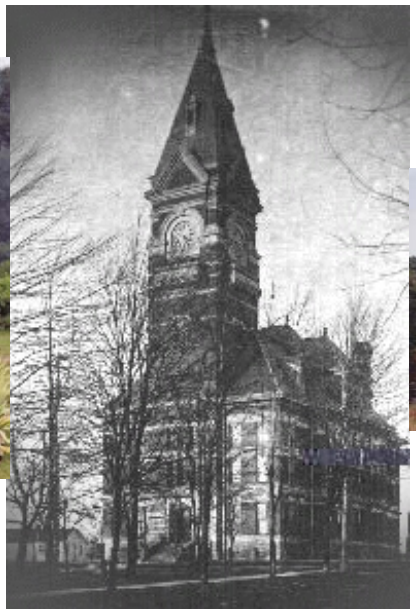
CLARION COUNTY COMPREHENSIVE PLAN

VOLUME II

BACKGROUND STUDIES



Prepared by the

CLARION COUNTY PLANNING COMMISSION

Assisted by

GRANEY, GROSSMAN, RAY AND ASSOCIATES
Harrisville, Pennsylvania

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For the

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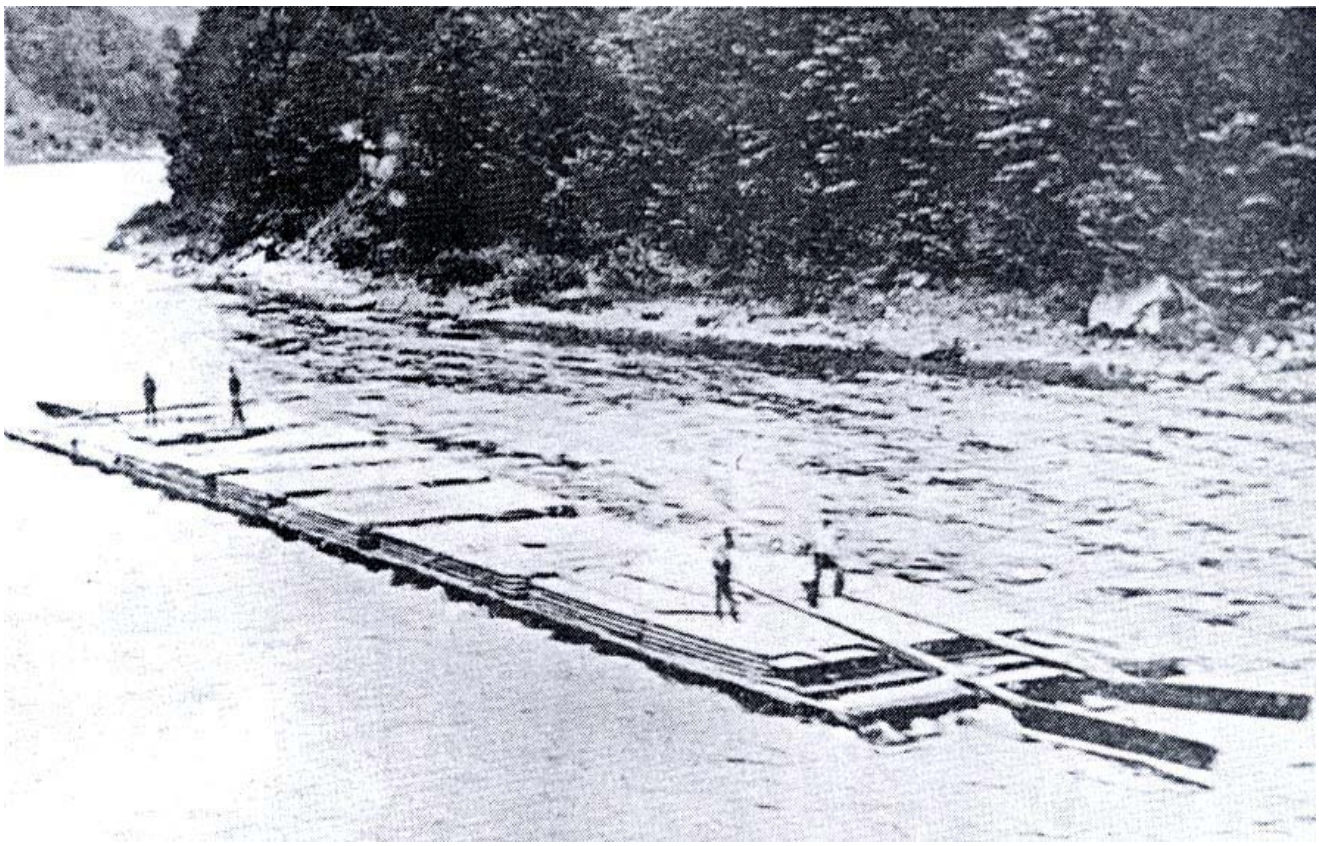


HISTORIC RESOURCE

CLARION COUNTY HISTORY AND HISTORIC RESOURCES

Introduction: This history of any place can offer clues to understanding present conditions. Recognizing the importance of the past, the Pennsylvania Municipalities Planning Code requires that county comprehensive plans shall *"Identify a plan for historic preservation."* Furthermore, any local government project using Federal funds must obtain clearance for each project that could affect a historic resource. Before such a plan can be identified, there must be an understanding of what historic resources remain, and the context of the entire county's past.

Even without the aforementioned statutory requirement, an understanding of local history and an analysis of historic resources remain important. History is part of a community's cultural toolkit, providing knowledge to make decisions. History also has a patriotic value, fostering love of community, which makes good citizens. Finally, historic resources add to quality of life through tourism, local color, and attractive built environment.

Prehistory: It cannot be determined when humans first occupied what is now Clarion County. Archeologists date sites in southwestern Pennsylvania to 10,000 plus years ago. It is likely the first Clarion Countians were what archeologists call Paleo Indians. These people lived in small groups and lived entirely by hunting and gathering. What little is known about them is from their few artifacts which have survived, mostly large stone points and scrapers. The Paleo Indians seemed to have followed large herds of animals such as bison and caribou. They either used portable shelters or occupied naturally sheltered rock ledges or caves. Their stone artifacts could be found anywhere, but particularly near rock shelters. To quote from a Pennsylvania Historical and Museum Commission publication, "Their total existence was greatly affected by the cold climate of the late glacial period. Geologists and Paleontologists have shown that much of Pennsylvania's environment was greatly altered as a result of this frigid climate. Hardwood forests as we know them today could not exist; instead, scattered stands of arctic spruce and fir trees dotted the landscape. Not too far north and at the edge of the great ice sheet, there was tundra vegetation like that now found in the Canadian Artic." (Barry C. Kent Discovering Pennsylvania's Archeological Heritage)

As the glaciers finally receded, the large herds of caribou and similar animals were extinct or retreated north. About 9,000 years ago, evidence shows that people adapted, still living in small bands but now utilizing a wider variety of plants and animals. Archeologists call this the Ardraic period, and their artifacts include fine stone points, soapstone cooking vessels, and stone axes. Rock shelters and simple lodges continued to be used, but migration patterns followed the seasons and were confined to much smaller geographic areas. A band might collect nuts at one site in the fall, winter near game-rich areas, and move into other areas in the spring for fish and edible plants.

Beginning around 1,000 years B.C., agriculture and the making of pottery began to occur. As people were able to now grow a greater seasonal surplus of food (and cook and stir it), the seasonal migrations became less essential and bands became larger and more sedentary. For Clarion County, and the rest of western Pennsylvania, the source of the cultural change was the Ohio Valley. Archeologists consider this the Woodland period. Artifacts of this period include pottery, small triangular arrowheads, and greater numbers of ceremonial objects, such as pipes.

In the area that is now Clarion County, archeologists term the late Woodland culture of the area as the McFate culture (after an archeological site in Crawford County). Little is known about their language or tribal stock. Many lived in extensively fortified villages, which may be a clue to their disappearance. During the same era (about 1650), a similar culture in southwestern Pennsylvania, called the Monongahela people, disappeared. It is also known that to the north, the Erie people were systematically wiped out by the Iroquois confederacy.

Beginning about the same time (1650s), European trade goods begin to appear in archeological sites. Suddenly, all permanent native habitation also ceases. From about 1650 to the 1730s, Clarion County was a hunting ground, but not home to any tribe. Beginning about 1730, the Lenni Lenape peoples begin migrating west from eastern Pennsylvania, due to displacement by white settlements. Bands of "Mingoes" also inhabited the area. (Mingoes were a hybrid people of Seneca, Lenni Lenape, and possibly Shawnee.)

Many river towns in western Pennsylvania were once Lenni Lenape towns: West Hickory, Kittanning, and in Clarion County, Fishbasket, near present New Bethlehem. A large network of trails also crossed the region. The Frenchtown Venango path west from modern-day Franklin through present New Bethlehem, ending in present-day Huntingdon County. The Goshgoshink path connected the

Allegheny River at West Hickory with the North/South Catawba path and also led into central Pennsylvania and the Great Shamokin path. Through the combination of paths and water travel, the entire region was as accessible as today; in fact, some paths, such as the Venango Trail, became roads (today's PA Rote 8), while others parallel modern highways (the Great Shamokin path and I-80).

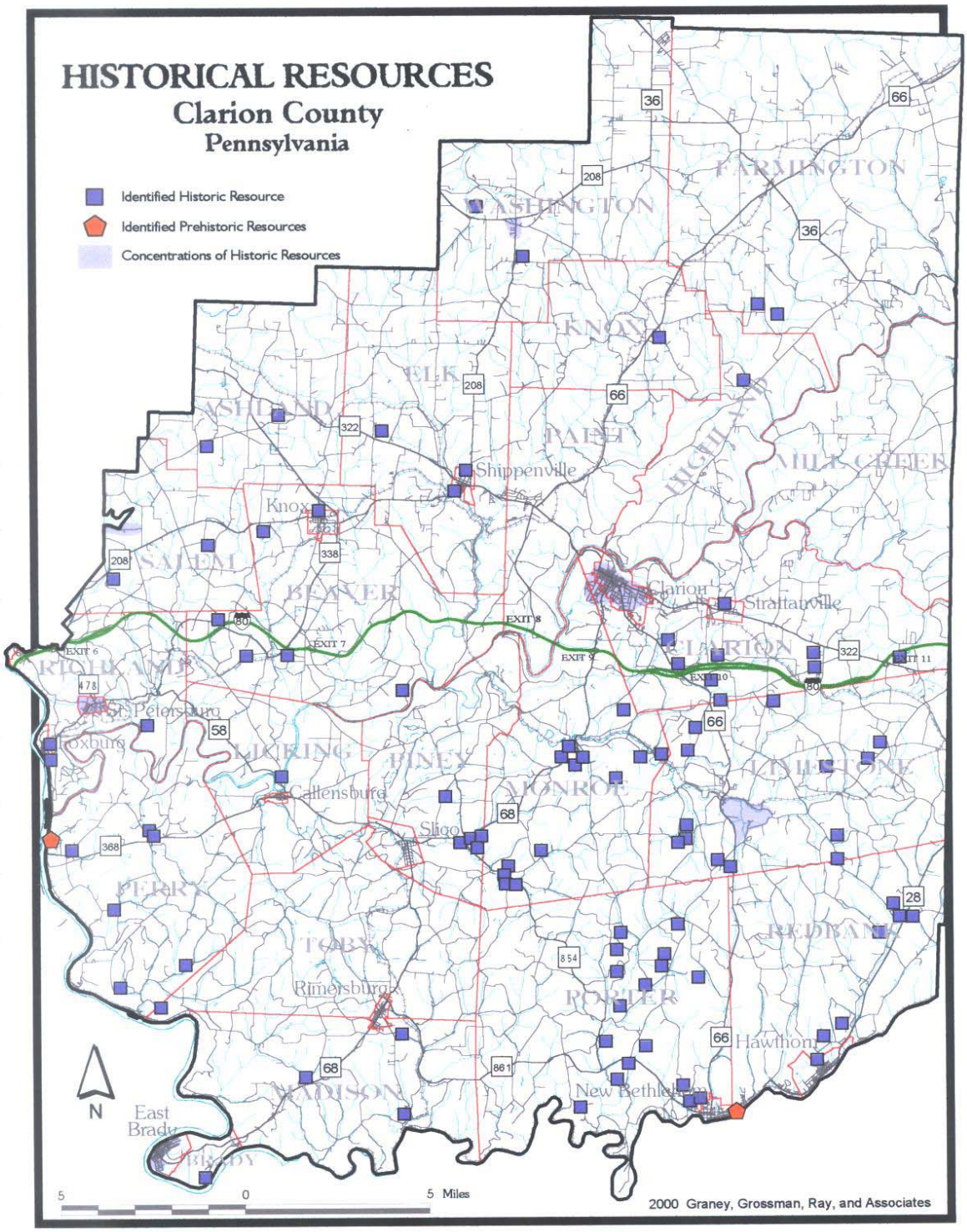
Resources: There are three major sites of note in Clarion County. The first are the petroglyphs (rock carvings) at Parkers Landing on the Allegheny River. These depict animals, fish, and birds, but their purpose is unknown. Both historic and pre-historic excavations have been made at Fishbasket, revealing over 2,000 pottery shards, fortifications, and numerous other artifacts. A rock shelter site from the archaic period was also discovered in the 1960s along the Clarion River.

History: From 1754 to 1794, settlement in Clarion County was impossible, due to incessant warfare between native and European peoples:

1754-1763 – French and Indian War
1763 – Pontiac's War
1774 – Lord Dunmore's War
1775-1783 – American Revolution
1792-1795 – U.S. War with Delaware, Shawnee, and Miamis

Land was the main attraction and commodity in western Pennsylvania. During the early years of settlement, there were squatters, Revolutionary War veterans settling on lands given in lieu of back pay, lands used to make up for depreciated pay of veterans and wealthy absentee landowners and companies holding thousands of acres. No area of Clarion was a part of the veterans' grants, and settlement was delayed until 1801, when there was still some confusion about ownership. Settlers filtered into Clarion primarily from the southwestern part of the State. These settlers seemed to be largely Pennsylvania born, and of Scots-Irish, Germanic or English extraction. The political jurisdiction of the County changed frequently as population grew.

Pre-1784 – Unorganized territory
1784-1785 – Attached to Northumberland County
1795 – Lycoming County organized (includes all of Clarion)
1800 – Northern Clarion organized into Venango County, southern area into Armstrong County
1839 – Clarion County created by Pennsylvania legislature


HISTORICAL RESOURCES
Clarion County
Pennsylvania
Identified Historic Resource
Identified Prehistoric Resources
Concentrations of Historic Resources
Shippenville
Knox
Clarion
Strattanville
Callensburg
Sligo
Rimersburg
Hawthorn
New Bethlehem
East Brady
Brady
FARMINGTON
WASHINGTON
KNOX
ELK
PAINT
MILL CREEK
SALEM
BEAVER
CLARION
LICKING
PINEY
MONROE
PERRY
TOBY
PORTER
REDBANK
MADISON
EXIT 6
EXIT 7
EXIT 8
EXIT 9
EXIT 10
EXIT 11
N
5 0 5 Miles
2000 Graney, Grossman, Ray, and Associates

The first settlers found land that was fairly to poorly suited for commercial agriculture, and that they were somewhat isolated from markets. Most of the early agriculture thus took on a subsistence character. Needing cash, the settlers turned to rich natural resources. Research gleanings from the County Historical Society indicate many pioneers paid for their land by selling pine tar in Pittsburgh. Others sold fur, hides, or meat, as did the famous early hunter Philip Tome. (Tome hunted northern Clarion County and left a famous memoir, Pioneer Life on Thirty Years at Hunter.)

Natural resources certainly led to the population increases that led to the eventual creation of the County as a political entity. Timber resources were salable by rafting them down the Clarion and Allegheny Rivers to Pittsburgh. This practice continued from the time of settlement until the early years of the twentieth century.

Timber also provided another resource that became very important to the County; charcoal for the making of iron. This, combined with presence of iron ore and limestone for flux, made Clarion County an iron-making paradise from about 1830 to the time of the Civil War.

According to the Clarion County Historical Society, between 27 and 34 furnaces were active in the County during this era. Production of the entire County was around 50,000 tons per year.

Unlike a modern foundry or urban steel mill, iron making was a rural industry. Axemen felled trees and quarrymen dug ore and limestone. The trees were made into charcoal by controlled burning in large stacks. The raw materials were then transported to the furnace.

The furnace was basically a fire-brick lined stone tower with access to the fop for fuel, ore, and flux as openings at the bottom for the pig iron to flow through. The finished iron was then floated down rivers for sale in Pittsburgh.

The importance of iron to the County's pre-Civil War economy can be seen through the resources and manpower devoted to the furnaces. One ton of iron required 200 bushels of charcoal (approximately 25 mature trees), three-and-one-half tons of ore, and a quarter ton of limestone flux were also needed. To process this required axemen, quarrymen, colliers (charcoal burners), teamsters and horses, materials handlers, and iron workers.

It is thus not surprising that each furnace provided periodic employment for 50 to 200 men. Iron making in Clarion County was hit by several economic downturns, but finally was killed by improved technology elsewhere, and the depletion of timber reserves for charcoal production.

Just as the iron industry was declining, the oil industry was rising. Citing the County Historical Society, there were five active oil wells in 1870. By 1875, there were nearly 5,000. By the 1880s, there was a full-fledged oil boom. The boom brought thousands into the region in search of fortunes or employment. Sleepy villages such as St. Petersburg became small cities and unpopulated areas soon blossomed new towns with names like Turkey City.

Resources: From 1976 to 1978, Helen Williams Urban edited a three-volume study entitled Century Homes and Buildings of Clarion County. While this was not a full formal historic resources survey, the study did document 120 historic structures in the County and one nonstructural resource (a historically important spring). Among the resources were 79 homes, 28 churches, and 13 commercial, civic, or agricultural buildings. The oldest was the Robert Smith Cabin, built in 1804. The distribution of these resources is illustrated on the Historic Resources Map.

The Urban study did not attempt to document historic iron furnaces. Data on many furnaces and a map are available at the County Historical Society. However, the Society believes its list may be incomplete. One furnace (Buchanan) is located in Licking Township and is listed on the National Register of Historic Places. Another (Hieland) is owned by the County.

Unfortunately, the three-volume Century Homes and Buildings of Clarion County details virtually all pre-1875 resources, so few oil-boom related resource are included. Certainly, many parts of early rigs, pumps, and pipelines remain, and many of the high-style Victorian structures in the County were financed with oil or coal money. One significant resource from this era is the Clarion County Courthouse and Jail, now listed on the Natural Register of Historic Places.

Conclusion: Clarion County's past represents a portrait of boom-bust economies typical of the rural nonagricultural parts of Pennsylvania. From wood to iron, to oil and coal, the community rode waves of great activity and subsequent slumps. The challenge of the future is to create and continue stable prosperity.

PHYSICAL ENVIRONMENT, LAND COVER AND USE

CLARION COUNTY
PHYSICAL ENVIRONMENT, LAND COVER AND USE

"… challenge the planner to seek a working balance between productive uses of land and natural resources, … The goal is … balancing economy and ecology."

Page 172, URBAN LAND USE PLANNING
F. Stuart Chapin et al., 4th Edition 1995

Often, the statement quoted above is viewed as an academic pronouncement with little application in the "real world." How sadly mistaken! For years, Clarion County meant coal – coal meant jobs, and regulations for decades were minimal. Now, coalmining has dwindled, jobs have disappeared, but a legacy has been left – a legacy of spoiled landscapes, red water, and pollution. That is not to imply that the mining of coal is intrinsically bad, for without coal, our modern world would not exist. But, the lessons of yesterday do teach us that human activity – be it industrial or simply choosing a place to live – must be done with an understanding of, and a respect for, the natural environment. The purpose of this section of the Clarion County Comprehensive Plan is to examine the County's current environment, so necessary safeguards can be considered when policies are adopted.

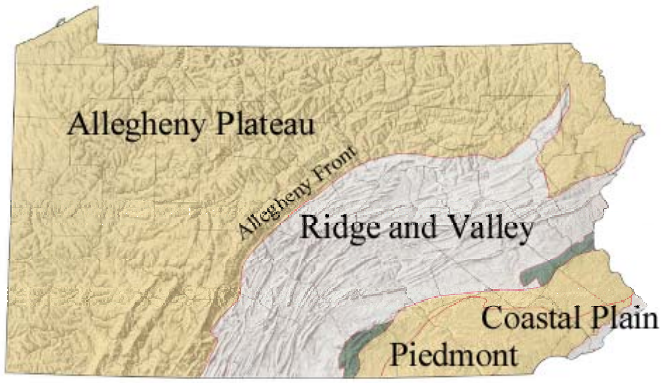
Clarion County is located in western Pennsylvania, bounded on the west by the Allegheny River and on the south by Redbank Creek. The Clarion River dissects it from west-southwest to east-northeast. The County covers 599 square miles, or 383,360 acres, and is situated between 41° 58' N and 41° 26' N latitude and between 79° 12' 30" W and 79° 42' 30" W longitude.

Environment: Environmental concerns, or the physical features and their interactions, are of importance when considering the potential for development. Decisions about development are often initially based on environmental considerations. Most will avoid areas where development may be subject to flooding, steep slopes are present, there is a wetland, or a similar negative condition exists.

There are other physical considerations that also may inhibit development; some places deserve protection. These unique qualities merit special consideration. It could be an exceptional watershed or perhaps a vista that merits preservation.

Policies about future development must be based upon a sound knowledge of both type of constraints, and that knowledge must be a precursor to policy. That, then, is the purpose of this Plan element.

Environmental issues considered in this chapter are physical terrain: geology, soils, slope; natural resources: minerals, natural landscape; and water: drainage, exceptional watersheds, wetlands, floodplains, acid-mine drainage.



Physical Terrain: The earth is divided into physiographic provinces or landform regions. These physiographic provinces are the result of the clash and separation of tectonic plates; huge, often continent size, chunks of the earth's surface. When the plates collide, extreme pressure and resulting heat can soften and flex or completely melt the rock material, or push aside layers of rock. These actions, along with weathering, produce variations in topography. To better understand regions of similar topography, they are classified in physiographic provinces. Portions of several physiographic provinces make up Pennsylvania's landscape.

While tectonic plates are constantly in motion, it has been approximately 200 million years since the last episode of plate activity that caused any major change in the landforms of Pennsylvania.

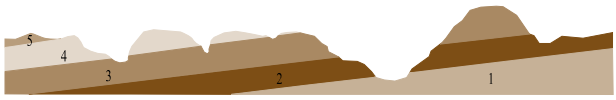
A characteristic folding of the surface rock, as far inland as the Allegheny Front, into elaborate ridges and valleys, was named the Ridge and Valley province. To the west of the Allegheny Front, the land was pushed up without buckling (the exceptions being Laurel Hill and Chestnut Ridge). Today, this region of uplift is referred to as the Allegheny (or Appalachian) Plateau.

Clarion County is situated within that Allegheny Plateau. The Allegheny Plateau consists of sedimentary rock strata having slight dips. In Clarion County, this dipping occurs to the southwest. Overall, the Plateau stretches from northern New York State southwest through Kentucky and Tennessee into Alabama, encompassing Pennsylvania's northern tier counties and the western half of the State and bounded on the east by the Allegheny Front escarpment [see photo (Source: *The Atlas of Pennsylvania*, Temple University 1989, pp 18-25)].

While the rock layers of the Allegheny Plateau are basically flat, the surface of the plateau region can be quite rugged. The ruggedness is due to hundreds of thousands of years of erosion by stream action into a "treelike," or dendritic, stream pattern. This branching appearance of streams is graphically shown on the stream map.)

Geology: From 540 million years ago to 200 million years ago, the area that encompasses Clarion County was repeatedly covered by seawater and then exposed again. Deposits of marine animal shells, accumulated while the land was submerged by the inland sea, produced thick layers of lime, later pressurized into limestone. At the same time as the surrounding uplands eroded, and while the gradient was steep enough to carry it, sand was deposited along the water's edge. These sand deposits later became sandstone. As the gradient eroded, becoming less steep and unable to carry sand, tiny clay particles were deposited into the sea. Clay is the parent material of shale.

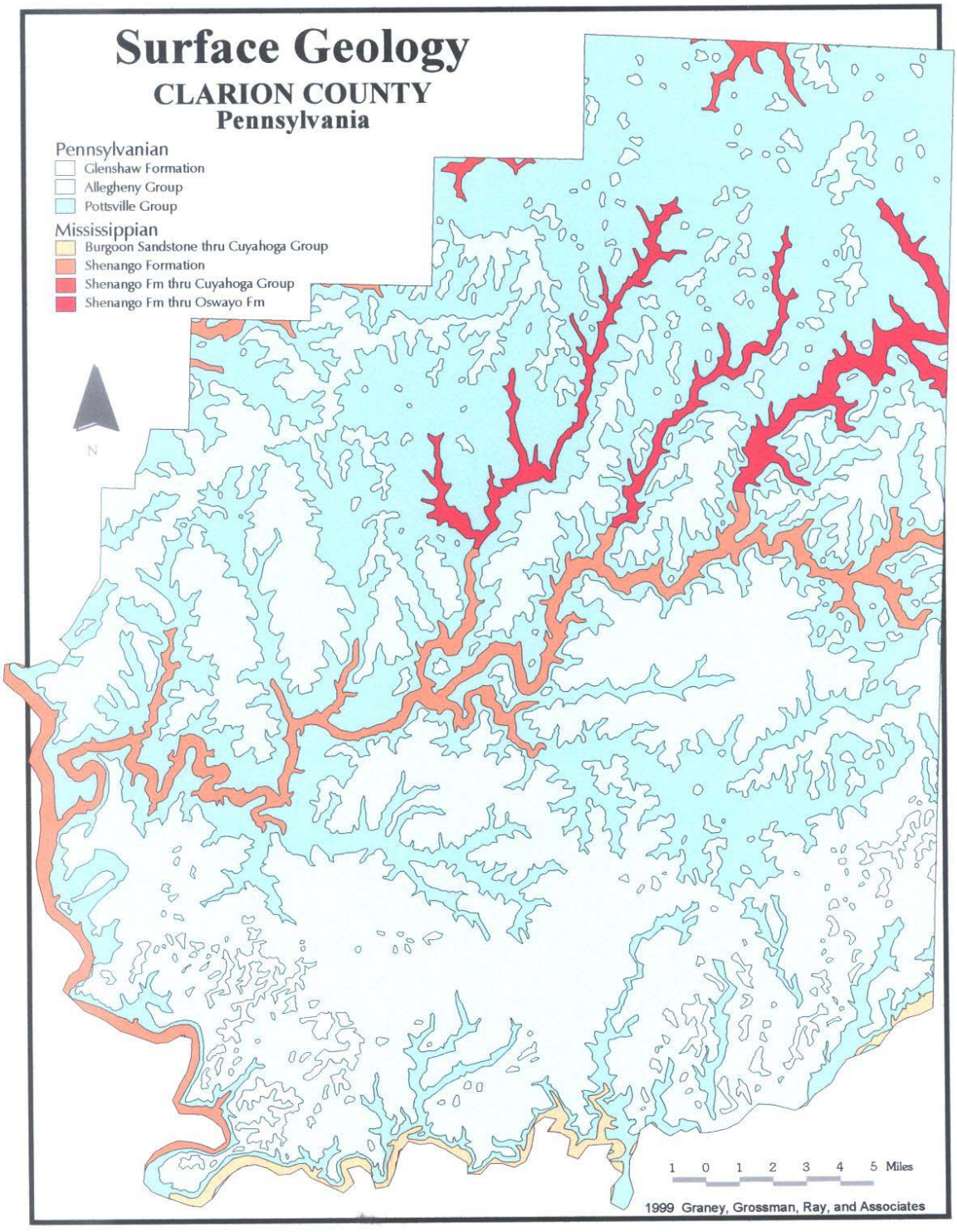
During periods when the sea retreated, Pennsylvania's position was 5 to 10 degrees south of the equator. The tropical environment produced lush vegetative growth, and ultimately huge deposits of dead plants. In swampy areas, these deposits of vegetable-derived carbon sank to the bottom of the swamp and were, in turn, pressurized into peat and later coal.



Example of effect of erosion upon rock strata with dip. The amount of dip shown here is exagerated for easier demonstration. Note that highest numbered strata is the youngest.

Though not apparent to most viewers, the layers of rock in Clarion County are slightly dipped to the southwest, at a gentle rate of less than 100 feet per mile. Therefore, the age of rock and its elevational location are somewhat canted (see diagram). The oldest rock strata are the Burgoon Sandstone and the Shenango Formations. They can be found along the river and stream valleys. The next higher/younger stratum is the Pottsville Formation. Layered on top of the Pottsville is the Allegheny Formation. The uppermost layer, the Glenshaw, can be seen as mere remnants, scattered across the southern tier of the County. (See Surface Geology plate.)

The Pottsville and Allegheny Formations account for the vast majority of the County's surface geology. The Pottsville Formation is divided into two sequences. The lower sequence consists basically of sandstones, including the Conoquenessing Sandstone. The upper sequence includes Mercer coals among sandstone and limestone.


Surface Geology
CLARION COUNTY
Pennsylvania
Pennsylvanian
Glenshaw Formation
Allegheny Group
Pottsville Group
Mississippian
Burgoon Sandstone thru Cuyahoga Group
Shenango Formation
Shenango Fm thru Cuyahoga Group
Shenango Fm thru Oswayo Fm
N
1 0 1 2 3 4 5 Miles
1999 Graney, Grossman, Ray, and Associates

The Allegheny Formation includes coals that are economically viable along with a variety of other sedimentary beds: sandstone, limestone, clay, and shale. None of these strata are continuous throughout the formation.

Coal: Among Clarion County's natural resources, coal has historically been the most important. Coal can be found throughout the County, yet not all seams present viable mining conditions. The method of extraction is dependent upon various factors: thickness of the vein, continuity of the vein, and depth of the seam. The quality of the coal has taken on greater importance since the Clean Air Act of 1970. At present, only the lower sulfur coals that can be strip-mined are being extracted.

Coal is found in many layers throughout the Pottsville and Allegheny Formations. Freeport coal is the youngest coal to be found in the County. It is located in the highest elevations of the southern tier. These seams have been extensively strip and deep mined. The upper, middle, and lower seams of Kittaning coal cover approximately 60 percent of the County extending from Redbank Creek northwards. The Scrubgrass, Clarion, and Brookville coals cover 75 percent of the County. They were being mined in the 1980s. However, as they are high in sulfur, they are now less desirable. Mercer coals can be found over 90 percent of the County. In the northern section of the County, these seams tend to be closer to the surface, but many are too thin to be of economic value. In the southern section of the County, the seams are too deep to be feasibly mined. There are several other small veins of coal, but they are either too thin or lacking in continuity for exploitation.

Because of the demand for low sulfur coal and prior mining, coal production in Clarion County has declined since the 1970s. From 1970 to 1980, over 5,000,000 tons of coal was produced per year. By 1994, coal production has been reduced to something over 1,000,000 tons. In 1996, production was down to 540,688 tons per year. Current coal production is all via surface or "strip" mining. In 1997, production was 605,854 tons and in 1998, 585,337 tons. The Pennsylvania Coal Association expects production to level off near the half-million-ton-a-year level.

Though Clarion was historically an important producer of bituminous coal in Pennsylvania, the 1998 figures reveal it accounted for only 1.5 percent of the State's production. Local sources are somewhat pessimistic about future coal mining in the County. Some believe most of the mineable coal has been taken. However, DEP data from 1995 to 2000 reports 40 permits for mining had been

received for Clarion County. They point out a coal reserve of 450 million tons exist in the County of which 137 million are classified as surface mineable. Of course, mining activity will depend upon the overall market and property availability. Two plates illustrate mining activity in the County. The first, "Natural Resources," shows the general locations of coal, oil, and gas reserves. The second, "Permitted Mines," shows the location of current active or pending mine permits. This includes sandstone, clay, and limestone, as well as coal.

Oil and Natural Gas: Within Clarion, petroleum is found in sandstones formed during the Late Devonian through Pennsylvanian Ages, or from 400 to 290 million years ago. Virtually, all petroleum is located from 500 to 5,000 feet under the surface of the earth. These are considered "shallow" reserves. There is only one deep reserve known within Clarion County, and that is located near Clarion Borough.

As early as 1748, there has been knowledge of the existence of oil and natural gas in Pennsylvania. Commercial exploitation began when Colonel Edwin Drake began extracting oil in 1859. At that time, what natural gas was found was considered to be a nuisance and a hazard. Within a few short decades however, George Westinghouse saw the value of natural gas both as a fuel and to provide lighting. Consequently, both of these petroleum products were being extracted at increasing rates.

Until the early 1900s, Pennsylvania provided over half the world's production. At that time, Texas became the major producer of oil. Today, Pennsylvania oil accounts for less than 1 percent of national production, yet remains important for its low sulfur content and excellent lubrication qualities.

In 1992, which is the last year of clear records, Clarion County produced almost 18,000 barrels of crude oil and approximately 350,000 million cubic feet of natural gas. Current methods of keeping production records are not considered reliable, and their results are consequently not used.

Production for Clarion County	Crude Oil (Barrels)	Natural Gas (Mil Cubic Feet)	Estimated Number of Producing Oil Wells
1988	22,806		443
1989	25,327		369
1990	22,380		
1991	19,253		
1992	17,978	346,943	

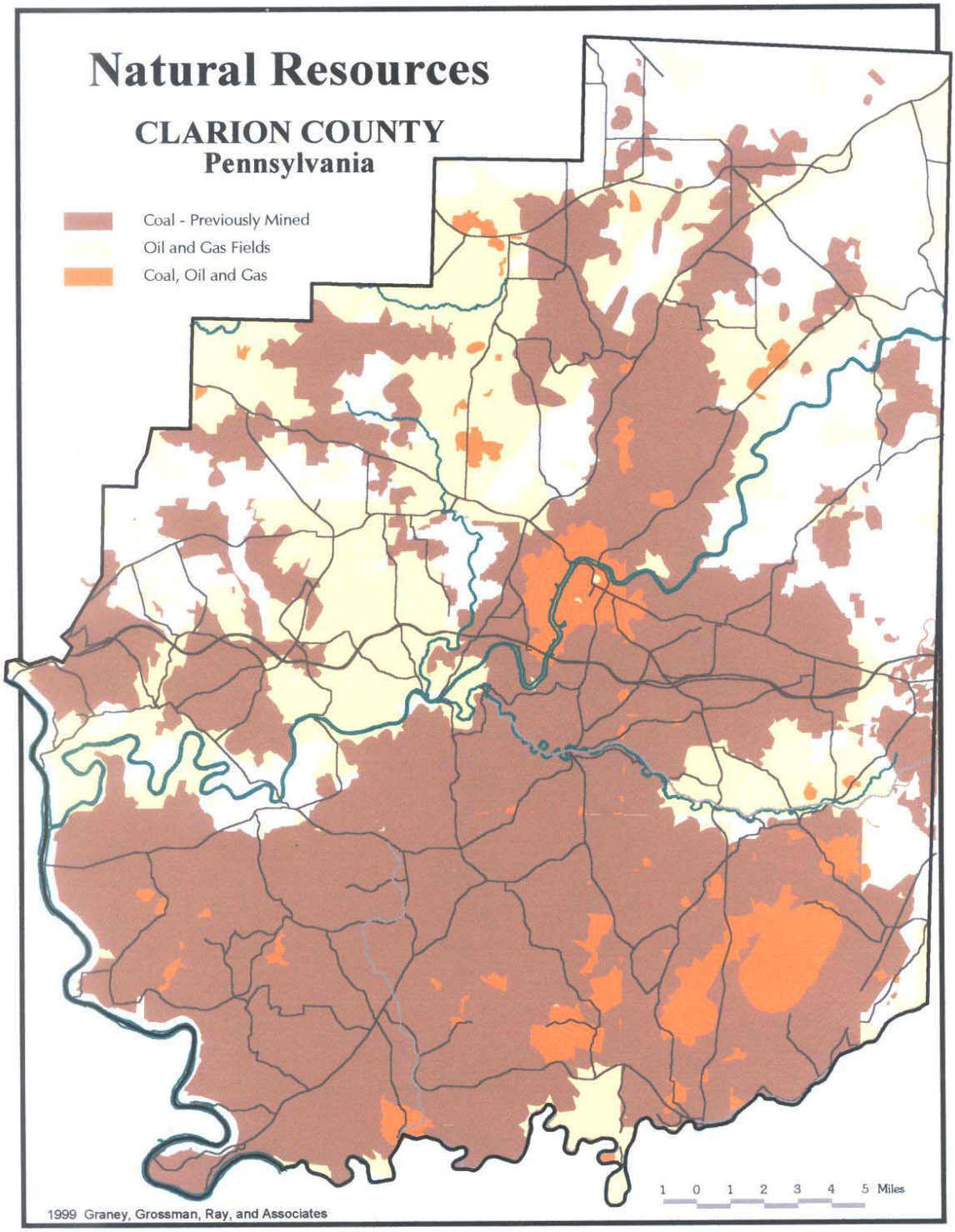
Though it may be difficult to determine the current production of crude oil and natural gas, it can be stated that there is continuing interest and investment in this activity. Current State policy has all permits for oil and gas drilling rigs listed on the State's Internet site. Although a permit does not mean a successful well will be drilled, it certainly means an economic interest in such activities. In 1999, 106 "Rig" permits were granted in Clarion County. Nearly all were located in the southeast quadrant of the County (see plate RIG Activity).

Part of this location is simply due to the fact that that location has available gas. However, part of the drilling concentration relates to available leases and the fact this area has the needed infrastructure (gas lines, etc.) to transport gas to market. Most of these wells are classified as shallow by DEP.

Soils: Soil is a mixture of minerals and organic material. The minerals are fine to coarse particles of whatever rock in the local area has eroded. The organic material is the bits of dead plants and animals that lived in the area. The vast majority of the organic material comes from plants and can readily be seen as the humus found on forest floors. While this is the general recipe for soil, the tremendous variety of ingredients (types of rock, plant species) demands that soils be site-specific and often entirely unique. Because of this variety, soils are generally classified by their major components to greatly ease understanding of them, their characteristics and potential uses.

The Soil Survey of Clarion County, presented by the Soil Conservation Service, provides a wealth of information about the various soils as well as preferred uses and estimated yields for a variety of common crops. The Survey classifies the County's soils into seven main soil areas.

The northeastern third of the County is mainly CCD, or composed of Clymer, Cookport, and Dekalb soils. These soils are found on ridge tops and slopes. In general, they are quite suitable for agriculture.

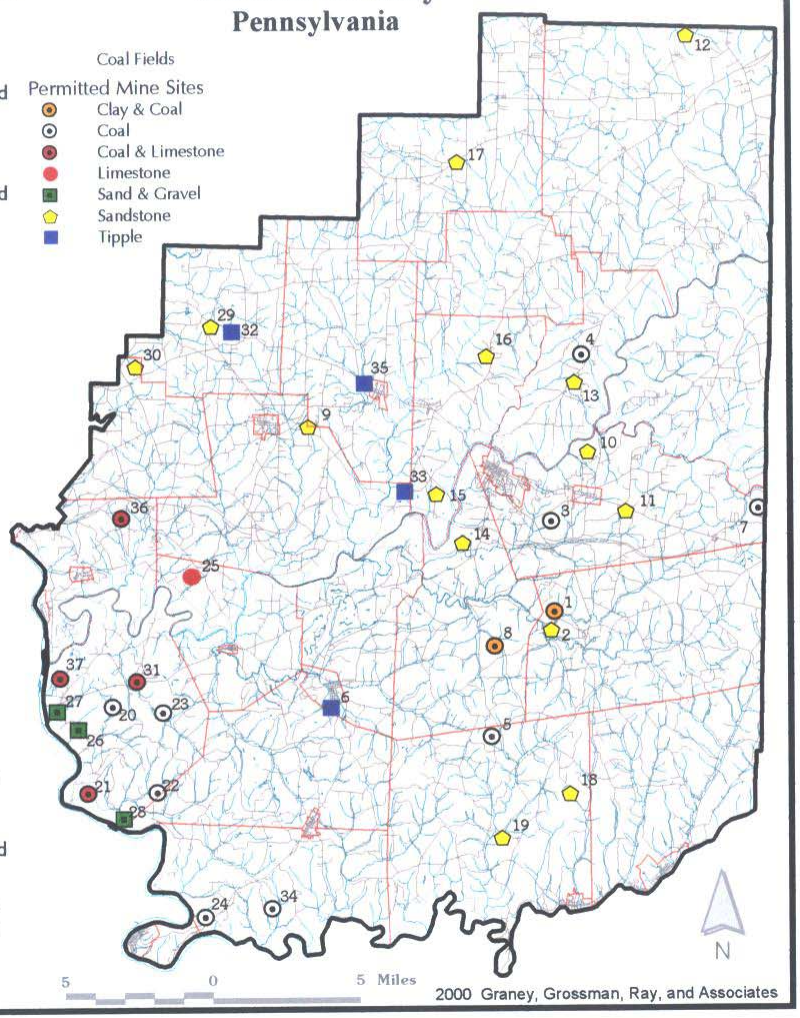

Natural Resources
CLARION COUNTY
Pennsylvania
Coal - Previously Mined
Oil and Gas Fields
Coal, Oil and Gas
1 0 1 2 3 4 5 Miles
1999 Graney, Grossman, Ray, and Associates

Permitted Mines

Clarion County

Pennsylvania

ID #	COMPANY NAME	MINE TYPE	PERMIT #	SITE STATUS
1	Glen-Gery	clay & coal	16860310	active
2	Rankin	sandstone	16960803	active
3	MSM Coal	coal	16970104	active
4	TDK Coal	coal	16980102	not started
5	Original Fuels	coal	16990104	active
6	RFI Energy	tipple	16831604	active
7	Sky Haven	coal	16990105	active
8	Glen-Gery	clay & coal	16990301	not started
9	Amsler Oil & Gas	sandstone	16900803	active
10	Brooklyn Services	sandstone	16960808	active
11	Neiswonger	sandstone	16982801	active
12	Mealy	sandstone	16900805	active
13	McCleary	sandstone	16910803	active
14	LOPA	sandstone	16960801	active
15	Stehle	sandstone	16982806	active
16	Rankin	sandstone	16970802	active
17	Mealy	sandstone	16990803	active
18	Reichard	sandstone	16970801	active
19	Shirey	sandstone	16960805	active
20	RFI Energy	coal	16940103	active
21	Original Fuels	coal & limestone	16940105	active
22	Milestone Crushed	coal	16803004	active
23	RFI Energy	coal	16940107	active
24	TDK Coal	coal	16910104	active
25	Milestone Crushed	limestone	16970307	active
26	Milestone Crushed	sand & gravel	16960304	active
27	Glacial Sand & Gravel	sand & gravel	3672BSM12	active
28	Ancient Sun	sand & gravel	16950306	active
29	Lester Henry	sandstone	16992802	active
30	D. Weaver	sandstone	16890806	active
31	Milestone Crushed	coal & limestone	16000102	pending
32	Ancient Sun	tipple	16901602	active
33	Manor Coal	tipple	16901604	active
34	C & K Coal	coal	16763007	not started
35	Kiser	tipple	16901601	active
36	Milestone Crushed	coal & limestone	16000104	pending
37	Milestone Crushed	coal & limestone	16000304	pending



GRE, or Giplin-Rayne-Ernest soils, is the most predominant soil group in the southern third of Clarion County. This soil group can be found on ridges, flat areas, and slopes. While these soils are good for dairy and general farming, some farms have been abandoned for strip mining.

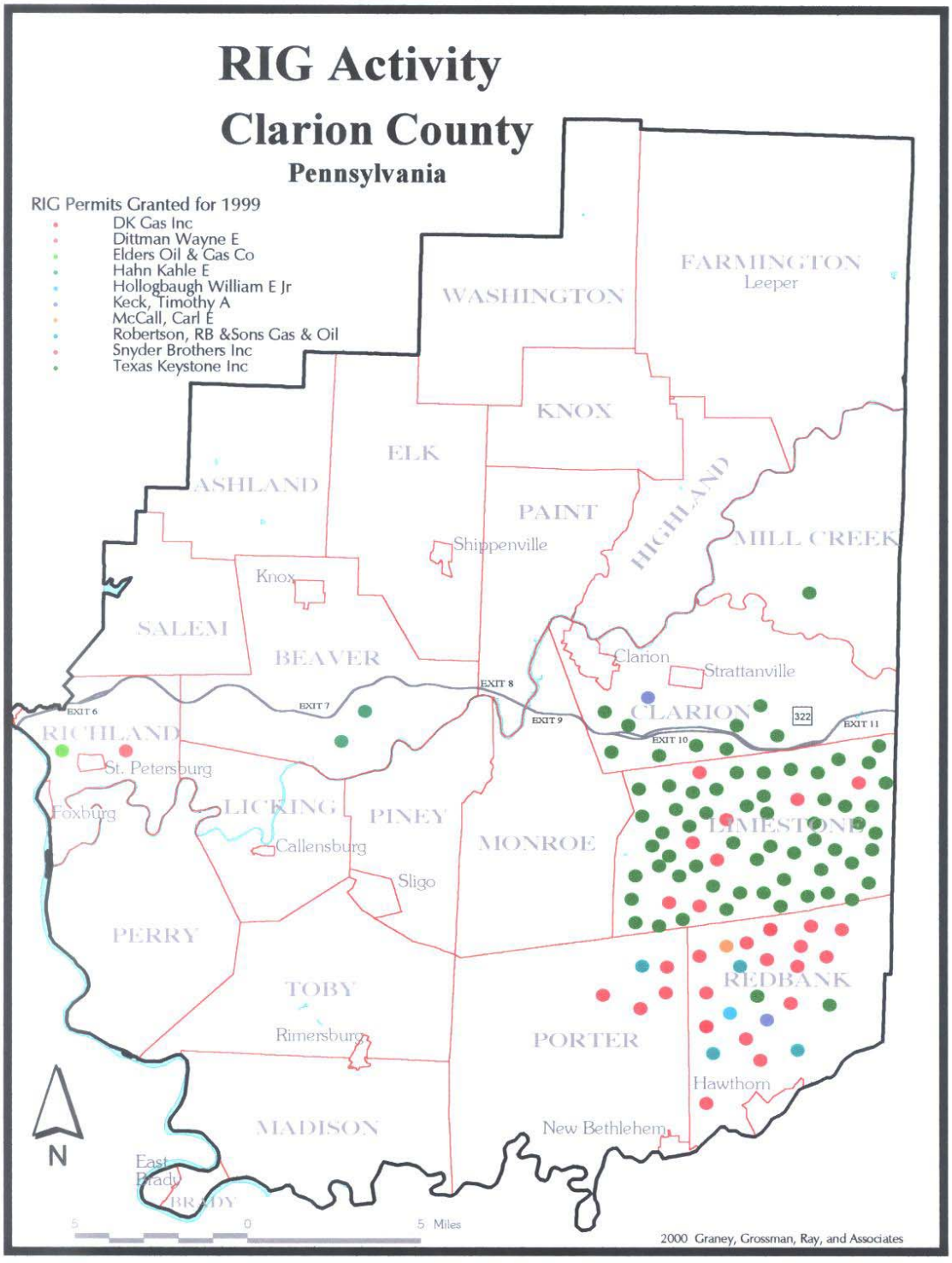
Water: Water comes to us by way of rain. The average rainfall for Clarion County is approximately 41 inches (another 4 inches of water is precipitated in the form of snow). Water plays a significant role in the environment. The availability of water is imperative if life is to exist, be it plant or animal. The amount of rain and the rate at which it falls will shape the landscape via erosion. Too much or too little water at any one time can reek havoc on the availability of land on which to live, work, and raise crops.

Ideally, surface water will permeate the soil, draining down and filling the water table or aquifer. An adequate supply of pure, clean water, stored in aquifers, is necessary for the survival of plants and animals. As the water, within the aquifer, finds fissures and other means of escape, water will leak out of the aquifer, producing springs. If no means of escape is present, lakes, ponds, or wetlands will result where a depression of the earth's surface is lower than the level of the water table.

There are several circumstances by which this process can be interrupted. When the surface porosity does not allow water to permeate the surface or if the soil is saturated, water will run across the surface following the slope until either it permeates the soil or it becomes part of an ocean. The degree of porosity, or permeability, of the surface and the gradient of the surface, slope, will determine the resulting action and the amount of erosion that may occur during this process.

Acid Deposition: Acid is deposited in streams and aquifers by two general methods; acid rain and acid mine drainage. Acidic runoff and acid rain wash into streams lowering the pH levels to below the natural level for streams in this area, resulting in water in which the native plants and animals are stressed or cannot live, and, in some places, all life within the stream dies.

Many of the streams and aquifers in Clarion County, and much of the rest of Pennsylvania's coal regions, have been contaminated through Acid Mine Drainage (AMD). The Acid Mine Drainage map depicts those streams that have succumbed to acidic runoff from coalmines.


RIG Activity
Clarion County
Pennsylvania
RIG Permits Granted for 1999
DK Gas Inc
Dittman Wayne E
Elders Oil & Gas Co
Hahn Kahle E
Hollogbaugh William E Jr
Keck, Timothy A
McCall, Carl E
Robertson, RB &Sons Gas & Oil
Snyder Brothers Inc
Texas Keystone Inc
WASHINGTON
FARMINGTON
Leeper
KNOX
ELK
ASHLAND
PAINT
Shippenville
HIGHLAND
MILL CREEK
Knox
SALEM
BEAVER
Clarion
Strattanville
EXIT 6
EXIT 7
EXIT 8
EXIT 9
EXIT 10
EXIT 11
322
CLARION
RICHLAND
St. Petersburg
Foxburg
LICKING
PINEY
MONROE
LIMESTONE
Callensburg
Sligo
PERRY
TOBY
REDBANK
Rimersburg
PORTER
Hawthorn
MADISON
New Bethlehem
East Brady
BRADY
N
5
0
5 Miles
2000 Graney, Grossman, Ray, and Associates

AMD, or sulfuric acid and iron hydroxide, results from the exposure of pyrite (FeS_2) to air and water. Pyrite is a mineral that is commonly found in rock layers overlying coal seams or within the coal seams. Pyrite can be exposed to air and water during the process of surface mining as well as deep mining. The acid lowers the pH of the stream while the iron hydroxide settles to the bottom of the stream leaving the telltale red and yellow deposits. In areas where natural limestone is present, the acid can be neutralized. Prior to starting any new mine works, an analysis of the proportions of limestone and pyrite present with the coal must be made to determine if there is a potential of AMD occurring.

Elevated levels of sulfates and metals have been found in water runoff from active, abandoned, and even some reclaimed mines. These contaminants, which produce abnormally high acidity levels, are associated with both bituminous and anthracite mines.

The effects of mining and various reclamation practices are presently being studied with the intent of finding processes which will reduce acid mine drainage; ideally, while still allowing the mining of coal. One study that took place in Clarion County controlled the placement of segregated acid-bearing rock from the remainder of mine spoils, during reclamation. The potentially hazardous rock was placed above the water table, yet below root level. This placement was hoped to reduce the chance of mixing with air and water. The results determined that this method did not reduce the production of acid. Another ongoing study of four mines in Clarion and Clearfield Counties involved the application of lime and sewage sludge to increase the alkalinity of ground water in mined areas. As yet, the perfect combination has not been found, but research continues.

Further study includes passive treatment of AMD by passing the polluted water through wetlands, both aerobic and anaerobic. This method uses the natural filtering properties of plants and compost.

Sources:

Pennsylvania Department of Environmental Protection, *What is Acid Mine Drainage*? wysiwyg://19http://www.dep.state.pa.us/d…r/coalmine/What_is_Acid_Mine_Drainage.html, DEP December 2, 1999

USGS, *U.S. Geological Survey: Programs in Pennsylvania,* http://www.usgs.gov/wid/html/pa.html, U.S. Geological Survey, November 23, 1999

Developmental Constraints: Many planning decisions are primarily based on environmental criteria. Areas that cannot support development should be retained in their present state. Included in this category are wetlands and steep slopes.

Development should also be avoided in areas where such development may place human life at risk, i.e., floodplains. State parks, forests, and game lands, as well as vistas of merit, historical landmarks, exceptional watersheds, and other areas of value, should also be maintained or protected from degradation.

This section will discuss the constraints of slope, wetlands, floodplains, and exceptional watersheds; what they are; and why development would not be beneficial in those areas.

Slope: Slope is the change in surface inclination from the horizontal. The amount of slope is classified by the percentage of difference from the horizontal over a given distance. For example, an elevation drop of 100 feet divided by a horizontal distance of 100 feet is said to have 100 percent slope. A difference in elevation of 15 feet over a horizontal distance of 50 feet would be 30 percent (15 feet/50 feet x 100 = 30 percent). The variations in slope are a function of the rock type found along the slope. For example, shale, which has very little resistance and weathers readily, will produce a gentler slope, because the rock/soil will not support a steep slope; meanwhile, sandstone is much more resistant to weathering and will support a steeper slope.

The slope of the land can be critical when determining if a particular use or activity should be planned for any given site. The desired slope is dependent upon the use. For farming, it is preferred to have flat to moderately sloped land, as increased slope increases the potential for erosion. For industrial sites, it is preferred to have very little slope, yet be accessible to transportation. Housing can be installed on most reasonable slopes, but the extra costs and hazards involved in building on steeper slopes are hardly warranted when land is plentiful.

Because the risk of erosion is greater as slope increases, it is preferable to conserve steeply sloped areas. Left in their natural vegetated state, steep slopes provide visual and sound buffers, habitat for birds, mammals, and other animals, and erosion control. They also provide visual interest, breaking up large expanses of otherwise developed land.

Virtually all areas within Clarion County are in slope. A significant portion of the land has a slope of 30 percent or greater (see Environmental Constraints map). At

30 percent, the potential for erosion becomes significant. The areas of the County having little slope (5% or less) tend to be floodplains or flat ridge tops of remaining plateau not yet eroded by streams. The areas between 5 percent and 30 percent tend to be 15 percent to 30 percent, especially as one drops off the plateau remnants.

Water Quality: Exceptional Watersheds - Within Clarion County, there are two watersheds whose streams have been classified as exceptional in their quality of water, as determined by the Pennsylvania Department of Environmental Protection in 1992. These watersheds are Blyson Run and McCanna Run. Both are in Mill Creek Township; however, Blyson Run drains directly into the Clarion River, while McCanna Run enters the Clarion via Mill Creek.

Watersheds: As previously mentioned, Clarion County has a dendritic stream pattern. Virtually all parts of the County are readily being drained into the stream system. The largest and most recognizable streams are the Allegheny and Clarion Rivers; Redbank Creek; Toby Creek; Deer, Paint and Licking Creeks; and Piney and Little Piney Creeks. There is one dam located on the Clarion River. This fine network of streams produces numerous small watersheds, as can be seen in the Watershed map.

Watersheds are all the land that is drained into one stream or stream system. For example, all the land which drains into Toby Creek defines the Toby Creek watershed, while the Clarion watershed is not only that land which drains directly into the Clarion River, but also the watersheds of Toby Creek, Piney Creek, and all the other tributaries of the Clarion River. It is easy to see through this model how problems with water quality on one end of the County can affect folks living at the other. Imagine an accident at Frills Corner, the junction of Routes 208 and 36, involving a truck carrying a toxic liquid. The pollutant enters one of Licking Creek's tributaries and is carried down stream entering the Clarion River via Deer Creek, and on to the Allegheny and beyond, potentially destroying water quality from one end of the County to the other.

Wetlands: Wetlands are an integral component within the environment. They provide a natural water filtering system and habitat for plants and animals, both of which humans depend on for existence. Wetlands also provide protection against floods, by soaking up excess runoff until drier times reclaim the retained water. The importance of wetlands within the complexities of the hydrologic cycle cannot be overstated.

As virtually all of Clarion County has slope, surface water, in most areas, has few impediments from draining to lower areas, by either permeation or runoff. The relatively flat areas situated at the highest elevations, which are part of the remnants of the plateau, do not always have sufficient slope and must depend upon soil/rock porosity. Likewise, there are some low areas, along streams, where the slope is too gradual or the water table is too high for water to drain. All of these areas may potentially be included within the designation of wetlands.

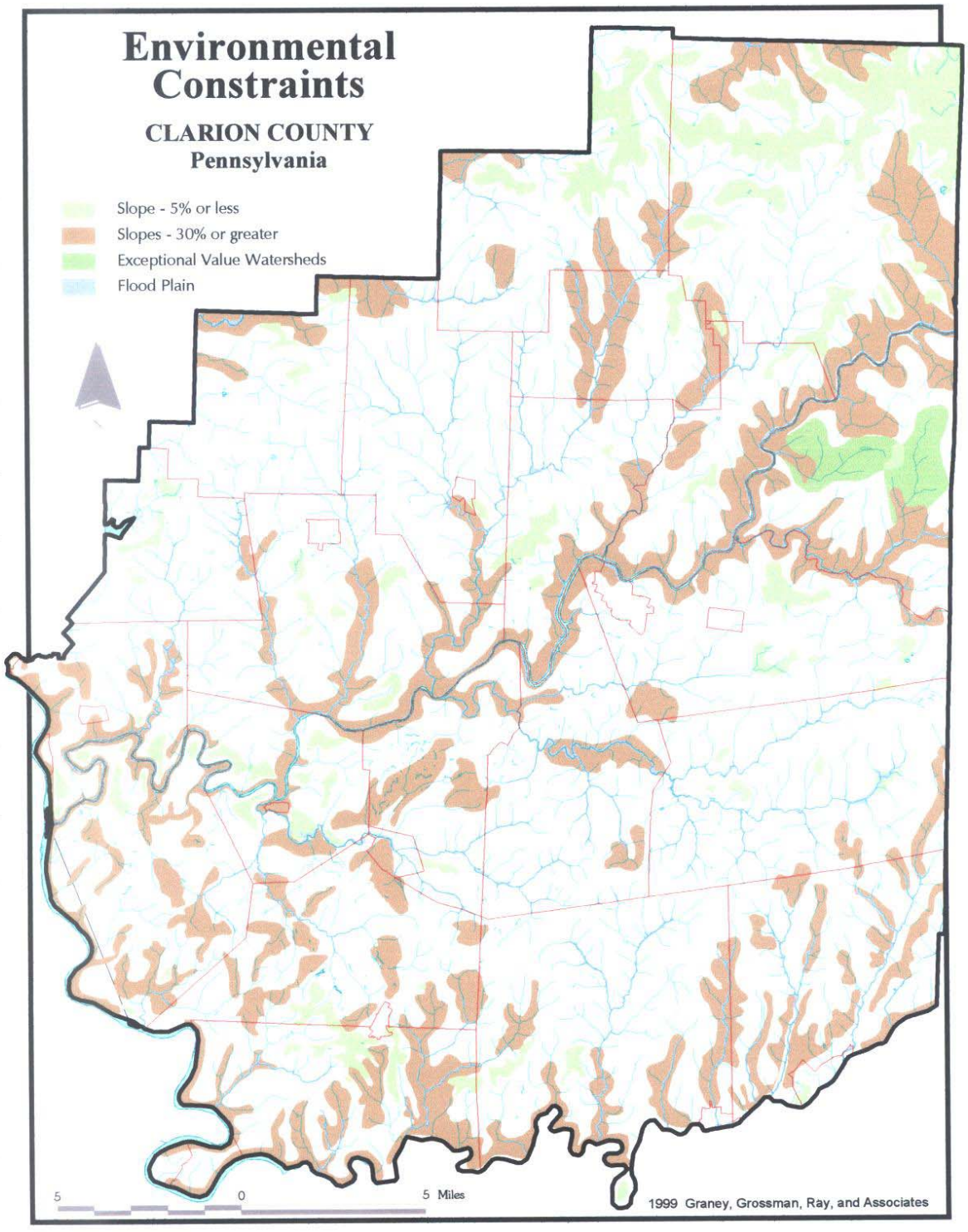
The National Wetlands Inventory designates areas that are to be treated as wetlands areas. These were determined from map interpretation, not field work. As seen on the Wetlands map, designated wetlands can be found throughout the County. Most of these wetlands fall into two categories: streams and their edges, and small depressions, which intermittently retain water. A few depressions, which retain water for most of the year, can be found. Of these, most are either forested or shrub/scrub covered and can be found at headwaters or along streams. The few wetlands that are not streams and have any significant size tend to be found along railroad grades and are the result of human intervention.

Floodplains: Floodplains are those areas along streams that are used by the streams to carry excess water at times of greater than normal flow. Classification of floodplains as either 100 year, 500 year, or greater allow one to understand the risk factor for development. The designation of 100 year does not mean that the area will be flooded once every 100 years. It does mean that, on average, a flood will cover the area once every 100 years.

Historically, many of Pennsylvania's communities developed along floodplains, due to their proximity to water and rail transportation. While minimal slope is an asset for industry, these site situations have, historically, caused much loss of life and property damage.

In an attempt to prevent the development of hazardous situations in the future, the Commonwealth enacted floodplain laws. To be in compliance with these laws, most municipalities have enacted floodplain management ordinances. These ordinances are designed to reduce flood risk to new development.

Air Quality: Air quality relates to the presence of specific pollutants. Ozone (O_3), sulfur dioxide (SO_2), CFC's, carbon monoxide (CO), carbon dioxide (CO_2), nitrogen oxides (NOx) are the major air pollutants. Except for CFC's, all these result from the burning of fossil fuels or wood. Coal-fired electric plants,


Environmental Constraints
CLARION COUNTY
Pennsylvania
Slope - 5% or less
Slopes - 30% or greater
Exceptional Value Watersheds
Flood Plain
5
0
5 Miles
1999 Graney, Grossman, Ray, and Associates

automobiles, industrial emissions all contribute to air pollution. In fact, 90 percent of air pollution is the result of human activities.

There are two types of ozone stratospheric level and ground level. Ozone out in the stratosphere is "good ozone." It helps protect us from ultraviolet (UV) radiation. Ground-level ozone (the "bad ozone") is produced from the combustion of fossil fuels and nitrogen oxides and is the major component of smog, which hinders breathing. Unfortunately, ground-level ozone does not rise to the stratosphere where it would be beneficial.

LAND USE

LAND USE

Land use analysis is one of the planner's most important tools for tracking changes and trends within a community. This is particularly true where there is a map of earlier land uses to compare with the current situation. Once a land use analysis is complete, it can help to point out areas of potential growth or decline, and any problem areas.

Land use is really about balance. To some extent, every community needs different uses of land for quality of life, health, and economic reasons. At its heart, planning seeks to enact local policies that encourage investment in land where growth is desired, create policies to preserve the good aspects of a community, and prevent land use conflict.

Historic Data: In July and August of 1968, David Walker Associates undertook a land use survey of Clarion County. This was a drive-by or automobile windshield survey, based on County tax maps. The survey was color-coded and marked the maps per the following categories:

Residential – Land used for houses and apartments.

Commercial – Land and buildings used for the sale of goods and services to the general public.

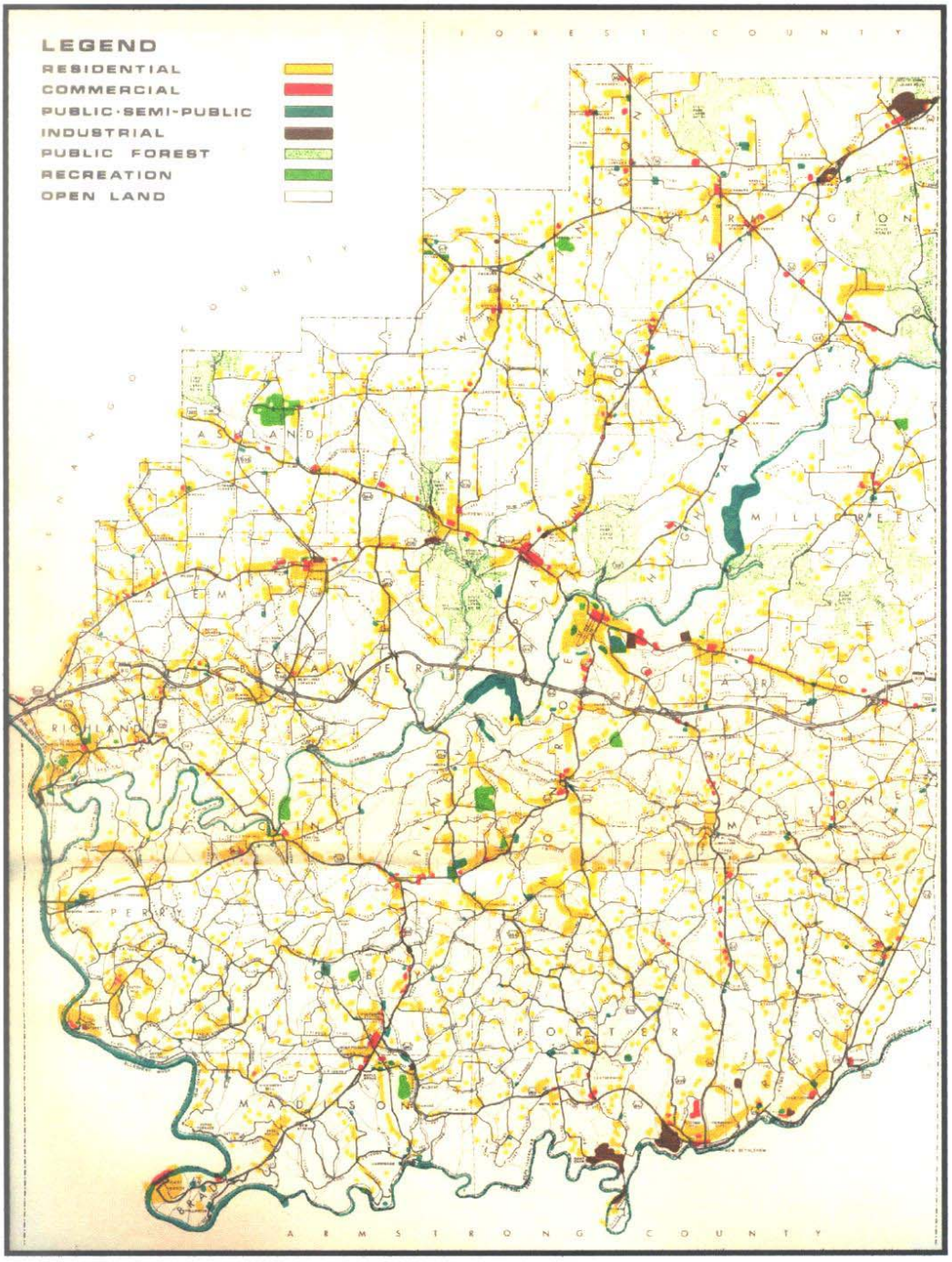
Industrial – Land used for manufacturing and processing. This category did include coal tipples and similar structures, but not mines.

Public and Semi-Public – Land used by municipal and county governments. Public recreation land (such as State Parks and Game Lands) was noted as a separate subcategory, as was institutional land use, such as Clairon University.

Open Land – Included strip mines, farmland, private forests, and any land without buildings or structures.

The final Countywide Existing Land Use Map (attached) showed a pattern of development concentrating on major highways (especially Routes 208, 66, and 322) and in incorporated Boroughs. Much of the County (94.7 percent) was listed

EXISTING LAND USE - 1969



as (undeveloped). By comparison, that year, 5.9 percent of Clarion County was considered developed, as compared to 6.0 percent in Venango, 7.2 percent in Jefferson, and 5.3 percent in Armstrong.

The plan stated that the pattern of roadside development, particularly of commercial uses, as not especially desirable, particularly as *"shoppers must drive from one location to another."*

Based upon this survey, a Future Land Use Map was created in 1970. This plan is interesting in that it illustrates where planners expected the County to go based upon information available at that time. The major aspect of this plan was the creation of a multi-purpose recreational greenbelt following the Clarion River Valley. At the time, the Army Corps of Engineers was considering damming the river near Foxburg and creating an impoundment that would stretch from St. Petersburg to Sligo and have inundated Callensburg and much of Licking Township. A large residential belt was also planned across the central portion of the County. Finally, a number of "central commercial" corridors were planned at major intersections of Route 322, and the planned but never built "Lake-to-Sea Expressway." The I-80 corridor did not figure significantly in the land use plan because few observers were able to see the interstate system as a local travel resource. A second residential core was built around the New Bethlehem-Redbank area, presumably to take advantage of the proposed "Allegheny Valley Expressway."

The inaccuracies of this plan, as compared to current realities, are no great shortcoming. Had plans been prepared during the 1970s, 1980s, or 1990s, these deficiencies would have been corrected as plans were changed to meet new circumstances.

Historical Land Use Data from Other Sources: One important land use that was not extensively addressed in the 1968 survey was agriculture. Agriculture tends to be an extensive land use, but it can be difficult to discern much about it by windshield surveying. As an alternate source, the United States Department of Commerce Census of Agriculture, conducted every five years, was examined. The Agriculture Census shows a pattern of continued decline, both number of farms and acreage in farms declining drastically. The next table charts the change over 33 years, including the year after the County land survey as completed.

PROPOSED LAND USE - 1970

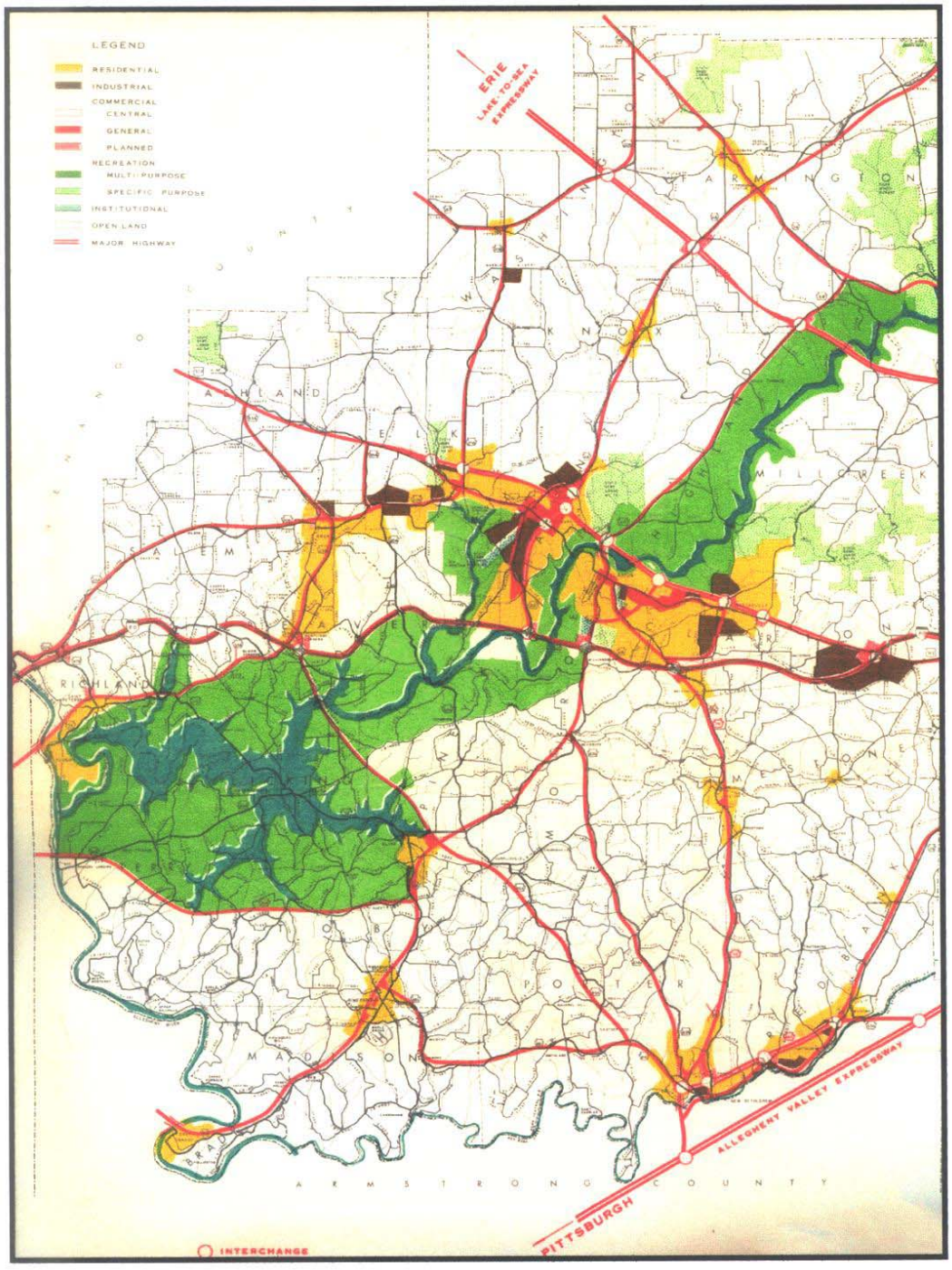


TABLE LU-1

Year	1964	Change	1969	Change	1992	Change	1997
Number of Farms	1,130	-398	732	-288	444	+13	457
Land in Farms	115,315	-43,184	112,131	-17,314	94,817	-731	94,086
Average Size of Farm	137.5	+15.6	153.1	+60.9	214	-8	206

Clairon County has been losing an average of 643 acres of farmland per year since 1964. While the average size per farm has been rising 2 acres per year, this has been overshadowed by the 21,229 acres and 673 farms lost in the total period. It should be noted that short-term trends (1992-1997) do show some stabilization.

Where did these farms go? It is suspected that some were lost through conversion to other land uses (residential/commercial development, strip mining, acquisition for public recreation). Many, however, appear to be abandoned as farms, remaining rural private holdings. It is suspected that many have reverted to woodland.

1999-2000 Land Use Survey: This survey was also a windshield survey. However, an examination of topographic maps, satellite land cover images, and other sources showed that on a County-level scale, Clarion County remains mostly a rural county of woodlands, farms, and small towns. Change since 1968 has largely occurred only in certain portions of the County, mainly along major highway corridors. Therefore, it was decided to conduct the land use drive-by survey for this Comprehensive Plan by focusing on the following major highway corridors:

PA Route 66
PA Route 322
PA Route 208
PA Route 338
PA Route 58
PA Route 68
PA Route 28
PA Route 478
PA Route 36

It should be noted that Interstate 80, while considered a major corridor, was not included because it is limited access. This portion of the survey was limited to interchange areas.

The standards and definitions for this survey differed slightly from the previous land use survey, in that four new categories were added:

> Permitted Mines – This category indicates coal or aggregate mines currently operating or licensed to operate though presently inactive.

Agriculture – This was included so as to help determine if "vacant" land is really being utilized for an economic endeavor.

Mixed-Commercial/Residential – In many older boroughs, small commercial and residential structures are frequently mixed. This is a very different setting than pure commercial uses found at a plaza.

County Lands – Since this is a County Plan, lands actually owned by the County were included.

Examining both the 1968 survey and the 1999-2000 survey at a Countywide scale (about 1 inch to 2 miles), only three areas of major change are discernable. Each of them represents major corridors connecting I-80 to population centers on the Route 322 corridor.

The first area is PA Route 338 from Exit 7 to the Borough of Knox. In 1968, there was only a single commercial use. At present, there are four commercial clusters and one concentration of industrial use. The second area is Route 66 from Exit 8 to Shippenville. In 1968, this corridor was virtually vacant. Today, this area is virtually continual industrial and commercial uses from the interchange to one mile north and from Route 322 south for about three-quarters of a mile. Finally, Exit 9 had some scattered commercial uses. By the 1999-2000 survey, this corridor was dominated by commercial uses from I-80 to the Clarion Borough line.

In addition to the map, it is helpful to examine and compare statistical differences between the two surveys. The next table roughly compares 1968 and 1999-2000 results.

TABLE LU-2

Land Use Category	1968	1999-2000	Change	%
State Land	16,682	22,636	+5,954	+35.6
Residential	6,411	2,835	+424	+6.6
Commercial (includes Mixed Use)	683	1,450	+767	+112.2
Industrial	942	676	-266	-28.2
Low Intensity*	365,042	358,163	-6,879	-1.8
Total Area**	**389,760**	**389,760**		

*Low intensity included agriculture in 1968. In 1999-2000, it included mining areas and low-density rural residential areas outside major corridors.

**Based on Pennsylvania State Data Center calculations of both land area and surface water.

Source:

One of the most dramatic changes has been the phenomenal growth of commercial land uses in the County. These have more than doubled. Much of the reason for this has been the changing configuration of commercial. In 1968, a 25,000-square foot department store was very large anywhere. Now, single-story "superstores" of 2+ acres under roof and 3 acres of parking are common. This big-box retail and mixed shopping centers and large truck stops explain much of this phenomena. Significant growth has also been seen in State land, with continued acquisition of State Game Lands. The loss in industrial is mostly due to the demise of the coal-mining industry and large-scale heavy industry. While mines are not included in industrial coal tipples and washing facilities were. These were common in 1968 but virtually nonexistent today.

In all, the portrait of Clarion County's land use has been one of stability, with the exception of very dramatic changes in some areas.

Land Use Regulations: Because land is a very valuable fixed commodity, land use ordinances are other than America itself. Early nuisance ordinances were aimed at keeping noxious uses, such as large tanneries, from residential areas. "Zoning" by name dates from a 1916 ordinance adopted in New York City.

In Pennsylvania, municipal land use regulations must follow the enabling statutes under the Pennsylvania Municipalities Planning Code. The Code lists three primary tools: the comprehensive plan, the subdivision and land development ordinance, and the zoning ordinance.

Comprehensive plans (such as this one) are primarily advisory documents. Their only legal capacity is that counties must have one, it must be updated every ten years, and if one is adopted, the planning commission must be given opportunity to comment on any disposition of public property (based on the plan). All but a handful of Pennsylvania counties have a comprehensive plan and about half of municipalities have adopted plans.

The subdivision and land development ordinance gives communities the right to set standards for new development, especially lot standards, road or street specifications, and stormwater management. Communities can then review new plans and then ensure they are designed and constructed pursuant to the conditions of approval. About 70 percent of counties have adopted these types of regulations, and between these and municipal ordinances, less than 1 percent of Pennsylvania municipalities lack this form of protection.

Zoning allows a community to vary standards for new development, regulating both type of use and density of use. Only a few counties use zoning, but about half of Pennsylvania municipalities have zoning ordinances.

In terms of geographic coverage, the Clarion County Subdivision and Land Development Ordinance is the most important land use control in Clarion County. It has jurisdiction in all but 3 of the County's 34 municipalities. From a population standpoint, the Ordinance protects 80 percent of the County's citizens and with the municipal ordinances in Clarion Borough, Millcreek, and New Bethlehem, assures full coverage of the County. The County's Ordinance was last amended in 1983 and appears to be somewhat related to earlier editions of a Mercer County ordinance.

In reviewing a land use regulation, there are two general concerns: administrative issues and planning issues. Administrative issues are simply whether the ordinance is internally consistent (making sure there are no contradictory standards), legally consistent with the State Planning Code, and finally written and arranged in a sensible, understandable way. Planning issues revolve around whether the ordinance is achieving the community's future development goals. For example, if extension of public sewer is a local priority, does the ordinance mandate new development near existing lines to connect? Does it have provisions to encourage developers to look for such sites? Of the administrative versus planning issues, administrative items are usually items that should be changed in a fast track approach." Planning items should only be changed after significant community input and discussion.

Administrative Review:

102 - Effective Date: It may not be necessary to include all four dates of adoption, especially if a new amendment Ordinance is treated as wholly new from the public notice/notice of enactment purposes.

103 - This should be amended to reflect the Pennsylvania Municipalities Planning Code (MPC) and the need to implement the County Comprehensive Plan.

104 - Needs updated to conform to the amended Planning Code.

106 - Definitions: Some definitions should be updated, particularly striking (8) "Cluster", (32) "Planned Unit Development," and (42) "Variance." However, in many instances, the definitions are used to outline policy. For example, "Available Sewer" is really a policy statement, as is the standard under (44) "Recreational Vehicle Park," which states *"no residential uses shall be permitted and mobile units shall not exceed 350 square feet in floor area."* This is not to say there are inappropriate policies, but they would be easier for users to find under Design Standards, rather than under definitions. Finally, the numbers should be left out to avoid future re-numbering if definitions are added or deleted.

107 - The County Ordinance provides for a fine of $1,000 per lot or parcel. Section 515.3 of the Pennsylvania Municipalities Planning Code stipulates *"a judgment of not more than $500 plus all court costs,"* further stating that each day a violation continues shall be regarded as a separate violation.

202 (1) advisory meetings are required by the County Ordinance. This fits generally under pre-application procedures - (things that must be done prior to filing a preliminary plan). A compulsory pre-application meeting is not typical Pennsylvania practice. However, the Pennsylvania Municipalities Planning Code does not forbid such a meeting. There is potential for confusion between such a meeting and submittal of a preliminary plat, which formally starts the review time clock.

202 (5) The standards for sketch plans may cause particular confusion. However, it should be noted that this formalized pre-application process can prevent unnecessary expense for the subdivider and possible later disapproval by the Planning Commission. It is also consistent with the multi-step process recently

advocated by PA DCNR in their "Growing Greener" Conservation Subdivision approach.

203 (6) This section is somewhat redundant in light of 202, as it contains typical advisory pre-application language.

204-211 - These six sessions establish plan requirements and approval procedures. Consistent with the Ordinance, procedures and requirements discuss minor subdivisions, single lot subdivisions, and major subdivisions. However, this section is complex and somewhat confusing.

204 - Procedures for Preliminary Plan
205 - Procedures for minor Subdivision
206 - Procedures for Final Plan
207 - Single Lot Subdivision Plan Requirements
208 - Minor Subdivision Plan Requirements
209 - Preliminary Plan Requirements
210 - Major Subdivision Final Plan Requirements
211 - Re-subdivision or Re-plat

The intent of these sections seems to have been to make the process simpler and shorter for minor and single lot subdivisions. However, the exemptions or exceptions are treated as separate sections. From a policy standpoint, this is a common approach and accomplishes a good goal. However, the structure of these sections could be substantially simplified.

Article III - This section lays out design standards and combines with some construction specifications. Many older ordinances separate these two elements, but this approach does seem to be inherently simpler. Some slight rearrangement would improve the flow of this section. For example, alleys are discusses several sections away from streets (303-307). Drainage (308) actually refers to lot standards covered later under 310.

One area of some confusion is also in the area of the Ordinance's street specification versus any adopted Township standards. The Ordinance does state clearly that the more restrictive standard governs. However, potential developers are not immediately aware of which municipalities may have a stricter or less stringent standard. It may be simpler to adopt County specifications by resolution, then the resolution may refer to the situations in which they apply.

Article IV covers mobile home park developments. The Pennsylvania Municipalities Planning Code specifically permits this authority. However, several elements of this chapter are archaic. In particular, Section 402 (Certificate of Registration) is no longer applicable, as the Department of Environmental Resources no longer licenses mobile home parks.

Article VI discusses Planned Residential Development. A Planned Residential Development is a very specific technical form, which the Pennsylvania Municipalities Planning Code now authorizes as a part of zoning ordinances rather than Subdivision Regulations. This section should be stricken in its entirety.

From an administrative standpoint, the Ordinance has several omissions due to its age. Most notable is a clear discussion of standards for land development. The Pennsylvania Municipalities Planning Code specifies that this is to be a subdivision and land development ordinance. The only provisions in the MPC that exempt land development are in Section 503 1.1.

> (1.1) Provisions for the exclusion of certain land development from the definition of land development contained in Section 107 only when such land development involves
>
> (i) The conversion of an existing single-family detached dwelling or single- family semi-detached dwelling into not more than three residential units, unless such units are intended to be a condominium;
>
> (ii) The addition of an accessory building, including farm building, on a lot or lots subordinate to an existing principal building; or
>
> (iii) The addition or conversation of buildings or rides within the confines of an enterprise, which would be considered an amusement park. For purposes of this subclause, an amusement park is defined as a tract or area used principally as a location for permanent amusement structures or rides. This exclusion shall not apply to newly acquired acreage by an amusement park until proper authorities have approved plans for the expanded area.

Within this context, <u>every new development must be considered a land development, which meets the following definition</u>:

"Land development," any of the following activities:

(1) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving:

(i) A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure; or

(ii) The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.

(2) A subdivision

(3) Development in accordance with section 503 (1.1)

Note that the definition includes the structures listed under 503 1.1 under its umbrella, and leaves to the local ordinance to specifically exclude those items.

At a minimum, there is a need to develop basic language in the County ordinance to clearly establish land development standards consistent with the MPC. This will place chapters such as Article V (Recreation Development) clearly under the umbrella of land developments, as an "alternative for of land development."

A second omission is in the area of storm water management. The Ordinance should be amended to clearly refer to those standards developed by the Clarion County Conservation District.

Planning Issues: In the long term, there is a need to address planning issues to ensure the Ordinance is fostering the form of development the County needs. Some typical planning issues include:

Lot Sizes: Overall, the lot standards seem adequately fit for Clarion County, particularly where water and sewer will serve them. Under ideal conditions, 37,500 square feet is also adequate in the care of on-lot utilities. However,

in a rural situation (and possibly even in an urban/suburban one), ideal conditions are not always found. For example a 37,500-square foot lot, which has 30,000 of its square feet on a 20 percent slope, is practically the same as an urban lot. Given the varied conditions of the County, Section 302 (Land Requirements) could be strengthened to add requirements for insuring that a 37,500-square feet lot contains 37,5000 square feet of buildable area.

Another important issue is ensuring the level of infrastructure is appropriate to the intensity of development. For example, in a situation of 7,500 square foot lots (5-6 dwellings per acre), full curbs and sidewalks are appropriate. Conversely, in a situation of 1-acre or larger lots in a rural setting, curbing and sidewalks may not be appropriate.

Attitudes about street design have also changed. Many local street design standards were based upon PennDOT highway standards. The result has been that a subdivision with a home every 60 feet can have a 28-foot wide road, designed for 65 mile per hour traffic. For example, one area where Clarion County's Ordinance could be reexamined is the discouragement of alleys. Many new urban developments are returning to alleys as a sensible component of neighborhoods.

Finally, in the light of the specific nature of Clarion County, where the County Subdivision Regulations are the central land use protection, there are opportunities to use expanded land development regulations as a means to protect the County's environment and attract high- quality economic development. One issue could be the development of a whole series of alternative land development types: landfills (in light of the County's location and accessibility) multiple-family dwellings (in light if student housing) and large-scale commercial entities (due to I-80 interchanges). This type of approach would serve to "customize" the County Ordinance to implement future land use goals.

These planning issues are not meant as recommendations, rather as examples of possibilities. The essential point of this planning review is that the Subdivision and Land Development Ordinance is an important tool to implement the Comprehensive Plan. Administrative changes can be made at any time, and should be made to ensure good process. Planning changes should only be made in the context of the final phase of the new Clarion County Comprehensive Plan.

Zoning: At present, only three Clarion County Commissioners use zoning as a tool for protecting property. These communities are, as mentioned before, Clarion Borough, New Bethlehem Borough, and Millcreek Township. Of the three, Clarion Borough has a fairly modern format, but all are typical of "Euclidian" zoning (one or more strict residential areas, commercial and industrial zones). These fall under the category of traditional zoning rather than alternative forms of performance or flexible zoning. One major advantage of the Borough zoning is in allowing various levels of density with smaller lot sizes.

It appears that many communities have not adopted local zoning for one of four reasons:

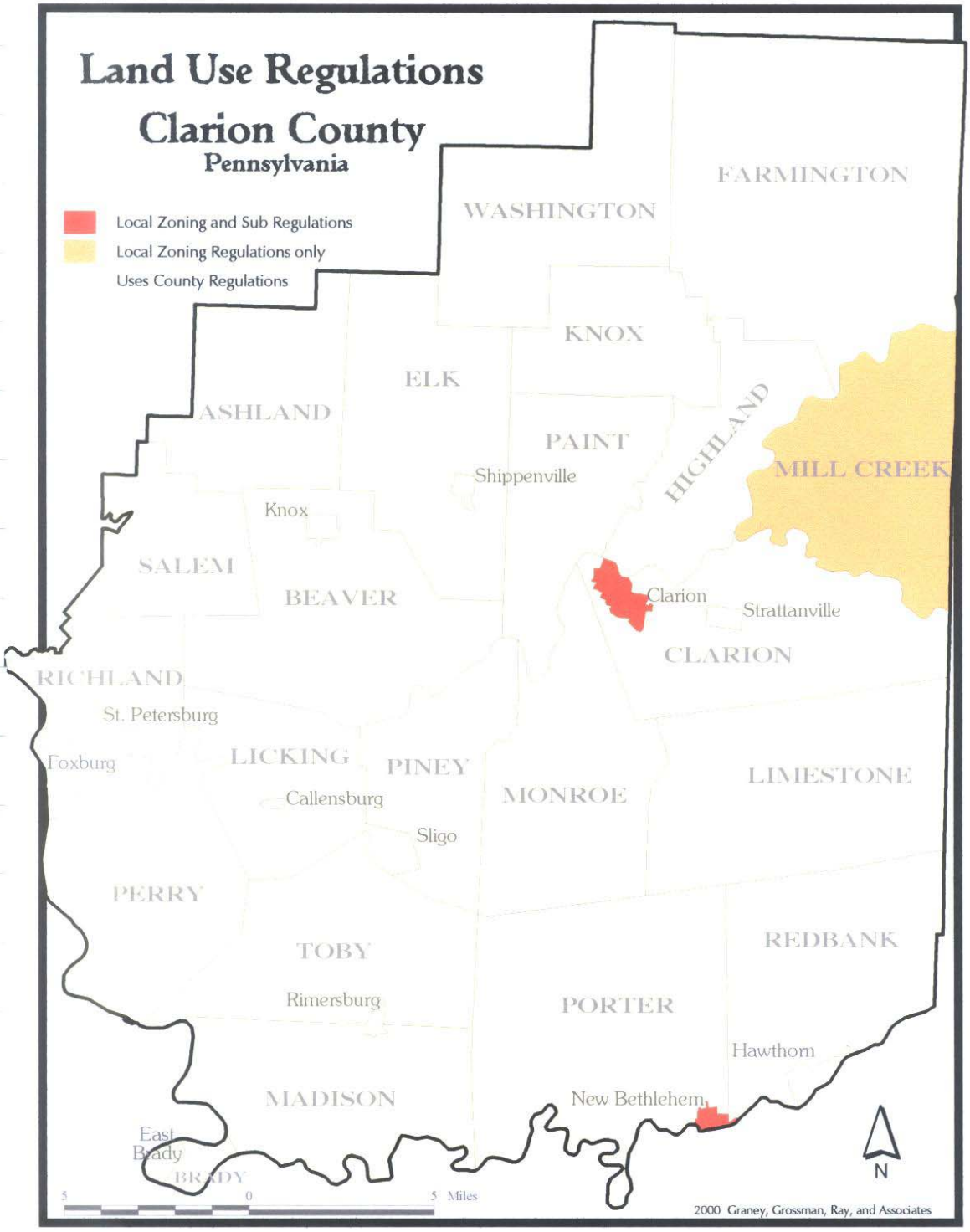
- Lack of growth and development pressure.

- Lack of the land use diversity to provide for a reasonable range of land uses through zoning.

- Lack of understanding of rural alternatives to strict traditional zoning.

- Belief that protection through the County Subdivision and Land Development Ordinance is adequate.

In general, it appears that local land use regulations reflect the current situation and recent past of the County. The community will soon evaluate their adequacy for the future.


Land Use Regulations
Clarion County
Pennsylvania
Local Zoning and Sub Regulations
Local Zoning Regulations only
Uses County Regulations
FARMINGTON
WASHINGTON
KNOX
ELK
ASHLAND
PAINT
HIGHLAND
MILL CREEK
Shippenville
Knox
SALEM
BEAVER
Clarion
Strattanville
CLARION
RICHLAND
St. Petersburg
Foxburg
LICKING
PINEY
MONROE
LIMESTONE
Callensburg
Sligo
PERRY
TOBY
REDBANK
Rimersburg
PORTER
Hawthorn
MADISON
New Bethlehem
East Brady
BRADY
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2000 Graney, Grossman, Ray, and Associates

DEMOGRAPHIC AND ECONOMIC ANALYSIS

DEMOGRAPHIC AND ECONOMIC ANALYSIS

DEMOGRAPHICS

An understanding of population dynamics is essential to the comprehensive planning process. By understanding such factors as age, gender, population change, and household characteristics, planners can forecast future trends better. The utilization of available data to prepare for those trends is called applied demographics. When applied demographics are incorporated into a comprehensive plan, future needs of the community can be better anticipated and its quality of life can be enhanced.

Available and accessible data showing steady increase or decline in any segment of the population empowers administrators and decision makers. For example, County data showing an increasing elderly population allows decision makers to prepare for future public service needs. Observing decreases in population, administrators might decide to develop incentive programs aimed at reducing out-migration. In the final analysis, the finished product is used by the Comprehensive Plan as a reference, conveying the future characteristics and the number of residents expected to reside in the community.

The central tool for demographers and statisticians is the Decennial Census of the United States. In addition to providing a total count of population, the Census collects information about housing, household composition, age, gender, race, ethnicity, employment, and income. Most of the data used to prepare this chapter was drawn from the Census Bureau. There are two primary sources of Census data, referred to as STF-1 and STF-3. All STF-1 data were drawn from the general census forms that were sent to all households. However, the STF-3 information is estimated and obtained via scientific sampling methods. Though generally these samples are reliable, some error is possible. At the County level, such differences are normally modest. However, STF-1 figures are preferred when they are available.

The Population of Clarion County

According to the 1990 Census, Clarion County had a population of 41,699. This represents a nominal population decrease of 3.8 percent from 1980. However,

these figures do not represent the entire story. During the decade of the 1980s, there were 1,435 more resident births than deaths in Clarion County (see Table D-4).

Thus, if there were no out-migration in the 1980s, the 1990 County population would have been 44,797. This means the actual population loss was 3,098, or 7 percent. That loss was due to out-migration. The most recent estimate published by the Bureau (3/9/00) shows virtually no change from 1990 to July 1, 1999 (see Table D-1). See Tables D-1 and D-2 for County and municipal population data.

The year 2000 Census is still being completed as this section is being drafted. According to Census Bureau news releases, the initial population data will be available about January of 2001. More detailed information is not apt to be available until mid-2001 or later. These numbers are very important to the County Plan and its policies.

TABLE D-1
POPULATION CHANGE IN CLARION COUNTY - 1960-1997

Year	Population	Numeric Change	Percent Change
1960	37,408	-936	-2.4
1970	38,414	1,006	2.7
1980	43,362	4,948	11.4
1990	41,699	-1,633	-3.8
1999*	41,651	-48	-0.1

*1999 data is estimated by the U.S. Census Bureau

Source: The Pennsylvania State Data Center, 1997; U.S. Census, 1990 STF 1

TABLE D-2
POPULATION CHANGE IN MUNICIPALITIES OF CLARION COUNTY
1980-1990

Municipality	1980	1990	Numeric Change	Percent Change
Clarion County				
Ashland Township	1,048	1,019	-29	-2.8%
Beaver Township	1,900	1,840	-60	-3.2%
Brady Township	94	78	-16	-17.0%
Callensburg Borough	248	205	-43	-17.3%
Clarion Borough	6,664	6,457	-207	-3.1%
Clarion Township	2,847	3,306	459	16.1%
East Brady Borough	1,153	1,047	-106	-9.2%
Elk Township	1,615	1,526	-89	-5.5%
Emlenton Borough	13	10	-3	-23.1%
Farmington Township	1,914	1,927	13	0.7%
Foxburg Borough	289	262	-27	-9.3%
Hawthorn Borough	547	528	-19	-3.5%
Highland Township	551	573	22	4.0%
Knox Borough	1,364	1,182	-182	-13.3%
Knox Township	1,244	1,281	37	3.0%
Licking Township	585	483	-102	-17.4%
Limestone Township	1,558	1,686	128	8.2%
Madison Township	1,524	1,423	-101	-6.6%
Millcreek Township	371	407	36	9.7%
Monroe Township	1,247	1,314	67	5.4%
New Bethlehem Borough	1,441	1,151	-290	-20.1%
Paint Township	1,681	1,730	49	2.9%
Perry Township	1,295	1,076	-219	-16.9%
Piney Township	479	515	36	7.5%
Porter Township	1,657	1,564	-93	-5.6%
Redbank Township	1,735	1,576	-159	-9.2%
Richland Township	541	490	-51	-9.4%
Rimersburg Borough	1,096	1,053	-43	-3.9%
St. Peterburg Borough	452	349	-103	-22.8%
Salem Township	906	893	-13	-1.4%
Shippenville Borough	558	474	-84	-15.1%
Sligo Borough	798	706	-92	-11.5%
Strattanville Borough	555	490	-65	-11.7%
Toby Township	1,314	1,153	-161	-12.3%
Washington Township	2,078	1,925	-153	-7.4%
Total	**43,362**	**41,699**	**-1,663**	**-3.8%**

Source: U.S. Census – 1980 and 1990

Table D-3 compares population changes in Clarion County with contiguous counties for the period 1980 to 1990.

TABLE D-3
POPULATION CHANGE - CLAIRON COUNTY
AND CONTIGUOUS COUNTIES - 1980-1990

County	1980	1990	Change	% Change
Clarion	**43,362**	**41,669**	**-1,693**	**-3.9%**
Armstrong	77,768	73,478	-4,290	-5.5%
Butler	147,912	152,013	+4,101	+2.8%
Forest	5,072	4,802	-270	-5.3%
Jefferson	48,303	46,038	-2,265	-4.7%
Venango	64,444	59,381	-5,063	-7.9%

Source: U.S. Census – 1980 and 1990

Table D-3 demonstrates that each of Clarion County's neighbors, except one, lost population during the 1980s. The notable exception was Butler County, which gained over 4,000 new citizens. However, its increases were focused in the southern third of Butler and are primarily accredited to gain from the in-migration of families formerly living in Allegheny County. Conversely, northern Butler County experienced the same population patterns of out-migration as did Clarion and the other counties listed. Actually, from a regional perspective, Clarion's losses were relatively modest.

Various factors must cause such changes. Whether population grows or declines, all change stems from one or more of three factors:

I. Birth Rates
II. Mortality
III. Migration.

In many cases, gradual and moderate change is due to shifts in all three causal factors, but rapid changes are most often attributed to a single element. In Western Pennsylvania, during the 1980s, the widespread decrease in population was mostly due to out-migration. A serious economic downturn spurred this event. During 1983, many places in Western Pennsylvania had double-digit unemployment. This was a primary factor motivating many families in the region to leave, seeking jobs in the Sunbelt.

Mortality and Natality Data

Though Clarion's population losses were not as dramatic as found in other counties – the trend has another effect. It impacts on the rate of "natural" increase within the County. Natural increase is that excess of births over death that population normally experiences. During the decade of the 1980s, there were a total of 1,435 more births than deaths. However, a downward birth trend is now evident, especially after 1987. In the decade of the 1990s, dramatic changes are evident. From 1990 to 1998 (last year data was available), the natural increase was 582 – an annual rate of only 40 percent of that experienced in the 1980s. Even more surprising was the fact that in 1997, there was actually a "natural" loss of 2 (see Table D-4). This trend will have implications for future County population trends.

TABEL D-4
CLARION COUNTY BIRTHS AND DEATHS

Year	Births	Deaths		Year	Births	Deaths	
1980	617	407	210	1990	497	358	139
1981	610	407	203	1991	541	408	133
1982	603	418	185	1992	510	404	106
1983	561	406	155	1993	487	397	90
1984	554	407	147	1994	456	451	5
1985	544	402	142	1995	477	445	32
1986	492	387	105	1996	470	402	68
1987	523	472	51	1997	413	415	-2
1988	490	397	93	1998	436	425	11
1989	520	376	144	1999	NA	NA	NA
Total	**5,514**	**4,079**	**1,435**	**Total**	**4,287**	**3,705**	**582**

Source: Pennsylvania Department of Health

Population Characteristics

While population change is known to occur, it is difficult to project future trends without understanding the characteristics of the change. For example, if a population has more males than females, increase through births will be smaller. Likewise, older populations will have less natural increase. Another factor is stability. Family households will be more stable than non-family households. They are less likely to out-migrate. The purpose of this section of the Background Report is to report on various key characteristics of the population.

Race and Ethnic Background: The total of racial minorities is slightly more than 1 percent the total population in Clarion County. As Table D-5 illustrates, Black and Asian/Pacific Islanders made up the bulk of Non-White Clarion County residents in 1990.

TABLE D-5
CLARION COUNTY POPULATION BY RACE – 1990

Race	Number	Percent
White	41,187	98.8%
Black	200	0.5%
American Indian/Eskimo/Aleut	66	0.2%
Asian/Pacific Islander	210	0.5%
Other Race	36	0.1%
Hispanic	116	0.3%
Non-White and White Hispanic	592	1.4%

Source: U.S. Census, 1990 STF-3

Ethnically, the County is more heterogeneous. While 116 persons identified themselves as of Hispanic origin, the non-Hispanic majority of the population was quite diverse. According to Census data, the County's 41,699 citizens reported several ancestries (this includes multiple ancestry groups). German extraction was claimed as the first ancestry by 21,467 persons, or about 51 percent of the population. The next most common ancestry claimed was Irish, with 3,490 persons. Other predominant groups were English (2,339), Italian (1,632), Dutch (1,284), Scotch-Irish (1,275), and Polish (755).

In spite of its diverse ethnicity, this population is largely acculturated and native born. The County had 350 foreign-born residents, and 126 had entered the United States between 1987 and 1990. Of the 1,166 residents that spoke a language other than English at home, one fourth (296) spoke Spanish. Only 11 percent (33) of that number could not speak English very well.

Age and Gender: Clarion County's population tends to be younger than Pennsylvania as a whole. Table D-6 compares the County to the State and nearby counties. General age differences are apparent. However, the presence of Clarion University likely has an impact upon the County's age profiles – and without this institution, it is probably similar to nearby areas. Tables D-8 and D-9 show more detailed age and age cohort data.

TABLE D-6
POPULATION BY AGE IN SELECTED PENNSYLVANIA PLACES

	Percent Age 0-17	Percent Age 18-64	Percent Age 65+
Clarion County	**23.2%**	**62.9%**	**13.9%**
Butler County	24.8%	61.8%	13.5%
Jefferson County	25.8%	59.7%	14.5%
Armstrong County	24.1%	58.5%	17.4%
Venango County	25.2%	57.9%	16.9%
Forest County	23.3%	56.5%	20.2%
Pennsylvania	23.5%	61.1%	15.4%

Source: U.S. Census 1990 STF-1

TABLE D-7
CLARION COUNTY POPULATION BY AGE AND GENDER

	Male		Female	
Age	**Number**	**Percent**	**Number**	**Percent**
0-17	4,982	11.94	4,703	11.27
18-64	12,791	30.67	13,430	32.20
65+	2,354	5.64	3,439	8.24
Total	20,127	48.25	21,572	51.71

Source: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing

The Pennsylvania State Data Center, 1994 Pennsylvania Abstract

TABLE D-8
POPULATION AGE COHORTS
CLARION COUNTY

Age	1970 Male	1970 Female	1980 Male	1980 Female	1990 Male	1990 Female
Total	18,695	19,719	21,200	22,162	20,127	21,572
0-4	1,578	1,544	1,475	1,456	1,254	1,170
5-9	1,792	1,738	1601	1,566	1,414	1,340
10-14	1,968	1,844	1,724	1,688	1,434	1,378
15-19	2,132	2,378	2,607	2,632	2,022	2,221
20-24	1,572	1,703	2,554	2,605	2,187	2,333
25-29	1,001	1,056	1,668	1,533	1,397	1,343
30-34	1,006	1,029	1,339	1,270	1,493	1,533
35-39	900	991	1,104	1,178	1,467	1,456
40-44	1,043	1,052	1,079	1,117	1,222	1,221
45-49	1,049	1,125	994	1,004	1,028	1,105
50-54	989	1,074	1,049	1,073	1,004	1,054
55-59	846	955	986	1,074	922	961
60-64	817	838	870	1,049	929	1,018
65-69	700	786	746	891	830	976
70-74	559	617	581	710	639	858
75-79	389	487	421	607	432	677
80-84	210	300	242	420	270	462
85+	144	202	160	289	183	466

Source: Census Reports 1970, 1980, 1990

When age and gender are combined, some interesting trends are apparent. This pattern is primarily driven by two factors. First, women normally live longer than men. Therefore, older populations are more likely to have more women than men. It is also interesting to note that the older females of Clarion County are much more likely to live in the boroughs. Typically, this is due to the concentrations of both services and housing in such locations. A second observation is in the very young cohorts, males usually outnumber females.

Households: Though total population counts are important, the characteristics of households are also important. Most municipal and utility services are provided on a household – not on an individual basis. A household can be a single person living alone, a group of friends sharing an apartment, or a traditional family. To be counted as a family, there must be at least two people in the household, and they must be related by marriage, blood, or adoption.

In Clarion County, the average number of persons per household was 2.59, and the average of persons per family household was 3.09 in 1990.

Some interesting trends occurred in Clarion County households in the decade of the 1980s:

- Clarion County experienced a drop of 555 (9.7 percent) families with children during the 1980s. Over the same period, families with children living in poverty rose (70 percent).

- Female-headed, single parent households, with children, rose (23.4 percent) and represent 4.75 percent of all households. Those females with no husband present with children in poverty rose 40.9 percent.

- Persons 65 and older living alone increased by 21.1 percent and those 85 years and over increased their numbers by 44.6 percent.

In most cases, the County of Clarion mirrored State and national trends relative to these household changes. The drop of families as a proportion of all households, the increase in older (65 and up) single-person and single-parent households are all well documented societal changes.

Table D-9, which compares 1980 to 1990, illustrates a few noteworthy trends.

TABLE D-9
HOUSEHOLD CHARACTERISTICS - CLARION COUNTY - 1980-1990

	1980	% of Total	1990	% of Total
Total Households	14,164	100.0	14,990	100.0
Persons Per Household	2.86	NA	2.59	NA
Persons Per Family	3.3	NA	3.09	NA
Family Households	10,766	76.0	10,575	70.5
One Person Households	2,932	20.7	3,595	23.9
One person Households 65+	1,475	10.4	1,786	11.9
Single Parent Households (Female) With Children	511	3.6	713	4.75

Source: U.S. Census, 1980 STF-1, 1990 STF-1

Table D-9 also shows that Clarion County is following national trends. The primary numbers of interest relate to household size. In 1980, there were 2.86 in the average Clarion by household; by 1990, that figure had dropped about 9 percent to 2.59. This apparently small change has very pronounced effects. One is the demand for housing. In 1980, the County had a population of 43,362 and some 14,164 housing units. By 1990, that population decreased by -3.8 percent (-1,633 persons), but the number of occupied housing units actually increased by 6 percent (+826). Fewer people – but a need for more housing.

Group Quarters: Among persons in group quarters, the overwhelming majority were residents of college dormitories. Most of these were associated with Clarion University of Pennsylvania. The profiles of other persons in group quarters, i.e., nursing homes, correctional institutions, etc., are shown in Table D-10.

TABLE D-10
CLARION COUNTY: PERSONS IN GROUP QUARTERS 1980 - 1990

Correctional Institutions	31
Nursing Homes	414
College Dormitories	2,439
Other Group Quarters	6
Mental (Psychiatric) Hospitals	19
Total Group Quarters	2,909

Source: U.S. Census – 1990, STF-1

Miscellaneous Characteristics: One item of growing concern is educational attainment. The population is reasonably educated, up almost 10 percent for the decade. Of those over age 25, 73.1 percent held high school diplomas, while 11.7 percent were college graduates. There were 3,703 persons who had completed some high school. Nevertheless, 3,026 over the age of 25 had less than a ninth grade education.

Another aspect of population demographics is stability. Clarion County's population has shown a great degree of stability. According to Census data, most residents lived in the same house in 1990 than they lived in in 1985.

Income: While household income is discussed in the Economy section of the Comprehensive Plan, income information also has demographic application. Both family and non-family household incomes are shown in Table D-11.

TABLE D-11
CLARION COUNTY: FAMILY AND NON-FAMILY HOUSEHOLD INCOME – 1990

	Family Households		Non-Family Households	
Annual Income	**Number**	**Percent**	**Number**	**Percent**
<$5,000	475	4.20	792	18.00
$5,000 to $9,999	824	7.40	1,257	28.60
$10,000 to $14,999	1,060	9.50	825	18.80
$15,000 to $24,999	2,549	22.80	786	17.90
$25,000 to $34,000	2,951	26.30	397	9.00
$35,000 to $49,999	1,937	17.30	213	4.80
$50,000 to $74,999	975	8.70	100	2.30
$75,000 to $99,000	256	2.30	17	0.39
$100,000+	159	1.40	6	0.14
Total	11,186	100.00	4,393	100.00

Source: U.S. Census, 1990 STF-3

As the table depicts, income for family households is much higher than non-family households. This conforms to national patterns. The 1990 Census reported the County's median family income as $26,499, while the median household income was $10,472. Comparative State figures were $34,856 and $15,099. In summation, Clarion's median family income was 24 percent less than the State's median family income. Of even greater disparity, Clarion's median non-family household income was 30.7 percent less than the State's median non-family income. Once more, the impact of Clarion students in rental housing (not dormitories) probably skews these numbers.

"Persons for whom poverty status is determined" is another economic statistic of demographic interest. The Census showed 6,985 persons, or 22 percent, had income in 1989 below poverty level while the Bureau reported 31,652, or 78 percent, having income above the poverty level. Poverty statistics are shown in Table D-12.

TABLE D-12
CLARION COUNTY POVERTY CHARACTERISTICS:
PERCENTAGE IN POVERTY - 1980 - 1990

Households/Individuals Below The Poverty Level	Number 1990	Percent 1990	Percent Change 1980 -1990
White Persons in Poverty	7,317	17.8	52
Children (under 18) in Poverty	2,063	21.3	65.2
Families in Poverty	1,280	12.1	53.2
Families with Children in Poverty	959	18.7	70
Persons 65 and Over Living in Poverty	707	12.2	-7.5
Persons 65 and Over Living Alone, in Poverty	464	26	N/A
Female, No Husband Present, With Children in Poverty	395	55.5	40.9
Black Persons in Poverty	119	60.6	-1.6
Hispanic Persons in Poverty	46	39.5	83.8
Other Race in Poverty	15	42.2	134.5

Source: Penn State Data Center/U.S. Census, 1990 STF-3

A multitude of conclusions can be drawn from Table D-12. Numerically, white persons in poverty increased their numbers, outnumbering all other races by 42 to 1. Children (under 18) living in poverty rose by 65.2 percent, to 2,063. Over the same period, 395 female-headed families were identified as living in poverty, while the number of black persons living in poverty actually declined 1.6 percent. While persons 65 and over living alone numbered 464, those persons 65 and over living in poverty declined by 7.5 percent. Families with children in poverty also rose by 70 percent, to 959.

Population Projections

For comprehensive planning, it is extremely important to estimate future populations. Once such an estimate has been prepared, future housing needs and various public service levels can also be estimated.

As previously stated, population growth or decline is based upon three primary variables: birth rates, death rates, and migration. Statistically, the first two are relatively straightforward to establish. The Pennsylvania Department of Health, Division of Health Statistics and Research publishes detailed reports and has additional data available in raw unpublished form. However, the migration factor is not so easy to establish.

At this time, only a single population projection has been prepared for Clarion County. When year 2000 data is available, this "base" projection can be revised and a "High and Low" series added. The County projections use a cohort-survival approach. That approach breaks the population into 5-year age categories, starting at 0-4 and ending at 85+. Survival rates were based upon State average. For example, the 0-4 year old rate is 0.9920. It assumes that for every 1,000 0-4 year olds in 5 years when this group is 5-9, there will be 992. Survival rates for other age categories vary; the lowest is applied to the 85 and older sector.

The projections had to use the 1990 Census as a starting point. But, these cohorts had to be adjusted. Based upon demographic estimates in 1990, about 2,100 persons in the 15-19 and 20-24 age cohorts were students at Clarion State University. These persons were "removed" from cohort projections but then added to the cohort model total – assuming a stable student population.

Finally, the issue of births needed to be addressed. A very simplistic approach was used. Five-year resident births from recent data were established. They were used as a starting point. That figure was then adjusted, based upon the number of females in the childbearing 15-to-44-year-age brackets.

There was no adjustment for migration at this time. Consequently, the resultant figures must be considered as quite optimistic. The results are shown below:

TABLE D-13
POPULATION PROJECTIONS
1990-2020

1990	41,669
2000	42,786
2010	43,262
2020	42,975

Source: 1990 U.S. Census, balance, consultant projections

It must be again emphasized that these projections have no allowance for migration. Yet, from 1980 to 1990, Clarion experienced a 7 percent outflow of residents. If that pattern holds true, from 1990 to 2000, the year 2000 population would be estimated at only 39,800. This rather pessimistic view of the County's demographic future is shared by the Pennsylvania Department of Education. Of the seven school districts that serve the County, only one is projected to have an enrollment increase between the current school year to the 2009-2010 term, and that increase is only 3 percent. Overall, a 17 percent student decline is seen for these districts. Of course, these districts do include areas outside Clarion County, but the trend is quite disturbing.

Regardless of the migration assumptions used, the aging of the "baby boomers" is evident in these figures. Namely, population shows a modest increase from 1990 to 2000, little change from 2000 to 2010 then begins a decline by 2020. This is because the Baby Boomers born from 1946 to 1964 are leaving the childbearing years and moving to retirement. This effect will be as dramatic on local populations, as it will nationally!

ECONOMIC ANALYSIS

An area's economy is best measured by its ability for the needs of its inhabitants. A sufficient number of jobs that provide a living wage, provisions of a variety of services, and a growing retail trade all contribute to a healthy economy.

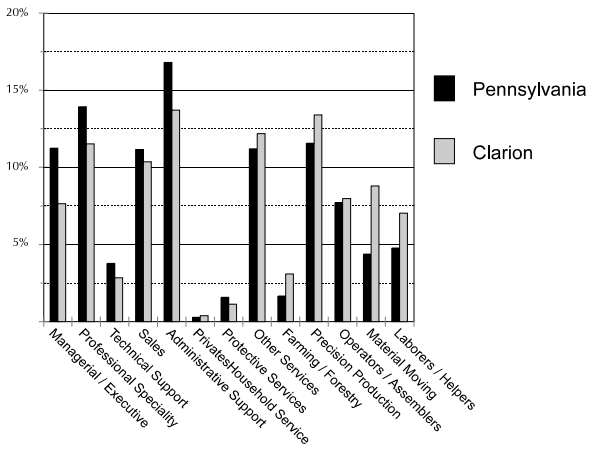
Economic data is usually drawn from two principal sources, the U.S. Census Bureau and the Pennsylvania Department of Labor and Industry. Traditionally, much of the statistical economic information was assembled by the divisions set forth by the Standard Industrial Classification (SIC) Manual. All major economic analysts for data classification and comparisons had long used this U.S. Department of Commerce publication.

Among the agencies which used the SIC category approach was the Bureau of Census. Every five years, in years ending with a "2" or "7," the Bureau published its Economic Series. This traced various major economic sectors – Retail, Manufacturing, Service, etc. – by SIC subcategories. Report information was available on a state, county, and place level. For example, the SIC "33" involved primary metal industries, retail trade was SIC "52," etc. Because of the consistency of the SIC format, it was possible to trace various activities over a period of years and compare a County's performance to State norms. Another

Bureau Report, the County Business Patterns, provided overall annual data, but with less detail. All reports were published about two years after the collection year. For example, most of the 1992 Economic Series did not see print until 1994.

However, in 1997, the SIC approach was abandoned in favor of the North American Industrial Classification system (NAIS). Though similar to the "SIC" reports, there are enough differences to prevent straight historical comparisons. Consequently, the historical analysis by exact sectors, on a County basis, ended in 1992. Though there are "core" reports available in the SIC format, these are only on the State level – not much value to a County analysis.

Employment: The Census of Population does include some economic characteristics. One of interest is occupational patterns. The types of occupations held in Clarion County were, in 1990, for the most part, very similar to those held in the whole of Pennsylvania. The percentages varied somewhat, but there were no real disparities. There was, however, a general pattern of fewer white-collar jobs and more blue-collar jobs, than the State in general. (1990 Census data)



Manufacturing: Using SIC basis data from the U.S. Census, we can compare changes in the numbers of manufacturing establishments and sales receipts over time and between National, State, and County data. The following table indicates continual growth in sales receipts from manufacturing. The 1987 and 1992 data show much greater growth for Clarion County than for the entirety of Pennsylvania, not only in sales receipts but in the number of manufacturing establishments.

TABLE D-14
MANUFACTURING

SIC Basis Data	Establishments					Sales, Receipts, or Shipments ($1,000)				
	1997	1992	% Chg	1987	% Chg	1997	1992	% Chg	1987	% Chg
United States	377,776	370,912	1.9			3,958,050,464	3,004,722,841	31.7		
Pennsylvania	17,207	18,089	-1.9	17,844	1.4	177,169,793	139,285,700	27.2	118,651,300	17.4
Clarion County	**NA**	**58**	**-**	**52**	**11.5**	**NA**	**296,800**	**NA**	**242,200**	**22.5**
Source: U.S. Census data										

Turning to the more recent 1997 data, it clearly shows that though the manufacturing sector is vigorous, Clarion employers pay its workers less, on average, than manufacturing employment for the State or Nation. Some of this difference is due to the bias in Statewide income data because of high employment and income figures generated in southeast Pennsylvania. Traditionally, western Pennsylvania counties have not performed as well as those or the overall State, due to that influence. Yet, for Clarion County, this income gap can also be traced to another factor – local employment characteristics. Manufacturing industries within Clarion County tend process natural resources, adding value to local raw materials. The largest number of employers continues to be in the lumber and wood industries, with most shops having less than twenty employees. A good proportion of Clarion's manufacturing employment is in the wood products sector (NAICS Code 321 – about 45 percent of all 1997 employment), which historically have had a low wage pattern.

TABLE D-15
MANUFACTURING

NAICS Basis 1997 Data #31-33	Establishments	Sales, Receipts, or Shipments ($1,000)	Annual Payroll ($1,000)	Paid Employees	Average Wage	Ratio of Payroll to Employees
United States	363,753	3,842,061,405	572,101,070	16,888,016	33,876	33.88
Pennsylvania	17128	172,193,216	27,641,293	826,521	33,443	33.44
Clarion County	**49**	**441,721**	**76,356**	**2,711**	**28,165**	**28.17**
Due to a change in classification of economic sectors 1992 data are not readily comparable to 1997 data. Source: U.S. Census data, Economic Series						

Sales per capita compares Clarion County's earned dollars from manufacturing per resident to that of her neighbors. It is obvious that Clarion is less industrial than most of its neighbors, except Armstrong.

TABLE D-16
MANUFACTURING

County	Establishments (1997 NAICS Data)	Sales, Receipts, or Shipments ($1,000) (1997 NAICS Data)	Population Estimates For 1998	Sales Per Capita
Clarion	**49**	**441,721**	**41,723**	**$10,586**
Armstrong	92	409,188	73,313	$5,581
Butler	276	2,989,977	170,799	$17,506
Forest	N	N	4,947	NA
Jefferson	88	680,889	46,184	$14,742
Venango	89	1,084,640	57,795	$18,767
Source: U.S. Census data				

Retail: Retail sales demonstrated that Clarion County has a solid retail core. Annual wages in this were lower than national or State averages, but not dramatically so.

Traditionally, the strength of the retail sector is measured by sales per capita. Those areas below State or regional norms have retail "leakage." Although the average annual sales in Clarion County were well below the State average in 1997 (-15%), they were generally higher than the amount for abutting counties, except Butler, where Cranberry Township is a shopper's Mecca. Given the County's income profiles, this difference is quite nominal.

TABLE D-17
RETAIL

SIC Basis Data	Establishments			Sales, Receipts, or Shipments ($1,000)		
	1997	1992	% Change	1997	1992	% Change
United States	1,561,195	1,526,215	2.3	2,545,881,473	1,894,880,209	34.4
Pennsylvania	70,702	71,652	-1.3	113,092,636	87,787,842	28.8
Source: U.S. Census data						

TABLE D-18
RETAIL - 1997

NAICS Basis Data #44-45	Establishments	Annual Payroll ($1,000)	Paid Employees	Average Wages
United States	1,118,447	237,195,503	13,991,103	$16,953
Pennsylvania	50,208	10,561,877	650,144	$16,245
Clarion County	**226**	**32,348**	**2,100**	**$15,403**
Source: U.S. Census data				

TABLE D-19
RETAIL

County	Establishments (1997 Data)	Sales, Receipts, or Shipments ($1,000) (1997 Data)	Population Estimates For 1998	Sales Per Capita
Clarion	**226**	**330,495**	**41,723**	**$7,921**
Armstrong	310	487,131	73,313	6,645
Butler	709	1,480,171	170,799	5,774
Forest	35	28,564	4,947	8,666
Jefferson	209	299,179	46,184	5,774
Venango	247	417,353	57,795	6,478
Pennsylvania	50,208	109,948,462	11,863,895	9,267
Source: U.S. Census data				

Health Services: Health services do not have the employment base found in manufacturing or in retail trade. Yet, it is an important segment of the County's economy and will likely see growth in upcoming years. Based upon the average wages, local health care workers are paid $26,534 annually (1997), only 4 percent less than the State's average. For Western Pennsylvania, this must be considered quite good.

TABLE D-20
HEALTH SERVICES

NAICS Basis 1997 Data #62	Establishments	Sales, Receipts, or Shipments ($1000)	Annual Payroll	Paid Employees
United States	645,853	885,054,001	378,205,694	13,561,579
Pennsylvania	31,512	45,253,553	19,855,425	716,182
Clarion County	**71**	**37,978**	**18,176**	**685**
Due to a change in classification of economic sectors 1992 data are not readily comparable to 1997 data. Source: U.S. Census data				

Accommodation and Food Service: Food service and accommodations, the "hospitality industry," is another important part of Clarion's economy. In 1997, it had 1,331 employees, certainly a significant number of jobs. However, wages in these areas were well below other sectors. The combined average annual wage in 1997 was only $7,507, with food service employee wages at $6,892 per year, and the accommodations sector at $11,789. Neither figure represents head-of-household wages.

TABLE D-21
ACCOMODATIONS

NAICS Basis Data #721	Establishments	Sales, Receipts, or Shipments ($1,000)	Annual Payroll ($1,000)	Paid Employees
United States	58,162	98,457,431	26,673,852	1,696,659
Pennsylvania	1,864	2,333,665	651,602	47,837
Clarion County	**10**	**7,215**	**1,792**	**152**
Source: U.S. Census data, Economic Series				

TABLE D-22
FOOD SERVICE

NAICS Basis Data #722	Establishments	Sales, Receipts, or Shipments ($1,000)	Annual Payroll ($1,000)	Paid Employees
United States	486,906	251,941,763	70,333,544	7,754,567
Pennsylvania	22,601	9,893,512	2,712,515	317,321
Clarion County	**98**	**31,482**	**8,126**	**1,179**
Due to a change in classification of economic sectors 1992 data are not readily comparable to 1997 data. Source: U.S. Census data				

Employment/Unemployment: Most people use unemployment figures as a measure of economic viability. These figures are regularly reported by the news media, they are relatively current and produced for the State and its counties concurrently. For the purposes of this report, the 1999 annual averages were used. Unlike the unadjusted numbers reported monthly, the annual average presents a much better figure for comparison.

TABLE D-23
ANNUAL UNEMPLOYMENT RATES – SELECTED YEARS
PENNSYLVANIA - CLARION COUNTY

Year	Pennsylvania	Clarion
1989	4.5%	6.3%
1995	5.9%	8.3%
1996	5.3%	7.1%
1997	5.2%	6.6%
1998	4.6%	5.4%
1999	4.4%	4.9%
Source: Pennsylvania Department of Labor and Industry		

The above table shows that the County's unemployment has historically been higher than the Commonwealth. For example, the year 1995 shows a difference of 2.4 percent. This may not appear to be a huge difference, but, in reality, the figure is quite significant. It shows the unemployment rate locally was 40 percent greater than the State figure. Prior to 1995, that was a typical pattern for the County. However, since 1995, the local economy has improved markedly. The County's rate of unemployment has steadily dropped, and in 1999, the County rate was only 0.5 percent higher than the State figure (i.e., 10 percent).

Beyond the historic comparisons with the State, more recent data with nearby counties is also instructive.

TABLE D-24
UNEMPLOYMENT RATES
CLARION AND NEARBY COUNTIES – 1996-1999

	1996	1997	1998	1999
Clarion	**7.1%**	**6.6%**	**5.4%**	**4.9%**
Venango	7.1%	6.7%	5.4%	5.9%
Jefferson	7.7%	7.2%	7.0%	6.9%
Butler	4.9%	4.8%	4.3%	4.2%
Forest	9.8%	10.0%	8.7%	7.7%
Armstrong	7.6%	7.7%	6.9%	6.3%

Source: Pennsylvania Department of Labor and Industry

This table demonstrates that, except for Butler County, Clarion is performing better than its neighbors relative to of unemployment rates.

In terms of total employment, the County's economy actually outperformed the Commonwealth over the past 10 years. Total employment in Pennsylvania grew by some 114,700 jobs between 1989 and 1999, a +2 percent. Clarion County experienced a job growth of nearly 8 percent in that same period (+1,300 jobs).

In summary, a few points are obvious:

- The wood products group dominates local manufacturing, and, as a result, average shop wages are comparatively low.
- The retail base is vigorous and provides competitiveness wages – for this sector.
- Health care is an important sector in Clarion County.
- The hospitality sector generates many jobs but the wages tend to be low.
- Annual unemployment rates have dropped and are approaching State averages.
- Total employment has risen.

COMMUNITY FACILITIES

COMMUNITY FACILITIES

Article III of the Pennsylvania Municipalities Planning Code identified six elements which are required in a comprehensive plan. Of these, the plan for community facilities may technically be the most complex as well as challenging. In this section of the Plan, these elements are inventoried and discussed. The purpose is twofold. First, is the particular service or resource in good condition? Obviously, key facilities must be in good operating condition to adequately serve County residents. From a planning perspective, the capacity for expansion is also important. There are two particular utilities, public water and sewer, which are of special interest if any type of future growth is to be accommodated. Consequently, that element of the Plan is a critical one for policymakers.

Sewer and Water: Intense development is only possible today with community water and sanitary sewer services. They are a practical necessity for large residential developments, a new industrial park, or that superstore everyone wants. Because of their ever-increasing cost, it often makes more sense to extend existing systems rather than constructing new ones. Yet, that is only possible if these utilities are kept in good repair, meet appropriate guidelines, and have excess capacity. The importance of water and sanitary sewer service is obvious to the Clarion County Comprehensive Plan. Although discussed in separate sections under this heading, these two facilities are closely linked. Often, they exist nearly side-by-side. Both are also closely regulated by Federal (EPA) and State (DEP) agencies.

The purpose of this section of the Plan is to list the major water and sanitary sewer systems found in Clarion County. By examining their current characteristics, the Plan can:

- Determine immediate needs
- Determine future needs
- Determine if the system is capable of supporting additional growth

Such determinations, when coupled with the Plan's Land Use Plan, are critical to guide both short- and long-term development policies.

In dealing with these utility systems, there is often a problem of understanding. This is due, in part, to some of the terms used. Water and sewer systems possess a special lexicon. Some of the more common terms are listed:

BOD and CBOD (Carbon), Biological Oxygen Demand – A measure of the organic load on a sewage treatment plant used by DEP in their permitting process.

CAP – Corrective Action Plan – Used by DEP to denote that the operator of a sanitary sewer system has adopted a program to remediate regulatory problems.

Collection System – The various sewer lines, pump stations, and force mains, which collect sanitary sewage (wastewater) and transport it to the treatment plant.

Combined Systems – A sanitary sewer collection system that also has storm drains connected to it.

DEP – The Pennsylvania Department of Environmental Protection

EDU (Equivalent Dwelling Unit) – A term used in sewer and water planning that is roughly equivalent to a single household.

EPA – The Environmental Protection Agency of the Federal government.

Finished Water – Water treated and ready for drinking.

GPD – Gallons per day

GPY – Gallons per year

I&I, or Infiltration and Inflow – This term refers to the *infiltration* of groundwater into sanitary sewers from loose joints, leaking manholes, or cracked lines; and the *inflow* of stormwater into sanitary sewers from roof drains, parking lot drains, and storm drains.

Lift Station – Used in sanitary sewer collection systems to pump sewage up a grade.

MGD – Millions of gallons a day – water and sewer uses are often reported in mgd and certain permits are rated in this way. For example, a water filtration plant rated at 0.500 mgd can produce 500,000 gallons per day.

PSI – Pounds per square inch

PUC – Public Utility Commission.

Raw Water – Water prior to its treatment for human consumption.

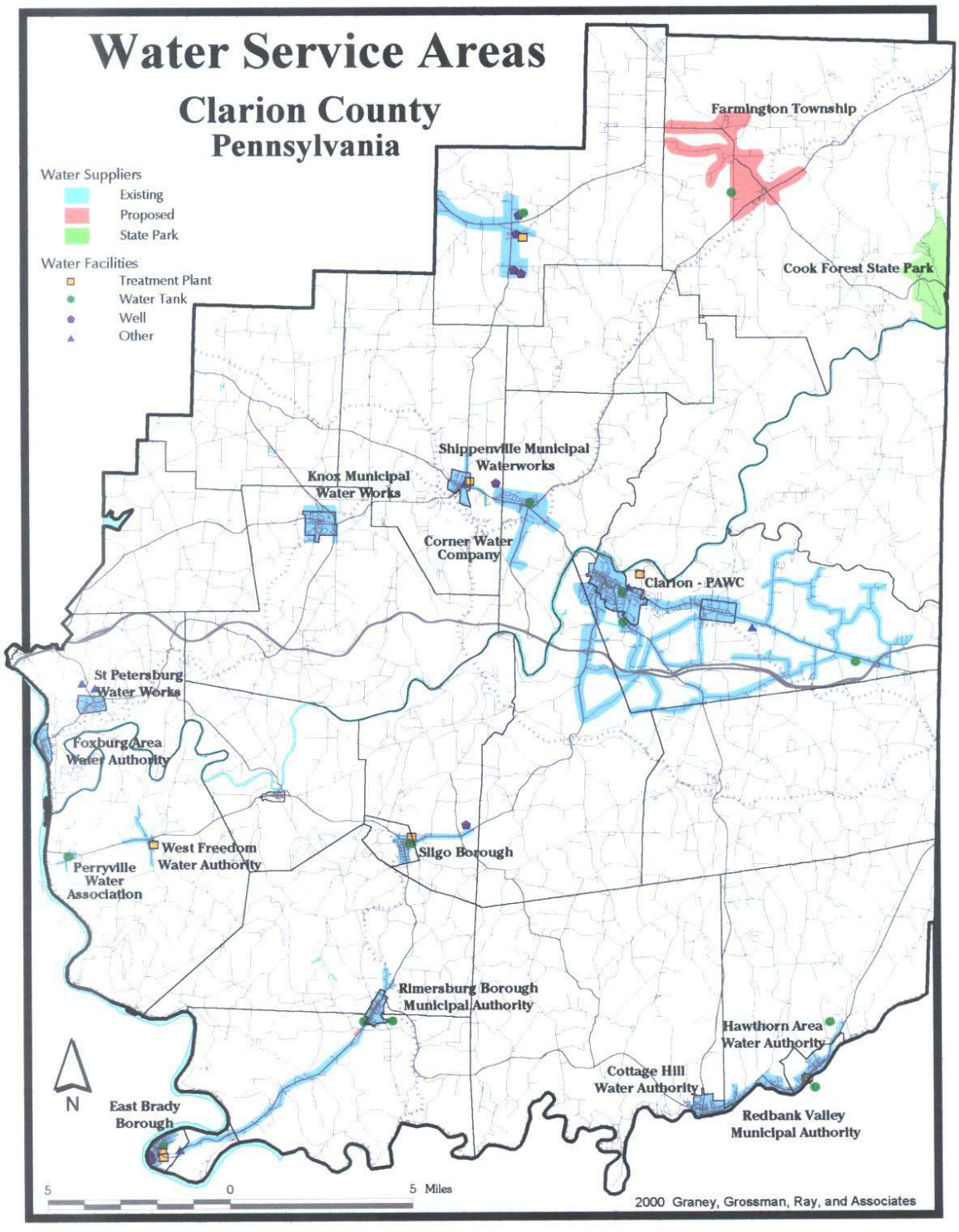
Standpipe – A water tank, usually elevated, used for water storage and pressure.

Water Systems

The water facilities covered in this section are essentially community-oriented. Small private systems serving a limited clientele, or even publicly owned facilities, focused on a single agency such as present in Cook Forest, are not a primary concern. Why? Because such systems are unlikely to expand their service base, they cannot serve as a growth node. Also, such systems usually have very limited clientele.

Potable water, a necessary component of life, is not always available in sufficient quantities at the places where people live, play, and work. To meet these community needs, water systems were developed to gather, treat, store, and transfer water. Seventeen water systems provide this service within Clarion County. Following is a summary of sources, facilities, capacities, and usage, as reported to DEP, by these water systems through their 1999 Annual Water Supply Reports. A plate, "Water Service Area," depicts the service areas of current resources and known proposed water resources.

Clarion Borough Area: The Pennsylvania American Water Company, a private PUC-regulated company, provides services to essentially all of Clarion Borough


Water Service Areas
Clarion County
Pennsylvania
Water Suppliers
Existing
Proposed
State Park
Water Facilities
Treatment Plant
Water Tank
Well
Other
Farmington Township
Cook Forest State Park
Shippenville Municipal Waterworks
Knox Municipal Water Works
Corner Water Company
Clarion - PAWC
St Petersburg Water Works
Foxburg Area Water Authority
West Freedom Water Authority
Perryville Water Association
Sligo Borough
Rimersburg Borough Municipal Authority
Hawthorn Area Water Authority
Cottage Hill Water Authority
Redbank Valley Municipal Authority
East Brady Borough
N
5 0 5 Miles
2000 Graney, Grossman, Ray, and Associates

and Strattanville Borough, as well as parts of Clarion and Monroe Townships. They estimate their service area comprises a population of over 10,000. The following figures presented are based upon 1999 reports. In 1999, Pennsylvania American acquired the Strattanville system. Their data has been incorporated into the Clarion area.

Capacity: 1,500,000 gpd – treatment plant

Usage: Total - 478,001,000 gpy
Average Daily Use - 1,309,529 gpd
Peak Day 1,621,000 gpd

Comments: Company officials indicate that they have plans on line to construct a new water treatment plant for their Clarion operation. The current plant limitation is 1.5 mgd and the new plant will have an estimated 3.0 mgd capacity. Full details for this facility have not been detailed. Final plans and specifications are expected next year, with construction in two or three years. The plant will be physically near the current operation. Its construction is in response to a steady demand for service line extension, often due to poor ground water, as well as anticipation of ever-increasing standards for water treatment.

Type	Connections	Water Use GPD
Domestic	2,279	308,479
Commercial	361	300,644
Industrial	3	212,197
Institutional	28	153,756
Bulk Sales*	1	56,488
Unaccounted	--	211,356
Other	--	66,672
Total	**2,672**	**1,309,592**
*Now directly served; no longer a bulk sale.		

Supply and Treatment: An average daily withdrawal of 1,576,723 gpd is taken from the Clarion River. Between the plant capacity of 1.5 million gallons a day (mgd) and the system's storage capacity of just over 1 million gallons, there appears to be adequate capacity for current needs.

Storage**:** Treated water is stored at the Clearwell Tank, the Greenville Avenue Tank, and the Clarion Township Tank, having a total usable storage capacity of 1,086,000 gallons.

Corner Water Supply and Service Corporation: This is a private water company servicing the Marianne Estates, Rhea's Corner region of Paint and Elk Townships (Route 322 and Route 66 intersections).

Usage: Total - 41,423,000 gpy
Average - 113,480 gpd
Peak - 200,000 gpd

Type	Connections	Water Use GPD
Domestic	293	39,330
Commercial	57	35,170
Industrial	4	12,010
Institutional	--	--
Bulk	--	--
Unaccounted	--	--
Other	5*	26,970
Total	**359**	**113,480**
*Includes three mobile home parks with 164 connections.		

Comments: This service area includes a concentration of business uses and there have been requests to extend water service south toward Exit 8 on I-80.

Supply and Treatment: This is a groundwater system, using two wells (60 feet and 68 feet) as the water source. In 1999, this supplier indicated they pumped as much as 200,000 gallons in a single day.

East Brady Borough Area: The East Brady Water Company, owned by the municipality, provides service to East Brady Borough and sells water in bulk to Rimersburg Borough.

Comments: This is an older system with some undersized lines, dead ends, and leakage problems. The Borough has initiated programs to upgrade their distribution lines. It is also reported that plans for a new storage tank are under consideration.

Capacity: 532,800 (gpd)

Usage: Total - 85,719,800 gpy
Average Daily Use - 116,070 gpd
Peak Day - 258,100 gpd

Type	Connections	Water Use GPD
Domestic	520	51,737
Commercial	19	9,787
Industrial	--	--
Institutional	3	4,894
Bulk Sales	--	(Rimersburg) 118,778
Unaccounted	--	49,168
Other	--	--
Total	**542**	**234,849**

Supply and Treatment: The pump meter at East Brady was only in operation for five months of the year. In 1999, water was taken from Well #1 (52 feet deep); well #2, at 48 feet, was not used. The pumping capacity for these wells is 302,400 and 288,000 gpd respectively, providing a safe daily yield of 532,800. The East Brady Waterworks provides water treatment services.

Storage: Raw water is stored at a covered reservoir and finished water is stored in a 134,000-gallon standpipe.

Bulk Sales: The system supplies approximately 119,000 gpd to the Rimersburg Borough Municipal Authority.

Farmington Township: Farmington Township is in the process of developing a water system centered around the Villages of Tylersburg and Leeper. The service area population is estimated at 940 persons. In addition, there will be some industrial/commercial accounts and at least one large institutional customer (North Clarion High School). The proposed system will use groundwater with two wells proposed. A water storage tank of over 150,000 gallons is also planned, to be located to the west of Leeper and south of Tylersburg. Lines will be sized for fire hydrants.

Foxburg Area: The Foxburg Area Water and Sewer Authority is a non-PUC regulated authority that provides service to all of Foxburg Borough and a small portion of Richland Township (5 customers).

Capacity: 66,000 gpd

Usage: Total - 8,951,900 gpy
Average Daily Use - 24,525 gpd
Peak Day - 90,000 gpd

Type	Connections	Water Use GPD
Domestic	131	15,802
Commercial	7	1,665
Industrial	--	--
Institutional	2	5,569
Bulk Sales	--	--
Unaccounted	--	1,489
Other	--	--
Total	**140**	**24,525**

Supply and Treatment: An average daily water withdrawal of 24,525 gpd in 1999 was taken from two wells. Well #1 at 140 feet provided 22,778 gpd for 339 days. Well #2 at 140 feet provided 1,747 gpd for 26 days. Each well is equipped with a 25 hp submersible pump providing a total capacity of 66,000 gpd. The Foxburg Area Water and Sewer Authority treats water, with a filtration capacity of 100,000 gpd. In dry weather, the system's wells have experienced problems and sometimes have problems meeting system needs. The Borough is drilling a new well to correct this problem.

Storage: Treated water is stored in a standpipe that provides a usable storage capacity of 1,000,000 gallons.

Fryburg Water Company: a private company serves The Village of Fryburg. Water source is reportedly from drilled wells. The population served is estimated at 250 to 300.

Hawthorn Area: The Hawthorn Area Water Authority, a municipal authority, provides service to Hawthorn Borough and parts of Redbank Township, Clarion County (109 customers) and Redbank Township, Armstrong County (9 customers).

Capacity: 192,000 gpd

Usage: Total - 28,889,200 gpy
Average Daily Use - 79,100 gpd
Peak Day - 163,800 gpd

Type	Connections	Water Use GPD
Domestic	333	Not Given
Commercial	6	5,800
Industrial	2	10,700
Institutional	--	--
Bulk Sales	--	--
Unaccounted	--	--
Other	--	--
Total	**341**	**16,500**

Supply and Treatment - The average daily withdrawal of 79,100 gpd for 365 days was taken from the Redbank Creek. The withdrawal from the creek is limited by the system filter's capacity of 192,000 gpd. On average, 79,100 gpd are treated. The system report indicates an average of 79,100 gallons is produced daily, while usage is listed at 16,500 gallons. Domestic customers are obviously not metered. Estimated domestic consumption must range between 30,000 to 500,000 gpd, which would leave approximately 12 percent to 15 percent of the system production unaccounted. In 1997-1998, the Authority undertook improvements to its treatment plant. This involved upgrading the intake pipe and construction of a backwash system.

Storage: Treated water is stored in the Hawthorn Reservoir, which has a usable capacity of 150,000 gallons.

Knox Area: The Knox Municipal Water Works, a municipal owned, non-PUC regulated company, provides service to Knox Borough and Beaver Townships (53 customers). This system will also serve the Keystone Opportunity Zone in the Township.

Capacity: 250,000 gpd

Usage: Total - 46,847,000 gpy
Average Daily Use- 128,348 gpd
Peak Day - 179,000 gpd

Type	Connections	Water Use GPD
Domestic	525	72,170
Commercial	64	19,337
Industrial	5	3,162
Institutional	9	7,063
Bulk Sales	--	--
Unaccounted	--	189,616
Other	7	8,000
Total	**610**	**128,348**

Supply and Treatment: Water is supplied by three un-metered wells, ranging from 315 to 400 feet in depth. Water is treated at the Knox Borough Water Treatment Plant, which has a daily filtration capacity of 250,000, the average system production is only 125,000 gpd, about 50 percent capacity.

Storage: Treated water is stored in a reservoir, which has a total usable storage capacity of 550,000 gallons.

Lucinda Water Works Company, Inc.: This is a small, private, water company serving 50 domestic accounts in the Village of Lucinda (Knox Township). The water source is a spring, and a cistern is used for storage. The plant reports an average use of 23,590 gpd. Given its user base, an estimated one third of the water pumped can be classed as unaccounted.

Perryville Area: Water Association, a non-PUC-regulated association provides service to Perryville Village in Perry Township.

Capacity: 9,148 gpd

Usage: Total - 3,337,300 gpy
Average Daily Use - 9,148 gpd
Peak Day - 12,000 gpd

Type	Connections	Water Use GPD
Domestic	51	8,748
Commercial	1	400
Industrial	--	--
Institutional	--	--
Bulk Sales	--	--
Unaccounted	--	--
Other	--	--
Total	**52**	**9,148**

Supply and Treatment: The daily withdrawal of 9,148 gpd in 1999 was taken from four springs. The Perryville Water Association Pump House provides treatment, with a filtration capacity of 15,000 gpd and an average system production 9,148. In 1993, the system installed meters and backflow preventers.

Storage: - Treated water is stored in a 7,000-gallon tank.

New Bethlehem Area: The Redbank Valley Municipal Authority is a non-PUC-regulated municipal authority and provides water service to New Bethlehem (641 users) and South Bethlehem Boroughs (227 customers) and Redbank (120 users), Porter Townships (35 customers) in Clarion County, and Mahoning (Armstrong County) Township (350 customers). Service to Mahoning Township is via bulk sales to their municipal authority. Authorities exist in Redbank (Fairmount City Water Authority) and Porter (Cottage Hill Water Authority) Township. The Redbank Authority provides billing service for these entities.

Comments: The Redbank Authority provides both water and wastewater services (see also Sanitary Sewer Systems). According to system reports, average daily water usage dropped from 278,600 gpd in fiscal 1999 to 260,000 gpd in fiscal 2000. This 7 percent reduction in daily water is credited primarily to leak detection programs. Recent major capital improvements included a new 8-inch line (2,317 lineal feet), which replaced an existing 4-inch line. This was done in concert with a road construction program. Proposed system improvements include improved computer billing. The most recent annual report proposes doubling this system's current customer base. In the near term, expansion of service in Porter Township, adjacent to Cottage Hill, is planned. Other system improvements include the replacement of filter media and construction of another water reservoir.

Capacity: 500,000 gpd

Usage: Total - 100,221,000 gpy
Average Dailey Use - 274,578 gpd
Peak Day - 450,000 gpd

Type	Connections	Water Use GPD
Domestic	874	101,778
Commercial	129	23,910
Industrial		
Institutional	20	5,271
Bulk Sales	1	55,110
Unaccounted		68,750
Other		19,759
Total	**1,024**	**274,578**

Supply and Treatment: The average daily 1999 withdrawal was 274,578 gpd was taken from Redbank Creek. Limiting factor for withdrawal from the creek is the raw water pump capacity of 500,000 gpd. Treatment is provided by the Redbank Creek Filtration Plant, which has a capacity of 500,000 gpd, with an average production of 274,578 gpd.

Storage: Raw water is stored at an impoundment along Redbank Creek that has an estimated capacity of 15,000,000-gallon. Five hundred thousand gallons of treated water can be stored at the New Bethlehem Cemetery Tank. For emergency purposes, the Authority has an uncovered 180,000-gallon storage facility.

Rimersburg Borough: The Rimersburg Borough Municipal Authority is a municipal owned and operated, non-PUC regulated authority, providing service to Rimersburg Borough and parts of Madison (115 customers), Toby (54 customers), and Brady Townships (8 customers).

Capacity: 288,000 gpd

Usage: Total - 43,370,000 gpy
Average Daily Use - 119,000 gpd
Peak Day - 161,000 gpd

Type	Connections	Water Use GPD
Domestic	619	68.284
Commercial	42	10,554
Industrial	1	1,948
Institutional	10	3,361
Bulk Sales	1	900
Unaccounted	1	33,280
Other	6	495
Total	**681**	**118,822**

Supply and Treatment: This system purchases raw water in bulk from East Brady Borough. Rimersburg treats raw water at their plant in East Brady. The booster station just east of the East Brady Borough boundary pushes the treated water toward Rimersburg. The water lines basically follow Route 68, servicing approximately 125 connections in Madison and East Brady Townships. Five hundred-plus connections are serviced in Rimersburg, with another 54 connections served in Toby Township.

Storage: Treated water is stored at the Rimersburg Borough 100,000-gallon elevated storage tank. A second tank is being built just east of Rimersburg.

St. Petersburg Area: The St. Petersburg Municipal Waterworks, a municipally operated, non-PUC-regulated authority, provides service to St. Petersburg Borough and a small portion of Richland Township (17 customers). This system was originally constructed in 1937 as a "New Deal" WPA project.

Capacity: 114,500 gpd

Usage: Total - 8,614,000 gpy
Average Daily Use - 23,600 gpd
Peak Day - 78,100 gpd

Type	Connections	Water Use GPD
Domestic	187	22.235
Commercial	6	1,365
Industrial	--	--
Institutional	--	--
Bulk Sales	--	--
Unaccounted	--	--
Other	--	--
Total	**193**	**23,600**

Supply and Treatment: This system uses two springs and a well as its source. Average daily well water production is 34,000 gallons, with a "safe yield" estimate at 22,000 gallons. Well production is 72,000 gpd, with a rated safe yield at 50,000 gpd. Limiting factor for withdrawal from the springs is the capacity of 42,500 gpd.

The Waterworks recently undertook a plant improvement to upgrade their backwash facility.

Storage: Raw water is stored at the St. Petersburg pond. Treated water is stored at the St. Petersburg reservoir, which holds 148,000 gallons.

Shippenville Area: The Shippenville Municipal Waterworks is a municipally operated, non-PUC-regulated authority, which provides service to Shippenville and 87 customers in Elk Township.

Capacity: 288,000 gpd

Usage: Total - 18,250,000 gpy
Average Daily Use - 50,000 gpd
Peak Day - 65,000 gpd

Type	Connections	Water Use GPD
Domestic	300	41,000
Commercial	9	4,000
Industrial	1	5,000
Institutional	--	--
Bulk Sales	--	--
Unaccounted	--	--
Other	--	--
Total	**310**	**50,000**

Supply and Treatment: The current treatment system was constructed in 1980. Two wells provide an average daily withdrawal of 50,000 gpd. Treatment is provided by a "micro-floc" system that has a capacity of 288,000 gpd. Over the past eight years, this system has completed projects to improve water quality. This has involved construction of a backwash system and the replacement of a 55,000-gallon water-settling tank.

Storage: Treated water is stored in a 200,000-gallon tank, with a usable storage rating of 180,000 gallons.

Borough of Sligo: Sligo Borough provides water service to its own residents (about 950) and a small portion of Piney Township. There are 373 customers in the Borough and 48 in Piney Township. This is an older system, originally constructed in the 1920s. However, the current treatment plant was built in 1968. At the plant, treatment for mineral content and ph is needed, and the water is filtered, chlorinated, and softened. On an average day, about 90,000 gallons of water is supplied. Due to mineral content and ph, the Borough reports the cost of water treatment is quite high.

In 1986, the Borough undertook a major line project, installing 8,000 lineal feet of 8-inch plastic pipe. This solved many distribution woes. Problems do remain with the older part of the system, leaks and pipe size. However, repairs are usually completed as the need arises. Current system water loss is nominal. The Henry Well supplies the system and is about two miles from the Borough. Although a good producer, even in recent draught years, water quality is poor due to mineral deposits and ph levels. The Borough now has a program to drill a new well; and if quality and quantity were sufficient, it would replace the Henry Well as Sligo's principal water source. Henry would then be a backup well. Storage is via two tanks, one of 250,000 gallons, and the second of 109,000 gallons that serves

primarily for fire protection. System pressure averages 70 psi, and fire flows are considered good.

West Freedom: The West Freedom Water Cooperative serves the small village from a groundwater system. There were 72 customers in the system, including a church and school. The well water used has heavy concentrations of iron and manganese. According to records, levels of these minerals were ten times the DEP/EPA Drinking Water Standards. Because of this, the system is under DEP orders to develop a remedial plan. The planned improvements include chemical pre-treatment of water, filters, backwash facilities, chlorinators, controls, and well casings. The cost is near $300,000 and a PENNVEST loan has been secured for a portion of this amount. However, the Cooperative is still seeking grant funds to finish their funding package.

Other Water Systems: In addition to the public system listed above, there are at least four other water systems in the County. Two are for mobile home parks and one for a personal care facility.

The remaining system is larger and produces relatively large quantities of water. Cook Forest State Park has a system for its facilities in the County. Two homes, a public swimming pool, restrooms, showers, and other facilities associated with the park are supplied. Average daily use is 13,128 gallons, but usage can peak at 50,000 gpd. This is a well-based system with a safe yield of 55,000 gallons per day. However, the filtration plant capacity is 100,000 gpd, and the system has a storage capacity (2 tanks) of 240,000 gallons. The plant is located in Farmington Township.

Sanitary Sewer Systems

There are a variety of sanitary sewer systems in Clarion County. These are municipal operations or municipal authorities. In some cases, a single entity collects the wastewater via sewer lines and also provides treatment. In other cases, a system merely collects sewerage and then it flows to a second agency for treatment.

A little background may be helpful before a discussion of the individual systems in the County. First is the issue of regulation. The Pennsylvania Department of Environmental Protection (DEP) directly regulates sanitary sewer operations. DEP's power to regulate – and its standards for system operations – comes from two sets of laws. Many are State, such as the Clean Streams Law. However, a great deal of the law and the specific standards local operations must deal with are often Federal. In legalistic jargon, Pennsylvania has "taken primacy" for these Federal controls; however, the Federal Environmental Protection Agency can, and does, monitor State actions and will occasionally play a direct role in enforcement activities.

Usually, the permitting of sewer plants focuses upon their hydraulic capacity – how many gallons per day the plant can treat and the allowable organic load expressed in pounds per day. This latter figure is computed in "pounds per day" and relates to the laboratory testing of the sewage's organic content.

The main causes of regulatory problems are when a system is overloaded. Overloaded systems are faced with greater hydraulic or organic load than they were designed to accommodate. The most typical problem is hydraulic overload. Though plants are often designed to take short-term peaks of sewage flow in excess of their permit, such flows of long duration, or frequent occurrence, cannot

be accommodated. Consequently, raw or only partially treated sewage effluent may be discharged into receiving streams.

To understand the majority of the problems faced by most sewer systems, a historic appreciation is needed. In the last of the 1800s and early 1990s, few, if any, municipalities had sewer treatment plants. Wastewater was collected and passed through various sewers to some type of stream or river. Because no treatment of this wastewater (sewage) was required, it was most economical to tie sanitary sewers to the storm drain system, creating combined (sic, stormwater and wastewater) systems. As the connection between disease and sewage became apparent, the treatment of wastewater was mandated. At first, systems were relatively simple, but the environmental laws of recent years have led to higher treatment standards for the effluent and sludge waste leaving sewer treatment plants.

Older systems, with their inherited combined sewers, are especially subject to hydraulic problems. During storms, excessive rainwater flows to the treatment plant cause overloads. Often, the main culprits are catch basins, roof drains, and foundation drains discharging rainwater into the collection system. But, other problems exist. Usually, the collection system age is one. These older sewer pipes were usually vitreous clay tile or concrete pipes jointed with mortar. Over the years, pipes crack or sometimes collapse. The mortared joints can crack or perhaps pull apart. These problems allow groundwater to infiltrate into the system. A similar infiltration can occur with manholes. Modern units are often cast concrete, relatively watertight. Older units were made up of bricks with mortar, subject to leakage over the years. Even the manhole cover can allow water to enter the system. These problems of inflow and infiltration are known collectively as I&I. As might be expected, both problems are most acute during rainstorms or prolonged wet weather.

Solutions to sewer system problems are not cheap. Sewer lines, especially in older communities, are expensive to repair or to replace. Modern treatment plants are also expensive to repair or update.

Decades ago, when regulations were not as stringent and when enforcement was not strict, many systems did little to maintain or upgrade either sewer collection lines or treatment plants. In today's more demanding environmental climate, such actions are no longer acceptable. Sewer systems that are not performing to needed standards are subject to DEP or EPA action. Sometimes local organizations will begin corrective actions after a simple warning. Other times, it results from court

action. Once DEP and the system operator agree on a series of steps to remedy problems, a Corrective Action Plan (CAP) is in place. Usually, a CAP will forestall further legal action.

Of course, to local system users, these considerations are often abstract. To local users, sewer malfunctions are manifested by two characteristics. One is possible flooded basements and cellars caused by hydraulic overloads. The second is higher user rates imposed to implement a CAP. As most systems are operated solely from revenues generated, the only way to recover the cost of mandated upgrades or repairs is via system rates.

With this background, the individual sewer system of the County can be discussed. A plate, "Sewer Service Area," helps show the service area of various systems.

Clarion Area: The Clarion Area Authority provides sewerage collection and treatment in the Clarion Borough, Clarion Township, and Monroe Township areas. One section of their service area, called the Strattanville area, is part of the Strattanville Authority's service area. However, its effluent is transported to the Clarion plant for treatment.

In 1999, the average daily hydraulic flow of 1.185 mgd is well under the approved 1.75 mgd system capacity. The organic limit is 3,650 pounds per day and the load 1,868 ppd. Over the past years, some heavy rains caused occasional spikes in the hydraulic load to flows in excess of its permit. This situation has resulted in a consent arrangement between DEP and the Clarion Authority. The Authority does have a "CAP" in place and is reducing I&I problems. Over their five-year "CAP," the Authority has budgeted $100,000 per year for corrective action. Projects are based upon the finding of an employee whose function it is to check the collection system during rainy periods. Based upon these investigations, projects are determined and prioritized on impact. Authority personnel believe that after five years of this program, I&I reduction will be significant and are hopeful the current limitations will be lifted. At this time, the system is allowed to accept up to 20 new EDUs per year.

Over the past ten years, an average of 15 new EDUs per year were added. However, with the publicity surrounding the tap-in limits, system operators relate there have been some developer concerns, especially for townhouse or multi-family units. This situation is regarded as temporary and no long-term shortage of tap-ins are expected. Thus far in 2000, 15 EDUs have been used. Any unused tap-ins can be carried forward. Though some peripheral development is occurring, the

Authority believes that the greatest potential for significant growth is at exit 9 of I-80.

East Brady Area: The East Brady operation uses a plant originally constructed in 1969 for a design population of 1,500. The approximately 450 customers consist of all of East Brady Borough, except 4 or 5 homes, which have working septic systems and are situated in areas that would require greater cost to hook up than would be economically sound.

The system has a hydraulic permit limit of .150 mgd and is operating well within its tolerances. The system is presently under orders from DEP, due to I&I problems, which occur during periods of heavy rainfall. Recent fine-tuning of the system has brought these problems under control, with the expectation that the ban on accepting new hookups will be lifted. Because of this, there is a potential of 15 to 20 new customers being added in the near future.

Other than the expectation of new customers, there are no plans to expand facilities or otherwise change this system.

Emlenton Area: This system serves the Richland Township area. It is a small operation, with a permitted hydraulic load of .008 gpd and an organic load of 24.2 BOD/day. This system was constructed in 1986 and upgraded in 1995 with a de-chlorination tank. Usage in 1999 averaged .0034 mgd hydraulic and 5.63 pounds organic, both well below allowed levels. No significant growth is expected.

Farmington Township: The Township is proposing a sanitary sewer system in the Leeper-Tylersburg area. Plans are complete and preliminary funding is in place. No construction schedule is known.

Foxburg Area: This is another smaller system. The last Chapter 94 Report was filed February 7, 1996. As such, available information is dated. At that time, the system had a permitted hydraulic capacity of .085 mgd, with average flows of 40,000 to 43,000 gallons per day. Current flows are reported at 30,000 gpd. The organic permit was 144 lbs/day and use was under 50 lbs/day. It must be noted that these are average figures and do not reflect I&I episodes.

Though the current system was constructed in the 1960s, over one mile of existing line, from a 1930s WPA project, was retained. As a result, system lines are 40 to nearly 70 years old. Over the intervening years, tree root growth, ground shifts, and aging have had pronounced effects on the collection system. Collapsed lines,

leaking manholes, and root blockage have combined to cause basement flooding and line overflows. This resulted in the flow of raw sewage into the Allegheny River. As a result, the Borough was not in compliance with DEP standards and has taken corrective action. Such actions are expensive, and due to the small rate base, must be often supported by grants. A few years back, work on part of the system (Route 58, North and South Palmer, Spring Street) was completed. Currently, another 1,750 lineal feet of existing line is proposed for improvement via CDBG funds and 1,000 lineal feet with local funds. When complete, the major system problem should be resolved. The plant is DEP-compliant and is scheduled to accept flows from the proposed Richland Township-St. Petersburg area.

Knox Area: This system serves the Borough of Knox and some parts of Beaver Township. The plant is located in the Township. It has a permit for .26 mgd, but, on average, operates at .154 mgd (60 percent) of that capacity. Organic loading is listed at 344 lbs/day and, in recent years that level has been exceeded. Operators are unsure of the reason for this organic loading problem. The system plans to relocate their outfall pipe to Canoe Creek. This is due to the flow characteristic of the current receiving stream.

New Bethlehem Area - Redbank Municipal Authority: This system operates in the southeast portion of the County. According to Authority reports, there are some 851 customers on the sewer system. The system has a hydraulic permit of .300 mgd and an organic limit of 45 lbs/day. Average usage was 195,300 mpd and 137 lbs/day in 1999. The monthly average flow was under the system's hydraulic permit in both FY 1999 and 2000. (Note: the Authority's fiscal year ends in April.) Currently, the system treats sewage from New Bethlehem Borough in Clarion County and South Bethlehem in Armstrong County. The treatment plant is located in Mahoning Township (Armstrong County). Current plant capacity is limited, due to the hydraulic loadings resulting from combined sewers in New Bethlehem Borough. However, they are allowed to accept 20 new EDUs per year. The system's Act 537 Plan envisions a doubling of plant capacity as service is extended to nearby communities. Proposed extensions include Fairmont City (Redbank Township), the Borough of Hawthorn, Cottage Hill (Porter Township), and contiguous areas. This system hopes to expand its service and to include Fairmont City, Hawthorn, Cottage Hill, Sherman Heights, Oak Ridge, Alcola, and Mayport.

In addition to the expansion of its system, the existing sewage collection systems in New Bethlehem and South Bethlehem were acquired. Proposed capital projects include:

- Chlorine gas detectors-operations building
- Improvements to the Broad Street pump station
- Improvements to the Short Street pump station

Paint–Elk Joint Sewer Authority: The Paint-Elk joint sewer treatment system is managed by Paint Township. According to their 1999 "Chapter 94" Report, there were a total of 332 connections, 283 residential, and 49 commercial, institutional, or industrial. In recent years, the system has added the new County Jail and the fiberboard plant to its users. Hydraulic use averages .206 mgd and the organic load at 245.6 lbs/day.

The system has 3 lift stations and nearly 10 miles of sewer lines. System condition is rated variously as poor to good. A major problem is the older sewer lines. About 2 miles of line are composed of vitreous clay pipe and over 40 years old. An ongoing I&I remediation program is reported.

Rimersburg: The Rimersburg Borough Authority leases the treatment plant and collection system to the Borough of Rimersburg. The service area includes the Borough and nearby portions of Madison and Toby Townships. According to available data, the hydraulic permit is .200 mgd. Its average load is .095 mgd. The 1999 organic load was 286.5 lbs/day. In 1985, the system was placed under a tap-in ban, and in 1990, the State issued orders for corrective action. A new treatment facility was constructed in 1993, correcting part of the problem. However, Rimersburg is still following a CAP, aimed at reducing its collection system I&I problems that limit new connections. The Borough has a work program underway to repair about 1,500 feet of sewer line and replace nine manholes. These facilities are a major source of I&I flow, causing hydraulic overloads at the plant. Operators believe that once these major problems are corrected, the tap-in limits will be removed. The system reports it is working on its problems with solids. One element, the drying beds, will be upgraded in the fall of 2000.

St. Petersburg/Richland Township Area Municipal Authority: This organization has developed plans for a sanitary sewer collection system to the St. Petersburg/Richland Township area. The effluent is to be collected and transported to the Foxburg plant for treatment. Project bidding is due shortly and construction could be underway by 2001.

Shippenville Borough Wastewater System: The system's plant is located in Elk Township. This system has a hydraulic permit of .05 mgd and 105 lbs/day organic.

The system is listed in overall good condition. The 1999 flows were reported at 32,000 gallons per day. Improved drying beds are being planned in fall/winter of 2000.

Sligo Borough: The Borough completed its sewer system in 1997 with assistance from the USDA. The plant uses extended aeration treatment and its hydraulic permit is 110,000 gpd. Current flows are 50,000 to 54,000 gpd. The organic loading allowed is 11 pounds per 1,000. System operators report no problems, and no I&I with the system lines. The current service area is limited to the Borough. However, there are preliminary discussions to extend lines into Piney Township to service a nursing home/assisted living complex.

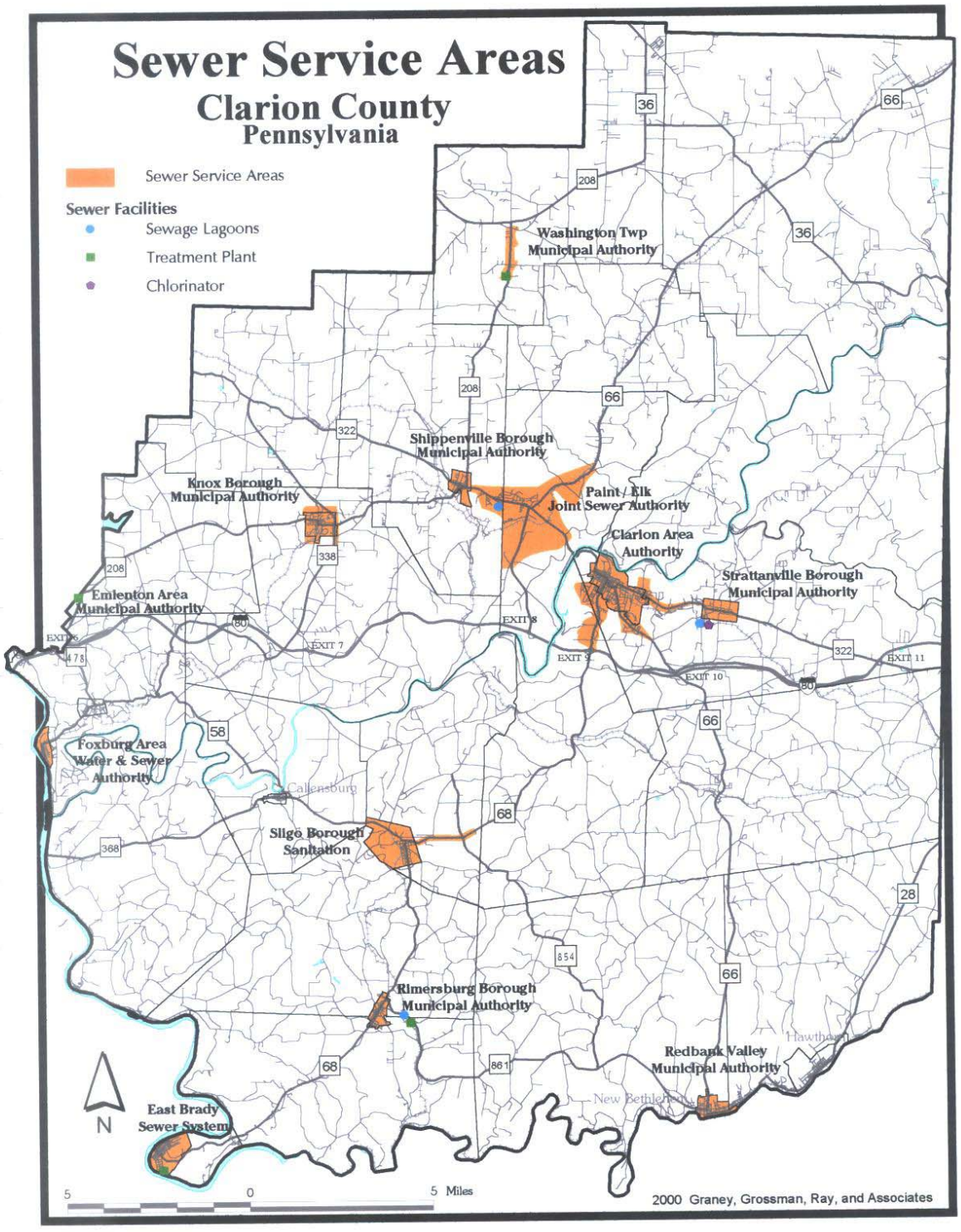
Strattanville Borough Municipal Authority: This system treats wastewater for Strattanville Borough and portions of Clarion Township. The current plant hydraulic permit is .070 mgd, with the average 1990 flow .054 mgd. The Authority reports a 2000-2001 aeration commuter project will allow it to request a re-rating from DEP up to 100,000 gpd. This is a lagoon system.

Washington Township Municipal Authority: The system receives wastewater from the Villages of Fryburg and Marble. Permit capacity is 40,000 gpd; flows reported at 21,890 gpd (1999). As known, this system has no problems.

Education

In a society where training and education are increasingly important, schools, colleges, universities, and technical institutes are an important part of a county's resources. This section of the report examines Clarion County's educational resources.

Clarion University: One of the dominant forces in the County is Clarion University, part of the State university system. Historically, the school has had a strong program in Education as well as Arts and Sciences. Its 1999 enrollment was 6,000 students, of which over 5,000 were full-time.


Sewer Service Areas
Clarion County
Pennsylvania
Sewer Service Areas
Sewer Facilities
Sewage Lagoons
Treatment Plant
Chlorinator
Washington Twp Municipal Authority
Shippenville Borough Municipal Authority
Knox Borough Municipal Authority
Paint / Elk Joint Sewer Authority
Clarion Area Authority
Strattanville Borough Municipal Authority
Emlenton Area Municipal Authority
Foxburg Area Water & Sewer Authority
Sligo Borough Sanitation
Rimersburg Borough Municipal Authority
Redbank Valley Municipal Authority
East Brady Sewer System
Callensburg
New Bethlehem
Hawthorn
EXIT 6
EXIT 7
EXIT 8
EXIT 9
EXIT 10
EXIT 11
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2000 Graney, Grossman, Ray, and Associates

Enrollment for the 2000-2001 school year was up by 112 students. The great majority of students are from Pennsylvania. The University offers associate, bachelor, and master's degrees. They awarded 1,000 degrees in the 1998-1999 school year.

Clarion's campus is concentrated within Clarion Borough, though some living quarters are found in the adjoining Township.

Beyond its role as an educational asset, Clarion University is an important economic force in the County. Its students help keep Clarion Borough's downtown functioning while many similar Central Business Districts are in distress. Also, the staff and faculty contribute greatly to the overall economy. This is especially true in recent years. Some of the County's traditional employment base has seen a sharp decline.

School Districts: There are seven separate school districts in Clarion County (see plate School Districts). These districts sometimes serve areas outside County boundaries. School information is listed by district. All districts have library facilities and computers available to students. Data is from the 1998-1999 school year, unless otherwise noted.

Allegheny-Clarion Valley School District: This is one of those districts that have service areas outside of Clarion County. The district encompasses parts of Butler and Venango Counties. The system has two schools in the County – both in Richland Township. The district indicated it has no plans for new facilities.

The High School-Middle School: Grades 7 through 12 has a total enrollment of 552 students (300 in the Middle School, 252 in High School). Enrollment in the Elementary School is 583, for a total student population of 1,153. For the 1999-2000 year, enrollment was 1,115. School capacity is 1,400.

Clarion Area School District: This district is in the Clarion Borough area, and also has two facilities. The Clarion Area Elementary School is located on 800 Boundary Street, and it has an enrollment of 484 students. The Junior/Senior High School is located at 219 Liberty Street, Clarion, with 252 enrolled in High School and 228 Junior High students.

Clarion-Limestone Area School District: The district reported 1,104 students in the 1998-1999 school year. The Junior-Senior High School is found in Strattanville and has a combined enrollment of 505 students (264 Junior High and

241 Senior High). The Elementary School – also listed in Strattanville – had 599 students.

Keystone: This system is centered in the Knox area. Total enrollment for 1998-1999 was 1,282 pupils. Some 318 were enrolled in grades 7 through 9, with 266 students in the High School. The Elementary School listed enrollment at 698 students.

North-Clarion County School District: The district services three townships in the extreme north of the County. The Junior/Senior High School has 429 students (222 in Senior High and 207 in Junior High). Elementary enrollment was 320 students, for a total of 749 pupils.

Redbank Valley School District: The system serves students in both southeast Clarion County and abutting areas in Armstrong County. Two of this district's schools are in Clarion County. There are a total of 1,616 pupils. The Junior/Senior High had 760 students in the 1998-1999 year, of which 371 were in Senior High. Some 313 students were enrolled in the Redbank-Hawthorn School, in Hawthorn. The remaining 210 elementary pupils were in the Mahoning School (Armstrong County).

Union School District: This district had 923 students divided among three schools. The High School (Rimersburg) had 208 enrollers, the companion Junior High 218. One of the two other schools is located at 100 School Street Road in Rimersburg. Rimersburg Middle School enrollment was 200 in the 1998-1999 year. The Sligo Elementary facility enrollment was listed as 297.

The Clarion County Career Center: This is the area's vocational-technical school, serving the seven districts in Clarion County. Enrollment for the 2000-2001 school year is projected at 300 to 325 students. Their capacity is 450 to 500. This facility is currently considering an expansion/renovation project.

Because of recent amendments to the Pennsylvania Municipalities Planning Code, the County Comprehensive Plan must now also solicit the input of school districts during Plan preparation. Toward that end, the County invited all district superintendents to a meeting. A number of concerns were related by these bodies.

Foremost of these was safety concerns. All districts, but especially rural districts without local police, have a great stake in a coordinated countywide emergency response infrastructure.

Virtually, all school districts also expressed their concern about long-term demographic trends. The Commonwealth of Pennsylvania prepares district-wide projections of future enrollment. In Clarion County, the bulk of these are anticipating declines (a summary of these projections is included in the Demographic section).

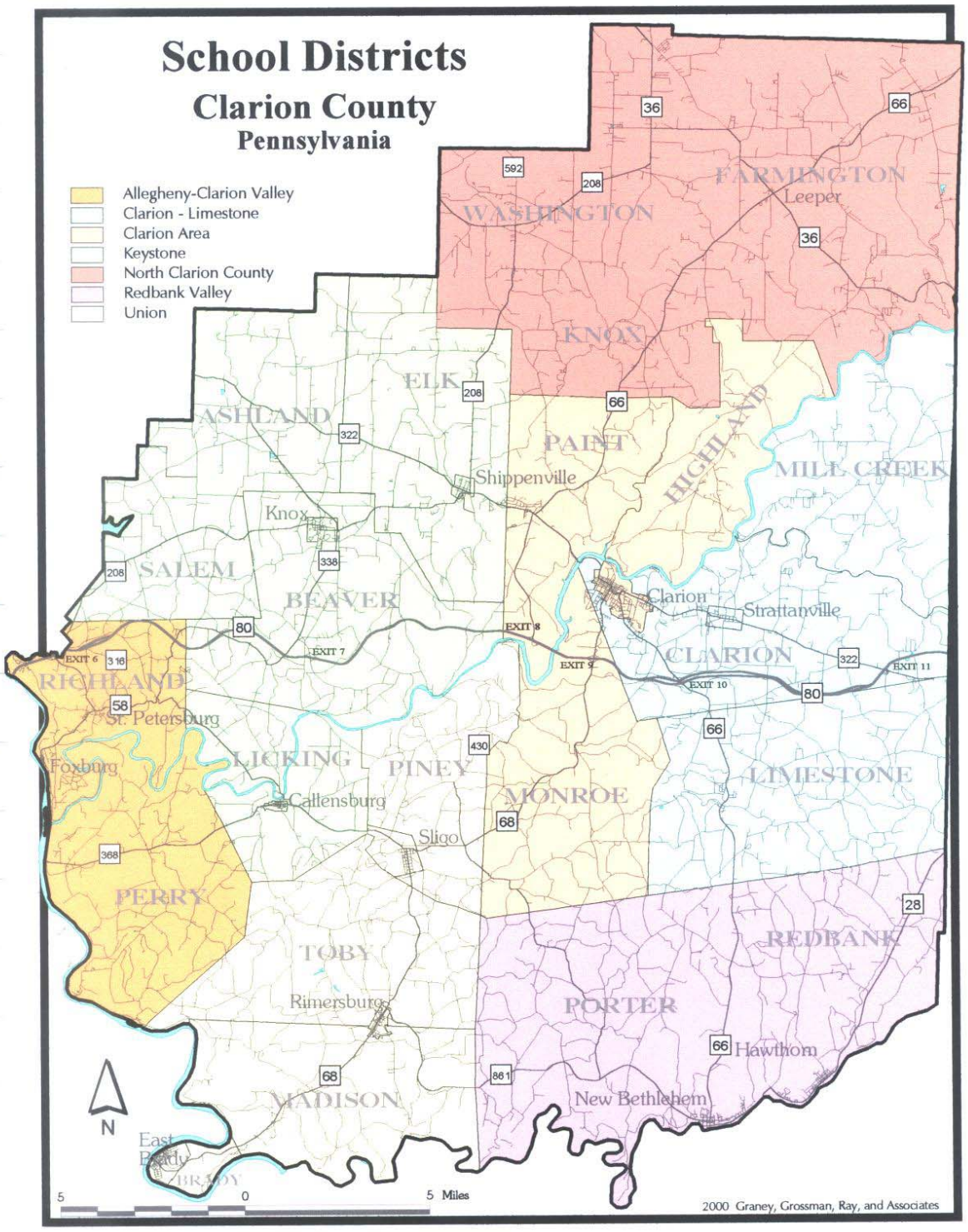
Another issue relates to that of school facilities. One district has surplus property and anticipates selling. It also relates to the interrelated issues of housing, economic development, and planning. School directors believe a combination of shortages in affordable family housing and jobs are major factors in population decline.

All superintendents in attendance expressed a willingness to work for greater planning and coordination between all taxing bodies. One stated as a goal the concept of a "truly comprehensive plan" which addresses all aspects of the diverse Clarion County community.

Recreation

Clarion County has a variety of recreation resources, from State Game Lands to local parks. It also boasts of a fully developed County Park facility. Beyond the inventory contained in this report, there are many other private, school and university facilities that serve County resident needs.

State Facilities: There are seven Game Lands in Clarion County, Numbers 24, 45, 63, 72, 74, 266, and 283. Four of these extend into other counties and one


School Districts
Clarion County
Pennsylvania
Allegheny-Clarion Valley
Clarion - Limestone
Clarion Area
Keystone
North Clarion County
Redbank Valley
Union
WASHINGTON
FARMINGTON
Leeper
KNOX
ELK
ASHLAND
PAINT
HIGHLAND
MILL CREEK
Shippenville
Knox
SALEM
BEAVER
Clarion
Strattanville
CLARION
RICHLAND
St. Petersburg
Foxburg
LICKING
PINEY
MONROE
LIMESTONE
Callensburg
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(Number 63) is divided into two separate holdings. All but Game Land Number 266 is north of I-80.

Another large State recreation resource in the County is Cook Forest State Park. In the 19th century, the Cook family had extensive holdings in this area. They had lumber, rafting, and other business interests, along with extensive real estate interest. In the 1920s, the Cook Forest Association was formed with specific intention of saving one of the few remaining areas of virgin timber in the State owned by Cook interests. In 1927, the Association assisted the State in acquiring 6,055 acres from A. Cook Sons Company, becoming the first State park acquired to preserve a natural landmark. Because old growth trees are found in the facility, part of the park is designated a National Natural Landmark.

Cook Forest is listed at 6,422 acres, with the majority of its landmass in Clarion County. There is significant acreage in Forest County, with a smaller amount in Jefferson County. The park has some traditional recreational resources such as swimming, wading, and open multi-purpose fields. There is also the Sawmill Center, an auditorium, and place for crafting. However, its primary emphasis is the outdoor experience. There are over 27 miles of trails, 240 picnic tables, primitive cabins, hunting, fishing, and boating opportunities.

Clarion County Park: The Clarion County Park is a 58-acre facility located just off Route 66, north of I-80 in Paint and Beaver Townships. This park had its genesis in 1970 and was deeded to Clarion County in 1978. It has been extensively developed since that time. One of the key partners in park development has been the 4-H Club. As a result, there is a livestock barn and arena in the park. Principal components include:

- Two softball fields which are also used for soccer and other purposes
- A concession stand
- Picnic tables and pavilions
- A tennis court
- A community center
- Little League (American Legion) field
- Play apparatus
- Hard-court (outdoor) basketball

Clarion Borough: Clarion Borough has four recreational facilities:

- Paul Weaver Memorial Park: This is a 17-acre multi-use community park. Its major feature is four softball/baseball fields. However, there is a shelter, play apparatus, restrooms, a concession stand, and improved parking.

- Toby Launch: Two-and-one-half-acres along the Clarion River for boat access, with a 10-acre wooded hillside nearby (undeveloped).

- Clarion Borough Municipal Pool: An acre site, containing a pool with a diving tank, wading pool, play area, gazebo, and concession stand.

- Second Avenue Playground: A small grassy area with play apparatus next to the Borough's maintenance building.

COG Pool Park: This facility was developed in the 1970s as a result of a partnership between local municipalities and businessmen. It is located in Sligo Borough and is some 6.8 acres in size. The facility is dominated by its open-air swimming pool and associated structures, along with five picnic pavilions. A wading pool is provided in addition to the pool facility. A play lot and horseshoe pits round out this facility.

Redbank Municipal Park: Found in the Hawthorn area, this is another multi-municipal facility. Currently, Redbank Township, Hawthorn Borough, South Bethlehem Borough (Armstrong County), and Porter Township join in this park's operations. New Bethlehem Borough was one of the original participants but had to withdraw due to other obligations. Park personnel are hopeful they can rejoin the operation soon.

Physically, it is a 58-acre facility. Principal facilities include:

- Outdoor swimming pool and bath house
- Miniature golf
- Ball/soccer fields
- Two tennis courts

- Play apparatus
- Concession stands
- Picnic pavilions (7)
- Hard-court basketball

In addition to its developed areas, there is wooded land present.

The park is unique for two aspects. First, though a regional facility, it is the location of the Clarion County Fair. Another feature is the location of year-round recreational vehicle sites. Some 65 campers are located here and another 20 to 30 could be accommodated.

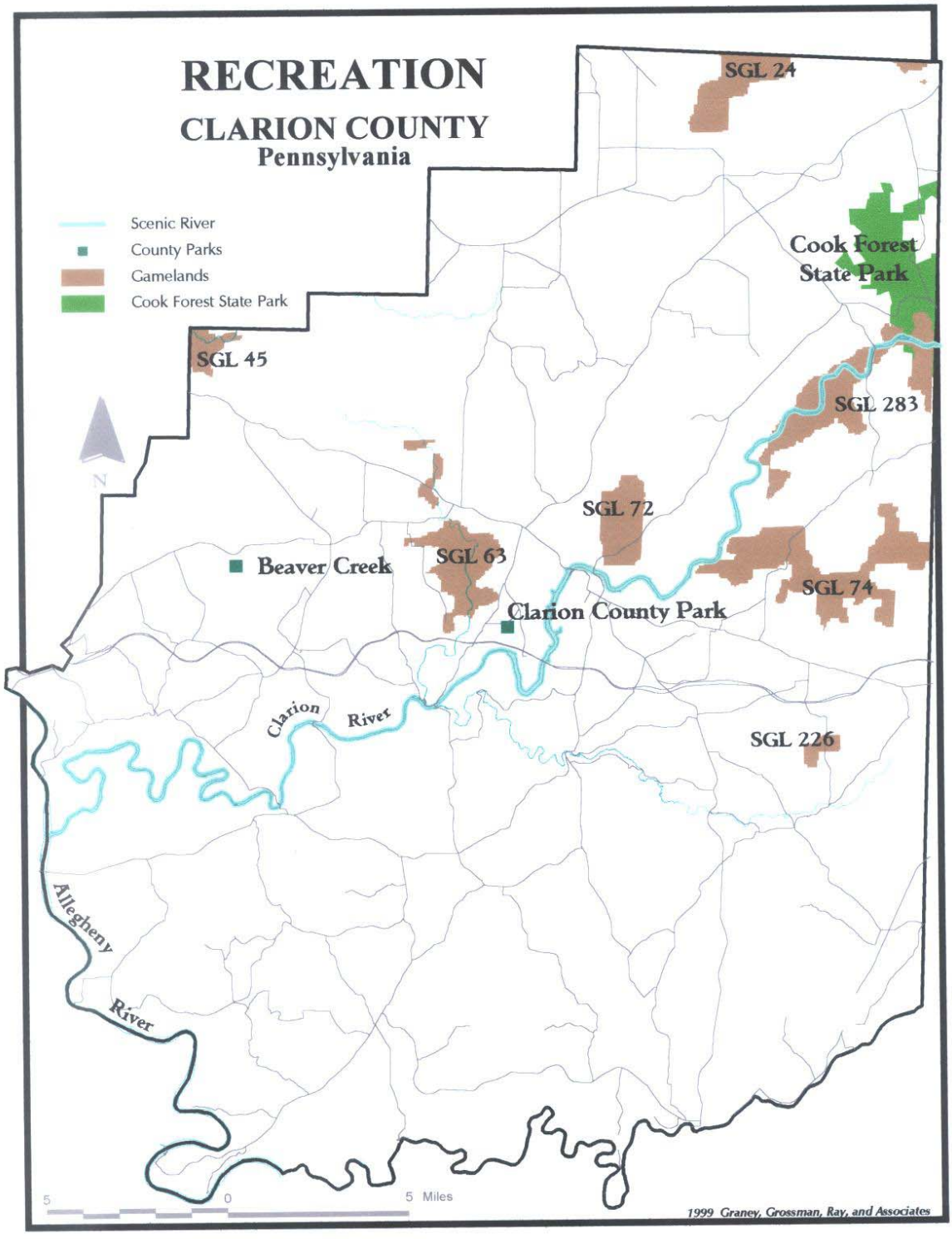
There is a skating rink building with kitchen facilities in this park. However, park officials relate it is unusable due to condition. Its replacement is a park priority.

Knox Park: The Borough of Knox has a park located on its northwestern border. Facilities include:

- Two tennis courts
- Hard-court basketball
- Two ball fields
- Picnic pavilion
- Play apparatus
- Restrooms

Hospital

The Clarion Hospital is a 96-bed community facility that offers family-centered care. The hospital lists 17 network medical specialties available and 5 hospital-based specialties. In FY 1999-2000, the facility had some 3,498 admissions and 87,745 outpatient visits. It has an emergency room, outpatient services, a birth center, and a variety of other health care resources. In addition, it operates the County's largest ambulance service. In its last fiscal year, this service had 4,830 ambulance trips. (Please also see comments under Emergency Medical Services.) The hospital has approximately 400 employees and 80 physicians, making it an economic as well as health resource. The hospital also has an emergency helipad facility in association with STAT Medivac (helicopter service).


RECREATION
CLARION COUNTY
Pennsylvania
Scenic River
County Parks
Gamelands
Cook Forest State Park
SGL 24
Cook Forest State Park
SGL 45
SGL 283
N
SGL 72
Beaver Creek
SGL 63
SGL 74
Clarion County Park
Clarion River
SGL 226
Allegheny River
5 0 5 Miles
1999 Graney, Grossman, Ray, and Associates

Libraries

There are six public libraries in Clarion County as well as facilities at Clarion University, the County Law Library, and special resources at the Clarion Hospital.

Clarion Free Library: Located in the Borough of Clarion, this is a large full-service facility opened six days a week. They are also the headquarters for the Clarion County Library system. They house a collection of approximately 35,000 of books, tapes, audio books, and related material.

Hours:

Monday-Wednesday – 9:00 a.m. to 8:00 p.m.
Thursday and Friday – 9:00 a.m. to 5:00 p.m.
Saturday – 8:30 a.m. to 3:30 p.m.
Sunday – Closed

East Brady Public Library:

Foxburg Free Library Association: This is a brick, two-story facility in the Borough of Foxburg.

Hours:

Monday and Tuesday – 12:00 noon to 7:00 p.m.
Wednesday – Closed
Thursday and Friday – 12:00 noon to 7:00 p.m.
Saturday – 10:00 a.m. to 5:00 p.m.
Sunday – Closed

Knox Public Library: This facility is located at 620 South Main Street in the Borough of Knox. Among their resources are four computers with Internet access, word processing/printer facilities, and a photocopier. The library's collection has 17,311 items. We are aware of no plans for expansions.

Hours:

Monday, Tuesday, and Thursday – 10:00 a.m. to 8:00 p.m.
Friday – 10:00 a.m. to 6:00 p.m.
Saturday – 9:00 a.m. to 5:00 p.m.
Wednesday and Sunday – Closed

Eccles-Lesher Memorial Library (Rimersburg): This facility is located at 673 Main Street in Rimersburg. Library officials report a collection of 24,608 cataloged items. This includes books, paperbacks, videos, audio books, magazines, software, and equipment. Patronage is estimated at 4,740. The library is planning a physical expansion. A 2,500-square foot addition is slated for 2002 or shortly thereafter. This will allow all primary services to be offered on the main floor with the second level reserved for private study or tutoring.

Hours: *

Monday-Thursday – 10:00 a.m. to 7:00 p.m.
Friday and Saturday – 10:00 a.m. to 5:00 p.m.
Sunday – Closed
*Winter Hours – In the summer, closing time is 2:00 p.m.

New Bethlehem Area Free Public Library: The New Bethlehem Library is found at 246 Broad Street in the Borough's downtown. Their service area is the Redbank Valley, and they have been in existence for 45 years. Their collection is about 14,500 pieces. Library officials report they have recently completed a feasibility study to assess a building project.

Hours:

Monday, Tuesday, Thursday, and Friday – 9:30 a.m. to 7:00 p.m.
Saturday – 9:00 a.m. to 4:00 p.m.
Wednesday and Sunday – Closed

Public Safety

There are twenty volunteer fire companies that provide fire protection to the residents of Clarion County. Their names and service areas are shown on the plate "Fire Service Areas." Two of these, Corsica and Emlenton, are located outside of the County's boundary. No current, updated, inventory exists of the resources of

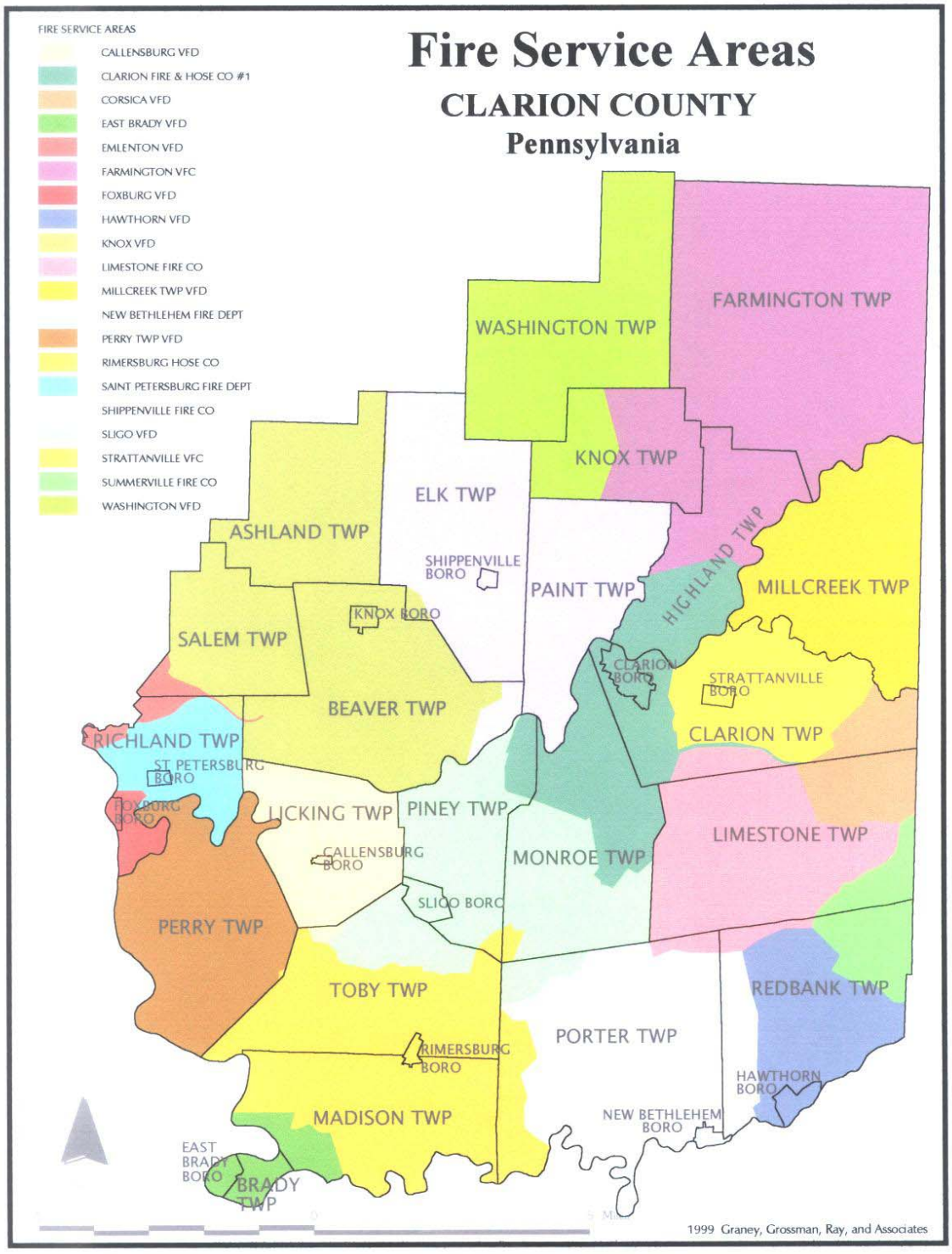
these important services, either personnel or equipment. County Emergency Management officials relate that the response rate requesting such data is under 50 percent. As such, no reliable database was available. However, it was reported that membership in these organizations is dwindling. Though not at the critical list yet, a clear trend is apparent. This pattern is typical across Pennsylvania.

Emergency Medical Services – EMS: Historically, many volunteer fire companies also provided ambulance services. However, with new training requirements and a declining volunteer base, that situation is changing. Across Pennsylvania, many areas now have paid services in lieu of volunteer operations. Clarion County is no exception.

Two groups can offer emergency medical services. Most fire companies have Quick Response Services (QRS) that are usually on accident scenes quickly. They can provide basic emergency services, such as controlling bleeding, the administration of oxygen, and other similar activities. More advance procedures and the transportation of patients in either emergency or non-emergency situations fall to full EMS providers. Clarion Hospital is the largest provider of such services in the County, with two service stations covering various geographic areas. Often, their service area was extended, when local crews could no longer provide services. This was true in the Richland, St. Petersburg, Foxburg area, where CHEMS Station 2 was operational until October 2, 2000. It was closed, and adjacent operations will absorb this area. However, final arrangements are not yet known, as this area is now shown on the EMS Service Area plate. On the extreme north (Tionesta AMB) and east (Jefferson County EMS), out-of-County services provide this lifesaving service.

Police: Clarion County is served by six borough police departments, Clarion University Police, and the Pennsylvania State Police. Interviews with representatives of these police departments paint an interesting picture of the County. All departments have at least one full-time officer and up to 36 part-timers. All departments have police cars available, while none of the outlying departments have lock-up facilities.

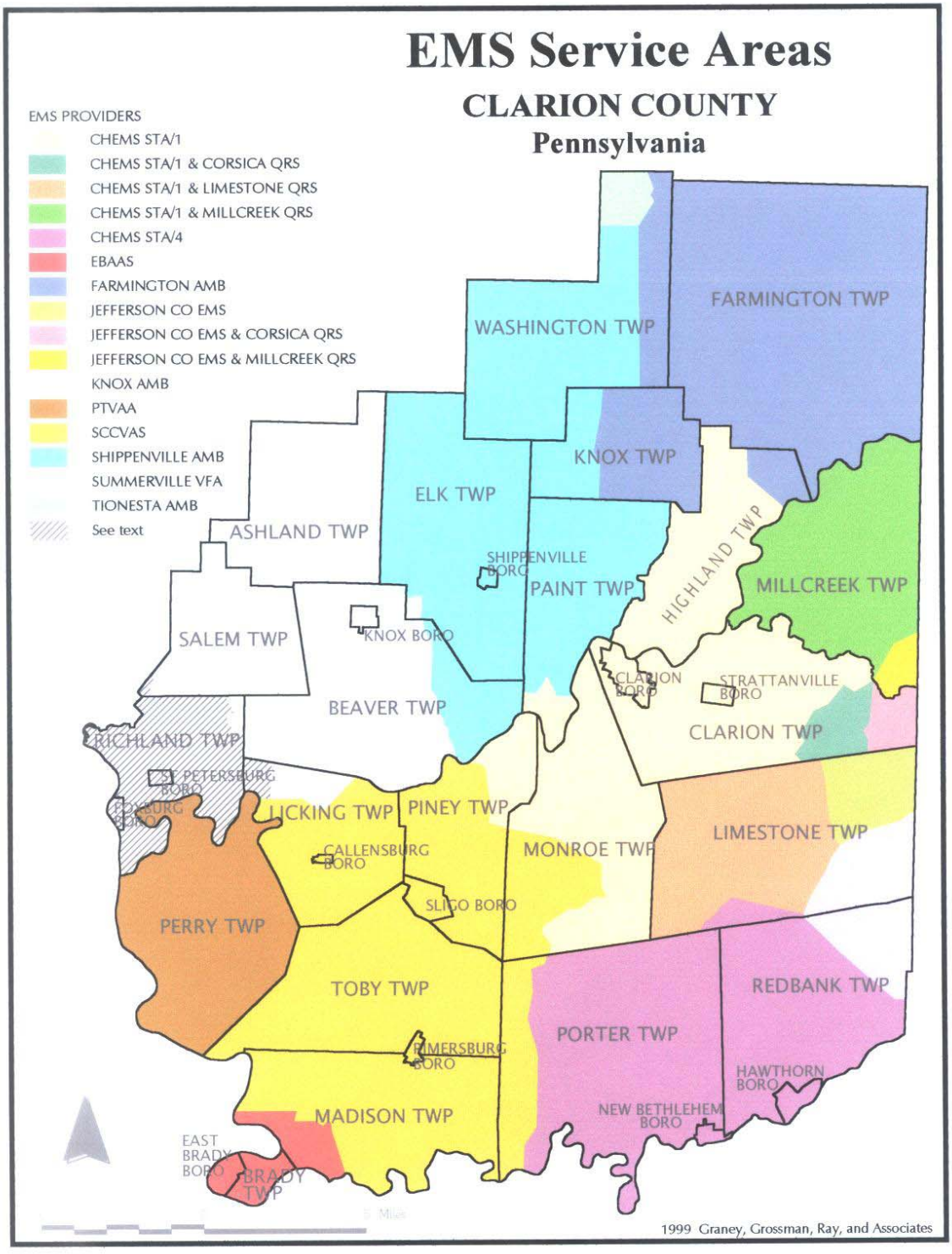
Of all calls police departments receive, a large portion are considered to be service-related, rather than involving crime-related incidents. Service calls can cover accident calls to help for the elderly or infirm, etc. Most departments report small increases in crime committed. The problem areas being traffic and scams. Reoccurring problems with traffic are driving while under the influence of alcohol (DUI) and speeding; with I-80 creating the highest proportion of the incidents.

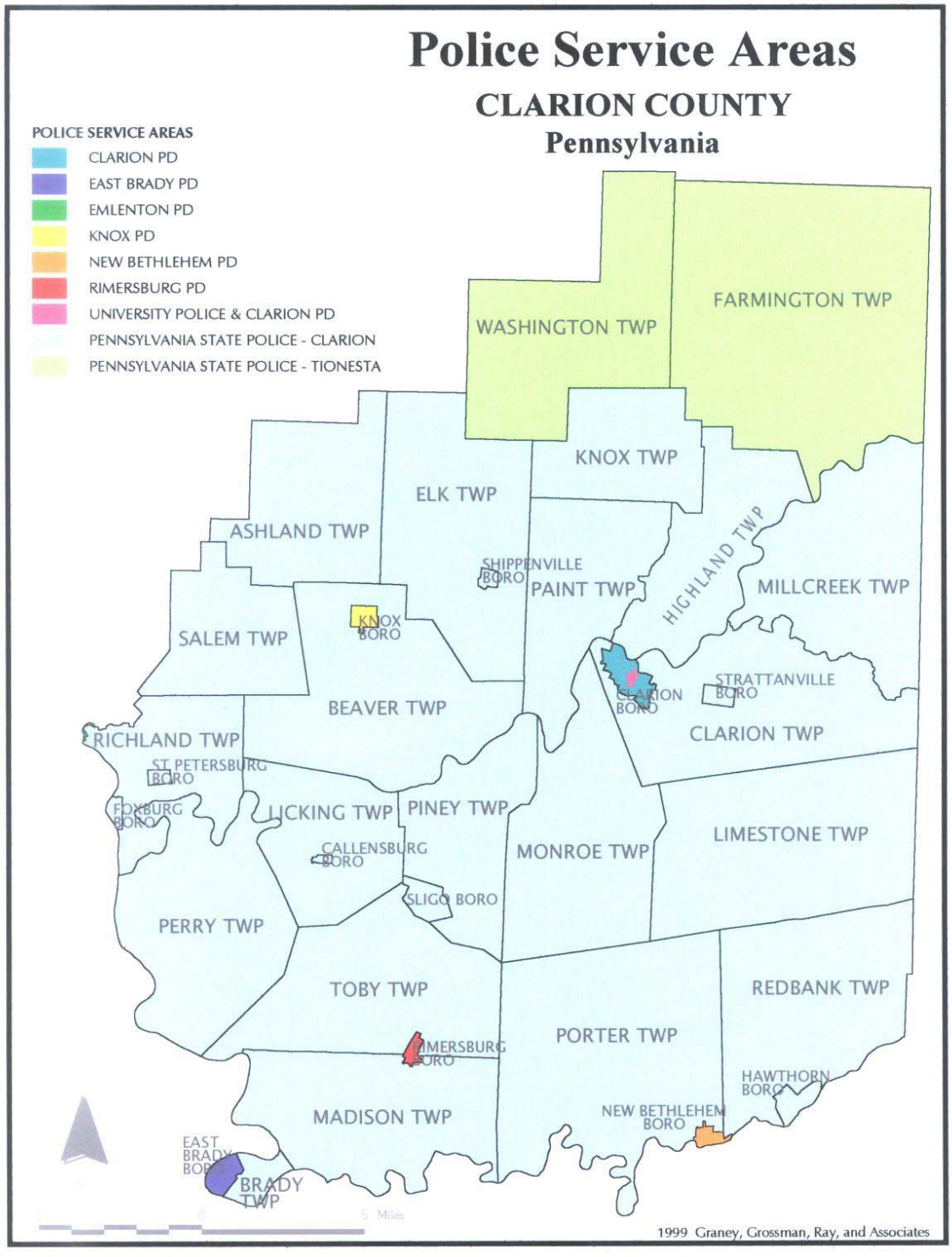

FIRE SERVICE AREAS
CALLENSBURG VFD
CLARION FIRE & HOSE CO #1
CORSICA VFD
EAST BRADY VFD
EMLENTON VFD
FARMINGTON VFC
FOXBURG VFD
HAWTHORN VFD
KNOX VFD
LIMESTONE FIRE CO
MILLCREEK TWP VFD
NEW BETHLEHEM FIRE DEPT
PERRY TWP VFD
RIMERSBURG HOSE CO
SAINT PETERSBURG FIRE DEPT
SHIPPENVILLE FIRE CO
SLIGO VFD
STRATTANVILLE VFC
SUMMERVILLE FIRE CO
WASHINGTON VFD
Fire Service Areas
CLARION COUNTY
Pennsylvania
WASHINGTON TWP
FARMINGTON TWP
KNOX TWP
ELK TWP
ASHLAND TWP
SHIPPENVILLE BORO
PAINT TWP
HIGHLAND TWP
MILLCREEK TWP
KNOX BORO
SALEM TWP
CLARION BORO
STRATTANVILLE BORO
BEAVER TWP
CLARION TWP
RICHLAND TWP
ST PETERSBURG BORO
FOXBURG BORO
LICKING TWP
PINEY TWP
LIMESTONE TWP
CALLENSBURG BORO
MONROE TWP
SLIGO BORO
PERRY TWP
TOBY TWP
REDBANK TWP
PORTER TWP
RIMERSBURG BORO
HAWTHORN BORO
MADISON TWP
NEW BETHLEHEM BORO
EAST BRADY BORO
BRADY TWP
1999 Graney, Grossman, Ray, and Associates

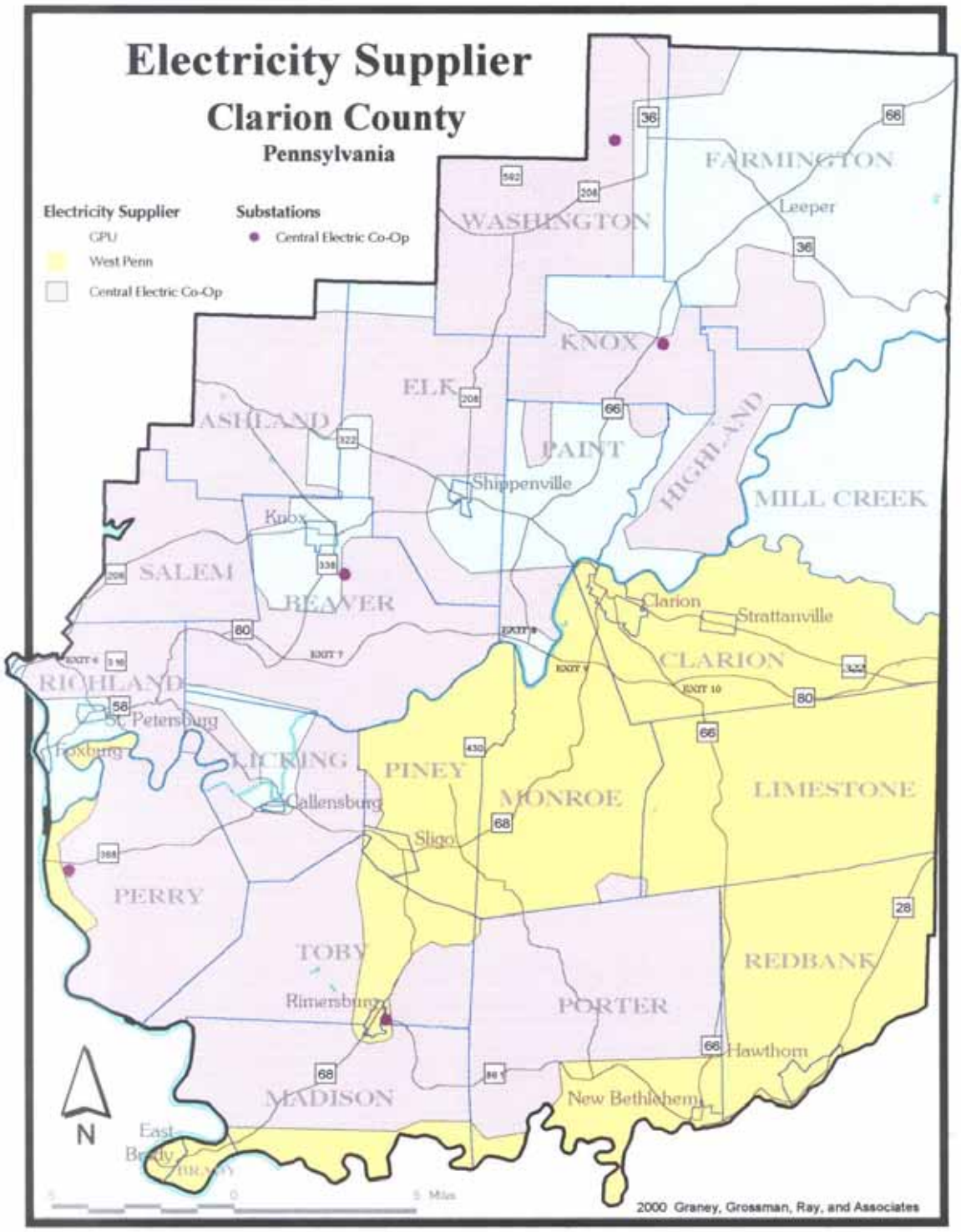
EMS Service Areas

CLARION COUNTY

Pennsylvania




Police Service Areas
CLARION COUNTY
Pennsylvania
POLICE SERVICE AREAS
CLARION PD
EAST BRADY PD
EMLENTON PD
KNOX PD
NEW BETHLEHEM PD
RIMERSBURG PD
UNIVERSITY POLICE & CLARION PD
PENNSYLVANIA STATE POLICE - CLARION
PENNSYLVANIA STATE POLICE - TIONESTA
WASHINGTON TWP
FARMINGTON TWP
KNOX TWP
ELK TWP
ASHLAND TWP
SHIPPENVILLE BORO
PAINT TWP
HIGHLAND TWP
MILLCREEK TWP
SALEM TWP
KNOX BORO
CLARION BORO
STRATTANVILLE BORO
BEAVER TWP
CLARION TWP
RICHLAND TWP
ST PETERSBURG BORO
FOXBURG BORO
LICKING TWP
PINEY TWP
LIMESTONE TWP
CALLENSBURG BORO
MONROE TWP
SLIGO BORO
PERRY TWP
TOBY TWP
REDBANK TWP
PORTER TWP
RIMERSBURG BORO
HAWTHORN BORO
MADISON TWP
NEW BETHLEHEM BORO
EAST BRADY BORO
BRADY TWP
5 Miles
1999 Graney, Grossman, Ray, and Associates


Electricity Supplier
Clarion County
Pennsylvania
Electricity Supplier
GPU
West Penn
Central Electric Co-Op
Substations
Central Electric Co-Op
WASHINGTON
FARMINGTON
Leeper
KNOX
ELK
ASHLAND
PAINT
Shippenville
HIGHLAND
MILL CREEK
Knox
SALEM
BEAVER
Clarion
Strattanville
CLARION
RICHLAND
St. Petersburg
Foxburg
LICKING
PINEY
MONROE
LIMESTONE
Callensburg
Sligo
PERRY
TOBY
REDBANK
Rimersburg
PORTER
Hawthorn
MADISON
New Bethlehem
N
East
Beauty
0
5 Miles
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Another area of concern in the County is the springtime influx of scam artists who attempt to bilk monies from unsuspecting residents. A couple departments reported an increase in juvenile-related incidents, while others did not consider juveniles to be problematic. One department reported a decrease in reportable activities, and thought that too much was made of youthful hi-jinks.

No mention was made of problems of sufficient police coverage or funding.

Electric: GPU, West Penn Power, and Central Electric Co-op all serve the County (please see the appropriate plate).

Gas: Data incomplete for this topic.

Telephone: Data incomplete for this topic.

TRANSPORTATION

TRANSPORTATION

The field of transportation has four primary elements: highway, rail, air, and water. Of these transportation modes, all but water will be discussed. Though Clarion's early settlers rafted timber and other products to downstream markets in the 1800s, the County's streams and river are now recreation rather than transportation resources.

Roads and Highways: According to data published by the Pennsylvania Department of Transportation (PennDOT), drivers travel some 1,761,881 miles on an average day in Clarion County. They travel on a road system that includes 1,406.4 miles. Of this, 471 miles are owned and maintained by PennDOT, 922.7 miles are local roads, and there are 12+ miles of park and other nonpublic roads. The highway system is large, complex, and expensive to maintain.

Over the years, traffic engineers have developed a hierarchy of highways. This is based upon the road's functions. Is it an Interstate moving high volumes of speeding cars from place to place or a local road whose principal function is to provide access to home or job?

Various classification systems exist which illustrate how a particular road or street is operating. Essentially, these systems place the road or street into one of three general categories:

Local Streets: Local streets provide access to property. Generally, they serve for shorter trips than the higher categories.

Collectors: These road systems collect and conduct traffic from local streets to higher road systems and trip generators, such as schools, shopping malls, hospitals, etc. They also serve as links to nearby communities and as intra-county travel corridors.

Arterials: Essentially, arterials serve to carry heavy volumes of through or in-traffic areas. Traffic on these routes can have a trip length indicative of substantial Statewide or Interstate travel. Arterial can include expressways such as I-80 and other major facilities such as Route 322.

Beyond their basic classifications, these roads are often further divided into major or minor categories, depending upon the intensity of their use and their function. Penn DOT data shows 28.1 miles of Interstate highway (arterial) in the County along with 38.5 miles of "major" arterials and 126.1 miles of minor arterials. There are also 64.7 miles of major collector roads. The plate, "Functional Classification," illustrates the major elements of the County's functional road system.

Clarion County has its own share of arterial, collector, and local roadways. Some of the more significant of these roadways are described below, according to their functional activities and classifications.

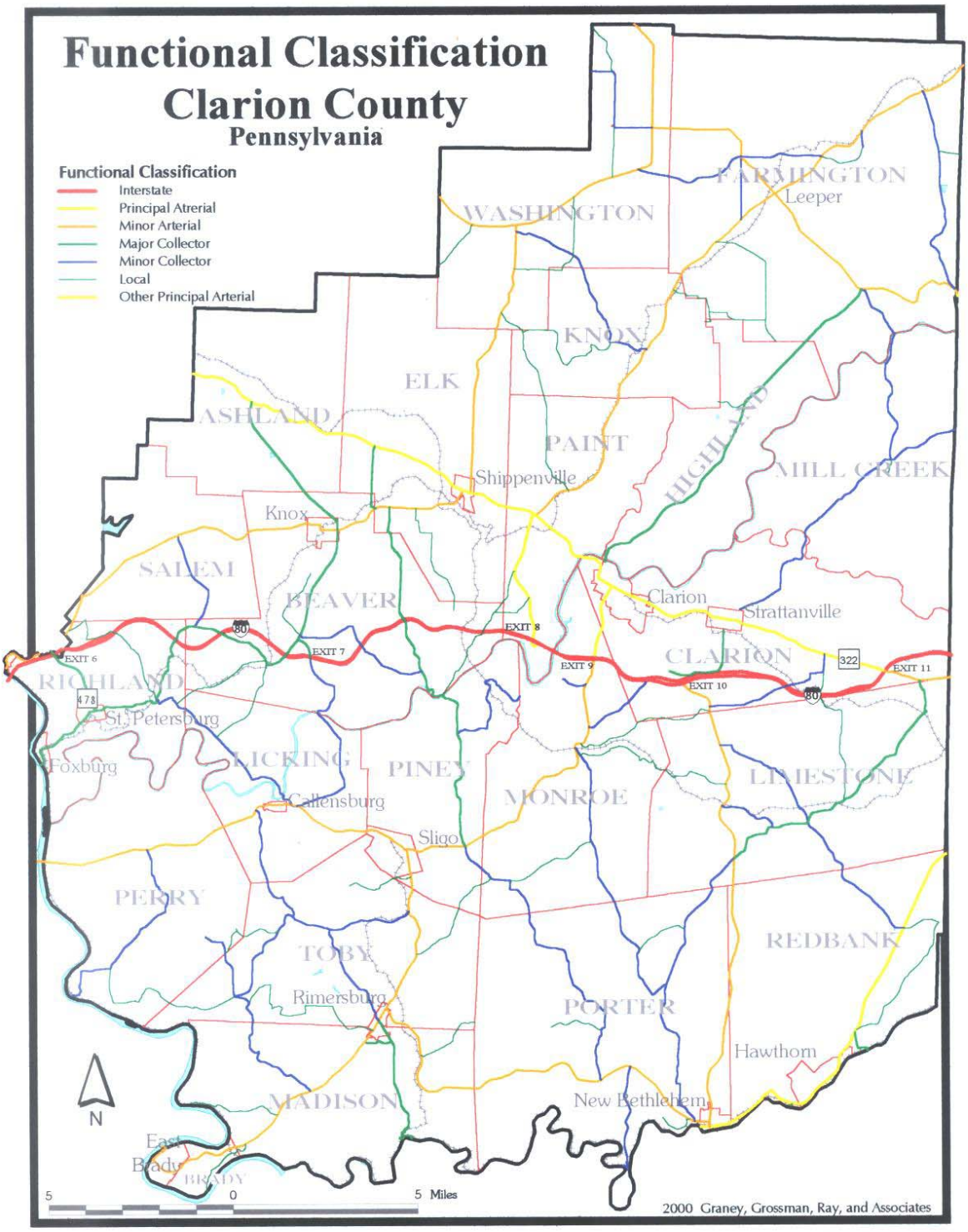
Interstate Route 80: The primary east-west route through Clarion County. I-80 functions as a direct, non-stop route through Clarion County; as well as a convenient roadway for intra-county traffic moving between the east and west edges, and center, of Clarion County. It also directly links to north-south Interstate Route 79 in Western Pennsylvania.

Annual average daily traffic (AADT) on I-80 in Clarion County ranges from 21,872 (31 percent truck traffic) to 24,816 (43 percent truck traffic). The lower range occurs as through traffic in rural areas of the roadway. The higher end of the range occurs near urban areas such as Clarion, as well as between or after locations where other major roadways (such as Route 322 or Route 66) intersect I-80.

Route 322: Classified as a principal arterial, Route 322 is the second most important east-west route through Clarion County and serves as Clarion Borough's main street. With one end of this road in Cleveland and the other in Philadelphia, the road has been called the "Lakes to Sea" highway. West destinations include Franklin, Meadville, and I-79. Route 322 Joins I-80 near the eastern boundary of Clarion County and shares roadway through Jefferson County. Penn DOT just completed a major alignment.

AADT begins at 3,720 (6 percent truck traffic) where Route 322 enters Clarion County in the west. It then increases to 9,623 (8 percent truck traffic) after the intersection with Route 208 in Shippensville, and 11, 985 (4 percent truck traffic) after the intersection with Route 66. The AADT then drops to 3,939 (7 percent truck traffic) on the east side of Clarion and Strattanville.

Route 66: A north-south road, it is primarily a minor arterial through Clarion County. However, one segment is a principal arterial, between Route 322 and I-80. From the northeast corner of Clarion County, Route 66 passes north of Cook Forest State Park,


Functional Classification
Clarion County
Pennsylvania
Functional Classification
Interstate
Principal Atrerial
Minor Arterial
Major Collector
Minor Collector
Local
Other Principal Arterial
WASHINGTON
FARMINGTON
Leeper
KNOX
ELK
ASHLAND
PAINT
HIGHLAND
MILL CREEK
Shippenville
Knox
SALEM
BEAVER
Clarion
Strattanville
EXIT 6
EXIT 7
EXIT 8
EXIT 9
EXIT 10
EXIT 11
80
322
478
CLARION
RICHLAND
St. Petersburg
Foxburg
LICKING
PINEY
MONROE
LIMESTONE
Callensburg
Sligo
PERRY
TOBY
REDBANK
Rimersburg
PORTER
Hawthorn
New Bethlehem
MADISON
East Brady
BRADY
N
5
0
5 Miles
2000 Graney, Grossman, Ray, and Associates

crosses Route 322 and joins I-80 at Exit 8. Route 66 then shares the roadway with I-80 for 5 miles to the east before it splits off again and heads southeast to New Bethlehem.

AADT generally increases for Route 66 as it moves closer to the Borough of Clarion and I-80. In the north, the AADT begins at 2,916 (10 percent truck traffic) at the County line then increases to 6,839 (8 percent truck traffic), nearing its intersection with Route 322. In the south, the AADT increases from 3,243 (13 percent truck traffic) to 5,668 (9 percent truck traffic) near I-80.

Route 68: Primarily a minor arterial starting at East Brady in the southwest corner of Clarion County, Route 68 heads northeast through Rimersburg, junctions with I-80 at Exit 9 and intersects Route 322 at the Borough of Clarion. Between I-80 and the City of Clarion, Route 68 is classified as a principal arterial.

The AADT ranges from 2,092 (9 percent truck traffic) in rural Madison Township, to 7,388 (6 percent truck traffic) in East Brady, and 5,573 (9 percent truck traffic) nearing I-80. Of note is the increase of truck traffic to 13 percent between Rimersburg and Sligo.

Route 208: Generally paralleling I-80 from Grove City in the west, Route 208 moves away from I-80 upon entering Clarion County. This minor arterial heads northeast through Knox, crosses Route 322 at Shippenville, and ends at its intersection with Route 36.

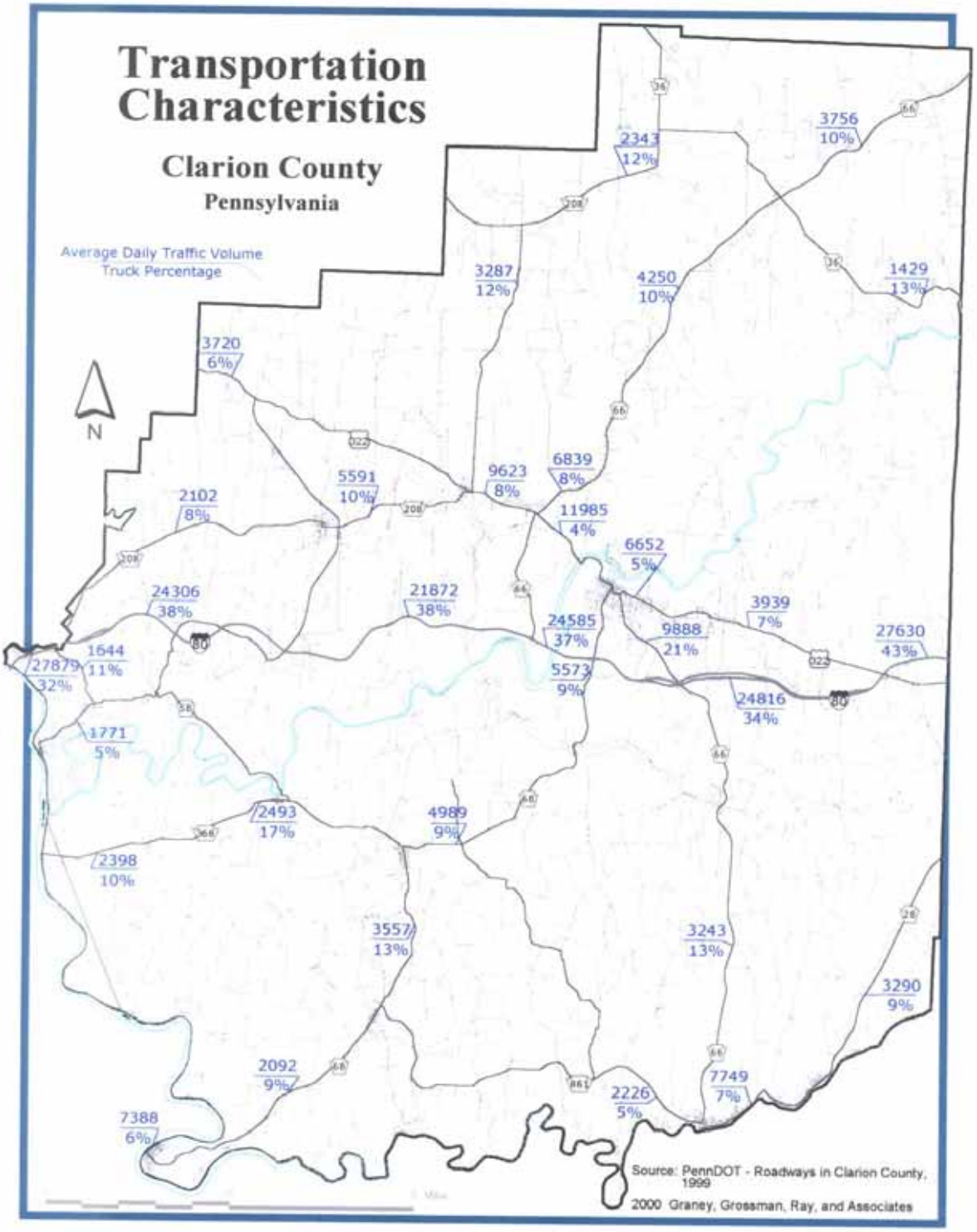
Its traffic count is at its highest between Knox and Shippenville at 5,591 (10 percent truck traffic). This decreases to 2,102 (8 percent truck traffic) southward in Salem Township, then to 2,343 (12 percent truck traffic) northward in Washington Township.

Route 36: Traversing the northeast corner of Clarion County, this minor arterial runs northwest to southeast. Route 36 enters from the Titusville area, which then continues on to bisect Cook Forest State Park and crosses I-80 in the Brookville area.

East of Route 66, AADT on Route 36 is at a low of 1,429 (13 percent truck traffic). To the west of Route 66, especially between this intersection and the intersection with Route 208, traffic counts are at the highest at 3,032 (15 percent truck traffic).

Route 861: Located in the southern part of Clarion County, Route 861 connects Route 66 and Route 68. This route is also classified as a minor arterial. The AADT ranges from 1,118 (14 percent truck traffic) near Rimersburg, to 2,226 (5 percent truck traffic) near New Bethlehem.

The County of Clarion has responsibility for the Millcreek Bridge and shares ownership of the Climax Bridge with Armstrong County. Millcreek has a reinforced concrete deck set on steel I-beam stringers. Overall, it is in good condition though it could use painting,


Transportation Characteristics
Clarion County
Pennsylvania
Average Daily Traffic Volume
Truck Percentage
N
2343 12%
3756 10%
3287 12%
4250 10%
1429 13%
3720 6%
6839 8%
9623 8%
5591 10%
2102 8%
11985 4%
6652 5%
24306 38%
21872 38%
24585 37%
3939 7%
9888 21%
27630 43%
1644 11%
27879 32%
5573 9%
24816 34%
1771 5%
2493 17%
4989 9%
2398 10%
3557 13%
3243 13%
3290 9%
2092 9%
7749 7%
2226 5%
7388 6%
Source: PennDOT - Roadways in Clarion County, 1999
2000 Graney, Grossman, Ray, and Associates

guide rails, and improved riprap protections. Physically, the facility is 71 feet, 9 inches long and has a cartway width of 16 feet.

The Climax Bridge, in Porter Township, spans Redbank Creek, and is owned jointly with Armstrong County. Built in 1898, the bridge is 253 feet long with a roadway width of 11 feet, 1-1/2 inches. The bridge is constructed of cut-stone piers, concrete abutments, and a steel grid deck. This bridge is slated for replacement in 2005. Engineering work should be completed in one to two years.

Rail

The Knox and Kane Railroad in northern Clarion County, the only current operating rail line in the County, is used solely for freight traffic. Twenty miles of the 70-mile Knox and Kane freight line are located in Clarion County. There is currently no regular rail traffic on the Knox and Kane freight line. Traffic is sporadic, and track use is as needed by the Temple-Inland Company, a manufacturer of fiberboard.

Transit

On August 28, 2000, a bus transit system commenced operation within the Clarion Borough area. Two 26-foot, low-floor, Orion 2 model buses, with a 25-seated (plus standees) passenger capacity, operate seven days a week. They currently follow a fixed route that includes Clarion University, Clarion Borough, and the Clarion Mall (including access to Interstate Route 80). Students and seniors will receive free access to the bus system, while other passengers will be required to pay a $1.00 one-way full fare. The bus transit system is currently operated by the Area Transportation Authority (ATA) in Ridgway, Pennsylvania. Clarion County is outside of the ATA's six-county regional operating area; however, they are overseeing the Clarion bus operation as an outside sub-contractor.

Clarion University has 6,000 students, 4,000 of which live off campus. These off-campus students flood streets and available parking areas with large numbers of personal vehicles. To alleviate this prevailing parking problem, the Borough and University are

embarking on a plan to restrict street and encroachment parking problems by assigning vehicles to designated parking lots, and encouraging student and resident use of public transit. In addition to providing a more economical and environmentally friendly transportation option, the hopeful decrease in student vehicles will open up current parking lots for development in a land-locked community where little other land is available.

This project, along with initial seed money funding, was instigated by Clarion University and the Student Government Association (SGA). During the 1999-2000 school year, the SGA voted to raise the Student Activity Fee by $10.00 per student. Of this increase, $5.00 per student was used as project seed money. The ATA then followed up as subcontractors by applying and receiving demonstration project status and funding from the Pennsylvania Department of Transportation's Bureau of Public Transport.

Air: The Clarion County Airport is operated by an authority that employs a full-time manager. It is classified as a public (business) airport. The facility's land field is 4,100 feet long, and it has three approaches. Visual clearance must be 462 feet (elevation) and one mile (horizontal) for landing.

The airport has about 8,000 operations per year, consisting of business and personal (recreational) use. There are no scheduled commercial flights. In addition to engine gas-fueled airplanes, small corporate jets can be accommodated. When the proposed project to extend the runway to 5,000 feet is approved, larger jet aircraft will be able to land.

Beyond its runways and taxi areas, the airport has a terminal building, four hangers, and both gas and jet fuel sales. Currently, about 25 airplanes and one helicopter are housed here.

Airport officials list their priority needs as:

- Runway extension to 5,000 feet
- Pubic water and sewer services
- Airport zoning protection

In addition, there is an ongoing program to continually maintain and upgrade the facility.

This is a good-looking, well-maintained resource.

HOUSING

CLARION COUNTY
HOUSING

Housing statistics and analysis are an integral part of any comprehensive plan; just as housing is an integral part of every community. Information used in this section was gathered from a variety of sources. This included contact with real estate offices, the Clarion County Housing Authority, and nonprofit housing operators. Most of the Countywide housing statistics used in this report are taken from the 1990 Census of Population and Housing prepared by the U.S. Bureau of the Census. The year 2000 Census data have not yet been released as of the publication of this Plan and are not expected for several months.

This Housing Report provides useful information on the current housing stock and possible future housing trends in Clarion County. This data will help Clarion County preserve the current positive elements of its housing, as well as promote and develop improvements over current problems.

CENSUS DATA: The following topics are from Census Reports:

Housing Type: Table H-1 shows that the total number of housing units in Clarion County increased by 822 (4.8 percent), from 17,200 in 1980 to 18,022 in 1990. The majority of this total is single-family detached units (70.7 percent); followed by mobile homes (17.1 percent), and a variety of multiple family dwellings (10.0 percent). "Other" units (1.7 percent) and single-family attached units (.50 percent) round out the total.

TABLE H-1
CLARION COUNTY HOUSING UNITS

	1980	1990	+/-	Percent Change
Total Number of Housing Units	17,200	18,022	+822	+4.8%
Types of Housing Units	**Number**		**Percent**	
Single Family	12,839		71.3%	
Detached		12,741		70.7%
Attached		98		0.50%
Multiple-Family	1,804		10.0%	
2 Units		557		3.1%
3 or 4 Units		408		2.3%
5 to 9 Units		391		2.2%
10 to 19 Units		192		1.1%
20 to 49 Units		123		0.70%
50 or More Units		133		.70%
Mobile Homes	3,072		17.1%	
Other	307		1.7%	
Source: U.S. Census 1980 and 1990				

Tenure: Of the total occupied housing units in Clarion County, 72.5 percent are owner-occupied. In this regard, Clarion County compares favorably to the Commonwealth of Pennsylvania, which has 70.6 percent owner-occupied housing units.

Generally, the higher this percentage, the better, as owner-occupied units are usually an indication of a population with a sense of community, place and proprietorship. However, an adequate number of rental units are needed to attract new families who require rental housing until job and community stability are established. In addition, very young, or old, couples and families often opt for rental units.

Finally, the presence of a large university, such as Clarion, increases the demand for rentals. Students, transient instructors, and staff create a demand. Clarion Borough and Township, where university facilities are located, comprise only 18 percent of the County's housing stock, but have 35 percent of all rental units in Clarion County. See Table H-2 for the data concerning housing tenure.

TABLE H-2

	Total Occupied	Owner-Occupied	% Owner-Occupied	Renter Occupied	% Renter Occupied
Clarion County	**14,990**	**10,870**	**72.5%**	**4,120**	**27.5%**
Pennsylvania	4,495,966	3,176,121	70.6%	1,319,845	29.4%
Source: U.S. Census					

Affordability: Housing affordability is no longer just a problem for low-income individuals. Many working class persons such as secretaries, retail workers, and small business-owners are caught in the middle of rising costs of living and unstable wages. Table H-3 compares median monthly rent for Clarion County and the State. The statistics show that Clarion County median rents are about one third less than State median rents. Table H-4 compares median values of owner-occupied housing units for Clarion County and the State. The statistics are similar to the median rent statistics in that Clarion County median values are about one third less than State median values.

TABLE H-3
MEDIAN MONTHLY RENT

	Dollars ($)
Clarion County	**$209**
Pennsylvania	$322
Source: U.S. Census	

A more detailed analysis of housing affordability requires the inclusion of median-household and median-family incomes. The "Housing Affordability Index" results from comparing median housing costs with median incomes.

TABLE H-4
MEDIAN OWNER-OCCUPIED HOUSING UNITS VALUES

	Dollars ($)
Clarion County	**$46,200**
Pennsylvania	$69,700
Source: U.S. Census	

Rental unit index numbers were determined by multiplying the median monthly contract rent by 12 (months in a year) and then dividing the result by the median household or family income. Purchase unit index numbers were determined by dividing the median value of housing units by the median household or family

income. Within each housing category (purchase or rental), lower index numbers indicate greater affordability.

Based on the above calculations, rental and purchase units are more affordable in Clarion County than in the State for both households and families. See Table H-5 and Table H-6 for affordability indexes based upon median household income and median-family income, respectively.

TABLE H-5
HOUSING AFFORDABILITY INDEX
(BASED UPON MEDIAN HOUSEHOLD INCOME IN 1989)

	Rental Units	Purchase Units
Clarion County	11.6	2.1
Pennsylvania	13.3	2.4
Source: U.S. Census data and consultant computations		

TABLE H-6
HOUSING AFFORDABILITY INDEX
(BASED UPON MEDIAN FAMILY INCOME IN 1989)

	Rental Units	Purchase Units
Clarion County	9.5	1.7
Pennsylvania	11.1	2.0
Source: U.S. Census data and consultant computations		

Occupancy: Vacancy rates can indicate a number of different things. High vacancy rates may be due to a low housing market, or a decline in the condition of available housing stock. Low vacancy rates may be due to a lack of available housing and/or a significant growth in population. Table H-7 compares the number and percent of vacant units for Clarion County and the State.

TABLE H-7
VACANCY

	Total Number of Units	Total Occupied	% Occupied	Total Vacant	% Vacant
Clarion County	**18,022**	**14,990**	**83.2%**	**3,032**	**16.8%**
Pennsylvania	4,938,140	4,495,966	91.0%	442,174	9.0%
Source: 1990 U.S. Census					

The statistics show that Clarion County has almost twice as many vacant units (by percentage) as the State does. Of these vacant units (Table H-8), 69.8 percent were seasonal, 3.5 percent are rented or sold but not occupied, and 13.4 percent were "other vacant." This left 402 units, or 13.2 percent, of the total vacant units available for occupancy. This converts to 2.2 percent of Clarion County's total

number of housing units being available for occupancy in 1990.

TABLE H-8
STATUS OF VACANT HOUSING UNITS

	Number	Percent
For Rent	252	8.5%
For Sale	150	4.9%
Rented or Sold, Not Occupied	107	3.5%
Seasonal	2,117	69.8%
Other	406	13.4%
Source: 1990 U.S. Census		

As a vacancy rate of approximately 5 percent is generally needed to satisfy short-term housing demand; 2.2 percent availability indicates a shortage of housing within Clarion County. However, due to the amount of time that available units have been vacant, it does not seem that there was a great demand for housing at that time. Table H-6 shows that one half of all "for rent" units, and two thirds of all "for sale" units, had been vacant for "6 or more months."

Age of Housing: The Census reports figures on the year homes were built. Generally, homes built before 1940 are classified as old units, while those constructed in the past 60 years, are considered more contemporary. Though older units are not necessarily in poor repair, there is often a link between age and housing quality. Some 36 percent of Clarion's housing units were constructed prior to 1940.

PRIVATE MARKET: Though statistical data is important, it is only part of the picture. Also, due to the age of information, it is well to obtain more contemporary information. Consequently, real estate offices were contacted to develop a more contemporary picture. The current status of the Clarion County private housing market varies with location. In general terms, the area along Route 322 and I-80 in the vicinity of Clarion Borough is very good, while homes in the more rural areas are apt to both sell at a lower price and be on the market for a longer time. Real estate sources report that a home that may sell for $20,000 to $30,000 in the Rimersburg area would be worth $60,000 in the Clarion Borough market.

Obviously, the presence of the University and its economic impact is seen in the sale housing market place. And, that impact extends to the rental market. As is the case with sales, housing rents will vary. Family housing rents in the County will vary from $400 to $550 a month, depending on condition, location, and the number

of bedrooms. In the more rural areas, even more economic rents may be had. One market segment is particularly active; student housing can be particularly lucrative. Rather than a $400 to $575 monthly rent, student rentals can bring as much as $1,200 per month.

New housing is built predominantly in suburban locations, with the Clarion Borough area again the most popular. New home sizes range from 2,500 to 7,500 square feet. Local sources report material costs in particular are very high and contribute to the ever-increasing cost of new homes in the County.

New rental units are popular in the Clarion Borough area, usually in the townhouse design. However, the limits placed on the area's sewer facilities are somewhat of a limit on such developments.

Assisted Housing: According to available data, there are more than 800 rental units in Clarion County that receive some type of governmental assistance. This means that about one in five County rental units are subsidized. Tenant households must meet income eligibility criteria. Somewhat over half of these rental units are located in project complexes. These were funded by HUD or USDA and include both family and elderly facilities. Of the project type units, about 250 are for elderly residents, approximately 180 are family units, and the balance handicapped accessible (see Table H-9). Though many of these units are owned and operated by the Clarion County Housing Authority, a significant number have been developed by the private sector or nonprofit sponsors

TABLE H-9
RENTAL UNITS – CLARION COUNTY

City/ Location	Development Address	Zip Code	Phone	Total Units	Elderly	Family/ General	Accessible
Clarion	Hillside Apartment* Robinwood Drive	16214	814-226-8910	64	0	64	0
	Liberty Towers 624 Liberty Street	16214	814-226-9473	49	44	0	5
	Penn Court Apartments* 144 Penn Avenue	16214	814-226-8910	40	0	38	2
East Brady	East Brady Boro Heights Broad Street	16028	724-526-5736	80	74	0	6
	Riverview Apartments Broad and First Streets	16038	724-526-5253	18	16	0	2
Knox	Edenburg Court* White Street	16232	814-226-8910	30	26	30	4
	Knox Village R.D. 2	16232	814-797-1023	32	0	28	2
	Pinehurst 429 Grand Avenue Extension	16232	814-226-6192	30	0	0	2
New Bethlehem	Broadwood Towers 400 Broad Street	16242	814-275-4000	65	60	0	5
Rimbersburg	Cherry Run* Cherry Street	16248	814-226-8910	24	24	0	0
	Medardo Estates* Atchison Way	16248	814-226-8910	20	0	20	0
Total Projects: 11			**Total Units:**	**452**	**244**	**180**	**28**

Source: PHFA Inventory

The demand for such housing is quite variable. Four projects report waiting lists with up to 21 prospective tenants. However, some of the elderly units are experiencing vacancy problems. Often, these problems are caused by recent openings of newer units in neighboring Armstrong and Butler Counties. East Brady Borough Heights report a recent new complex in Chicora (Butler County) caused a temporary problem. But, this project has extensive tenant services, and the losses were recouped. However, it does appear the assisted elderly housing market in Clarion County is at, or near, saturation.

In addition to the project units, the Clarion County Housing Authority has a Section 8 available. Section 8 is a HUD program that provides rental assistance for eligible households in the private market. Originally, this program was project-

based – that is, a private-sector development was certified for Section 8, or the program operated on a voucher basis. Vouchers were awarded to income-eligible households and the household could retain the voucher even if they moved. Of course, rental units under the Section 8 program must meet certain standards. In addition, they are limited geographically, usually to a single county or contiguous counties.

More recently, the Section 8 program is moving toward a "tenant-based assistance" philosophy. In fact, after October of 2001, all Section 8 assistance will be "Housing Choice Vouchers," and the certificate program will be phased out.

The Clarion County Housing Authority personnel report they currently have some 443 "Section Eight" certificates or vouchers. Of these, 90 are certificates and 342 Housing Choice Vouchers. Included in the Section 8 inventory are 11 being used in neighboring Forest County.