Residential	35	85	
Multi-Family Residential			
Commercial			
Industrial	25		Contains small proportion of industrial buildings within the industrial park.

Archbald

	Acres	Units	Comments
Single-Family Residential	165	327	
Multi-Family Residential	3	31	
Commercial	0.57		
Industrial	2		

Jermyn

	Acres	Units	Comments
Single-Family Residential	0.46	2	
Multi-Family Residential			
Commercial			
Industrial			

Table 2.3.1 (continued)

Land Development, 1983-92, by Municipality

Mayfield

	Acres	Units	Comments
Single-Family Residential	3	9	
Multi-Family Residential			
Commercial			
Industrial			

Carbondale

	Acres	Units	Comments
Single-Family Residential			
Multi-Family Residential	5	24	
Commercial	16		
Industrial			

Carbondale Twp.

	Acres	Units	Comments
Single-Family Residential	2	2	
Multi-Family Residential			
Commercial			
Industrial			

Fell Township

	Acres	Units	Comments
Single-Family Residential	73	8	
Multi-Family Residential			
Commercial			
Industrial	15		

Table 2.3.1 (continued)

Land Development, 1983-92, by Municipality

Study Area Totals

	Acres	Units
Single--Family Residential	952.46	1238
Multi-Family Residential	19.84	178
Commercial	565.57	
Industrial	297	

Table 2.3.2

Study Area Developments: 1990, 1991, 1992

	1990			1991			1992			1990-92		
	Acres	Units	S.F.	Acres	Units	S.F.	Acres	Units	S.F.	Acres	Units	S.F.
Single-Family Residential	97	93		55	16		217	272		369	381	
Multi-Family Residential	1	10		1	12		6	45		8	67	
Commercial	435		7,200	166		453,500	2		5,200	603		465,900
Industrial	84		167,000	236		212,000	51		288,900	371		667,900
Institutional/ Public Service	132			52		26,000	90		26,400	274		52,400

S.F. = Square Feet of Floor Space

Figure 2.3.1 Land Development, 1983-1992

SECTION 4: NATURAL RESOURCES

As part of the examination of existing conditions in the Lackawanna Valley, an inventory of various environmental factors was made. These factors are critical components in any consideration of future alternatives for growth and development.

Some of these factors may impose constraints on development, while others may suggest opportunities for development. It is possible for an environmental factor to represent both an opportunity and a constraint.

Inventory maps have been prepared that delineate these resources, including the following:

- Geology
- Soil Associations
- Hydrology
- Slopes
- Farmland

These interrelated, interpretive maps permit the identification of areas within the valley requiring preservation, areas requiring conservation, and areas available for development.

Areas requiring preservation include streams, floodplains, public parklands and protected areas, and other lands generally undevelopable due to physical characteristics or statutory regulations. Areas in need of conservation would include fragile environmental areas such as wetlands and areas of steep slope or subject to erosion, woodlands, and farmlands (as well as historic sites and scenic features as outlined in Section 5). These represent areas to be protected or conserved due to their environmentally- and economically-sensitive nature and the importance of these valuable resources to the valley.

For areas not requiring special efforts towards preservation or conservation there remain factors that make lands more or less suitable for development, based on the level of land disturbance, availability of water and sewer service, soil capacity, existing roads, and other relevant factors.

Geology

Geologically, the study area is located in the Appalachian Mountain section of Pennsylvania's Valley and Ridge Province. This section of the Valley and Ridge Province is known as the Anthracite Coal Region, and averages about six miles in width.

The Lackawanna Valley floor bedrock is made up of the Pottsville and Llewellyn formations (Figure 2.4.1), which are Pennsylvanian in age and the youngest in the area. The Pottsville formation is made up of gray, fine-to-coarse-grained sandstone and conglomerates with some shale and siltstone and coal. The Llewellyn formation is made up of interbedded medium-to-coarse-grained sandstone, light gray to brown in color; siltstone; shale that is dark gray to black; conglomerate; and coal. This formation contains the numerous coal seams that have been extensively mined in the area.

The outer rim of the valley is made up of a very hard, resistant sandstone and conglomerates of the Pocono formation. Between the valley floor and the outer rim is a thin section of soft shale of the Mauch Chunk formation. Both Pocono and Mauch Chunk formations are Mississippian in age.

At the very edges of the study area, the geology conforms to the dominant type in the Appalachian Mountain section. Most bedrock underlying the Appalachian plateaus in the area consists mainly of red-to-brownish shale and sandstone of the Catskill formation, which is upper Devonian in age and the oldest in the area.

During the Glacial Epoch (Pleistocene) a series of great continental ice sheets advanced and retreated, covering the area with accumulations of glacial debris of sand, rounded gravels, and boulders from melt water. Glacial till deposited directly from the ice is a poorly-sorted mixture of sand, silt, gravel, and boulders, and is distributed unevenly throughout the region -- it could be as deep as 300 feet in some places.

Soils

Soils information is a vital component of any natural resource evaluation because soil characteristics indicate the inherent suitability of an area for development, agriculture, or other land uses. The principal source of soils data for the Lackawanna Valley is the Soil Survey of Lackawanna and Wyoming Counties, Pennsylvania (United States Department of Agriculture, 1982).

In general, soils are a very complex mixture of various amounts of weathered rock, minerals, organic matter, water, and air. Through the action of climate, plants and animals on these geologic materials, soils are formed over long periods of times. Since the last glacial advance and retreat in Lackawanna County was only about 10,000 to 14,000 years ago, the soils here are not so old or well-developed as in other parts of the state. The parent material of the soils in the Lackawanna Valley is mostly glacial till and outwash, with some alluvium. Soils on uplands, such as Wellsboro, Morris, Merdin, and Volusia, formed in the deep glacial till that covered the area. Where the slopes are steepest, little glacial till was deposited or it has eroded away, and the moderately-deep Oquaga and Lordstone and shallow Ornot soil types are found in these areas.

Alluvial deposits along streams consist of stratified silt, sand, and gravel, and some of the youngest soils of the area, such as Holly, have formed in these deposits.

The general Soil Associations map presented in this study (Figure 2.4.2) is derived from information contained in the County Soils Survey. Each soil association shown is a unique natural landscape, consisting of one or more major soils and some minor soils that occur together and have similar origins. Each association is named after its major component soils. This general Soil Associations map provides a broad perspective of the soils characteristics in the study area and can form the basis for determining general future land use designations, but the map does not show the type of soil found at a specific site. For information on soils found at a specific location, the detailed photo-map sheets in the Lackawanna County Soils Survey must be consulted.

Udorthents-Mine Dumps Association

The Udorthents-Mine Dumps association covers about seventy percent of the study area and consists of soil, rock material, and areas of exposed bedrock that have been disturbed during coal-mining operations. Soils in this association are found on uplands and are nearly level to steep, deep to shallow, well-drained to poorly-drained, in areas that have been strip-mined, and mine dumps. Udorthents (surface mines) consist generally of the excavated areas and the stockpiled areas of disturbed soil material from glacial till.

Erosion, steep slopes, coarse fragments, depth to bedrock, and the seasonal high water table are major limitations of the soils of this association.

Urban Land Association

The Urban Land soil association covers about twenty percent of the study area. Nearly level to moderately steep, the soil is so obscured by buildings, roads, and other structures that identification of the natural soil is not practical. Soil properties are highly variable because of the many kinds of soils in these areas and the amount of alteration that has occurred during construction. On-site investigations are required to determine soil properties and potentials of a particular area.

Rock Outcrop-Arnot-Dystrochrepts Association

This association makes up only about five percent of the total study area and is found along the eastern edge of the valley, in a thin strip from north to south. This association consists mainly of rock outcrops and nearly level to steep, shallow to deep, nonstony and extremely stony soils that are well drained and somewhat excessively drained. It includes areas on mountain tops and steep mountainsides with little or no soil material or with shallow soils. The lack of soil material, depth to bedrock, stoniness and steep slops are major limitations of this association.

Wellsboro-Morris-Oquaga Association

About three percent of the study area consists of soils of this association, located in two small pockets -- one in the northwest corner and the other in the southwest corner of the valley. Nearly level to steep, deep, and moderately deep soils that are moderately well drained, somewhat poorly drained, and somewhat excessively drained are found in this association. It consists of soils on broad rolling uplands that were formed on glacial till derived from sandstone and shale. Dairy farming is the principal land use in this association. A seasonal high water table, depth to bedrock, restricted permeability, and stoniness are the major limitations of these soils.

Mardin-Lordstown-Volusia Association

Only two percent of the soils of the study area belong to this association, which is found mostly at the north end of the valley. Nearly level to moderately steep, deep and moderately deep soils that are moderately well drained, well drained, and somewhat poorly drained on uplands characterize the association. Dairy farming is also the principal land use in this association.

However, most of the area of this association is left wooded because the soils have so many limitations: Stoniness, steep slopes, restricted permeability, depth to bedrock, and a seasonal high water table are major limitations of this association.

Hydrology

The valley is framed by the hills of the Moosic Mountains on its eastern edge and West Mountain on the west; within the valley is a single watershed bisected by the Lackawanna River. All drainage in the study area makes its way to the Lackawanna River, which drains to the Susquehanna River about eleven miles southwest of the study area, at Pittston in Luzerne County.

While the Lackawanna River is the dominant surface water body in the valley, the river is fed by numerous local perennial streams, including: Wildcat Creek, in Blakely and Archbald; Eddy Creek, in Olyphant and Throop; Sterry Creek, in Jessup and Olyphant; Grassy Island Creek, in Jessup; Aylesworth Creek, in Archbald and Carbondale Township; Rush Brook, in Jermyn, Mayfield, and Carbondale Township; Lees Creek, in Carbondale Township; Fall Brook, in Carbondale City and Fell Township; Coal Brook and Wilson Creek, in Fell Township; and Racket Brook, in Carbondale City and Carbondale Township (Figure 2.4.3). These streams drain small ponds, bogs, and wetlands to the Lackawanna River.

In consideration of future development in the valley, these drainage patterns are significant in the analysis of stormwater runoff as well as in planning for sanitary and stormwater sewer extensions. Other hydrologic characteristics contribute strongly to delineating areas that are available for development and those that are constrained for development. Of major concern are flood prone zones adjacent to bodies of water, and wetlands.

Development in floodplains is hazardous to life and property, not only for prospective development sites but in existing developed areas downstream that may be subjected to unexpected changes in stream channel location or in flood heights and velocities. The 100-Year Floodplain areas shown in Figure 2.4.3 have been identified by the Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program (Category 1 in Figure 2.4.3). Also shown are areas identified as "urban land occasionally flooded" by the Soil Survey of Lackawanna and Wyoming Counties, published by the United States Department of Agriculture, Soil Conservation Service (Category 2 in Figure 2.4.3).

The most extensive floodplains occur in lowland areas, where stream gradients are less and the landscape profiles are wider than on the hillsides. Floodplains for the perennial streams in the valley tend to be relatively narrow, but widen where they join with the Lackawanna River.

At several points along the Lackawanna River's path through the valley floodplains are broad and coincide with historic areas of settlement. There is a long history of damaging floods in the Lackawanna River basin, with the most recent occurrence accompanying Hurricane Gloria in 1985. Efforts at flood protection, led by the Army Corps of Engineers, are continuing (see Lackawanna River at Scranton, Pennsylvania Integrated Feasibility Report and Environmental Impact Statement, U.S. Army Corps of Engineers, January 1992).

Study area surface water beyond the Lackawanna River and its tributary streams consists of numerous water reservoirs perched along the hillsides of the valley, and a tiny piece of Lake Scranton, at the study area's southeastern corner.

Wetlands are among the most valuable resource areas because they control flooding, improve water quality, and support a wide variety of animal and plant species. Wetlands are characterized generally by a high water table, poor drainage, and some degree of surface ponding during the year. The National Wetlands Inventory (NWI) undertaken by the United States Fish and Wildlife Service and Pennsylvania Department of Environmental Resources delineates wetlands in the Lackawanna Valley. These wetlands include surface water bodies, most floodplains, and other areas.

Most hydric soils also qualify as wetlands. A hydric soil is one that in its undrained condition is flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

In Figure 2.4.3, areas with soil series identified in the Soil Survey of Lackawanna and Wyoming Counties as having major hydric components are classified as Category 3. NWI-identified wetland areas outside of significant surface water areas (such as the Lackawanna River and the reservoirs) and Categories 1, 2, and 3, are designated Wetlands and classified as Category 4.

Slopes

The characteristic shape of the Lackawanna Valley -- a long flat valley floor

flanked by the Moosic Mountain and West Mountain hillsides -- provides a good general guide to the occurrence of steep slopes in the study area. While there are some areas of steep slope associated with the course of the Lackawanna River, particularly in Archbald, Mayfield, and Fell Township, most areas of steep slope (greater than fifteen percent) occur up off of the floor of the valley and onto its eastern and western hillside flanks (Figure 2.4.4).

The western side of the valley tends to be generally steeper than the eastern side, which has wide areas of more moderate (eight to fifteen percent) slopes and intermediate plateaus. The western side begins to flatten out at the northern end of the study area.

The areas of steepest slope (greater than twenty-five percent) are mostly associated with the small stream valleys tributary to the Lackawanna River. Narrow, steep stream valleys are plainly visible in Figure 2.4.4 and include those of Roaring Brook, in Dunmore; Hull Creek, in Blakely; Wildcat Creek and Laurel Run, in Archbald; Grassy Island Creek, in Jessup; Aylesworth Creek, in Archbald and Mayfield; Rush Brook, in Carbondale Township and Mayfield; and Fall Brook in Fell Township.

For areas of greater than twenty-five percent slope, there is clearly a high risk of adverse environmental effects, as well as potential dangers to human life and to property posed by construction of homes or businesses. For areas of between fifteen and twenty-five percent slope, development plans that sensitively accommodate themselves to the special physical circumstances may be appropriate.

Farmland

Areas of the valley classified as Prime Farmland and Farmland of Statewide Importance by the United States Department of Agriculture Soil Conservation Service (USDASCS) are shown in Figure 2.4.5. Prime farmland is defined as land best-suited for producing food, feed, forage, fiber, and oilseed crops, and also available for these uses. (The land could be cropland, pastureland, rangeland, forest land, or other land, but not built-up land or water). It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed, included water management, according to modern farming methods. Prime Farmland consists primarily of soils of Agricultural Capability I and II.

Farmland of Statewide Importance is land, in addition to prime farmlands, that

is of statewide importance for agricultural production. Pennsylvania has defined this category as consisting of soil mapping units in Capability Classes II and III that do not qualify as prime or unique farmland. (Unique Farmland is another category of farmland, but one not represented in the Lackawanna Valley.)

The fairly low incidence of prime farmland and farmland of statewide importance in the Lackawanna Valley is not surprising in consideration of the soil types found in the valley (and discussed in the Soils subsection, above). The high rate of land disturbance accompanying nineteenth- and early twentieth-century mining activities and urbanization, together with the inherent limitations of the undisturbed soils, underscore the deficiencies of the area for agriculture.

Small pockets of prime farmland do exist, as illustrated in Figure 2.4.5. The most widespread area of prime farmland and farmland of statewide importance occurs at the northwest corner of the study area, in Fell and Carbondale Townships.

Woodlands

Most of the forested area of the Lackawanna Valley is found in association with the Moosic Mountains and West Mountain, the respective east and west hillsides of the valley (Figures 2.2.1 and 2.5.2). Although the hillsides historically were clearcut for their timber, the coal seams did not extend all the way up the sides of the valley and mostly second-growth mixed deciduous forest of oaks, aspens, birches, and red maples has persisted.

The relative remoteness of the upper hillsides to the urban areas on the valley floor, topographic limitations, and the lack of central water and sewer services have all helped conserve these wooded areas from development. The level of accessibility to these areas, at least on the eastern side of the valley, is about to markedly change with construction of the Lackawanna Valley Industrial Highway.

Information on natural resources, combined with man-made factors such as those represented by Mine Features (see Section 5), has been combined and synthesized to illustrate the relative level of development constraints affecting various areas of the Lackawanna Valley. Composite Constraints are depicted in Figure 2.5.3.

Figure 2.4.1 Geology

Figure 2.4.2 Soil Associations

Figure 2.4.3 Hydrology

Figure 2.4.4 Slopes

Figure 2.4.5 Farmland

SECTION 5: CULTURAL, HISTORIC, AND LANDSCAPE RESOURCES

Mine Features

Mining activity in the Lackawanna Valley from the 1820s to the 1950s has reworked the landscape to such a degree that the effects begin to rival those of the natural features discussed in Section 4. Mining was so widespread and its consequences so profound that it left only the most remote eastern and western edges of valley untouched.

Figure 2.5.1 depicts some of the extant surface features of coal mining in the valley. The information shown was derived from maps prepared for the Office of Surface Mining (OSM) under the National Abandoned Mine Land Inventory System (NALIS) and maintained by the Pennsylvania Department of Environmental Resources Bureau of Abandoned Mines Reclamation.

1. Strip Mines or surface mines are the most extensive mine feature, ranging widely from one end of the study area to the other and up the sides of the valley as well.

2. Culm Piles or piles of waste coal, although occupying considerably less acreage than strip-mined areas, are nonetheless extensive, with significant culm banks found in all twelve of the study area's municipalities.

3. Burned Mines, representing the remains of underground or surface coal fires, are much less significant in incidence and in area than the preceding mine features, and are found towards the southern end of the valley. Burned mines are noteworthy in Throop, Dickson City, and Blakely.

4. Subsidence-Prone Areas, a legacy of deep mining, are a hazard in several discrete locations in the valley, principally in Mayfield (just about the entire urbanized area is classified as subsidence-prone), Carbondale City, Carbondale Township, Jermyn, Jessup, and Olyphant.

5. Open Shafts or Entry points are found in all twelve study-area municipalities, with concentrations in Archbald, Jessup, and Fell

Township.

6. Underground Mine Fires persist in Carbondale City and Mayfield-Carbondale Township. In the latter case, the fire has been cut off by trenches that removed burning coal seams, leaving a 900-by-900-foot-square area around the perimeter of the fire. Within this area, the fire has been left to burn itself out. Hot spots, steam vents, and subsidence are visible. The area of the Carbondale City mine fire has now been largely stripped out and reclaimed for urban uses, with cut-off trenches dug to prevent the potential lateral spread of fire from unreclaimed areas. Beyond the reclaimed areas, the surface mine pits and remnants of the burning coal seams were left in place. There may or may not be coal still burning beyond the reclaimed area.

Historic and Landscape/Scenic Resources

The natural setting into which mining and urbanizing activities were set is still a powerful factor in the overall character of the valley. With the main corridor of settlement running up the floor of the valley, points along the framing Moosic Mountains and West Mountain offer good views of all the features on the valley floor below and of the verdant hillsides opposite. Higher elevations on the sides of the valley present several locations for outstanding scenic lookouts -- these are indicated on Figure 2.5.2. Also noted is the extent of the wooded upper reaches of the valley, a critical component of its scenic views.

Along the floor of the valley are the historic settlements that accompanied the opening of the area to anthracite mining in the nineteenth century. Figure 2.5.2 shows the extent of urbanized area in the valley by 1888. At this date Dunmore was already an important expansion of Scranton-centered development. Small valley communities, such as Priceville (Dickson City), Smoketown (on the boundary between Throop and Olyphant), Blakely, Olyphant, Jessup, Peckville (on the boundary between Jessup and Blakely), Archbald, Jermyn, Mayville (Mayfield), and Carbondale had been established.

Other historic areas and sites have been identified by the Environmental Impact Statement for the Lackawanna Valley Industrial Highway. These include:

1. Dunmore Cemetery, Dunmore;
2. Underwood Colliery, Throop and Olyphant;
3. Dickson Breaker/Shaft, Dickson City;

4. Mid-Valley Textile, Blakely;
5. Dolph/Sunnyside Industrial District, Jessup;
6. Jermyn Historic District, Jermyn;
7. Erie Colliery, Mayfield and Carbondale Township;
8. Drift Mine Opening, Carbondale Township;
9. Powerhouse and Roundhouse, City of Carbondale;
10. Gentex Textiles and Blue Coal Company Breaker, Fell Township.

Figure 2.5.2 also depicts the nineteenth-century extent of the D&H Gravity Railroad, a central element in the movement of mined coal to breakers and the shipment of coal from the valley to the D&H canal system and to markets along the eastern seaboard. While the railroad tracks are gone, the D&H right-of-way is still discernible along parts of its path.

Composite Constraints

Information on natural resources, as well as man-made factors such as those represented by Mine Features, has been combined and synthesized to illustrate the relative level of development constraints affecting various areas of the Lackawanna Valley (Figure 2.5.3). The features, including:

- Floodplains;
- Wetlands;
- Subsidence-Prone Areas;
- Strip Mines;
- Culm Piles;
- Slopes Over 25%;
- Hydric Soils;
- Prime Farmland;
- 15-25% Slopes;

represent environmentally-sensitive natural and scenic resources as well as potential constraints for future development.

Floodplains are generally precluded from consideration for development due to the flood risk and the regulatory framework that controls the degree and type of disturbance permitted in these areas. Mining activities in the valley have left a pattern of subsidence-prone areas and underground mine fires that represent a similar hazard to human life and to property. Areas of floodplain, subsidence-prone areas, and underground mine fire areas are designated as severely constrained (designation 1) for development in Figure 2.5.3.

Wetlands are environmentally-sensitive features protected to some extent by federal and state regulations. Areas having slopes over twenty-five percent, areas of strip mines, and areas of culm piles are similarly classified as strongly constrained (designation 2) for development in Figure 2.5.3.

Areas of hydric soils, prime farmlands, and having slopes from fifteen to twenty-five percent are considered moderately constrained (designation 3) for development. The balance of the valley is indicated as having only slight development limitations in this assessment.

The composite pattern of Figure 2.5.3 shows that the areas that are severely constrained for development are mostly along the Lackawanna River and its tributaries, with some of the largest subsidence-prone areas adjacent to flood-prone zones, such as areas in Olyphant, Jessup, Mayfield, and Carbondale City. The rest of the subsidence-prone areas are more scattered across the valley floor.

Most of this assessment's strongly-constrained areas are related to mining activities (strip mines and culm piles) and are concentrated on the valley floor, while most of the slopes over twenty-five percent are located on the western slopes of the study area.

Moderately-constrained areas are generally concentrated on the hillsides on the east and west sides of the valley.

Suitability for Development

Other factors influencing the relative suitability of land for development have been combined with the preceding composite constraints information in a Suitability for Development analysis.

Areas may be considered more suitable for development in consideration of their relative advantages in accessibility and serviceability. These additional factors have been synthesized with the composite constraints designations to yield a Suitability for Development map (Figure 2.5.4) for the Lackawanna Valley. (In this exercise, areas already developed or under public ownership have been excluded from consideration.)

With respect to accessibility factors, a designation Accessibility 1 has been applied to areas situated close to major roadways or in the vicinity of projected Lackawanna Valley Industrial Highway interchanges. Lands within 2,000 feet on either side of U.S. Route 6 and within 1,000 feet on either side

of secondary highways have been given an Accessibility 1 designation, along with lands within a 3,000-foot radius of Lackawanna Valley Industrial Highway interchanges. Areas not qualifying as having Accessibility 1 have been designated Accessibility 2.

Servicing factors were also established. The Service 1 category included lands already part of central water and sewer service areas, as well as an additional 1,000-foot zone along the service area perimeter. The Service 2 designation includes areas not meeting Service 1 classification criteria.

Accessibility and servicing factors have been combined with the composite constraints designations to yield a Suitability for Development Index, as shown in Table 2.5.1, which was then mapped in Figure 2.5.4.

TABLE 2.5.1 SUITABILITY FOR DEVELOPMENT INDEX

Composite Constraints	Accessibility and Servicing Factors			
	Accessibility 1		Accessibility 2	
	Service 1	Service 2	Service 1	Service 2
C. C. Slight	Good	Moderate	Moderate	Limited
C. C. Moderate	Moderate	Limited	Limited	Very Limited
C. C. Strong	Limited	Very Limited	Very Limited	Very Limited
C. C. Severe	Very Limited	Very Limited	Very Limited	Very Limited

The resultant pattern was further adjusted by the upgrading of the Suitability for Development Index by one level for all lands within the southerly Lackawanna Valley Industrial Highway interchanges areas in response to the superior accessibility afforded by these locations through their proximity to Interstates 81/84.

The Suitability for Development map illustrates that areas with good suitability are found mostly along U.S. Route 6 and within the zones around interchanges of the Lackawanna Valley Industrial Highway, with some locations occurring as infill sites within the existing urban areas (qualifying due to favorable accessibility and servicing).

Most of the areas that have a moderate suitability are found along the

secondary highways towards the north and south ends of the study area. These areas are accessible but services are lacking. Limited suitability areas are found mostly along the east and west edges of the study area. These areas have relatively slight constraints, but do not have services and accessibility.

The very-limited suitability areas comprise the severely- and strongly-constrained areas from Figure 2.5.3, and are found on the valley floor, along floodplains, and on steep hillsides.

Figure 2.5.1 Mine Features

Figure 2.5.2 Cultural, Historic, and Landscape/Scenic Resources

Figure 2.5.3 Composite Constraints

Figure 2.5.4 Suitability for Development

SECTION 6: POPULATION, HOUSING, AND EMPLOYMENT

Population forecasts are an essential part of planning for future growth, in that they can be translated into approximations of the future need for housing, community facilities, and other forms of development. Many factors are taken into account in making population forecasts, but these factors are constantly subject to change. The longer the time period of the forecasts and the smaller the present population, the less reliable the forecasts are likely to turn out to be. For instance, forecasts for a sub-region of a county, such as the Lackawanna Valley, are less valid than those for a whole county or for a large region (or for the entire nation), and fifteen- or twenty-year forecasts usually are less valid than five-year forecasts.

Population, housing, and employment trends and forecasts are discussed in this section. Data for the Lackawanna Valley and its constituent municipalities are contrasted with Lackawanna County, City of Scranton, regional, and statewide data where appropriate. The demographic analysis provides a basis for predicting future growth and estimating residential and nonresidential land area requirements.

Population Densities

Table 2.6.1 sets forth 1990 land mass, population, and population density figures for the twelve study area communities, the City of Scranton, Lackawanna County, and the MSA. ("MSA" is the Scranton-Wilkes Barre Metropolitan Statistical Area, and includes five complete counties: Columbia, Lackawanna, Luzerne, Monroe, and Wyoming.) As the table reveals, Lackawanna County has a density of about 475 persons per square mile. The study area is relatively dense, with an overall proportion of about 777 people per square mile (its residents comprise 30.7 percent of the county's population, yet live on just 18.8 percent of its land). Neither the study area nor the county compares in density with the City of Scranton (3,299 persons per square mile). Taken as a whole, the MSA is quite thinly settled, with just 260 persons per square mile or 0.4 persons per acre.

Population Trends

The study area's population has steadily declined since 1950. Between 1950 and 1990, as shown in Figure 2.6.1 and Table 2.6.2, the study area, the City of Scranton, and Lackawanna County all lost population. The three entities experienced a strong outmigration between 1950 and 1960, when the county

lost almost nine percent of its population. As of the 1990 census, the study area was home to 67,239 people, or about 30.7 percent of Lackawanna County's 219,039 population. Between 1950 and 1990, all communities in the study area except Blakely (which shrank between 1980 and 1990) experienced a net loss in population. Between 1980 and 1990, all study area communities except Mayfield and Olyphant decreased in size; these two jurisdictions increased their populations by 4.3 and 0.4 percent, respectively.

Lackawanna County's population declined nearly 15 percent between 1950 and 1990. Between 1980 and 1990, a net total of 8,869 persons relocated outside of the county. This 3.9 percent loss compares favorably, however, with the 5.1 percent loss experienced in the study area and the 7.2 percent loss that occurred in the City of Scranton. Since 1950, the City of Scranton has lost an extraordinary 34.8 percent of its population, which now stands at 81,805 persons or 37.3 percent of the county total. By contrast, Scranton's 1950 population comprised 48.8 percent of Lackawanna County's population.

By these yardsticks the MSA continues to do relatively well. The MSA lost 8.3 percent of its population (62,264 people) between 1950 and 1960, of which almost 23,000 represented Lackawanna County residents. Since then, the MSA's population has been increasing and now numbers 734,175 people. While the MSA has yet to equal its 1950 population level of 753,636, it grew by 0.7 percent between 1980 and 1990.

Table 2.6.3 provides additional detail about population shifts within Lackawanna County between 1980 and 1990. As the table reveals, a number of Lackawanna County communities experienced dramatic growth during the decade, despite the overall population loss. Communities posting major population gains include: Lehigh Township (49.1 percent), Madison Township (33.0 percent), Clifton Township (21.8 percent), and Vandling Borough (18.5 percent). All are quite small and these percentage increases do not translate to many additional residents. Communities losing population include: LaPlume Township (-35.4 percent), Clarks Green Borough (-13.9 percent), and Elmhurst Township (-12.5 percent) in addition to the study area municipalities.

The Greater Scranton Area Chamber of Commerce estimates that Lackawanna County's population numbered 217,325 people in 1992. This figure reflects a loss of 0.8 percent of the population since the 1990 census was completed. If correct, this estimate indicates that the county's population continues to shrink at about the same pace as it did between 1980 and 1990.

Population Distribution by Age

Table 2.6.4 sets forth the median age of the 1990 population for the twelve study area communities, Lackawanna County, the other four counties contained in the MSA, and the State of Pennsylvania. With a median age of 37.7 years, Lackawanna County residents are somewhat older than typical in Pennsylvania, which has a median age of 35.0 years. With the exception of Luzerne County (38.2 years), Lackawanna County is the oldest county in the MSA.

As compared to the county, the study area is significantly older. Only Olyphant's population has a median age lower than the county's at 37.2 years. Five study area communities (Blakely, Dickson City, Fell, Jermyn, and Mayfield) posted a median age over 40 years; Fell Township's median age is 43.0 years.

Table 2.6.5 shows additional information concerning how the study area and Lackawanna County populations are distributed by age cohort; presenting the age data in gross figures and proportions, and then comparing the distribution of the study area population to Lackawanna County using an index. While 1.8 percent of both the study area and Lackawanna County populations are age 85 or older, the proportion of study area residents between age 55 and 84 is substantially higher than that for the county. As these residents age, study area communities face the full range of issues associated with an older population, including increased social service costs.

The index figures further demonstrate that study area communities are home to relatively few persons under age 21, but feature a disproportionate number of older residents. Given that the Lackawanna County population, as discussed above, is itself relatively old compared to the MSA and the State, these findings are especially significant.

Population Distribution by Gender

Table 2.6.6 shows the study area and Lackawanna County populations according to gender. Females outnumber males in all twelve study area communities and in the county as a whole, comprising 54.0 percent of the study area population and 53.3 percent of the county's population. This is not unusual, given that women enjoy longer life expectancies in general and typically do not lose their lives in the course of military service. However, as Table 2.6.7 reveals, the imbalance in gender distribution is exacerbated by the relative age of the study area and Lackawanna County populations. When the MSA is indexed to Lackawanna County, the figures highlight the relative age

of the county's population and dearth of children. Note that Lackawanna County has a higher proportion of females than does the MSA in all age cohorts from age 45 and up. Among Lackawanna County residents over age 85, a full 75.3 percent are women.

Population Distribution by Race

Table 2.6.8 shows how the study area, City of Scranton, and Lackawanna County populations compare with respect to racial diversity. White residents dominate the mix, comprising 99.4 percent of the study area population. Only 0.4 percent of the study area residents identified themselves as Hispanic (Hispanics may be either black or white). Lackawanna County as a whole has a slightly higher proportion of minority residents; whites make up 98.4 percent of the population. Scranton is the most diverse of the areas studied; minorities constitute 2.8 percent of the population and 0.7 percent identified themselves as Hispanic. In contrast, whites account for 87.7 percent of Pennsylvania's population.

Social Characteristics

The LVIH region's residents are very stable. Almost 92 percent of the study area population was born in Pennsylvania and, in 1990, 73.4 percent still resided in the same house they occupied in 1985 as compared to 82.8 percent and 63.4 percent, respectively, for the State of Pennsylvania, as shown in Table 2.6.9. These statistics mirror the experience in Lackawanna County as a whole; 88.6 percent of residents were born in Pennsylvania and 69.5 percent did not move over the preceding five years. The City of Scranton population is slightly more mobile. Only 1.5 percent of the study area population was born outside of the United States, versus 3.1 percent for the State of Pennsylvania. Within the City of Scranton and Lackawanna County, 2.6 and 1.9 percent, respectively, of residents were born in a foreign country.

Table 2.6.10 presents data that also underscore the area's stability. In both the study area and Lackawanna County, 52.7 percent of residents over age 15 were married as of the 1990 census. Divorced men and women comprise only about 6 percent of the population of marital age. The study area is home to a higher proportion of widows and widowers than is Lackawanna County as a whole (12.5 vs. 11.6 percent), probably due to a higher age profile. Finally, under 2 percent are separated.

Households

As shown in Table 2.6.11, which presents household data as of 1990, people in group quarters (including military installations, corrections facilities, colleges, and other group homes that exist for a special purpose, e.g., retirement homes, halfway houses, etc.) within the study area totalled 1,395 residents, or 2.1 percent of the total study area population. Almost 70 percent of the remaining population lived in family households; that is, where the residents are related to one another by birth, marriage, or adoption. Non-family households include unrelated persons sharing living quarters and people living alone. The average size of study area family households was 3.10 persons; non-family household size averaged just 1.08 persons. In general, study area communities with smaller average household sizes have a higher age profile. These statistics are quite similar to those for Lackawanna County as a whole, where the average family household included 3.13 people and the average non-family household consisted of 1.11 people.

Table 2.6.12 shows how the number and size of households (both family and non-family) changed between 1980 and 1990. Note that the number of households increased by 2.7 and 2.9 percent in the study area and Lackawanna County, respectively, despite the loss of population that occurred during the decade. This increase is attributable to a concomitant trend -- the shrinking size of the average household. However, the total number of households declined in Carbondale Township and Dunmore, Jermyn, and Mayfield.

Average household size declined by 7.7 and 7.8 percent, respectively, in the study area and Lackawanna County. In 1980 the study area average household contained 2.75 individuals, whereas by 1990 the figure had dropped to 2.54. Average household size in Lackawanna County declined by a similar amount, falling from 2.70 to 2.50 persons. Similar trends were observed for the MSA, where the number of households increased more than did population and average household size decreased by 0.1 persons, from 2.62 to 2.52 residents. All of these areas' average household sizes exceed that for Scranton, which in 1990 was 2.37 people. Urban areas usually include a greater proportion of young single people, which serves to decrease the average household size.

Future Population Growth and Household Formation Trends

Table 2.6.13 presents estimates of total population and households for Lackawanna County and the MSA prepared in 1992 by Woods & Poole, a company that provides economic and demographic projections. In contrast

to the Greater Scranton Chamber of Commerce, Woods & Poole projected that Lackawanna County would begin to experience a net gain in population in 1991. However, the company anticipated only a scant population increase for the county, totaling 0.45 percent, between 1990 and 1995. Woods & Poole projected that the number of households will continue to increase substantially faster than population. By extrapolation, Woods & Poole has also suggested that the average Lackawanna County household will contain 2.44 people in the year 2000 (not correcting for future group quarters occupants).

Woods & Poole also projected that the MSA will add population at a slightly slower pace than previously occurred, growing by 1.57 percent between 1990 and 1995 and expanding by 1.25 percent between 1995 and 2000. Again, the total number of households has been projected to increase faster than population, posing 3.81 and 4.15 percent gains over the 1990-1995 and 1995-2000 periods, respectively. At this rate, before eliminating group quarters residents, the average household at the turn of the century will be comprised of 2.49 people.

Housing Characteristics

Table 2.6.14 depicts the distribution of study area and Lackawanna County housing stock among owner- and renter-households. In the study area as a whole, nearly two-thirds (65.9 percent) of the 27,985 housing units are owner-occupied. The vacancy rate for the study area is 5.3 percent (Fell Township can attribute a significant portion of its 11.0 percent vacancy rate to seasonal dwellings, which account for 29.5 percent of the total number of vacant units). In Lackawanna County as a whole, the owner-occupancy rate equals 61.7 percent of the 91,707 housing units and the vacancy rate stood at 7.8 percent. Of the 7,179 vacant units in Lackawanna County, 22.0 percent are for seasonal, recreational, or occasional use.

Table 2.6.15 distributes tenure data according to the number of household members. Both tallies and proportions are shown. Throughout both the study area and Lackawanna County, the proportion of owner-occupants increases with the size of the household. For all household sizes, the number of owner-occupants exceeds the number of renters. Over 40 percent of all renters in both the study area and in Lackawanna County are one-person households. Similarly, nearly a third of all owners in both the study area and in Lackawanna County are two-person households.

The cost of housing in the study area compares favorably with that for Lackawanna County. Median housing values in the study area range from a

low of $54,800 in Fell Township to a high of $73,100 in Blakely, as shown in Table 2.6.16. The figure for Lackawanna County is $68,900. Other than Blakely, only Dunmore's median housing value exceeds that of Lackawanna County. Rents are similarly reasonable relative to the county, where median monthly rent totals $253. Dunmore, Blakely, and Archbald median rents exceed the county's; all others are lower. As the index to Lackawanna County reveals, rents in the study area communities are relatively higher than is median housing value; the rent index for most communities is higher than is the median value index.

Labor Force and Unemployment

Tables 2.6.17 and 2.6.18 present information on the Lackawanna County, MSA, and State of Pennsylvania labor force. The March, 1993 Lackawanna County labor force numbered 108,500 people, of which 9,000 did not hold jobs, for an unemployment rate (unadjusted for normal seasonal variations) of 8.3 percent. While this unemployment rate represents a decrease from February, 1993's 9.4 percent rate, the total number of jobs fell from 100,500 to 99,500 and the labor force decreased by 2,500 from 111,000. Consequently, the apparent decline in unemployment rate between February and March, 1993 is algebraic; it stems from the fact that the labor force decreased more than did the total employment. (Both labor force employment and unemployment figures are by place of residence, not place of employment.) The situation is similar for the MSA. In the MSA, the labor force decreased by 8,900 from 379,600 to 370,700 and jobs declined by 3,100, for an apparent reduction in the unemployment rate from 10.2 to 8.9 percent (unadjusted).

One year earlier, in March of 1992, the Lackawanna County civilian labor force totaled 108,100 and the total employed equaled 98,500, for an unemployment rate of 8.9 percent. Consequently, real improvement took place between March 1992 and March 1993, as both the labor force and the total employed increased while the unemployment rate fell. Again, the MSA experience parallels that in Lackawanna County.

The unadjusted March, 1993 unemployment rate for Lackawanna County, at 8.3 percent, exceeds the figure for the United States by full percentage point and that for the State of Pennsylvania (7.2 percent). However, the March unadjusted unemployment rate for the MSA, at 8.9 percent, is substantially worse. Lackawanna County's unemployment rate, since 1990, has exceeded that for both Pennsylvania and the United States but has been better than the MSA's. Since 1990, the unemployment rate for both the State and the county has increased faster than that for the MSA.

Table 2.6.18 sets forth additional labor force participation data for 1990, the most recent period for which they are available. The Lackawanna County population participates in the labor force at a rate of 50.2 percent, as compared to 49.7 percent for both the MSA and the State of Pennsylvania. In Lackawanna County and the State of Pennsylvania, the women workers' unemployment rate is higher than that for male workers; the reverse holds true for the MSA. While the proportion of women participating in the labor force is equal for Lackawanna County and the MSA, the proportion of Lackawanna County men participating is higher than for the MSA. Participation rates for both genders exceeds that for the State.

Education attainment statistics for adults 25 or older are set forth in Table 2.6.19 for the study area, the City of Scranton, Lackawanna County, and the State of Pennsylvania. In general, educational attainment in the three Lackawanna County areas, particularly Scranton, falls short of State figures. Nearly 15 percent of study area residents over age 25 did not graduate from high school, versus 11.9 percent for Lackawanna County, and 7.4 percent for the State. Similarly, only 13.5 percent of study area residents obtained a bachelor's degree, as compared to 14.8 percent for the county and 17.9 percent for the State of Pennsylvania.

Current MSA Employment

Non-agricultural March 1993 employment figures for the Scranton-Wilkes Barre Metropolitan Statistical Area appear in Table 2.6.20, organized according to major industrial sector and sub-sector. Non-agricultural employment in the MSA totaled 298,500 positions. Employment reflects place of work; consequently, employment changes over time will not match the changes in labor force employment over the same period, as some residents work outside of the area while other people commute into the area of work. As the table reveals:

- Manufacturing accounted for 21.2 percent of all jobs located within the MSA, or 63,400 positions. Within this sector, companies producing durable goods employed 26,600 people (8.9 percent of the total) while those engaged in manufacturing non-durable goods accounted for 38,800 jobs (12.3 percent of the total). Manufacturing was the third largest sector in the MSA economy, behind Services and Trade. Manufacturing held steady over the previous month, but posted a 2000 job loss over the previous year. While the durable goods companies expanded by a net total of 200 jobs, the non-durable goods companies shrank by a total of 2,200 positions.

- The Services sector provided 26.8 percent of all MSA jobs (80,100 jobs) and was the largest sector. However, this sector lost 800 positions since February, 1992, or two thirds of the net total MSA employment decline. Nonetheless, the net change in services sector jobs since March, 1992 was a positive 1,700 positions.

- Wholesale and Retail Trade provided a total of 71,600 jobs within the MSA economy. The 16,900 Wholesale Trade jobs were evenly split between the durable and non-durable goods sub-sectors. The 54,700 Retail Trade jobs represented 18.3 percent of the total positions in the MSA.

- Government is an important sector within the MSA. Local, state, and federal jobs totaled 44,100 positions, or 14.8 percent of the total. Local government accounted for 25,600 of these jobs. Government employment expanded by a net total of 900 jobs during the period.

- FIRE (Finance, Insurance, and Real Estate) and TCU (Transportation, Communication, and Utilities) account for just 4.4 and 5.5 percent of the total jobs, respectively. Only 3.0 percent of all jobs were attributable to the Construction sector. While this sector held steady between February and March, it lost a net total of 500 positions over the previous year.

- Mining represented a scant 0.2 percent of all jobs, or 600 positions within the entire MSA economy. Clearly the five-county region is no longer a mining stronghold.

Historic Comparison of Lackawanna County and MSA Employment

Average annual employment statistics for 1991 are the most recent figures available for Lackawanna County that depict the total number of establishments and employment by Standard Industrial Classification (SIC) Code. Table 2.6.21 sets forth this data for both the county and the MSA. Unfortunately, much of the data has been suppressed for both areas to preserve confidentiality. Some observations include:

- Jobs in Lackawanna County comprised 32.4 percent of the total positions within the MSA. Establishments in Lackawanna County represented 29.6 percent of the MSA total.

- Relative to the MSA, the Lackawanna County employment base demonstrated significant strength in the following sectors as measured by the proportion of establishments, employment, or both:

  - Manufacturing, especially in the Food and Kindred Products, Printing and Publishing, Fabricated Metals, and Industrial Machinery sub-sectors;

  - Services, especially in the Personal Services, Auto Repair, Legal Services, and Engineering/Management Services sub-sectors;

  - Finance, Insurance and Real Estate, especially the Insurance Carriers sub-sector, in which 55 percent of all MSA jobs were located in Lackawanna County.

  - Trucking and Warehousing, a sub-sector of Transportation, Communication, and Utilities;

- Relative to the MSA, the Lackawanna County employment base contained fewer establishments and/or jobs in the following sectors:

  - Construction;

  - Agricultural Services;

  - Retail Trade, especially the Furniture and Home Furnishings sub-sector;

  - Federal Government.

Neither mining nor agriculture represented significant sectors within the Lackawanna County economy. Only 62 people were employed in the Mining Sector, while just 411 people made their living working for agricultural concerns.

Table 2.6.22 presents a comparison of the distribution of non-agricultural employment within Lackawanna County, the MSA, the State of Pennsylvania, and the United States. The following conclusions may be reached from this table:

- Lackawanna County was relatively more dependent on the Manufacturing, Trade, and Services sectors than were the other three

regions studied. These three sectors accounted for 75.7 percent of all jobs located within Lackawanna County, versus 72.0 percent for the MSA, 70.6 percent for the State, and 66.7 percent for the country.

- By contrast, Lackawanna County was less dependent on Mining, Construction, TCU, and Government sectors. As regards FIRE, Lackawanna County had a higher proportion of jobs in this sector than did its MSA, but the percentage still fell short of that for Pennsylvania or the United States.

- Lackawanna County's Manufacturing sector was especially strong, accounting for 23.7 percent of all jobs in comparison to just 16.9 percent for the United States. Even in comparison to the State of Pennsylvania, known as a manufacturing center, Lackawanna County excelled; only 19.2 percent of Pennsylvania jobs were within this key sector.

Table 2.6.23 explores the diversity and strength of the Lackawanna County manufacturing sector as compared to the State of Pennsylvania. The Lackawanna County manufacturing sector features a disproportionately large number of jobs in the Apparel, Printing and Publishing, Fabricated Metals, Electronic and Other Electrical Equipment, and Instruments and Related Products sub-sectors. These strengths are somewhat offset by a few relative weaknesses: Industrial Machinery and Equipment, Chemicals and Allied Products, Furniture and Fixtures, and Stone, Clay and Glass Products sub-sectors.

It should be noted that both the Electronic and Other Electrical Equipment and the Instruments sub-sectors represent high value-added high tech industries. Moreover, the establishment of the University of Scranton McDade Technology Center, funded by the Department of Defense, should help these and other high-tech industries. The facility includes laboratories for software engineering, optics, micro-processing, and robotics and will serve as a resource for high tech companies seeking to locate to Lackawanna County or expand in place.

Study Area Population, Housing, and Employment Forecasts for the Corridor Plan

Predicting the future is a difficult task, especially in cases where a major new road, like the Lackawanna Valley Industrial Highway, is involved. Based on recent trends (Figure 2.6.1 and Table 2.6.2), it is hard to project any significant population increases for the valley over the twenty-year planning

horizon, but based on recent housing construction rates (Tables 2.3.1 and 2.3.2), significant new residential development in the study area is likely. Net job growth in Lackawanna County as a whole could total 5,000 to 15,000 jobs over the next fifteen to twenty years, with the study area gaining perhaps 3,000 to 10,000 new jobs.

Table 2.6.24 shows alternative population projections for Lackawanna County and for the twelve-municipality study area. The low-growth and moderate-growth scenarios both assume continued population losses until the turn of the century, with the moderate-growth alternative depicting a turn-around at that time. The high-growth scenario presumes that net population increases are already occurring.

For the Corridor Plan the moderate-growth scenario is considered the most likely, basically translating into no net population changes by the year 2010 (Figure 2.6.2).

Despite steady population declines in the study area over the last few decades, the number of households actually increased (Table 2.6.12) and some 1400 new housing units on over 900 acres of land were approved for construction over the ten-year period, 1983 to 1992. Even assuming no net population gain through the planning period, the Corridor Plan must assume a rate of housing construction approaching (or even exceeding) that experienced over the last decade or so. In the Exploration of Alternatives phase of the Corridor Plan preparation (see Chapter One, "The Planning Process"), an average annual rate of new housing unit construction of 130 units was used. Different assumptions were made with regard to intensities of development (units per acre) from one Alternative to another, but the range of land areas required for new residential construction over the twenty-year period fell between 1200 and 1800 acres. This figure, it should be noted, is only a small fraction of the land classified as available and suitable (categories 1, 2, and 3) for development in Figure 2.5.4.

Table 2.6.25 and Figure 2.6.3 depict projections of Lackawanna County's future employment levels through the year 2010 in five-year increments. Three sets of projections have been prepared, reflecting low, moderate, and high growth scenarios. All three start from a 1991 base of 92,008 jobs, as reported by the Pennsylvania Department of Labor and Industry Bureau of Research and Statistics, and assume that the recession trough has already occurred.

The three employment projections presume alternatives rates of growth:

- The low growth scenario hypothesizes very modest growth, totalling less than 1 percent between 1991 and 1995, and then gradually accelerating following the opening of the LVIH to a pace of about 1.9 percent between 2005 and 2010. This scenario hypothesizes a net job gain of about 5,500 jobs over the twenty-year period.

- The moderate growth scenario hypothesizes that growth will occur at roughly the rate projected for the MSA as a whole, posting a 1.5 percent gain between 1991 and 1995, and then accelerating following the opening of the LVIH to roughly 3 percent per hemidecade. This scenario hypothesizes a net job gain of about 10,000 jobs over the twenty-year period.

- The high growth scenario begins with the assumption that all announced private sector expansion plans actually occur, translating to a 2 percent growth rate between 1991 and 1995. Growth then accelerates proportionately following the opening of the LVIH, moving from about 4.2 percent to about 4.4 percent per hemidecade through 2020. This scenario hypothesizes a net job gain of about 14,600 jobs during the twenty year period.

None of the projections assume significant growth in either the government or retail sectors. Note that the slope of the employement growth curve steepens for all three scenarios after 1995 and, especially, after 2000. This presumes that the LVIH will enable Lackawanna County to capture a greater proportion of job growth accruing to the MSA than at present (depending upon how well the area capitalizes on this opportunity). The low growth scenario presumes that current trends continue.

The aforementioned Alternatives phase of the Corridor Plan preparation assumed the moderate growth scenario for county jobs (some 10,000 new jobs over the planning period) and a two-thirds capture rate by the study area, in consideration of the significance of the completion of the Lackawanna Valley Industrial Highway, of these new county jobs.

Previous analysis (such as in the Environmental Impact Statement for the LVIH) has demonstrated that there was no net gain in jobs in the study area over the last decade, despite the emergence of new industrial parks such as Keystone and Mid-Valley. Simultaneous with new employment beginning in these industrial parks, then, job losses were occurring in the study area generally, and jobs were also shifting from one part of the study area to another.

During the last decade, even though there was no net job gain in the study area, new industrial and commercial development totalling over 800 acres was approved for development (Table 2.3.1). Without net job gain, a similar pattern of new facility construction may be expected to continue. Including the forecast study area net job gains, the total land area needed for new industrial and commercial development over the twenty-year planning period is estimated at around 1,750 acres. (This figure, coincidently, approximates the required land area for new residential development discussed above.) In total the forecast new residential and non-residential development would amount to about five square miles, a comparatively modest amount of land when compared to the 80-to-100-square-mile area of the whole valley.

The land area required for new residential and non-residential development over the next twenty years or so is relatively modest compared to the large amount of available land for development, but from the points of view of conservation of natural resources, economic and energy efficiency, and environmental protection, it may still be advisable to try and build more compactly than the five-square-mile scenario outlined. Techniques to achieve such a result are discussed in Chapter 3, Growth Management Plan, and Chapter 4, Implementation Strategy.

REGIONAL POPULATION TRENDS: 1950 - 1990

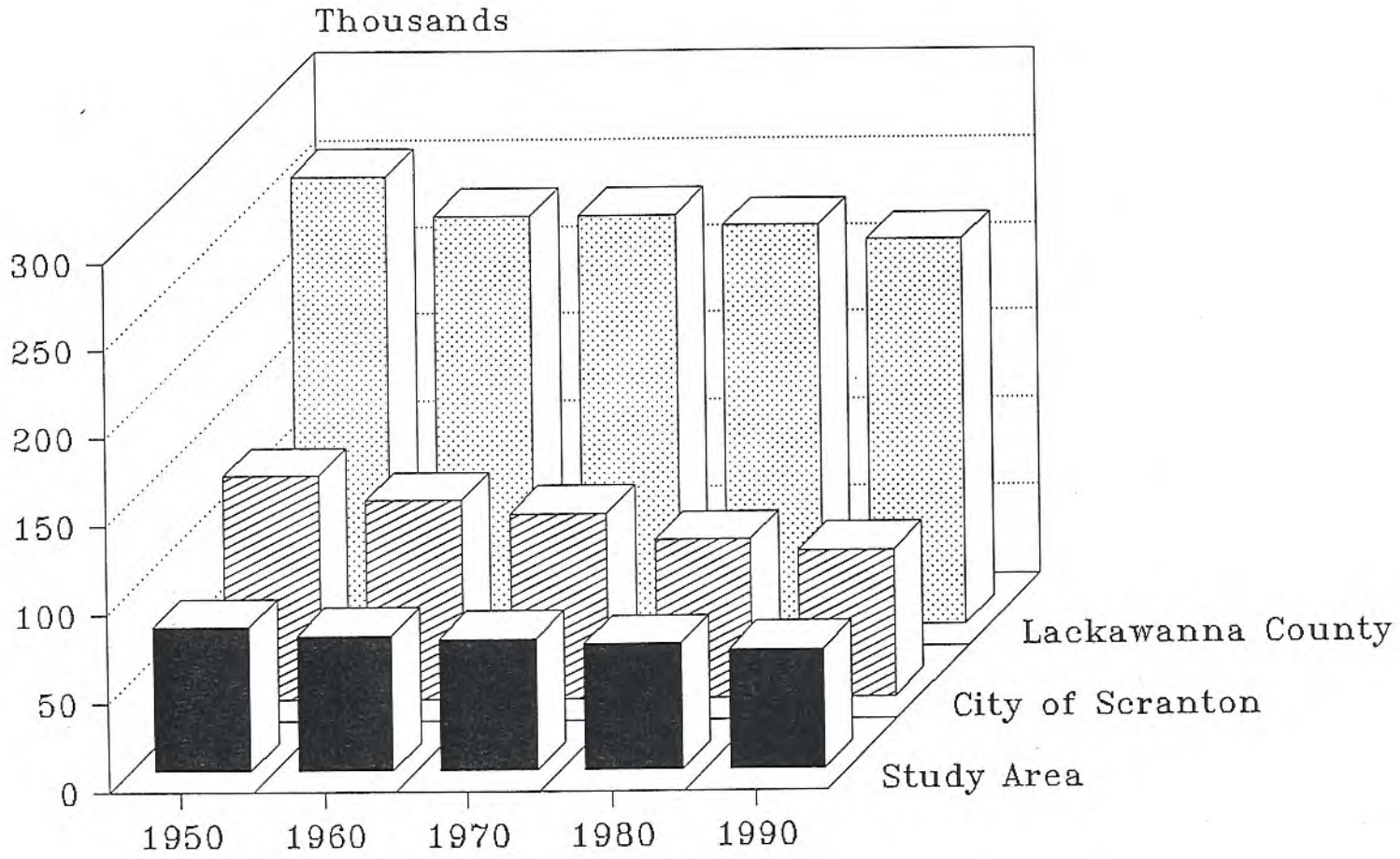


Figure 2.6.1

Table 2.6.1

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION
1990 AREA AND POPULATION DENSITY

Geographic Area	Total Square Miles	1990 Population	Persons Per Square Mile	Persons Per Acre
Archbald Borough	16.8	6,291	374.5	0.59
Blakely Borough	3.9	7,222	1851.8	2.89
Carbondale City	3.2	10,664	3332.5	5.21
Carbondale Township	13.7	907	66.2	0.10
Dickson City Borough	4.7	6,276	1335.3	2.09
Dunmore Borough	8.7	15,403	1770.5	2.77
Fell Township	15.3	2,426	158.6	0.25
Jermyn Borough	0.8	2,263	2828.8	4.42
Jessup Borough	6.7	4,605	687.3	1.07
Mayfield Borough	2.4	1,890	787.5	1.23
Olyphant Borough	5.4	5,222	967.0	1.51
Throop Borough	5.0	4,070	814.0	1.27
Study Area Sub-Total	86.6	67,239	776.4	1.21
City of Scranton	24.8	81,805	3298.6	5.15
Lackawanna County	461.0	219,039	475.1	0.74
MSA	2832.9	735,154	259.5	0.41

Sources: Pennsylvania State Data Center, Pennsylvania Department of Labor Bureau of Research and Statistics, U.S. City and County Data Book, U.S. Bureau of the Census and Economics Research Associates

Table 2.6.2

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION POPULATION TRENDS: 1950 - 1990

Geographic Area	Number of Persons					Percent Change				
	1950	1960	1970	1980	1990	1950-60	1960-70	1970-80	1980-90	1950-90[1]
Archbald Borough	6,304	5,642	6,118	6,295	6,291	-10.5%	8.4%	2.9%	-0.1%	-0.2%
Blakely Borough	6,828	6,374	6,391	7,438	7,222	-6.6%	0.3%	16.4%	-2.9%	5.8%
Carbondale City	16,296	13,595	12,478	11,255	10,664	-16.6%	-8.2%	-9.8%	-5.3%	-34.6%
Carbondale Township	1,217	827	974	1,032	907	-32.0%	17.8%	6.0%	-12.1%	-25.5%
Dickson City Borough	8,948	7,738	7,698	6,699	6,276	-13.5%	-0.5%	-13.0%	-6.3%	-29.9%
Dunmore Borough	20,305	18,917	18,168	16,781	15,403	-6.8%	-4.0%	-7.6%	-8.2%	-24.1%
Fell Township	3,485	2,672	2,953	2,817	2,426	-23.3%	10.5%	-4.6%	-13.9%	-30.4%
Jermyn Borough	2,535	2,397	2,435	2,411	2,263	-5.4%	1.6%	-1.0%	-6.1%	-10.7%
Jessup Borough	n.a.	5,456	4,948	4,974	4,605	na	-9.3%	0.5%	-7.4%	-15.6%
Mayfield Borough	2,373	1,996	2,176	1,812	1,890	-15.9%	9.0%	-16.7%	4.3%	-20.4%
Olyphant Borough	7,047	5,864	5,422	5,204	5,222	-16.8%	-7.5%	-4.0%	0.3%	-25.9%
Throop Borough	5,861	4,732	4,307	4,166	4,070	-19.3%	-9.0%	-3.3%	-2.3%	-30.6%
Study Area Sub-Total	81,199	76,210	74,068	70,884	67,239	-6.1%	-2.8%	-4.3%	-5.1%	-17.2%
City of Scranton	125,536	111,443	103,564	88,117	81,805	-11.2%	-7.1%	-14.9%	-7.2%	-34.8%
Lackawanna County	257,396	234,531	234,504	227,908	219,039	-8.9%	-0.0%	-2.8%	-3.9%	-14.9%
MSA	753,636	691,372	696,078	728,796	734,175	-8.3%	0.7%	4.7%	0.7%	-2.6%

1 Figure for Jessup Borough reflects population change between 1960 and 1990.

Source: U.S. Bureau of the Census, Pennsylvania State Data Center, Pennsylvania Dept. of Labor, and Economics Research Associ

Table 2.6.3

DETAILED LACKAWANNA COUNTY POPULATION CHANGE: 1980 - 1990

Geographic Area	Number of Persons 1980	Number of Persons 1990	Percent Change 1980-90	1990 Percent of County Population
Abington Township	1,487	1,533	3.1%	0.7%
Archbald Borough	6,295	6,291	-0.1%	2.9%
Benton Township	1,670	1,837	10.0%	0.8%
Blakely Borough	7,438	7,222	-2.9%	3.3%
Carbondale City	11,255	10,664	-5.3%	4.9%
Carbondale Township	1,032	907	-12.1%	0.4%
Clarks Green Borough	1,862	1,603	-13.9%	0.7%
Clarks Summit Borough	5,272	5,433	3.1%	2.5%
Clifton Township	855	1,041	21.8%	0.5%
Cornington Township	1,858	2,055	10.6%	0.9%
Dalton Borough	1,383	1,369	-1.0%	0.6%
Dickson City Borough	6,699	6,276	-6.3%	2.9%
Dunmore Borough	16,781	15,403	-8.2%	7.0%
Elmhust Township	953	834	-12.5%	0.4%
Fell Township	2,817	2,426	-13.9%	1.1%
Glenburn Township	1,257	1,242	-1.2%	0.6%
Greenfield Township	1,524	1,743	14.4%	0.8%
Jefferson Township	3,132	3,438	9.8%	1.6%
Jermyn Borough	2,411	2,263	-6.1%	1.0%
Jessup Borough	4,974	4,605	-7.4%	2.1%
LaPlume Township	1,001	647	-35.4%	0.3%
LeHigh Township	326	486	49.1%	0.2%
Madison Township	1,659	2,207	33.0%	1.0%
Mayfield Borough	1,812	1,890	4.3%	0.9%
Moosic Borough	6,068	5,397	-11.1%	2.5%
Moscow Borough	1,536	1,527	-0.6%	0.7%
Newton Township	2,521	2,843	12.8%	1.3%
N. Abington Township	619	691	11.6%	0.3%
Old Forge Borough	9,304	8,834	-5.1%	4.0%
Olyphant Borough	5,204	5,222	0.3%	2.4%
Ranson Township	1,506	1,608	6.8%	0.7%
Roaring Brook Township	1,895	1,966	3.7%	0.9%
Scott Township	4,624	5,350	15.7%	2.4%
Scranton City	88,177	81,805	-7.2%	37.3%
S. Abington Township	6,353	6,377	0.4%	2.9%
Spring Brook Township	2,144	2,097	-2.2%	1.0%
Taylor Borough	7,246	6,941	-4.2%	3.2%
Throop Borough	4,166	4,070	-2.3%	1.9%
Vandling Borough	557	660	18.5%	0.3%
W. Abington Township	295	294	-0.3%	0.1%
Study Area Sub-Total	70,884	67,239	-5.1%	30.7%
Lackawanna County	227,908	219,039	-3.9%	100.0%
Metropolitan Statistical Area[1]	728,252	735,154	0.9%	

1 Wyoming, Luzerne, Columbia, and Monroe Counties

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.4

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION
1990 MEDIAN AGE OF POPULATION

Geographic Area	Median Age
Archbald Borough	38.0
Blakely Borough	40.5
Carbondale City	37.9
Carbondale Township	NA
Dickson City Borough	41.3
Dunmore Borough	39.8
Fell Township	43.0
Jermyn Borough	40.2
Jessup Borough	39.7
Mayfield Borough	40.6
Olyphant Borough	37.2
Throop Borough	37.9
Lackawanna County	37.7
Other MSA Counties	
Columbia	34.0
Luzerne	38.2
Monroe	34.0
Wyoming	33.1
State of Pennsylvania	35.0

Source: U.S. Bureau of the Census

Table 2.6.5a

1990 LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION POPULATION BY AGE

Geographic Area	Number of Persons										1990 Total
	0-5	6-17	18-21	22-34	35-44	45-54	55-64	65-74	75-84	85 +	
Archbald Borough	430	958	320	1,205	848	683	741	632	381	93	6,291
Blakely Borough	461	998	355	1,240	1,035	709	835	862	546	181	7,222
Carbondale City	871	1,693	571	1,839	1,281	998	1,133	1,286	764	228	10,664
Carbondale Township	67	156	43	148	162	91	93	85	53	9	907
Dickson City Borough	381	798	292	1,119	829	602	747	848	547	113	6,276
Dunmore Borough	982	1,901	1,108	2,815	1,811	1,427	1,799	2,042	1,197	321	15,403
Fell Township	146	318	129	389	296	245	333	333	190	47	2,426
Jermyn Borough	170	287	118	434	282	243	280	256	154	39	2,263
Jessup Borough	340	590	215	847	633	445	531	613	326	65	4,605
Mayfield Borough	120	265	91	337	219	193	216	248	163	38	1,890
Olyphant Borough	425	760	248	1,008	743	435	575	555	405	68	5,222
Throop Borough	281	635	213	757	531	396	500	462	254	41	4,070
Study Area Sub-Total	4,674	9,359	3,703	12,138	8,670	6,467	7,783	8,222	4,980	1,243	*67,239*
Lackawanna County	15,967	31,984	13,810	39,485	29,803	21,700	23,097	24,430	14,853	3,910	219,039

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.5b

LVIH REGION POPULATION BY AGE: DISTRIBUTION

Geographic Area	Number of Persons									
	0-5	6-17	18-21	22-34	35-44	45-54	55-64	65-74	75-84	85 +
Archbald Borough	6.8%	15.2%	5.1%	19.2%	13.5%	10.9%	11.8%	10.0%	6.1%	1.5%
Blakely Borough	6.4%	13.8%	4.9%	17.2%	14.3%	9.8%	11.6%	11.9%	7.6%	2.5%
Carbondale City	8.2%	15.9%	5.4%	17.2%	12.0%	9.4%	10.6%	12.1%	7.2%	2.1%
Carbondale Township	7.4%	17.2%	4.7%	16.3%	17.9%	10.0%	10.3%	9.4%	5.8%	1.0%
Dickson City Borough	6.1%	12.7%	4.7%	17.8%	13.2%	9.6%	11.9%	13.5%	8.7%	1.8%
Dunmore Borough	6.4%	12.3%	7.2%	18.3%	11.8%	9.3%	11.7%	13.3%	7.8%	2.1%
Fell Township	6.0%	13.1%	5.3%	16.0%	12.2%	10.1%	13.7%	13.7%	7.8%	1.9%
Jermyn Borough	7.5%	12.7%	5.2%	19.2%	12.5%	10.7%	12.4%	11.3%	6.8%	1.7%
Jessup Borough	7.4%	12.8%	4.7%	18.4%	13.7%	9.7%	11.5%	13.3%	7.1%	1.4%
Mayfield Borough	6.3%	14.0%	4.8%	17.8%	11.6%	10.2%	11.4%	13.1%	8.6%	2.0%
Olyphant Borough	8.1%	14.6%	4.7%	19.3%	14.2%	8.3%	11.0%	10.6%	7.8%	1.3%
Throop Borough	6.9%	15.6%	5.2%	18.6%	13.0%	9.7%	12.3%	11.4%	6.2%	1.0%
Study Area Sub-Total	7.0%	13.9%	5.5%	18.1%	12.9%	9.6%	11.6%	12.2%	7.4%	1.8%
Lackawanna County	7.3%	14.6%	6.3%	18.0%	13.6%	9.9%	10.5%	11.2%	6.8%	1.8%

Source: Economics Research Associates

Table 2.6.5c

LVIH REGION POPULATION BY AGE: INDEXED TO LACKAWANNA COUNTY

Geographic Area	Number of Persons 0-5	6-17	18-21	22-34	35-44	45-54	55-64	65-74	75-84	85 +
Archbald Borough	93.8	104.3	80.7	106.3	99.1	109.6	111.7	90.1	89.3	82.8
Blakely Borough	87.6	94.6	78.0	95.2	105.3	99.1	109.6	107.0	111.5	140.4
Carbondale City	112.0	108.7	84.9	95.7	88.3	94.5	100.8	108.1	105.7	119.8
Carbondale Township	101.3	117.8	75.2	90.5	131.3	101.3	97.2	84.0	86.2	55.6
Dickson City Borough	83.3	87.1	73.8	98.9	97.1	96.8	112.9	121.1	128.5	100.9
Dunmore Borough	87.5	84.5	114.1	101.4	86.4	93.5	110.8	118.9	114.6	116.7
Fell Township	82.6	89.8	84.3	89.0	89.7	101.9	130.2	123.1	115.5	108.5
Jermyn Borough	103.1	86.9	82.7	106.4	91.6	108.4	117.3	101.4	100.4	96.5
Jessup Borough	101.3	87.7	74.1	102.0	101.0	97.5	109.4	119.4	104.4	79.1
Mayfield Borough	87.1	96.0	76.4	98.9	85.2	103.1	108.4	117.6	127.2	112.6
Olyphant Borough	111.6	99.7	75.3	107.1	104.6	84.1	104.4	95.3	114.4	72.9
Throop Borough	94.7	106.8	83.0	103.2	95.9	98.2	116.5	101.8	92.0	56.4
Study Area Sub-Total	95.4	95.3	87.3	100.1	94.8	97.1	109.8	109.6	109.2	103.6
Lackawanna County	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Economics Research Associates

Table 2.6.6

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY STUDY AREA
1990 POPULATION DISTRIBUTION BY GENDER

Geographic Area	Total Population	Persons		Percent	
		Males	Females	Males	Females
Archbald Borough	6,291	2,946	3,345	46.8%	53.2%
Blakely Borough	7,222	3,334	3,888	46.2%	53.8%
Carbondale City	10,664	4,850	5,814	45.5%	54.5%
Carbondale Township	907	442	465	48.7%	51.3%
Dickson City Borough	6,276	2,961	3,315	47.2%	52.8%
Dunmore Borough	15,403	6,840	8,563	44.4%	55.6%
Fell Township	2,426	1,159	1,267	47.8%	52.2%
Jermyn Borough	2,263	1,073	1,190	47.4%	52.6%
Jessup Borough	4,605	2,140	2,465	46.5%	53.5%
Mayfield Borough	1,890	868	1,022	45.9%	54.1%
Olyphant Borough	5,222	2,391	2,831	45.8%	54.2%
Throop Borough	4,070	1,925	2,145	47.3%	52.7%
Study Area Sub-Total	67,239	30,929	36,310	46.0%	54.0%
Lackawanna County	219,039	102,389	116,650	46.7%	53.3%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.7

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE METROPOLITAN STATISTICAL AREA
DETAILED 1990 POPULATION DISTRIBUTION BY GENDER

Population Cohort	Lackawanna County					Scranton-Wilkes Barre Metroplitan Statistical Area					MSA Indexed to Lackawanna County
	Total Population	Persons		Percent		Total Population	Persons		Percent		
		Males	Females	Males	Females		Males	Females	Males	Females	
Age 00-04	13,229	6,805	6,424	51.4%	48.6%	46,084	23,714	22,370	51.5%	48.5%	103.8
Age 05-09	13,313	6,919	6,394	52.0%	48.0%	45,644	23,416	22,228	51.3%	48.7%	102.2
Age 10-14	13,241	6,846	6,395	51.7%	48.3%	44,911	22,958	21,953	51.1%	48.9%	101.1
Age 15-19	15,134	7,456	7,678	49.3%	50.7%	52,433	26,204	26,229	50.0%	50.0%	103.2
Age 20-24	15,381	7,646	7,735	49.7%	50.3%	52,225	25,928	26,297	49.6%	50.4%	101.2
Age 25-29	14,936	7,276	7,660	48.7%	51.3%	51,244	25,588	25,656	49.9%	50.1%	102.2
Age 30-34	16,012	7,929	8,083	49.5%	50.5%	56,065	27,941	28,124	49.8%	50.2%	104.3
Age 35-39	15,354	7,680	7,674	50.0%	50.0%	53,437	26,964	26,473	50.5%	49.5%	103.7
Age 40-44	14,449	7,003	7,446	48.5%	51.5%	49,913	24,932	24,981	50.0%	50.0%	102.9
Age 45-49	11,671	5,762	5,909	49.4%	50.6%	39,727	19,685	20,042	49.6%	50.4%	101.4
Age 50-54	10,029	4,818	5,211	48.0%	52.0%	33,955	16,556	17,399	48.8%	51.2%	100.9
Age 55-59	10,510	4,748	5,762	45.2%	54.8%	34,550	16,012	18,538	46.3%	53.7%	97.9
Age 60-64	12,587	5,521	7,066	43.9%	56.1%	41,469	18,630	22,839	44.9%	55.1%	98.2
Age 65-69	12,926	5,377	7,549	41.6%	58.4%	41,054	17,647	23,407	43.0%	57.0%	94.6
Age 70-74	11,504	4,605	6,899	40.0%	60.0%	35,781	14,374	21,407	40.2%	59.8%	92.7
Age 75-79	9,184	3,275	5,909	35.7%	64.3%	27,889	10,147	17,742	36.4%	63.6%	90.5
Age 80-84	5,669	1,756	3,913	31.0%	69.0%	17,092	5,409	11,683	31.6%	68.4%	89.8
Age 85 & Up	3,910	967	2,943	24.7%	75.3%	11,681	2,872	8,809	24.6%	75.4%	89.0
Total	219,039	102,389	116,650	46.7%	53.3%	735,154	348,977	386,177	47.5%	52.5%	

Source: U.S. Bureau of the Census, Woode & Poole and Economics Research Associates

Table 2.6.8

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION POPULATION RACIAL & ETHNIC HERITAGE: 1990

	Number of Persons					Percent of Population						
			Native American, Eskimo	Asian and Pacific				Native American, Eskimo	Asian and Pacific		Hispanic	
Geographic Area	White	Black	& Aleut	Islander	Other	White	Black	& Aleut	Islander	Other	Number	Percent
Archbald Borough	6,271	8	6	5	1	99.7%	0.1%	0.1%	0.1%	0.0%	14	0.2%
Blakely Borough	7,155	12	1	49	5	99.1%	0.2%	0.0%	0.7%	0.1%	25	0.3%
Carbondale City	10,616	10	11	21	6	99.5%	0.1%	0.1%	0.2%	0.1%	55	0.5%
Carbondale Township	899	0	0	8	0	99.1%	0.0%	0.0%	0.9%	0.0%	0	0.0%
Dickson City Borough	6,245	8	3	16	4	99.5%	0.1%	0.0%	0.3%	0.1%	43	0.7%
Dunmore Borough	15,290	53	4	47	9	99.3%	0.3%	0.0%	0.3%	0.1%	81	0.5%
Fell Township	2,411	3	1	6	5	99.4%	0.1%	0.0%	0.2%	0.2%	21	0.9%
Jermyn Borough	2,249	1	3	8	2	99.4%	0.0%	0.1%	0.4%	0.1%	10	0.4%
Jessup Borough	4,577	2	5	17	4	99.4%	0.0%	0.1%	0.4%	0.1%	9	0.2%
Mayfield Borough	1,885	1	1	3	0	99.7%	0.1%	0.1%	0.2%	0.0%	2	0.1%
Olyphant Borough	5,189	11	5	15	2	99.4%	0.2%	0.1%	0.3%	0.0%	25	0.5%
Throop Borough	4,049	12	3	6	0	99.5%	0.3%	0.1%	0.1%	0.0%	10	0.2%
Study Area Sub-Total	66,836	121	43	201	38	99.4%	0.2%	0.1%	0.3%	0.1%	295	0.4%
City of Scranton	79,498	1,290	73	747	197	97.2%	1.6%	0.1%	0.9%	0.2%	545	0.7%
Lackawanna County	215,634	1,572	163	1,364	306	98.4%	0.7%	0.1%	0.6%	0.1%	1,089	0.5%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.9

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION
SELECTED SOCIAL CHARACTERISTICS - 1990

Geographic Area	Percent Foreign Born	Percent Over Age 5 Living in Other House in 1985	Percent of Population Born in Pennsylvania
Archbald Borough	0.9%	29.0%	92.3%
Blakely Borough	1.1%	26.3%	93.4%
Carbondale City	1.0%	32.2%	89.0%
Carbondale Township	1.1%	24.0%	91.5%
Dickson City Borough	2.0%	24.2%	93.2%
Dunmore Borough	1.6%	27.4%	92.0%
Fell Township	1.4%	16.3%	92.9%
Jermyn Borough	2.1%	28.7%	91.6%
Jessup Borough	1.7%	21.5%	91.6%
Mayfield Borough	0.7%	19.2%	92.5%
Olyphant Borough	2.3%	29.0%	91.8%
Throop Borough	1.7%	20.6%	94.4%
Study Area Sub-Total	1.5%	26.6%	91.9%
City of Scranton	2.6%	34.0%	88.1%
Lackawanna County	1.9%	30.5%	88.6%
State of Pennsylvania	3.1%	36.6%	82.8%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.10

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION
1990 MARITAL STATUS OF POPULATION AGE 15 AND OVER

Geographic Area	Never Married	Married	Separated	Widowed	Divorced
Archbald Borough	1,379	2,880	81	567	274
Blakely Borough	1,478	3,405	78	761	300
Carbondale City	2,251	4,312	184	1,183	605
Carbondale Township	172	438	15	69	33
Dickson City Borough	1,362	2,809	62	723	337
Dunmore Borough	4,091	6,479	201	1,554	696
Fell Township	539	1,122	35	269	96
Jermyn Borough	487	1,003	36	232	123
Jessup Borough	973	2,124	54	475	207
Mayfield Borough	436	851	19	205	68
Olyphant Borough	1,194	2,153	85	529	265
Throop Borough	886	1,779	57	398	208
Study Area Sub-Total	15,248	29,355	907	6,965	3,212
Distribution	27.4%	52.7%	1.6%	12.5%	5.8%
Lackawanna County	49,682	94,433	3,229	20,845	11,067
Distribution	27.7%	52.7%	1.8%	11.6%	6.2%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.11

1990 LVIH REGION HOUSEHOLDS: FAMILY vs. NON-FAMILY

Geographic Area	1990 Group Quarters Population	Family Households				Non-Family Households			
		Persons	Number	Percent	Ave. Size	Persons	Number	Percent	Ave. Size
Archibald Borough	48	5,581	1,774	75.1%	3.15	662	589	24.9%	1.12
Blakely Borough	203	6,163	2,004	71.5%	3.08	856	798	28.5%	1.07
Carbondale City	159	9,081	2,844	68.4%	3.19	1,424	1,311	31.6%	1.09
Carbondale Township	0	831	258	78.4%	3.22	76	71	21.6%	1.07
Dickson City Borough	29	5,259	1,759	66.1%	2.99	988	904	33.9%	1.09
Dunmore Borough	900	12,392	4,066	67.8%	3.05	2,111	1,930	32.2%	1.09
Fell Township	0	2,113	697	70.5%	3.03	313	292	29.5%	1.07
Jermyn Borough	29	1,938	624	69.3%	3.11	296	277	30.7%	1.07
Jessup Borough	0	4,060	1,325	72.0%	3.06	545	515	28.0%	1.06
Mayfield Borough	2	1,680	535	72.7%	3.14	208	201	27.3%	1.03
Olyphant Borough	25	4,445	1,413	66.8%	3.15	752	701	33.2%	1.07
Throop Borough	0	3,589	1,150	71.8%	3.12	481	452	28.2%	1.06
Study Area Sub-Total	1,395	57,132	18,449	69.6%	3.10	8,712	8,041	30.4%	1.08
City of Scranton	4,455		20,613	63.2%			12,024	36.8%	
Lackawanna County	7,301	182,629	58,387	69.1%	3.13	29,109	26,141	30.9%	1.11

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.12

CHANGE IN TOTAL LVIH REGION HOUSEHOLDS: 1980 - 1990

Geographic Area	1980 Total Number of Households	1980 Average Household Size	1990 Total Number of Households	1990 Average Household Size	Percent Change: 1980-90 Total Number of Households	Percent Change: 1980-90 Average Household Size
Archbald Borough	2,138	2.94	2363	2.64	10.5%	-10.1%
Blakely Borough	2,618	2.77	2802	2.50	7.0%	-9.6%
Carbondale City	4,135	2.69	4155	2.53	0.5%	-6.0%
Carbondale Township	358	2.88	329	2.76	-8.1%	-4.3%
Dickson City Borough	2,617	2.56	2663	2.35	1.8%	-8.4%
Dunmore Borough	5,936	2.69	5996	2.42	1.0%	-10.1%
Fell Township	1,015	2.78	989	2.45	-2.6%	-11.8%
Jermyn Borough	871	2.77	901	2.48	3.4%	-10.5%
Jessup Borough	1,854	2.68	1840	2.50	-0.8%	-6.6%
Mayfield Borough	809	2.61	736	2.57	-9.0%	-1.7%
Olyphant Borough	1,922	2.71	2114	2.46	10.0%	-9.3%
Throop Borough	1,512	2.76	1602	2.54	6.0%	-8.0%
Study Area Sub-Total	25,785	2.75	26,490	2.54	2.7%	-7.7%
Lackawanna County	82,056	2.70	84,528	2.50	2.9%	-7.8%
MSA	267,747	2.62	281,060	2.52	5.0%	-3.8%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.13

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE MSA POPULATION CHANGE AND HOUSEHOLD FORMATION TREND ESTIMATES AND PROJECTIONS: 1980 - 2000

	Lackawanna County				Scranton-Wilkes Barre MSA			
	Population		Households		Population		Households	
Year	Number	% Change	Number	% Change	Number	% Change	Number	% Change
1980	227,692		82,526		728,252		264,747	
1981	227,312	-0.17%	83,155	0.76%	727,788	-0.06%	266,737	0.75%
1982	224,908	-1.06%	82,386	-0.92%	726,394	-0.19%	266,302	-0.16%
1983	224,304	-0.27%	82,263	-0.15%	725,034	-0.19%	265,752	-0.21%
1984	223,414	-0.40%	82,944	0.83%	722,407	-0.36%	267,736	0.75%
1985	222,165	-0.56%	83,217	0.33%	720,127	-0.32%	268,962	0.46%
1986	221,877	-0.13%	83,621	0.49%	722,140	0.28%	270,997	0.76%
1987	220,577	-0.59%	83,637	0.02%	724,385	0.31%	272,975	0.73%
1988	220,199	-0.17%	84,208	0.68%	729,993	0.77%	277,240	1.56%
1989	219,519	-0.31%	84,675	0.55%	732,337	0.32%	280,217	1.07%
1990	218,993	-0.24%	84,509	-0.20%	735,154	0.38%	281,060	0.30%
1991	219,392	0.18%	84,986	0.56%	738,118	0.40%	283,018	0.70%
1992	219,581	0.09%	85,430	0.52%	740,398	0.31%	284,879	0.66%
1993	219,735	0.07%	85,993	0.66%	742,584	0.30%	287,145	0.80%
1994	219,878	0.07%	86,565	0.67%	744,688	0.28%	289,443	0.80%
1995	219,981	0.05%	87,146	0.67%	746,715	0.27%	291,771	0.80%
1996	220,060	0.04%	87,738	0.68%	748,655	0.26%	294,132	0.81%
1997	220,129	0.03%	88,338	0.68%	750,553	0.25%	296,522	0.81%
1998	220,178	0.02%	88,949	0.69%	752,388	0.24%	298,944	0.82%
1999	220,216	0.02%	89,568	0.70%	754,208	0.24%	301,392	0.82%
2000	220,257	0.02%	90,197	0.70%	756,047	0.24%	303,871	0.82%
1980-1985	(5,527)	-2.43%	691	0.84%	(8,125)	-1.12%	4,215	1.59%
1985-1990	(3,172)	-1.43%	1,292	1.55%	15,027	2.09%	12,098	4.50%
1990-1995	988	0.45%	2,637	3.12%	11,561	1.57%	10,711	3.81%
1995-2000	276	0.13%	3,051	3.50%	9,332	1.25%	12,100	4.15%

Source: Woods and Poole

Table 2.6.14

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION
1990 HOUSING STOCK CHARACTERISTICS

Geographic Area	Total Units	Housing Stock			Distribution		
		Owned	Rented	Vacant	Owned	Rented	Vacant
Archbald Borough	2,458	1,891	472	95	76.9%	19.2%	3.9%
Blakely Borough	2,928	2,048	754	126	69.9%	25.8%	4.3%
Carbondale City	4,489	2,557	1,598	334	57.0%	35.6%	7.4%
Carbondale Township	348	286	43	19	82.2%	12.4%	5.5%
Dickson City Borough	2,795	1,824	839	132	65.3%	30.0%	4.7%
Dunmore Borough	6,307	3,916	2,080	311	62.1%	33.0%	4.9%
Fell Township	1,111	742	247	122	66.8%	22.2%	11.0%
Jermyn Borough	957	618	283	56	64.6%	29.6%	5.9%
Jessup Borough	1,913	1,411	429	73	73.8%	22.4%	3.8%
Mayfield Borough	762	572	164	26	75.1%	21.5%	3.4%
Olyphant Borough	2,229	1,348	766	115	60.5%	34.4%	5.2%
Throop Borough	1,688	1,222	380	86	72.4%	22.5%	5.1%
Study Area Total	27,985	18,435	8,055	1,495	65.9%	28.8%	5.3%
Lackawanna County	91,707	56,625	27,903	7,179	61.7%	30.4%	7.8%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.15a

1990 LVIH REGION HOUSEHOLDS: TENURE BY NUMBER OF PERSONS

Geographic Area	One Person			Two Persons			Three Persons		
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
Archbald Borough	544	364	180	724	592	132	485	403	82
Blakely Borough	746	440	306	904	685	219	497	394	103
Carbondale City	1,235	566	669	1,229	826	403	684	443	241
Carbondale Township	68	54	14	103	90	13	60	52	8
Dickson City Borough	845	455	390	856	632	224	437	320	117
Dunmore Borough	1,784	867	917	1,958	1,306	652	973	705	268
Fell Township	278	183	95	328	250	78	175	141	34
Jermyn Borough	265	138	127	268	190	78	164	126	38
Jessup Borough	488	312	176	593	467	126	329	262	67
Mayfield Borough	194	131	63	223	182	41	143	112	31
Olyphant Borough	660	298	362	585	411	174	377	261	116
Throop Borough	428	292	136	486	397	89	314	232	82
Study Area Sub-Total	7,535	4,100	3,435	8,257	6,028	2,229	4,638	3,451	1,187
Lackawanna County	24,046	11,835	12,211	26,045	18,616	7,429	14,352	10,486	3,866

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.15a (continued)

1990 LVIH REGION HOUSEHOLDS: TENURE BY NUMBER OF PERSONS

Geographic Area	Four Persons			Five Persons			Six Persons		
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
Archbald Borough	366	314	52	164	148	16	58	51	7
Blakely Borough	425	333	92	145	122	23	62	55	7
Carbondale City	554	396	158	266	195	71	120	86	34
Carbondale Township	58	54	4	25	22	3	10	10	0
Dickson City Borough	337	258	79	133	110	23	34	30	4
Dunmore Borough	778	626	152	327	260	67	119	104	15
Fell Township	115	95	20	63	47	16	22	19	3
Jermyn Borough	121	97	24	55	45	10	17	15	2
Jessup Borough	272	235	37	109	94	15	36	30	6
Mayfield Borough	98	82	16	50	42	8	21	17	4
Olyphant Borough	301	238	63	133	100	33	44	29	15
Throop Borough	226	184	42	91	72	19	39	33	6
Study Area Sub-Total	3,651	2,912	739	1,561	1,257	304	582	479	103
Lackawanna County	11,973	9,389	2584	5,321	4,171	1,150	1,893	1,459	434

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.15a (continued)

1990 LVIH REGION HOUSEHOLDS: TENURE BY NUMBER OF PERSONS

Geographic Area	Seven or More Persons			Total Number of HH	Total Number Owners	Total Number Renters
	Total	Own	Rent			
Archbald Borough	22	19	3	2,363	1,891	472
Blakely Borough	23	19	4	2,802	2,048	754
Carbondale City	67	45	22	4,155	2,557	1,598
Carbondale Township	5	4	1	329	286	43
Dickson City Borough	21	19	2	2,663	1,824	839
Dunmore Borough	57	48	9	5,996	3,916	2,080
Fell Township	8	7	1	989	742	247
Jermyn Borough	11	7	4	901	618	283
Jessup Borough	13	11	2	1,840	1,411	429
Mayfield Borough	7	6	1	736	572	164
Olyphant Borough	14	11	3	2,114	1,348	766
Throop Borough	18	12	6	1,602	1,222	380
Study Area Sub-Total	266	208	58	26,490	18,435	8,055
Lackawanna County	898	669	229	84,528	56,625	27,903

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.15b

1990 LVIH REGION HOUSEHOLDS: TENURE DISTRUBUTION BY NUMBER OF PERSONS

Geographic Area	One Person			Two Persons			Three Persons		
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
Archbald Borough	23.0%	19.2%	38.1%	30.6%	31.3%	28.0%	20.5%	21.3%	17.4%
Blakely Borough	26.6%	21.5%	40.6%	32.3%	33.4%	29.0%	17.7%	19.2%	13.7%
Carbondale City	29.7%	22.1%	41.9%	29.6%	32.3%	25.2%	16.5%	17.3%	15.1%
Carbondale Township	20.7%	18.9%	32.6%	31.3%	31.5%	30.2%	18.2%	18.2%	18.6%
Dickson City Borough	31.7%	24.9%	46.5%	32.1%	34.6%	26.7%	16.4%	17.5%	13.9%
Dunmore Borough	29.8%	22.1%	44.1%	32.7%	33.4%	31.3%	16.2%	18.0%	12.9%
Fell Township	28.1%	24.7%	38.5%	33.2%	33.7%	31.6%	17.7%	19.0%	13.8%
Jermyn Borough	29.4%	22.3%	44.9%	29.7%	30.7%	27.6%	18.2%	20.4%	13.4%
Jessup Borough	26.5%	22.1%	41.0%	32.2%	33.1%	29.4%	17.9%	18.6%	15.6%
Mayfield Borough	26.4%	22.9%	38.4%	30.3%	31.8%	25.0%	19.4%	19.6%	18.9%
Olyphant Borough	31.2%	22.1%	47.3%	27.7%	30.5%	22.7%	17.8%	19.4%	15.1%
Throop Borough	26.7%	23.9%	35.8%	30.3%	32.5%	23.4%	19.6%	19.0%	21.6%
Study Area Sub-Total	28.4%	22.2%	42.6%	31.2%	32.7%	27.7%	17.5%	18.7%	14.7%
Lackawanna County	28.4%	20.9%	43.8%	30.8%	32.9%	26.6%	17.0%	18.5%	13.9%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.15b (continued)

1990 LVIH REGION HOUSEHOLDS: TENURE DISTRUBUTION BY NUMBER OF PERSONS

Geographic Area	Four Persons			Five Persons			Six Persons		
	Total	Own	Rent	Total	Own	Rent	Total	Own	Rent
Archbald Borough	15.5%	16.6%	11.0%	6.9%	7.8%	3.4%	2.5%	2.7%	1.5%
Blakely Borough	15.2%	16.3%	12.2%	5.2%	6.0%	3.1%	2.2%	2.7%	0.9%
Carbondale City	13.3%	15.5%	9.9%	6.4%	7.6%	4.4%	2.9%	3.4%	2.1%
Carbondale Township	17.6%	18.9%	9.3%	7.6%	7.7%	7.0%	3.0%	3.5%	0.0%
Dickson City Borough	12.7%	14.1%	9.4%	5.0%	6.0%	2.7%	1.3%	1.6%	0.5%
Dunmore Borough	13.0%	16.0%	7.3%	5.5%	6.6%	3.2%	2.0%	2.7%	0.7%
Fell Township	11.6%	12.8%	8.1%	6.4%	6.3%	6.5%	2.2%	2.6%	1.2%
Jermyn Borough	13.4%	15.7%	8.5%	6.1%	7.3%	3.5%	1.9%	2.4%	0.7%
Jessup Borough	14.8%	16.7%	8.6%	5.9%	6.7%	3.5%	2.0%	2.1%	1.4%
Mayfield Borough	13.3%	14.3%	9.8%	6.8%	7.3%	4.9%	2.9%	3.0%	2.4%
Olyphant Borough	14.2%	17.7%	8.2%	6.3%	7.4%	4.3%	2.1%	2.2%	2.0%
Throop Borough	14.1%	15.1%	11.1%	5.7%	5.9%	5.0%	2.4%	2.7%	1.6%
Study Area Sub-Total	13.8%	15.8%	9.2%	5.9%	6.8%	3.8%	2.2%	2.6%	1.3%
Lackawanna County	14.2%	16.6%	9.3%	6.3%	7.4%	4.1%	2.2%	2.6%	1.6%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.15b (continued)

1990 LVIH REGION HOUSEHOLDS: TENURE DISTRUBUTION BY NUMBER OF PERSONS

Geographic Area	Seven or More Persons			Total Number of HH	Total Number Owners	Total Number Renters
	Total	Own	Rent			
Archbald Borough	0.9%	1.0%	0.6%	2,363	80.0%	20.0%
Blakely Borough	0.8%	0.9%	0.5%	2,802	73.1%	26.9%
Carbondale City	1.6%	1.8%	1.4%	4,155	61.5%	38.5%
Carbondale Township	1.5%	1.4%	2.3%	329	86.9%	13.1%
Dickson City Borough	0.8%	1.0%	0.2%	2,663	68.5%	31.5%
Dunmore Borough	1.0%	1.2%	0.4%	5,996	65.3%	34.7%
Fell Township	0.8%	0.9%	0.4%	989	75.0%	25.0%
Jermyn Borough	1.2%	1.1%	1.4%	901	68.6%	31.4%
Jessup Borough	0.7%	0.8%	0.5%	1,840	76.7%	23.3%
Mayfield Borough	1.0%	1.0%	0.6%	736	77.7%	22.3%
Olyphant Borough	0.7%	0.8%	0.4%	2,114	63.8%	36.2%
Throop Borough	1.1%	1.0%	1.6%	1,602	76.3%	23.7%
Study Area Sub-Total	1.0%	1.1%	0.7%	26,490	69.6%	30.4%
Lackawanna County	1.1%	1.2%	0.8%	84,528	67.0%	33.0%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.16

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION
1990 MEDIAN HOUSING VALUE AND CONTRACT RENT

Geographic Area	Housing Value		Contract Rent	
	Median Value	Indexed to Lackawanna County	Median Rent	Indexed to Lackawanna County
Archibald Borough	$64,800	94.0	$262	103.6
Blakely Borough	$73,100	106.1	$287	113.4
Carbondale City	$50,300	73.0	$221	87.4
Carbondale Township	$65,900	95.6	$225	88.9
Dickson City Borough	$63,500	92.2	$232	91.7
Dunmore Borough	$72,900	105.8	$279	110.3
Fell Township	$54,800	79.5	$231	91.3
Jermyn Borough	$63,100	91.6	$227	89.7
Jessup Borough	$66,100	95.9	$245	96.8
Mayfield Borough	$59,500	86.4	$238	94.1
Olyphant Borough	$59,600	86.5	$220	87.0
Throop Borough	$56,400	81.9	$224	88.5
Study Area Average of Medians	$62,500	90.7	$241	95.2
Lackawanna County	$68,900	100.0	$253	100.0

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.17

STUDY AREA REGION LABOR FORCE AND UNEMPLOYMENT STATISTICS - MARCH 1993, FEBRUARY 1993, AND MARCH 1992.

	Preliminary March, 1993 Statistics				
Geographic Area	Civilian Labor Force	Employ-ment	Unemploy-ment	Unadjusted Unemploy ment Rate	Adjusted Unemploy ment Rate
Lackawanna County	108,500	99,500	9,000	8.3%	NA
MSA	370,700	337,600	33,200	8.9%	8.8%
State of Pennsylvania	5,901,000	5,478,000	423,000	7.2%	6.9%
United States	126,682,000	117,406,000	9,276,000	7.3%	7.0%

	Final February, 1993 Statistics				
Geographic Area	Civilian Labor Force	Employ-ment	Unemploy-ment	Unadjusted Unemploy ment Rate	Adjusted Unemploy ment Rate
Lackawanna County	111,000	100,500	10,500	9.4%	NA
MSA	379,600	340,700	38,800	10.2%	9.0%

	Final March, 1992 Statistics				
Geographic Area	Civilian Labor Force	Employ-ment	Unemploy-ment	Unadjusted Unemploy ment Rate	Adjusted Unemploy ment Rate
Lackawanna County	108,100	98,500	9,600	8.9%	NA
MSA	369,600	334,100	35,500	9.6%	9.3%

Source: Pennsylvania Department of Labor and Industry

Table 2.6.18

STUDY AREA REGION LABOR FORCE CHARACTERISTICS - ANNUAL 1990 AVERAGE

Lackawanna County

Status	Number			Percent Distribution			Labor Force Participation Rate	Unemployment Rate
	Labor Force	Total Employed	Total Unemployed	Labor Force	Total Employed	Total Unemployed		
Total - Both Sexes	110,000	102,600	7,400	100.0%	100.0%	100.0%	50.2%	6.7%
Females	50,500	47,300	4,326	45.9%	46.1%	58.5%	43.3%	8.6%
Males	59,500	55,300	3,074	16.3%	16.3%	12.2%	58.2%	5.2%

Scranton-Wilkes Barre Metropolitan Statistical Area

Status	Number			Percent Distribution			Labor Force Participation Rate	Unemployment Rate
	Labor Force	Total Employed	Total Unemployed	Labor Force	Total Employed	Total Unemployed		
Total - Both Sexes	365,600	340,200	25,300	100.0%	100.0%	100.0%	49.7%	6.9%
Females	167,150	156,650	10,500	45.7%	46.0%	41.5%	43.3%	6.3%
Males	198,450	183,550	14,800	54.3%	54.0%	58.5%	56.8%	7.5%

State of Pennsylvania

Status	Number			Percent Distribution			Labor Force Participation Rate	Unemployment Rate
	Labor Force	Total Employed	Total Unemployed	Labor Force	Total Employed	Total Unemployed		
Total - Both Sexes	5,901,000	5,583,000	318,000	100.0%	100.0%	100.0%	49.7%	5.4%
Females	2,647,000	2,514,000	133,000	44.9%	45.0%	41.8%	42.8%	5.0%
Males	3,254,000	3,069,000	185,000	55.1%	55.0%	58.2%	52.6%	5.7%

Source: Pennsylvania Department of Labor and Industry and Economics Research Associates

Table 2.6.19

LACKAWANNA VALLEY INDUSTRIAL HIGHWAY REGION
EDUCATION ATTAINMENT - 1990

Geographic Area	Total Persons 25 years or Older	Percent Not High School Graduates	Percent High School Graduate or Higher	Percent With Bachelors Degree or Higher
Archbald Borough	4,322	14.7%	71.2%	14.1%
Blakely Borough	5,154	11.6%	73.8%	14.6%
Carbondale City	7,137	15.9%	72.8%	11.3%
Carbondale Township	630	13.4%	77.1%	9.5%
Dickson City Borough	4,579	19.7%	69.8%	10.5%
Dunmore Borough	10,816	7.2%	74.0%	18.8%
Fell Township	1,913	25.9%	65.2%	8.9%
Jermyn Borough	1,583	15.4%	72.9%	11.7%
Jessup Borough	3,287	15.8%	70.1%	14.1%
Mayfield Borough	1,346	22.4%	68.4%	9.2%
Olyphant Borough	3,587	18.1%	70.6%	11.3%
Throop Borough	2,780	23.6%	67.2%	9.2%
Study Area Sub-Total	47,134	14.8%	71.7%	13.5%
City of Scranton	54,982	16.0%	70.4%	13.6%
Lackawanna County	148,840	11.9%	73.3%	14.8%
State of Pennsylvania	7,872,932	7.4%	74.7%	17.9%

Source: U.S. Bureau of the Census and Economics Research Associates

Table 2.6.20

NON-AGRICULTURAL EMPLOYMENT BY MAJOR SECTOR SCRANTON-WILKES BARRE MSA - MARCH, 1993

Sector/Sub-Sector	Average Monthly Employment	Distribution	Net Change From Feb 1993	Net Change From March 1992
Mining	600	0.2%	0	100
Construction	9,100	3.0%	0	(500)
General Bldg Contractors	2,800	0.9%	100	(100)
Special Trade Contractors	5,200	1.7%	(200)	(300)
Manufacturing	63,400	21.2%	0	(2,000)
Durable Goods Industries	26,600	8.9%	200	200
Non-Durable Goods Industries	36,800	12.3%	(200)	(2,200)
Food & Kindred Products	7,100	2.4%	300	1,000
Textile Mill Products	4,500	1.5%	200	-100
Apparel & Related Products	8,200	2.7%	(600)	(1,700)
Lumber, Wood & Furniture Products	2,600	0.9%	100	100
Paper and Allied Products	4,600	1.5%	0	(300)
Printing and Publishing	6,400	2.1%	(100)	(1,000)
Rubber & Misc Plastics	4,200	1.4%	0	200
Fabricated Metal Products	6,100	2.0%	0	(200)
Industrial Machinery & Equip.	3,100	1.0%	(100)	(600)
Transportation Equipment	1,200	0.4%	100	0
Instruments & Related Products	1,900	0.6%	0	0
Transportation & Public Utilities	16,500	5.5%	0	300
Wholesale Trade	16,900	5.7%	(100)	600
Durable Goods	8,500	2.8%	0	400
Non-Durable Goods	8,400	2.8%	(100)	400
Retail Trade	54,700	18.3%	(200)	300
General Merchandise	8,500	2.8%	(100)	300
Food Stores	10,900	3.7%	0	(400)
Automotive Dealers & Serv.Sta	6,300	2.1%	200	600
Apparel & Accessory Stores	2,900	1.0%	0	100
Eating and Drinking Places	16,400	5.5%	(100)	0
Miscellaneous Retail	6,100	2.0%	(200)	(300)
Finance, Insurance & Real Estate	13,100	4.4%	(100)	(100)
Services	80,100	26.8%	(800)	1,700
Local Government	25,600	8.6%	(100)	500
State Government	9,500	3.2%	0	200
Federal Government	9,000	3.0%	100	200
TOTAL NON-AG EMPLOYMENT	298,500	100.0%	(1,200)	1,300

Source: Pennsylvania Department of Labor & Industry

Table 2.6.21a

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE MSA EMPLOYMENT BY SIC CODE: 1991

SIC Code	Sector/Sub-Sector	Lackawanna County Average Quarterly Units	Lackawanna County Average Monthly Employment	Scranton-Wilkes Barre MSA Average Quarterly Units	Scranton-Wilkes Barre MSA Average Monthly Employment	Lackawanna County As Percent of MSA Average Quarterly Units	Lackawanna County As Percent of MSA Average Monthly Employment
	Agriculture, Forestry & Fishing	55	411	*	*	NA	NA
01	Production-Crops	*	*	*	*	NA	NA
02	Production-Livestock	0	0	*	*	NA	NA
07	Services	47	295	234	1,275	20.1%	23.1%
08	Forestry	*	*	*	*	NA	NA
09	Fishing	0	0	*	*	NA	NA
	Mining	13	62	*	*	NA	NA
12	Coal Mining	*	*	*	*	NA	NA
13	Oils and Gas Extraction	*	*	*	*	NA	NA
14	Non-Metallic Mins, Not Fuels	6	50	*	*	NA	NA
	Construction	597	2,722	2,252	11,557	26.5%	23.6%
15	General Bldg Contractors	212	716	890	3,617	23.8%	19.8%
16	Heavy Constr, Except Bldg.	19	333	70	1,802	27.1%	18.5%
17	Special Trade Contractors	355	1,673	1,293	6,138	27.5%	27.3%

Table 2.6.21b

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE MSA
EMPLOYMENT BY SIC CODE: 1991

SIC Code	Sector/Sub-Sector	Lackawanna County Average Quarterly Units	Lackawanna County Average Monthly Employment	Scranton-Wilkes Barre MSA Average Quarterly Units	Scranton-Wilkes Barre MSA Average Monthly Employment	Lackawanna County As Percent of MSA Average Quarterly Units	Lackawanna County As Percent of MSA Average Monthly Employment
	Manufacturing	378	21,983	1,189	66,819	31.8%	32.9%
20	Food & Kindred Products	41	1,930	101	5,763	40.6%	33.5%
21	Tobacco Products	*	*	*	*	NA	NA
22	Textile Mill Products	12	407	*	*	NA	NA
23	Apparel and Other Textile	61	2,907	205	10,680	29.8%	27.2%
24	Lumber and Wood Products	25	642	91	2,049	27.5%	31.3%
25	Furniture & Fixtures	9	188	*	*	NA	NA
26	Paper and Allied Products	9	955	*	*	NA	NA
27	Printing and Publishing	49	2,828	142	7,292	34.5%	38.8%
28	Chemicals & Allied Products	15	558	*	*	NA	NA
29	Petroleum & Coal Products	0	0	*	*	NA	NA
30	Rubber & Misc Plastics	23	812	*	*	NA	NA
31	Leather & Leather Prducts	3	41	*	*	NA	NA
32	Stone, Clay & Glass Products	19	308	*	*	NA	NA
33	Primary Metal Industries	4	80	*	*	NA	NA
34	Fabricated Metal Products	35	2,360	121	6,669	28.9%	35.4%
35	Industrial Machinery/Equipment	34	1,533	123	4,001	27.6%	38.3%
36	Electronic & Other Elec Equip.	9	3,968	*	*	NA	NA
37	Transportation Equipment	*	*	*	*	NA	NA
38	Industrial Machinery & Equip.	6	1,381	*	*	NA	NA
39	Misc. Manufacturing Industries	18	554	*	*	NA	NA

Table 2.6.21c

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE MSA EMPLOYMENT BY SIC CODE: 1991

SIC Code	Sector/Sub-Sector	Lackawanna County Average Quarterly Units	Lackawanna County Average Monthly Employment	Scranton-Wilkes Barre MSA Average Quarterly Units	Scranton-Wilkes Barre MSA Average Monthly Employment	Lackawanna County As Percent of MSA Average Quarterly Units	Lackawanna County As Percent of MSA Average Monthly Employment
	Transportation & Public Utilities	193	4,736	653	16313	29.6%	29.0%
41	Local/Interurban Passenger	39	523	*	*	NA	NA
42	Trucking & Warehousing	100	2,231	343	6573	29.2%	33.9%
43	Water Transportation	0	0	*	*	NA	NA
45	Transportation by Air	*	*	*	*	NA	NA
47	Transportation Services	*	*	*	*	NA	NA
48	Communication	13	500	*	*	NA	NA
49	Electric, Gas & Sanitary Srvcs	20	1,015	*	*	NA	NA
	Wholesale Trade	370	5,809	*	*	NA	NA
50	Durable Goods	235	2,471	735	7,621	32.0%	32.4%
51	Non-Durable Goods	135	3,339	*	*	NA	NA

Table 2.6.21 d

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE MSA EMPLOYMENT BY SIC CODE: 1991

SIC Code	Sector/Sub-Sector	Lackawanna County Average Quarterly Units	Lackawanna County Average Monthly Employment	Scranton-Wilkes Barre MSA Average Quarterly Units	Scranton-Wilkes Barre MSA Average Monthly Employment	Lackawanna County As Percent of MSA Average Quarterly Units	Lackawanna County As Percent of MSA Average Monthly Employment
	Retail Trade	1,311	17,386	4,409	56,415	29.7%	30.8%
52	Building Materials/Garden	54	612	217	2,139	24.9%	28.6%
53	General Merchandise	28	3,024	*	*	NA	NA
54	Food Stores	162	3,426	535	11,699	30.3%	29.3%
55	Automotive Dealers & Serv.Sta	173	1,655	621	5,918	27.9%	28.0%
56	Apparel & Accessory Stores	132	1,176	*	*	NA	NA
57	Furniture/Home Furnishings	89	480	307	1,797	29.0%	26.7%
58	Eating and Drinking Places	401	4,996	1,318	16,995	30.4%	29.4%
59	Miscellaneous Retail	274	2,016	919	6,421	29.8%	31.4%
	Finance, Insurance and Real Estate	312	4,671	1,145	13,473	27.2%	34.7%
60	Depository Institutions	59	2,062	231	6,570	25.5%	31.4%
61	Non-Depository Institutions	17	74	*	*	NA	NA
62	Security & Commodity Brokers	10	99	*	*	NA	NA
63	Insurancce Carriers	27	1,307	93	2,353	29.0%	55.5%
64	Insurance Agents, Brokers, etc.	91	529	287	1,520	31.7%	34.8%
65	Real Estate	99	523	*	*	NA	NA
67	Holding & Other Investment	11	77	*	*	NA	NA

Table 2.6.21 e

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE MSA EMPLOYMENT BY SIC CODE: 1991

SIC Code	Sector/Sub-Sector	Lackawanna County Average Quarterly Units	Lackawanna County Average Monthly Employment	Scranton-Wilkes Barre MSA Average Quarterly Units	Scranton-Wilkes Barre MSA Average Monthly Employment	Lackawanna County As Percent of MSA Average Quarterly Units	Lackawanna County As Percent of MSA Average Monthly Employment
	Services	1,630	25,049	5,253	71,306	31.0%	35.1%
70	Hotels & Other Lodging	25	584	*	*	NA	NA
72	Personal Services	149	1,071	488	2,571	30.5%	41.7%
73	Business Services	143	2,287	*	*	NA	NA
75	Auto Repair, Services & Pkg	183	719	509	1,910	36.0%	37.6%
76	Miscellaneous Repair Services	35	157	*	*	NA	NA
78	Motion Pictures	24	219	*	*	NA	NA
79	Amusement/Recreation Services	55	744	*	*	NA	NA
80	Health Services	455	10,935	1,306	29,756	34.8%	36.7%
81	Legal Services	117	634	357	1,610	32.8%	39.4%
82	Educational Services	54	3,260	*	*	NA	NA
83	Special Services	129	2,580	404	6,707	31.9%	38.5%
84	Museums, Bot & Zoo Gardens	*	*	*	*	NA	NA
86	Membership Organizations	90	694	*	*	NA	NA
87	Engineering/Mngemnt Services	130	1,062	455	3,082	28.6%	34.5%
88	Private Households	37	61	*	*	NA	NA
89	Miscellaneous Services	*	*	*	*	NA	NA

Table 2.6.21 f

LACKAWANNA COUNTY AND SCRANTON-WILKES BARRE MSA EMPLOYMENT BY SIC CODE: 1991

SIC Code	Sector/Sub-Sector	Lackawanna County Average Quarterly Units	Lackawanna County Average Monthly Employment	Scranton-Wilkes Barre MSA Average Quarterly Units	Scranton-Wilkes Barre MSA Average Monthly Employment	Lackawanna County As Percent of MSA Average Quarterly Units	Lackawanna County As Percent of MSA Average Monthly Employment
	Local Government	114	6,838	470	22,998	24.3%	29.7%
	State Government	31	2,341	1,007	8,009	3.1%	29.2%
	Federal Government1	41	1,067	173	8,864	23.7%	12.0%
	TOTAL EMPLOYMENT	5,002	92,008	16,915	284,386	29.6%	32.4%

* Data which might be identified with an individual employer and/or data involving an industry with fewer than 25 employees are not publis

Source: Pennsylvania Department of Labor and Industry Bureau of Research and Statistics and Economics Research Associates

1 Excluded from Total

Table 2.6.22

1991 COMPARATIVE EMPLOYMENT DISTRIBUTION BY MAJOR NON-AGRICULTURAL SECTOR

Sector	Lackawanna County	Scranton-Wilkes-Barre MSA	State of Pennsylvania	United States
Mining	0.1%	0.2%	0.5%	0.6%
Construction	2.9%	4.0%	4.0%	4.3%
Manufacturing	23.7%	22.1%	19.2%	16.9%
Transp, Communications & Utilities	5.1%	5.4%	5.2%	5.3%
Trade	25.0%	24.1%	22.8%	23.4%
Wholesale	6.3%	5.4%	5.3%	5.6%
Retail	18.8%	18.8%	17.5%	17.8%
Finance, Insurance & Real Estate	5.0%	4.5%	5.9%	6.2%
Services	27.0%	25.8%	28.6%	26.4%
State and Local Government	9.9%	10.9%	11.1%	14.2%
Federal Government	1.2%	2.9%	2.7%	2.7%

Source: Pennsylvania Department of Labor and Industry
Bureau of Research and Statistics and Economics Research Associates

Table 2.6.23

DIVERSITY OF MANUFACTURING BASE
LACKAWANNA COUNTY VS. STATE OF PENNSYLVANIA

SIC Code	Manufacturing Sub-Sector	Manufacturing Employment	
		Lackawanna County	State of Pennsylvania
20	Food & Kindred Products	8.8%	9.1%
21	Tobacco Products	NA	0.0%
22	Textile Mill Products	1.9%	2.6%
23	Apparel and Other Textile	13.2%	6.9%
24	Lumber and Wood Products	2.9%	2.9%
25	Furniture & Fixtures	0.9%	1.8%
26	Paper and Allied Products	4.3%	4.2%
27	Printing and Publishing	12.9%	8.6%
28	Chemicals & Allied Products	2.5%	6.8%
29	Petroleum & Coal Products	0.0%	1.1%
30	Rubber & Misc Plastics	3.7%	4.3%
31	Leather & Leather Prducts	0.2%	0.8%
32	Stone, Clay & Glass Products	1.4%	4.3%
33	Primary Metal Industries	0.4%	8.5%
34	Fabricated Metal Products	10.7%	8.7%
35	Industrial Machinery/Equipment	7.0%	10.2%
36	Electronic & Other Elec Equip.	18.1%	7.9%
37	Transportation Equipment	NA	5.1%
38	Instruments & Related Products	6.3%	4.0%
39	Misc. Manufacturing Industries	2.5%	2.1%

NA - Reflects Suppressed Data

Source: Pennsylvania Department of Labor and Industry Bureau of Research and Statistics and Economics Research Associates

NOTE: Pennsylvania Distribution Reflects 1992 data; Lackawanna County Distrubution Reflects 1991 data.

Table 2.6.24
Population Projections, Lackawanna County and Study Area

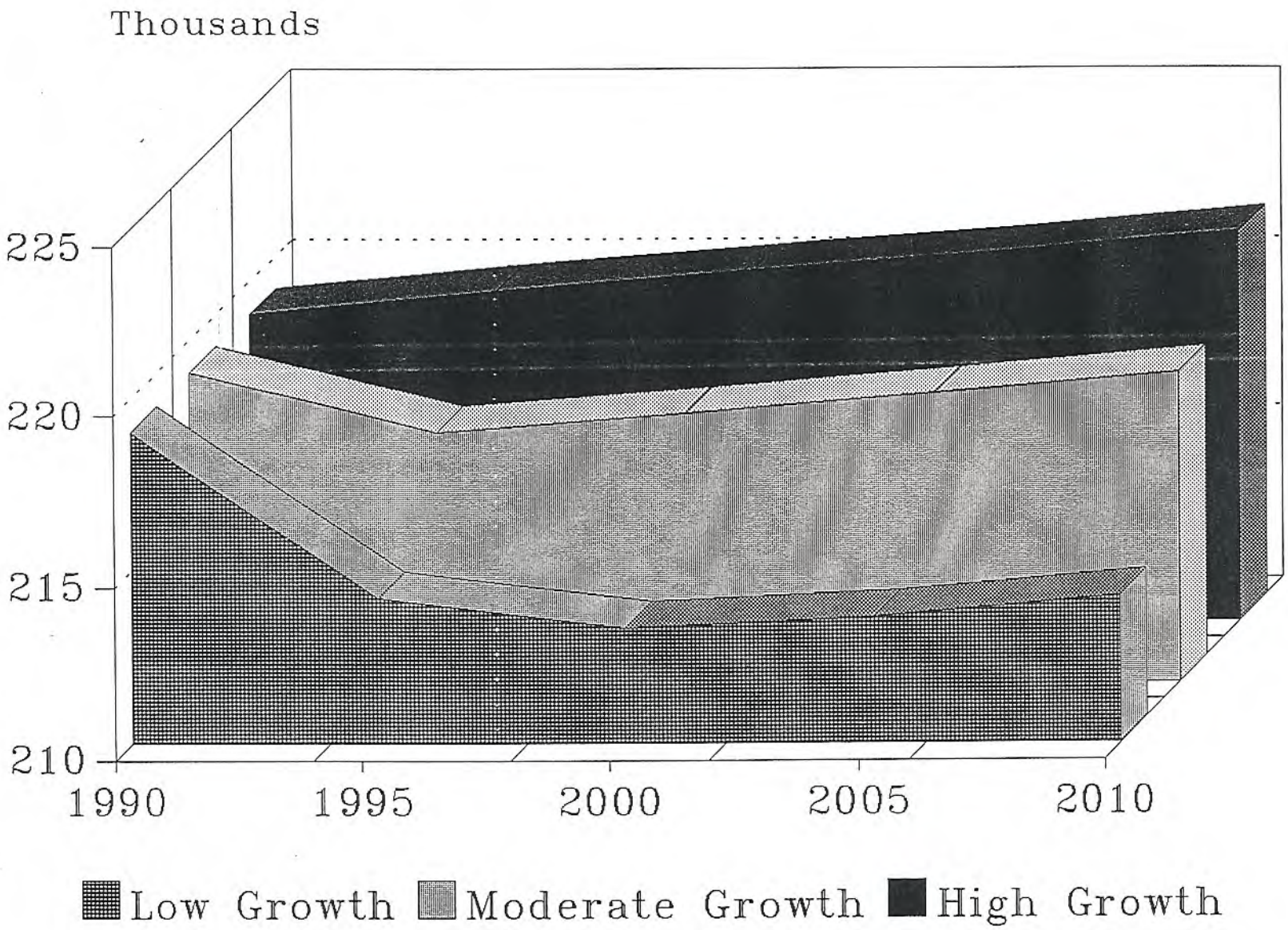
A. Lackawanna County

	Pace of Growth		
Year	Low	Moderate	High
1990	219,039	219,039	219,039
1995	214,225	217,299	219,724
2000	213,361	217,839	220,271
2005	213,642	218,385	220,822
2010	214,252	219,002	221,446

B. Study Area

	Pace of Growth		
Year	Low	Moderate	High
1990	67,239	67,239	67,239
1995	65,761	66,705	67,449
2000	65,496	66,871	67,617
2005	65,582	67,038	67,786
2010	65,770	67,228	67,978

POPULATION PROJECTIONS
Lackawanna County



2-6-52

Figure 2.6.2

Table 2.6.25
Employment Projections for Lackawanna County

	Pace of Growth		
Year	Low	Moderate	High
1991	92,008	92,008	92,008
1995	92,736	93,350	93,964
2000	94,135	96,026	97,932
2005	95,671	98,876	102,149
2010	97,495	102,008	106,673

EMPLOYMENT PROJECTIONS
Lackawanna County

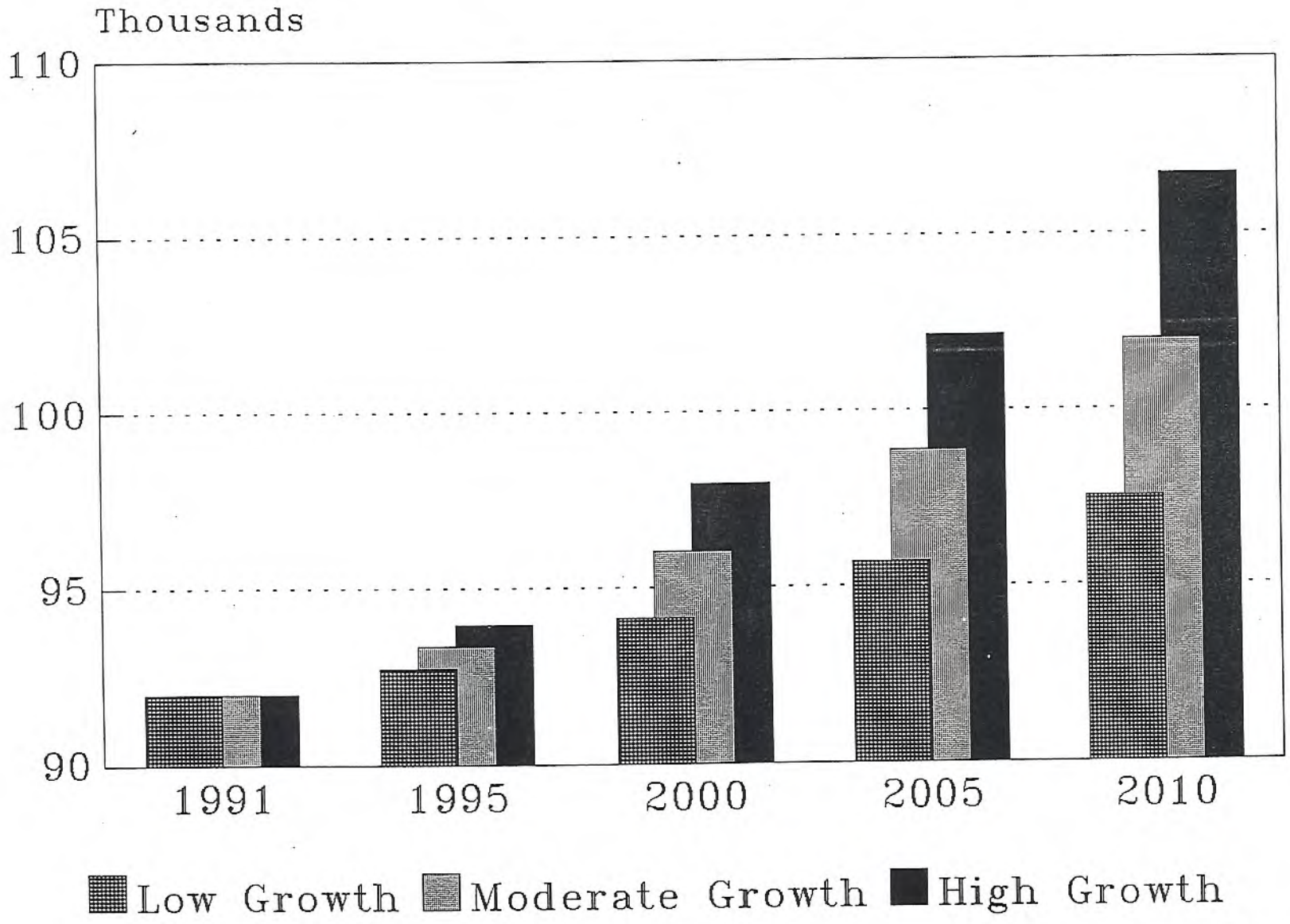


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Figure 2.6.3

SECTION 7: CIRCULATION

The Lackawanna Valley Industrial Highway (LVIH) will become a major new component of the transportation system of the valley. In order to begin to assess the effect of the LVIH on the valley's circulation system, it is important to understand how things function today. This section inventories the valley's current transportation system.

To develop a composite picture of the current transportation system, field surveys and document reviews were conducted. Inventories in the following areas were developed:

- Study Area Roadway System;
- Functional Classification;
- Roadway Capacities and Traffic Controls;
- Current Traffic Levels;
- The Accident Picture;
- Programmed Transportation Improvements;
- Public Transportation.

Study Area Roadway System

Figure 2.7.1 shows the existing roadways within the study area as well as the anticipated Lackawanna Valley Industrial Highway. The figure also illustrates roadway ownership -- the jurisdiction responsible for the maintenance and improvement of each road. As shown on the figure, the following are the key roadway corridors in the Lackawanna Valley:

U.S. Route 6 -- This east-west route is the current 'spine' of the valley and is part of the state highway system. U.S. Route 6 passes through the boroughs of Dickson City, Blakely, Archbald, and Mayfield, and the City of Carbondale, connecting Interstate 81 at the southern end of the study area to Carbondale and northward to Honesdale in adjacent Wayne County. To the south of Interstate 81, U.S. Route 6 connects with the North Scranton Expressway, a limited-access highway that extends into the center of the City of Scranton.

PA Route 247 -- This north-south state highway passes through the boroughs of Archbald, Jessup, and Blakely, and generally serves the middle section of the valley.

PA Route 347 -- This north-south state highway serves the lower section of

the valley and passes through the boroughs of Dunmore, Throop, Olyphant, and Blakely.

PA Routes 632 and 107 -- These two state highways serve the upper section of the valley, are oriented in an east-west direction, and cross Carbondale Township, Mayfield, and Jermyn. PA Route 107 will be extended to have an interchange with the Lackawanna Valley Industrial Highway via the Rushbrook Street Connector in Jermyn.

PA Route 106 -- This east-west state highway passes through Fell Township and the City of Carbondale.

PA Route 171 -- This north-south state highway also connects Fell Township with the City of Carbondale.

Prior to the construction of U.S. Route 6, the spine of the Lackawanna Valley was *Main Street*. Main Street is an east-west route passing through the boroughs of Dickson City, Blakely, Archbald, and Jermyn. Main Street is a County-owned road. Crossing the heart of the valley, Main Street has several important 'spurs.' These bring traffic to and from Main Street and provide many local circulation connections in the valley. *Ridge Road* and *Eynon-Jermyn Road* create a 'short-cut' for Main Street traffic in Archbald as Main Street veers to the east before returning to the center of the valley. Ridge Road and Eynon-Jermyn Roads are state-owned.

Through Mayfield and Carbondale Township, Main Street is known as *Lackawanna Street* and *Gordon Avenue*. These roadways are County-owned and end in the City of Carbondale.

At the southern end of the study area and passing through Dunmore is a network of Interstate Highways, including *I-81*, *I-84*, and *I-380*. These roads form a part of a circumferential limited-access highway system for the City of Scranton (including the Northeast Extension of the Pennsylvania Turnpike to the west of the city) and will provide access to the Lackawanna Valley Industrial Highway at I-81's junction with I-84 and I-380.

The *Lackawanna Valley Industrial Highway* will be a four-lane, limited-access highway along the eastern tier of the valley, with interchanges along its approximately 16-mile length at Marshwood Road in Throop, Lackawanna Avenue in Olyphant, Route 247 (Moosic Lake Road) in Jessup, Salem Road in Archbald, Rushbrook Street at the Archbald-Jermyn line, and Meredith Street at the Mayfield-Carbondale Township line. At its northern end, the LVIH will join with U.S. Route 6 at the White's Crossing area of Carbondale

Township.

Functional Classification

In general, roadways perform two very distinct and sometimes contradictory functions -- moving traffic and providing access to adjacent land uses. Limited-access highways (expressways) provide no access to adjacent land uses and, of course, are best at moving traffic. Since providing access to adjacent land uses detracts from the ability of a highway to move traffic, it is important for planning purposes to classify roadways by function. The following functional categories are typically used:

1. *Principal Arterial* -- A street or road that is used primarily for moving high volumes of through traffic rapidly across an area. Examples are freeways, expressways, and other high-volume roadways carrying regional traffic.

2. *Minor Arterial* -- A street or road that is used primarily for through traffic. Minor arterials carry generally lower volumes of traffic than Principal Arterials.

3. *Collector* -- A street or road that carries traffic from minor borough streets and township roads to the arterial system. There are two types of Collector Roadways -- Major Collectors and Minor Collectors. Major Collectors typically serve areas of major traffic generation not served by the arterial highway system. Industrial areas, major recreational areas such as county parks, and significant agricultural areas are typically served by Major Collectors. Minor Collectors are spaced at intervals consistent with population density to accumulate traffic from local roads and developed areas. The purpose of regularly spaced minor collectors is to bring all developed areas within reasonable distances of the collector road system.

4. *Local Roadway* -- A street or road that provides access to adjacent land uses and to the collector road system for the land uses served. Local Roadways are designed to serve local traffic at the expense of through traffic, and typically cover only short distances.

Figure 2.7.2 shows the functional classification of the streets and highways of the Lackawanna Valley as determined by the Pennsylvania Department of Transportation (PennDOT). Note that the functional classifications shown on the figure are subdivided into the type of area served, rural or urban, in

accordance with criteria of the Federal Highway Administration (FHwA).

Roadway Capacities and Traffic Controls

The ability of a roadway system to accommodate its traffic demands is known as the capacity of the system. The capacity of a system is controlled by the capacities of individual sections of roadways and the capacities of intersections along these sections of roadways. In the Corridor Plan study, two separate inventories were conducted for valley roadway capacities. The first inventory, shown in Figure 2.7.3, is Roadway Lane Categories. The number of travel lanes is shown for each roadway section; in addition, parking and continuous left turn lanes are also depicted.

This figure also indicates that all roadways consist of one travel lane in each direction except for sections of U.S. Route 6 in Dickson City, Blakely, and Archbald, and the expressway system, represented by I-81 and I-380/84. In addition, on-street parking is generally provided in the built-up areas of valley communities.

The second inventory is illustrated in Figure 2.7.7, showing the intersection controls and posted speed limits for the roadway network in the Lackawanna Valley. Speed limits of roadways in the built-up sections of older boroughs are consistently posted at 25 miles per hour. Less densely built-up areas are posted at 35 or 40 miles per hour. The highest posted speed limit, apart from the Interstates, is found on U.S. Route 6 in Blakely and Archbald; in these areas, U.S. Route 6 is posted at 45 miles per hour.

With respect to intersection controls, it is worth noting that the major through roadways of the Lackawanna Valley, U.S. Route 6 and Main Street, along their entire lengths enjoy fairly consistent right of way over all intersecting streets.

Current Traffic Levels

Generally speaking, the level of traffic on a given roadway is described in terms of a volume of traffic carried by the roadway over the period of a 24-hour day. Average daily traffic volumes for the key roadways of the Lackawanna Valley have been provided by the Pennsylvania Department of Transportation as part of their Roadway Management System. Figure 2.7.4 shows the average daily traffic of the most important roadways in the valley. As shown in the figure, the following are the traffic levels of the major

roadways in the valley:

Location	Average Daily Traffic
U.S. Route 6, Dickson City	21,400
O'Neil Hwy., Dunmore	22,500
Valley Avenue, Throop/Olyphant	14,400
Lackawanna Avenue, Olyphant	18,100
Ridge Road, Archbald/Blakely	11,000
Eynon-Jermyn Road, Archbald	11,000
Brooklyn Street, Carbondale	18,200
Dundaff Street, Carbondale	11,100

The Accident Picture

Accident histories for the key study area roadways have been provided by the Pennsylvania Department of Transportation, covering a four-year period between 1988 and 1992. The PennDOT accident data were then analyzed to determine the number of accidents per mile as well as the locations of fatalities throughout the roadway network. Figure 2.7.5 illustrates the sections of roadways in the Lackawanna Valley with accidents rates per mile above the average for the valley and twice the average for the valley. It should be noted that U.S. Route 6, perhaps contrary to its reputation, in general had an accident rate at or below average.

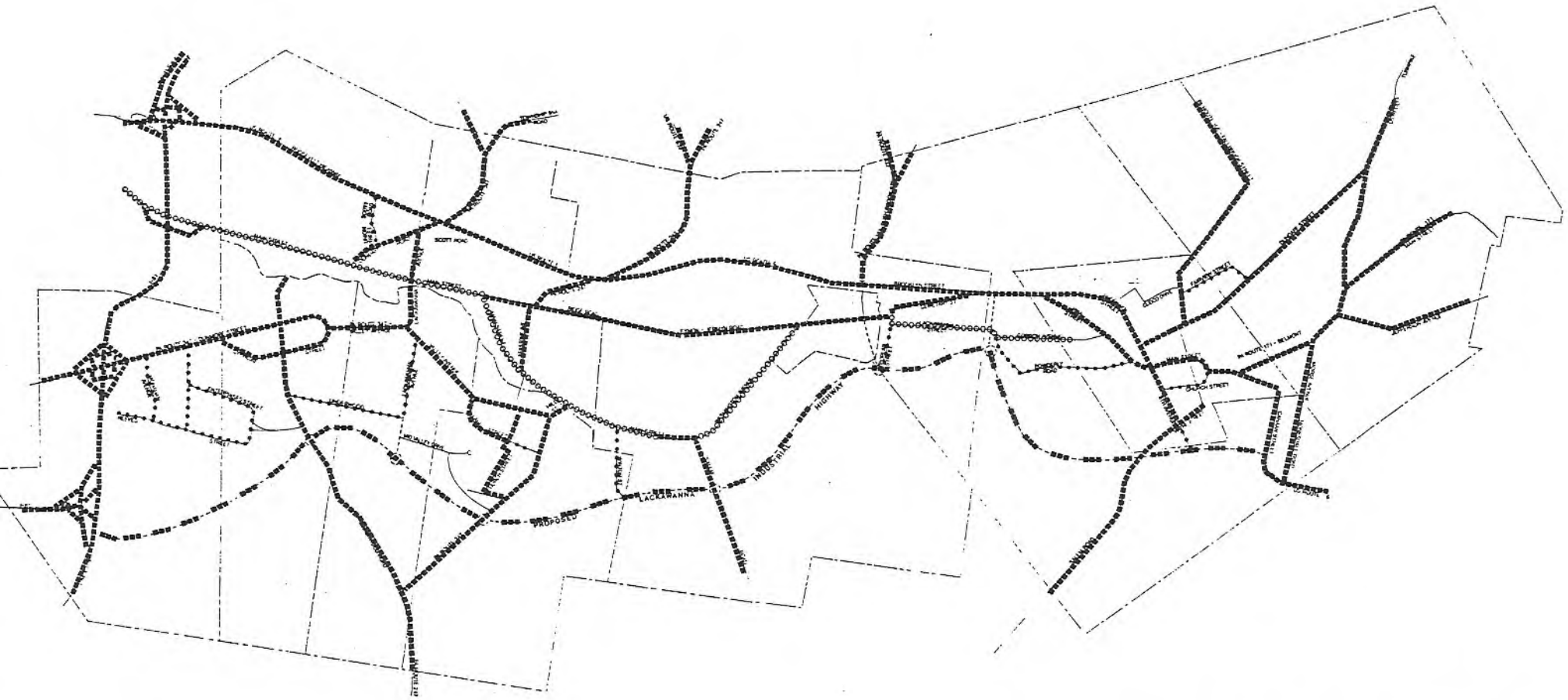
Figure 2.7.6 identifies locations where fatal accidents occurred over the same period. Review of the figure indicates a concentration of fatal accidents on PA Route 347; in total six fatal accidents occurred along this road.

Programmed Transportation Improvements

In addition to the Lackawanna Valley Industrial Highway, there are a number of transportation improvements programmed by PennDOT for the Lackawanna Valley. Figure 2.7.8 illustrates transportation projects that are currently listed on the Twelve Year Transportation Improvement Program. While these improvements are mostly projects designed to maintain transportation infrastructure -- pavement restoration and bridge replacement, for example -- they still represent an important investment in the valley's future circulation system.

Public Transportation

Public transportation in the Lackawanna Valley consists mainly of bus service operated by the County of Lackawanna Transit System (COLTS). Figure 2.7.9 illustrates the bus routes current serving the valley. As shown, service is provided essentially north from the City of Scranton along the central corridor of the valley via Main Street to the City of Carbondale. Service is also provided to Dunmore, Throop, Olyphant, and Jessup from Scranton. Finally, there is Shoppers Special service from Scranton to the Viewmont Mall and the southern end of U.S. Route 6.



ROADWAY OWNERSHIP

■■■■■ State Owned Roadway
○○○○○ County Owned Roadway
• • • • Municipality Owned Roadway
Non-noted roads are "LOCAL"

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LANE, FRENCHMAN & ASSOCIATES
MARVIN BROTTER CONSULTING SERVICES
MICHAEL ONTKO

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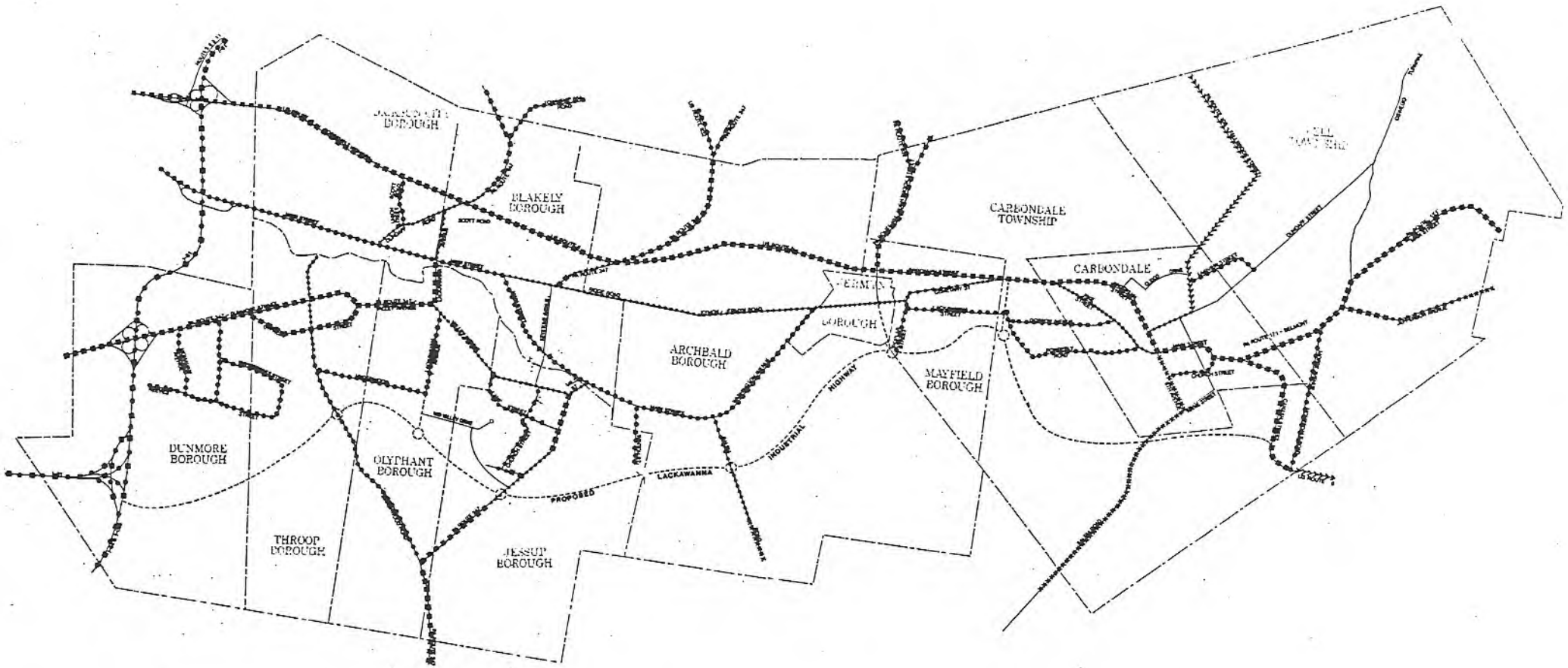
Figure 2.7.1



RURAL
- Principal Arterial–Interstate
- Principal Arterial–Other Freeways
- Minor Arterial
- Major Collector
- Minor Collector
- Local Roadway

URBAN
- Principal Arterial–Interstate
- Principal Arterial–Other Freeways
- Other Principal Arterial–Non-Freeway
- Minor Arterial
- Collector
- Local Roadway

(As Of June 1983)

FUNCTIONAL ROADWAY CLASSIFICATION

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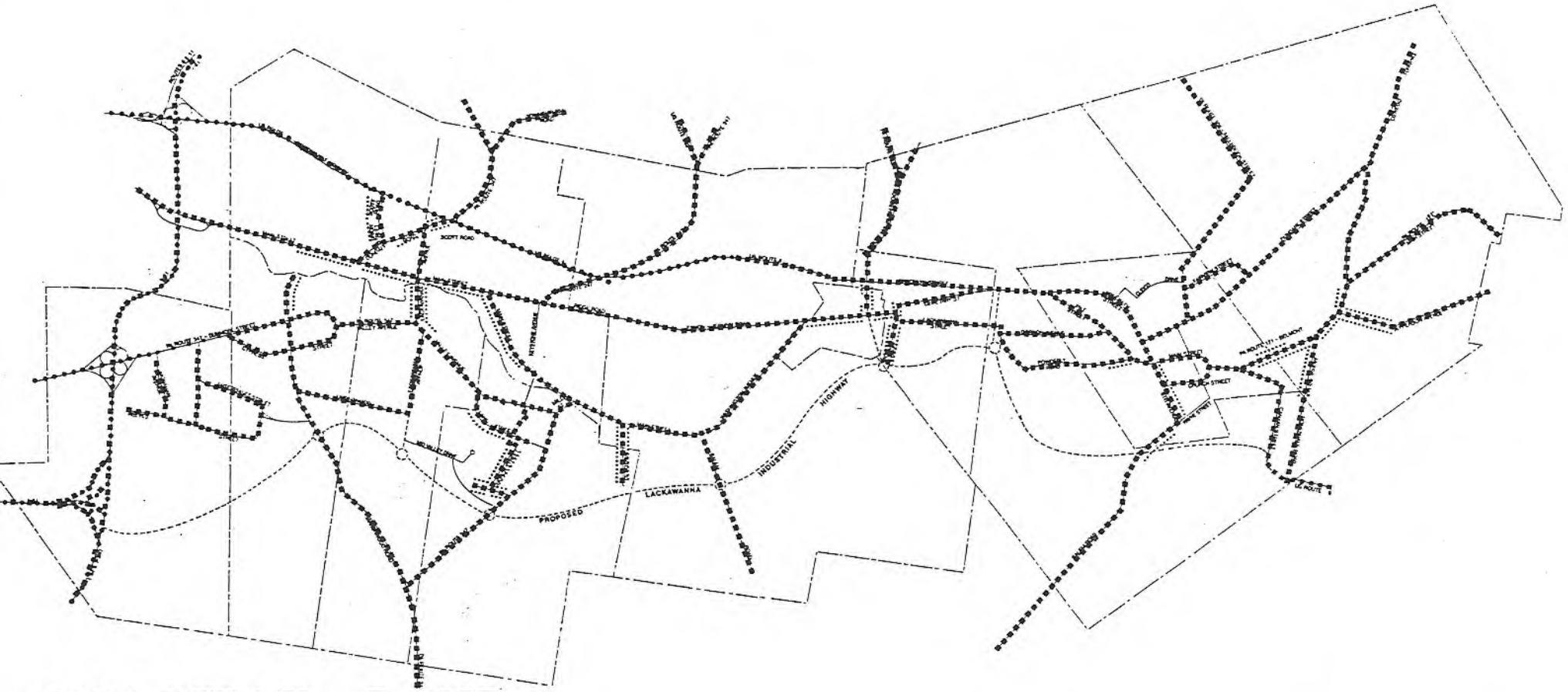
Figure 2.7.2



ROADWAY LANE CATEGORIES

- 2 Lane Roadway
- 3 Lane Roadway
- 4 Lane Roadway
- 4 Lane Roadway With Center Left Turn Lane
- 4 Lane With Limited Access
- Parking

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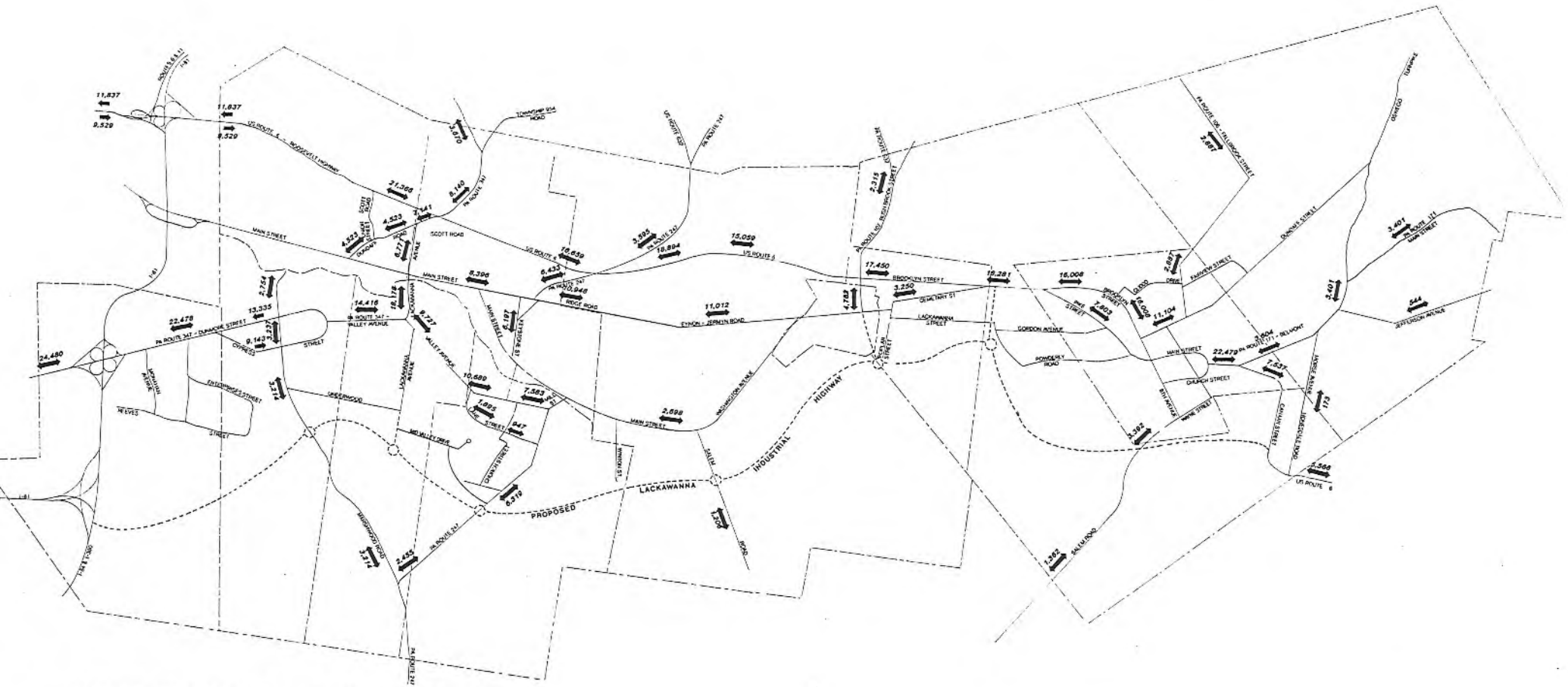
Figure 2.7.3



CURRENT AVERAGE DAILY TRAFFIC VOLUMES

1,362 ⟷ Average Daily Traffic Volumes

SOURCE: PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

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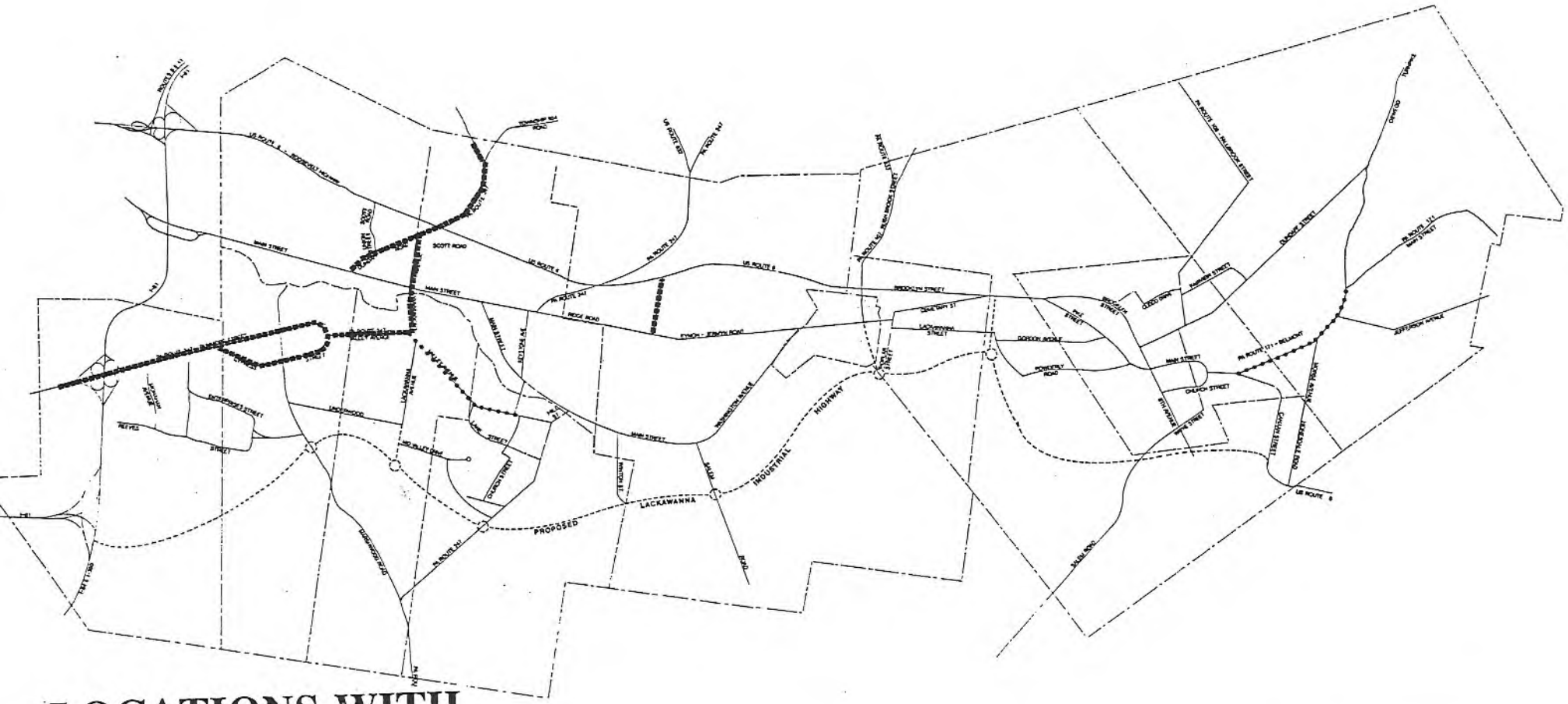
Figure 2.7.4



LOCATIONS WITH HIGH ACCIDENT RATES

from 1988 through 1992

▪▪▪ Two times above the average number of accidents per mile.

• • • Above the average number of accidents per mile.

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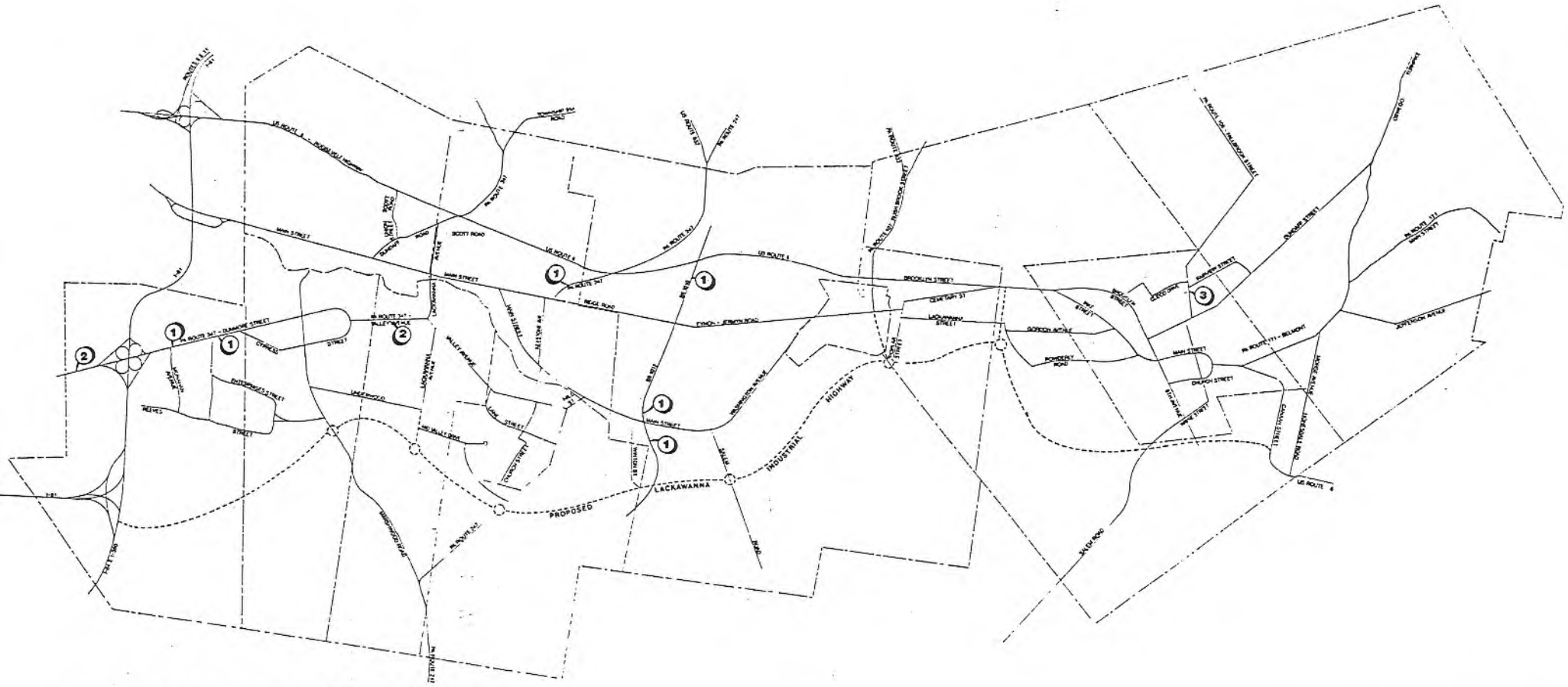
Figure 2.7.5



FATAL ACCIDENTS BY LOCATION

from 1988 through 1992

(1) Number of Fatal Accidents

NOTE: Route 6 is Not Included in this Analysis

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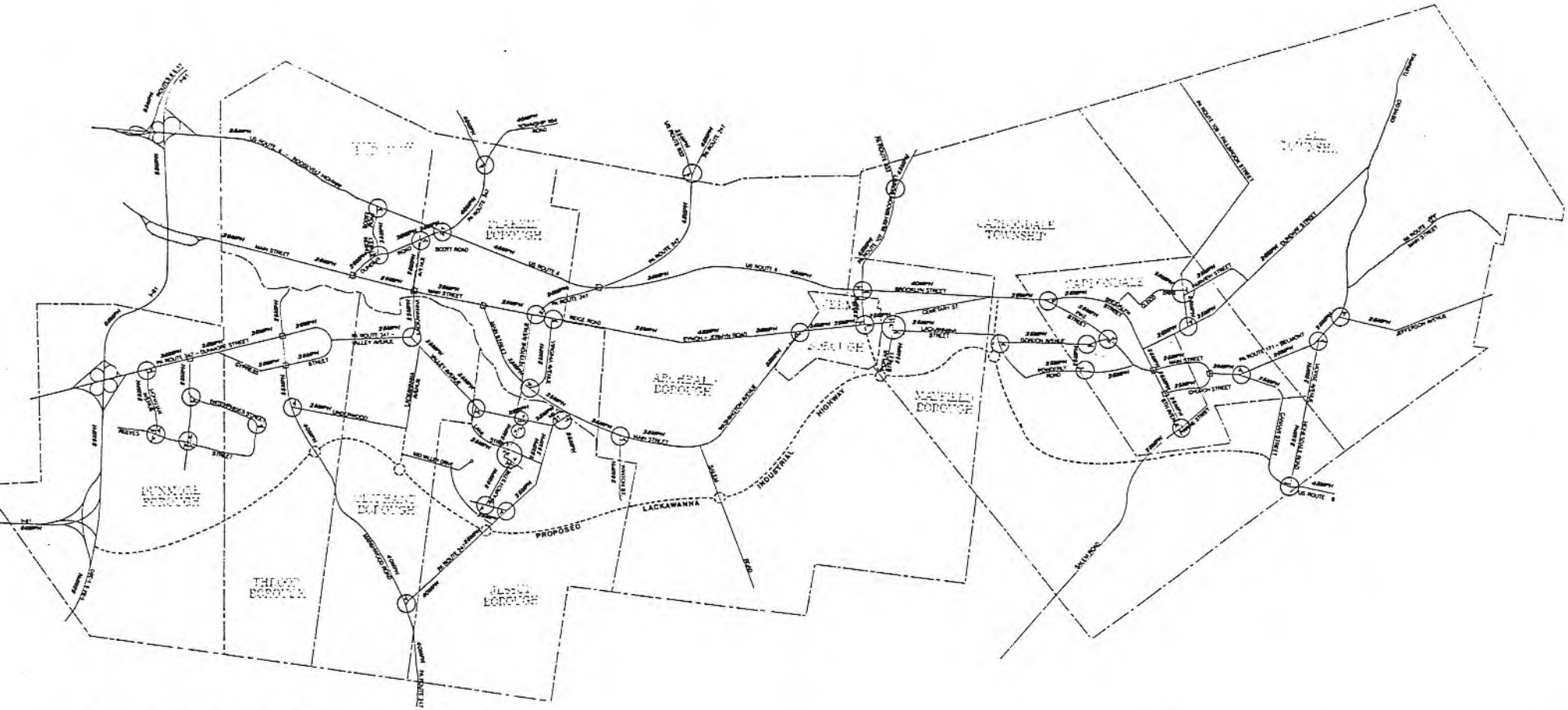
Figure 2.7.6



INTERSECTION CONTROLS AND SPEED LIMITS

- Traffic Signal
- Stop Sign
- 45 MPH Speed Limit

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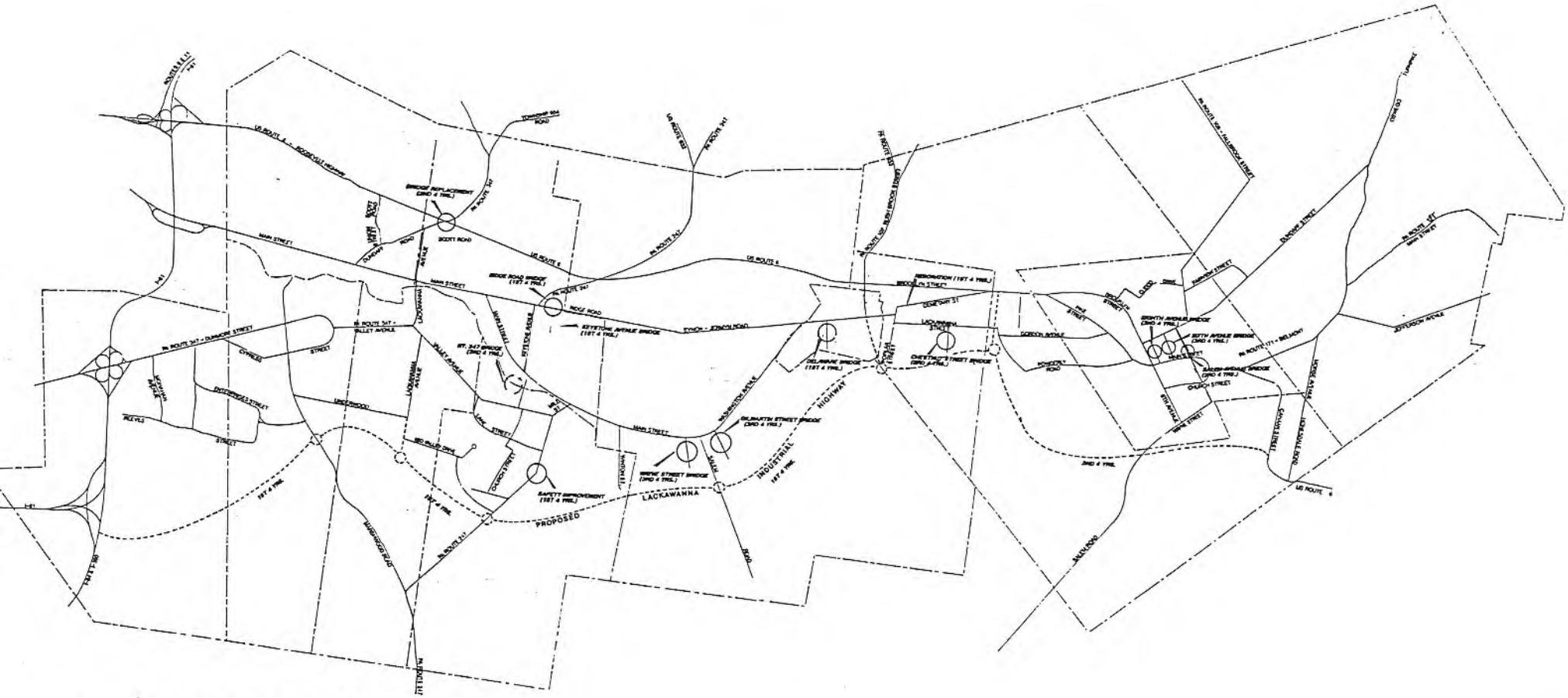
Figure 2.7.7



PROGRAMMED TRANSPORTATION IMPROVEMENTS

1ST 4 YRS. — Four-Year Segment of PaDot's Transportation Improvement Program

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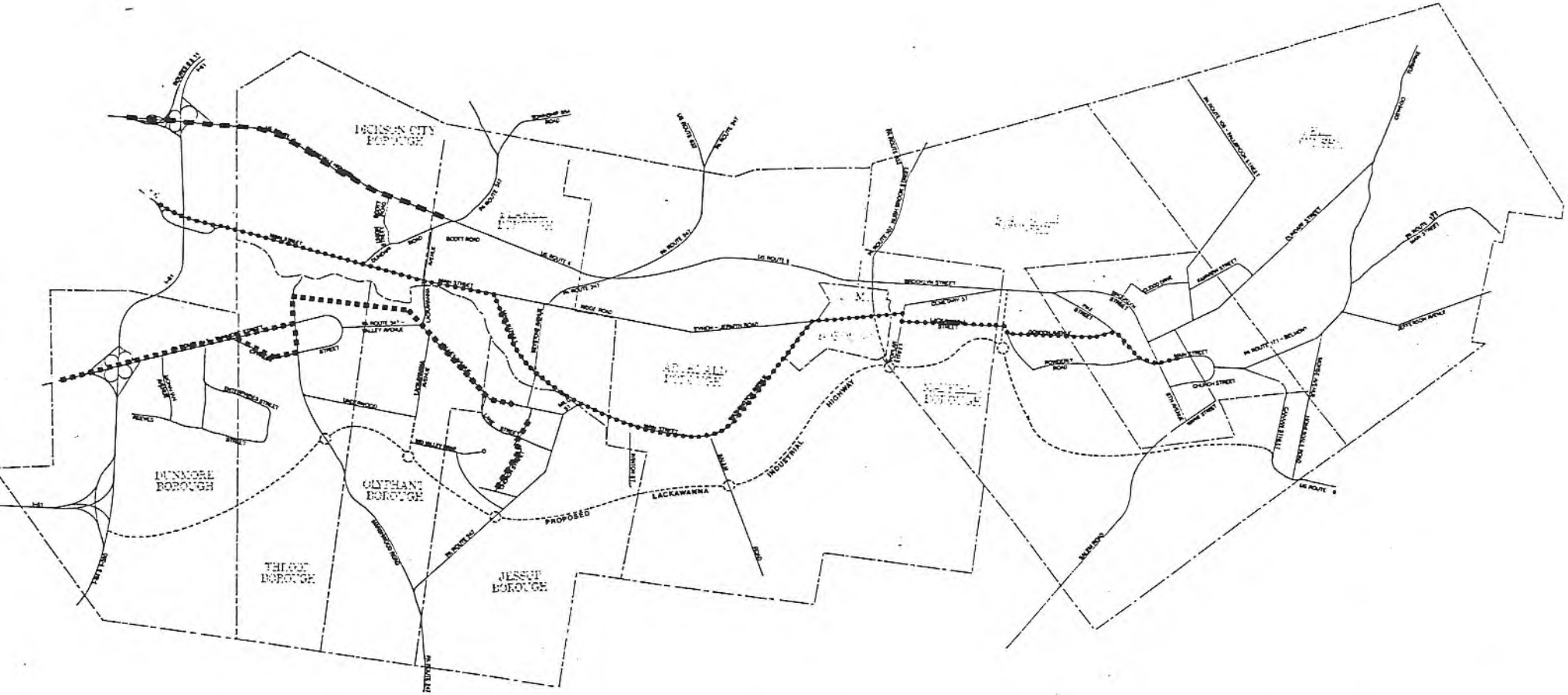
Figure 2.7.8



BUS ROUTES

- Route 12 & 38
- Route 52 & 53
- Shoppers Special Route

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Figure 2.7.9

SECTION 8: COMMUNITY FACILITIES

Schools

The Lackawanna Valley is divided into five school districts: Dunmore, Mid-Valley, Valley View, Lakeland, and Carbondale Area (Figure 2.8.1). Districts are comprised of either a single municipality, such as Dunmore; or multiple municipalities, but all within the valley, such as Mid-Valley, Valley View, and Carbondale Area; or multiple muncipalities, including ones outside the valley, such as Lakeland. The five school districts and their constituent valley municipalities are as follows:

District	Municipalities
Dunmore	Dunmore
Mid-Valley	Dickson City, Olyphant, Throop
Valley View	Archbald, Blakely, Jessup
Lakeland	Carbondale Township, Jermyn, Mayfield
Carbondale Area	Carbondale City, Fell

School facilities tend not to be distributed widely in each district but rather are mostly concentrated on "campuses," and include combinations of middle/junior high schools with high schools, or elementary, middle/junior high, and high schools all one large site.

Dunmore's schools conform to the latter example, with all three levels of education housed at one location. Mid-Valley has only an elementary and a high school, but both are sited together on Underwood Road in Throop. The Valley View District keeps the more traditional neighborhood locations for each of its two elementary schools (one in the Eynon section of Archbald and the other in the Peckville area of Blakely), but both the middle and high schools are found on the Columbus Drive campus in Archbald. (The Eynon elementary school is now slated to be closed, with a new elementary school to be constructed at the middle/high school campus.) Within the valley portion of the Lakeland District is the elementary school in Mayfield, with a multiple-level complex of elementary, junior high, and senior high school facilities in Scott Township, to the west of the study area. Elementary schools in the Carbondale Area District follow the neighborhood-based pattern, with one school near the center of the City of Carbondale and another in the Simpson portion of Fell Township. Carbondale Area Junior High and Senior High are together on US Route 6, just west of downtown Carbondale.

District enrollments have remained fairly stable over the last five years (Table 2.8.1). Valley View, the largest district, has gained an average of about twenty students per year over the period, for an overall increase of 4.6 percent. Dunmore has gained nearly 10 percent over the same period; the other three districts have achieved net gains or losses of fewer than ten students per year.

The recent picture contrasts sharply with the twenty-year span from 1974 to 1994, shown in Table 2.8.2. Compared to 1974, all districts in 1994 had enrollments markedly lower. Losses range from 20 to 40 percent for valley districts over the two-decade period although, as the table shows, most losses occurred in the 1974-to-1984 period, with the more recent decade much more stable for enrollments.

Private schools in the valley include the following:

1.	Bishop O'Hara High School	Dunmore
2.	St. Anthony's Elementary School	Dunmore
3.	St. Mary of Mt. Carmel Elementary School	Dunmore
4.	St. Cyril's Elementary School	Olyphant
5.	LaSalle Academy	Jessup
6.	St. Mary's Visitation Elementary School	Dickson City
7.	Our Lady of Mt. Carmel Elementary School	Carbondale
8.	Sacred Heart Junior & Senior High School	Carbondale
9.	St. Rose Elementary School	Carbondale

Colleges in the study area include Marywood College in Dunmore, with an enrollment around 3,000 students; and the Dunmore campus of Pennsylvania State University (Scranton), with an enrollment of about 1,300. These institutions are shown on Figure 2.8.2, Community Facilities.

Other Local Facilities

The Community Facilities figure also shows a range of other local institutions, from municipal buildings to fire stations, playgrounds and athletic fields to parks, schools to hospitals, and post offices to State facilities.

Table 2.8.1
Public School District Enrollments, 1989-90 to 1993-94

	1989-90	1990-91	1991-92	1992-93	1993-94	Change, 1989-90 to 1993-94
Carbondale Area	1601	1498	1536	1519	1557	- 44
Dunmore	1522	1531	1573	1568	1672	+ 150
Lakeland *	1612	1606	1631	1663	1638	+ 26
Mid-Valley	1662	1580	1697	1698	1643	- 19
Valley View	2260	2276	2325	2312	2364	+ 104

* Includes enrollment from municipalities outside the study area.

Table 2.8.2
Public School District Enrollments, 1974, 1984, and 1994

	1974	1984	1994	Change, 1974-94
Carbondale Area	2172	1739	1557	- 615
Dunmore	2758	1628	1672	-1086
Lakeland*	2192	1952	1638	- 554
Mid-Valley	2101	1604	1643	- 458
Valley View	3177	2396	2364	- 813

* Includes enrollment from municipalities outside the study area.

There are two hospitals in the valley, Marion Community Hospital in Carbondale and Mid-Valley Hospital in Blakely, with three other hospitals south of the study area in Scranton. Personal-care facilities and skilled nursing homes in the study area include the following:

1.	Laurel Hill Nursing Home	Dunmore
2.	Lackawanna County Healthcare Center	Blakely
3.	Mid-Valley Manor	Blakely
4.	Creekside Pines	Jermyn
5.	Carbondale Nursing Home	Carbondale
6.	Summit View Manor	Carbondale
7.	Birch Hills Residence	Fell

Public housing is operated by two agencies: the Housing Authority of Lackawanna County (HALC); and the City of Carbondale Housing Authority (CHA). HALC's thirteen facilities are outlined in Table 2.8.3. CHA's six housing facilities include the North High Rise, John Street Project, Ben Franklin Apartments, South High Rise, Russell Park, and Summit Avenue/Canaan Projects accommodations, all in the City of Carbondale.

Each valley municipality has its own police department, but there are about thirty different fire companies and stations in the study area. It is frequently the case that several fire companies service a given municipality, and the companies tend to provide coverage independent of municipal boundaries. All of the fire companies are staffed by volunteers except for Dunmore, which has both paid and volunteer firefighters.

Ambulance corps found in the valley are a blend of the two systems, with the some municipalities having a local ambulance service exclusively for their residents, and other ambulance corps organized as multi-municipality services.

In addition to the local police departments, there is a State Police barracks (Troop R) just off of the O'Neil Highway in Dunmore. There are about 55 officers attached to Troop R, which has both patrol and crime divisions.

Table 2.8.3
Housing Authority of Lackawanna County (HALC) Facilities

	Name and Address	Total No. of Units	No. of Units Reserved for the Elderly	No. of Units, 2 or More Bedrooms
1.	Dunmore Housing I Veterans Drive, Dunmore	100	60	34
2.	Dunmore Housing II University Drive, Dunmore	75	-	60
3.	Dunmore High Rise 208 N. Blakely St., Dunmore	50	-	-
4.	Throop Housing Memorial Drive, Throop	50	10	40
5.	Olyphant Housing Kimberly Circle, Olyphant	30	4	26
6.	Olyphant Housing I 205 Grant Ave., Olyphant	60	60	-
7.	Olyphant Walsh Plaza Walsh Plaza, Olyphant	50	10	40
8.	Jessup Housing 90 Lawler Dr., Jessup	76	30	36
9.	Blakely Housing Railroad St., Blakely	101	61	40
10.	Archbald Housing 208 McAndrew Dr., Archbald	60	36	24
11.	Archbald Rehab Housing	8	3	5
12.	Jermyn Housing 5 Henry Dr., Jermyn	52	38	14
13.	Fell Twp. Housing Railroad Ave., Fell	25	-	10

Parks and Recreation

There are a variety of park and recreation facilities in the valley, with a variety of sponsors (Figures 2.8.2 and 2.8.3).

The federal government's flood-control project along Aylesworth Creek in Archbald resulted in the creation of Aylesworth Park, a recreational facility maintained by a joint authority established by Archbald and Jermyn. Hiking, picnicking, swimming, and golf-driving activities are available to the public.

To the west, between US Route 6 and Eynon-Jermyn Road, is Archbald Pothole State Park, featuring the world's largest glacial pothole. This unique geological formation was carved out of bedrock during the ice age of some 15,000 years ago. The park has a small picnic area and hiking trails.

State game lands occupy parts of the upper reaches of the valley hillsides at the eastern and western ends of Archbald and Carbondale Township. These areas are parts of more substantial state game land holdings extending into Jefferson Township on the Moosic Mountains to the east and into Scott Township on West Mountain.

Lackawanna County operates the 840-acre Merli-Sarnoski Park in Fell and Carbondale Townships. The park includes 750 acres of preserved forest and a lake for swimming and fishing, as well as bath houses, hiking trails, playgrounds, fields, and picnic areas.

The remainder of the public park and recreation facilities in the valley are much smaller in geographic area and oriented to local communities. Operators include the twelve valley municipal governments (see Table 2.8.4) and the school districts, which have playgrounds and fields associated with the various school facilities.

In addition to the facilities listed in the table, several municipalities operate indoor recreation/community center facilities. Most often these incorporate senior citizen centers sponsoring a variety of locally-oriented programs.

Table 2.8.4
Local Recreational Facilities

Municipality	Location	Facilities
Archbald	Betty St., Eynon	Basketball Court, Playground
	State St.	Basketball Court, Playground
	Old Ridge Road	Basketball Court, Playground
	Laurel St.	Baseball Field
	Pike St.	Basketball Court, Playground, Tennis Court
	Rock St.	Basketball Court, Playground
	Rte. 247	Baseball Field, Playground
	Line St.	Little League Baseball Field, Pavilion, Softball Field
Blakely	Columbus Ave. & 8th St.	Baseball Field, Basketball Court, Tennis Court
	Mellow Park, River St.	Baseball Fields, Basketball Courts, Comfort Station, Football Field, Pressbox, Horseshoe Pits, Ice Skating Pond, Maintenance Facility, 1/2-mile Jogging Trail, Playground, Soccer Field, Volleyball Court
Carbondale City	Russell Park, 11th Ave.	Baseball Field, Little League Baseball Field, Football Field, Playground, Softball Fields, Tennis Courts
	Hospital St.	Basketball Court, Handball Court, Playground, Softball Field
	Highland Park Ave.	Baseball Field
	E. Garfield Ave.	Basketball Court, Playground
	Belmont St.	Playground
	Hemlock St.	Basketball Court, Playground
Carbondale Twp.	Upper Powderly St.	Baseball Field
Dickson City	Sunset St.	Basketball Court, Green Space, Little League Baseball Field, Playground, Tennis Court

	Elm St.	Baseball Field, Playground, Tennis Court
	Notch Ave.	Basketball Court, Green Space, Playground
	Walker St.	Baseball Field, Basketball Courts, Playground, Restrooms
Dunmore	Jessup Street	Baseball Field, Green Space, Pavilion, Softball Field
	Monroe Ave.	Baseball Field, Playground, Tennis Courts
	Prescott Ave.	Baseball/Softball Fields
	Quincy Ave.	Little League Baseball Field
Fell	Jefferson St., Simpson	Basketball Court, Playground, Tennis Court
	43rd St., Carbondale	Basketball Court, Playground
	Hillside St., Richmondale	Playground
Jermyn	Mellow Court, Lincoln Ave.	Little League Baseball Fields, Basketball Court, Playground, Tennis Court
Jessup	Hill St.	Baseball Field, Basketball Court, Playground, Tennis Court
	Winton	Basketball Court, Playground
	Moosic Lake Rd.	Little League Baseball Field, Softball Field, Basketball Court
Mayfield	Chestnut St.	Baseball Fields
	Memorial Park, Lackawanna Ave.	Green Space
	Penn Ave.	Basketball Court, Playground, Tennis Court
Olyphant	Fern Hill, E. Grant St.	Basketball Court, Playground, Softball Field
	Candella Park, Susquehanna Ave.	Basketball Court, Playground, Football Field with Track, Little League Baseball Field, Tennis Court, Jogging Trail
Throop	Sanderson St.	Little League Baseball Field
	Washington & Loftus Sts.	Basketball Court, Baseball Field, Pavilion, Tennis Court, Tot Lot

Figure 2.8.1 School Districts

Figure 2.8.2 **Community Facilities**

Figure 2.8.3 Parks & Public Open Space

SECTION 9: INFRASTRUCTURE SYSTEMS

Sewage

The Lackawanna River Basin Sewage Authority (LRBSA) owns and operates all public sewage collection, conveyance, and treatment facilities in the valley except those serving Dunmore. The central sewer service area covers virtually all developed areas of the valley (Figure 2.9.1). There are very few residences or businesses having private sewage treatment systems; a function, in part, of the unsuitability of soils in the valley for on-lot disposal systems (see Section 4 of this chapter).

LRBSA operates three treatment plants: A small one in Forest City, just north of the study area in Susquehanna County, with a service area barely reaching the northern tip of the study area; the Archbald plant, serving the developed areas of Archbald, Jermyn, Mayfield, Carbondale Township, Carbondale City, and Fell; and the Throop plant, serving the developed portions of Throop, Olyphant, Jessup, Archbald, Dickson City, and Blakely. LRBSA plant capacities, average daily flows, and peak flows are shown in Table 2.9.1.

As is shown in the table, there is currently considerable excess capacity at the two main LRBSA treatment plants, meaning that they can accommodate any of the future growth scenarios postulated for the valley in Section 6 of this chapter.

While the plants will be able to provide sewage treatment service for new development, there exist constrictions for treating additional sewage flows based on the size and condition of sewer mains leading to the plants. Over the planning period many of these mains will need to be replaced by larger-capacity pipes where new development occurs and where increased flows on their way to a treatment plant must be accommodated.

The largest diameter sewer mains lie along the Lackawanna River, accepting flows from feeder mains branching to the east and to the west and carrying sewage to the treatment plants. Generally speaking, the closer new development occurs to this main sewer spine, the more economically new or replacement feeder mains may be installed.

Part of the sanitary sewer main capacity problems stem from a high degree of inflow and infiltration ("I and I") of stormwater into the sanitary system during and following rainstorms. While the degree of inflow and infiltration

varies from municipality to municipality, programs to reduce I and I lessen the sewage treatment burden on the plants and can permit flows from new development to be added to the system without the need to construct new mains.

Dunmore Borough is the only valley municipality not on the LRBSA system, but is part of the Scranton Sewer Authority system.

Water

Central water supply in the valley is provided by Pennsylvania Gas and Water Company (PG&W). The central water service area is almost identical to that for central sewer service, and covers virtually all developed areas of the valley (Figure 2.9.2). Generally speaking, the existence of the acid mine pool beneath the valley floor precludes the use of groundwater for private well drinking water systems for much of the valley.

PG&W's main sources for water supply in the valley are Lake Scranton, at the extreme southeast corner of the study area, and the Brownell Reservoir, in Carbondale Township near the White's Crossing area where the LVIH is to join back to US Route 6. In addition, PG&W has some twelve reservoirs on the valley hillsides that function as back-up water supplies to the two main sources mentioned. Most of these back-up reservoirs are located on the upper reaches of the eastern side of the valley (Figures 2.2.1, 2.4.3, and 3.3.1).

There is one PG&W treatment plant in the study area, at the Brownell Reservoir.

Other Utilities

Major utilities serving the study area include Bell of Pennsylvania (telephone), Pennsylvania Gas and Water Company, and Pennsylvania Power and Light Company (PP&L). Major electrical transmission lines and substations of PP&L in the study area are identified in Figure 2.9.3.

Table 2.9.1
Lackawanna River Basin Sewer Authority Sewage Treatment Facilities, 1994

Plant	Capacity(MGD)	3-Month ADF(MGD)	Peak Flow (MGD)
Archbald	6.0	3.1	3.6
Throop	7.0	4.2	4.27
Forest City	0.7	0.46	0.52

ADF = Average Daily Flow
MGD = Million Gallons per Day

Figure 2.9.1 Sewer Service Area

Figure 2.9.2 Water Service Area

Figure 2.9.3 Electric Transmission Lines

CHAPTER THREE: GROWTH MANAGEMENT PLAN

SECTION 1: GENERAL INTRODUCTION

The Growth Management Plan is intended as a guide for future growth and land development in the Lackawanna Valley. Many months of background research and analysis, coupled with regular meetings with the various committees described in Chapter One and with the public, form the basis for the Plan. It reflects not only a comprehensive set of goals and policies for development, but also attempts to embody shared community wants and aspirations.

The Growth Management Plan is composed of several elements pertaining to land use, circulation, housing, community facilities, utilities, conservation, reclamation, and environmental protection. Prior to discussion of the elements, Section 2 presents a summary of goals and objectives on which the Plan has been structured. The remainder of the chapter develops the components of the recommended development pattern for the Lackawanna Valley.

The Growth Management Plan represents a guide to be followed by Lackawanna County and by all twelve municipalities in the valley, its five school districts, other public and quasi-public organizations, and by private developers in order to address important issues and problems related to the valley's overall development. Many of these problems and issues are interrelated, so that effective resolution of one cannot take place without simultaneous efforts to resolve others.

An especially significant aspect of the Growth Management Plan is the close coordination and mutual-reliance between the Land Use Plan (Section 3) and Circulation Plan (Section 4). The character of the land use concepts outlined in Section 3 are closely tied to the circumstances and potentials of the road network, in particular the impending opening of the Lackawanna Valley Industrial Highway (LVIH), and the recommended circulation improvements respond to and advance the framework for development embodied in the Land Use Plan.

Other mandatory planning processes, such as requirements for municipalities to complete Act 537 sewage facilities plans, are fundamental in the presentation of the various elements of the Growth Management Plan.

The Growth Management Plan is focused on the location, character, and timing

of future development. In particular, the Plan proposes that future development be directed to locations and in a manner that allows the phasing-in of specific transportation and water and sewer service systems improvements. The emphasis on the incremental processes of development are also primary concerns of the Plan with reference to resource conservation and park and open space creation.

The Growth Management Plan provides opportunities for all twelve of the valley's municipalities to grow. Under Pennsylvania statutory law, the right of approval for subdivision and land development is (with limited exceptions) exercised by municipalities and not by counties. Under Pennsylvania case law, all municipalities must provide land development opportunities for all reasonable uses. The only alternative to providing growth opportunities to all municipalities would be through joint municipal planning and zoning provisions of the Municipalities Planning Code, where several municipalities could band together, produce joint ordinances, and limit growth to a few locations within the joint-area. In general, the Growth Management Plan supports this concept, and recommends that the school districting system be employed to initiate joint municipal planning in the Lackawanna Valley (see Section 3 of this chapter). Until such time as joint planning and zoning are in place in the valley, the Growth Management Plan must be mindful of the central role of municipalities in approving and providing for growth.

SECTION 2: GOALS AND OBJECTIVES

Development Pattern

GOAL:

Achieve a future overall development pattern that is responsive to the economic, social and cultural needs of valley residents, in light of regional trends.

GOAL:

Preserve and enhance the physical and environmental characteristics that make the Lackawanna Valley a distinctive and identifiable place, while at the same time provide for the needs of existing and prospective residents.

GOAL:

Ensure that development occurs in ways that minimize degradation of natural and cultural environments.

GOAL:

Ensure that development occurs in an efficient and logical manner, and in ways that minimize short- and long-term costs to the public and private sectors.

Objective:

Direct residential, commercial, industrial, and institutional development to designated areas where sewer, water, and transportation improvements can be phased in concert with new development.

Objective:

Designate areas for development that can be readily-served by existing or expanded infrastructure systems, transportation networks, and public services.

Objective:

Identify incentives and strategies to promote continued or enhanced investment in established communities.

Economic Base

GOAL:

Expand and diversify the valley's economic base and offer a broad range of job opportunities for valley residents.

Objective:

Locate new employment centers close to major transportation corridors and interchanges in order to maximize accessibility for potential employees and clients and for goods movement.

Objective:

Promote new businesses and industries that will tap the skills of valley residents who currently commute to jobs outside of the valley.

Objective:

Enhance the tourism industry by identifying, protecting and promoting cultural and historic resources, by maintaining an attractive visual and aesthetic environment, and encouraging more locally-based, compatible tourism opportunities.

GOAL:

Identify appropriate locations for industry, research and development, offices, retail sales and services.

Objective:

Coordinate the provision of new or improved transportation facilities and the establishment of centers of economic development.

Objective:

Discourage random or scattered industrial development patterns, which can produce environmental, traffic, aesthetic, and other problems.

Objective:

Discourage strip development of business uses along major arterial roadways.

GOAL:

Maintain the economic viability of existing urban communities.

Objective:

Encourage investment in existing business districts, compatible with the historic/architectural character of the particular community.

Objective:

Maintain residential neighborhoods and expand housing opportunities close to existing business districts.

Housing

GOAL:

Provide a diversity of housing opportunities, in harmony with existing development and the natural environment.

Objective:

Facilitate a range of housing types, sizes and price levels, to respond to changing housing needs and to provide housing for various stages of the life cycle, household configurations and income levels.

Objective:

Identify policies that will provide for the housing needs of elderly and handicapped residents.

Objective:

Encourage the enactment of uniform building and housing codes by municipal governments.

Circulation

GOAL:

Achieve a safe, efficient, mostly congestion-free circulation system that will best serve business, institutional, tourist and personal trips.

Objective:

Improve safety and efficiency for intra-valley and regional through-valley vehicular trips.

Objective:

Encourage regionally-oriented traffic to utilize arterial highways and discourage this traffic from using local collector roads.

Objective:

Identify existing and potential future deficiencies in the valley's roadway network, along with methods of eliminating these deficiencies.

Objective:

Encourage traffic flow improvements and the implementation of design standards that are based on a functional classification of roadways.

Objective:

Identify and generally set priorities for projects which are appropriate for inclusion on PennDOT's Twelve-Year Highway Program.

Objective:

Identify Transportation Systems Management (TSM) activities that can be implemented to improve efficiency and safety.

Objective:

Identify scenic excursion routes and other roadways with particularly strong visual characteristics as well as outstanding scenic vistas that are worthy of special preservation efforts.

Objective:

Locate areas appropriate for tourist-oriented development, and identify circulation improvements needed to serve these areas.

GOAL:

Reduce the reliance on the automobile for mobility over the long term.

Objective:

Encourage ride-sharing among local residents and

identify areas that might be used for long distance and commuter parking areas.

Objective:

Establish criteria upon which the need to establish future mass transit opportunities might be established.

Objective:

Encourage mixed-use development, incorporating retail, office, hotel, and higher-density residential uses, especially near the interchanges of major arterial roadways.

Objective:

Consider low-cost physical improvements to new roads and roads undergoing upgradings to accommodate bicyclists.

Objective:

Promote the development of a network of pedestrian and bicycle pathways throughout the permanent open space system of the valley.

Community Services

GOAL:

Provide public services, facilities and utilities in the most efficient, cost-effective manner, taking into account community needs and environmental factors.

Objective:

Support efforts of water supply and wastewater treatment authorities to plan ahead for expansion of capacities and extensions of the areas of service in accordance with growth projections and the Corridor Plan.

Objective:

Encourage the development of an adequate supply and mix of parks, playgrounds and other recreation facilities, both active and passive, to serve the existing and projected populations of the valley.

Resource Protection

GOAL:

Protect environmentally-sensitive areas of the valley.

Objective:

Protect groundwater, floodplains, wetlands, mature woodlands, steep slopes, habitats of rare and endangered species, and other environmental features.

GOAL:

Protect culturally-significant areas of the valley.

Objective:

Preserve historic resources of the valley.

Objective:

Reinforce the character and ambience of historic communities.

Planning

GOAL:

Put in place a variety of approaches, mechanisms and tools appropriate for dealing with the challenges faced by valley communities.

Objective:

Coordinate planning and development efforts among the county, local governments and institutions, school districts, and State and Federal agencies.

Objective:

Prepare new and updated comprehensive plans for local communities.

Objective:

Prepare and enact new and improved development regulations for local communities.

SECTION 3: LAND USE PLAN

The Land Use Plan (Figure 3.3.1) ties together all the elements that make up the Corridor Plan for the Lackawanna Valley. It thus becomes the primary reference against which land-use decisions, as well as decisions on major public expenditures, can be measured for the next ten to twenty years. The Land Use Plan is concerned with the proposed location, intensity, and amount of different uses. It strives to be in harmony with trends affecting economic development in the valley, the county, and the region, while mirroring the values, needs, and expectations of valley residents.

The Land Use Plan, as well as the other specific elements of the Growth Management Plan, is oriented toward planned development of the Lackawanna Valley through 2014, and reflects generally modest population growth, more substantial employment growth, a balanced land-use mix, conservation of natural and cultural resources, mine spoils reclamation, and efficient utilization of existing water and sewer systems. The Growth Management Plan is based upon a 2014 valley population of between 65,000 and 75,000 persons, an increase of about 2,400 to 2,800 housing units above the present inventory, and a net increase of about 8,700 jobs.

General Description

The Land Use Plan incorporates a growth-area concept to provide for the orderly extension of development. Growth is directed primarily to areas already served by central water and sewer systems, community facilities and services, and having a high level of accessibility. The growth-area concept provides an efficient and economical way to allow new growth to occur while limiting urban uses spreading up and onto the sides of the valley. The majority of the residential, commercial, industrial, and institutional development is planned to take place within designated growth areas. Areas outside the growth area are intended primarily for natural resource protection, agricultural, recreational, and open space uses.

Growth areas are focused on the existing developed areas of communities along the valley floor -- with their residential neighborhoods, shopping cores, community service facilities, and public utilities -- and on limited areas in the vicinity of the new interchanges for the Lackawanna Valley Industrial Highway (LVIH). Growth opportunities for all twelve of the valley's municipalities are included.

The growth-area concept of the Land Use Plan should be integrated within policies set forth in municipal Act 537 sewage plans. If the Corridor Plan for the Lackawanna Valley and local land use plans and municipal sewage facilities plans are properly coordinated, more-intensive development outside of the growth area can be severely curtailed.

Care should be taken in relating the picture of future development in Figure 3.3.1 to expected development through the planning horizon of about twenty years. The Land Use Plan has built-in slack; rather than being a strict representation of the twenty-year "build-out", it illustrates those areas in which particular land uses can be supported by the policies of the Growth Management Plan.

Parks, Permanent Open Space, and Preservation Areas

The Land Use Plan designates important natural and cultural resource areas as permanent open space and resource-protection lands. These include federal, state, county, and municipal parks; state game lands; the valley's floodplains and significant wetlands; areas of steep slope; and reservoir areas (Figures 2.2.1, 2.4.3, 2.5.2, 2.5.3, 2.5.4, 2.8.3). Permitted uses for these areas under the Land Use Plan would include low-intensity recreation and open space uses (subject to on-site environmental conditions and statutory regulations), limited agriculture, and forest management. Prohibited uses would include any commercial or industrial facilities and, except in rare circumstances, any new residential dwellings.

In addition to the resource areas already mentioned, permanent open space may also include perimeter buffer zones around designated growth areas (see the Land Use Plan figure). In all instances, potential buffer zones would include existing sensitive natural-resource lands, but these have been extended in places in the figure to complete perimeter rings of open space around the growth areas. The buffer zones are intended to be a permanent open space and recreational resource for communities, to become part of a larger valley-wide permanent open-space connector system, to provide an effective transition from urban uses to resource protection ones beyond, and to limit uncontrolled expansion of growth areas. Implementation of the buffer concept would come about principally through the land development process (see "Creating the Permanent Open Space System"), following.

Agricultural, Resource Conservation, and Very Low Density Residential Areas

The extent of the sides of the valley that qualifies neither for growth nor for strictest preservation is intended primarily for conservation of natural resources. A major goal of the Corridor Plan for the Lackawanna Valley is to conserve areas of steep slopes, woodlands, aquifer recharge areas, and cultural resources. The Land Use Plan formally apportions the valley into growth and "low-growth" areas, with the intent of limiting development outside the growth zones and encouraging the conservation of the valley's wooded hillsides. This area beyond the growth area additionally permits low-intensity recreational and residential uses, but only to the extent that new development does not degrade areas of scenic beauty or environmental sensitivity.

The Land Use Plan implies a general discouragement of development within resource conservation areas, coupled with incentives to develop within designated growth areas. Various Plan implementation techniques are intended to be applied across the valley to bring about the desired result. Discouragement of development on the sides of the valley may be achieved through the promotion and enactment of conservation easements. At the same time, the expansion of existing central water and sewer systems may be limited to designated areas, off of the sides of the valley.

The Land Use Plan does recognize that some residential development will occur beyond designated growth areas. Given that prospect, it is important that various types of land development controls be adopted that will ensure that when development does take place outside growth areas, it is of high quality, and that the process of development actually contributes to long-term conservation of land. Examples of this include those where the exercise of development rights to build dwellings in a resource conservation area is coupled with regulations limiting the area for houses to only a small piece of the tract and preserving most of the acreage in perpetuity. Another example is the implementation of transfer-of-development-rights (TDRs) opportunities. Here a landowner's right to develop homes on his property may be separated from the property in question and exercised on another, more-appropriately-located, property. As part of this process, the original landowner gains monetary benefit from exercising a right to develop, in return for which he agrees to use the original property in question for agriculture or specified open space/recreation uses only, in perpetuity.

In general, the Land Use Plan can support a variety of land development concepts in resource conservation areas, but only if these approaches support

the basic principles of conserving land for non-urban purposes. Very low overall densities only should be permitted. Clustering of permitted units on a small portion of a tract, while the rest is left open in perpetuity for legitimate resource conservation purposes, is fundamental. Clustering might be done in small assemblages or in larger ones, such as a "village cluster" that might be put together through a TDR process in a particular municipality.

Generally, proposals to construct central sewer and water service in very low density residential areas should be discouraged. Exceptions should be made only in cases where specific development proposals, when implemented, would result in the significant preservation of natural resource areas.

Open Space Uses

The widespread pattern of parks, permanent open space, and areas to be preserved delineated in the Land Use Plan forms the backbone of a valley-wide open space system. The open space system, based as it is on existing natural features such as floodplains associated with the Lackawanna River and valley creeks and stream courses, can be said to be somewhat already established. In many instances floodplain and wetlands regulations, administered by municipalities and/or state and federal agencies, already prohibit or restrain development. The overall objectives should be to tie the system together, give it permanent protection, and facilitate improved public access in certain locations.

In the context of an area about to be made much more accessible to the region, however, the long-term protection of these sensitive resources will depend on concerted efforts by public and private agencies. Natural-feature corridors are proposed to be combined with existing protected areas, such as parks and game lands, and with projected linear buffers to form a permanent interconnected open space system. This permanent open space system is a critical component of the Land Use Plan, and is seen as the primary mechanism to simultaneously protect valley resources and to offer long-term opportunities to meet open space and recreational needs.

The continuous, interconnected, permanent open space network is intended, then, to serve several purposes: 1) to conserve areas of environmentally-sensitive and culturally-valuable resources; 2) to provide appropriate buffers, where possible, between areas of differing land use; 3) to provide a framework for a trail system, eventually to stretch throughout the valley, for walking, hiking, and cycling; 4) to permit pedestrian and bicycle access to a variety of destinations, including adjacent and nearby communities, other

residential developments, schools, special natural features, shopping, and specific sites for recreational facilities; 5) to create sites where public recreational facilities may be developed; 6) to provide for some of the private open space and recreational space needs of the residents of each new housing development; 7) to provide appropriate buffers between high-volume traffic arteries and residential areas; and 8) to maintain and enhance wildlife habitat.

Creating the Permanent Open Space System

The Land Use Plan, the first identification and formal recognition of a valley-wide permanent open space system, should lead directly towards programs for its protection and, in places, for its further development. The County and all of the valley municipalities need to act as advocates and promoters for the network and, through Plan implementation, as facilitators for appropriate protective and developmental efforts by public and private agencies. These actions include lobbying state and federal governments to make additional acquisitions of land that border existing parks and game lands; to fund further open space planning efforts, such as local recreation, parks, and open space studies; to promote conservation easements; and to provide financial assistance for local parks and open space development. Valley municipalities need to recognize the permanent open space network and to undertake local efforts in support of it, particularly through the adoption of appropriate planning documents and the enactment and enforcement of new development regulations. Local comprehensive plans should formally recognize the parts of the system relevant to each township, borough, or city, and municipalities should promote residential clustering, which concentrates a tract's potential development on a small portion of the overall tract, leaving the remaining area as permanent open space, by adopting suitable zoning regulations. Watershed associations and other voluntary groups that would take an active role in promoting stream valley and other corridor preservation also have a prominent role to play.

Provisions within the framework of regulations governing land development are extremely important in helping to create the permanent open space network. A primary method by which the system would be achieved is the utilization of residential cluster development zoning provisions by landowners, in combination with existing and potential new regulations limiting development of environmentally-sensitive lands. With local comprehensive plans in place cognizant of the valley-wide network, municipalities can evaluate a prospective development's potential open space lands in terms of the permanent open space system and its various parts. Under certain conditions (such as under optional cluster-development provisions) local

regulations may mandate the offering of any subdivision's required open space to the township, borough, or city, and the municipality may, depending on a tract's specific location, accept a developer's offer of dedication. Otherwise, a public access easement may be required, or lands may simply be left to the exclusive use and responsibility of the respective homeowners' association. Depending on the value of a particular piece of ground to the valley permanent open space network, the land may become part of the overall system in various ways, or may not be included.

Through various means, including outright purchase by different levels of government or by private not-for-profit conservation organizations, through the granting of conservation easements on relevant properties, and through the residential land development process the valley may become the beneficiary of lands to be permanently preserved as open space, potentially developed as new parkland, or to be held as part of a long-term land bank for future park development and open space needs. In the latter cases, the dedicated or otherwise conserved land can still function as part of a continuous trail system in the interim since, for most of the proposed permanent open-space network, the emphasis should be on low-maintenance, natural-growth, passive-recreation paths, with minimal upkeep needs. When the time comes for more capital-intensive park development of portions of open space lands, State programs for parkland acquisition and development may assist in facility construction of recreational sites.

The permanent open space system offers an opportunity to expand open space and recreational opportunities in the valley, and is intended to be complementary to existing federal parks, state parks and game lands, county parks, and local recreational facilities. As part of the interconnecting network themselves, these other facilities have major roles to play in the system's development. Cooperation among the various levels of government can produce tangible open-space benefits for valley residents.

Other benefits of the permanent open space network may include:

- Reduction of stormwater flood drainage;
- Maintenance of stable groundwater levels;
- An attractive amenity that can be a strong selling point in gaining business investment;
- Enhancement of property values for bordering and neighboring residences.

Residential Uses

The housing element of the Growth Management Plan (see Section 5 of this chapter) explains in detail the intended locations for residential use, incorporating a gradation of densities from very low to moderately high. Distinctions among residential categories are made according to gross density limits rather than by specific housing types, to increase flexibility in responding to natural site conditions, public recreational needs, and market demands for a range of housing types and site sizes. On newly-developing tracts, it is intended that this flexibility should lead towards open space conservation, as well as the opportunity for development of a range of housing types to meet the needs and desires of the present and future residents of the valley.

In general, very low-density residential development is proposed for areas east of the LVIH, west of Route 6, and north of Carbondale, reflecting the primary resource-protection and recreational uses intended. Higher densities are proposed, ranging from medium-low through to high densities, in designated growth areas, mostly between the two aforementioned highways.

Industrial Uses

The Land Use Plan indicates several locations as the most appropriate for future industrial uses. Most of these locations are at the southern end of the LVIH, emphasizing the importance of the new four-lane, limited-access highway for access to industrial sites and the proximity of its southern three interchanges to the Interstate Highway system. The Marshwood Road, Lackawanna Avenue, and Moosic Lake Road (Route 247) interchanges are within five miles of the Interstate 81-380-84 interchange and, with the development of the Keystone and Mid-Valley industrial parks, are already established locations for these uses. While the Keystone Industrial Park is nearly fully developed, there is considerable acreage available for future growth at the Mid-Valley Industrial Park. Over the planning period, it is expected that the Mid-Valley site will be a primary location for new industrial development in the valley.

Other projected locations for new industrial development at the southern end of the valley include sites on either side of the LVIH, just north of the Route

247 interchange, and the Moosic Mountain Business Park, at the eastern edge of the valley.

The Moosic Mountain Business Park is currently under development. The Federal Bureau of Prisons has selected a site at the eastern corner of Jessup Borough for a new prison. The Boroughs of Jessup and Olyphant have rezoned the area to permit development of a business park and all planning commissions have approved development of the business park. Design of the supporting infrastructure is complete. The rough grading of roadways and the installation of storm water management measures are substantially complete. Any undeveloped property in the area should follow the Plan's general land use recommendations for the east side of the valley, constituting a mix of open space and resource conservation areas.

Up the valley, industrial areas on the west side of the river at Carbondale and on the east side of the river closer to the new Meredith Street Connector are recommended for significant additional industrial development.

Existing industrial sites in other areas in the valley are recommended to be retained but not appreciably expanded.

Commercial Uses

The Land Use plan indicates three major types of commercial use areas for the Lackawanna Valley. All three have important roles to play in its future.

The traditional community commercial cores remain significant locations for local retailing and services. These areas exist in all twelve municipalities and the Plan envisions continuity of these Central Business Districts and more limited neighborhood business areas through the planning period. As well as their important local service functions, local commercial activities are also an important source of tax revenues to municipalities, provide local jobs, and are supportive of pedestrian and transit circulation in lieu of automobile trips. A goal of the Plan is to reinforce traditional business districts while reducing transportation demands -- an emphasis on the core areas of existing places for retail activities supports these goals. Additional commercial use in traditional core areas ensures long-term community economic viability, which is the critical component in maintaining community functions and character. If carefully planned and designed, new uses in older communities can enhance their aesthetic harmony and ambiance. The combination of new and existing

residential areas focused on traditional core functions of boroughs and other centers allows for home-work and home-shopping connections that are physically close, and that present the opportunity for short-distance and -duration trips by automobile or alternate means, such as bicycle or on foot.

The Land Use Plan implies a commitment on the part of boroughs, townships, and cities to recognize the inherent economic, social, and aesthetic value of their existing settlements, and to follow through on community economic revitalization efforts, new and updated local comprehensive plans (with strong emphasis on circulation and parking questions), and the preparation and adoption of design guidelines and controls for new development in historic places.

Highway-oriented strip commercial use is already well-established along Route 6 in Dickson City, Blakely, Archbald and Mayfield. But while these uses are firmly entrenched, the Growth Management Plan proposes that their extent be essentially limited to the land area that they already occupy. This consolidation of strip commercial uses is considered important for the long-term viability of Route 6 as the major traffic artery for the west side of the valley. A pattern of strip commercial development results in a proliferation of access driveways, as well as increased numbers of commercial signs and lights. Free-flowing traffic is inhibited by frequent opportunities for slowing and turning to gain access to flanking businesses and for re-entering the traffic stream from these establishments. The likelihood of accidents is increased. The overall visual environment can present a potential safety hazard to motorists who may become confused by the array of signs and lights, both for traffic direction and commercial establishments, that predominate.

An elongation of the strip commercial areas of Route 6 at its southern end and in the Eynon area of Archbald would undermine Route 6 as a principal arterial road and create additional environmental and aesthetic problems in the valley. Any future commercial development along Route 6 should take place within the areas already established and in the form of shopping centers with limited access to Route 6.

As a regional highway with direct access to the Interstate system, Route 6 will carry increased traffic over the planning period. Competing demands for the Route 6 corridor translate into a need to develop a sophisticated development framework in order to reconcile and coordinate land use, through traffic movement, auto access to bordering properties, site layouts, parking, building envelopes, pedestrian activity, landscaping, lighting, buffering and signage.

Current problems along the corridor, including frequently hazardous access to and from off-street parking, inadequate landscaping and stormwater management, and undistinguished building design and signage, are in need of remedial actions, but if the road is to function simultaneously as a high-volume regional arterial and a "Main Street" for the west side of the valley, new development regulations and design guidelines need to be put in place.

The Growth Management Plan recommends that traffic safety, congestion and commercial-district image concerns be addressed by regulating the number and spacing of access driveways and by developing and implementing revised regulations concerning setbacks, parking layout, landscaping, stormwater management, signage and buffering.

Access for new development should be based on the principle of minimizing the number of driveways. New development may be required to have shared access, or marginal or rear access if practical. New access should be permitted conditioned on the property owner's consent to share access with future adjacent development where such access can be shown as feasible.

Remedial action plans should focus on the issues of shared vehicular access, but also address parcel development standards (such as those pertaining to impervious coverage, landscaping, and stormwater management) in order to improve the image and environment of existing Route 6 commercial areas. Once these standards have been determined, they may be incorporated into land development regulations and municipalities can limit issuance of building permits for any alterations to existing establishments based on compliance with the new standards.

The construction of the LVIH will create a series of highly-attractive locations for commercial development at highway interchanges, especially for those most accessible to the region, towards the LVIH's southern end. The challenge to valley communities is threefold: to concentrate interchange development and not permit it to sprawl along the highway and up onto the walls of the valley; to establish development standards that result in high-quality, visually-attractive, and environmentally-responsible site design, buildings, and uses; and to encourage a mix of retail and office uses (possibly higher-intensity residential use as well) that will produce opportunities for "one-stop" patronage of several kinds of facilities, reduced rate of auto-trip generation, and increased opportunities for pedestrian circulation and use of mass transit.

The LVIH interchange areas represent a kind of "clean slate" area for commercial and mixed-use development in the valley. These areas are

relatively unencumbered by existing development, although some mine spoils areas exist around certain interchanges. Each Interchange Activity Center (IAC) identified on the Land Use Plan has the potential to become a blend of different uses, with possible combinations of office-commercial, retail commercial, higher-density residential, institutional, hotel and open space elements.

The highest level of LVIH accessibility to the region is achieved by the Marshwood Road, Lackawanna Avenue, and Route 247 interchanges, and the IAC-designated areas for the southern part of the LVIH are significant. Smaller IAC concentrations are indicated for the Salem Road and Rushbrook Street interchanges. The Meredith Street Connector area, including portions of Route 6, are considered the LVIH's gateway to Carbondale and vicinity, including the Environmental Center area. These factors combine to recommend a generous land area for mixed IAC-type uses at this location.

Figure 3.3.1 Land Use Plan

SECTION 4: CIRCULATION PLAN

Introduction

The goal of the circulation element of the Growth Management Plan is to provide for the future transportation needs of the valley. With the opening of the Lackawanna Valley Industrial Highway, now projected to occur just prior to the turn of the century, significant changes in valley traffic patterns may be expected.

The circulation element addresses the differing transportation needs of the planned growth and "low-growth" areas in the valley (see Section 3 of this chapter). Also recognized are the significance of future Interchange Activity Centers for new commercial and mixed-use development in the valley and the continuing importance of selected US Route 6 and valley-floor areas for these kinds of activities, as indicated in the Land Use Plan.

As part of the examination of transportation-related effects from future development in the valley, two types of traffic analysis were conducted. The first was a documentation of existing conditions and the second a review and analysis of future conditions. Existing conditions were documented through the conduct of field views of the major links in the network and an analysis of automatic traffic recorder counts. The results of this analysis can be found in Chapter 2, Section 7. Future traffic volumes were developed using a traffic model, based upon compilations of existing transportation and socio-economic data and projected development in the region, accounting for and assuming future growth in accordance with the Corridor Plan's forecasts of population, housing, and employment (see Chapter 2, Section 6) and the patterns of development envisioned by the Land Use Plan.

Travel Projection Method

Traffic volume outputs from the model were generated for an "existing conditions" year 1990 and future conditions year 2010. The traffic volumes generated for each of the two relevant years were analyzed utilizing a screen line approach, discussed in detail further on in this section.

Existing Conditions

Average Daily Traffic Volumes (ADT) were collected for most of the links in the study area. The majority of the volume data were provided by the

Lackawanna County Regional Planning Commission (LCRPC) and by the Pennsylvania Department of Transportation (PennDOT). Volume data gathered were adjusted to 1990 by using the method and factors specified in PennDOT's Procedures For Adjusting Traffic Count Data - 1993 Edition. The primary purpose for gathering data on existing volumes is for verification and calibration of the traffic model.

In addition to gathering traffic volume data, field observations were conducted to determine roadway and geographic characteristics of the study area. Data gathered from this analysis include speed limits, traffic controls, roadway classification, accident history, number of lanes, roadway obstructions, and free-flow speed travelled along the roadways in the study area. Observations of traffic conditions during peak periods were also made.

Modelling Process

The traffic model was developed by LCRPC using a SYSTEM2 software package. The model was constructed to include the entire Lackawanna Valley as the study area, with external zones established for each highway originating outside the study area that feeds traffic into the valley. The model is made up of two components: Gravity -- inter-zonal trip estimates (within the study area); and Fratar -- external trip estimates (outside of the study area to within the area). Factors and equations for trip production and attractions used in the model were taken from a model prepared for a similar region in Pennsylvania (State College), and modified in the calibration process to reflect the Lackawanna Valley. Factors required for the Fratar model were determined from reviews of travel patterns in the county and of existing traffic volumes along major arterial roadways.

Two traffic model scenarios were created for analysis, 1990 Existing Conditions and 2010 Future Conditions. Existing Conditions model runs were made for the purpose of calibrating the travel projection model, so that its results would reflect the 1990 traffic volumes actually counted on the valley's roadways. Once the model was calibrated, future demographic and employment forecasts were input. The following paragraphs describe the results of the modelling process.

Existing 1990 Traffic Volumes

Existing traffic volume counts were compiled by LCRPC and then adjusted to 1990. A review of the volumes indicates that traffic is heaviest in the network toward Interstate 81. The three most heavily utilized roadways from Interstate 81 are U.S. Route 6, Main Street, and PA Route 347: U.S. Route

6 volumes range from 18,430 near Scott Road to 22,000 north of Lackawanna Avenue; PA Route 347 volumes are 15,220 vehicles per day south of Lackawanna Avenue; and Main Street's volumes are 13,600 vehicles per day south of Dundaff Street. Other prominent traffic volume numbers include those along Interstate 81 between Main Street and PA Route 347 (52,000 vehicles), and Lackawanna Avenue between Underwood Road and Mid Valley Drive (6,900 vehicles). Figure 3.4.1 illustrates the range of average daily traffic volumes in the valley.

Screen Line Analysis

An initial analysis to determine network capacity deficiencies was made using a screen line approach. This process involved evaluating three imaginary screen lines or slices through the network. The Fell Township screen line was taken in an east-west direction along the northernmost roads in the network. The Jermyn screen line was sliced in the middle of the study area (U.S. Route 6 and PA Route 347 between Archbald Borough and Mayfield Borough). The third screen line (southern screen line) sliced across five southern links in an east-west orientation between Scott Avenue and Interstate 81. The screen line links include U.S. Route 6, Main Street, PA Route 347, Marshwood Road, and Underwood Road.

This method enabled an evaluation of the system at a coarse level and a determination of the percent error along each screen line when model output was compared to actual traffic volumes. The results of the screen line analysis are as follows:

Screen Line	Exist. ADT	Model ADT	Percent Error
Fell Township	15.838	14,405	-9%
Jermyn	19,856	20,486	+3%
Southern	58,508	56,762	-3%

Volumes generated by the model are within 10% of existing ADT volumes for principal arterials, as called for in the Federal Highway Administration's Calibration and Adjustment of System Planning Models, 1990, and therefore are acceptable under the standards.

Existing Congestion

Upon completion of the calibration process, the model was run to determine volume/capacity ratios for all the links in the network under existing conditions. The volume/capacity analysis was conducted based on standards

listed in the Transportation Research Board's Highway Capacity Manual, 1985 and through the analysis program within the SYSTEM2 software. The Highway Capacity Manual was used for two locations in the network, U.S. Route 6 near Interstate 81 and Main Street in the City of Carbondale, since the model does not take into consideration excessive curb cuts between major links and excessive obstructions alongside roadways, as found on these two specific links. The results of the overall valley roadway analysis indicated that the following links currently operate with congestion:

- U.S. Route 6 between Interstate 81 and PA Route 247
- PA Route 347 between Interstate 81 and Keystone Park Road
- Main Street between Interstate 81 and PA Route 247
- Brooklyn Street between Pike Street and south of PA Route 107
- Keystone Park Road between Reeves Street and PA Route 347
- Lackawanna Avenue between Valley Avenue and Main Street
- Valley Avenue between Cypress Street and Lackawanna Avenue
- Sanderson Street between Keystone Road and Cypress Street

Future Traffic Projections

With the successful calibration of the model, demographic and employment forecasts for the year 2010 were input. Changes in socio-economic data, employment figures, and the roadway network over the twenty-year period reflect future projected conditions in the valley assuming the Growth Management Plan is followed. Changes to the roadway system include the Lackawanna Valley Industrial Highway and two "connector roadways," Commerce Drive between U.S. Route 6 and Main Street in Dickson City, and Mellow Drive between Mid Valley Drive and PA Route 247 in Jessup Borough.

Changes in Traffic Volumes (1990 vs. 2010)

Figure 3.4.2 illustrates changes in traffic volumes within the network between 1990 and 2010. Listed below are roadway links projected to have reduced ADT traffic volumes in 2010, when compared to current levels.

Link with Reduced Volume	**Between**	
U.S. Route 6	Interstate 81	Commerce Drive
PA Route 347	Interstate 81	Valley Avenue
Main Street	Dundaff Street	north of Betty St.
Pike Street	Brooklyn Street	Gordon Avenue
Brooklyn Street	Main Street	Clidco Drive

Link with Reduced Volume	Between	
Canaan Street	PA Route 171	U.S. Route 6
Fairview Street	Dundaff Street	PA Route 106
Wayne Street	8th Avenue	Dundaff Street
PA Route 106	Fairview Street	Dundaff Street
Main Street	Winton Street	Salem Road
Constitution Avenue	Hill Street	Lane Street
Valley Avenue	Lane Street	Lackawanna Avenue
Lackawanna Avenue	Main Street	Mid Valley Drive
Mid Valley Drive	Lackawanna Avenue	Mellow Drive
Mellow Drive	Mid Valley Drive	PA Route 247
Bridge Street	Constitution Avenue	south of Main St.
Underwood Road	Sanderson Street	Lackawanna Avenue
Sanderson Street	Dickson City Line	Keystone Road
Cypress Street	Valley Avenue	PA Route 347
Enterprises Street	Keystone Road	Keystone Park Rd.
Keystone Park Road	PA Route 347	Reeves Street
Monahan Avenue	PA Route 347	Reeves Street
Reeves Street	Keystone Park Road	south of Monahan St.
Enyon-Jermyn Road	Washington Avenue	PA Route 107
Washington Avenue	Jermyn Borough borderline	north of Salem Rd.
U.S. Route 6	Scott Road	Pike Street
Cemetery Street	north of Poplar Street	Brooklyn Street
Dundaff Street	south of Fairview Street	Brooklyn Street
Scott Road	U.S. Route 6	Dundaff Street
PA Route 247	U.S. Route 6	Ridge Road
Dundaff Street	Main Street	Lackawanna Ave.

A majority of the links showing a reduction in traffic volumes occur at locations where the model indicates that traffic will be diverted to the Lackawanna Valley Industrial Highway (LVIH) from existing roadways.

The figure also shows locations where ADT traffic volumes are anticipated to increase. Three levels of traffic increase are shown: Under 1,000 vehicles; 1,000 to 3,000 vehicles; and above 3,000 vehicles. As can be seen in the figure, increased traffic volumes are expected on links connecting to the LVIH, as opposed to the reduced traffic volumes projected on the previously-listed links.

Locations of Future Congestion

A review of the results of the travel projection model indicates that the general level

of traffic currently experienced in the valley will be reduced, even with the growth in employment anticipated by the Growth Management Plan. Figure 3.4.3 illustrates the locations of current congestion that will be relieved with the implementation of the Growth Management Plan and the LVIH, locations where current congestion will persist into the future, and new locations where congestion will occur where it does not currently exist.

The figure illustrates that three major areas of congestion will be relieved with the implementation of the Growth Management Plan. Along U.S. Route 6, congestion currently exists almost the entire distance from Scranton to Carbondale, however, by 2010 and with the opening of the Lackawanna Valley Industrial Highway, congestion is projected only in the commercial area between I-81 and PA Route 247. Along Main Street, congestion is currently experienced between I-81 and PA Route 347 in Blakely Borough, however, by 2010, congestion in Blakely Borough and in the northern part of Dickson City Borough will be eliminated. Only the section of Main Street in Dickson City Borough between I-81 and Dundaff Street will experience congestion. Along the PA Route 347 corridor, congestion is currently experienced in the commercial area near I-81 and in Olyphant Borough -- this congestion is expected to remain into the future.

The Lackawanna Valley Circulation Plan

The Circulation Plan (Figure 3.4.4) contains several strategies to enable the twelve valley municipalities, Lackawanna County, and the Pennsylvania Department of Transportation to provide for future transportation needs in the valley. These strategies include:

- Traffic Monitoring Areas
- Congestion Management Corridors
- Traffic Signals to be Installed as part of the LVIH
- Other Proposed Traffic Signals
- New Bridge Construction
- New Highway Construction

Traffic Monitoring Areas

Traffic Monitoring Areas have been identified based on specific locations where traffic is projected to increase in the future and where monitoring is required to ensure traffic does not increase beyond a safe capacity level. The locations identified in the Circulation Plan figure are as follows:

- Keystone Industrial Park Monitoring Area

- Mid Valley Industrial Park Monitoring Area
- Moosic Mountain Monitoring Area
- PA Route 247 Monitoring Area
- Meredith Street Monitoring Area
- Carbondale City Monitoring Area
- Fell Connector Monitoring Area

It is recommended that these areas be monitored in the future and actions be taken if the corridors operate above their traffic capacity due to growth within the area or from unanticipated future traffic patterns. Should congestion begin to occur in any Traffic Monitoring Area, it should then be classified as a Congestion Management Corridor for further analysis.

Congestion Management Corridors

Congestion Management Corridors have been identified at locations where traffic is anticipated to operate at poor levels of service by the year 2010, despite the opening of the LVIH. It is recommended that Congestion Management Corridors be added to the Congestion Management System (as described below) for periodic monitoring, with monitoring to begin after the opening of the LVIH. The three locations identified for such monitoring are: U.S. Route 6, between Interstate 81 and south of Scott Road; Main Street, between Dundaff Street and Interstate 81; and PA Route 347, between Cypress Street and Lackawanna Avenue, as well as Lackawanna Avenue between PA Route 347 and Main Street.

Placing these corridors into the already-established Congestion Management System managed by LCRPC enables them to receive regular periodic monitoring for congestion. The LCRPC Congestion Management System is designed to identify congestion along all of the main roadways of the county, including those in the Lackawanna Valley. When the monitoring program identifies congested conditions, the corridor is scheduled for detailed analysis and consideration for transportation improvements.

Congestion Management Strategies

Congestion Management is required by the Intermodal Surface Transportation Act of 1992 (ISTEA). ISTEA dictates that each Metropolitan Planning Organization (MPO) establish a system to monitor the occurrence of regional traffic congestion and develop a systematic approach designed to minimize or eliminate congestion. The Act further requires that strategies designed to reduce transportation demand be tested first before strategies designed to add capacity to the roadway system are considered for implementation. This is to ensure that the existing transportation system is used as efficiently as possible.

Responsibility to operate ISTEA's Congestion Management System in the Lackawanna Valley and its vicinity lies with the Lackawanna County Regional Planning Commission. As part of their annual work program, Commission staff collect and analyze data on roadways in the valley to identify congested links. Annually, as funds permit, congested locations and corridors are further studied to determine the best combination of improvements to eliminate congestion. These improvements are then placed on the Transportation Improvement Program for the area MPO, known as the Lackawanna-Luzerne Transportation Study.

In the Lackawanna Valley, there are several Congestion Management Strategies that are likely candidates to work well and should be considered. They are as follows:

1. Transportation Management Associations (TMAs). A TMA is an association of large employers that band together to assist employees in their commutes to and from work. An established TMA can quality for funding from PennDOT and usually retains the services of an executive director. Typical services provided are:

   - shuttle services between park-and-ride lots, transit stops, and members' places of business
   - ride-share matching for employees
   - transit service discounts for employees
   - work shift start/end coordination
   - employee trip-reduction programs.

   A TMA covering the Keystone and Mid-Valley Industrial Parks should be initiated. In the future, it could be expanded to other local industrial parks.

2. Park-and-Ride Lots. A Park-and-Ride Lot is a remote parking lot that enables motorists (most often commuters) to drive to the lot and pool their trip from there to a common destination. Expressway interchanges are logical locations for park-and-ride lots, as are shopping centers with generous parking areas. In the Lackawanna Valley, park-and-ride lots should be established as part of the development plans for each Interchange Activity Center -- in this way, the lots could be privately financed. In addition, a lot should be established on US Route 6 as close to I-81 as possible. One of the commercial establishments in the area with a large parking lot would be an ideal location.

3. Trip Reduction Ordinances. A Trip Reduction Ordinance is a valuable tool when considering new developments with potentially many employees. Typically, such an ordinance requires large employers to adopt strategies up-front that reduce the level of trip-making in the peak commuting periods.

Actions employers may take (assisted by TMAs, when established) often consist of:

- maximum parking requirements (as opposed to minimum parking requirements)
- preferred parking for carpools and vanpools
- staggered working hours or flexible working hours
- transit fare subsidies
- telecommuting (encouraging employees to work from home)
- arrangements for remote parking and shuttle buses.

It is important that a prospective development undertaken under Trip Reduction Ordinance provisions not be placed at a competitive disadvantage to other developments and areas that do not employ trip reduction ordinances. Consideration should certainly be given to adopting an ordinance requiring employers with more than 100 employees to reduce peak-period trip-making in accordance with the Clean Air Act Amendments if they become applicable to the Lackawanna Valley.

4. Access Management Standards. In the Lackawanna Valley, responsibility for roadway ownership falls either to PennDOT, Lackawanna County, or to local municipalities. In addition to maintenance responsibilities, each jurisdiction also is responsible for controlling street and driveway access to the roadways. At the present time, each jurisdiction considers access questions on a case-by-case basis but, over time, this has led to inefficient and frequently hazardous access to public rights-of-way. It is therefore recommended that access management standards be adopted for roadways in the Lackawanna Valley.

PennDOT is currently developing access management standards for the state highway system. When promulgated, these standards should be applied to all applicable roadways. In the interim, the following general principles should be applied when considering applications for access:

- Regulate the frequency of driveways along roadways to reduce the occurrence of traffic conflicts between turning and through traffic.

- Regulate the minimum separation between driveways to curtail the safety risks of decelerating traffic on through traffic.

- Regulate the minimum distance between the public road and the first internal driveway circulation intersections.

- Establish driveway width and separation controls to reduce traffic conflicts. Driveway openings should be designed to expedite the rapid entry and exit of traffic. Driveways on opposite sides of the road should either be aligned precisely opposite each other, if the installation of traffic signals is expected, or spaced far enough apart to avoid conflicts.

- Regulate corner clearance -- the distance from the nearest roadway intersection to the driveway.

- Regulate building and parking setbacks to ensure adequate lines of sight at driveways.

- Establish minimum lot width requirements to reduce the number of driveways.

- Establish "ultimate rights-of-way" for developing areas to ensure sufficient room for future roadway widenings.

- Where access is available to a minor intersecting roadway, access to the major roadway should be curtailed or denied.

- Consolidate access to adjacent properties. Cross easements, frontage roads, and joint driveways should be strongly encouraged.

The application of the above access management principles will vary in type and degree based upon the level of current development, the type of current and proposed land use, the type of highway, and other factors, such as posted speed limits. Consideration should be given to establishing special highway corridor and interchange zoning districts in order to implement the above-cited principles and standards.

5. Public Transportation Improvements. At the present time there is little evidence that the valley's COLTS public transportation system (see Figure 2.7.9) needs to be extended, but the situation could easily change with the opening of the LVIH and the establishment of park-and-ride lots and new development at LVIH interchanges. Local TMAs should coordinate transit-demand monitoring activities with COLTS to determine the need for additional transit services in the valley over the next few years.

6. Pedestrian Circulation. Pedestrian circulation will continue to be associated primarily with the traditional core areas and neighborhoods of valley communities. Infill and new development in the Land Use Plan's designed

growth area for the valley should incorporate sidewalks and other pedestrian pathways to connect new residential areas to adjacent and neighboring residential areas and to transit stops, schools, shopping, recreational, and employment locations.

Special emphasis needs to be made in the case of the development of Interchange Activity Centers, so that these function as true, integrated multi-use centers, permitting employees to safely and conveniently walk to their place of work from a parking location or transit stop and to reach local shops and services on foot. Residential and hotel developments at Interchange Activity Centers should similarly be strategically placed, to allow residents and visitors to walk easily to local shopping, recreation, employment, and transit opportunities. The road and sidewalk/pathway systems for Interchange Activity Centers need to be designed in such a way as to make these areas as "pedestrian-friendly" as possible.

7. Bicycle Circulation. Similar to the provisions for pedestrian circulation, consideration for bicycles should also be made. New roadways with a status of collector or arterial should be built with paved shoulders to accommodate bicycles. Pathway and trail systems that are already being established in open space areas of the valley should also consider provisions for bicycle connections from residential areas to shopping, schools, recreational, and employment centers. The Open Space Plan (Figure 3.7.1) represents an armature for a future bicycle circulation system throughout the valley.

Proposed Traffic Signals

Traffic signals are proposed to be installed at the following intersections, either as a part of PennDOT improvements directly associated with the LVIH, or as an action by a local government:

LVIH Signals

- Throop Borough - Marshwood Road / LVIH Ramps (2)
- Jessup Borough - PA Route 247 / LVIH Ramp
- Jessup Borough - PA Route 247 / Mellow Drive
- Archbald Borough - Salem Road / LVIH Ramps (2)
- Jermyn Borough - PA Route 107 / Enyon-Jermyn Road
- Carbondale Township - Meredith Street / Brooklyn Street

Other Signals

- Carbondale City - Brooklyn Street / Pike Street
- Blakely Borough - U.S. Route 6 / Terrace Street
- Blakely Borough - U.S. Route 6 / Scott Road
- Blakely Borough - U.S. Route 6 / PA Route 347
- Dickson City Borough - Main Street / Commerce Drive
- Scranton City Limits - Main Street / Interstate 81 Ramps (2)

- Olyphant Borough - Moosic Lake Road / Marshwood Road
- Jessup Borough - Moosic Lake Road / Industrial Park Road
- Jessup Borough - PA Route 247 / Industrial Park Drive

New Highway and Bridge Construction

In addition to the LVIH, several new bridges and other roadway improvements are planned for the valley. Key projects are as follows (see also Figure 2.7.8 and Table 3.4.1):

- US Route 6 over PA Route 347 (Blakely Borough)
- Ridge Road Bridge (Blakely Borough)
- Keystone Avenue Bridge (Blakely Borough)
- PA Route 247 Safety Improvement (Jessup Borough)
- Bridge Street Bridge (Jessup Borough)
- Route 247 Bridge (Jessup Borough)
- Wayne Street Bridge (Archbald Borough)
- Gilmartin Street Bridge (Archbald Borough)
- Delaware Street Bridge (Jermyn Borough)
- Cemetery Street Pavement Restoration (Mayfield Borough)
- Chestnut Street Bridge (Mayfield Borough)
- Eighth Avenue Bridge (Carbondale City)
- Sixth Avenue Bridge (Carbondale City)
- Salem Avenue Bridge (Carbondale City)

The construction of the Lackawanna Valley Industrial Highway, anticipated to open fully by the turn of the century, represents the single most significant transportation improvement in the region. The LVIH is proposed to extend from the I-81/I-84/I-380 junction in Dunmore Borough to U.S. Route 6 in Carbondale Township, northeast of the City of Carbondale.

Financing of Road Improvements

In Pennsylvania, transportation improvements are funding largely through liquid fuels tax revenue supported by federal aid. These funds are managed by the Pennsylvania Department of Transportation and allocated through the Metropolitan Planning Organization (MPO) for Lackawanna County, the Lackawanna-Luzerne Transportation Study (LLTS). LLTS is the designated local planning authority that manages the allocation of funds for the maintenance and improvement of transportation infrastructure. Currently, LLTS includes the following major transportation improvements in their Long Range Transportation Plan for the Lackawanna Valley:

1. Lackawanna Valley Industrial Highway;

2. US Route 6 widening to five lanes, including the improvement of the US Route 6 bridge over PA Route 347.

Table 3.4.1 illustrates the remaining improvements slated for the Lackawanna Valley. Of note is the Lackawanna Valley Heritage Trail, which is to provide access along the Lackawanna River for pedestrians and cyclists.

These transportation improvements are scheduled to be implemented over the next twelve years. However, it is probably not realistic to expect that all projects will be able to be funded through the use of liquid fuels taxes or federal funding. In the Lackawanna Valley, for areas that may be expected to gain substantial development (such as the Interchange Activity Zones), a combination of public funding and private funding should be considered. In Pennsylvania, there are at least three ways that this kind of funding partnership could occur. They are as follows:

1. Transportation Partnership District (State Act 47). This legislation allows for the establishment of special assessment districts in which landowners are assessed to generate funds to match public funds for transportation improvements. This method requires that the ownership of 51% of the assessed value of the land in the district be in favor of the assessment. If this prerequisite is met, then bonds may be sold by the municipal government sponsoring the district to finance the improvements, with the bonds guaranteed by the capital stream provided by the assessments.

2. Traffic Impact Fee Assessment (State Act 209). This legislation permits the imposition, up front, of fees by municipalities on land development, based upon a detailed traffic study of an area and the projected traffic impact of each new development. The detailed traffic study is used to establish the total cost of all new traffic improvements needed for the area, the proportionate impact fee, and the schedule of the improvements. If improvements are slated for a state highway, impact fee revenues can fund a maximum of 50% of the improvement -- some level of public funding is required.

3. Informal Partnerships. Where Act 47 or Act 209 partnerships appear not to be appropriate another kind of partnership may still be possible. With proper legal agreements, informal partnerships may be established between private and public entities to construct highway improvements.

Regardless of these funding mechanisms, local governments must still consider the traffic impact of each development proposal submitted for appproval. In all cases, developers must quantify the traffic effects of their projects and recommend mitigation. Further, each municipal government in the valley must coordinate its review of the traffic impact of each development proposal with Lackawanna County

and PennDOT before local approvals may be issued.

Recommended Street and Roadway Standards for Low-Growth and Interchange Activity Centers Areas

This component of the Circulation Plan establishes recommended standards for the streets and roadways of two special identity areas indicated in the Land Use Plan. Low-growth areas are significant in that they are intended primarily for resource conservation; only very low density residential development should be permitted in these areas. Interchange Activity Centers (IACs) are associated with the new LVIH interchanges, and are appropriate locations for new mixed-use development, including office and retail commercial, business park, hotel, and medium-to-high-intensity residential uses. It is important to establish special roadway standards to enhance the livability, safety, efficiency of service, and convenience of these special kinds of residential and nonresidential areas. Table 3.4.2 outlines street and roadway design standards for low-growth and interchange activity center areas.

Low-Growth Areas

The Land Use Plan recommends that only very low density residential development be permitted on the sides of the Lackawanna Valley. Either in the form of single-family dwellings on large lots or clustered units on a tract left mostly preserved in its natural state, subdivisions of this type typically generate low volumes of traffic. It is also anticipated that there will be little or no on-street parking, as the housing units will either have driveways of sufficient length and garages to accommodate three to four vehicles or adequate off-street facilities of an alternate type. As a result, roadways serving this residential area can be narrower and designed in a manner that is sensitive to the wooded and hilly terrain through which they travel.

The roadway network anticipated to serve any new residential developments in this area will consist of either residential access streets (loop, cul-de-sac, and other streets serving 25 residences or fewer) and residential subcollector streets serving up to 100 residences. Because both classifications will carry light traffic volumes, only one roadway section is recommended. Figure 3.4.5 illustrates the proposed section.

Interchange Activity Centers

Potential Interchange Activity Center (IAC) development could be fairly intensive and generate substantial levels of traffic. Site planning for these areas must reflect the need for efficient and safe traffic circulation for vehicles using the roadways in each IAC. In these IACs, it is also anticipated that at least some roadways will need to accommodate large trucks.

Two classifications of roadway are recommended. The first is intended to serve individual parcels of land and are designated Service and Access Roadways. The second classification indicates roads to collect traffic from a number of Service and Access Roadways and are thus called Collector Roadways. Figure 3.4.6 illustrates typical sections for the two classes of roadway.

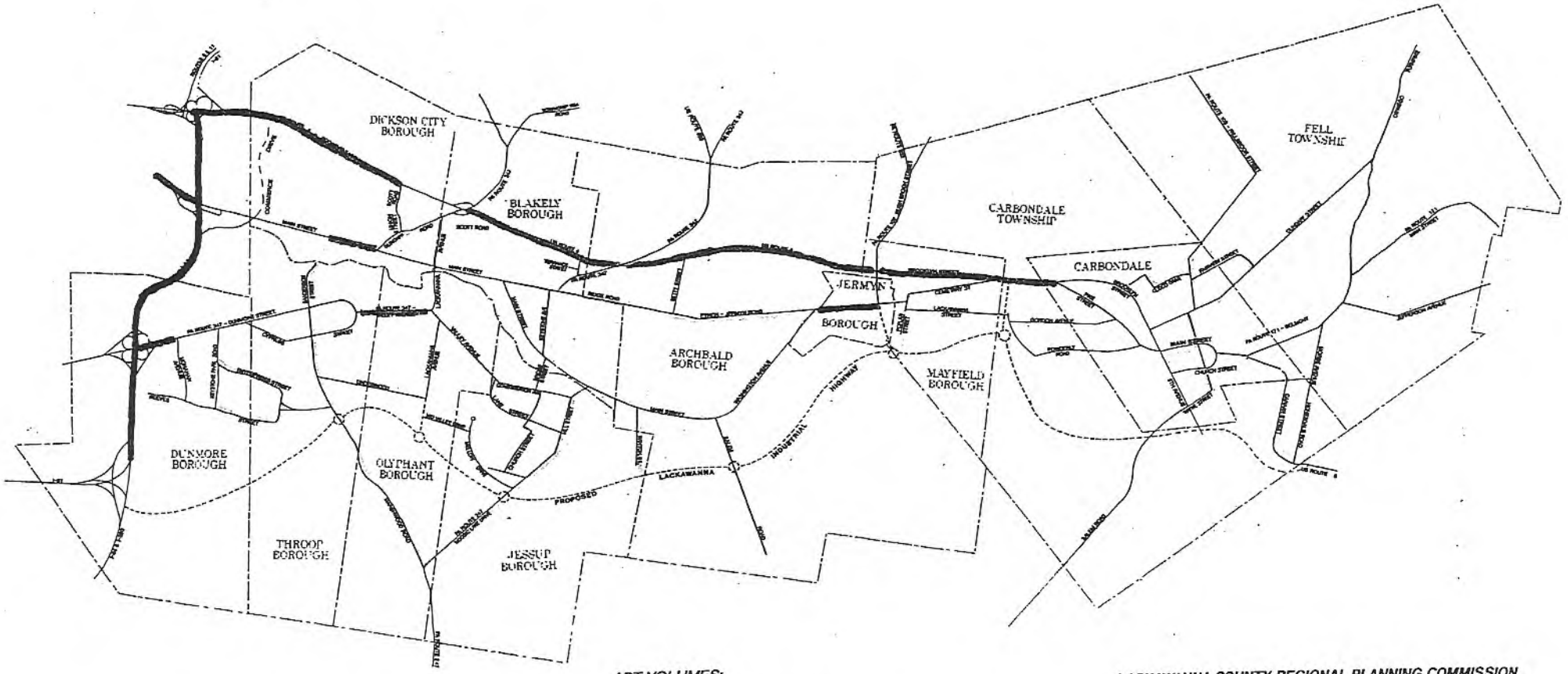
Table 3.4.1

Transportation Improvement Projects
Lackawanna Valley

Route No.	Community	Project Type
U.S. 6	Blakely	Bridge Replacement/Widening of U.S. 6 at PA 347
PA 106	Carbondale	Bridge Replacement -- Salem Street Bridge
PA 247	Jessup	Bridge Rehabilitation -- PA 247 Bridge
S.R.1008	Mayfield	Bridge Replacement -- Chestnut Street Bridge
S.R 1014	Jessup	Safety Improvement -- Jessup Curve
S.R. 1033	Carbondale	Bridge Replacement -- Eighth Street Bridge over Lackawanna River
Sixth Avenue	Carbondale	Bridge Replacement -- Sixth Avenue Bridge over Lackawanna River
Heritage Trail	Archbald	Enhancement Project -- Lackawanna Valley Heritage Trail

Table 3.4.2
Street and Roadway Design Standards

Design Factor	Low Growth Residential Areas		Interchange Activity Centers	
	Local Access Road	Residential Subcollector Road	Service and Access Road	Collector Road
Right of Way Width	50 feet	50 feet	55 to 60 feet	70 feet
Cartway Width	20 feet	20 feet	32 to 36 feet	36 feet
Type of Curb	stabilized turf	stabilized turf	vertical face	vertical face
Sidewalk Width	4 feet, special circumstances only	4 feet, special circumstances only	5 feet	5 feet
Sidewalk Distance from Curb	N/A	N/A	4 feet	4 feet
Design Speed	25 mph	25 mph	30 mph	35 mph
Minimum Sight Distance Looking Ahead	200 feet (desirable); 175 feet (minimum)	200 feet (desirable); 175 feet (minimum)	325 feet desirable; 300 feet minimum	350 feet desirable; 300 feet minimum
Minimum Sight Distance From Side Street	350 feet (desirable); 300 feet (minimum)	350 feet (desirable); 300 feet (minimum)	450 feet desirable; 375 feet minimum	475 feet desirable; 400 feet minimum
Maximum Grade	10%	10%	8%	8%
Minimum Intersection Spacing	125 local to local, 150 local to residential subcollector	150 feet local to residential subcollector, 300 feet between all other intersections	200 feet	1300 feet
Minimum Centerline Radius	180 feet	180 feet	300 feet	480 feet
Minimum Tangent Between Reverse Curves	50 feet	50 feet	100 feet	100 feet
Maximum cul-de-sac length	1,000 feet, loop streets preferred, 25 units max.	N/A	loop streets only	N/A



ADT VOLUMES:

- LESS THAN 5000
- 5001 - 10,000
- 10,001 - 15,000
- 15,001 - 20,000
- ABOVE 20,000

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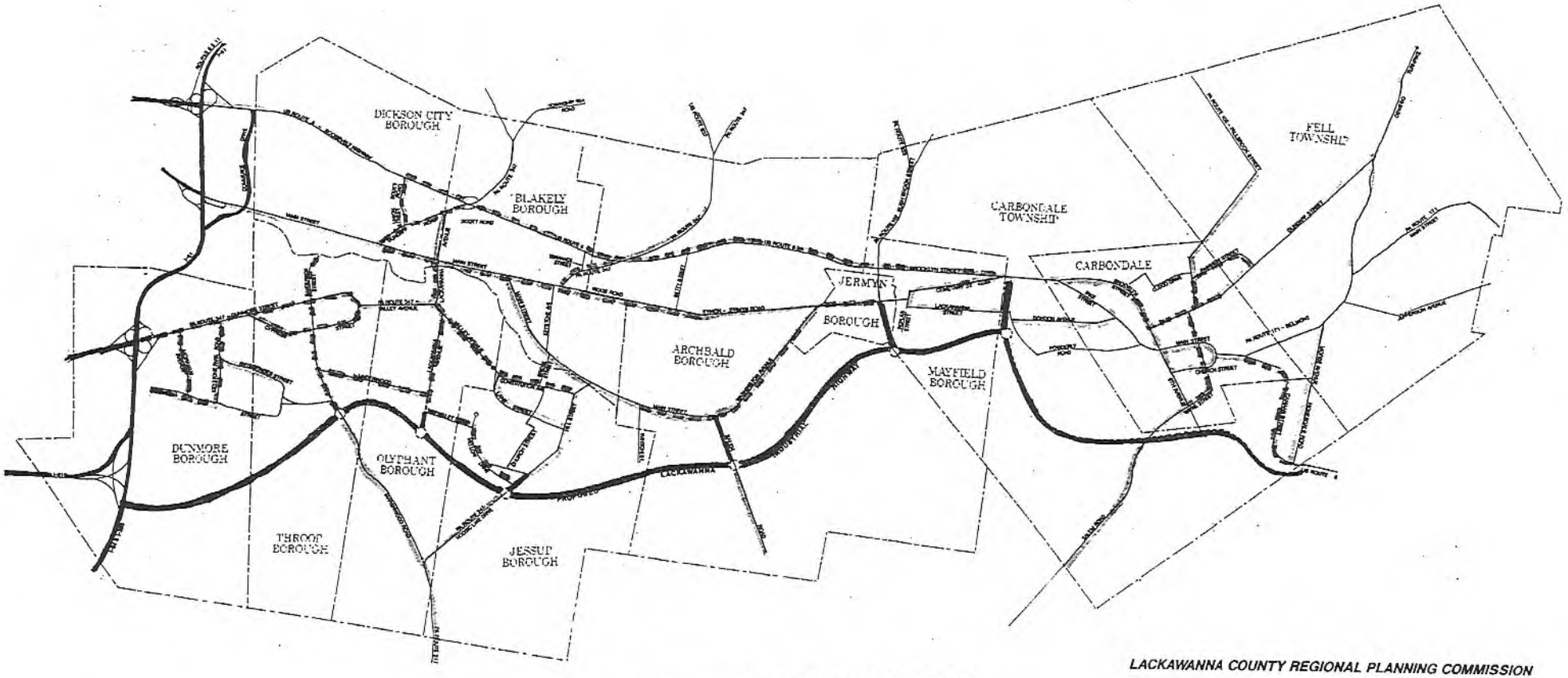
ECONOMICS RESEARCH ASSOCIATES
LAMB, FRIEDHOFFMAN & ASSOCIATES
MARVIN BROTTER CONSULTING SERVICES
MICHAEL ONTKO

EXISTING AVERAGE DAILY TRAFFIC VOLUMES

LACKAWANNA VALLEY CORRIDOR PLAN

Figure 3.4.1



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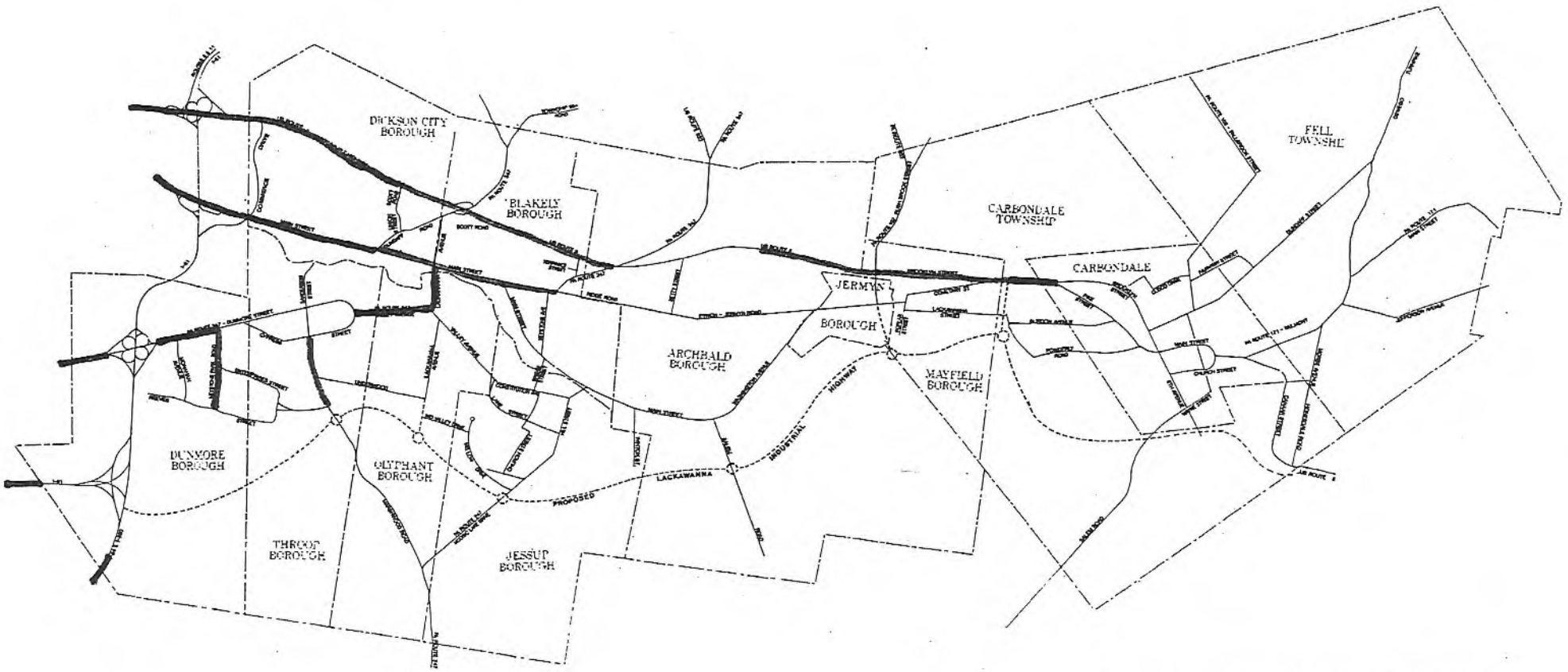
MARVIN BROTTER CONSULTING SERVICES
MICHAEL ONTKO

CHANGE IN AVERAGE DAILY TRAFFIC VOLUME MAP
-- EXISTING VERSES 2010 AVERA GE DAILY TRAFFIC VOLUMES

LACKAWANNA VALLEY CORRIDOR PLAN

Figure 3.4.2



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MARVIN BROTTER CONSULTING SERVICES
MICHAEL ONTKO

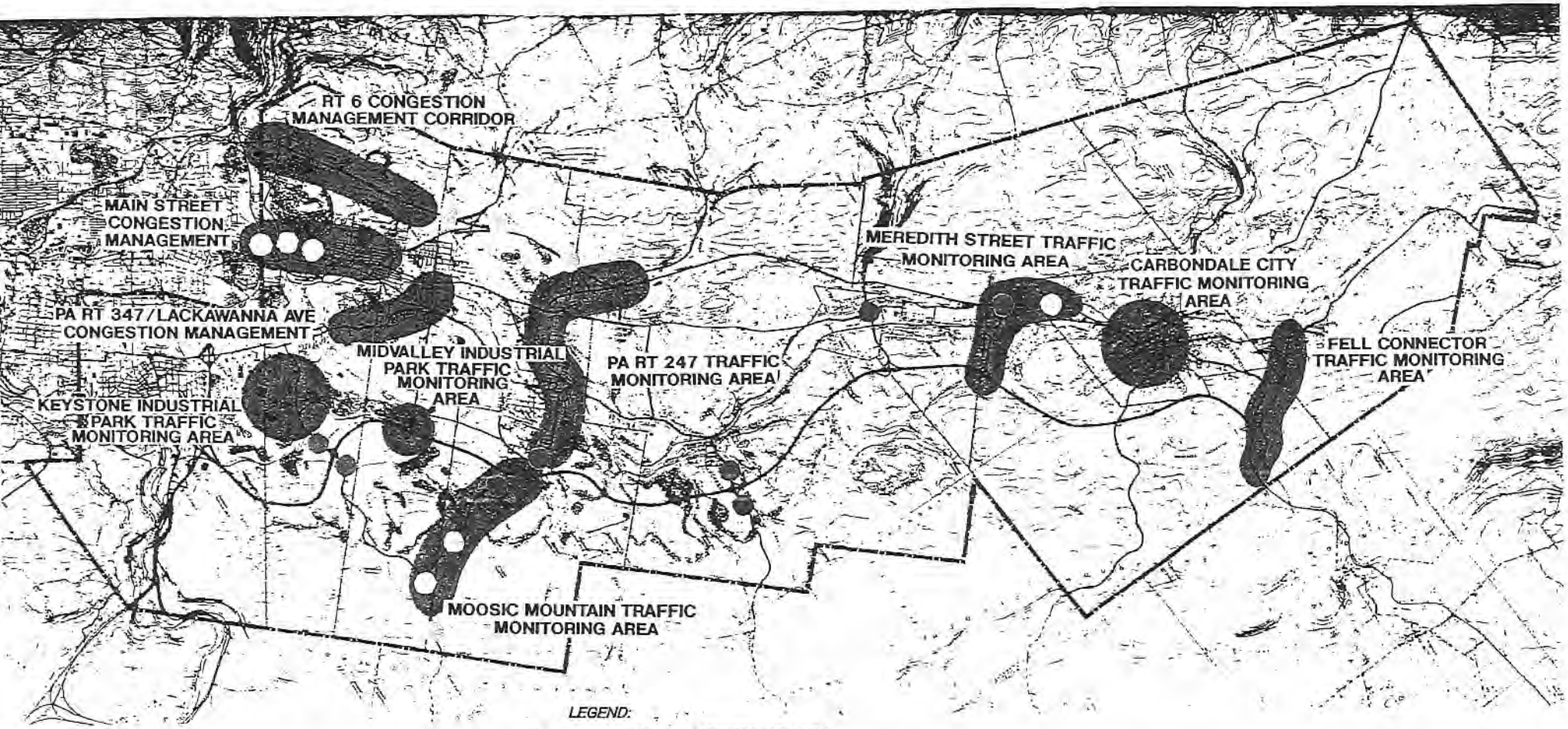
LEGEND:

- EXISTING
- EXISTING & FUTURE

CONGESTION AREA MAP

LACKAWANNA VALLEY CORRIDOR PLAN

Figure 3.4.3



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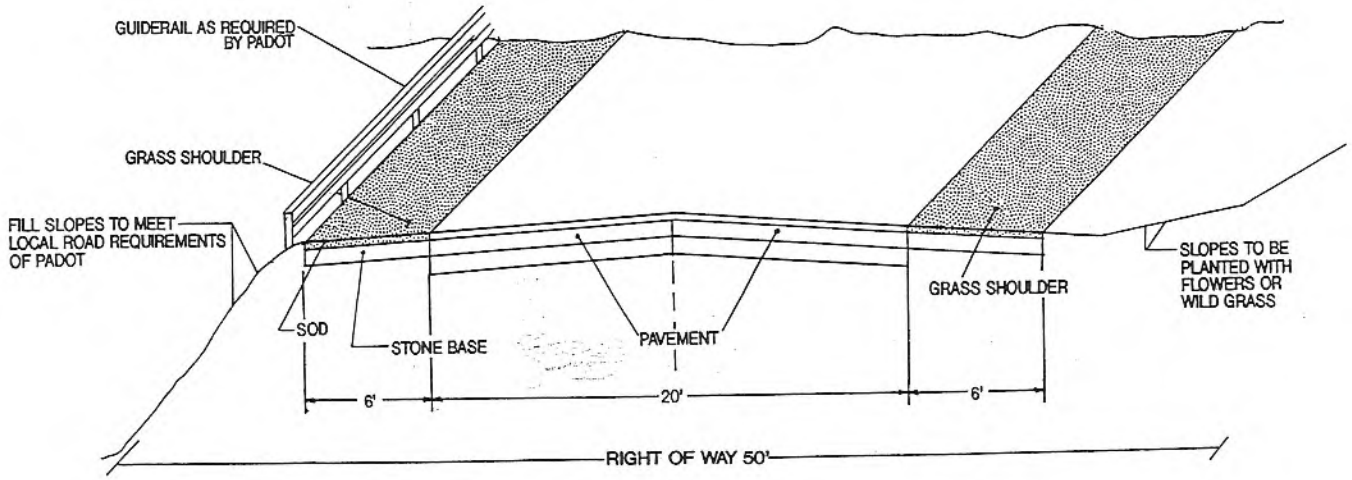
CIRCULATION PLAN
LACKAWANNA VALLEY CORRIDOR PLAN

Figure 3.4.4.

TYPICAL SECTION, RESIDENTIAL SUBCOLLECTOR STREET AND LOCAL ACCESS STREET IN LOW GROWTH AREAS



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MICHAEL ONTKO

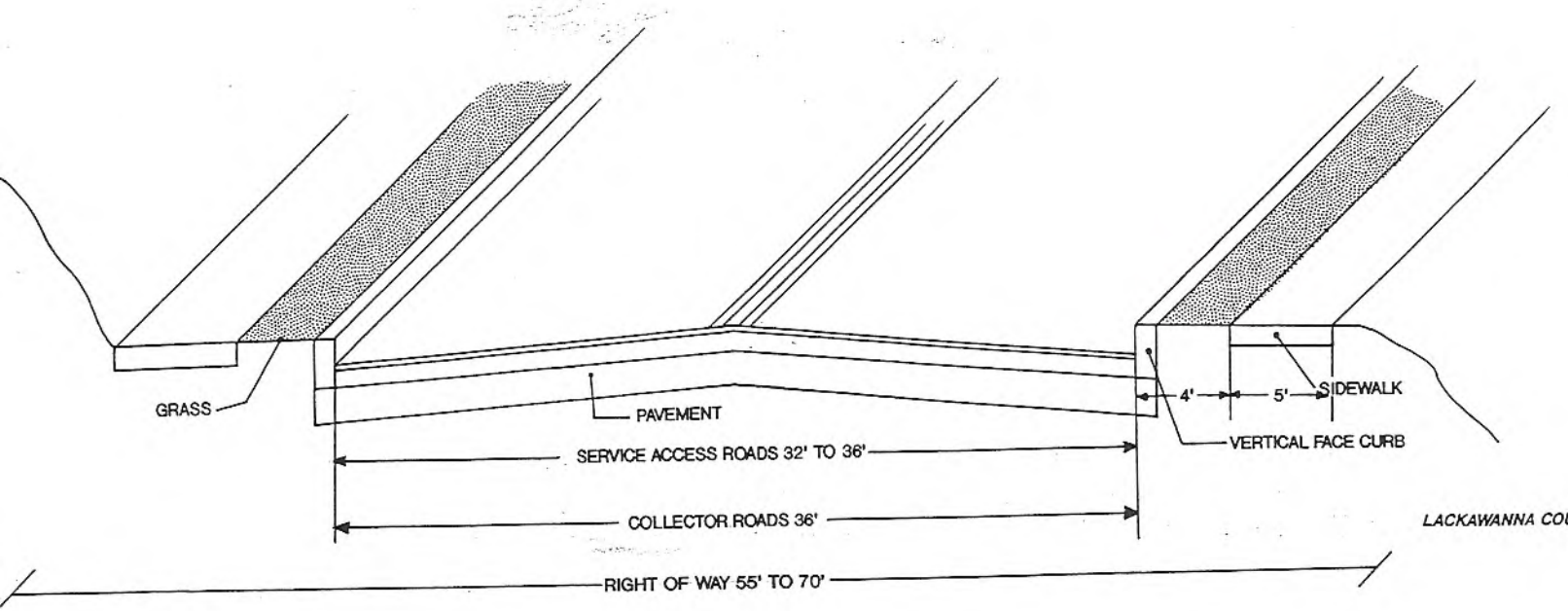
LACKAWANNA VALLEY CORRIDOR PLAN

FIGURE 3.4.5

NOT TO SCALE

3-4-22

TYPICAL SECTION SERVICE ACCESS AND COLLECTOR ROADS IN INTERCHANGE ACTIVITY CENTERS



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ORTH-RODGERS & ASSOCIATES, INC.
ECONOMICS RESEARCH ASSOCIATES
LANE, FRENCHMAN & ASSOCIATES
MARVIN BROTTER CONSULTING SERVICES
MICHAEL ONTKO

LACKAWANNA VALLEY CORRIDOR PLAN

NOT TO SCALE

FIGURE 3.4.6.

SECTION 5: HOUSING PLAN

Introduction

The goal of the housing element of the Growth Management Plan is to provide the opportunity for a range of housing types and sizes within the valley to meet diverse housing needs while at the same time supporting the other major goals of the Plan.

The housing element of the Plan explicitly recognizes the division of the valley into growth and low-growth areas. Low-growth areas include most of the sides of the valley east of the LVIH and west of Route 6, and are proposed primarily for resource conservation, environmental protection, recreation, and very low density residential development. Growth areas are designated as the primary locations for housing development. The Growth Management Plan recommends that the implementation tools of local comprehensive plans, zoning, water and sewer system extensions and improvements, road improvements, and community facilities development be employed in concert to promote residential development within growth areas as opposed to the sides of the valley.

The housing element recognizes the goal of the Plan to conserve natural resources by recommending residential clustering as a technique to achieve a more efficient use of land. Clustering reduces the amount of land consumed for residences when compared with conventional development methods, while at the same time preserving a portion of development tracts for permanent protection of natural resources and for open space uses. The Plan recognizes that cluster development can also be a significant method for growth areas as well as the sides of the valley, since there is a need to accommodate natural features protection and provisions for recreational and open space uses on the valley floor as well.

The Plan permits realistic opportunities for land development, to be implemented through local plans and zoning regulations. Potential new residential development is recognized for all twelve municipalities in the corridor; each should enact zoning regulations that are appropriate in the respective community.

The housing element recognizes the Growth Management Plan's goals and objectives with respect to community services and resource protection. The Plan's interconnecting permanent open space system, intended to permit pedestrian and bicycle connections to recreation, education, shopping, and

employment locations, as well as to preserve natural resources, is projected to be implemented largely through the ongoing process of land development. It is recommended that residential clustering be promoted in order to help realize the corridor's permanent open space system. "Clustering" can refer to any development design technique that concentrates buildings in specific areas on a site to allow the remaining land to be used for permanent open space, agricultural, or recreational uses, and the preservation of environmentally-sensitive areas. Clustering can involve only modest set-asides of land for these uses, or can involve set-asides of sixty percent or more of the whole tract considered for development. From the point of view of the Land Use Plan, this latter kind of clustering is much more appropriate for the sides of the Lackawanna Valley than the former, since the objective is to preserve the wooded slopes to the maximum degree possible. One residential development technique, Transfer of Development Rights (TDRs), may be considered the ultimate form of clustering, since this procedure results in 100 percent of the total tract preserved for appropriate open space, agricultural, recreational, and resource protection purposes. (TDRs are discussed later in this section).

Clustering is recommended for growth areas as well, where residential uses are indicated on the Land Use Plan outside of the corridor's already-built-up business districts and mature neighborhoods. Within these newly-developing areas, residential clustering to achieve set-asides of permanent open space for recreational and resource protection purposes is a significant objective.

To achieve increased set-aside of environmentally-sensitive areas, residential clustering provisions may be combined with ordinance regulations (zoning) permitting flexibility in the construction of housing types. By implementing regulations based on gross density classifications, rather than specific housing types and individual lot-size requirements, developers will be more likely to set aside environmentally-sensitive areas of tracts undergoing development. Greater development flexibility may result in increased creation of permanent open space lands and a housing-type mix that is better tuned to the needs of valley residents as they pass through the various stages of the life cycle.

The Plan proposes to increase opportunities for affordable housing principally by providing new settings for housing construction at medium and medium-high densities within designated growth areas. At the same time, housing opportunities may be expanded through more efficient use of the current housing stock. Provisions for residential conversions, accessory apartments, and shared housing should be addressed through plan implementation. ("Accessory apartments" refers to a separate dwelling unit contained within and subordinate to a single-family dwelling unit. "Shared housing" refers to individuals not related by blood or marriage sharing the same dwelling

unit.) Efforts should continue, utilizing state and federal funding, to rehabilitate substandard homes. Design standards for residential subdivisions should be established, appropriate to each community, addressing such issues as street widths, lot sizes, frontage widths, and setbacks -- all within the context of creating high-quality and affordable residential areas.

Residential Classification - Very Low Density

Residential development for most of the areas east of the LVIH, west of Route 6, and north of Carbondale should reflect very low densities. This is in keeping with the need to conserve the environmentally-sensitive features of the hillsides on either side of the valley, including steep slopes, woodlands, aquifer recharge areas, and reservoirs.

The chief tools towards achieving very low density residential development outside designated growth areas are development regulations such as zoning. The communities in the corridor need to work to achieve suitable regulations that will permit some degree of residential development in low-growth areas, but not at the expense of environmental degradation or loss of aesthetic values. Regulatory flexibility is recommended, giving property owners a variety of choices if they choose to develop their land, and containing various economic inducements to build compactly and to support the long-term goals and objectives of the Plan for these areas.

Development regulations for very low density residential areas should be based on the principles of large-lot, cluster, and TDR zoning. For conventional residential development an overall density limit of 1 dwelling unit per 5 acres might be widely adopted in the corridor. Density gains could be achieved, however, by landowners who consent to develop compact arrangements of dwelling units, rather than widely-spread homes. Eligibility to pursue alternative ways of developing, such as clustering of units, should be conditioned upon the owner's agreement to construct a street off of the existing frontage road to serve the new lots, with access to the frontage road restricted in order to minimize traffic conflict points and the use of the valley road network as subdivision streets. Availability of central water and sewer service would affect lot size and density requirements, with commensurate amounts of the development tract remaining undeveloped and preserved for open space uses.

The economic incentives built into land use controls and the tradeoffs possible among the provisions for central sewer, minimum lot sizes, and required permanent open space would be designed to encourage developers to build

in a concentrated portion of a tract, leaving the rest preserved in perpetuity for open space uses. The progression of development alternatives available to landowners should range from by-right large-lot zoning, through cluster development incorporating open space side-asides of forty to sixty percent of the total tract area, to compact cluster development accompanied by open space provisions of sixty to eighty percent (or more) of the total tract area, and culminating with a transfer of development rights (TDR) option.

Under TDRs, an owner of a tract of land can separate the rights to develop that land from the property in question and transfer those rights to a different tract of land. As a general growth management tool, TDRs can be very useful to a community, since it can designate areas that it would like to keep relatively undeveloped as "transferring-out" or "sending" areas for TDRs and areas more appropriate for more intensive development as "transferring-in" or "receiving" areas for TDRs. It should be noted that TDRs are conceived of as a development alternative for a landowner, to be exercised by him at his option, not mandated by any level of government. If the TDR alternative is implemented properly, there will be financial incentives for owners of land in "sending" areas to want to sell TDRs and similar incentives for owners of land in "receiving" areas to want to buy TDRs. Whether transactions take place between sellers and buyers of TDRs would depend, in the end, on the willingness of the parties to commit to such transactions, not on governmental mandates.

TDRs are a highly-appropriate growth management tool for most municipalities in the Lackawanna Valley. In Pennsylvania, the 1988 re-enactment and update of the Municipalities Planning Code (MPC) officially sanctioned TDRs under Article VI, Section 619.1 and Article VII, Section 702.1, but limited their application so that development rights can only be transferable within the boundaries of the municipality "wherein the lands from which the development rights arise are situated". As it happens, however, many valley municipalities include both valley floor areas generally or partially built-up (and served by central water and sewer systems as well as good road networks) and wooded sides of the valley, generally undeveloped, unserved by utilities and roads, and designated in the Land Use Plan for a combination of preservation and resource conservation. These municipalities have both logical "sending" and "receiving" areas for TDRs, and are thus well-suited to implement TDR opportunities.

Residential Classifications - Medium-Low and Medium Densities

Residential development within designated growth areas should occur at

significantly higher densities when compared to resource conservation areas. The enactment of zoning ordinances supporting this idea, along with the extension of public roads and water and sewer service to growth areas, are the principal measures by which corridor municipalities can promote development within designated areas as opposed to resource conservation areas.

Medium-low and medium residential densities are usually associated with single-family detached housing types, often on generous lots, but the housing element of the Growth Management Plan recommends that cluster development be promoted in these areas in addition to the very low density residential portions of the valley. Cluster development remains an important prospect for development within growth areas. First, residential clustering encourages developers to set aside the most environmentally-sensitive areas of tracts undergoing development. Second, this type of residential development creates permanent open space lands usable for recreation. Third, clustering may produce construction economies in the form of reduced lengths of roads and sewer mains, and operational economies in service systems. Finally, a recent study of clustered housing in Loudoun County, Virginia, suggests that clustering does not undercut housing values; land values for clustered housing were as high as for conventional suburban tract housing on three-acre lots. Cluster development, then, is essential for environmental protection and land conservation, has the potential to make housing more affordable, can make land available for recreational purposes, and does not undercut property values.

As with very low density areas, regulatory flexibility and zoning incentives in medium-low and medium density areas are recommended. Municipalities may offer landowners conventional zoning for traditional medium- and moderate-lot residential construction, and a variety of options, including special conditions and associated benefits, for development that is more supportive of the goals and objectives of the Corridor Plan and local plans.

Medium-low and medium density residential districts should offer both cluster development options, in return for permanent preservation of at least twenty percent of a tract for open space, and transfer of development rights (TDR) options, whereby these growth area districts have the potential to become "receiving" areas for development rights from tracts in resource conservation areas of each municipality (see the discussion of TDRs under "Residential Classifications - Very Low Density", above). Development regulations for medium-low and medium density residential districts need to be carefully crafted to allow for a variety of development options, while protecting community and neighborhood character.

For medium-low and medium density residential areas, conventional single-family detached dwellings units can be expected to be the most prevalent residential structural type. Under the cluster and TDR provisions, however, especially in cases where a high percentage of the total tract area is proposed to be preserved as permanent open space, opportunities to construct other housing types, such as twins and townhouses, should also be available.

Residential Classifications - Medium-High and High Densities

Areas close-in to the traditional central business districts and mature neighborhoods of Lackawanna Valley municipalities, with their existing public services, accessibility, community facilities, employment, and shopping areas, are recommended for medium-high and high density residential use.

Medium-high density residential development, found principally in neighborhoods close to the central business districts and local centers in valley communities, is expected to continue to occur in conjunction with these urban places, and to include a wide variety of structural types, including small-lot single-family detached dwellings, single-family attached (twins and townhouses), and multi-family (garden apartment, mid-rise apartment) units. Provisions for on-site or neighborhood permanent open space must be taken into account. A diversified housing mix, attractive to various household types and income levels, should be pursued for these municipalities.

High density residential development is an important component of the mixed commercial-residential character of central business districts in valley boroughs and Carbondale City. These residential uses should be reinforced as part of efforts to maintain the economic and social viability of the traditional business areas in the valley.

As outlined under "Commercial Uses" in Section 3, a major goal of the Plan is to reinforce borough and city business districts. New residential development in and around these districts is a critical component in support of this goal, but this development must be undertaken in a manner that is sympathetic to the character of the traditional borough and city centers.

Affordable Housing

Housing affordability in the Lackawanna Valley is formally assisted through a combination of privately- and publicly-operated facilities and publicly-administered programs for low- and moderate-income families and individuals,

but these facilities and programs still only represent a small percentage of the total housing units in the valley. For most valley residents, housing affordability questions must be addressed without the availability of formal subsidies.

Traditionally, affordability in the valley has been assisted by a good stock of older but still serviceable dwellings in the established parts of boroughs up and down the valley and in Carbondale City. These areas form the heart of each valley municipality and their retention and continued viability is a critical component in the Corridor Plan. Valley municipalities, with the assistance of the County, should continue to monitor the available sources of federal and state funding for housing rehabilitation, low- and moderate-income housing construction, and infrastructure improvements and should participate in these programs.

SECTION 6: COMMUNITY FACILITIES PLAN

The goal of the community facilities element of the Growth Management Plan is to provide the full complement of facilities needed to serve the projected population of the Lackawanna Valley through the planning period. To meet this goal the following general policies are recommended:

1. Public facilities improvements, where needed, shall be made in an orderly and reasonable fashion consistent with the Growth Management Plan and State, County, and local capital improvements programs;

2. New school, fire, and police facilities and other required public facilities shall be located convenient to the maximum number of residents;

3. Wherever possible, public facilities used for different purposes shall be combined to minimize public expenditures and maximize convenience to valley residents.

Education

School facilities and recent enrollment statistics are described in Chapter 2, Section 8. The five school districts that are represented in the valley are outlined, enrollments over the past five years and twenty years compared, and parochial and private-school facilities listed (Tables 2.8.1 and 2.8.2, Page 2-8-2, and Figure 2.8.1).

Over the long term school enrollments have followed the downward population trends of the valley. In more recent years, public school enrollments have stabilized and, in the case of the Dunmore and Valley View districts, shown a modest increase. Over the next twenty years no net population increase for the valley is foreseen (Table 2.6.24), a trend that would correspond generally to no net future increases in school enrollments. On the other hand, the forecast level of new residential dwelling construction across the entire valley, some 130 units per year, could produce a population profile in certain areas of the valley more weighted towards school-age children. This factor could translate into moderate school enrollment increases in certain valley school districts.

The current public school facilities show a trend towards centralization for

most of the valley's school districts. Elementary, junior high or middle, and high schools frequently are found together on one "campus". The public school campus concept means that the effects of any increased school enrollments brought about by population increases in certain parts of the valley should not translate into a need for completely new sites for schools. With each campus site having some amount of available land for new construction or some possibility of site expansion, any increased enrollments will likely be accommodated through an expansion of existing campus physical plants.

The County, valley municipalities, and the school districts should make every effort to coordinate planning in order to ensure that school facilities are true community resources, with opportunities for use by student and general resident populations (see "Parks and Recreation", following).

Police

Each of the twelve municipalities in the valley maintains its own local police force, with the size of each force generally proportionate to the respective municipal population.

Over the planning period no net population increase is forecast for the valley, but considerable growth in jobs and land area in commercial and industrial development is foreseen. The demand for police services exhibited by industrial development is relatively low, but could be a factor in the future size of local police forces in municipalities such as Throop, Olyphant, Jessup, and Carbondale City. Retail commercial development, on the other hand, frequently exhibits a high level of demand for police services -- the aforementioned communities, plus Archbald, Mayfield, Carbondale Township, Blakely, and Dickson City would all be likely candidates for increases in police personnel, equipment, and facilities through the Plan's ten-to-twenty-year horizon.

Fire Protection and Ambulance Services

The more than thirty fire stations and the nine ambulance stations through the valley should be sufficient in number and deployment to serve the expanded development area of the valley projected in the Land Use Plan. At first glance, existing emergency services stations may appear to be too distant from the new areas of development planned for LVIH interchanges. Further inspection, however, reveals that there are already several fire stations sited

on or very close to roads that will have interchanges with the LVIH. Thus it appears that these station sites are well-located in terms of the future development pattern.

Over the planning period, many of the fire companies and ambulance corps will need to increase their personnel and to upgrade or expand their stations, their squads of vehicles, and associated apparatus. The all-volunteer status of fire company and ambulance corps (except Dunmore) could begin to produce increased staffing problems into the future. These community-based emergency service providers must compete with a variety of other agencies, activities, and programs for residents' time and interest. Volunteers must submit to greater time demands due to more sophisticated training procedures, and widely dispersed work locations coupled with increasing traffic congestion make it difficult for adequate numbers of volunteers to reach emergency scenes quickly during regular business hours. As the valley develops further, communities may find that the trends of other areas towards at least some paid firefighters and paramedics may begin to be seen here too.

Parks and Recreation Facilities

Chapter 2, Section 8 details the various federal, state, county, and local government parks and recreation facilities available in the valley, as well as a number of community parks and publicly-accessible recreational facilities such as school playgrounds and fields (Figures 2.8.2 and 2.8.3).

A key element in future parks and recreation facility development is the establishment of the valley-wide permanent open space system described in Section 3 of this chapter and illustrated in the Open Space Plan (Figure 3.7.1). The projected interconnecting permanent open space network will include lands under direct administrative control of several entities, but part of the same, integrated, valley-wide system, with generous acreage available for the development of future parks and recreational facilities.

The selective development of parts of this system for parks and recreational facilities has, in a sense, already begun, in the form of existing parks and the recreational facilities that comprise parts of the Open Space Plan. Future development of additional parts of this system will be dependent in a variety of county, valley-wide, sub-valley, and local considerations. Efforts to develop new parts of the system are already underway, and should continue through the planning period.

For example, the Lackawanna River Greenway is a recreational development

now in progress with regional, county-wide, and valley-wide implications. Development of a trail, park and/or interpretive feature associated with the Gravity Railroad Corridor may have similar, wide significance. A comparison of Figures 2.8.3 and 3.7.1 suggests that, with substantial acreage in existing federal, state, and county parks in the middle and northern thirds of the valley, efforts towards establishing a good-sized park in the southern third of the valley may be warranted. On the other hand, the projected valley-wide open space network offers a framework in which there exist plentiful opportunities for local governments and community institutions to develop their own parks and recreational facilities.

Valley resident recreational preferences should be identified and, through intergovernmental cooperation, these needs should be met. Local governments should pursue state Recreational Improvement and Rehabilitation Act Program (RIRA) grants and, where appropriate, County seed money should be made available for municipal park development.

When projecting future demands for recreational facilities and programs, it is necessary to consider not only existing circumstances but also evolving demographic changes, land use forecasts, and broad cultural trends as well. While new residential development may suggest increased demands for recreational facilities, commercial and industrial growth might also call for corresponding development of recreation sites for corporate sports teams and fitness programs. A population weighted to those over 55 years of age suggests the need for a greater variety of indoor and outdoor recreational opportunities, and the increased number of women's sports teams, in response to a general societal shift, is placing additional demands on community and school facilities. Multiple-use facilities and shared-use, community-oriented buildings and sites should be pursued as a cost-effective way to maximize recreational opportunities in the valley.

SECTION 7: CULTURAL, HISTORIC, AND LANDSCAPE RESOURCES CONSERVATION PLAN

Green Hillsides

A fundamental emphasis of the Land Use Plan described in Section 3 is the proposed retention of the wooded hillsides of the valley that define its setting. In order to preserve this legacy to the maximum extent, growth and development is proposed to occur: 1) Mostly on the floor of the valley, off of its sides, and ; 2) When associated with hillside areas, at a lower density and in more compact and less disruptive forms than those normally associated with conventional suburban and semi-rural development. Taken together, these two ideas are intended to protect the major landscape/scenic element of the valley. Various implementation techniques are proposed to bring about the desired result (see Sections 3 and 5 of this chapter and Chapter 4).

Historic Urban Areas

A second level of cultural, historic, and landscape/scenic resources is represented by the pre-twentieth century urbanized areas of the valley, which form the heart of many of its communities and contain a variety of historically-valuable resources. The Plan's approach to these areas is in accord with the Plan for the Lackawanna Heritage Valley (April 1991), namely; recognition of the significance of the resources themselves, appreciation for the continuing importance of these areas to the economic and social life of the valley, and reinforcement of their viability through various revitalization efforts.

The Corridor Plan proposes the sensitive integration of new small- to moderate-scaled commercial and residential additions to the historic communities in the valley, thereby strengthening local economic opportunities and supporting the social organization of these places. These kinds of insertions of new development into historic communities are not seen as conflicting with or threatening the resources found there; rather the new development is envisioned as a revitalizing component. The continuing economic life of historic places is essential to their retaining their social structure and their physical resources.

The advantages that traditional areas hold for new development include: existing infrastructure (central water and sewer systems); accessibility, including public transportation; community facilities, including public buildings, schools, parks, and medical facilities; employment; and shopping

and services.

New development in a historic context does need to be sensitively done. The Corridor Plan has recognized, for example, that various kinds of alternative circulation improvements for the valley could entail permanent disruptions to historic communities -- these alternatives have been rejected as inappropriate in this context. The Plan has also recognized that various kinds of commercial development, because of their regional orientation, need for large single-floor selling spaces, and other inherent characteristics, are not suitable for the historic places in the valley -- these and other similar uses are designated for locations at LVIH interchanges and along Route 6. Development in the historic urbanized areas should look to the Heritage Valley Plan and similar heritage planning and design studies for guidance concerning integration of new and old uses for their mutual benefit.

Historic Sites

Another type of cultural, historic, and landscape/scenic resource is represented by discrete historical and archaeological sites and areas, outside of the urbanized areas already discussed. Where these sites are known to exist, they have been identified in Figure 2.5.2, but the inventory of such areas in the valley is incomplete. As part of the Environmental Impact Statement work for the LVIH, inventories of historic and archaeological resources within limited distance from prospective highway alignments were made. Other inventories, such as in studies done for the City of Carbondale, have also been done. What is missing is a comprehensive inventory and assessment of valley historic resources that would identify all sites and areas that should be conserved as the valley continues to evolve and develop.

A new inventory and assessment might lead logically to the adoption of various historic resource protection measures at the municipal level, but the key is local involvement and control. Municipalities can apply for Pennsylvania Historical and Museum Commission (PHMC) funding to conduct inventories and assessment, with County coordination and assistance. The new, detailed municipal inventories should include an overview of community history; a review of common themes that tie the historic resources together; an assessment of individual resources and of the resources as a whole; the preparation and filing of PHMC Historic Resource Survey Forms; the mapping of historic resources and correlation of resources with lot numbers; an outline of municipal historic preservation goals, programs, and tools; and a bibliography. Inventories should be bound and available for use by municipal officials and for purchase by the public. The County should

coordinate the inventory and assessments to ensure consistency.

Subsequent actions on the part of the municipalities might include enactment of historic overlay district regulations. Historic overlay zoning involves the identification and mapping of scattered historic resources throughout a municipality. It is not the establishment of a historic district and does not require the creation of a historic architectural review board. Historic overlay zoning protects the character of historic resources by regulating the subdivision and land development review process. It clearly communicates to developers the desire of the municipality to preserve historic resources and contexts, and it identifies those resources and contexts. Historic overlay zoning requires a developer to assess the impact of a proposed subdivision or land development plan upon the historic resources on the tract being developed as well as upon adjacent affected tracts. Mitigation of the impact is required and/or negotiated through the exploration of design alternatives, buffering, landscaping, design standards, and other appropriate measures. Lot sizes and configurations as well as the design and location of improvements are controlled to preserve the integrity of the historic resource and its context. Demolition of historic resources can be delayed or denied by the ordinance to allow for acceptable alternatives to demolition to be negotiated. Adaptive reuse of historic resources is encouraged through the provision of special "use alternatives" not normally permitted in the underlying zoning district. Historic overlay zoning has been successfully applied in a number of municipalities in Pennsylvania.

Gravity Railroad Right-of-Way

The Corridor Plan identifies the right-of-way of the D & H Gravity Railroad as a cultural, historic, and landscape/scenic resource with valley-wide scope and significance. Running from one end of the valley to the other (see Figure 2.5.2), the right-of-way is recognizable on the ground in various places along its length, but frequently interrupted and supplanted by subsequent development. The Plan integrates the right-of-way into the Open Space Plan (Figure 3.7.1) with the implication that at least the railroad's path be recognized and incorporated into the preservation of open space areas in the central part of the valley and into park, recreation, and historic resource interpretation development efforts when these take place in the vicinity of the right-of-way. As part of the implementation of the Heritage Valley Plan, an opportunity to go further and comprehensively develop the right-of-way for an interpretive trail through the valley may also come about.

Figure 3.7.1 Open Space Plan

SECTION 8: RECLAMATION PLAN

Man's most enduring legacy in the Lackawanna Valley is summarized in Figure 2.5.1, Mine Features. Vast strip-mined areas, extensive culm piles, a myriad of open shafts or entries, areas prone to subsidence, and less-widespread but significant burned mines and underground mine fires are found along the floor of the valley, extending in many places up onto the lower parts of the valley walls.

Any plan for the future of the valley must address the prospects for these prominent mine features. The Corridor Plan emphasizes the reclamation of mine spoils for development areas for future industrial, commercial, institutional, residential, and open space uses. The designation of the area between the LVIH and Route 6 as the primary growth area for the valley and the vicinity of LVIH interchanges as special Interchange Activity Centers development sites represents a course of action to try and use pending, proposed, and prospective new development as a means to reclaim mine spoils areas. At the same time, directing new development generally to the floor of the valley promotes the Plan's goal to control spawl and to conserve the wooded sides of the valley.

Mine spoils reclamation has been proceeding here and there in the valley over the past few years, generally responding to two different sets of circumstances and opportunities. The first is industrial and commercial development at the southern end of the valley, in areas with a high level of accessibility to Interstate 81. Growth of the Keystone and Mid-Valley Industrial Parks has meant the reclamation of mine spoils areas for industrial sites. Similarly, expansion of retail commercial uses at the southern end of Route 6 has also led to development of some spoils areas.

The second type of reclamation has been the exploitation of existing culm piles as a fuel source, principally by the Archbald Cogeneration Plant (but also other cogeneration facilities), which use the culm to produce steam and supply commercial enterprises with power.

Projecting into the future, this latter type of effort is seen as a steady, positive program that will, over many years, gradually consume the extensive culm piles in the valley, effectively reclaiming sites for potential future industrial, commercial, institutional, residential, and open space uses.

Reclamation Plan for Culm Piles

As this process proceeds, it should try to maximize efficiency in eliminating culm banks, relative to the Land Use Plan's future vision for the valley. Towards this end, the Reclamation Plan for culm piles (Figure 3.8.2) sets forth priorities for their consumption. The highest priority should be to use up culm banks in the vicinity of LVIH interchanges, where available Interchange Activity Centers sites may be able to tap the high degree of accessibility afforded by the opening of the LVIH to attract new development. Culm pile areas around the Lackawanna Avenue interchange in Olyphant and Throop and around the Meredith Street interchange in Carbondale Township and Mayfield therefore have the highest priority, as do smaller areas in Dunmore, Jessup, and Jermyn.

Extensive culm pile areas along the floor of the valley and near Route 6 in Throop, Olyphant, Dickson City, Blakely, Archbald, Carbondale Township, and Carbondale City are designated as a mid-level priority for reclamation, with less accessible culm pile areas mostly in Archbald, Carbondale Township, and Fell Township having the lowest priority.

Reclamation Plan for Strip Mines

The process of mines spoils reclamation in the valley concurrent with new industrial, commercial, institutional, or residential development has not been extensive or rapid. Spoils reclamation represents an up-front development cost in addition to the usual expenses of site acquisition, conventional clearance, access, servicing, approvals, and construction. Where additional development costs can be avoided, entrepreneurs and investors usually do so -- this factor tends to limit the likelihood that marketplace factors alone will lead towards substantial reclamation of the valley's extensive strip-mined areas.

The most-accessible sites to LVIH interchanges, with the highway's opening or in the ensuing years, may achieve a high enough valuation to justify the expense of strip mine reclamation to prospective developers of business parks, shopping centers, or similar relatively high-intensity uses in the valley. These areas are identified as Highest Priority in the Reclamation Plan for strip mines (Figure 3.8.1). But even for those areas, and almost certainly for the mid- and lowest-priority strip mine reclamation areas, investment may not flow in the absence of a reclamation-assistance package (including, perhaps, technical assistance in addition to financing) that can be presented to prospective developers by the County and valley municipalities.

There is, at the present time, a State program for mined-area reclamation, but funding is limited and priorities focused on major safety problems state-wide. A recent DER-PennDOT agreement for DER to extinguish the underground mine fire in Mayfield-Carbondale Township could result in this 100-acre site becoming available for new industrial development. Other programs being considered by the state legislature could result in more widely-available funding for strip mine reclamation in concert with new development. It is only with the advent of such programs, and perhaps similar financial packages at the county and local level, that the prospect of reclamation at the scale illustrated in the Reclamation Plan for strip mines can be entertained.

As in the case of the Reclamation Plan for culm piles, the Reclamation Plan for strip mines sets priorities for their reclamation, consistent with the Land Use Plan and its priorities. The highest priority areas are in the vicinity of LVIH interchanges, in Throop, Olyphant, Jessup, Archbald, Jermyn, Mayfield, Carbondale Township, and Carbondale City. Mid-level priority areas are found in the vicinity of the LVIH, between interchanges; through the central part of the valley; and west of Carbondale City. Lowest priority strip mine reclamation areas are generally east of the LVIH, up onto the sides of the valley; similarly onto the western side of the valley paralleling Route 6; and in Fell Township.

Figure 3.8.1 Reclamation Plan - Strip Mines

SECTION 9: UTILITIES PLAN

The availability of central water and sewer is a major determinant for growth -- both the amount of growth and where it takes place. Where sewer facilities exist and have sufficient capacity to allow new development, there is incentive for growth to occur; likewise where they are not available growth will be relatively discouraged. The critical element, in most cases, is the excess sewage treatment plant capacity above that which is now being used, and is thus available for future development. Similarly, governmental decision-making with respect to utility service network extensions and upgrades can be employed as a growth management device -- the extension of water and sewer service to designated locations in the valley is, along with development regulations such as zoning, a major planning implementation tool.

Water and Sewer Service Area Plan

The extent of the current central sewer service area (Figure 2.9.1) and water service area (Figure 2.9.2) has been instrumental in shaping the Land Use Plan (Figure 3.3.1). Presently-serviced areas are found between the LVIH right-of-way and Route 6, with extensions to cover the western half of Dunmore and Carbondale City/southeastern Fell Township at the southern and northern ends of the valley respectively. The shape of the growth area of the Land Use Plan follows this pattern, with the recommended infilling of currently-found gaps in the service areas between the LVIH and Route 6 and extensions of water and sewer lines to service the Interchange Activity Centers associated with LVIH interchange areas.

The shape of the Land Use Plan strongly emphasizes that central water and sewer service not be extended beyond these areas designated for growth. As suggested in the beginning of this section, such extensions are an invitation to growth -- in this case undesirable sprawl across the wooded sides of the Lackawanna Valley.

Implementation of the approved plan for a federal prison and associated lands for a business/industrial park at the eastern end of Jessup Borough will likely translate into central water and sewer system extensions up onto the valley sides in the Moosic Lake Road (Route 247) area. As the development proceeds, strict control over lateral extensions of these lines into adjacent areas will need to be made so as to prevent intrusive residential (or other) development on the upper reaches of the sides of the valley. There is no reason to extend central water and sewer to areas where they are not needed.

Infilling of the "gap" areas within the present service areas is a logical method to maximize central service system efficiency and increase opportunities for revitalization of communities on the floor of the valley, while at the same time resisting extending central water and sewer systems into areas not designated for growth. Another reason to pursue this course is to provide central water and sewer service to any existing users of private systems within the general growth area that may be experiencing system problems or failures.

Central Sewage Treatment Plant Capacities

The two main sewage treatment plants currently serving the Lackawanna Valley have considerable excess capacity -- much more than the demand level represented by forecast development over the next twenty years.

Taken together, the Archbald and Throop plants have a capacity to treat about 13 million gallons per day (MGD), with a current three-month average daily flow of 7.3 MGD and a peak flow of 7.9 MGD (Table 2.9.1). (The much smaller Forest City sewage treatment plant is omitted from this analysis.) With a 1990 valley population of about 67,000 and a 1993 estimated jobs level of 28,700, the current average daily flow figure of 7.3 MGD may be roughly classified as follows:

Current Residential Flows: 67,000 @ 65 gals./day/person	*4.36 MGD*
Current Com./Ind./Inst. Flows: 28,700 @ 102 gals./day/employee	*2.93 MGD*
TOTAL	*7.29 MGD*

The forecast population for the Lackawanna Valley in twenty years is the same as for 1990 (Table 2.6.24). Future jobs, on the other hand, are forecast to increase by 8,700 (net) to a total of 37,400. Year 2014 sewage flows may then be roughly estimated as follows:

Future Residential Flows: 67,000 @ 65 gals./day/person	*4.36 MGD*
Future Com./Ind./Inst. Flows: 37,400 @ 102 gals./day/employee	*3.81 MGD*
TOTAL	*8.17 MGD*
Increase over current situation	*0.87 MGD*

An alternate method of predicting future flows would use a higher figure for non-residential flows:

Future Residential Flows: 67,000 @ 65 gals./day/person	*4.36 MGD*
Future Com./Ind./Inst. Flows: 37,400 @ 125 gals./day/employee	*4.68 MGD*
TOTAL	*9.04 MGD*
Increase over current situation	*1.64 MGD*

With a present excess capacity of approximately 2.9 MGD at the Archbald sewage treatment plant and about 2.8 MGD at the Throop plant, it is clear that the amount of future development expected over the planning period can be accommodated by the central treatment facilities.

A remaining question concerns the adequacy of sewer mains in the valley to handle the increased flows represented by new development. New lines will need to be constructed to reach the Interchange Activity Centers and other areas designated for new development. Flows in some already-built-up areas may exceed, with new infill development, the capacity of certain mains. Given the age of many parts of the collection system, some sewer lines will need to be upgraded and have inflow/infiltration problems addressed. Further study will be needed to pinpoint the exact locations of inflow/infiltration in the sanitary sewer system. Areas with unreasonable metered flows should be remetered and areas with excessive flows or infiltration rates should be further investigated by means of flow isolation. Then a program can be adopted to repair or replace the defective mains over a specified period of time.

Act 537 Updates

It is recommended that municipalities in the valley amend their Act 537 Sewer Plans to make them generally consistent with the Corridor Plan's Land Use Plan, with future central water and sewer service indicated for areas designated Residential - Medium-Low, Medium, and High Density; Interchange Activity Centers; Commercial; Industrial; and Institutional.

SECTION 10: ENVIRONMENTAL PROTECTION PLAN

The Environmental Protection element of the Growth Management Plan identifies specific areas in the valley that are environmentally sensitive, based on several sources: The U.S. Army Corps of Engineers' 100-Year Floodplain designation prepared for the National Flood Insurance Program; the National Wetlands Inventory undertaken by the U.S. Fish and Wildlife Service and Pennsylvania Department of Environmental Resources; the Soil Survey of Lackawanna and Wyoming Counties prepared by the U. S. Department of Agriculture Soil Conservation Service; the Environmental Impact Statement for the Lackawanna Valley Industrial Highway (LVIH); United States Geological Survey quadrangle series maps; and 1988 and 1992 aerial photography. Areas that have been mapped include floodplains, wetlands, hydric soils, steep slopes, and woodlands (see Figures 2.2.1, 2.4.3, 2.4.4, and 2.5.2).

These classes of environmentally-sensitive features are not uniform in their impact on development potential nor in what they represent as hazards to human life and property. There are levels of sensitivity, suggesting corresponding levels of response.

Floodplains/Stormwater Management

The first and most specific level is represented by the 100-year floodplain designated by the federal government (Figure 2.4.3). There is clear authority for a complete prohibition of residential development within the designated floodplain, and a set of standards for regulating the design and construction of non-residential development within the floodplain so as to prevent exacerbation of the flood hazard. Flood prone soils, identified by the U.S.D.A. Soil Conservation Service Soil Survey, at times do not correspond precisely with the federal floodplain designations. The flood prone soils, so classified because of their alluvial nature, indicating that they were deposited by floodwaters, reflect not only 100-year floods but also floods of lesser frequency. Where flood prone soils lie outside the federally-designated areas, the burden of proof should be on land developers to demonstrate by specific on-site tests, engineering analysis, and analysis of effects of impervious cover percentages of upstream development that could alter flow levels, that the generalized soil classification is in error for the specific site or that any construction will be designed to avoid any possibility of creating a hazard to human life and property or exacerbating local flooding. Thus as a matter of policy the flood prone soils initially should be subject to all of the

development restrictions of the land within the 100-year floodplain.

The Hydrology map for the Lackawanna Valley (Figure 2.4.3) is an extremely important resource. The information represented, particularly with respect to floodplains, is a strong determinant for land use planning and was significant in shaping the Land Use Plan (Figures 2.5.4 and 3.3.1) and the Open Space Plan (Figure 3.7.1) for the valley. Implementation of the Land Use Plan and Open Space Plan, as well as the preservation of environmentally-sensitive resources, will rely to a considerable degree on the protection of the network of floodplains in the valley.

With the long history of major floods in the Lackawanna River Basin (1942, 1955, and 1985 are the dates of the most recent examples), the County and all valley municipalities should be vigilant in ensuring that new development does not occur in floodplains or flood prone areas unless specific special construction methods are employed. Efforts to control flooding, including studies such as the Lackawanna River Greenway Feasibility Study, should be supported.

Stormwater management and flood and erosion control along the Lackawanna River and its tributaries are necessarily closely linked to upstream land development and stormwater management policies and practices, and it is essential that local regulations promulgated in the valley and in all surrounding municipalities be based on watershed-wide considerations. Maintenance of stream water quality is also an increasingly large concern in areas experiencing growth.

Close inter-municipality and County-initiated cooperation on all stormwater management issues will need to continue over the coming years. The County, with funding assistance from the Pennsylvania Department of Environmental Resources, has already coordinated watershed studies with the participation of the valley municipalities as part of the Lackawanna River Watershed Plan. These studies focus on potential effects of land development upon discharge rates into creeks and streams, and should lead to regulations to assure that developments use the best available technology to minimize off-site stormwater runoff, increase on-site infiltration, minimize off-site discharge of pollutants, and encourage natural filtration functions. Best available technology may include measures such as detention and retention basins, recharge trenches, porous paving and piping, contour terraces, and swales.

Wetlands

A second level of environmental sensitivity is represented by wetlands; generally areas within forested lands with a high water table and poor drainage, and having some degree of surface ponding during the year (Figure 2.4.3). Under the jurisdiction of the U.S. Army Corps of Engineers and the State Department of Environmental Resources, there is at the present time a steadily evolving regulatory framework concerning wetlands in Pennsylvania, mandating wetland surveys by developers of land and controlling the degree and type of wetland disturbance permitted. Municipalities can provide long-term wetlands protection by directing development away from these areas, by encouraging clustered construction on higher ground surrounding wetlands, and by purchasing wetlands important to protecting local floodplains or ecological systems. The Open Space Plan (Figure 3.7.1) incorporates a variety of natural resource areas, including floodplains and significant wetlands, where known.

Aquifer Recharge, Well-Heads, and Reservoirs

Groundwater is the source of much of residents' drinking water in the valley and the Brownell Reservoir and several smaller reservoirs are prominent features of the east side of the valley. It is essential that well-heads, reservoirs, and aquifer recharge areas be protected -- the Land Use Plan (Figure 3.3.1) and Open Space Plan (Figure 3.7.1) illustrate how commercial, industrial, and medium- and higher-density residential development are kept away from these sensitive areas and how extensive open space buffers protect the reservoirs from encroachment by even low density residential development. Valley municipalities should employ this framework for protection in their own comprehensive plans and through the adoption of land use regulations, including well-head protection zones. A key element is the overall limitation on development throughout the recharge area and the maintenance of extensive woodlands on the valley's slopes.

Wildlife and Plants

According to the Environmental Impact Statement for the LVIH, no federally- or state-listed or proposed threatened or endangered species are known to exist in the different one-thousand-foot-wide corridors associated with the various potential highway alignments. As far as the remainder of the valley is concerned, there is at present inadequate information available to draw any conclusions as to the occurrence of plant or animal species of

concern. The Lackawanna Heritage Valley Authority is the lead local agency currently endeavoring to complete a natural areas inventory for the valley. Once their findings are known, appropriate measures to protect sensitive habitat should be incorporated into the Corridor Plan and municipal plans and regulations.

The Open Space Plan (Figure 3.7.1) describes an extensive, interconnected network of protected open space areas incorporating a wide variety of sizes and types of landscapes and habitats. The continuous corridors of open space are a significant aspect of the system, providing for essential movement, dispersion, and migration of wildlife. Especially important to wildlife are the maintenance of natural corridors such as stream valleys and wooded hillsides and ridgelines.

Other Natural Features

A further level of environmental sensitivity includes areas affected by the following constraints: mature woodlands (Figures 2.2.1 and 2.5.2); areas of steep slopes (Figure 2.4.4); and areas having a seasonal high water table within six inches of the soil surface (Figure 2.4.3). These features, especially when occurring in combination (Figures 2.5.3 and 2.5.4), suggest that little or no development should take place within the areas exhibiting these conditions or that development should be severely curtailed and closely regulated.

The thrust of the Land Use Plan is the broad protection of these sensitive features. Affected areas are designated generally as open space or for very low density residential uses.

The policy of the County and valley municipalities toward these environmentally-sensitive areas should be one of discouraging development wherever possible to prevent destruction of important resources or to protect residents of the valley from future problems.

The chief instrument that municipalities will have at their disposal to protect these areas will be the encouragement of cluster development and the flexible gross density development approach in newly-developing residential areas. Essentially, the maximum number of units that would be permitted on a tract should be calculated based on the developable acreage of the tract (gross acreage minus existing rights-of-way, easements, floodplains, wetlands, and perhaps some proportion of steep slopes and woodlands). Having arrived at a figure for the total number of units permitted, the size and configuration of

individual house lots becomes a much less critical issues than in conventional development, and these may be smaller or larger depending on the occurrence, extent, and significance of natural or cultural features that may be found on the tract. In turn, by requiring developers to base the number of dwelling units allowed to be built on the gross developable acreage of their development parcels, areas designated by the Corridor Plan and any ensuing studies as being environmentally-sensitive are more likely to end up being set aside.

It must be recognized that the maps of Corridor environmentally-sensitive areas are accurate to a general level only. Developers should be required as a matter of municipal policy to undertake more detailed field studies of specific parcels proposed for development that will verify or modify the precise location of the sensitive features on the Corridor or municipal maps. By requiring such studies, especially where there is a strong suspicion or known presence of environmentally-sensitive features, developers will be more aware of the need to protect scarce resources and to avoid future problems at an early point in the development process, leading to better land planning and design solutions in the long run.

CHAPTER FOUR: IMPLEMENTATION STRATEGY

Introduction

The Lackawanna Valley Corridor Plan provides an overall guide and framework for the future development of the valley. The Plan anticipates the completion of the Lackawanna Valley Industrial Highway (LVIH) and accommodates a variety of opportunities for growth in the valley, while at the same time striving to protect the area's natural features and cultural heritage and to reclaim mine spoils. In addition to the highway's role in increasing local economic development opportunities, the Plan uses the LVIH as a starting-off point for increasing mobility for residents up and down the valley. The Plan designates appropriate locations for all land uses expected to be in the valley over the next ten to twenty years. The Plan also sets the stage for specific actions that are necessary by all the different kinds of decision-makers in the valley in order to implement the Plan's recommendations.

Adoption of the Corridor Plan

The first specific action required is the adoption of the Corridor Plan by the County and all the municipalities in the valley. Since, under Pennsylvania's Municipalities Planning Code (MPC), the right of approval for subdivision and land development is (with limited exceptions) exercised by municipalities, it follows that successful implementation of the Lackawanna Valley Corridor Plan relies to a very great extent on municipal follow-through on the ideas presented in the Plan. The identification of every borough, township, and city in the valley with the recommendations of this Plan is a prerequisite for their implementation. If no one "signs on" to the Plan, its recommendations can't be put into effect.

Amendments to Municipal Plans

Having endorsed the Corridor Plan, municipalities must next ensure that their local comprehensive plans are consistent with the Corridor Plan. Were the two plans to be in conflict, other implementation actions, such as the adoption of new development regulations, would be inconsistent with either one plan or the other. According to the MPC, "municipal comprehensive plans which are adopted shall be generally consistent with the adopted county comprehensive plan".

Amendments to Municipal Land Development Regulations

The Corridor Plan's recommendations with respect to land use, transportation, housing, community facilities, cultural resources, natural features, and other areas of concern also provide a basis for changes to the development regulations in valley municipalities. Zoning ordinance and subdivision and land development ordinance changes are among the most significant implementing tools for the Plan, translating its sometimes broad concepts into specific regulations with which to guide future development.

There are twelve municipalities in the study area, each with distinctive characteristics and prospects and each with its own zoning ordinance and subdivision and land development ordinance. Ordinance changes need to be tailored to the precise needs of each municipality, reflecting community wants and aspirations and the circumstances of its existing development regulations.

While each municipality is unique, there are enough common traits among valley communities (especially including the impending arrival of the Lackawanna Valley Industrial Highway) to suggest a "menu" of land development regulations that will cover the most important aspects of the recommendations of the Corridor Plan and that will be widely applicable in valley municipalities.

A set of model land development regulations for Lackawanna Valley municipalities responsive to the ideas contained in the Corridor Plan is now in preparation. With minor modifications to adapt them to each local situation these regulations can be adopted by valley municipalities to support the vision of the future contained in the Corridor Plan. Perhaps all districts may not be appropriate in all communities, but the common circumstances of most valley municipalities should mean that many of the districts will be appropriate in many communities. For example, seven out of twelve municipalities share all four of the following characteristics:

1. The LVIH passing directly through;

2. An LVIH interchange;

3. Areas of mature residential and mixed-use development;

4. Undeveloped "sides" of the valley.

In addition, three more communities have the last two characteristics.

Most municipalities, then, have a need to address, through zoning and subdivision and land development regulations, the issues of open space preservation, resource conservation, neighborhood stabilization and revitalization, highway- and interchange-oriented development, and industrial use. The model zoning provisions for the Lackawanna Valley address each of these issues, consistent with the recommendations of the Corridor Plan.

Model Zoning Regulations - Themes

Model zoning regulations for Lackawanna Valley municipalities have been organized around five main themes, which may also be thought of as the five main articles in a municipality's zoning ordinance. These themes are as follows:

1. *Open Space Districts*
2. *Resource Conservation Districts*
3. *Growth Area Residential and Neighborhood Mixed-Use Districts*
4. *Highway and Interchange Districts*
5. *Industrial Districts*

This organization relates directly to the recommendations of the Corridor Plan, and to the configuration of the Land Use Plan:

- *Open space* preservation is a hallmark of the Plan, with extensive areas of various types knitted together to form a comprehensive network throughout the valley;
- *Conservation of resources,* especially the wooded sides of the valley, has been recognized in the Plan as a key component of the valley's future;
- The *existing residential and neighborhood mixed-use areas* on the valley floor will continue to be prime locations for development;
- *Highway and interchange* development, already significant in the valley, will take on a new importance with the opening of the LVIH;
- *Industrial* growth will accompany the LVIH.

Table 4.1 illustrates an outline of model zoning regulations for Lackawanna Valley municipalities. Individual municipalities may end up adopting ordinances that closely resemble the organization of the model or may adopt amendments that result in an ordinance that covers the same content, only in

a different organization. The desired result, local ordinances that implement the recommendations of the Corridor Plan, is the same in either case.

Model Zoning Regulations - Structure

The model zoning regulations structure is intended to make them easy to use and understand. In particular, the presentation of development standards in tables rather than long descriptive texts, with standards for similar districts side-by-side, is meant to allow for quick comparisons among related development options.

Within each article, several different zoning districts may be found. These are grouped together, because each district is a variation on the overall theme of the article. For example, Article VI contains some five different districts, ranging from an R-1 Residential District to a BC Borough Center (or CC City Center) District. What these two districts have in common, both between each other and among the other districts in Article VI, is a general appropriateness for locations within the designated growth area of the Corridor Plan (chiefly between the LVIH and Route 6).

The title of this sample article, Growth Area Residential and Neighborhood Mixed-Use Districts, describes its main theme. Under that heading, certain regulations will be common to all districts in the article; other regulations will be applicable to specific districts only. The common regulations are contained in the article's General Provisions section, up front. This is followed by two sections, Permitted Uses and Development Standards, that are essentially tables. They contain the basic regulations for all the districts within this article, laid out so as to permit quick and easy comparisons among them. The next sections of the article are titled with specific district names. Within each of these sections are the appropriate detailed regulations relevant to each particular district. The final sections of the article discuss regulations germane to certain development options that may be available in a variety of circumstances in a variety of districts.

Table 4.1

MODEL ZONING PROVISIONS FOR LACKAWANNA VALLEY MUNICIPALITIES

OUTLINE

(ARTICLE I GENERAL PROVISIONS)

(ARTICLE II DEFINITIONS)

(ARTICLE III ESTABLISHMENT OF DISTRICTS)

ARTICLE IV OPEN SPACE DISTRICTS

- 400 Open Space District

ARTICLE V RESOURCE CONSERVATION DISTRICTS

- 500 General Provisions
- 501 Permitted Uses
- 502 Development Standards
- 503 RC Resource Conservation District
- 504 Cluster and Compact Cluster Development
- 505 Transfer of Development Rights

ARTICLE VI GROWTH AREA RESIDENTIAL AND NEIGHBORHOOD MIXED-USE DISTRICTS

- 600 General Provisions
- 601 Permitted Uses
- 602 Development Standards
- 603 BC/CC Borough Center/City Center District
- 604 RO Residential-Office District
- 605 MU Residential-Institutional Mixed-Use District
- 606 R-2 Residential District
- 607 R-1 Residential District
- 608 Cluster Development
- 609 Transfer of Development Rights

ARTICLE VII HIGHWAY AND INTERCHANGE DISTRICTS

- 700 General Provisions
- 701 Permitted Uses
- 702 Development Standards
- 703 HC Highway Commercial District
- 704 IAC Interchange Activity Center District

ARTICLE VIII INDUSTRIAL DISTRICTS

- 800 General Provisions
- 801 Permitted Uses
- 802 Development Standards
- 803 I Industrial District

Model Zoning Regulations and Municipal Zoning Maps

For each of the twelve municipalities in the valley, the text of the model zoning regulations will need to be reviewed and amended, as may be appropriate, before it may be incorporated into the local ordinance. Zoning map revisions will also become necessary, but it is important that these map changes follow through on the land use recommendations contained in the Corridor Plan. District texts outlined in the model zoning regulations are half of the zoning implementation mechanism for the Corridor Plan; zoning map changes are the other half.

Open Space Districts are intended to be applied by municipalities primarily to federal, state, county, local, and community parks, game lands, and areas to be preserved. This designation formally recognizes the permanent status of open space lands under control of the public and sets forth standards to maintain their generally undeveloped character. Open Space Districts can also be applied to lands with conservation easements that prohibit development by deed restrictions.

Designation of appropriate lands in the valley as part of Open Space Districts helps to establish the backbone of the Corridor Plan's open space system for the valley. This system is a combination of existing and future open space areas, under public and private control, for the preservation of important natural resources and opportunities for low-intensity recreational use.

Resource Conservation Districts present opportunities for very low density residential development while also providing for the protection of natural resources. These districts should be applied by municipalities to areas outside of those intended for growth through the planning period. Appropriate areas include the sides of the valley east of the LVIH and west of Route 6, and most of Fell Township, north of Carbondale.

Within Resource Conservation Districts, basic zoning would allow large-lot residences, with limitations on the percentage of a tract permitted to be disturbed for development, so as to preserve trees and steep slopes. Incentives in the form of density bonuses would also be included, to encourage developers to proceed under cluster and compact cluster provisions of the ordinance, further reducing the potential land area disturbed in development.

Further density bonus incentives are intended to attract landowners and developers to the Transfer of Development Rights (TDR) option, whereby the districts become "sending" areas for development rights that are exercised

within the growth area of the valley instead of in Resource Conservation Districts. Landowners in "sending" areas receive compensation for transferring development rights to growth areas.

Growth Area Residential and Neighborhood Mixed-Use Districts include a variety of districts applicable to different situations in valley municipalities, generally located between Route 6 and the LVIH, ranging from commercial core districts through transition mixed-use districts to exclusively residential districts. The emphasis in the BC/CC Borough Center/City Center, RO Residential-Office, and MU Residential-Institutional districts is on standards to ensure compatibility of new development with existing development and the comfortable intermingling of different uses. The R-2 Residential and R-1 Residential districts are related to the preceding growth-area districts but are limited to residential uses, have provisions encouraging residential clustering, and are also the designated "receiving" areas for development rights transferred from Resource Conservation Districts.

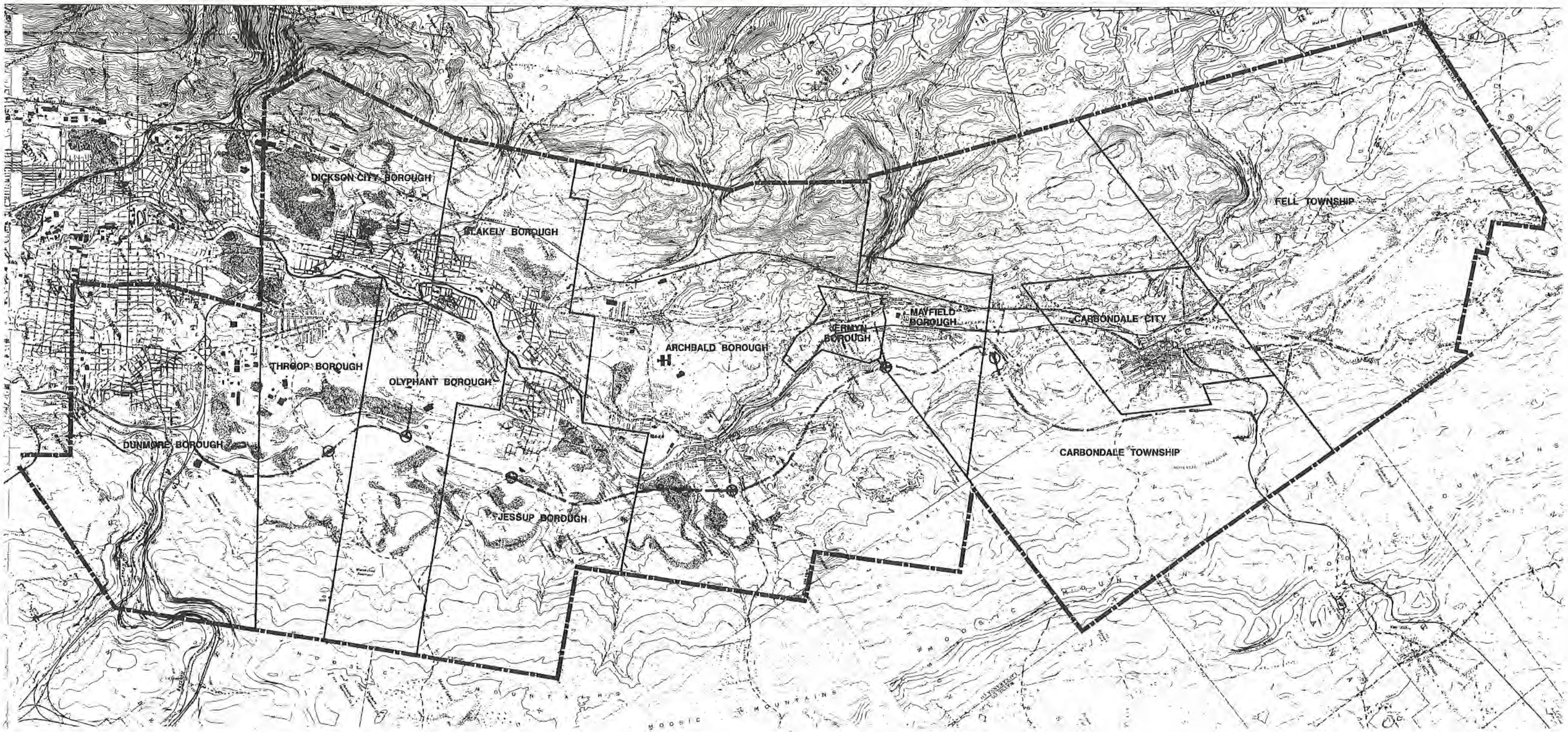
Highway and Interchange Districts include an HC Highway Commercial district applicable to municipalities through which Route 6 passes, and an IAC Interchange Activity Centers district for limited but highly significant areas around LVIH interchanges, as indicated on the Land Use Plan of the Corridor Plan.

Industrial Districts are appropriate for municipalities with existing and projected new industrial areas, particularly where significant growth in industry is expected. Regulations place an emphasis on performance standards for industrial uses.

The Corridor Plan presents a vision of the future for the Lackawanna Valley. The Plan can be a guide for managing growth and development, improving economic opportunities, and increasing mobility throughout the valley.

Managed growth can produce many long-term benefits, including a more efficient, less-costly development pattern, and the maintenance of the attractive hillsides and ridgelines that are cherished by most citizens.

Deliberate, cooperative steps must be taken to bring this Plan into effect. County and municipal governments must take the lead. Delayed or disjointed planning efforts may mean that the current opportunity -- to direct new development to specific areas, to harness the economic development and transportation opportunities afforded by the LVIH, to reclaim spoils areas, and to preserve much of the valley's natural features and heritage -- will be missed.



LACKAWANNA VALLEY MUNICIPALITIES

LACKAWANNA COUNTY REGIONAL PLANNING COMMISSION

CONSULTING TEAM

NORMAN DAY ASSOCIATES
ORTH-RODGERS & ASSOCIATES, INC.
ECONOMIC RESEARCH ASSOCIATES
LANE FRENCHMAN ASSOCIATES
MARVIN BROTTER CONSULTING SERVICES
MICHAEL ONTKO

NORTH

LACKAWANNA VALLEY CORRIDOR PLAN

Figure 1.2

WORK PROGRAM SCHEDULE

Lackawanna Valley Corridor Plan

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
MONTHS	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
PHASES	PHASE A							PHASE B								PHASE C							

COMPREHENSIVE/ LAND USE PLANNING

- **A1** Project Initiation
- **A2** Initial Data Collection Analysis & Documentation
  - Existing Land Use
  - Environmental Resources
  - Community Facilities
  - Hist./ Cultural Resources
  - Infrastructure Systems
  - Hazardous Sites
- **A3** Add Data Collection
  - Field Work
  - Mapping
  - Formating
- **A4** Document Dev. History & Trends
  - Zoning Changes Plan Approals
  - Construction Activities
  - Proposed Development
- **A5** Synthesis of Constr. & Opp
  - Development Constraints
  - Development Suitabilities Problems & Opportunities
- **A6** Prel. Goals & Assumptios
  - Goals
  - Assumptions
  - Proj. of Need
- **A16** Alt. Themes
- **B1** Explore Alts. (cycle 1)
  - Elaboration
  - Evaluation
  - Choice
- **B2** Explore Alts. (cycle 2)
  - Elaboration
  - Evaluation
  - Choice
- **B3** Comp. Plan Framework
- **B4** Refine/ Adjust Comp. Plan Framework
- **C1** Outline Zoning Ord. Changes
- **C2** Model Zoning Regulations
- **C3** Outline Sub/LD Reg. Changes
- **C4** Model Sub/LD Regulations
- **C5** Other Admin. or Reg. Changes
- **C6** Refine/ Adjust Regulations
- **C7** Initial Draft Comp. Plan
  - Land Use
  - Circulation
  - Community Facilities
  - Housing
  - Infrastructure
  - Environmental
- **C9** Final Draft Comp. Plan
- **C10** Prepare Camera-Ready Comp. Plan

TRANSPORTATION PLANNING

- **A7** Assemble & Analyze Transportation Data Base
- **A8** Additional Data Collection
- **A9** Review Avaiable Transportation Models
- **A10** Select Transportation Model
- Assist Alt. Evaluation
- Assist Alt. Evaluation
- **A10** (Continued) Imput Data
- Calibrate Model
- Run Model
- **B5** Transportation Improvement Plan
- **C8** Transp. Improv. Funding Plan

ECONOMIC ANALYSIS

- **A9** Review Avaiable Transportation Models
  - Population/ Households
  - Employment
- **A12** Market Cond. Reconnaisance
  - Interviews
  - Assessment
- **A13** Growth Projections
  - Populations
  - Employment
- Assist Alt. Evaluation
- Assist Alt. Evaluation

GIS ANALYSIS

- **A14** Review & Assess Available GIS Options
- **A15** Select GIS Program
- **A15** (Continued) Assist GIS Installation

MEETINGS / EVENTS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
○ Coordinating Meeting	1	2	3	4	5	6	7	8	9	10	11	12	13	14
△ Task Force			1		2						3		4	
● Technical Committee			1		2		3				4		5	
□ Steering Committee					1						2		3	
◆ Public Information Meeting					1						2		3	
⊛ Newsletter	1	2		3		4				5		6		7	8
▒ Review														

Figure 1.3

LAND USE

- Residential
- Commercial
- Mixed Use
- Institutional
- Parks & Recreation
- Industrial
- Utilities
- Cemeteries
- Strip Mines
- Farmland
- Low Vegetation
- Forest
- Open Water

LACKAWANNA VALLEY CORRIDOR PLAN

LACKAWANNA COUNTY REGIONAL PLANNING COMMISSION

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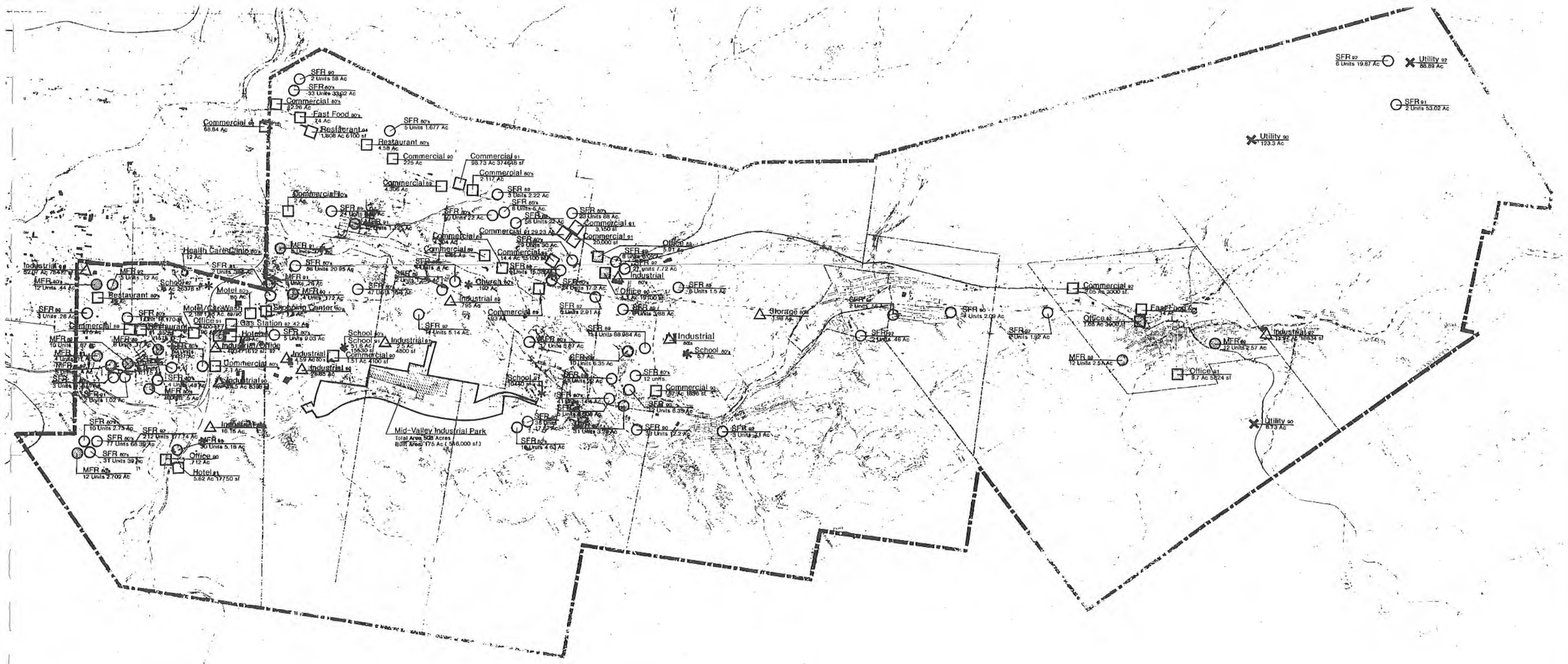
MICHAEL ONTKO

NORTH

Figure 2.2.1



LAND DEVELOPMENT 1983 - 1992

- Single-Family Residential
- Multi-Family Residential
- Retail/Commercial
- Office
- Industrial
- School/Church
- Institutional
- Utilities

LACKAWANNA VALLEY CORRIDOR PLAN

LACKAWANNA COUNTY REGIONAL PLANNING COMMISSION

NORTH

2000 1000 0 2000 4000 6000 8000

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NORMAN DAY ASSOCIATES
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LANE FRENCHMAN ASSOCIATES
MARVIN BROTTER CONSULTING SERVICES
MICHAEL ONTKO

Figure 2.3.1

GEOLOGY

1 Llewellyn & Potsville Formations

2 Mauch Chunk & Pocono Formations

3 Catskill Formation

Limit of Lowest Mined Coal Bed

Source: Lackawanna Valley Industrial Highway EIS

LACKAWANNA VALLEY CORRIDOR PLAN

LACKAWANNA COUNTY REGIONAL PLANNING COMMISSION

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MICHAEL ONTKO

Figure 2.4.1

SOIL ASSOCIATIONS

1 Udorthents – Mine Dumps

Urban Land

3 Rock Outcrop – Arnot – Dystrochrepts

Wellsboro – Morris – Oquaga

5 Mardin – Lordstown – Volusia

Source: Soil Survey of Lackawanna County

LACKAWANNA VALLEY CORRIDOR PLAN

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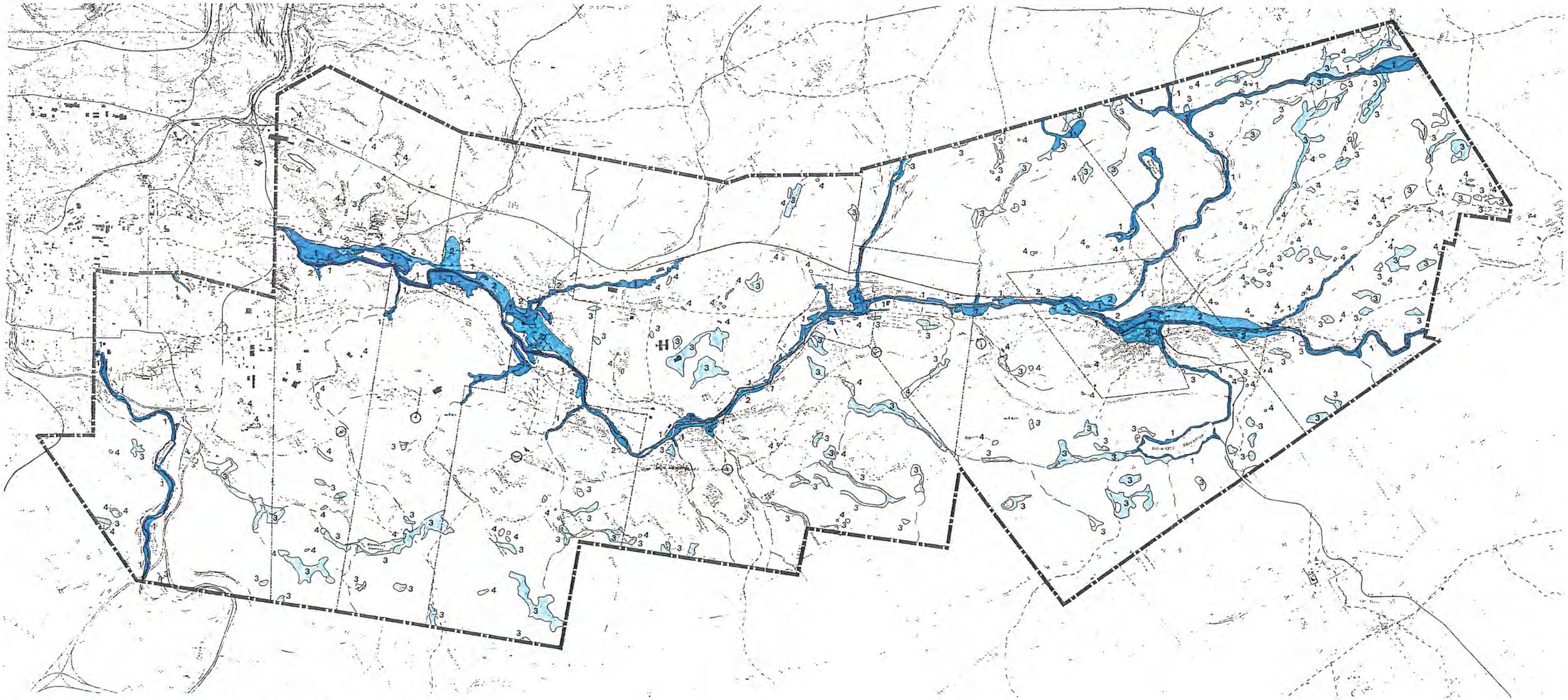
2000 1000 0 2000 4000 6000 8000

Figure 2.4.2



HYDROLOGY

- Surface water
- 1 Floodplain *
- 2 Urban land occasionally flooded **
- 3 Hydric soils **
- 4 Wetlands ***

* Source: FEMA Maps
** Source: Soil Survey of Lackawanna County
*** Source: National Wetlands Inventory USDA

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2000 1000 0 2000 4000 6000 8000

LACKAWANNA VALLEY CORRIDOR PLAN

Figure 2.4.3

SLOPES

1 0 - 15%
2 15 - 25%
3 Over 25%

LACKAWANNA VALLEY CORRIDOR PLAN

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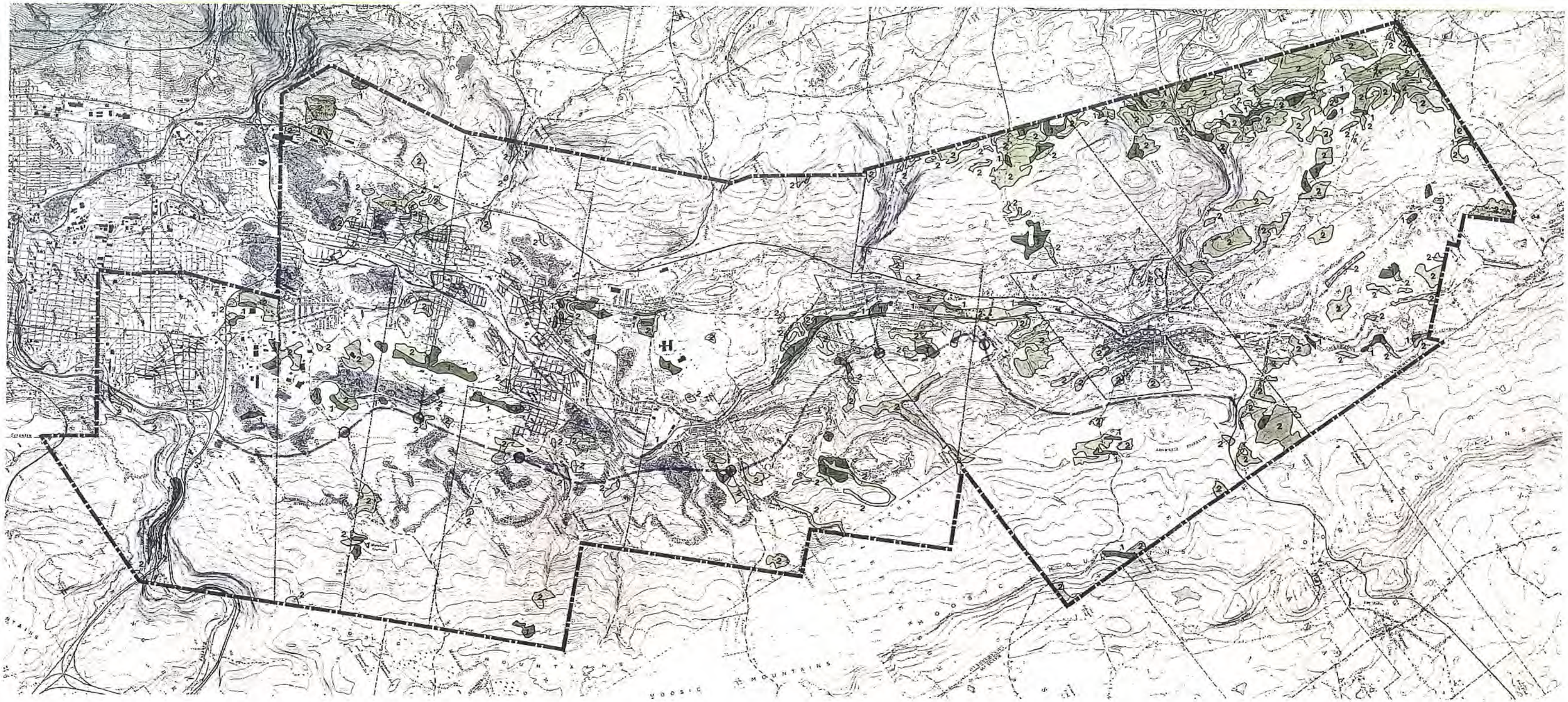
Figure 2.4.4



FARMLAND

1 Prime

2 Statewide Important

Source: Lackawanna Conservation District, USDA

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Figure 2.4.5

MINE FEATURES

1 Strip Mines	Open Shaft or Entry
2 Culm Piles	Underground Mine Fire
3 Burned Mines	
4 Subsidence Prone Areas	

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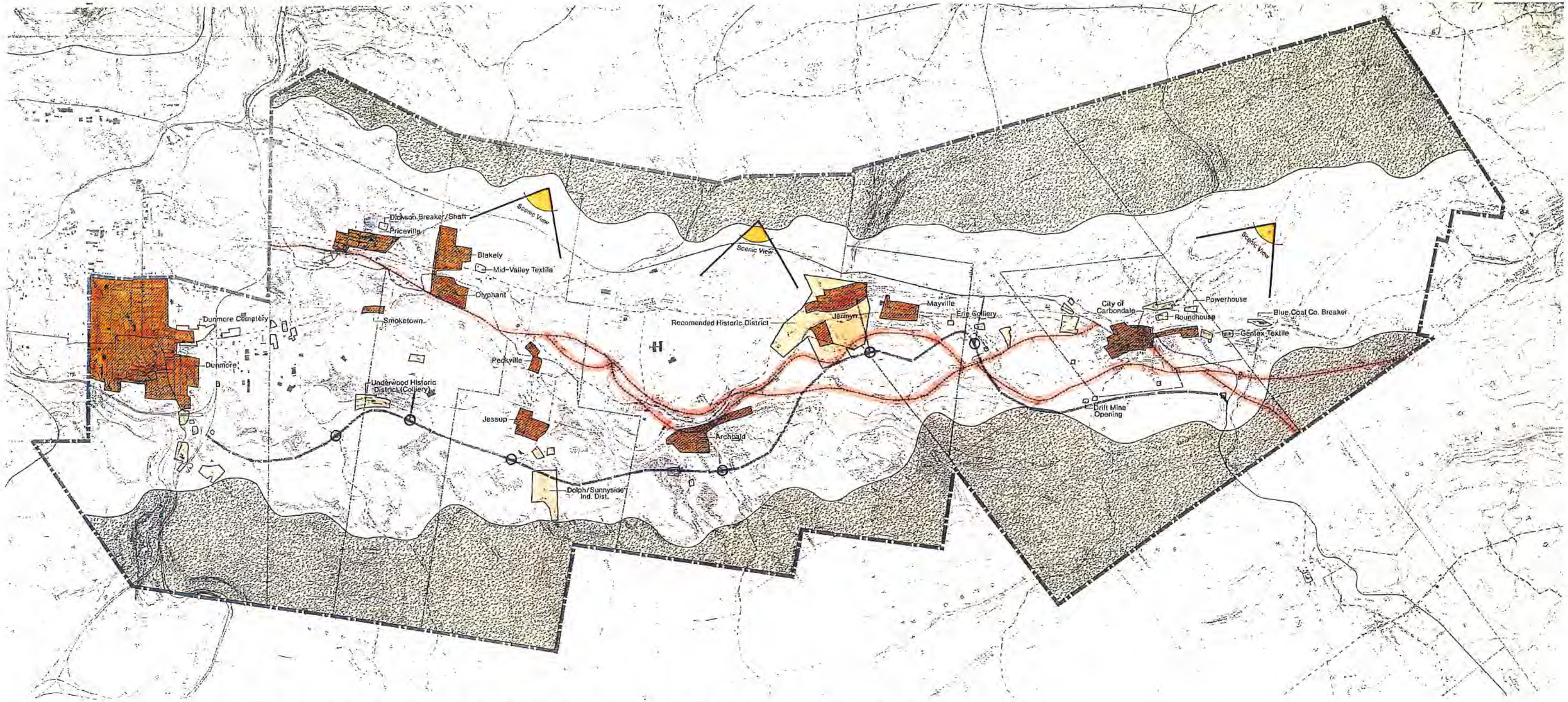
Figure 2.5.1



CULTURAL, HISTORIC & LANDSCAPE/SCENIC RESOURCES

Urbanized Areas, 1888
Other Historical Resources Identified in LVIH EIS
D & H Gravity Railroad
Green Hillsides

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Figure 2.5.2

COMPOSITE CONSTRAINTS

1 Severe
2
3
Slight

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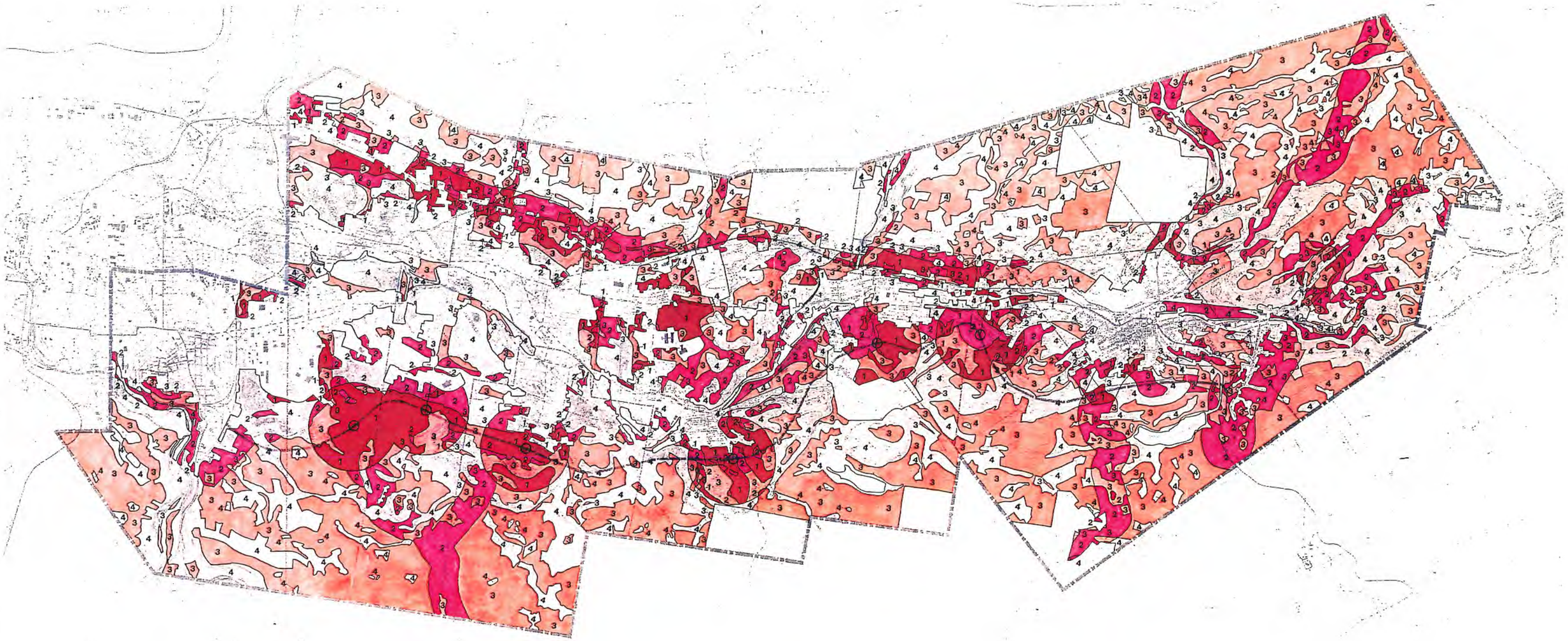
Figure 2.5.3



SUITABILITY FOR DEVELOPMENT

1 Good
2 Moderate
3 Limited
4 Very Limited
Existing Development & Public Ownership

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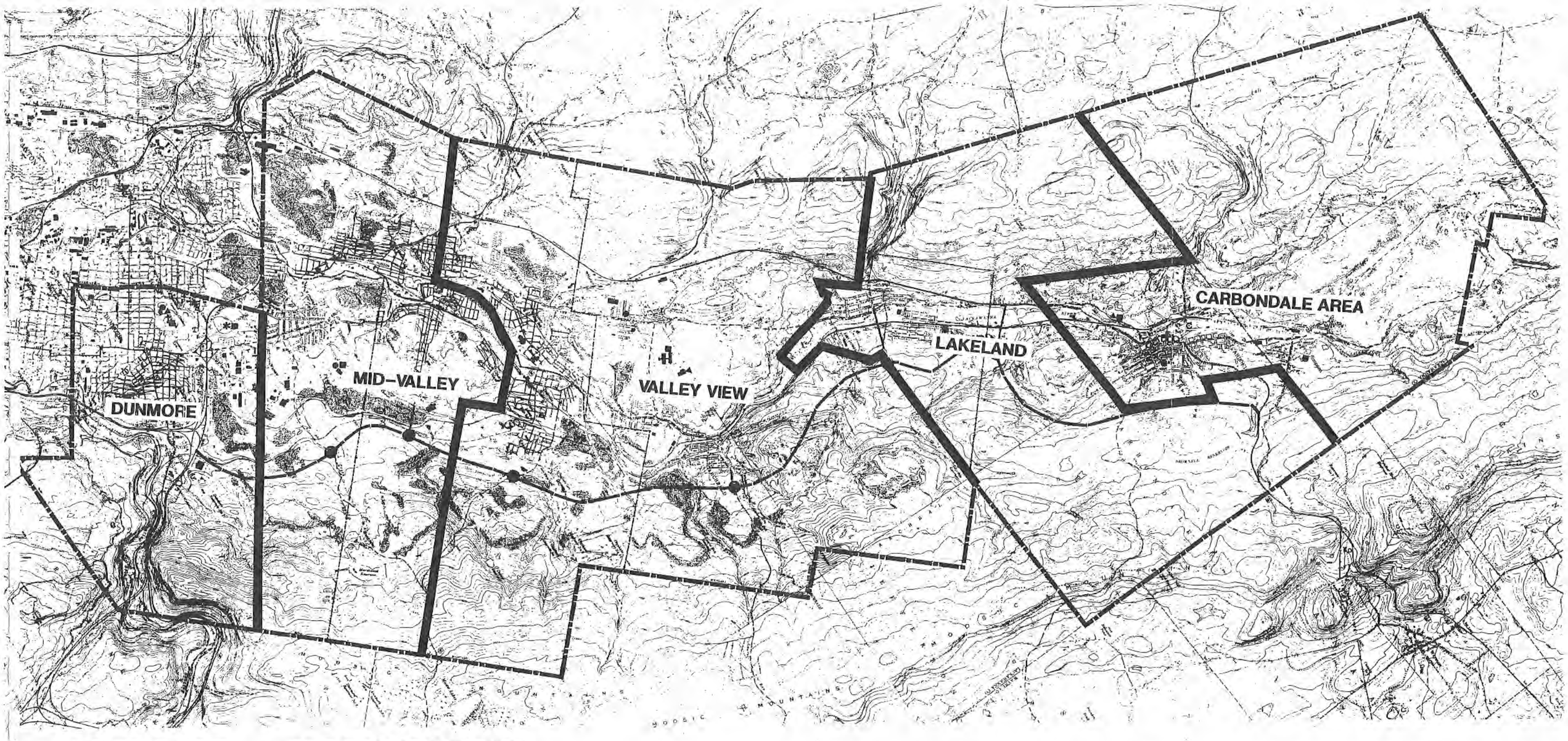
Figure 2.5.4



SCHOOL DISTRICTS

Public Schools
- ● Elementary
- ▲ Middle/Junior High
- ■ High

Private Schools
- ○ Elementary
- △ High

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Figure 2.8.1

COMMUNITY FACILITIES

- ○ Municipal Bldgs.
- ✱ State Facilities
- △ Federal Facilities
- ▲ Schools
- ◆ Parks
- ◇ Playgrounds/Athletic Fields
- ● Fire Stations
- □ Ambulances
- ■ Hospitals
- ✳ Utilities

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Figure 2.8.2

PARKS & PUBLIC OPEN SPACE

- Federal Parks/ Facilities
- State Parks
- State Game Lands
- County Parks
- Municipal/ Community Parks & Centers

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Figure 2.8.3

SEWER SERVICE AREA

● Treatment Plant

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Figure 2.9.1

WATER SERVICE AREA

Treatment Plant

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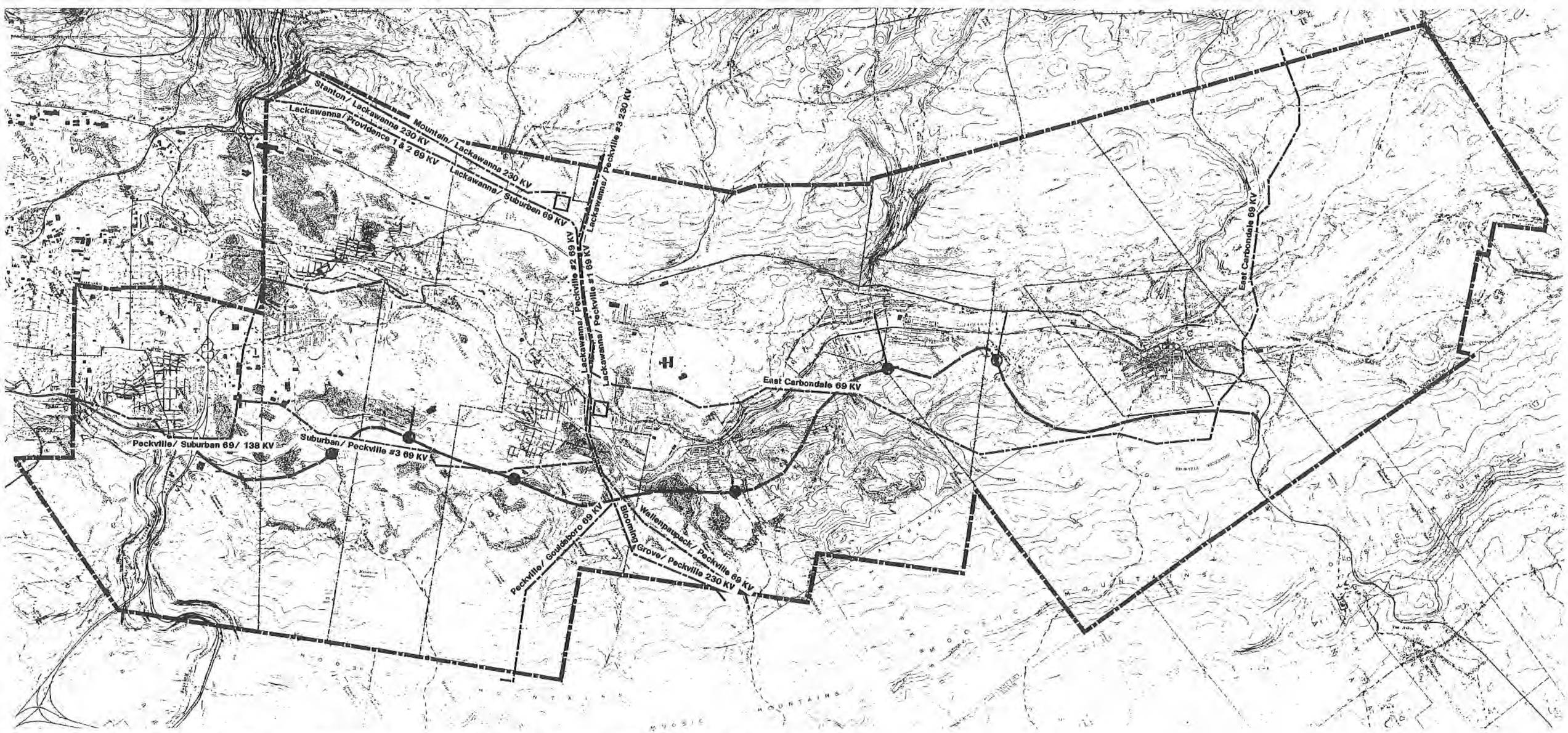
Figure 2.9.2



ELECTRIC TRANSMISSION LINES

☐ Substation

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Figure 2.9.3

LAND USE PLAN

- OS — Parks, Permanent Open Space, and Preservation Areas
- RC — Agriculture, Resource Conservation, and Residential – Very Low Density
- R — Residential – Medium-Low, Medium, and High Density
- IAC — Interchange Activity Center (Mixed Use)
- C — Commercial
- I — Industrial
- INST — Institutional
- U — Utilities

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Figure 3.3.1

OPEN SPACE PLAN

1 County, State & Federal Parks
2 State Game Lands
3 Community Parks & School Grounds
4 Golf Course
5 Cemeteries
6 Historic Sites
7 Gravity Railroad Corridor
8 Lackawanna River Greenway
9 New Parks, Permanent Open Space & Preservation Areas

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Figure 3.7.1

RECLAMATION PLAN

A. Strip Mines

1 Highest Priority

2

3 Lowest Priority

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Figure 3.8.1

RECLAMATION PLAN

B. Culm Piles

1 Highest Priority

2

3 Lowest Priority

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Figure 3.8.2