Blair County Tributary Strategy

Preface

The Blair County Conservation District, with this document has attempted to identify stressors and formulate a strategy for the protection, preservation or enhancement of our County's natural resources. This document will also serve to solidify and formulate targets identified in the District's Strategic Plan adopted in June of 2002 and updated annually.

Priorities within Blair County remain targeted toward Agriculture as the Number 1 Industry in the County. It is anticipated that the initial funding associated with this strategy will be utilized to enhance existing efforts within the Piney Creek Watershed. Second priority would be to focus on our efforts to address Abandoned Mine Drainage, specifically within the Sugar Run Watershed. An assessment of this watershed has been completed and specific areas have been identified and quantified. Thirdly, we recognize that Urban Erosion and the potential for pollutants in an urbanizing setting must be considered when looking at the overall health of our resources. Although specific funding is not being requested at this time, we will continue to seek opportunities through funding, education and regulation to limit pollution sources from urban areas.

It became evident via this exercise that field verifiable, digital information (location of impairments, practices and projects) is needed and will be sought in an effort to track the progress of this Tributary Strategy. This digital information will serve as the groundwork for future updates to this strategy and future assessments within our watersheds.

This document is a product of the Blair County Conservation District, and reflects the superior knowledge base and well documented teamwork of all Blair District Personnel! Special thanks are to be given to Rich Huether, Agricultural Conservation Specialist and Jim Eckenrode, Watershed Specialist for the final preparation of the document.

Blair County Tributary Strategy and Implementation Plan

February 2005

The Blair County Conservation District, with this document has attempted to formulate a strategy for the protection, preservation or enhancement of our County's natural resources. Natural resource issues such as water quality, stormwater management, better land use planning and farmland and open space preservation were documented as issues important to Blair County citizens in a recent series of Public Meetings held in the spring of 2003 in conjunction with the revision to the County's Comprehensive Plan (summary of public comments found in Appendix A). This document will also serve to solidify and formulate targets identified in the District's Strategic Plan adopted in June of 2002.

INTRODUCTION

Blair County (Census 2000 population 129,144) is located in southcentral Pennsylvania. It is bordered by Centre County to the north, Huntingdon County to the east, Bedford County to the south and Cambria County to the west. On February 26, 1846, Blair County became the fifty-ninth county (from parts of Bedford and Huntingdon Counties) in the Commonwealth, with Hollidaysburg established as the County Seat. The surface area of the county is 530 square miles or 339,200 acres. Blair County includes the City of Altoona (pop.49,523), fifteen Townships and eight Boroughs. The major transportation routes in Blair County include Interstate 99, which runs in a north/south direction and US Route 22 which runs in an east/west direction.

The county in its entirety is part of the Susquehanna River Basin and is drained primarily by two tributaries of the Juniata River: the Frankstown Branch and the Little Juniata. Altoona sits at the base of the Allegheny Plateau, with the Allegheny Front extending westward. The Front serves as the dividing line between the Susquehanna River Basin and the Ohio River Basin. Therefore, the western boundary of Blair County is part of the Continental Divide, separating waters flowing eastward toward the Susquehanna and ultimately into the Chesapeake Bay, from waters flowing westward toward the Ohio and ultimately draining into the Gulf of Mexico. There are 6 streams within Blair County categorized as High Quality (HQ) Waters according to Chapter 93 Water Quality Standards and are listed as follows: Mill Run (basin source to Allegheny Reservoir), Canoe Creek, Piney Creek, Clover Creek, Tipton Run and Big Fill Run (T-606 Bridge to mouth). Big Fill Run (Source to T-606 Bridge) is the only stream segment in the County classified as Exceptional Value (EV). HQ waters are defined as a stream or watershed which has excellent quality waters and environmental or other features that require special water quality protection. EV waters are defined as a stream or watershed which constitutes outstanding national, state, regional or local resources.

The majority of the county is in the Valley and Ridge physiographic province; the western third is in the Appalachian Plateau physiographic province. The Valley and Ridge province forms a series of parallel valleys oriented northeast-southwest, while the Appalachian Plateau province has high rounded ridges and stream-dissected valleys. The elevation in the county ranges, from a high of about 3,000 feet in the southwest corner, to a low of 720 feet where the Juniata River crosses into Huntingdon County. The alternating ridges and valleys define the landscape and, in part, the cultural and economic history of the county. The linear valleys, with their rich limestone soils, serve the **agricultural industry, which has been historically and remains the leading industry in Blair County**. In contrast, the primarily wooded slopes of the ridges, along with the western area in the Plateau Province provides for a significant amount of woodland within Blair County. According to the USDA Forest Service Inventory and Analysis (1989), just over 64% (216,500 acres) of the county is forested. The dominant forest types include oak/hickory, northern hardwoods, oak/pine and white/red pine. The forest land in Blair County, with the exception of State Gamelands consisting of 54,474 acres, is primarily privately owned. The land associated with the Allegheny Front along the western boundary of the county also is characterized by the evidence of historical mining endeavors, both for coal and fire clay. Although there is little active mining left in the county, the scars from the late eighteenth and early nineteenth century mining remain as barren lands and polluted waters.

Rocks of Pennsylvanian and Mississippian age are the youngest in the county and outcrop in the Appalachian Plateau province. They are composed primarily of a cyclic sequence of shale, siltstone, sandstone, and some limestone and coal. The dominant soils in this area are of the **Laidig-Hazleton-Clymer** association described as "*Gently sloping to very steep, deep, well drained soils weathered from acid sandstone, quartzite and conglomerate; on broad mountaintops".*

The oldest rocks in the county are in the Valley and Ridge province. The more resistant Ordovician and Silurian quartzites, sandstones, conglomerates, and shales form the ridges and slopes in the province. The soils of the **Laidig-Hazleton-Buchanan** association are dominant on the ridges and listed as "*Gently sloping to very steep, deep, well drained to somewhat poorly drained souls weathered from acid sandstone, quartzite and shale; on mountain ridges and foot slopes*".

The Tuscarora formation (quartzite sandstone) caps several prominent ridge tops in the county-the Bald Eagle, Brush, and Canoe Mountains in the north and central parts of the county and the Lock, Loop, and Dunning Mountains in the southern part. Soils of the **Laidig-Hazleton-Buchanan** association dominate these areas.

Sinking Valley, Canoe Valley, and Morrison Cove are underlain by Cambrian and Ordovician limestone and dolomite. The major soils in these areas are of the **Hublersburg-Murrill-Opequon** ("*Gently sloping to very steep, deep and shallow, well drained soils weathered from limestone and sandstone; on upland valley slopes and mountain foot slopes")* and **Edom-Opequon-Morrison** ("*Gently sloping to moderately* *steep, deep and shallow, well drained soils weathered form limestone, calcareous shale and some sandstone; on ridges and valley slopes")* associations. The long, narrow valley running nearly the full length of the county from Tyrone to Hollidaysburg is composed of Silurian limestone and Devonian shale. The **Morrison** ("*Gently sloping to very steep, deep, well drained soils weathered from fine-grained calcareous sandstone and dolomitic limestone; on upland valley slopes")* association is dominant over limestone, and the **Berks-Brinkerton-Weikert** (*"Gently sloping to very steep, deep to shallow, well drained and poorly drained soils weathered from olive, brown and yellowish brown acid shale and colluvium derived from shale; on ridges, on foot slopes and in drainage ways")* association is dominant over shale. The **Basher-Monongahela-Purdy** (*"Nearly level and gently sloping, deep, moderately well drained to poorly drained soils formed in alluvium from shale and sandstone")* association is on flood plains and terraces in this area. Between the valley and the Allegheny Front lies a band of Devonian shale that also runs the full length of the county. The major soils in this band are in the **Leck Kill-Meckesville-Albrights** ("*Gently sloping to very steep, deep, well drained to somewhat poorly drained soils weathered from acid red shale and sandstone; on ridges foot slopes and in drainage ways")* association and the **Berks-Brinkerton-Weikert**.

Key soil characteristics summary:

- Soils formed from material derived from sandstone/quartzite and sandstone/shale make up approximately 40% of the County. These include Laidig-Hazleton-Buchanan and the Laidig-Hazleton-Clymer Association. Bald Eagle, Brush, Canoe, Lock, Loop and Dunning Mountains are dominated by the Laidig-Hazleton-Buchanan association. The Appalachian Plateau province is dominated by soils in the Laidig-Hazleton-Clymer association.
- Areas dominated by soils formed in shale and from shale/sandstone make up approximately 29% of the County. They include the Berks-Brinkerton-Weikert association and the Leck Kill-Meckesville-Albrights association. The base of the Allegheny Front is dominated by soils in the Leck Kill-Meckesville-Albrights association.
- Areas dominated by soils formed in material from limestone, calcareous shale and sandstone make up 27% of the County. This includes the Hublersburg-Murrill-Opequon association, the Edom-Opequon-Morrison and the Morrison association. These areas include Sinking Valley, Canoe Valley and Morrison Cove.
- Areas dominated by soils from alluvial materials make 4% of the County, and include the Basher-Monongahela-Purdy association. This includes the floodplain and flood terrace areas surrounding the Little Juniata and the Frankstown Branch of the Juniata.

METHODOLOGY

For purposes of this Strategy and Implementation Plan, the county was divided into the 22 watersheds associated with the 14-digit Hydrologic Unit Codes. Each watershed was then identified by location within the county and a listing of the major watercourses and their associated Chapter 93 designation. Land use for each watershed was determined by utilizing aerial photography and digital layering. Land use trends were determined by analysis of past aerial photography, statistical analysis of farming trends reported through the PA Ag Statistic Service (1992 to present), E&S plan review and NPDES permit application number and frequency (2001 – 2004), and review of information gathered for the update to the Blair County Comprehensive Plan. Impairments, either documented via the Departments Listing of Impaired Waters or through completed watershed assessments, or observed through district and cooperating agency involvement in projects and referrals were considered. Finally, a listing of potential BMP's were provided for each watershed, as well as, financial consideration for the repair, protection or enhancement within the watershed.

A summary section was developed to classify and prioritize district staff time and funding opportunities for the county as a whole, presently and for the next 2 to 5 years. County BMP implementation goals and numbers, as provided by the Department, were used to guide our efforts for implementation.

It was determined via this exercise that field verifiable, digital information (location of impairments, practices and projects) will be sought in an effort to track the progress of this Tributary Strategy. This information will serve as the groundwork for future updates to this strategy.

Tributary Strategy - Individual Watershed Outline

Bald Eagle Creek

(HUC: 0205302 050 280)

Location within County and Major Streams:

- Bald Eagle Creek is located in the northern most part of Blair County along the Centre County border
- The Major water courses within the watershed are;
  Sink Run – TSF
  Decker Run – CSF
  Vanscoyoc Run – CWF
  Bald Eagle Creek – TSF
  The Tyrone Reservoirs number 1 and 2 are located within the watershed. Both of these reservoirs are surface drinking water supplies
- Contains portions of State Game Lands 278 and 156
- The watershed encompasses approximately 50% of Tyrone Borough and 70% of Snyder Township
- There is one farm in the watershed that has a conservation easement placed on 73.63 acres.

Land Use Discussion: 18,815 Total Acres

• Agriculture	1,087 ac.	5.8 %
• Forest	15,504 ac.	82.4 %
• Transportation	416 ac.	2.2 %
• Urban	1,798 ac.	9.6 %
• Mining	10 ac.	0.1 %

Land Use Trends:

- Development pressure increasing along the 220 and I-99 corridors
- Most of the agriculture land in the watershed is utilized for non-production ag, or idle land.
- Moderate timber harvesting

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 4: Impaired For One or More Designated Uses, Not Needing a TMDL/TMDL has been Completed

Named Streams: 11A - Bald Eagle Creek Stream Code: 15835 4
Segment ID: 6556
Miles Assessed: 2.12
Data Source: Surface Water Monitoring Program
Source: Industrial Point Source
Cause: Thermal Modifications
Year Listed: 1996
Year TMDL Completed: 1998

Potential Impairments:

- Sediment pollution from dirt & gravel roads
- Sediment pollution from timber harvesting practices

Potential BMP's to address impairments:

- 321 feet of dirt road stabilized through the D&GR program
- 48,265 feet remain unstabilized
- Encourage submittal of erosion and sediment control plans for timber harvesting

Funding needed (if known at this point):

- $306,483 to complete the remaining dirt roads (based on the $6.35 per mile average from '97-'04)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Bald Eagle Creek- Upper Site
Site ID: 15835:15.58:20010724 (896)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.44	8.88	361	0.44	1.17	56.31	26.62

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Lower Bald Eagle Creek
Site ID: 15835:15.58:20010801 (985

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.56	9.05	**288**	0.99	2.63	55.51	38.33

Tributary Strategy - Individual Watershed Outline

Beaverdam Branch

(HUC: 0205302 020 240)

Location within County and Major Streams:

- The Beaverdam Branch is located in the central part of Blair County along the western border with Cambria County
- The Major water courses within the watershed are
  - Sugar Run – CWF
  - Glenwhite Run – CWF
  - Kittanning Run – CWF
  - Burgoon Run – TSF
  - Spencer Run - WWF
  - Mill Run – HQ-CWF / WWF
  - Brush Run - WWF
  - Dry Gap Run – CWF
  - Beaverdam Branch of the Frankstown Branch of the Juniata River – TSF / WWF
  - The Kittanning 1, Kittanning 2, Allegheny, and Mill Run Reservoirs in addition to Lake Altoona are located within the watershed. These reservoirs are surface drinking water supplies
- Contains portions of State Game Lands 279 and 198
- The watershed encompasses approximately 50% of Logan Township, 50% of Allegheny Township and 60% of the City of Altoona

Land Use Discussion: 37,152 Acres

• Agriculture	1,019 ac.	2.7 %
• Forest	21,853 ac.	58.8 %
• Urban	11,671 ac.	31.4 %
• Transportation	2,088 ac.	5.6 %
• Mining	521 ac.	1.4 %

Land Use Trends:

- Majority of Agriculture fields have been sold for development, or are utilized for hay production.
- Development of Hollidaysburg and Altoona are expanding to a majority of the watershed.
- Based on number of erosion and sediment control plans submitted since 2001, this is Blair County's most developing watershed.
- Mining is decreasing, but the effects are still very much a problem.

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 4: Impaired For One or More Designated Uses, Not Needing a TMDL/TMDL has been Completed

Named Streams: 11A - Kittanning Run Stream Code: 16423 6
Segment ID: 2117
Miles Assessed: 3.74
Surface Water Monitoring Program
Source: Abandoned Mine Drainage
Cause: Metals
Year Listed: 1996
Year TMDL Completed: 2001

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Beaverdam Branch Watershed=11A Code:16317
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: Metals
Source: Combined Sewer Overflow
Cause: Organic Enrichment/Low D.O.
Source: Urban Runoff/Storm Sewers
Cause: Cause Unknown

Stream Name: Burgoon Run Watershed=11A Code:16416
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: Metals, pH, Siltation

Stream Name: Burgoon Run (Unt 65035) Watershed=11A Code:65035
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: Metals, pH

Stream Name: Glenwhite Run Watershed=11A Code:16428
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: Metals

Stream Name: Glenwhite Run (Unt 16429) Watershed=11A Code:16429
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: pH, Siltation,

Stream Name: Glenwhite Run (Unt 16430) Watershed=11A Code:16430
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: pH

Stream Name: Glenwhite Run (Unt 16431) Watershed=11A Code:16431
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: Metals

Stream Name: Kittanning Run Watershed=11A Code:16423
Use Assessed: Human Health
Source: Abandoned Mine Drainage
Cause: Salinity/ TDS/ Chlorides/ Metals

Stream Name: Mill Run Watershed=11A Code:16403
Use Assessed: Aquatic Life
Source: Combined Sewer Overflow
Cause: Unknown
Source: Urban Runoff/Storm Sewers
Cause: Unknown
Source: Small Residential Runoff
Cause: Siltation

Stream Name: Scotch Gap Run Watershed=11A Code:16422
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: pH, Siltation

Stream Name: Spencer Run Watershed=11A Code:16378
Use Assessed: Aquatic Life
Source: Small Residential Runoff
Cause: Siltation
Source: Urban Runoff/Storm Sewers
Cause: Siltation

Stream Name: Sugar Run Watershed=11A Code:16389
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: pH, metals

Potential Impairments:

- Sediment pollution from dirt and gravel roads
- Sediment pollution from construction sites
- Urban / stormwater runoff
- Loss of riparian areas and streamside buffers

- Development in floodplains
- Sedimentation, acids, and metals from Abandoned Mines

Potential BMP's to address impairments:

- Stabilization of approximately 35,906 feet of dirt and gravel roads needed
- City of Altoona sweeps approximately 187 acres of paved roadway per year.
- Hollidaysburg Borough sweeps approximately 522 acre of paved roadways per year (approximately 69 acres per month).
- Abandoned Mine Remediation
- Re-establish and protect streamside buffers / riparian areas
- Establish wetland areas, infiltration areas, and bioretention areas to reduce urban stormwater runoff
- Floodplain education

Funding needed (if known at this point):

- $228,003 needed to stabilize the dirt roads (based on the $6.35 per foot average from '97-'04).
- Approximately 2,300,000 for AMD remediation of Sugar Run to reduce acidic, metal and soil erosion influences.

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Sugar Run
Site ID: 16389:6.00:20011204 (871)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.32	9.86	395	4.53	.04	150.95	26.31

EASI Senior Environment Corps
SEC: Blair County
Water Body: Beaverdam Branch
Site ID: 16317:32.30:20010821 (926)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.53	8.62	323	2.83	0.2	116.08	70.54

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Glenwhite Run
Site ID: 16428:4.70:20020607 (1031)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.49	9.5	197	0.27	0.04	124.25	17.5

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Mill Run
Site ID: 16403:6.05:20010808 (898)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.67	9.28	227	1.34	0.11	56	50.63

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Sugar Run
Site ID: 16389:6.00:20011204 (871)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.32	9.86	395	4.53	0.04	150.95	26.31

Tributary Strategy - Individual Watershed Outline

Beaverdam Creek

(HUC: 0205302 010 220)

Location within County and Major Streams:

- Beaverdam Creek is located in the southern most part of Blair County along the Bedford County border
- The Major water courses within the watershed are:
  Smokey Run – CWF
  Boiling Springs Run – CWF
  Pine Run – CWF
  Beaverdam Creek – CWF
- Contains a small portion of State Game Lands 41
- The watershed encompasses approximately 25% of Greenfield Township

Land Use Discussion: 5,978 Acres

• Agriculture	1,650 ac.	27.6 %
• Forest	3,150 ac.	52.7 %
• Urban	971 ac.	16.2 %
• Transportation	175 ac.	2.9 %
• Mining	32 ac.	0.5 %

Land Use Trends:

- Development Pressure along the I-99 and Route 220 corridors, and on the mountain by the Ski Resort.
- Production agriculture decreasing, changing to grassland, beef operations and hobby farms.
- Industry development taking place on farmland.
- Significant timber harvesting
- Development on steep slopes

Identified Impairments (DEP list):

Potential Impairments:

- Sediment pollution from dirt and gravel roads
- Nutrient and Sediment pollution from agriculture
- Sediment pollution from timber harvesting practices

Potential BMP's to Address Impairments:

- 2,433 feet of dirt and gravel roads need stabilized
- Nutrient Management Planning
- Stripcropping
- No-till
- Cover Crops

- Encourage submittal of erosion and sediment control plans for timber harvesting

Funding needed (if known at this point):
- $15,450 needed to stabilize the dirt roadways (based on the $6.35 per foot average from ’97-’04).

Tributary Strategy - Individual Watershed Outline

Bells Gap Run

(HUC: 0205302 050 220)

Location within County and Major Streams:

- Bells Gap Run is located in the northern part of Blair County along the Centre and Cambria County borders
- The Major water courses within the watershed are:
  Green Springs – TSF
  Shaw Run – TSF
  Kelso Run – TSF
  Bells Gap – TSF
  The Bellwood Reservoir is located within the watershed. This reservoir is a surface drinking water supply
- The watershed contains large portions of State Game Lands 108 and 156.
- The watershed encompasses approximately 30% of Antis Township and 40% of Bellwood Borough and a small portion of Snyder Township

Land Use Discussion: 11,273 Acres

• Agriculture	182 ac.	1.6 %
• Forest	10,504 ac.	93.2 %
• Urban	442 ac.	3.9 %
• Transportation	145 ac.	1.3 %

Land Use Trends:

- Some logging occurs in the watershed.
- Moderate increase in development in recent years

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 4: Impaired For One or More Designated Uses, Not Needing a TMDL/TMDL has been Completed

Named Streams: 11A - Bear Loop Run Stream Code: 15978 5
Segment ID: 2060
Miles Assessed: 2.52
Data Source: Surface Water Monitoring Program
Source: Abandoned Mine Drainage
Cause: Other Inorganics, Metals
Year Listed: 1996
Year TMDL Completed: 2003

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Bells Gap Run (Unt 15970) Watershed=11A Code:15970
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: Metals. pH, Siltation

Stream Name: Bells Gap Run (Unt 15973) Watershed=11A Code:15973
Use Assessed: Aquatic Life
Source: Abandoned Mine Drainage
Cause: Metals, pH, Siltation

Potential Impairments:

- Sediment pollution from dirt roads
- Sedimentation, acids, and metals from Abandoned Mines

Potential BMP's to Address Impairments:

- 1,343 feet of dirt roads are unstabilized
- Abandoned Mine Remediation

Funding needed (if known at this point):

- $8,528 needed to stabilize the roadways (based on the $6.35 per mile average from '97 – '04)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Bells Gap Run
Site ID: 15954:25.39:20020603 (1045)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	7.96	9.3	113	0.19	0.14	51.48	13.33

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Shaw Run (#420)
Site ID: 15963:1.52:20040330 (1197)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	8.04	7.78	46	4.56	0.01	51.67	11.67

Tributary Strategy - Individual Watershed Outline

Blair Gap Run

(HUC: 0205302 020 220)

Location within County and Major Streams:

- The Blair Gap Run is located in the central part of Blair County along the western border with Cambria County
- The Major water courses within the watershed are:
  Adams Run – CWF
  Gillans Run - CWF
  Dry Run – WWF
  Blair Gap Run – CWF / TSF
  The Blair Gap 1, Blair Gap 2, Blair Gap 3 reservoirs are located within the watershed. These reservoirs are surface drinking water supplies
- The watershed contains portions of State Game Lands 198
- The watershed also contains portions of US Parks Service land associated with the Lemon House and Portage National Railroad.
- The watershed encompasses approximately 40% of Allegheny Township, 30% of Juniata Township, 100% of Duncansville Borough, a small portion of Tunnel Hill Borough and small portions of Freedom and Blair Townships

Land Use Discussion: 16,747 Acres

• Agriculture	1,272 ac.	7.6 %
• Forest	12,620 ac.	75.4 %
• Urban	2,233 ac.	13.3 %
• Transportation	622 ac.	3.7 %

Land Use Trends:

- Increasing development pressure from the expansion of Duncansville and Foot of Ten.
- Logging is also a predominant industry.
- Much of the agriculture is shifting towards grazing and Hobby farms.
- Development occurring in floodplains

Identified Impairments (DEP list):

Potential Impairments:

- Sediment pollution from dirt roads
- Sediment pollution from timber harvesting practices
- Loss of riparian areas and stream buffers

Potential BMP’s to Address Impairments:

- 22,328 feet of dirt roadways need stabilized

- Encourage submittal of erosion and sediment control plans for timber harvesting

Funding needed (if known at this point):
- $141,723 needed to stabilize the dirt roadways (based on the $6.35 per foot average from '97-'04 projects)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Blair Gap Run (3A)
Site ID: 16335:3.70:20020924 (1060)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	8.21	9.71	135	2.14	0.04	50	15.18

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Curly's (1210)
Site ID: 16374:1.42:20040630 (1200)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	8.22	10.2	51	0	0.05	50	14

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Gillians Run
Site ID: 16336:.20:20030709 (1113)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	8.03	8.29	126	0.01	0.03	50	40

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: UNT to Blair Gap Run (4)
Site ID: 16335:3.70:20020923 (1059)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	8.26	9.82	123	0.81	0.02	50	15.89

Tributary Strategy - Individual Watershed Outline

Bob's Creek

(HUC: 0205303 020 240)

Location within County and Major Streams:

- Bob's Creek is located in the southern part of Blair County along the south western borders of Cambria and Bedford Counties
- The Major water courses within the watershed are:
  Diamond Run – HQ-CWF
  Piper Hollow – HQ-CWF
  Bob's Creek – HQ-CWF
- This watershed contains portions of State Game Lands 26
- The watershed encompasses approximately 25% of Greenfield Township

Land Use Discussion: 5,182 Acres

• Agriculture	1,182 ac.	22.8 %
• Forest	3,629 ac.	70.0 %
• Urban	278 ac.	5.4 %
• Transportation	93 ac.	1.8 %

Land Use Trends:

- Some development pressure around the Ski Resort expanding into the area.
- Logging is a large industry in the watershed
- Some non-traditional ag in raising Buffalo and Elk.

Identified Impairments (DEP list):

Potential Impairments:

- Sediment pollution from dirt and gravel roads roads
- Sediment pollution from timber harvesting practices

Potential BMP's to Address Impairments:

- 743 feet of dirt road has been stabilized
- 9,881 feet of dirt roads need to be stabilized
- Encourage submittal of erosion and sediment control plans for timber harvesting

Funding needed (if known at this point):

- $62,745 needed to stabilize the dirt roadways (based on the $6.35 per foot average from '97-'04)

Tributary Strategy - Individual Watershed Outline

Canoe Creek

(HUC: 0205302 030 220)

Location within County and Major Streams:

- Canoe Creek is located in the central part of Blair County along the western borders of Huntingdon County
- The Major water courses within the watershed are:
  New Creek – HQ-CWF
  Canoe Creek – HQ-CWF
  The watershed also includes Canoe Creek Lake located within the State Park used for recreational purposes
- The watershed contains portions of State Game Lands 166 and includes the entire Canoe Creek State Park
- The watershed encompasses approximately 20% of Catherine Township and 30% of Frankstown Township

Land Use Discussion: 14,968 Acres

• Agriculture	1,797 ac.	12.0 %
• Forest	11,680 ac.	78.0 %
• Urban	1,327 ac.	8.9 %
• Transportation	136 ac.	0.9 %
• Mining	28 ac.	0.2 %

Land Use Trends:

- This is the Turkey Valley area above Canoe Creek State Park – Trends include decreased production ag to more grazing land for beef and horses
- This area also includes Scotch Valley. This valley has been converted from production ag. to housing developments, a golf coarse, and hobby farms.
- Increase in development in recent years
- Small areas of timber harvesting occurring

Identified Impairments (DEP list):

Potential Impairments:

- Sediments
- Agricultural Manure runoff
- Increase in stormwater runoff

Potential BMP's to Address Impairments:

- 13,187 feet of dirt & gravel roads have been stabilized through the D&GR program
- Stabilization of approximately 12,144 feet of dirt and gravel roads needed

- Horse Pasture Management
- Nutrient Management
- Encourage submittal of erosion and sediment control plans for timber harvesting
- Protection and enhancement of stream buffers and riparian areas

Funding needed (if known at this point):

- $77,115 needed to stabilize remain dirt roads (average of $6.35 per foot -based on completed projects in Blair County from 1997-2004)

Tributary Strategy - Individual Watershed Outline

Clover Creek

(HUC: 0205302 030 280)

Location within County and Major Streams:

- Clover Creek is located in the south-eastern most part of Blair County along the Huntingdon and Bedford County lines.
- The Major water courses within the watershed are;
  Clover Creek – HQ-CWF, with portions Class A wild trout
  Middle Creek - HQ-CWF
- The watershed contains portions of State Game Lands 73 and 118
- The watershed encompasses approximately 45% of Woodbury Township, 60% of North Woodbury and 50% of Huston Township
- There are eleven farms in the watershed that have a conservation easements placed on approximately 1,487.28 acres.

Land Use Discussion: 30,291 Acres

• Agriculture	13,832 ac.	45.7 %
• Forest	15,126 ac.	49.9 %
• Urban	1,004 ac.	3.3 %
• Transportation	297 ac.	1.0 %
• Mining	32 ac.	0.1 %

Land Use Trends:

- The residential communities are moving out into the Watershed more.
- Farms are selling off building lots to help pay normal expenses.
- Production Agriculture is remaining strong with a several CAFO’s.

Identified Impairments (DEP list):

Potential Impairments:

- Ag land erosion and nutrient enrichment
- Manure Applications
- Abandoned Limestone and clay mines
- Septic System failure and groundwater contamination from heavy development pressure
- Sediment pollution from dirt and gravel roads

Potential BMP’s to Address Impairments:

- Abandoned Mine Land Reclamation
- Animal Waste Management Systems
- Carbon Sequestration

- Conservation Plans
- Conservation Tillage
- Cover Crops
- Erosion & Sediment Controls
- Grass Buffers
- Lane Retirement
- Managed Precision Agriculture
- Mortality Composters
- Non-Urban Stream Restoration
- No-Till
- Nutrient Management
- Off Stream Watering w/ Fencing
- Off Stream Watering w/o Fencing
- Precision Rotational Grazing
- Rotational Grazing
- Septic Denitrification
- Urban Growth Reduction
- Wetland Restoration
- Yield Reserve
- Dairy-Precision Feeding
- Dairy-Ammonia Emission Controls
- 18,104 feet of dirt roadways need stabilized

Funding needed (if known at this point):

- $114,960 needed to stabilize the dirt roadways (based on the $6.35 per foot average from ’97-’04)

Tributary Strategy - Individual Watershed Outline

Frankstown Branch of the Juniata River
(HUC: 0205302 010 240)

Location within County and Major Streams:
- Frankstown Branch is located in the south central part of Blair County.
- The Major water courses within the watershed are:
  South Dry Run – WWF
  South Poplar Run – CWF
  Polecat Run – WWF
  Pawpaw Run – WWF
  McDonald Run - WWF
  Carson Run – CWF
  Frankstown Branch of the Juniata River – WWF
- The watershed encompasses approximately 65% of Freedom Township and 40% of Greenfield Township

Land Use Discussion: 21,320 Acres

• Agriculture	2,898 ac.	13.6 %
• Forest	13,823 ac.	64.8 %
• Urban	3,918 ac.	18.4 %
• Transportation	681 ac.	3.2 %

Land Use Trends:
- Development Pressure along the I-99 and Route 220 corridors, and on the mountain by the Ski Resort.
- Development on steep slopes near the ski resort
- Production agriculture decreasing, changing to grassland, beef operations and hobby farms.
- Industry development taking place on farmland.
- Significant timber harvesting
- Development in floodplain areas

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Frankstown Branch Juniata River Watershed=11A Code:16061
Use Assessed: Aquatic Life
Source: Industrial Point Source
Cause: Non-priority Organics, Priority Organics, Suspended Solids

Stream Name: Frankstown Branch Juniata River (Unt 16090) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16091) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16092) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Potential Impairments:

- Flooding
- Sediment pollution from timber harvesting
- Streambank erosion
- Sediment pollution from dirt and gravel roads
- Nutrient and sediment enrichment from agricultural operations

Potential BMP's to Address Impairments:

- Grassed buffers
- Encourage submittal of erosion and sediment control plans for timber harvesting
- No-till
- Cover cropping
- 29,373 feet of dirt and gravel roads need stabilized
- Protection and enhancement of riparian buffers
- Floodplain education

Funding needed (if known at this point):

- $186,518 needed to stabilize the dirt roads (based on the $6.35 per foot average from '97-'04 projects)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: 3B Muleshoe
Site ID: 16635:3.70:20020923 (1058)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L

Mean	8.17	9.54	81	0.6	0.02	50	14.81

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Foot of Ten
Site ID: 16635:3.70:20020924 (1057)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.87	9.67	104	2.12	0.05	50.19	15.93

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Frankstown Branch of the Juniata
Site ID: 16061:103.4:20010707 (877)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.77	9.08	314	2.14	0.18	125.79	31.61

Tributary Strategy - Individual Watershed Outline

Halter Creek

(HUC: 0205302 010 280)

Location within County and Major Streams:

- Halter Creek is located in the southcentral part of Blair County along the Bedford County line.
- The Major water courses within the watershed are:
  Halter Creek – WWF
  Cabbage Creek – WWF
- The watershed encompasses approximately 35% of Taylor Township and 90% of Roaring Springs Borough.
- There are two farms in the watershed that have a conservation easements placed on approximately 468.868 acres.

Land Use Discussion: 7,321 Acres

• Agriculture	2,915 ac.	39.8 %
• Forest	2,494 ac.	34.1 %
• Urban	1,466 ac.	20.0 %
• Transportation	219 ac.	3.0 %
• Mining	227 ac.	3.1 %

Land Use Trends:

- Production agriculture should continue with some switch to beef and rented ground.
- Development pressure is increasing.
- Limestone mining is a large industry that affects the area with growth potential.

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Halter Creek Watershed=11A Code:16503
Use Assessed: Aquatic Life
Source: Unknown
Cause: Unknown
Source: Urban Runoff
Cause: Storm Sewers/Suspended Solids

Potential Impairments:

- Septic System failure and groundwater contamination from heavy development pressure
- Ag land erosion and nutrient enrichment

- Impairment from Industry, Appleton Papers, New Enterprise Stone and Lime Company and Sewage Treatment Plant
- Sediment pollution from dirt and gravel roads
- Increase in stormwater runoff from developing areas

Potential BMP's to Address Impairments:

- Sewage Treatment Plant upgrade
- Local planning
- No-till
- Cover Cropping
- Grass buffers
- Nutrient Management
- 5,211 feet of dirt roads have been stabilized
- 2,522 feet of dirt roads remain unstabilized
- New Enterprise Stone & Lime Company sweeps approximately 182 acres of paved road per year (approx. 0.5 acres per day)

Funding needed (if known at this point):

- $16,015 needed to stabilize the remaining dirt roads (based on the $6.35 per foot average from '97-'04).

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Halter Creek
Site ID: 16503:38.65:20010507 (880)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	8.46	7.83	495	1.89	0.16	50.4	74.48

Tributary Strategy - Individual Watershed Outline

Laurel Run

(HUC: 02050201 040 220)

Location within County and Major Streams:

- Laurel Run is located in the central part of Blair County along the western border of Cambria County
- The Major water course within the watershed is Laurel Run (TSF) which flows towards Cambria County and the Ohio Basin
- The watershed contains portions of State Game Lands 267.
- The watershed encompasses a small portion of Logan Township

Land Use Discussion: 777 Acres

• Forest	684 ac.	88.0 %
• Urban	5 ac.	0.6 %
• Transportation	8 ac.	1.0 %
• Mining	80 ac.	10.3 %

Land Use Trends:

- This area is mainly forested with some strip mines.
- Some small areas of timber harvesting

Identified Impairments (DEP list):

Potential Impairments:

- AML from mining operations
- Sediments from mining and timber harvesting

Potential BMP's to address impairments

- Encourage submittal of erosion control plans for timber harvesting
- Mine land reclamation

Funding needed (if known at this point):

Tributary Strategy - Individual Watershed Outline

Little Juniata-North
(HUC: 0205302 050 320)

Location within County and Major Streams:
- Little Juniata – North watershed is located in the northern part of Blair County along the eastern border of Huntingdon County
- The Major water courses within the watershed are:
  Schell Run – WWF
  Hutchinson Run – WWF
  Fry Run – WWF
  Elk Run – WWF
  Little Juniata River – TSF
- The watershed contains portions of State Game Lands 156.
- The watershed encompasses approximately 20% Tyrone Township, 50% of Tyrone Borough, 30% of Snyder Township and 15% of Antis Township
- There are four farms in the watershed that have a conservation easements placed on approximately 404.85 acres.

Land Use Discussion: 17,568 Acres

• Agriculture	4,560 ac.	26.0 %
• Forest	11,140 ac.	63.4 %
• Urban	1,404 ac.	8.0 %
• Transportation	448 ac.	2.6 %
• Mining	16 ac.	0.1 %

Land Use Trends:
- Decreased production agriculture, switching to more beef and alternative ag.
- Increased Amish farming to the East of I-99.
- Increasing development pressure along the I-99 and 220 corridor.
- Small areas of timber harvesting

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Little Juniata River Watershed=11A Code:15664
Use Assessed: Aquatic Life
Source: Municipal Point Source
Cause: Unknown/ Organic Enrichment/ Low D.O.
Source: Urban Runoff/Storm Sewers
Cause Unknown

Stream Name: Logan Spring Run Watershed=11A Code:15823
Use Assessed: Aquatic Life
Source: Grazing Related Agriculture
Cause: Siltation
Source: Habitat Modification
Cause: Siltation

Potential Impairments:
- Ag Land Erosion
- Sediment pollution from unstabilized dirt and gravel roads
- Sediment pollution from construction sites
- Sediment pollution from timber harvesting
- Loss of riparian area and stream buffers

Potential BMP's to Address Impairments:
- No-till
- Cover Cropping
- Stream Bank Fencing
- 28,517 feet of dirt roadways need stabilized
- Encourage submittal of erosion and sediment control plans for timber harvesting
- Preserve and enhance riparian areas and stream buffers

Funding needed (if known at this point):
- $181,083 needed to stabilize the dirt roads (based on the $6.35 per foot average – taken from the '97-'04 project average)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Juniata River(Greir School)
Site ID: 15664:103.4:20020603 (1029)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.65	8.79	255	2.37	0.71	52.71	57.08

Tributary Strategy - Individual Watershed Outline

Little Juniata–South

(HUC: 0205302 050 240)

Location within County and Major Streams:

- The Little Juniata - South watershed is located in the central part of Blair County along the western border
- The Major water courses within the watershed are:
  Homer Gap Run – WWF
  Riggles Gap Run – CWF
  Sugar Run – WWF
  Spring Run – WWF
  Kettle Creek – WWF
  Sandy Run – CWF
  Little Juniata River – TSF
- The watershed contains portions of State Game Lands 108 and 267.
- The watershed encompasses approximately 40% of Antis Township, 40% of Logan Township and the 40% of City of Altoona

Land Use Discussion: 33,842 Acres

• Agriculture	3,622 ac.	10.7 %
• Forest	21,452 ac.	63.4 %
• Urban	7,644 ac.	22.6 %
• Transportation	1,124 ac.	3.3 %

Land Use Trends:

- Increased alternative ag such as wine industry, grassland, hobby farms
- Development pressure is very high with the watershed containing the City of Altoona, Greenwood, Bellwood, Rte 220, and I-99.
- Based on number of erosion and sediment control plans from 2001 to 2004, this is Blair County's second most developing watershed

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Kettle Creek Watershed=11A Code:16049
Use Assessed: Aquatic Life
Source: Urban Runoff/Storm Sewers
Cause: Siltation

Stream Name: Little Juniata River Watershed=11A Code:15664
Use Assessed: Aquatic Life
Source: Municipal Point Source
Cause: Unknown/ Organic Enrichment/ Low D.O.
Source: Urban Runoff/Storm Sewers
Cause Unknown

Stream Name: Spring Run Watershed=11A Code:16052
Use Assessed: Aquatic Life
Source: Small Residential Runoff
Cause: Siltation
Source: Urban Runoff/Storm Sewers
Cause: Siltation

Potential Impairments:

- Sediment pollution from dirt and gravel roads
- Increase in stormwater runoff from urban areas
- Loss of riparian areas and stream buffers
- Sediment pollution from construction sites

Potential BMP's to Address Impairments:

- 4,338 feet of unstabilized dirt roads need stabilized
- City of Altoona sweeps approximately 62 acres of paved roadway per year.
- Preserve and enhance riparian areas and stream buffers
- Promote infiltration practices
- Establish wetlands and bioretention areas for stormwater runoff

Funding needed (if known at this point):

- $27,546 needed to stabilize the dirt roadways (based on the $6.35 per foot average from '97-'04)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Kettle Creek #710
Site ID: 16049:4.04:20040510 (1196

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	7.39	9.29	110	0	0.04	50	15

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Little Juniata Creek
Site ID: 15664:103.4:20010801 (891)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	7.56	9.02	295	2.36	1.61	57.07	55.2

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Spring Run
Site ID: 99002:0.00:20010803 (907)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	7.83	9.32	**249**	2.68	0.03	61.46	42.83

Tributary Strategy - Individual Watershed Outline

Lower Loop
(HUC: 0205302 010 320)

Location within County and Major Streams:

- The Lower Loop watershed is located in the south-central part of Blair County
- The Major water courses within the watershed are:
  Old Town Run – WWF
  Frankstown Branch of the Juniata River – WWF
- The watershed contains portions of State Game Lands 147
- The watershed encompasses approximately 25% of Frankstown Township, 50% of Blair Township and the 10% Taylor Township

Land Use Discussion: 12,199 Acres

• Agriculture	2,057 ac.	16.9 %
• Forest	9,081 ac.	74.4 %
• Urban	941 ac.	7.7 %
• Transportation	120 ac.	1.0 %

Land Use Trends:

- Much of the agricultural land is low lying and wet. Much of it is not currently farmed, or is being utilized for hay.
- Development pressure is increasing.

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Frankstown Branch Juniata River Watershed=11A Code:16061
Use Assessed: Aquatic Life
Source: Industrial Point Source
Cause: Non-priority Organics, Priority Organics, Suspended Solids

Stream Name: Frankstown Branch Juniata River (Unt 16090) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16091) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16092) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Potential Impairments:

- Flooding
- Streambank erosion
- Ag land erosion
- Nutrient Enrichment from agriculture

Potential BMP's to Address Impairments:

- Buffers
- Streambank fencing
- Nutrient Management
- No-till
- Cover Cropping
- Establish wetlands and bioretention areas for stormwater runoff
- Promote infiltration

Funding needed (if known at this point)

Tributary Strategy - Individual Watershed Outline

Piney Creek

(HUC: 0205302 030 260)

Location within County and Major Streams:

- Piney Creek is located in the south-eastern most part of Blair County
- The Major water course within the watershed is Piney Creek – HQ-CWF, With the lower portion being Class-A Wild Brown Trout
- The watershed contains portions of State Game Lands 147
- The watershed encompasses approximately 33% of Woodbury, 50% of Huston Township and a small portion of North Woodbury

Land Use Discussion: 16,242 Acres

• Agriculture	7,509 ac	46.2 %
• Forest	7,947 ac	48.9 %
• Urban	656 ac	4.0 %
• Transportation	120 ac	0.7 %
• Mining	10 ac	0.1 %

Land Use Trends:

- The residential communities are moving out into the Watershed more.
- Farms are selling off building lots to help pay normal expenses.
- An has been an increase in sedimentation in Piney Creek.

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Piney Creek (Unt 16222) Watershed=11A Code:16222
Use Assessed: Aquatic Life
Source: Agriculture
Cause: Siltation

PAF&BC has noted an increase in sedimentation and a decrease in trout density

Potential Impairments:

- Ag land erosion and nutrient enrichment
- Abandoned limestone and clay mines
- Septic System failure and groundwater contamination from heavy development pressure
- Streambank erosion
- Sediment pollution from dirt and gravel roads

Potential BMP's to address impairments:

- Animal Waste Management Systems
- Carbon Sequestration
- Conservation Plans
- Conservation Tillage
- Cover Crops
- Grass Buffers
- Lane Retirement
- Non-Urban Stream Restoration
- No-Till
- Nutrient Management
- Precision Rotational Grazing
- Rotational Grazing
- Yield Reserve
- 1,796 feet of dirt roads have been stabilized
- 9,600 feet of dirt roads remain unstabilized
- Streambank stabilization

Funding needed (if known at this point):

- $60,960 needed to stabilize dirt roads (based on the $6.36 per foot average from '97 – '04)

Tributary Strategy - Individual Watershed Outline

Plum Creek

(HUC: 0205302 010 260)

Location within County and Major Streams:

- Plum Creek is located in the south-eastern most part of Blair County
- The Major water course within the watershed is Plum Creek – WWF
- The watershed contains a very small portion of State Game Lands 147
- The watershed encompasses approximately 50% of Taylor Township, 25% of North Woodbury Township, a small portion of Huston Township and Roaring Springs Borough and the 90% Martinsburg Borough
- There are three farms in the watershed that have a conservation easements placed on approximately 152.136 acres.

Land Use Discussion: 11,113 Acres

• Agriculture	6,021 ac.	54.2 %
• Forest	3,511 ac.	31.6 %
• Urban	1,223 ac.	11.0 %
• Transportation	228 ac.	2.1 %
• Mining	130 ac.	1.2 %

Land Use Trends:

- Heavy residential development pressure
- Moderate increase in commercial development
- Production agriculture remaining steady

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Plum Creek Watershed=11A Code:16504
Use Assessed: Aquatic Life
Source: Bank Modifications
Cause: Siltation
Source: Road Runoff
Cause: Siltation

Potential Impairments:

- Streambank erosion and nutrient enrichment to stream from agriculture
- On-lot septic system failures
- Ag land erosion
- Sediment pollution from dirt and gravel roads
- Sediment pollution from construction sites
- Increase in stormwater runoff from new development

Potential BMP's to Address Impairments:

- Grass buffers
- No-till
- Cover Cropping
- Nutrient Management
- Update Sewage Treatment Plants
- Stream bank fencing
- 1,220 feet of dirt and gravel roads need stabilized
- Encourage municipalities to develop earthmoving ordinances
- Promote infiltration practices

Funding needed (if known at this point):

- $7,747 needed to stabilize the dirt roads (based on the $6.35 per foot average from '97-'04).

Tributary Strategy - Individual Watershed Outline

Poplar Run

(HUC: 0205302 010 300)

Location within County and Major Streams:

- Poplar Run is located in the south-western most part of Blair County along the Cambria County border.
- The Major water course within the watershed is Poplar Run – CWF and Blue Knob Run
- The watershed encompasses approximately 55% of Juniata Township, 20% of Freedom Township, 20% of Blair Township and 5% Newry Borough.
- The watershed contains portions of State Game Lands 198.

Land Use Discussion: 8,798 Acres

• Agriculture	1,249 ac.	14.2 %
• Forest	6,221 ac.	70.7 %
• Urban	1,099 ac.	12.5 %
• Transportation	229 ac.	2.6 %

Land Use Trends:

- An increase in development is occurring along the 220 and I-99 corridors that runs through the watershed.
- Logging is a major industry in the watershed.
- Flooding of property along the mountain streams has been a problem.
- Development in the floodplains

Identified Impairments (DEP list):

Potential Impairments:

- Sediment pollution from dirt and gravel roads
- Sediment pollution from timber harvesting

Potential BMP's to Address Impairments:

- 19,240 feet of dirt and gravel roads need stabilized
- Encourage submittal of erosion and sediment control plans for timber harvesting
- Education on development in the floodplains

Funding needed (if known at this point):

- $122,174 needed to stabilize the dirt roads (based on the $6.35 per foot average from '97-'04 projects)

Tributary Strategy - Individual Watershed Outline

Sinking Run

(HUC: 0205302 050 300)

Location within County and Major Streams:

- Sinking Run is located in eastern part of Blair County along the Huntingdon County line.
- The Major water course within the watershed is Sinking Run – CWF
- The watershed encompasses approximately 65% of Tyrone Township.
- There are ten farms in the watershed that have a conservation easements placed on approximately 1,525.71 acres.
- The watershed contains portions of State Game Lands 166.
- The watershed also contains Fort Roberdeau, a rebuilt revolutionary war fort. The property is owned by Blair County and is a historical site.

Land Use Discussion: 18,403 Acres

• Agriculture	5,192 ac.	28.2 %
• Forest	11,622 ac.	63.2 %
• Urban	1,427 ac.	7.8 %
• Transportation	162 ac.	0.9 %

Land Use Trends:

- Residential Development
- Increased Vegetable production
- Agriculture continues to be strong
- Strong influence to maintain area as a rural area
- Increasing number of Hobby farms and non-production ag. farming in the watershed.
- Strong Amish influence
- Moderate Timber Harvesting

Identified Impairments (DEP list):

- A Watershed assessment was done for Sinking Run by the Center for Watershed Stewardship Graduate Students from Penn State University.

Potential Impairments:

- Ag Land erosion
- Nutrient Loading
- Streambank erosion
- Sediment pollution from unstabilized dirt and gravel roads
- Sediment pollution from timber harvesting practices

Potential BMP’s to Address Impairments:
- Nutrient Management for alternative ag. operations
- Cover Cropping
- No-till
- Stabilization of approximately 8,650 feet of dirt and gravel roadways needed
- Streambank fencing and stabilization
- Encourage erosion control plan submittal for timber harvesting

Funding needed (if known at this point):
- $54,928 needed to stabilize the dirt roads (based on the $6.35 per foot average from ’97 – ’04)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Elk Run
Site ID: 15819:13.82:20020514 (1111)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.62	7.33	**122**	0.19	0.01	50	35

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Sinking Run
Site ID: 15770:8.68:20010104 (1000)

	pH	**Dissolved Oxygen mg/L**	**Specific Conductance uS/cm**	**Nitrates mg/L**	**Phosphates mg/L**	**Sulfates mg/L**	**Total Alkalinity mg/L**
Mean	7.69	10.25	234	4.27	0.06	50	75.21

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: UNT Sinking Run
Site ID: 15770:8.68:20030304 (1112)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	7.66	8.33	68	0.12	0.04	50	26.79

Tributary Strategy - Individual Watershed Outline

Tipton Run

(HUC: 0205302 050 260)

Location within County and Major Streams:

- Tipton Run is located along the north-western border of Blair County along the Cambria and Centre County borders.
- The Major water course within the watershed is Tipton Run – HQ-CWF smaller tributaries include Three Springs Run and Loup Run.
- The watershed encompasses approximately 25% of Antis Township, and 15% of Snyder Township.
- The watershed contains portions of State Game Lands 156.

Land Use Discussion: 10,953 Acres

• Agriculture	139 ac.	1.3 %
• Forest	10,525 ac.	96.1 %
• Urban	181 ac.	1.7 %
• Transportation	108 ac.	1.0 %

Land Use Trends:

- Some housing growth is occurring in the watershed.
- Small areas of timber harvesting

Identified Impairments (DEP list):

Potential Impairments:

- Sediment pollution from dirt and gravel roads
- Sediment pollution from timber harvesting

Potential BMP's to Address Impairments:

- Approximately 1,984 feet of dirt and gravel roads need stabilized
- Encourage submittal of erosion and sediment control plans for timber harvesting

Funding needed (if known at this point):

- $12,599 needed to stabilize the dirt roads (based on the $6.35 per foot average – taken from the '97 – '04 completed project average)

Available Water Quality Data:

EASI Senior Environment Corps
SEC: Blair County
Water Body: Tipton Run (#510)
Site ID: 15908:5.62:20040330 (1198)

	pH	Dissolved Oxygen mg/L	Specific Conductance uS/cm	Nitrates mg/L	Phosphates mg/L	Sulfates mg/L	Total Alkalinity mg/L
Mean	7.5	11	41	0.0	0.0	50	10

Tributary Strategy - Individual Watershed Outline

Upper Loop

(HUC: 0205302 030 240)

Location within County and Major Streams:

- Upper Loop watershed is centrally located with Blair County
- The Major water courses within the watershed are Brush Creek – WWF, Robison Run – WWF and the Frankstown Branch of the Juniata River– WWF.
- The watershed contains portions of State Game 147
- The watershed encompasses approximately 40% of Frankstown Township, and a small portion of Logan Township.

Land Use Discussion: 13,805 Acres

• Agriculture	2,003 ac.	14.5 %
• Forest	10,053 ac.	72.8 %
• Urban	1,330 ac.	9.6 %
• Transportation	245 ac.	1.8 %
• Mining	174 ac.	1.3 %

Land Use Trends:

- This is southern part of the Turkey Valley area – Trends include decreased production ag to more grazing land for beef and horses
- This area also includes part of Scotch Valley. This valley has been converted from production ag. to housing developments, a golf coarse, and hobby farms.
- The area along the river known as Juniata Valley is shifting to more vegetable crops. Housing is also on the increase in this area. This area is also prone to flooding, with major floods destroying both homes and crops.
- Development in floodplains

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Frankstown Branch Juniata River Watershed=11A Code:16061
Use Assessed: Aquatic Life
Source: Industrial Point Source
Cause: Non-priority Organics, Priority Organics, Suspended Solids

Stream Name: Frankstown Branch Juniata River (Unt 16090) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16091) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16092) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Potential Impairments:

- Flooding
- Streambank erosion
- Ag land erosion
- Nutrient Enrichment from agriculture
- Sediment pollution from construction sites
- Increase in stormwater runoff from new development

Potential BMP's to Address Impairments:

- Buffers
- Streambank fencing
- Nutrient Management
- No-till
- Cover Cropping
- Rotational Grazing
- Promote infiltration practices
- Education on development in floodplains
- Establish wetlands and bioretention areas to reduce stormwater runoff

Funding needed (if known at this point):

Tributary Strategy - Individual Watershed Outline

Yellow Creek

(HUC: 0205303 060 220)

Location within County and Major Streams:

- Yellow Creek is located in the south-eastern most part of Blair County along the Bedford County line.
- The Major water course within the watershed is Yellow Creek – HQ-CWF.
- There are two farms in the watershed that have a conservation easements placed on approximately 99.44 acres.
- The watershed encompasses approximately 15% of North Woodbury Township, and 5% of Taylor Township.

Land Use Discussion: 2.117 Acres

• Agriculture	1,788 ac.	84.5 %
• Forest	165 ac.	7.8 %
• Urban	134 ac.	6.3 %
• Transportation	30 ac.	1.4 %

Land Use Trends:

- Residential and business development along Route 36.
- Production Agriculture strong with switch from traditional, family farms to fewer, larger farms.

Identified Impairments (DEP list):

Potential Impairments:

- Septic System failure and groundwater contamination from heavy development pressure
- Ag land erosion
- Sediment pollution from dirt and gravel roads

Potential BMP's to Address Impairments:

- No-till
- Cover Cropping
- Nutrient Management Planning
- Urban Growth Reduction
- Managed Precision Agriculture
- Approximately1,946 feet of dirt roads need stabilized
- Promote the development of earth disturbance ordinances within municipalities

Funding needed (if known at this point):

- $12,357 needed to stabilize the dirt roads (based on the $6.35 per foot average from ’97-’04)

Tributary Strategy - Individual Watershed Outline

Yellow Springs

(HUC: 0205302 030 300)

Location within County and Major Streams:

- Yellow Springs is located in the eastern most part of Blair County along the Huntingdon County line.
- The Major water courses within the watershed are:
  Frankstown Branch of the Juniata River – TSF
  Yellow Springs Run – WWF
  Roaring Run – WWF
  Fox Run – WWF
  Schmucker Run – WWF
- The watershed encompasses approximately 65% of Catherine Township and 30% of Woodbury Township and 100% of Williamsburg Borough.
- There is one farm in the watershed that has a conservation easement placed on 112.723 acres.
- The watershed contains portions of State Game Lands 118 and 166.

Land Use Discussion: 19,264 Acres

• Agriculture	5,522 ac.	28.7 %
• Forest	12,586 ac.	65.3 %
• Urban	915 ac.	4.7 %
• Transportation	217 ac.	1.1 %
• Mining	24 ac.	0.1 %

Land Use Trends:

- Strong production agriculture should continue
- Small areas of timber harvesting

Identified Impairments (DEP list):

2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - List 5: Pollutants Impaired Streams Requiring a TMDL

Stream Name: Frankstown Branch Juniata River Watershed=11A Code:16061
Use Assessed: Aquatic Life
Source: Industrial Point Source
Cause: Non-priority Organics, Priority Organics, Suspended Solids

Stream Name: Frankstown Branch Juniata River (Unt 16090) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16091) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Stream Name: Frankstown Branch Juniata River (Unt 16092) Watershed=11A
Use Assessed: Aquatic Life
Source: Road Runoff
Cause: Siltation

Potential Impairments:

- Ag land erosion
- Nutrient loading
- Sediment pollution from dirt and gravel roads

Potential BMP's to Address Impairments:

- Managed Precision Agriculture
- Dairy Precision Feeding and Ammonia Emission Controls
- Grass Buffers
- Cover Cropping
- No-till
- 19,604 feet of dirt and gravel roads need stabilized
- Encourage submittal of erosion and sediment control plans for timber harvesting
- Promote development of earth disturbance ordinances within municipalities

Funding needed (if known at this point):

- $124,486 needed to stabilize the dirt roads (based on the $6.35 per foot average from '97-'04)

Urban Overview

One of the most critical watershed protection issues in Blair County is increased urban development (residential, commercial, and industrial development). Urban development is characterized by an increase in impervious surfaces, which prevent infiltration of stormwater. Therefore, balancing growth and development with environmental preservation is important to protection Blair County's watersheds. Stormwater management plans and policies should identify mechanisms for mitigating the negative effects non-point source pollutants from stormwater run-off on streams and water bodies.

Blair County currently has two stormwater management plans as required by the Pennsylvania Storm Water Management Act (Act 167). They include the Beaverdam Branch and the Little Juniata Watersheds. Implementation of these plans should ensure that development activities do not adversely affect the health safety and property in Blair County municipalities and the environment.

According to the Watershed Restoration Action Strategy (WRAS) State Water Plan Subbasin 11A Little Juniata River and Frankstown Branch Watersheds Blair, Huntingdon, Bedford, Cambria, and Centre Counties, increased urbanization has the potential for additional storm water runoff problems. Urbanization and paving can have a severe effect on stream aquatic life. Studies by the Maryland Department of Natural Resources showed that a reduction in stream aquatic species diversity may begin with as little as 2% impervious cover. Maryland streams with above 15% impervious cover were rated fair to poor for aquatic species. When the impervious cover reached 25%, species diversity was significantly reduced. Riparian vegetation removal and paving affect both stream water temperature and habitat for aquatic species. Organisms most affected include many species of reptiles and amphibians, brook trout, and stoneflies. Stormwater runoff from paved areas can also wash out oil and grease and other pollutants into streams. The paved areas also restrict replenishment of groundwater and contribute to flash flooding during storm events and extreme fluctuations in stream water levels. Extreme flow fluctuations cause difficulties in the attachment of bottom dwelling organisms to the stream substrate and also cause a scouring of the substrate. Retention of riparian vegetation in unnamed headwater tributaries, known as first order streams, which may comprise as much as 50% of the streams in a watershed, can be especially critical to the protection of organisms in the downstream watershed.

More recently, TMDL's studies and statements by DEP, Division of Water Quality Assessments and Standards personnel suggest that impairments are observed when urbanization exceeds 10% of the land use within a watershed. Given our land use calculations from aerial photography, Blair County is showing an overall 13% urbanized area. Individually, the following watersheds are showing 10% or higher in urbanized areas: Bald Eagle 10%; Beaverdam Branch 31%; Beaverdam Creek 16%; Blair Gap Run 13%; Frankstown Branch 18%; Halter Creek 20%; Little Juniata South 23%; Plum Creek 11%; Poplar Run 13%; and Upper Loop 10%.

A TMDL report prepared by DEP for the Beaverdam Branch Watershed (including Mill Run, Burgoon Run, Kittanning Run, Glenwhite Run and Sugar Run) in September 2003 lists numerous sections impaired by Combined Sewer Overflow, Urban Runoff/Storm Sewers and AMD. The Beaverdam Branch and Mill Run were noted as having 6.1 miles and 3.9 miles respectively impacted by Urban Runoff and Combined Sewer Overflow. In addition, .8 mile of Mill Run was identified with pollution caused from Small Residential Runoff. The remaining streams were impacted by AMD and are addressed in that section of this report.

More recently, DEP has just introduced a Draft TMDL for the Little Juniata River (December 2004). Pennsylvania's 2003 303(d) list identified 4.81 miles of the Little Juniata River as impaired by siltation from urban runoff and storm sewers and organic enrichment from municipal point source discharges. The impairments on the Little Juniata begin at the headwaters in the city of Altoona and terminate at the downstream end of the study reach. In addition to the impairments on the Little Juniata, portion of Spring Run (1.65 miles) and Kettle Creek (0.97 miles) tributaries are also identified on the 2003 list as impaired by urban runoff and storm sewers.

With the institution of the NPDES Phase II program and the inclusion of stormwater BMP's as part of the permitting requirements, hopefully we can start to see a decline in impairments within these watersheds and across the developing areas of the county. The Beaverdam Branch Watershed as identified as part of this tributary strategy annually and historically has the greatest number of Erosion Control Plan submittals (see Appendix C). In fact nearly 40% of the plans received in the last 4 years have been from the Beaverdam Branch. Proper implementation of BMP on all new construction and potential innovative ideas for retrofits will serve to minimize additional impacts to the watershed. The district is currently undertaking a Pervious Pavement and Stormwater BMP demonstration area in conjunction with a local Community Park and municipalities immediately adjacent to the Beaverdam Branch. This project, using funds from the District's account and the local park, along with in-kind services and labor form the municipalities will showcase to the public a new way of thinking about stormwater control.

Finally, we have been very fortunate to be part of an effort and grant through the Alliance for the Chesapeake Bay and the Builders for the Bay to work on the development of one or multiple Environmental Advisory Councils (EAC) within the Greater Altoona MS4 area. This project is scheduled to kick off this May and will last approximately 18 months to include ordinance review, proposed suggestions for ordinance revision, planning for the future of the watershed and creation of the EAC for future review and enhancement of development practices. The municipalities are excited about the process and we believe that we will be successful in creating EAC's in Blair County.

Education along with Regulation will be the key to implementing sound BMPs to address pollution from urbanized areas in Blair County.

Coal Mining Overview

Blair County is positioned on the eastern front of the Allegheny Ridge and is one of the eastern most counties within the Bituminous Coal Region. Coal in western Pennsylvania fueled the Industrial Revolution through the development of energy and coke production. In Blair County, the Beaverdam Branch and Bells Gap Watersheds have an extensive history over the past hundred years of both surface and deep mining. Although in most instances, as is prevalent in Glenwhite Run, Kittanning Run, Sugar Run, and Shaw Run, this great heritage has left us with severe degradation to our land and streams. Mining has left the surface scared with thousands of acres, of barren and highly eroded lands, and direct discharges of highly acidic and metal laden water. These watersheds, without some intervention, will continue to remain lifeless for the next hundred years.

In 1997, the Blair County Conservation District identified those watersheds impacted by abandoned mine drainage (AMD) and developed a strategy to address those problems. According to the 2004 Integrated Water Quality Monitoring and Assessment Report Sugar Run, Glenwhite Run, Kittanning Run and Burgoon Run (the receiving stream of both Kittanning Run and Glenwhite Run) are all listed as impacted by abandoned mine drainage with the impairments being ph and metals. Bells Gap Run also shares this designation of impacted due to abandoned mine drainage from its' headwater stream Shaw Run. These watersheds, although predominately impacted by AMD, each have unique situations requiring distinctly different restoration plans. Goals identified in any restoration of a watershed impacted by AMD are listed below.

Goals:

To reduce metal concentrations to non-toxic levels within the stream
To increase the pH to natural conditions
Restore/ preserve aquatic and terrestrial habitat
Reclaim abandoned or highly eroded areas
Restore/ preserve riparian areas
Restore eroded streambanks
Eliminate safety hazards
Eliminate stream encroachment opportunities

In 2001 a TMDL was completed and approved by the United States Environmental Protection Agency for the impacted reaches of Kittanning Run. Kittanning Run is used in emergency situations as a secondary water supply to the Altoona City Authority. Historically, Kittanning Run has been diverted around the impounding dam located near the Horseshoe Curve, to limit the amount of contamination to the areas largest surface drinking water supply for the city of Altoona. The deep mines within the Kittanning Run Watershed contain Mercer coal seams and are producing discharges with acidities near 1,000 mg/l. Unfortunately, this impact is so severe that neither active nor passive treatment would be economically feasible at this time.

Increased restoration efforts through reclamation of abandoned mine lands and treatment of point source discharges, over the last fifteen years, have provided both environmental and social benefits. These benefits include clean water, increased wildlife habitat, reduced sediment run-off, improved soil quality, sequestration of atmospheric carbon, a community "sense of pride" through improved aesthetics and the creation of safe recreational opportunities. Watersheds such as Shaw Run, Glenwhite Run and Sugar Run watersheds are feasibly able to be restored using passive treatment technologies in conjunction with reclamation of the abandoned surface areas.

To date, the District and several partners have been very successful in reaching their goals of someday restoring all AMD impacted watersheds within Blair County. Shaw Run watershed has been reclaimed with work completed in the summer of 1999. Restoration included development of limestone rock channels, to add alkalinity and stabilize previously eroding channels in addition to planting of trees and grasses on previously barren land. Other project partners also constructed passive treatment systems to treat point source discharges. Construction for the Glenwhite Run Watershed Restoration Project, which included the construction of 6 passive treatment systems and the reclamation of over 31 acres of abandoned barren lands, was completed at the end of construction 2002. The entire Glenwhite Run restoration process, from assessment to completion of all implementation projects, took only 7 years. As mentioned earlier, due to economic constraints, limitations in current technologies, and active mining within the watershed, Kittanning Run will remain un-reclaimed until it becomes feasible within the constraints of the District and cooperating partners.

This leads to the Sugar Run watershed as being the next targeted watershed. A watershed assessment and restoration plan was completed by the District in 2003 detailing specific recommendations for restoration, excerpts are found in Appendix D). It is documented that 6.46 miles of Sugar Run are degraded. Active mining has ceased in this 6,200-acre watershed (of which approximately 600 surface acres have been impacted by mining) and only one inactivated Subchapter F permit, located in the southern headwaters of Sugar Run, still remains viable within the watershed. That permit, depending on economic conditions, may never be utilized. In addition, reclamation under past permitted mining operations has already begun within the Sugar Run watershed. With the more recent mining issues already being addressed, the additional reclamation of the abandoned discharges would potentially restore this 6.46 mile stretch of stream to a Cold Water Fishery. Recommended best management practices include the use of passive treatment technologies, including vertical flow systems and anoxic limestone drains, in addition to the surface reclamation of over 35+ acres of barren or poorly reclaimed land. Implementation of these recommend best management practices as identified in the Sugar Run Watershed Assessment and Restoration Plan will cost approximately 2.3 million dollars. Additional work would need to be done to identify a feasible recommendation to the restoration of the Kittanning discharge, considering limitations in treatment technologies and available site area.

Agriculture Overview

Agriculture is the number one industry in Blair County. However, like most industries in the county, the number of businesses is decreasing. According to the Blair County Agricultural Statistics Computation and Trends (Appendix B), the number of farms has decreased by 9% over the last 6 years. While the average size of farms has increased, the overall acreage of farms has decreased by 6%. In addition, there are a growing number of hobby farms and non-production agricultural farms in the county. These factors, with the addition of expanding communities and higher prices for land, have led to the decrease of production agriculture in Blair County. Another driving force to this decrease is the lower prices of goods, mainly milk. Over the last 12 years, Blair County agriculture has increased its dairy herd size, while decreasing all other livestock. The Dairy herd in Blair County has increased by 18% in the last 12 years and milk production has increased by 39 %, while all other livestock has decreased by as much as 84 %.

Along with this increase in cow numbers and milk production, the crops grown by the farmers has also shifted to those needed to feed the increasing herds. The only crops that have significantly increased in acreage produced in the county are forages and silage corn. The number of acres that produce forages has increased by 25%, while the number of acres in corn silage production has increased by 100%. All other crops have remained the same or decreased. This trend of increased dairy cows and a shift to silage corn has led the county to have increased nutrient opportunities. The use of liquid manure and tilled silage ground can increase the potential for soil erosion and nutrient loss. There are several Best Management Practices (BMP's) that can be implemented by farmers to help reduce runoff. These BMP's include cover crop use, no-till planting, nutrient management planning, conservation planning, animal waste management systems, buffers, streambank fencing, precision agriculture, precision feeding, and rotational grazing, just to name a few. However, there are several obstacles to getting these BMP's implemented.

The first obstacle is risk. Many farmers do not want to take a risk at decreased yields to try a new approach or way of doing business. With the demand for every ton of feed, any new practice could decrease yield and cause the farmer to have to pay for feed they normally would not have to purchase. A new practice could also lead to a decrease in feed quality, which could lead to a decrease in product (milk, meat, etc.) quality and production. Farmers also can feel that they will run the risk of negatively impacting there soil quality and crop rotations.

The second obstacle is knowledge. There is plenty of misleading information that these BMP's do not work. Nobody wants to try a new system that they have heard does not work. This is why education is a key component to any program. Having respected individuals explain the benefits of BMP's and also explain there experience with them can greatly improve knowledge and also help to decrease the perceived risk of BMP implementation. The best way to get a new program implemented is for a person to actually see that program work.

The third obstacle is lack of equipment/expertise. Many of these producers do not have the equipment necessary to try new methods. Farming equipment such as no-till drills is very expensive and a producer needs to be sure that he is confident in a new system before spending the money on new equipment. Usually, this includes selling old equipment to pay for the new. This obstacle also includes design and installation of BMP’s. Technical support is a vital role in properly implementing BMP’s in the field. This includes contacts, surveying, engineering, quality assurance, and monitoring after BMP installation. Technical support can be provided by Conservation Districts, Bay Engineers, and NRCS. Technical Service Providers (TSP’s) can also be utilized; however, there are not many currently available to do this type of work. Crop Management Associations (CMA’s) can also provide some of these services to farmers. If TSP’s and CMA’s are used, cost share needs to be available to help pay for these services since these services can be very costly.

The fourth obstacle is time. Most farmers do not have extra time to try new methods, or implement BMP’s. Any change to operations will have at least an initial increase in time while they learn and perfect a new method. The implementation and construction of BMP’s also takes time for the farmer, as well as may disrupt his normal operations. This is often time that the farmer does not have available.

The Final obstacle is money to implement the BMP’s. All of the above obstacles are tied to or lead to increased costs. With low cash flow on farms and increasing debt, farmers do not have the resources to pay for implementation of the BMP’s. This is where the cost share programs can really help. Many farmers are more willing to implement BMP’s if they only have to pay for a small portion of cost. For those BMP’s that are a lifestyle change (No-till planting, cover crop use etc.), cost sharing the first few years helps to decrease the risk to the farmer and demonstrates how these BMP’s are beneficial to them. They are then more willing to continue a successful program on there own once the cost share is gone. For more permanent BMP’s (animal waste systems, buffers, fencing, etc.), cost share is needed to help pay for designs, engineering, construction, and implementation. Cost share is also needed to reimburse the farmer for taking land out of production for BMP’s such as buffers. With some high rental rates of $150 – $200 per acre being paid for ground in Blair County, it is hard to get a landowner to voluntarily take land out of production without some form of compensation. This is especially true if they have to install fencing, crossings and other BMP’s without any cost share. Landowners are not very willing to have to pay to have land taken out of production that they are not then receiving compensation for.

The face of agriculture is changing in Blair County. Many of these changes are leading to an increase in environmental challenges. Farmers do want to preserve the soil and keep the water clean. The problem is that implementing BMP’s to help reduce these challenges is costly. With low product income, many farms have an increasing debt and cannot afford to implement these BMP’s. The United States has a low cost of food at the expense of farmer’s income. In order to have farms continue to produce the quality of food that we are use to at a low cost to consumers, cost share programs must be available to help pay for implementation of environmental BMP's.

To meet the 2010 goals for the Chesapeake Bay agreement that have been assigned to Blair County, a rough cost estimate has been made. The cost estimate only includes those agricultural BMP's that have an estimated cost available. Several BMP's are new BMP's that do not have cost estimates available for them yet, and some BMP's are in areas that the Blair County Conservation District does not have control over. The cost estimate for the known agricultural BMP's listed above is estimated to be over 42 million dollars (refer to Estimated Cost of Full Implementation of Assigned Goals). This cost is a rough estimate, but does show the need for cost share to be available. Money needs to be available for not just cost share programs, but also for technical support from the conservation districts.

PINEY CREEK WATERSHED

The Piney Creek watershed is located in the Southeastern portion of Blair County. The major watercourse in this watershed is Piney Creek. Piney Creek is listed by the PA-DEP as a High Quality – Cold Water Fishery. The lower portion of Piney Creek, from poverty hollow run to the mouth of the main stem, is listed by the PA Fish and Boat Commission as a Class A – Wild Brown Trout Stream. Three townships contain part of the watershed. Approximately 33% of Woodbury Township, 50 % of Huston Township, and a small portion of North Woodbury township is contained in the watershed. Portions of State Game Lands 147 are also contained in the watershed.

The watershed contains approximately 16,242 acres. The three major land uses and acreage in the watershed are Forest 7,947 ac (49 %), Agriculture 7,509 ac (46 %), and Urban 656 ac. (4 %). The watershed contains app 4.8% of the land in Blair County, 3.6% of the Forestland, and 11.1% of the agriculture land and 1.6% of Urban land of Blair County. The trend in land use is moving toward an increase in urbanization. One of the driving forces behind this is that farmers are selling off building lots to help subsidize farm income. In addition, the local communities are growing out into the watershed. With the increase in the price of building lots, the value of the farmland is increasing to where it is harder and harder for a person to purchase land to remain as farmland. Many of the small communities that are being developed are on the streambanks.

There are identified impairments in the watershed. The 2004 Pennsylvania Integrated Water Quality Monitoring and Assessment Report List 5: Pollutants Impaired Streams Requiring a TMDL lists a portion of Poverty Hollow Run (Unt 16222) as a siltation cause for Agricultural impairment to Aquatic life. The PA Fish and Boat commission conducts routine monitoring of the trout population of Piney Creek. They have noted a decrease in fish numbers and size in the past several years. They have also noted an increase in sedimentation in the stream.

Several potential impairments have been observed and noted in the watershed. These include; Agricultural land erosion and nutrient enrichment, Abandoned Limestone and clay mine runoff, septic system failure, groundwater contamination from heavy development pressure, and sedimentation pollution from dirt roads.

Potential BMP's that can be implemented to address the current and potential impairments are Animal Waste Management Systems, Carbon Sequestration, Conservation Plan development, Conservation Tillage, Cover Crop Use, Grass Buffers, Land Retirement, Non-Urban Stream Restoration, No-Till planting, Nutrient Management Plan development, Precision Rotational Grazing, Rotational Grazing, Yield Reserve and Dirt and Gravel Road Stabilization.

Evaluating current farming practices in the watershed and trends in agriculture, several BMP's can be targeted to get the biggest results and need in the watershed. These "target BMP's" for the Piney Creek watershed would include Animal Waste

Management, Cover Crop Use, No-Till planting, and Buffers. All of these BMP's would also be part of the Conservation Plan and Nutrient Management Plan development. Other non-agricultural BMP's that would show a benefit in the watershed would be grass buffers, septic upgrades, non-agriculture stormwater management, and dirt road stabilization. It is estimated that 9,600 feet of dirt roads are unstabilized in this watershed.

Currently, the Blair County Conservation District is implementing a no-till and cover crop cost share program in the Piney Creek watershed while also conducting a watershed assessment. A growing greener grant has been received to conduct the program, but due to sever cuts in the grant not all of the planned BMP's or amount of acres can be cost shared. The district would like to submit for additional money to be able to piggyback with the existing grant and help implement the full program, at expand the program to more land and more BMP's in this Watershed. The original grant request was for $ 76,884.00 and the grant was awarded for $24,000.00.

APPENDIX

APPENDIX C
Erosion and Sedimentation Control Plans
Submission by Watersheds

Watershed	# Plans 2001	Total Acres 2001	Dist. Acres 2001	# Plans 2002	Total Acres 2002	Dist. Acres 2002	# Plans 2003	Total Acres 2003	Dist. Acres 2003	# Plans 2004	Total Acres 2004	Dist. Acres 2004
Bald Eagle	5	119.69	22.18	8	670.51	24.07	1	5.54	1	4	19.76	12.76
Beaverdam Branch	37	186.6	111.71	36	934.83	392.9	40	463.14	252.07	48	1230	123.21
Beaverdam Creek	2	2.13	2.13	0	0	0	5	21.96	8.82	3	13.55	12.6
Bells Gap Run	2	11.4	7.87	1	10	2	1	1	1	0	0	0
Blair Gap Run	7	184.73	12.31	2	3.5	2	9	95.11	39.68	11	212.2	196.72
Bobs Creek	0	0	0	0	0	0	0	0	0	1	0.23	0.23
Canoe Creek	1	2	2	1	1.59	1.59	2	4.89	4.89	5	410.6	59.9
Clover Creek	2	32	4	0	0	0	0	0	0	2	27	25.9
Frankstown Branch	4	59.62	58.98	4	23.9	23.21	8	74.08	29.76	7	69.89	17.79
Halter Creek	3	16.33	8.4	3	3.23	1.47	5	21.61	10.31	5	73.87	7.04
Little Juniata North	8	34.97	21.33	3	42.69	6.93	1	5.23	4.5	5	11.78	5.42
Little Juniata South	18	207.64	98.52	18	51.33	48.12	14	483.55	56.77	24	179.5	103.9
Laurel Run	0	0	0	0	0	0	0	0	0	0	0	0
Lower Loop	0	0	0	3	7.1	5	1	1	0.25	2	700.7	13.71
Upper Loop	3	12.4	12.21	0	0	0	1	1	1	2	3	1.96
Plum Creek	7	70.3	26.85	2	100	62	5	73.01	38.11	3	56.92	5.96
Piney Creek	0	0	0	1	3.4	3.4	3	57.65	26.2	0	0	0
Poplar Run	0	0	0	0	0	0	1	0.25	0.25	4	4.78	4.28
Tipton Run	0	0	0	0	0	0	0	0	0	0	0	0
Sinking Run	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Creek	0	0	0	0	0	0	0	0	0	1	1	0.19
Yellow Springs	0	0	0	0	0	0	0	0	0	0	0	0
Totals	99	939.81	388.49	82	1852.1	572.69	97	1309	474.61	127	3014	591.57

APPENDIX E

BLAIR COUNTY BAY TRIBUTARY STRATEGY

ESTIMATED COST OF FULL IMPLEMENTATION OF ASSIGNED GOALS

			This Request			
		Implementation Plan Total	Acres – or as noted		Funding	
Land Use	Best Management Practice (BMPs)	Acres- or as noted	Proposed	DEP Approved	Requested	Remarks
AG	Animal Waste Management Systems (AEU's)	27,779	15,418		11,871,860	
AG	Carbon Sequestration	6,681	6,681		2,004,300	Warm Season Grass Planting
AG	Conservation (Farm) Plans	57,240	39,203		627,248	
AG	Conservation Tillage	25,097	3,359		134,360	
AG	Cover Crops (early)	21,763	21,763		1,088,150	
AG	Forest Buffers	2,159	2,000		1,700,000	
AG	Grass Buffers	1,978	1,960		588,000	
AG	Land Retirement	5,650	4,505		8,446,875	
AG	Managed Precision Agriculture	25,810	25,810		0	No Cost Estimate Established
AG	Mortality Composters (AEU's)	0	0		0	
AG	Non-Urban Stream Restoration (feet)	1,000	1,000		75,000	
AG	No-Till	11,222	11,222		561,100	
AG	Nutrient Management	9,044	500		4,000	For Plan writing only
AG	Off Stream Watering w/Fencing	6,716	6,260		6,260,000	
AG	Off Stream Watering w/o Fencing	4, 029	3,968		1,984,000	
AG	Precision Rotational Grazing	1,612	1,612		1,612,000	
AG	Rotational grazing	1,075	784		548,800	
AG	Horse Pasture Management	4,856	4,856		4,856,000	
AG	Tree Planting	263	40		196,000	
AG	Yield Reserve	8,954	8,954			No Cost Estimate Established
AG	Ammonia Emission Reductions – Poultry (AEU's)	31	31			No Cost Estimate Established
AG	Ammonia Emission Reductions – Swine (AEU's)	1,356	1,356			No Cost Estimate Established
AG	Ammonia Emission Reductions – Dairy (AEU's)	7,489	7,489			No Cost Estimate Established

AG	Precision Feeding – Dairy (AEU's)	22,466	22,466			No Cost Estimate Established
AG	Phytase Feed additive – Swine (AEU's)	2,657	2,657			No Cost Estimate Established
AG	Phytase Feed additive – Poultry (AEU's)	36	36			No Cost Estimate Established
	Agriculture Total				**42,557,693**	
MO	Abandoned Mined Land Reclamation	87			2,300,000	Sugar Run AMD Restoration Only
MO	Dirt & Gravel Road Practices (feet)	26,491	277,398		1,761,420	Based on roadways that still need to be completed
MO	Forest Buffers	610	610		518,500	
MO	Non-Urban Stream Restoration (feet)	419	419		31,425	
MO	Nutrient Management	0	0		0	
MO	Tree Planting	250	38		186,000	
	Mixed Open Subtotal				**4,797,345**	
UR	Erosion & Sediment Controls	518	518		79,400	Staff position for erosion control plan review
UR	Forest Buffers	0	0		0	
UR	Grass Buffers	0	0		0	
UR	Septic Denitrification (Units)	12,209	12,209			No Cost Estimate Established – Not handled by District
UR	Street Sweeping	840	840			No Cost Estimate Established – Not handled by District
UR	Stormwater Management - Filtration	8,172	8,172		2,251,600	Estimated cost for vegetative filter strips
UR	Stormwater Management - Infiltration Practices	8,172	8,172		1,144,408,000	Estimated costs based on porous pavement only
UR	Stormwater Management - Wet Ponds & Wetlands	8,172	8,172		12,258,000	Estimated cost for wetland construction
UR	Urban Stream Restoration (feet)	0	0		0	
UR	Urban Sprawl Reduction	413	413			No Cost Estimate Established – Not handled by District
UR	Urban Nutrient Management	17,178	17,178			No Cost Estimate Established – Not handled by District
	Urban Subtotal				**1,158,997,000**	
FO	Dirt & Gravel Road Practices (feet)	0	0		0	
FO	Forest Harvesting Practices	0	0		0	
FO	Non-Urban Stream Restoration	0	0		0	
	Forest Subtotal				**0**	
Multiple	Wetland Restoration	90	65		97,500	
	Multiple Sub-Total				**97,500**	
	TOTAL				**1,206,449,538**	

AG-Agriculture
MO-Mixed Open
UR-Urban
FO-Forest
Multiple-Multiple Land Use