

CHAPTER 1 PROJECT AREA CHARACTERISTICS

Project Area

Location

The Lower Crooked Creek watershed is a portion of the 300-square mile Crooked Creek watershed located in Indiana and Armstrong counties. The Lower Crooked Creek watershed drains 101.8 square miles from the confluence with Plum Creek to its mouth at the Allegheny River in Rosston. Lower Crooked Creek flows in a southwestern direction until it reaches South Bend. It changes direction and flows in a northwestern direction. Crooked Creek is a part of Central Allegheny watershed sub-basin of the Ohio River Basin.

Included in this study of the Lower Crooked Creek watershed is the Tub Mill Run watershed. Although Tub Mill Run does not flow into Crooked Creek, it is a neighboring watershed, which local residents and municipalities felt should be included.

Lower Crooked Creek and Tub Mill Run are located in southeastern Armstrong and western Indiana counties and contain portions of the municipalities listed in Table 1-1.

Size

The Lower Crooked Creek watershed is 101.8 square miles and flows through the communities of

Table 1-1. Municipalities of the Lower Crooked Creek and Tub Mill Run Watersheds.

Municipalities	County	Square Miles	% of Watershed
Bethel Township	Armstrong	6.5463	6.32
Burrell Township	Armstrong	21.8221	21.07
Cowanshannock Township	Armstrong	0.0157	0.02
Elderton Borough	Armstrong	0.1695	0.16
Ford Cliff Borough	Armstrong	0.0297	0.03
Kiskiminetas Township	Armstrong	3.2382	3.13
Kittanning Township	Armstrong	16.4638	15.89
Manor Township	Armstrong	8.4654	8.17
Parks Township	Armstrong	0.6184	0.6
Plumcreek Township	Armstrong	22.2285	21.46
South Bend Township	Armstrong	18.0475	17.42
Armstrong Township	Indiana	3.7227	3.59
Young Township	Indiana	2.2183	2.14



Crooked Creek below the outfall of Crooked Creek Lake

Girty, Mateer, Brick Church, and Tunnelville before it joins the Allegheny River in Rosston. The Allegheny River then merges with the Monongahela River in Pittsburgh to form the Ohio River. The Tub Mill Run watershed drains 1.79 square miles beginning in Manor Township flowing in a westerly direction joining the Allegheny River in Rosston. It is less than a mile from Crooked Creek.

Climate

The climate in the Lower Crooked Creek watershed is typical of western Pennsylvania: cold winters and warm summers. In winter months the temperature ranges 24 to 28 degrees Fahrenheit. The summer temperature ranges from 68 to 72 degrees Fahrenheit.

Topography

The entire watershed is located in the Pittsburgh Low Plateau section of the Appalachian Plateaus Physiographic Province. High hills, sharp ridges and narrow valleys characterize the Lower Crooked Creek watershed. It has a dendritic (or branching) drainage pattern. Natural stream flow and water quality characteristics have been greatly modified by oil, gas, and coal extraction activities and other human impacts.

Major Tributaries

There are twelve named tributaries entering the Lower Crooked Creek watershed. The Pennsylvania Department of Environmental Protection (DEP) has designated all but one as warm water fisheries. The major tributaries will be discussed in the water resource chapter.



Horney Camp Run, a tributary to Crooked Creek

Socioeconomic Profile

Demographics and Population Patterns

The population of the Lower Crooked Creek and Tub Mill Run watersheds was calculated using data from the US Census Bureau. The population per square mile and the square miles of each municipality within the watersheds were used to calculate the population in Table 1-2.

Table 1-2. Population and Population Changes in the Lower Crooked Creek and Tub Mill Run Watersheds.

Municipalities	Population in 1990	Population in 2000	Population Change
Armstrong County			
Bethel Township	540	553	13
Burrell Township	736	749	13
Cowanshannock Township	1	1	0
Elderton Borough	228	219	-9
Ford Cliff Borough	181	168	-13
Kiskiminetas Township	433	393	-40
Kittanning Township	1238	1264	26
Manor Township	2290	2152	-138
Parks Township	123	121	-2
Plumcreek Township	1260	1209	-51
South Bend Township	1038	1003	-35
Indiana County			
Armstrong Township	301	305	4
Young Township	115	111	-4

The largest population concentration is located in the northern portion of the watershed in Manor, Kittanning, and Plumcreek Townships. Much of the population found in the watershed is rural.

Between the 1990 and 2000 census, the population in the watershed has decreased by 236 people. The largest change occurred in Manor Township with a decrease of 138 residents.

Future planning efforts need to be made to keep young adults in the area. The Lower Crooked Creek and Tub Mill Run watersheds suffer similar consequences of professional migration as the rest of the commonwealth. Keeping young

adults is difficult because of the lack of professional opportunities. Incentives for keeping young adults in the area are needed for the future of the watersheds.

Land Use Planning and Regulation

Only one in 13 municipalities in the watershed are using land use regulation powers. The only municipality within the watershed that has land use regulation is Kiskiminetas Township in Armstrong County. It currently has a municipal comprehensive plan, a joint municipal comprehensive plan, and zoning ordinances. Although development pressure has not been a major issue, municipalities without formal plans may be vulnerable to undesirable land uses through uncontrolled industrial, commercial, or residential development.

Municipalities should consider implementing cooperative land use strategies to improve their quality of life. They should also consider initiating Smart Growth practices when development issues are being addressed in their municipalities. Some strategies they may want to consider are:

- Mixing land use
- Taking advantage of compact building designs
- Creating a range of housing opportunities and choices
- Creating walkable neighborhoods
- Fostering distinctive, attractive communities with a strong sense of place
- Preserving open space, farmland, natural beauty, and critical environmental areas
- Strengthening and directing development toward existing communities
- Making development decisions predictable, fair, and cost effective
- Encouraging community and stakeholder collaboration in development decisions.

The Armstrong County Planning Department completed its first county comprehensive plan in 2003. Indiana County began updating its county comprehensive plan in 2003 with an expected completion date of 2004.

Utilities and Infrastructure

Sewage and Wastewater

In 1996 the Pennsylvania Sewage Facilities Act, Act 537, was revised to correct existing sewage disposal problems and prevent future problems. With the passing of the act all municipalities were required to develop and implement a plan addressing current and future sewage disposal needs. Although each municipality has developed a plan, only one of the municipality plans was developed after the 1996 revision of the act. Ten of the 13 municipality plans are currently over 20 years old. More information on sewage and wastewater is located in the water resource chapter.

Water

Infrastructure is important in the development and redevelopment of communities. In addition to sewage treatment, clean water is very important. The drinking water for the majority of residents comes from private sources. Several urbanized areas have public water supplies. More information on drinking water is located in the water resource chapter.

Transportation

Airports

There are no airports within the watershed. The only major international airport in close proximity is Pittsburgh International Airport. There are regional airports in Punxsutawney, McVille, and Indiana.

Roads

State highways and secondary roads provide automobile access to Lower Crooked Creek watershed. There are no interstate or turnpike routes. State Routes 56, 66, 156, 210 and US Route 422 are the major roads traversing the watershed. Traveling together, Routes 56 and 156 run east to west through the southern portion of the watershed in Armstrong, South Bend, and Kiskiminetas Townships. Route 210 travels along the eastern edge of the watershed in a north to south direction from Elderton Borough to South Bend Township. Route 66 also travels north to south through portions of Bethel and Manor Townships. US Route 422 travels east to west and crosses the watershed in Kittanning and Plumcreek Townships.



A secondary road located in the Lower Crooked Creek watershed

There are 978 miles of secondary roads in the watersheds. The majority of the roadways in the watershed are secondary roads. Many of these secondary roads are dirt and gravel roads or unimproved roads.

Railroads

There are two rail lines existing in the watersheds. The Keystone Generating Station has a private spur from a Norfolk Southern line located outside the watershed in Armstrong Township. The second rail line is an abandoned rail line running through the Tub Mill Run watershed. The Norfolk Southern Railroad Company also owns this line.

Economy and Major Sources of Employment

Table 1-3 shows the breakdown of employment within Armstrong County in 2000. The largest employment sector for the county was manufacturing at 21.7%, with education, health and social services not far behind at 19.5%. The county has a good variety of industry spread throughout the entire county, leaving it less susceptible to changing economic conditions.

Table 1-3. Breakdown of employment in Armstrong County by industry. (Source: US Census Bureau, 2000)

Industry	Absolute Employment	Percent
Agriculture, forestry, fishing, hunting, and mining	1,279	4.2
Construction	2,146	7.1
Manufacturing	6,586	21.7
Wholesale trade	903	3
Retail trade	3,792	12.5
Transportation and warehousing, and utilities	2,072	6.8
Information	533	1.8
Finance, insurance, real estate, and rental and leasing	1,006	3.3
Professional, scientific, management, administrative, and waste management services	1,473	4.9
Educational, health, and social services	5,914	19.5
Arts, entertainment, recreation, accommodation and food service	1,967	6.5
Public administration	911	3
Other services	1,726	5.7

The Pennsylvania Electric Company Keystone Generating Site, located in Plumcreek Township, is the only major employer in the watershed, according to Southwestern Pennsylvania Commission (SPC). A major employer is designated as a company having a minimum of 200 employees.

In October 2003, the unemployment rate of Armstrong County was six and two tenths percent. The county's average income in 2000 was \$38,872, according to the U.S. Census Bureau.

Education

There are portions of four school districts located within the Lower Crooked Creek and Tub Mill Run watersheds (Table 1-4, Figure 1-7). The Apollo Ridge School District is located in the southwestern portion of the watershed with six schools and an enrollment of 1,645 students [Pennsylvania Department of Education (PDE) 2003]. The Armstrong School District covers the majority of the watershed and has 11 schools with 6,539 students (PDE 2003). The Indiana Area School District is located in the Armstrong Township portion of the watershed. It is composed of six schools with an enrollment of 3,312 students (PDE 2003). The Kiski Area School District, primarily located in Westmoreland County, reaches into the Parks Township portion of the watershed. Few of the 4,477 students in the school district reside in the watershed (PDE 2003).

Table 1-4. School Districts Located in the Watershed

School Districts	Location	Enrollment
Apollo Ridge School District	Kiskiminetas Township, Young Township	1645*
Armstrong School District	Bethel Township, Burrell Township, Cowanshannock Township, Elderton Borough, Ford Cliff Borough, Kittanning Township, Manor Township, Plumcreek Township, and South Bend Township	6539*
Indiana Area School District	Armstrong Township	3312*
Kiski Area School District	Parks Township	4477*

* Enrollments listed are the common enrollments for the entire school district, not just the project areas.

Management Recommendations:

Economics

- Offer incentives to help keep young adults in the area.
- Encourage industries to redevelop abandoned industrial sites in the watershed instead of developing new sites.
- Increase maintenance on roadways in the watershed, especially those used heavily by the trucking industry.

Education

- Conduct workshops, seminars, and demonstrations for decision-makers, from developers to government leaders, emphasizing best management practices.
- Increase municipal awareness and cooperation for preserving, protecting and restoring the natural resources of the watersheds.
- Host workshops educating and encouraging municipal officials within the watersheds to create, review, update, and enforce ordinances contained in watershed plans.

Education (continued)

- Conduct education and awareness programs focused on altering negative perception of zoning.
- Conduct public education and awareness programs about the economic benefit and importance of watershed protection.
- Identify additional funding for environmental education.

Land Use

- Delineate and protect critical and environmental sensitive areas with land use regulation.
- Designate growth and conservation areas based upon data analysis from the county comprehensive plans and the Lower Crooked Creek Watershed Conservation Plan.
- Encourage municipalities to use regulation control powers available to them including zoning to protect the quality of life in the watershed.

Other

- Encourage elected official support for watershed remediation and project enhancement.

Planning

- Encourage municipalities to develop joint municipal comprehensive plans.
- Encourage municipalities to consider smart growth principles when planning for development.
- Encourage municipalities to establish individual or joint environmental advisory councils.