

Priority Issue #7



Water quality is vital, but is vulnerable to a multitude of threats.

This Issue was reported as a priority issue in four of the six multi-municipal planning areas: Greater Williamsport Alliance, Lower Lycoming Creek, Muncy Creek, and US-15 South. Each of these planning areas stated in their own unique way that protecting source water was very important.

Back Story Water is constantly vulnerable to threats coming from above, below and on the surface of the planet. According to the U.S. Geological Survey (USGS), about 71 percent of the Earth's surface is water-covered, which translates to more than 326 million trillion gallons, with only 1% of all the water on the earth being suitable to drink. The earth suffers from global threats such as droughts and access to safe drinking water. Water borne diseases are a problem in many countries that do not have the means to clean their surface waters of contamination. The inability to safely dispose waste or drill a well for drinking water are other widespread issues found around the world. Access to clean drinking water is essential for a community to survive and prosper. Not only is water necessary to support public health, but reliable water service is also needed to foster development and economic growth. In 2010, the USGS calculated that the United States used about 275 billion gallons of surface water per day, and about 79.3 billion gallons of groundwater per day. Fresh water is used for drinking, cleaning, bathing, recreating, energy generation, manufacturing cooling, and food making processes, among many other uses. This knowledge only gives us a glimpse of the importance that water plays in our daily lives.

Water is the foundation for human health. Complex ecosystems of plants, animals, insects, and all other living things rely on water for sustainability and to thrive. The Figure 34 illustration depicts that, based upon state average, the County of Lycoming receives about 41 inches of precipitation per year and only 13 inches recharges our groundwater aquifers. The remainder of the precipitation either runs directly into creeks and streams or returns back to the atmosphere. At any point along the fundamental steps of the hydrologic cycle, water can be exposed to threats that have potential to reduce its quality.

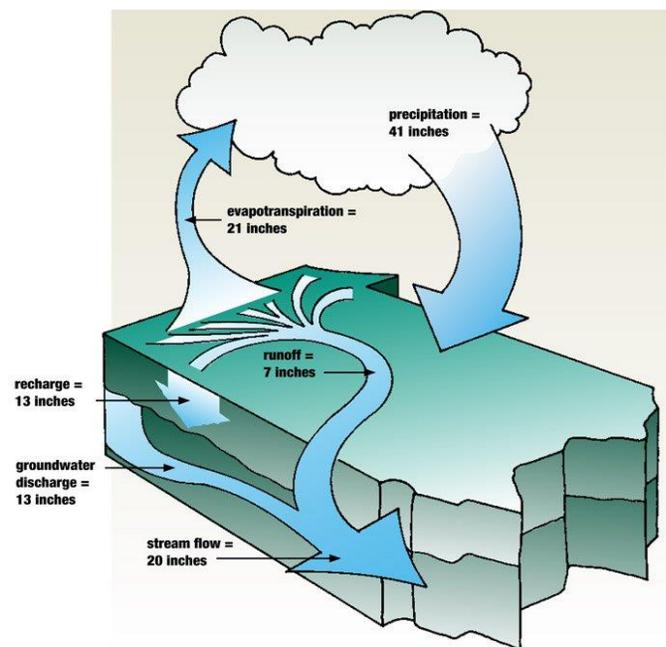


Figure 34: The hydrologic cycle for an average year in Pennsylvania
Source: [Penn State Extension](#)

Lycoming County thrives with an abundance of water in streams, lakes, creeks, and the Susquehanna River. This includes how residents and visitors recreate and promote tourism in Lycoming County with fishing, boating, skiing, camping, hunting, hiking, and biking, all happening on or near water. Also, the natural gas industry has been well supported in Lycoming County due to the ease of access to large volumes of water for fracking natural gas wells.

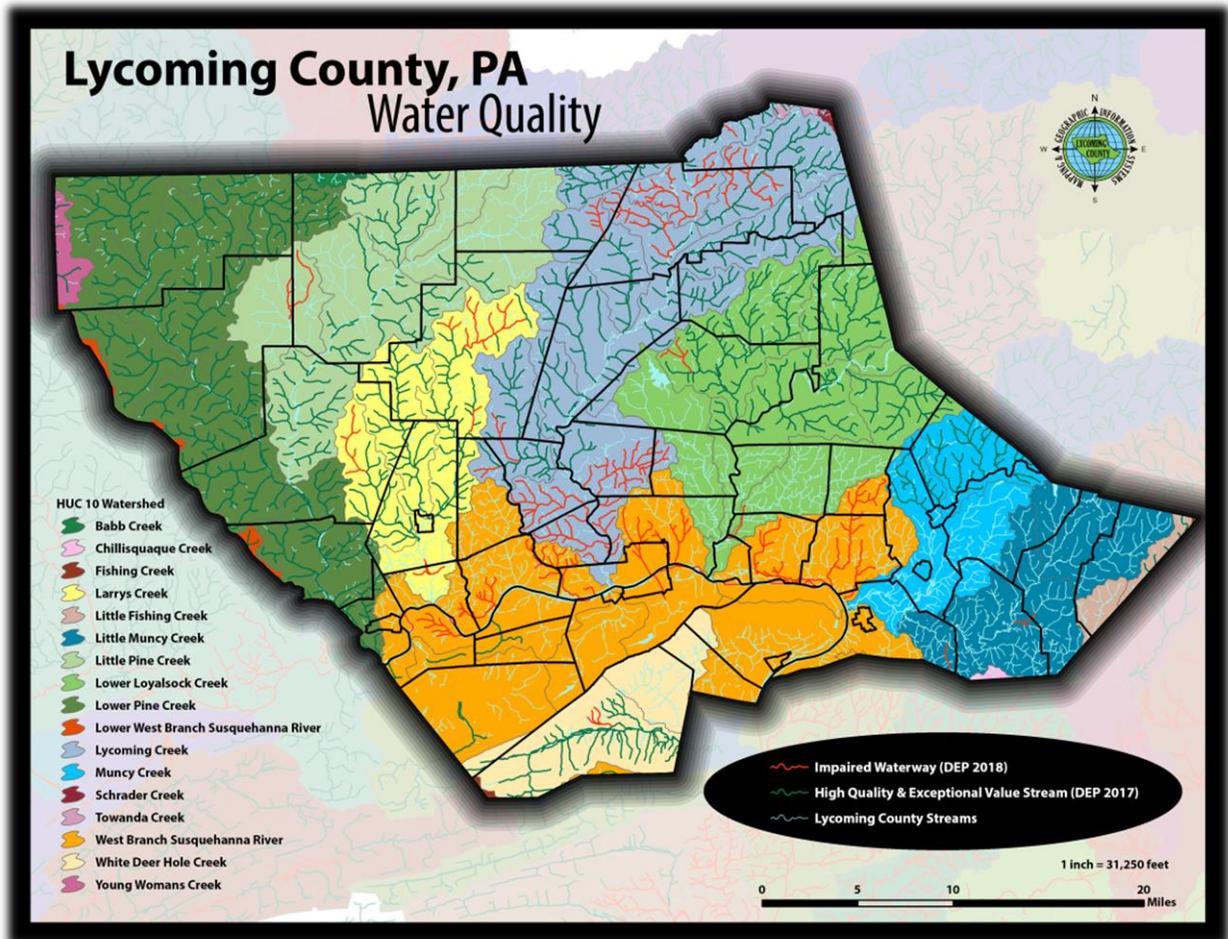


Figure 35: Characterization of Water Quality for Streams in Lycoming County
 Source: PCD

Looking at water as a natural resource in Lycoming County, shown on Figure 35 there are nine major watersheds at USGS’s HUC 10 level: Babb Creek, Little Pine Creek, Larrys Creek, Lycoming Creek, Lower Loyalsock Creek, Muncy Creek, Little Muncy Creek, West Branch Susquehanna River, and White Deer Hole Creek. The PA Housing Research Center reported in 2014 that Lycoming County contains 1161 miles of streams that are designated high quality (HQ) and exceptional value (EV) waters, qualifying by their good chemistry and biological makeup. Two of Lycoming County’s EV/ HQ streams are known throughout the State for their exceptional quality: Pine Creek and the Loyalsock Creek. Outdoor lovers flock to Pine Creek to experience its scenic vistas and quality nature experience. The Loyalsock was recognized as the “2018 PA River of the Year” by the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) and the Pennsylvania Organization for Waterways and Rivers (POWR).

As is the case with any watershed or aquifer, groundwater, and surface water sources are vulnerable to a variety of potential contaminants such as improper disposal of hazardous chemicals or infiltration of man-made products including gasoline, oil, road salt, pesticides, or fertilizer runoff. Each year, PA DEP releases a water quality status report in accordance with the Clean Water Act. The most recent report is titled “2016 Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report.” The narrative report contains summaries of various water quality management programs including water quality standards, point and nonpoint source controls, as well as descriptions of programs to protect lakes, wetlands, and groundwater quality. PA DEP categorizes surface and groundwater impairments as having a “source” and a “cause”. See the PA DEP website for the report that shows details of sources and causes of impairment for groundwater, lakes, and streams in PA.

Although Lycoming County is recognized as having abundant high quality waterways, some streams or portions of streams are categorized as impaired due to one or more contaminants (see Figure 35). Directly quoted from Lycoming County’s Implementation Plan for the Chesapeake Bay Tributary Strategy-2015, “There are approximately 2,200 miles of streams and 92 water bodies in the County. Roughly eight percent (185.74 miles) of the streams located in the County are listed as impaired. Atmospheric Deposition (68.74 miles), followed by Agriculturally Related Activities (50.99 miles), Small Residential Runoff (25.2 miles), and Acid Mine Drainage (8.23 miles) are the known causes of impairment. There are also 32.58 miles of impairment with unknown sources.” Other streams are still unassessed with no recorded water quality data.

Based upon the 2016 Final PA Integrated Water Quality & Assessment Report, the West Branch Susquehanna River is impaired with metals, siltation, nutrients, thermal modifications, and pathogens. Although impaired, the West Branch of the Susquehanna is a show piece at the heart of Lycoming County, used as a water source for drinking and manufacturing as well a recreational and scenic asset for local boaters, fisherman, and those enjoying the Susquehanna River Walk.

As a result of Lycoming County’s reliance and love for water, many watershed association groups have formed over the years and some have developed plans to help manage the resource; from the Pine Creek Watershed Council’s River Conservation Plan on the west end of the County to Larry’s Creek Watershed Association’s Coldwater Conservation Plan in the central part of Lycoming County. A complete list of river conservation and coldwater conservation plans are listed in the Appendix E.

These conservation plans identify concerns and threats, with some discussion about preventative measures, local stream projects, and advocacy for federal, state, and local agency regulations that supports watershed protection for:

1. Neglect of stewardship of the resource
2. Land use issues including natural gas exploration
3. Waste disposal including on-lot septic systems and solid waste
4. Erosion & run-off from roads, development, & agriculture practices
5. Flooding events leading to streambank erosion/destabilization and an avenue for contaminants to enter surface and ground water.

Lycoming County has collaborated with many federal, state and local agencies and organizations with the common goal to promote watershed stewardship. Lycoming County will continue to look for opportunities to partner with:

FEDERAL	STATE	REGIONAL	LOCAL
USGS	PA DEP	North Central PA Conservancy	Watershed Associations
US EPA	PA DCED	Chesapeake Bay Foundation	Trout Unlimited- Susquehanna Chapter
US Fish & Wildlife Service	PA DCNR	Chesapeake Conservancy	Lycoming County MS4 Coalition
USDA-NRCS	PA Dept. of Agriculture	Penn State Extension	Lycoming Audubon Society

Table 10: Partner Agencies

Concerns for water supplies have led to studies to better understand water quality in Lycoming County. In 2010-2011, USGS and PA DEP conducted an assessment of baseline surface and groundwater conditions in Lycoming County’s Lycoming Creek Watershed: 31 main stem and tributary water samples and 14 ground water samples. To continue tackling the assessment of private water well supplies, Lycoming County Planning partnered with the USGS and PA DCED in 2014 to conduct a snap shot of the groundwater quality in Lycoming County through random sampling and testing of 75 private wells. The majority of private wells serve single-family residences in rural areas. The results from this testing showed existing geology and land use influences in our ground water. Some samples exceeded primary or secondary maximum contaminant levels (MCLs) for arsenic, iron, manganese, total dissolved solids (TDS), chloride, pH, bacteria, or radon-222. The USGS “Groundwater Quality for 75 Domestic Wells in Lycoming County, PA 2014” can be found on the USGS website (see also Appendix C, Community Facilities and Infrastructure Background Data).

Priority Issue Overview

The PA Municipalities Planning Code, MPC §301 (b) states that “the comprehensive plan shall include a plan for the reliable supply of water, considering current and future water resources availability, uses and limitations, including provisions to adequately protect water supply sources.” If it is understood how much water there is, how water moves through the hydrologic cycle, and how the community obtains and uses water, it can be accepted that there is a great responsibility to ensure that abundant, good quality water remains for the continued use of Lycoming County residents and businesses both present and future. Threats to our surface and ground waters can be described in two pollution categories:

- Point source- attributable to a single identifiable site. Examples include: failing private septic systems that can introduce disease-causing microorganisms, man-made products including gasoline and oil spilled down a drain, or improper disposal/discharge of industrial wastes.
- Non-point source- occurs from rainfall or snowmelt moving over and through the ground picking up a variety of contaminants like road salt, pesticides, or fertilizer runoff as well as particulates collected from the atmosphere through precipitation.

Stormwater: Stormwater runoff is inevitable and creates a countywide issue when it picks up soil, debris, and contaminants. Wherever precipitation encounters the earth’s surface, a percentage filters through the soil into the groundwater and the remainder flows over land as stormwater run-off to surface waters. When water runs over a surface in a sheet flow and spreads over a large area, it is considered a potential non-point source. Developed lands with impervious surfaces generally take stormwater and direct it through structures creating

point source discharges. In 2011, Lycoming County Commissioners adopted the Lycoming County Stormwater Plan to be in compliance with PA Act 167 and to guide stormwater management within the County. The PA Department of Environmental Protection required each of the County's 52 municipalities to enact stormwater management ordinances that were consistent with the County's plan. Pennsylvania has also committed to have its National Pollution Discharge Elimination System (NPDES) permitted Municipal Separate Storm Sewer System (MS4) municipalities reduce sediment by 10% by 2025 through the implementation of a required Chesapeake Bay Pollution Reduction Plan and following six "Minimum Control Measures":

1. Public education and outreach
2. Public participation
3. Illicit discharge detection and elimination
4. Management of construction site runoff
5. Management of post construction site runoff (new development and redevelopment)
6. Good housekeeping in municipal operations

Role of the Public in Stormwater

The public can contribute towards these measures by playing their part with adhering to "only rain down the storm drain" and following property maintenance best practices such as using minimal lawn fertilizers, automotive fluid receptacles, and properly managing water run-off from their homes, driveways, and patios with water infiltration techniques to reduce erosion and sedimentation entering storm sewers, drainage ditches, and streams. Watershed specific stormwater plans are needed to better define the amount of stormwater management required to offset development and give stormwater the opportunity to be cleansed prior to entering our surface and ground waters.

Flooding: Flooding is a two-fold concern in Lycoming County. The force of moving water can collapse fuel and chemical pipelines and tanks and collects man-made items and garbage, causing point source pollution. The flood waters also pick up contaminants while moving across the land including chemicals, fuel, nutrients and large amounts of organics and sediment that contribute to non-point sources of pollution. Implementing stormwater best management practices and maintaining forested open space are crucial for stormwater absorption and groundwater recharge, which reduce the severity of flooding for downstream properties and the Lycoming County urbanized communities of Williamsport, Jersey Shore, Montoursville, South Williamsport, Duboistown, Muncy and Montgomery.

Land Use: Land use plays a major part in Lycoming County's water quantity and quality. Three intensive land use concerns have been raised since the adoption of the 2006 County Comprehensive Plan, specifically in the rural areas: natural gas extraction activities, agriculture, and failing on-lot septic systems. For the purpose of this discussion, land uses become intensive when the use overcomes nature's ability to handle environmental impacts through natural systems, requiring man made solutions to minimize the impact.

Natural gas extraction activities: For decades prior to 2006, Lycoming County had experienced only shallow well or conventional oil and gas exploration on a small scale, with very little known environmental impact. Outside of a handful of intensive agricultural operations and a seven mile long, 35-tower, wind power electric generation facility, Lycoming County has not experienced a large scale intensive land use that has

affected much of the rural areas of the County. Over the past 12 years, the County has seen unconventional natural gas drilling-related activities rise, increasing the number of avenues for contaminants to enter surface and ground water supplies as point source and non-point source pollution:

- Potential natural gas and frac fluid migration during horizontal gas well drilling, well casing, or hydraulic fracturing stages
- Potential spills from transporting frac chemicals, lubricants, fuel, and drilling flowback fluid or produced water that contains injected chemicals plus naturally occurring materials such as brines, metals, radionuclides, and hydrocarbons (flowback fluid or produced water sometimes is filtered to be reused onsite or nearby drilling locations; once these fluids become waste water, they are transported for disposal at deep well injection or treatment plants)
- Erosion and sedimentation from large scale earth disturbances of well drilling pads, compressor station and metering pads, water impoundments, access roads, pipelines, and staging areas
- Air contaminants from flare-offs, compressor stations, and diesel truck traffic

The photo below depicts some of the types of intensive development where contamination is possible, including a natural gas drilling pad, compressor station, water impoundment, and access roads.



Non-Conventional Natural Gas Development in Lycoming County
Source: PCD

Nearly 2,000 unconventional natural gas drilling permits have been issued in Lycoming County since January of 2006. PA DEP has issued numerous violations over the 12 year time frame that have included frac fluid containment issues, diesel fuel spills, and well casing integrity problems. There are documented cases of sub-surface natural gas migration that have impacted private water supplies, most likely from failed well casings that have occurred in some Lycoming County municipalities: Franklin, McNett, McIntyre, and Moreland Townships. Evidence of sediment and metals contamination in private wells has also occurred in Eldred and Hepburn Townships from natural gas drilling activities.

Pennsylvania has comprehensively regulated the oil and gas industry since the 1984 PA State Oil and Gas Act 223. With the increase of oil and gas development beginning in 2007 in Lycoming County, in 2011, the Lycoming County Commissioners adopted oil and gas zoning regulations that have assisted municipalities under County Zoning jurisdiction to guide oil and gas extraction activities. Until the updated Oil and Gas Act 13 of 2012 clarified that zoning and other local

regulations would be applicable to oil and gas development, there had been a question whether or not the state law pre-empted and superseded all local land use controls. These County Zoning oil and gas regulations could be adopted by all municipalities that enforce their own land use ordinances. Doing so will help minimize threats to surface and ground water by locating related development out of the floodplain and steep slopes and ensuring proper permits and safeguards are in place and implemented. Although, Lycoming County's geology is not conducive to be used for deep well injection, local oil and gas regulations could include specifics to address disposal of oil and gas related wastes, such as systems like the proprietary flowback/ produced water treatment plants that have been developed here in Lycoming County. These systems help avoid longer transportation hauls and help reduce the chance of deep well injection sites being investigated for permitting in the County that bring their own set of threats to water quality.

Agriculture: The 158,462 acres of land used for agricultural purposes, there is a significant farming presence in the County, that is in part, contributing towards non-point source nutrient and siltation stream impairments. Traditional agriculture activities have not used progressive agriculture best management practices (BMPs) that promote soil health, soil retention, animal and manure containment, erosion control, stormwater management, water management, stream riparian buffer protection, or forest management.

USDA-NRCS, PA DEP, Conservation District staff, and Penn State Extension are working to provide the needed tools, education, and incentives to the agriculture community to help minimize negative impacts to Lycoming County's water quality. In 1985, the USDA Farm Service Agency began the Conservation Reserve Enhancement Program (CREP) where farmers receive payment to voluntarily remove environmentally sensitive land from agricultural production and plant trees and other ground cover that will improve soil and water quality and reduce loss of wildlife habitat. One of the most effective agricultural BMPs is to fence farm animals out of water ways, allowing riparian plantings to grow and protect stream quality.

Over the past 10 years, and most recent as within the last two years, the PA state regulatory agencies are coordinating to reduce agriculture's footprint as a major contributor to non-point source pollution across Pennsylvania. Lycoming County began a PA DEP-approved Nutrient Credit Trading program in 2010 that has the potential to reward farmers for going over and above minimum best management agricultural practice standards. The US EPA has mandated the Chesapeake Bay states to reduce the amount of sediment, nitrogen, and phosphorus discharged into waterways. In turn, PA DEP has stepped up the requirements for its National Pollution Discharge Elimination System Permits and is also conducting more farm inspections through PA DEP staff and Conservation District staff for verifying that farmers are implementing BMPs found within the required agriculture conservation plans and manure management plans. NRCS assists Conservation District staff by working with farmers who need conservation plans. At times, the number of plans needed to be written out numbers the qualified individuals available to write the plans, adding farmers to a waiting list to come into compliance. All involved in agriculture are seeking to find a balance between responsible land stewardship and the need for regulatory compliance to minimize the threat to Lycoming County's water quality.

On-lot septic systems: In Lycoming County, approximately 95% of its land mass is rural countryside outside the designated growth area and not served by public sewer. Except for some isolated small private and public sanitary sewer systemed areas, residential and business development must rely on individual on-lot septic

systems for sewage disposal. An improperly functioning septic system may cause point source pollution to nearby streams and groundwater aquifers, with pathogen contamination indicated by the presence of E. coli bacteria. According to PA DEP, a land owner may be experiencing a failing septic system if there is:

- Sewer odors in the house and/or drinking water
- Illness, often to household visitors
- Sponginess around septic tank, distribution box or dosing tank and absorption area
- Surfacing raw sewage

Because of this threat to drinking water, Pennsylvania, through Act 537, has made each municipality ultimately responsible for the disposal of all sewage generated within its boundaries. PA Code 71.73 requires municipalities to initiate a program to ensure proper maintenance of on-lot septic systems and to promote system efficiency and longevity. Municipalities should be aware that state officials are considering enforcing PA Code 71.73 with a mandate for all municipalities to comply with the regulation by adopting on-lot sewage management system ordinances. About 25% of Lycoming County's municipalities have adopted an on-lot sewage management system ordinance and only a portion of them are being enforced. Traditionally, municipalities have been reluctant to place new regulations on their residents.

To be effective, an on-lot sewage management system ordinance must be approved by PA DEP and include requirements for the:

- Removal of septage or other solids from treatment tanks once every three years or other as needed interval
- Diversion of stormwater away from the treatment facilities and absorption areas and protection of the absorption areas from physical damage
- Use of water conservation devices to reduce hydraulic loading to the sewage system
- Operation and maintenance of: electrical, mechanical, and chemical components of the sewage facilities; collection and conveyance piping, pressure lines, and manholes; alarm and flow recorder devices; pumps; and disinfection equipment and related safety items
- Other requirements as stated in PA Code 71.73

Each on-lot sewage management system ordinance should also indicate that only a certified Sewage Enforcement Officer can perform the inspections. This gives the highest chance for problems to be found and opportunity for landowner education prior to a potential septic system failure. Many times sewage pumpers/ haulers or permit/ zoning officers are contracted with the municipality but do not have the proper training to conduct inspections and often miss:

- Deteriorating septic holding and dosing tanks
- Broken septic tank clean-outs, baffles, and piping
- Malfunctioning alarms

Municipalities that also require on-lot septic system back-up or replacement area soils testing for development significantly reduce the chances of the need to extend sewer, which involves the enormous task of installing infrastructure and the additional financial burden to the municipality and its affected residents. Often this requirement is part of the on-lot sewage management system ordinance and added to municipal or county subdivision and land development ordinances.

Source Water Protection: Through the US EPA’s mandate to the states from the Safe Drinking Water Act, the PA DEP Northcentral office has provided financial and technical assistance to public water systems in Lycoming County to help establish source water protection (SWP) plans. Source water protection begins with watershed stewardship. This can be accomplished with SWP plans that: identify actual and potential sources of contamination to the source, allow communities to effectively educate the public on the importance of their drinking water source, serve as the first step for long-term sustainable planning for the future of the community, and provide a comprehensive action plan in case of an emergency.

Through PA Code, Title 25, Chapter 109, PA DEP requires public water systems to meet clean drinking water standards consistent with an approved SWP, and also that the provider reports water quality data to its users. See the Infrastructure chapter of this document for more information on public water systems in Lycoming County. Although PA DEP regulates the cleanliness of the water provided by public systems, there are no state requirements for construction, maintenance, and treatment of private water systems under a specific size and usage. Lycoming County residents located in rural areas rely on water supplied through natural occurring springs or manmade cisterns and private wells. In total, 85% of private water systems are drilled wells, 6% are hand-dug wells, and 9% are springs or cisterns. Because there is no ownership of water, the “reasonable use” of water is allowed. There is little protection for existing private water sources where the deepest well and the biggest well pump often wins.

The PA State Water Plan recognizes that “the state forest provides an abundance of high quality forest products and represents a two million acre water treatment plant and

Integrated Water Resources Management

Water, in its various forms, affects so many different aspects of daily life. Pennsylvania’s “State Water Plan Principles” (2009) state, “...land development, flooding, stormwater, wastewater, groundwater recharge, irrigation and water supply and withdrawals are elements of the same interconnected system.” To be good stewards of the resource, the future of water management in Lycoming County should be consistent with the PA State Water Plan and looked at in a more holistic view, using integrated water resources management (IWRM). From the American Water Resources Association (AWRA), IWRM is “the coordinated planning, development, protection, and management of water, land and related resources in a manner that fosters sustainable economic activity, improves or sustains environmental quality, ensures public health and safety, and provides for the sustainability of communities and ecosystems.”

The County Planning Directors Association of Pennsylvania One Water Task Force has developed several documents including a Planners Guide and Checklist tool to educate and assist community planners move in the direction of IWRM. These documents can be found at: www.pacounties.org.

air purification system. The Plan recognizes the function of state forest lands on municipal and private water supplies and states “Future land use and development within both existing and potential watersheds must be compatible with water production.” The Plan expressed the need to be more diligent in locating certain land uses away from public water supply areas and not developing steep slope and ridge tops to reduce the chance for erosion and soil instability. Also, stormwater management, soil conservation measures, and riparian buffers are key tools for maintaining surface water quality. In short, source water protection is needed now more than ever throughout the entire County. The North Central Source Water Protection Alliance formed within Lycoming County and surrounding counties and works towards educating the public and solving source water protection issues (see also Appendix C, Community Facilities and Infrastructure Background Data). Efforts to protect source water yield numerous benefits:

- It helps keep the supply of public water more cost affordable because clean water is simpler and less expensive to treat.
- Implementing proactive source water protection measures will also reduce system operation and maintenance costs.
- A dependable and clean water source also enhances the community’s potential to attract new development.

Key Implications Lycoming County has an abundant natural resource of good quality and quantity of water, both surface and ground water. A vast number of ecological services from our water resource will be lost if the County does not protect it and execute the most fundamental responsibility—to provide for the health, safety, and welfare of County citizens. If threats to the County’s water resources are not addressed, negative impacts are likely to occur:

- Both public and private water systems will run an increased risk of contamination from preventable sources of pollution
- The required treatments to combat these contaminants will become more complex
- The resulting costs to provide clean and safe water will increase
- If contamination escalates, water suppliers run the risk of being forced to shut down wells and identify new sources of water
- Replacement well locations are finite and limited by geography and geology
- There are significant penalty costs associated with non-compliance of regulatory requirements.

There is a need to ensure that source water protection plans are in place, reviewed regularly, updated as needed, and implemented for the urbanized sectors served by public water authorities and sometimes smaller private water systems. Degrading the quality or abundance of water will compromise the quality of life within Lycoming County and the world around it.

Projects of Countywide Significance for this Issue

LYCOMING COUNTY INTEGRATED WATER RESOURCES MANAGEMENT INITIATIVE

This project will be implemented in coordination with public water suppliers, public and private water users, academia, PA DEP, municipalities, etc... with various options for implementation. The project is in response to all the points of discussion related to the countywide threats to water quality. A comprehensive countywide integrated water resources initiative can accomplish the following:

1. Take inventory of existing source water protection plans and work with PA DEP and water providers to understand the level of implementation and need for improvement.
2. Support conservation of the source water protection areas for municipal water systems.
3. Support the 2017 multi-municipal planning efforts in establishing new source water protection plans where needed across the County.
4. Provide information and training to municipal officials on where the source water protection areas are in their municipality and their options for protecting these areas from threats.
5. Support education of local officials and public through social media, TV, newspaper, and schools in adopting an integrated water resources management approach in planning for all projects and initiatives from infrastructure projects to land development and transportation projects.
6. Promote Best Management Practices (BMP) education of private water well owners.
7. Support the gathering of existing water quality data and obtaining new data.
8. Review Act 537 plan recommendations.
9. Support and advocate for legislative action for private well water quality and construction standards.
10. Support the Lycoming County Conservation District with efforts for reduction in non-point source pollution.

UPDATE THE COUNTY STORMWATER PLAN

The Stormwater Act 167 specifies that the County shall review and if necessary, revise the adopted and approved stormwater study area plan a minimum of every five years. The Watershed Advisory Committee can be called upon to review the adequacy of the County Stormwater Plan to determine if the Plan is adequate for minimizing the runoff impacts of new development. The Committee would then advise the County to the need for revision. If no revisions are to be made, the County would then adopt a resolution stating the Plan has been reviewed and meets the provisions of Act 167 and forward the resolution to PA DEP.

SUPPORT MUNICIPAL STORMWATER ORDINANCE REVIEW & UPDATE PROCESSES IN LYCOMING COUNTY

A stormwater ordinance is only as good as a municipality is willing to enforce the requirements. Stormwater regulations must be reasonable, practical, and regularly reviewed/updated to make sure that development is sufficiently being offset with stormwater management controls and best management practices that are cost effective and consistent with the local watershed stormwater plan.

SUPPORT THE SYLVAN DELL CONSERVATION PROJECT

The Sylvan Dell Conservation Project consists of fee simple land acquisition of approximately 229 acres of land in Armstrong Township, Lycoming County directly adjacent to the South Williamsport Community Park Complex. This project will protect high quality wetlands, 3,790 LF of riparian forest buffers along the West Branch of the Susquehanna River, cultural and historic resources, and important habitat. Once acquired, it will be owned and operated by Armstrong Township and its partners as a public nature preserve for conservation and passive recreational use. Long-term plans for the project may include wetland and habitat restoration, passive recreation development such as trails, nature viewing areas, kayak/canoe launch, environmental and historic interpretive signage and/or educational facilities. Lycoming County is assisting Armstrong Township with this acquisition by working with the project partners, negotiating with the property owners, and providing overall project planning, coordination, technical, legal, grant assistance, and staff support.

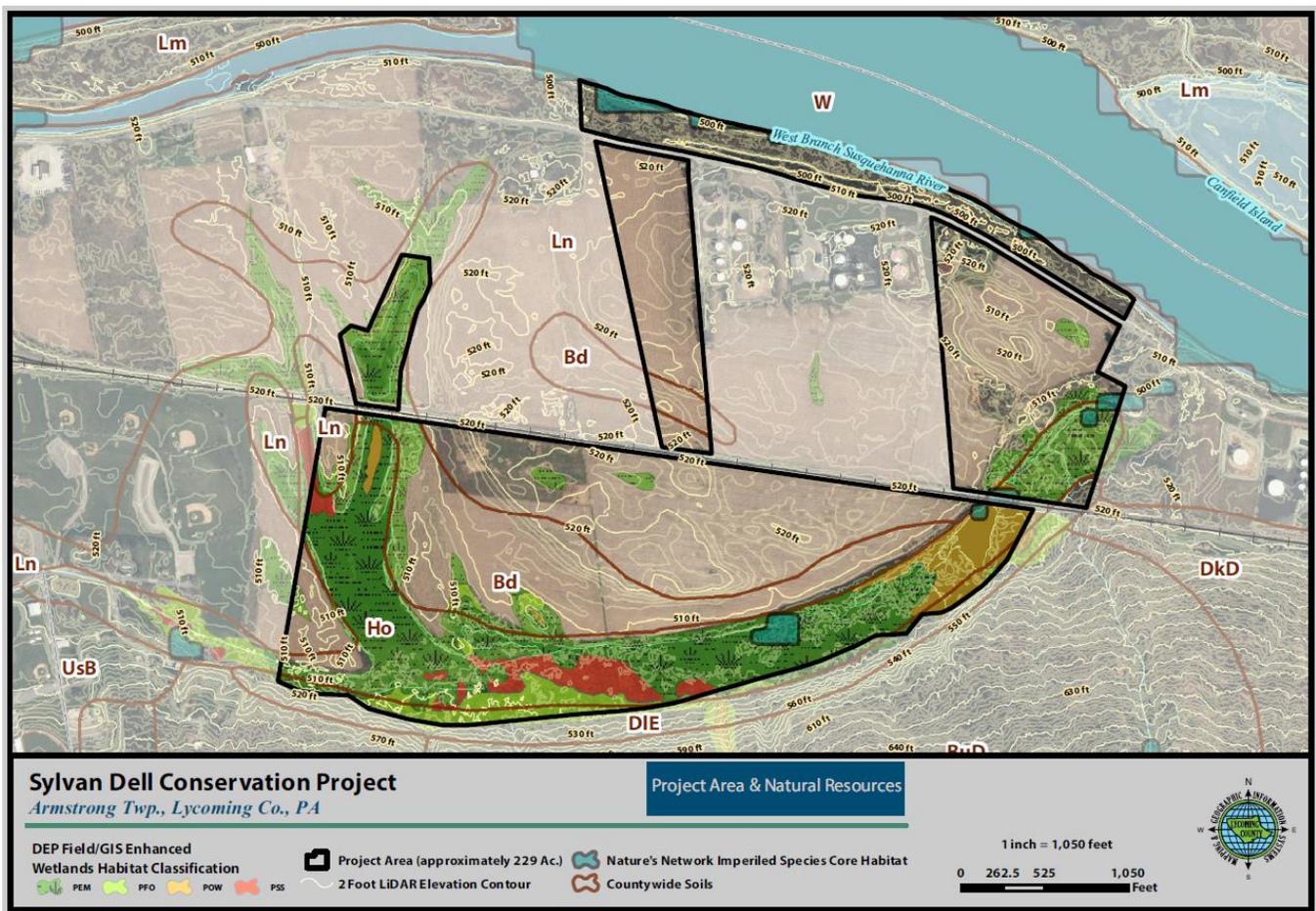


Figure 36: Sylvan Dell Conservation Project Area & Natural Resources
 Source: PCD