

Williamsport Area Transportation Study Metropolitan Planning Organization

LONG RANGE TRANSPORTATION PLAN
2018 - 2038

CHAPTER 2 – PLANNING
CONTEXT

Federal and State Planning Regulations and Policy Guidance

First, we will provide a brief overview of existing Federal and State regulations and policy guidance documents related to the development of Long Range Transportation Plans to ensure that the WATS Long Range Transportation Plan is adequately addressing all planning requirements and considers related guidance to ensure consistency between County and local planning and federal and state law and policy direction. It is important to fully recognize and understand that federal and state laws and policy guidance related to long range transportation planning have been constantly evolving in a manner that is strengthening the overall linkage between land use, transportation, environmental preservation and community livability while giving MPO/RPO transportation planning agencies the necessary tools to conduct a more effective transportation planning and programming process that also promotes strong public involvement in decision-making.



Federal Regulatory Requirements

In 1962, Congress established requirements that transportation planning in the United States be conducted in a “comprehensive, continuous, and coordinated” manner. This 3-C process eventually was further formalized with the enactment of the **Federal Aid Highway Act of 1973** mandating the creation of Metropolitan Planning Organizations, (MPO’s) in each urbanized area with a population of 50,000 or greater as defined in the U.S. Census.

However, it wasn’t until the passage of the [Intermodal Surface Transportation Efficiency Act, \(ISTEA\)](#) of 1991 that transportation planning requirements along with the roles of MPO’s in transportation planning and decision-making was significantly strengthened. The **ISTEA** law enabled States and MPO’s, in cooperation with transit agencies, to develop regional metropolitan transportation plans that reflect unique state and local priorities. The purpose of the law was to improve the linkage between overall transportation planning and the programming of federal funds for specific transportation projects in a more formalized way that addressed transportation and its related impacts, however **ISTEA** regulatory requirements were broadly defined, non-prescriptive and lacked sufficient specific guidance to define core elements of long range transportation plans. Therefore, MPO plans varied widely in content and implementation.

In 1998, Congress enacted the [Transportation Equity Act for the 21st Century, \(TEA-21\)](#). Although, many regulatory requirements were similar to **ISTEA**, better guidance was provided for the development of long range transportation plans with related planning regulations published in the

Code of Federal Regulations (CFR), Part 23. The Federal Highway Administration and Federal Transit Administration re-examined planning regulations, however major changes to **ISTEA** were not deemed to be necessary and were never instituted.

In August, 2005 a new act was passed entitled the [Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users \(SAFETEA-LU\)](#). This law required MPO's adopting Long Range Transportation Plans after July 1, 2007 to perform the following functions:

- **Development of A Public Participation Plan**
- **Addressing Federal Planning Factors (see sidebar)**
- **Development Of Public Transit/Human Services Transportation Plan**
- **Identification Of Transportation Facilities**
- **Identification Of Environmental Mitigation Activities**
- **Conduct Consultation And Coordination**
- **Development Of A Financial Plan**
- **Identification of Operational And Management Strategies**
- **Identification and Addressing of Safety Issues**
- **Identification and Addressing of Security Issues**
- **Adherence to Plan Update Cycle**

In 2012, a new transportation reauthorization bill was signed into law entitled [Moving Ahead for Progress in the 21st Century \(MAP-21\)](#). Along with consolidating a number of federal transportation funding programs and promoting accelerated project delivery, environmental sustainability, more efficient freight movement, increased safety, congestion reduction and system reliability this legislation continues metropolitan and statewide transportation planning processes and incorporates performance goals, measures, and targets into the process of identifying needed transportation improvements and project selection.

For the first time, the statewide and metropolitan long range transportation plan must describe the performance measures and targets used in assessing system performance and progress in achieving the performance targets. It is important to note that the US Department of Transportation Secretary is required to establish criteria for the evaluation of the new performance-based planning processes. This process is to consider whether States developed appropriate performance targets and made progress toward achieving the targets. The legislation requires the Secretary to provide reports to Congress evaluating the overall effectiveness of performance based planning and the effectiveness

The 10 Planning Factors of the FAST Act

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
2. Increase the safety of the transportation system for motorized and non-motorized users
3. Increase the security of the transportation system for motorized and non-motorized users
4. Increase the accessibility and mobility for people and for freight
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns
6. Enhance the integration and connectivity across and between modes for people and freight
7. Promote efficient system management and operation
8. Emphasize the preservation of the existing transportation system
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism.

of the process in each State and for each MPO. **MAP-21** established seven national performance goals:

1. To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
2. To maintain the highway infrastructure asset system in a state of good repair
3. To achieve a significant reduction in congestion on the National Highway System
4. To improve the efficiency of the surface transportation system
5. To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
6. To enhance the performance of the transportation system while protecting and enhancing the natural environment
7. To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

On December 4, 2015, President Obama signed the current transportation reauthorization bill the [Fixing America's Surface Transportation \(FAST\) Act](#). This bill continued the outcome-based performance measures of MAP-21 and clarified the nature of how the goals would be assessed. As a Metropolitan Planning Organization, the Williamsport Area Transportation Study has the option either to accept and support the statewide targets established by PennDOT or to set our own performance targets. The Williamsport Area Transportation Study Metropolitan Planning Organization will opt to accept and support the statewide performance targets developed by PennDOT. The **FAST Act** also expanded the scope of metropolitan planning to include improving transportation system resiliency and reliability, reducing or mitigating stormwater impacts from surface transportation infrastructure, and enhancing travel and tourism.



Commonwealth Of Pennsylvania Policies for Long Range Transportation Planning

In August of 2016, PennDOT adopted its current statewide long range transportation plan and comprehensive freight movement plan entitled [PA On Track](#). This document presents a clear vision and strategic direction for transportation planning across Pennsylvania. It has also greatly informed the structure and direction of this WATS long range plan. The vision of **PA On Track** is to “deliver a quality transportation system to support the economy and lifestyles of current and future

Pennsylvanians.” This balanced emphasis on quality of life, economic development, and sustainability for future generations harmonizes with the outcomes of Lycoming County comprehensive planning efforts outlined in the next section of this plan.

PA On Track identifies four general goal areas based on current economic and demographic trends. These goals provide direction to future transportation system investments. The four goals identified are:

1. System preservation
2. Safety
3. Personal & freight mobility
4. Stewardship

For each of these goals, PennDOT has established specific objectives and performance measures to track progress and identified specific strategies to improve within these aspects of the Commonwealth’s transportation system.

System preservation will use increasingly good data about the transportation systems in Pennsylvania to develop asset management strategies to maintain the current transportation system at a high level of quality. A major deficiency identified by PennDOT is a lack of complete data on locally owned transportation infrastructure. System preservation has the following four objectives:

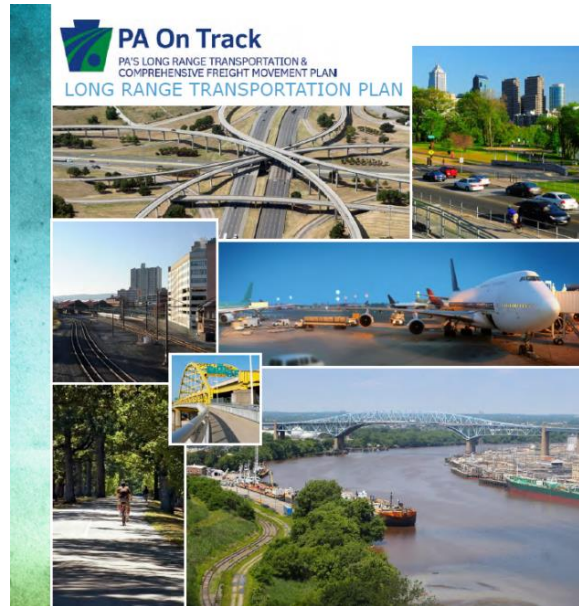
1. Optimize Pavement Conditions
2. Reduce the number of structurally deficient bridges
3. Encourage a good state of repair for all modes
4. Limit the number of load-restricted bridges

To measure progress toward these goals, PennDOT has established the following performance measures:

- Percentage of pavement categorized as excellent/good/fair/poor based on IRI (International Roughness Index)
- Pavement structure index based on OPI (Overall Pavement Index)
- Percent of structurally deficient bridges by deck area
- Number of load-restricted bridges.

To meet the system preservation objectives, PennDOT will be pursuing the following strategies:

- Develop an inventory and condition information of all state- and locally-owned transportation system assets
- Implement enterprise asset management for programming and decision-making
- Prioritize state-of-good repair approaches that preserve transportation system assets
- Implement a Capital Inventory and Planning Tool to store, maintain, edit, and report on transit’s capital assets





Improvement of *safety* statewide for all modes and all users is the second goal of the plan. An ultimate target identified in the plan is the development of a “[Toward Zero Deaths](#)” initiative.

Additionally, the following six specific safety objectives are identified:

1. Reduce statewide transportation system fatalities
2. Reduce serious injury crashes statewide
3. Invest in cost-beneficial approaches and technologies that enhance the safety of the transportation system
4. Improve public understanding of high-risk traveling behaviors
5. Reduce crashes, injuries, and fatalities in work zone areas
6. Promote, develop, and sustain multijurisdictional traffic incident management programs to achieve enhanced responder safety and safe and quick traffic incident clearance

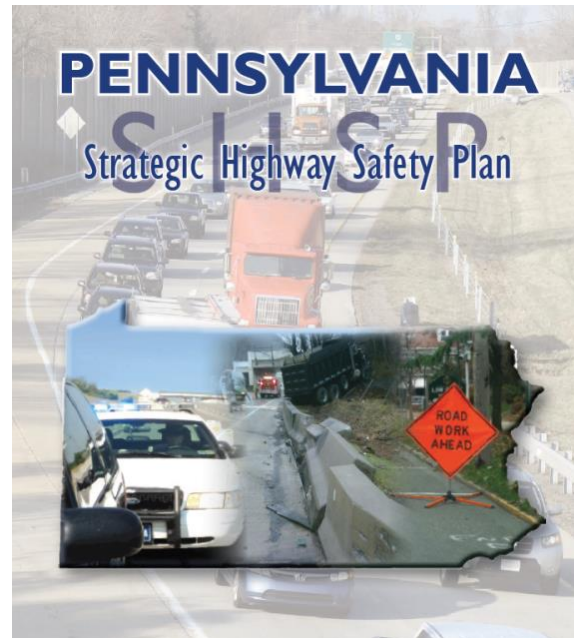
To measure progress toward these goals, PennDOT has established the following performance measures:

- Number of fatalities and serious injuries
- Rates of crashes with fatalities and serious injuries per vehicle miles traveled
- Number of fatalities and serious injuries in work zones
- Number of rail-crossing fatalities, serious injuries, and incidents

To meet the safety objectives, PennDOT will be pursuing the following strategies:

- Implement the Strategic Highway Safety Plan
- Emphasize the Highway Safety Manual in all design processes
- Address safety issues during earlier phases of project planning
- Partner to expand driver improvement programs for seniors and younger drivers
- Emphasize safety for pedestrians and bicyclists through design modifications, education, and aggressive coordination with enforcement
- Ensure highway design accommodates transit and freight
- Support efforts by the General Assembly to enact tougher laws that address distracted driving
- Address the transport of hazardous materials in business plans, long range transportation plans, and county local hazard mitigation plans

Since the 2017 [Pennsylvania Strategic Highway Safety Plan](#) is the guidance document specifically developed to outline Pennsylvania’s progress towards safer highways, it is important to recognize the areas of focus in that document identified to reduce fatalities and serious injuries. The strategic highway safety plan identifies 16 separate safety focus areas that the Commonwealth will pursue to increase highway safety:



1. Reducing impaired driving
2. Increasing seat belt usage
3. Infrastructure improvements
4. Reducing speeding and aggressive driving
5. Reducing distracted driving
6. Mature driver safety
7. Motorcycle safety
8. Young & inexperienced driver safety
9. Enhancing safety on local roads
10. Improving pedestrian safety
11. Improving traffic records data
12. Commercial vehicle safety
13. Improving emergency/incident influence time
14. Improving bicycle safety
15. Enhancing safety in work zones
16. Reducing vehicle-train crashes

The third goal of **PA On Track** is the expand and improve *personal and freight mobility*. Mobility will be modernized using transportation systems management and operations (TSMO) principles. There are five objectives associated with this goal area:

1. Provide multimodal infrastructure and technology advancements to eliminate bottlenecks and improve system efficiency and trip predictability
2. Increase access to jobs, labor, and transportation choices in urban, suburban, and rural communities
3. Support communities through appropriate and equitable transportation modal options and investments
4. Improve first and last mile intermodal access and connections
5. Improve bridge under-clearances and intersection geometry

To measure progress toward these goals, PennDOT has established the following performance measures:

- Annual hours of truck/auto delays
- Annual transit ridership
- Percent/number of freight bottlenecks eliminated

To meet the mobility objectives, PennDOT will be pursuing the following strategies:

- Optimize multimodal infrastructure through improved operations

TSMO

Transportation systems management and operations (TSMO) encompasses a broad set of strategies that aim to optimize the safe, efficient, and reliable use of existing and planned transportation infrastructure for all modes. TSMO is undertaken from a systems perspective, which means that related TSMO strategies are coordinated with each other and across multiple jurisdictions, agencies, and modes. TSMO includes both efforts to operate the multimodal transportation system and activities to manage travel demand. The following are examples of TSMO strategies:

- Traffic incident management.
- Traffic signal coordination.
- Transit signal priority.
- Freight management.
- Work zone management.
- Special event management.
- Road weather management.
- Congestion pricing.
- Managed lanes.
- Ridesharing programs.
- Parking management.

Source: Federal Highways Administration, Office of Operations

- Incorporate a project prioritization tool into statewide planning and programming as a validation process
- Identify the Multimodal Economic Competitiveness Network in collaboration with Pennsylvania’s MPOs and RPOs
- Prioritize and enhance intermodal connections (“first and last mile”)
- Implement station improvements and interlocking projects on the Keystone Corridor
- Integrate freight mobility and truck parking accommodation needs into the Corridor Modernization program.
- Work with local and state partners to support sustainable community-based shared-ride services
- Develop a systematic approach for calculating bicycle and pedestrian needs statewide
- Partner with private sector freight carriers to investigate strategies for improving modal efficiency
- Advocate for additional funding for the state’s ports, locks and dams
- Inventory substandard bridge underclearances for rail

Along with **PA On Track**, PennDOT published a [Comprehensive Freight Movement Plan](#) in 2016 that interrelates and reinforces the freight mobility goals of PA On Track.

The fourth and final goal area contained within PA On Track is an emphasis on **stewardship** by increasing efficiency and streamlining processes. Nine objectives have been identified within this goal area:

1. Ensure a high standard of quality and maximize effectiveness of agency and user investments
2. Enhance the performance of the transportation system while protecting the state’s natural, cultural, and historic resources
3. Encourage the development and use of innovative technologies
4. Support transportation investments that reflect the diversity of Pennsylvanians and their needs
5. Support coordination of land use and transportation planning
6. Support economic development
7. Support technical assistance/training courses offered to municipalities
8. Support clean air initiatives
9. Promote initiatives aimed at improving system operations and energy efficiency

To measure progress toward these goals, PennDOT has established the following performance measures:

- Annual savings through PennDOT modernization
- Timely delivery of approved local projects
- Timely delivery of highway occupancy permits
- Number of municipal officials trained through the Local Technical Assistance Program (LTAP) on the coordination of land use and transportation planning

To meet the mobility objectives, PennDOT will be pursuing the following strategies:

- Assess weather-related vulnerability in statewide and regional planning
- Continue and accelerate implementation of the “Linking Planning and NEPA Process” to advance project delivery

- Continue sponsoring course offerings on critical land use topics that protect the state’s investments in the transportation system
- Raise awareness of freight’s value to the economy and its impacts on the state’s transportation infrastructure
- Encourage the regional consolidation of transit agencies where efficiencies can be demonstrated
- Use public-private partnerships to expand the available pool of capital and tap into private innovation and approaches
- Investigate opportunities to incorporate technology and Intelligent Transportation Systems across Pennsylvania
- Coordinate with local/county governments on traffic signal management operation and maintenance agreements
- Support the use of alternative fuels and related equipment and facilities
- Continue to plan for the advent of autonomous/connected vehicles

Lycoming County Comprehensive Planning

The current [Lycoming County Comprehensive Plan](#) was adopted by the Lycoming County Board of Commissioners on August 24, 2006 in conformance with the Pennsylvania Municipalities Planning Code (MPC), Act 247 of 1968 as reenacted and amended. This plan serves as a policy document that provides guidance to the County and local municipalities in areas such as land use, transportation, housing, infrastructure, and community development. The plan projects future growth trends based on data and careful analysis and proposes the best possible policies and implementation tools to accommodate expected growth while protecting the County’s vast and precious resources. The plan is not a regulatory document. The planning process involved public participation from dozens of stakeholder organizations and the general public over several years.

Concurrent with the development of the overall Lycoming County Comprehensive Plan, the Lycoming County Planning Commission engaged in an extensive comprehensive planning process with 26 municipalities to develop six individual Multi-Municipal Comprehensive Plans for the areas encompassing the designated future growth areas of Lycoming County. Plan development and review is conducted by Planning Advisory Teams (PATs) composed of local government elected officials, emergency services, school districts, community organizations, and others. The six adopted multi-municipal comprehensive plans consist of:

Muncy Creek Multi-Municipal Comprehensive Plan

Hughesville Borough
Muncy Borough
Muncy Creek Township
Picture Rocks Borough
Shrewsbury Township
Wolf Township

Montoursville/Muncy Multi-Municipal Comprehensive Plan

Montoursville Borough
Muncy Township
Fairfield Township

Us-220 / Future I-99 Multi-Municipal Comprehensive Plan

Jersey Shore Borough
Piatt Township
Porter Township
Woodward Township
Nippenose Township [Added to Planning Area in 2015]

Us-15 South Multi-Municipal Comprehensive Plan

Brady Township
Clinton Township
Montgomery Borough
Gregg Township, Union County

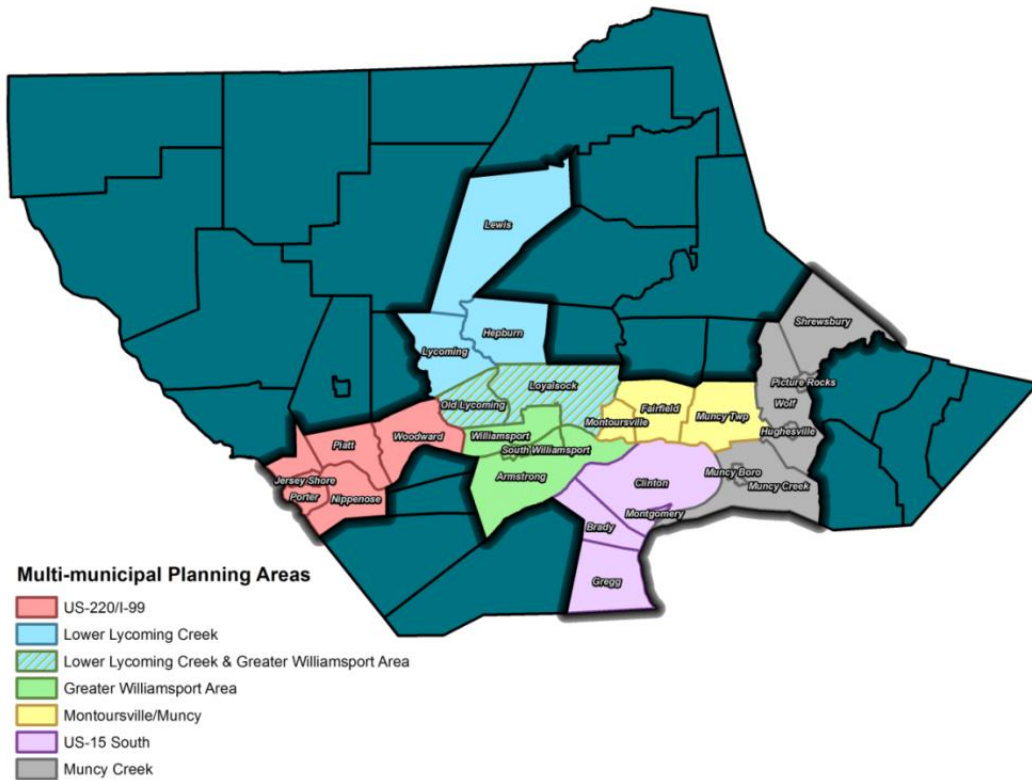
Greater Williamsport Alliance Multi-Municipal Comprehensive Plan

City of Williamsport
South Williamsport Borough
Armstrong Township
Duboistown Borough
Old Lycoming Township
Loyalsock Township

Lower Lycoming Creek Multi-Municipal Comprehensive Plan

Lewis Township
Lycoming Township
Hepburn Township
Old Lycoming Township
Loyalsock Township

These six multi-municipal comprehensive plans were adopted in the 2004-2006 timeframe by the municipalities noted above under each plan header and are currently in effect. **The map depicted below illustrates the six multi-municipal planning growth areas:**



Consistent with the Pennsylvania Municipal Planning Code, all of the Lycoming County comprehensive plans are subject to a review and validation process at 10-year intervals. The Lycoming County review process began in 2016. While the currently effective plans have all been found to remain valid guidance documents, new implementation strategies have been developed within each multimunicipal planning area as well as in-depth reviews of land use and growth areas. For a complete review of all comprehensive plan related documents, please visit the Lycoming County Department of Planning and Community Development Comprehensive Planning website: <http://www.lyco.org/compplan>.



Lycoming County Comprehensive Planning - Current Issues

All currently adopted [Lycoming County Comprehensive Plans](#) contain a chapter devoted to transportation planning that connects transportation to other functional areas of planning such as land use, community infrastructure, and public safety. Each plan is arranged around a series of “Issues” with a corresponding list of strategies, projects, and initiatives to address the issue. During the 2016 comprehensive plan review process, the current adopted plans were found to still be valid but the issues identified within each plan were re-prioritized to better reflect current conditions. This process was conducted by Planning Advisory Teams within each multimunicipal planning area. Additionally, issues were linked between the multimunicipal plans by a set of broad, thematic

statements that were derived from the more specific local issues. These thematic issues were formulated as “problem statements.” They are:

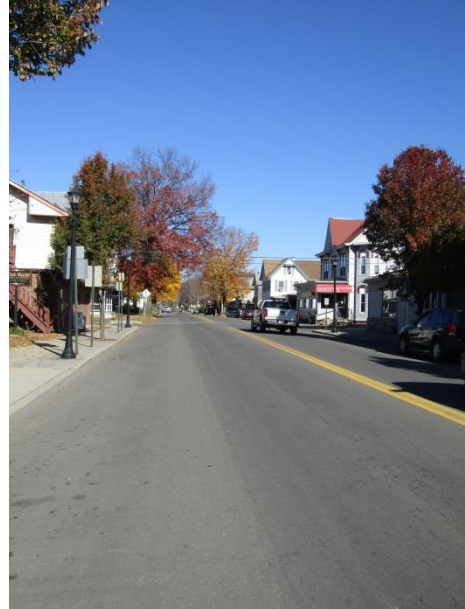
- The economy is changing, and our communities and workforce are not optimally positioned to realize our untapped economic potential and become resilient to economic trends.
- Flooding is a threat to life, property, and communities throughout the county.
- Communications infrastructure (especially cell phone and broadband internet) do not meet the needs of all areas of the County.
- Significant cultural and historical resources are not adequately documented, protected, and promoted.
- Current land use regulations and enforcement do not consistently and adequately meet community visions and respond to changing conditions.
- Downtown and village center areas across the County are not thriving or achieving their maximum potential.
- Fragmentation of local government in Pennsylvania is a barrier to efficient delivery of some public services.
- Natural gas infrastructure is not adequate in all areas of the County.
- Outdoor recreation resources are not fully developed, protected and promoted.
- Drugs, particularly heroin, are creating significant social, economic, public health, and safety problems across the County.
- Our multi-modal transportation system has deficiencies in safety, physical condition, and availability of facilities in some areas of the County.
- Volunteerism and civic engagement, particularly among young people, are insufficient to sustain community institutions and services.
- Water, sewer, and stormwater infrastructure systems are not sufficient across the County to meet all needs.
- Water quality is vital, but is vulnerable to a multitude of threats.

Each multi-municipal planning area prioritized different issues with varying levels of impact or interrelationship with the transportation system. Since these issues provide an accurate snapshot of current community concerns and priorities, they are included here to provide local context for transportation-specific planning efforts. Following are the issues prioritized within each multimunicipal planning area and an indication to what extent each issue was found to have a transportation-related dimension. Issues with no identified transportation dimension are included but in *light grey italics* text.

Muncy Creek Planning Area Prioritized Issues

1. *Water quality is vital, but is vulnerable to a multitude of threats. There was no identified transportation dimension to this issue.*
2. Flooding is a threat to life, property, and communities throughout the county. Flooding has significant community and economic impacts in this Planning area and is recognized as the largest threat to communities in this planning area as identified in the Lycoming County Hazard Mitigation Plan and in comprehensive plans. This issue was found to have a significant transportation dimension due to the potential disruptions in transportation due to flooding and the extensive potential damages to municipal transportation infrastructure from flood events.

3. Our multi-modal transportation system has deficiencies in safety, physical condition, and availability of facilities in some areas of the County. The Planning Area feels strongly that it is essential to provide a safe, well-functioning and interconnected transportation system to support the residents, business, and industry in this region. The Muncy Creek Planning Area’s primary concern is the flow of traffic and increasing delays along I-180 and from Clinton Township through Muncy Borough along State Route 405 (Water Street). This issue is solely concerned with transportation.
4. *Fragmentation of local government in Pennsylvania is a barrier to efficient delivery of some public services. There was no identified transportation dimension to this issue.*
5. Downtown and village center areas across the County are not thriving or achieving their maximum potential and the economy is changing and our communities and workforce are not optimally positioned to realize our untapped economic potential and become more resilient. The Planning Area linked two overarching countywide issues and tied downtown land use and streetscape decisions to economic development. There is a major transportation component to this issue since the Planning Area wishes to see improved walkability, bikeability, and general streetscape improvements in conjunction with mixed use zoning to promote denser development within core downtown areas.
6. Current land use regulations and enforcement do not consistently and adequately meet community visions and respond to changing conditions. South of this Planning Area in neighboring Northumberland and Snyder Counties will be the forthcoming Central Susquehanna Valley Transportation Project (CSVT). Once multi-year development of the CSVT is completed, there is the potential for a rapid increase in the volume of traffic traveling along I-180. This, in turn, may precipitate additional development pressure in this corridor and, in a larger sense, throughout the Muncy Creek Planning Area. This issue has a significant transportation dimension since it stems from a major ongoing regional transportation project.



Montoursville/Muncy Planning Area Prioritized Issues

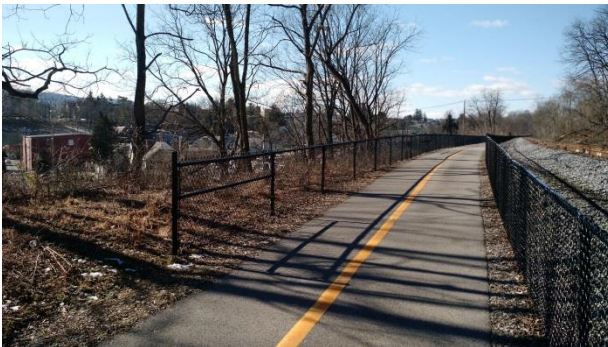
1. *Fragmentation of local government in Pennsylvania is a barrier to efficient delivery of some public services. There was no identified transportation dimension to this issue.*
2. *Volunteerism and civic engagement, particularly among young people, are insufficient to sustain community institutions and services. There was no identified transportation dimension to this issue.*
3. Our multi-modal transportation system, particularly the airport, has deficiencies in safety, physical condition, and availability of facilities in some areas of Lycoming County. The planning area identified a number of key concerns: deficiencies with the existing Williamsport Regional Airport terminal building, existing traffic problems on Fairfield Road, and future development along John Brady Drive. Muncy Township officials are concerned

that increasing density of development along John Brady Drive will result in numerous driveways with direct access to John Brady Drive. Numerous access points to this primary transportation route can cause a number of issues including traffic congestion and safety concerns. This issue is solely concerned with transportation.

4. Current land use regulations and enforcement do not consistently and adequately meet community visions and respond to changing conditions. The planning area was particularly concerned with how future infrastructure projects and changing economic conditions will influence local development pressures. Located along I-180, the planning area is concerned about what effect changing traffic volumes from the forthcoming Central Susquehanna Valley Transportation Project (CSVT) could lead to increased development around interchanges. The planning area is also interested in projects that advance the development of pedestrian friendly communities. This issue includes a significant transportation dimension.
5. *Significant historic and cultural resources are not adequately documented, protected, and promoted. There was no identified transportation dimension to this issue.*

US-220/Future I-99 Planning Area Prioritized Issues

1. Flooding is a threat to life, properties, and the communities throughout the Planning Area. Flooding has significant community and economic impacts in this Planning area and is recognized as the largest threat to communities in this planning area as identified in the Lycoming County Hazard Mitigation Plan and in comprehensive plans. This issue was found to have a significant transportation dimension due to the potential disruptions in transportation due to flooding and the extensive potential damages to municipal transportation infrastructure from flood events.
2. Our multi-modal transportation system has deficiencies in safety, physical condition, and availability of facilities in some areas of the county. The planning area is primarily concerned with structurally deficient bridges and the substandard bridge underclearance where the active rail line crosses over US-220 in Piatt Township.
3. *Water, sanitary sewer, and stormwater infrastructure systems are not sufficient across this Planning Area to meet all needs. There was no identified transportation dimension to this issue.*
4. *Drugs, particularly heroin and opioids, are creating significant social, economic, public health, and safety problems across the County. There was no identified transportation dimension to this issue.*
5. The economy is changing, and our communities and workforce are not optimally positioned to realize our untapped economic potential and become resilient to economic trends. The Planning Area wants to target new industrial development taking advantage of existing rail service.



6. *Volunteerism and civic engagement, particularly among young people, are insufficient to sustain community institutions and services. There was no identified transportation dimension to this issue.*

7. Outdoor recreation resources are not fully developed, protected, and promoted. There was a transportation aspect to this issue since the Planning Area included multiuse trails in this issue.

8. Natural gas infrastructure is not adequate in all areas of the County. The Planning Area was concerned that the large amount of truck traffic necessary to transport water and frack sand to assist in drilling operations in rural areas has accelerated pavement wear and tear on state and local roadways, and increased traffic congestion. However, through posting and bonding the belief is that these companies have made the necessary upgrades to ensure that roads and bridges remain safe and in a good state of repair. There was an emphasis on expanded compressed natural gas (CNG) fueling stations.
9. *Fragmentation of local government in Pennsylvania is a barrier to efficient delivery of some public services. There was no identified transportation dimension to this issue.*
10. *Current land use regulations and enforcement do not consistently and adequately meet community visions and respond to changing conditions. There was no identified transportation dimension to this issue.*

US-15 South Planning Area Prioritized Issues

1. *Water quality is vital, but is vulnerable to a multitude of threats. There was no identified transportation dimension to this issue.*
2. *Fragmentation of local government in Pennsylvania is a barrier to efficient delivery of some public services. There was no identified transportation dimension to this issue.*
3. Outdoor recreation resources are not fully developed, protected, and promoted. The Planning Area included non-motorized and active transportation modes within this issue. There was a particular emphasis on the need to plan for non-motorized and pedestrian modes of transportation for the segments of the population that may also use these facilities for more utilitarian purposes other than recreation, specifically the Amish. This Planning Area would also like to see the development of a transportation/recreation mixed use trail connecting the Borough of Montgomery to the Village of Allenwood in Gregg Township in Union County.
4. *Significant cultural and historical resources are not adequately documented, protected, and promoted. There was no identified transportation dimension to this issue.*
5. *Water, sanitary sewer, and stormwater infrastructure systems are not sufficient across the County to meet all needs. There was no identified transportation dimension to this issue.*
6. The economy is changing, and our communities and workforce are not optimally positioned to realize our untapped economic potential and become resilient to economic trends. The Planning Area foresees future commercial and industrial development but is concerned about preventing traffic hazards and congestion. There is a desire to develop a corridor access management plan to prepare for this possibility.
7. Our multi-modal transportation system has deficiencies in safety, physical condition, and availability of facilities in some areas of the County. The Planning Area had concerns pedestrian and bicycle safety and the need for road widening and pedestrian and bicycle lanes. There is a need to take the safety of non-motorized road users into account, where feasible, when renovating the area's road system. The planning team also recognizes that a large portion of those non-motorized road users are members of the Amish community.

Greater Williamsport Alliance Planning Area Prioritized Issues

1. *The economy is changing and our communities and workforce are not optimally positioned to realize our untapped economic potential and become more resilient. There was no identified transportation dimension to this issue.*
2. *Fragmentation of local government in Pennsylvania is a barrier to efficient delivery of some public services. There was no identified transportation dimension to this issue.*

3. Outdoor recreation resources are not fully developed, protected, and promoted. The Planning Area wishes to especially prioritize the exploration of better connectivity for bikeways, walkways, and greenways. There is also a desire to encourage more bicycle and pedestrian facilities for use as both recreation and transportation.
4. Our multi-modal transportation system, particularly the airport, has deficiencies in safety, physical condition, and availability of facilities in some areas of the County. The Planning Area focused on the need for improved active transportation infrastructure, structurally deficient bridges, transportation system connectivity, the need for airport terminal improvements, and streetscape improvements as the major areas where the transportation system needs enhancement. 
5. Significant cultural and historical resources are not adequately documented, protected, and promoted. There is a desire to identify and preserve the historical transportation routes in the planning area and to develop multiuse paths or trails that broaden access to historic and cultural resources in the community.
6. *Drugs, particularly heroin and opioids, are creating significant social, economic, public health, and safety problems across the County. There was no identified transportation dimension to this issue.*
7. Downtown and village center areas across the County are not thriving or achieving their maximum potential. Critical pieces of promoting successful downtown development identified within this Planning Area were the needs for streetscape and intersection improvements that enhance walkability.
8. *Water quality is vital but is also vulnerable to a multitude of threats. There was no identified transportation dimension to this issue.*
9. *Water, sanitary sewer, and stormwater infrastructure systems are not sufficient across the County to meet all needs. There was no identified transportation dimension to this issue.*

Lower Lycoming Creek Planning Area Prioritized Issues

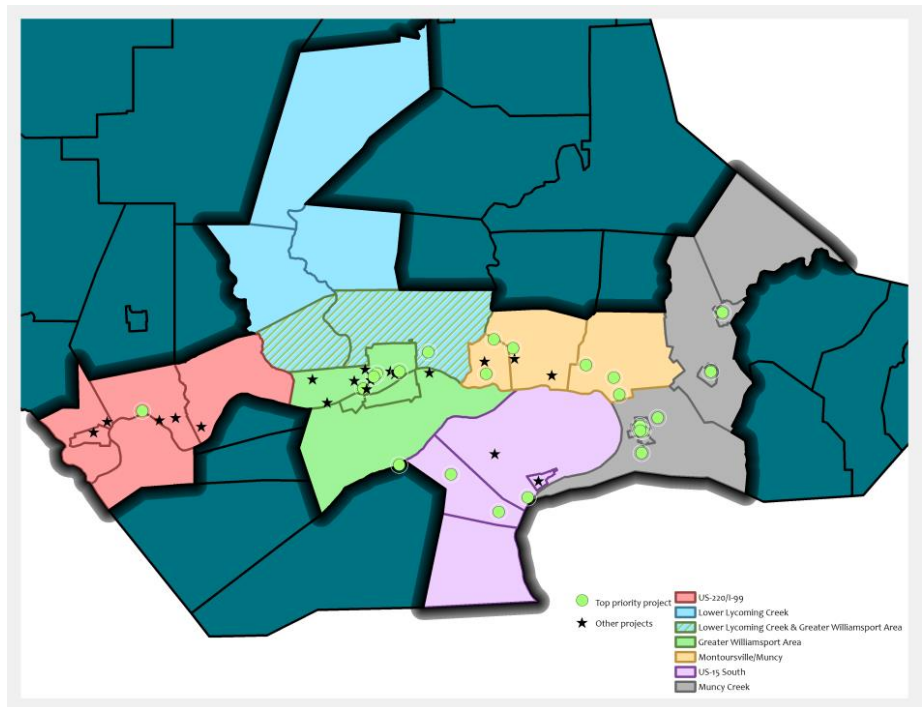
1. *Water, sanitary sewer, and stormwater infrastructure systems are not sufficient across the County to meet all needs. There was no identified transportation dimension to this issue.*
2. *Natural Gas infrastructure is not readily accessible in all areas of the County. There was no identified transportation dimension to this issue.*
3. Outdoor recreation resources are not fully developed, protected and promoted. The Planning Area included better connectivity for bikeways, walkways, and greenways within this issue.
4. *The economy is changing, and our communities and workforce are not optimally positioned to realize our untapped economic potential and become resilient to economic trends. There was no identified transportation dimension to this issue.*
5. *Fragmentation of local government in Pennsylvania is a barrier to efficient delivery of some public services. There was no identified transportation dimension to this issue.*
6. *Water quality is vital, but is vulnerable to a multitude of threats. There was no identified transportation dimension to this issue. There was no identified transportation dimension to this issue.*
7. *Flooding is a threat to life, property, and communities. There was no identified transportation dimension to this issue.*

Common Transportation Needs

After reviewing all of these currently prioritized issues, three major common needs emerge:

1. A need to better accommodate non-motorized modes of transportation. This can involve streetscape enhancements to improve walkability, the construction of multiuse urban trails, the consideration of Amish horse-drawn vehicles, or better planning for bicycles as transportation.
2. A need to address the maintenance needs of transportation infrastructure, in particular structurally deficient bridges, and ensure a resilient and robust transportation system. There is a specific recognition that structurally deficient bridges (especially locally-owned bridges) require a coordinated solution and also a more general need to design and build a transportation system that can withstand our frequent flooding events.
3. A need to better forecast how future economic development and future transportation infrastructure will influence and stimulate each other. This need manifested in several different ways. There is a wide recognition that any economic development (e.g. natural gas drilling) needs to have a concurrent emphasis on preparing for the effects of the development on congestion and physical condition of transportation infrastructure and to ensure that appropriate multimodal transportation capacity is available to accommodate freight and personal mobility. This includes expanding facilities at the airport, ensuring that there are adequate areas of rail-served, developable industrial land, and provided adequate transit service to transport employees and customers. There is also concern about the trickle down effects that CSVT will have on traffic flows and on the development potential of both the US-15 and the I-180 corridors.

While conducting a prioritization of issues, the various Planning Advisory Teams also identified potential projects to address each issue. This “problem-solution” approach to plan review will hopefully yield more implementable results. As previously seen, there were many issues identified within planning areas with at least some transportation-related dimension. Therefore, there were transportation projects identified to address issues throughout the growth areas of the county.



Countywide Comprehensive Plan – Municipalities Outside of the Designated Growth Areas

In addition to the six multi-municipal comprehensive plans covering the growth areas of Lycoming County, there is a countywide comprehensive plan that sets larger goals and guidance and covers the non-growth “rural resource area” municipalities. In the last adopted countywide comprehensive plan, the “Transportation” section also served as the Williamsport Area Transportation Study (WATS) Metropolitan Planning Organization (MPO) Long Range Transportation Plan. That plan has now been superseded by two successive standalone Long Range Transportation plan updates. This plan will be the third update. During the 2016-2017 comprehensive plan review and implementation strategy development project, transportation issues were included with other infrastructure needs. The countywide plan will point back to the currently adopted Long Range Transportation Plan as the definitive resource for strategic transportation planning in Lycoming County as well as reference to the three “common needs” identified through the multi-municipal comprehensive planning efforts.

Other Plans

Lycoming County Hazard Mitigation Plan

The [Lycoming County Hazard Mitigation Plan](#) was last updated in 2015. It includes extensive consideration of transportation crashes of various modes as a moderate human-made hazard within Lycoming County. The Hazard Mitigation Plan states that crashes will increase with any growth in the natural gas industry, citing a 2013 study by Resources for the Future that found that each new well drilled correlates with a 0.6% increase in fatal motor vehicle crashes.

The plan recommends a high priority for traffic safety because of the extremely high frequency of crashes and the potential impact on emergency services response times. A specific recommendation of the plan is to focus on improving safety at “dangerous intersections” to mitigate the overall crash rate.

Lycoming County Comprehensive Recreation, Parks & Open Space/Greenway Plan

Non-motorized mobility is emphasized within the [Lycoming County Comprehensive Recreation, Parks & Open Space/Greenway Plan](#) because of the considerable overlap between the recreational and transport uses of trails, walkways, and bikeways. The plan identifies the following two “key issues” within Lycoming County open space, trails, and greenways needs that have significant importance for transportation planning:

- **Susquehanna Trail.** A multi-county interconnected bikeway system along the Susquehanna River will provide an outstanding recreational experience and a non-motorized vehicle transportation alternative to reduce traffic congestion and maintain clean air which will contribute to an overall improvement in the quality of life in Lycoming County. This initiative is now known as the Susquehanna Greenway trail.
- **Community walking and biking trails.** Safe walking and biking trails in communities that connect schools, parks, and neighborhoods remains the highest priority recreation need for this region.

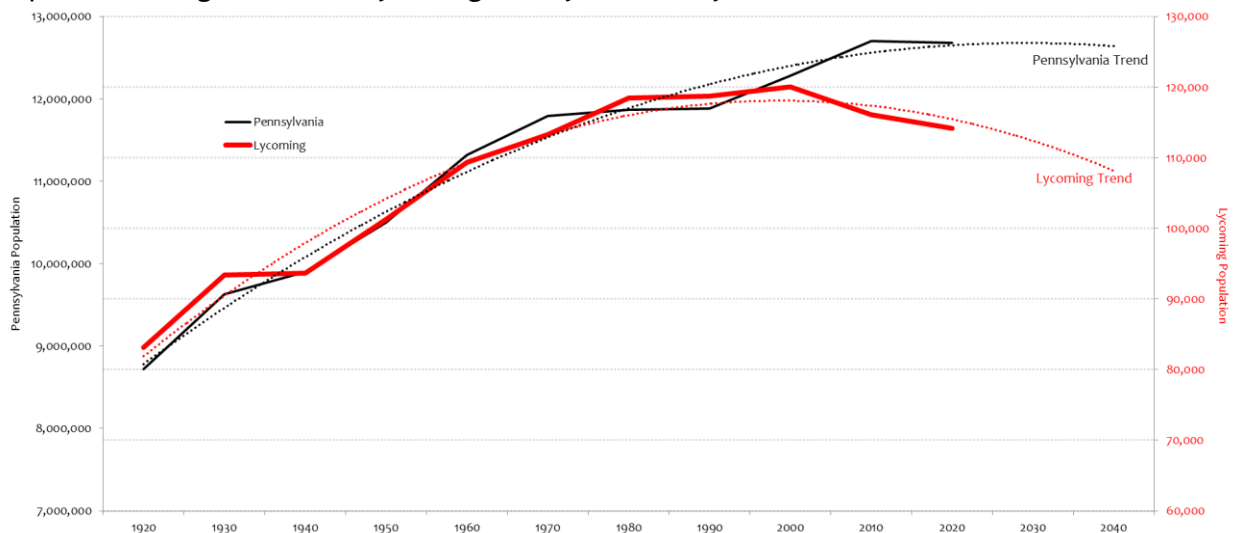
The recreation plan further emphasizes that development of this infrastructure will provide links between communities and safe routes to schools and parks for youth.

Demographic Trends

Population Trends

According to the [2010 United States Census](#), there were a total of 116,111 persons residing in Lycoming County. Up to and including the 2000 Census, the population of Lycoming County was steadily growing. From 1970 to 2000, Lycoming County's population grew by 6,748 persons (a 6% overall gain) which was higher than Pennsylvania's overall population growth at 4.1%. However, based on the 2010 Census count of population and annual American Community Survey (ACS) estimates for the county's population, the population of Lycoming County peaked sometime in the late 1990s and has begun to decline. Projecting the 100 year population trend forward for Lycoming County suggests that within the 20-year planning horizon of this long range plan the population of Lycoming County will be at a similar level to what it was in the late 1960s.

Population change trends for Lycoming County and Pennsylvania:



Similar to statewide trends, Lycoming County population has been shifting outward from the City and Boroughs (incorporated municipalities) into the suburban and rural Townships. Municipalities that have seen population growth are mostly rural Townships located generally along the I-180 corridor between Williamsport and the Borough of Muncy. Within this general area of the county, the Townships of Wolf, Mill Creek, Fairfield and Penn each realized population growth over 5%. Muncy Township and Loyalsock Township each grew by 3% and 1.5% respectively. Meanwhile, the incorporated municipalities within this same area saw large population declines:

Picture Rocks: -2%

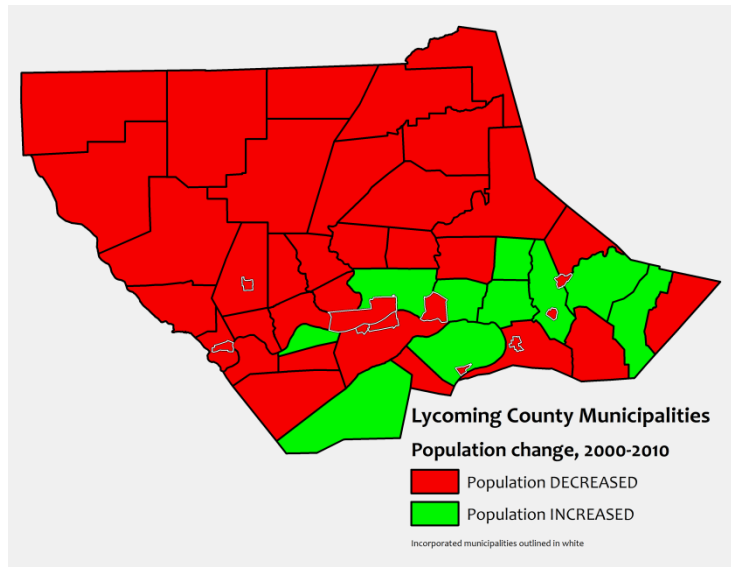
Montoursville: -3.4%

Hughesville: -4%

Williamsport: -4.3%

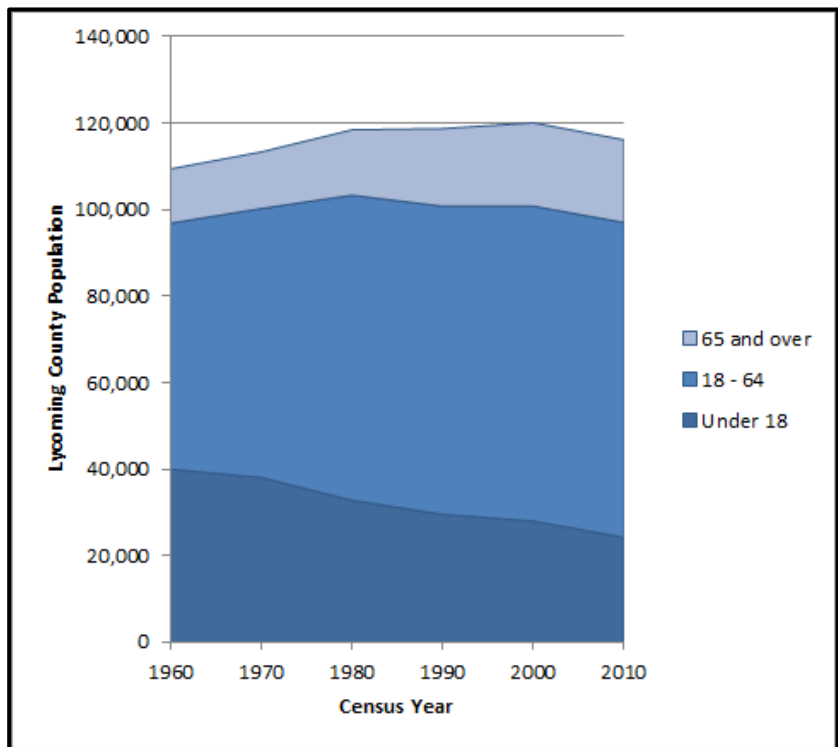
Muncy: -7%

Collectively, these 5 municipalities lost 1,780 people between the 2000 and 2010 census, 1.5% of the total county population in 2000. Meanwhile, even larger percentage decreases in population occurred in the central and northern parts of the county. The Townships of Old Lycoming, Pine, Plunketts Creek, Gamble, Lewis, Brown, McNett and Cummings each saw population decrease by over 10% from the 2000 to the 2010 census.

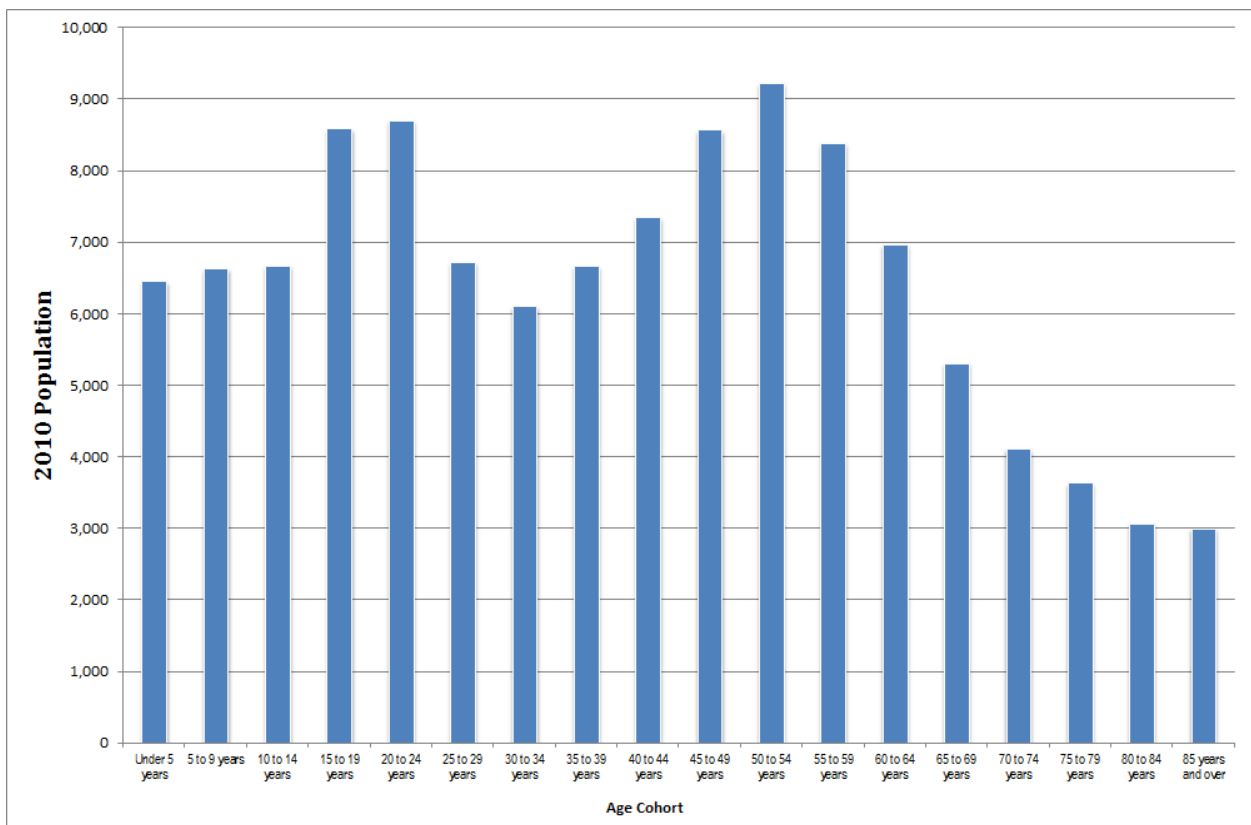


Population by Age Group

The population of Lycoming County is also becoming older on average. However, the largest driver of this trend is not an increase of people over the age of 65 but instead a diminishing proportion of the population under the age of 18. The youth population of the county has seen a steady linear decrease over the 50 year period from 1960-2010. From 1960 to 2010 the proportion of the population in Lycoming County under the age of 18 decreased from 37% to 21%. This was a numerical decrease of nearly 16,000 from a high of nearly 40,000 in 1960 to just 24,000 in 2010. Meanwhile, the proportion of the population aged 65 or over has increased from 11% to 16%. This was a numerical increase of less than 7,000 from about 12,500 in 1960 to just over 19,000 in 2010.



Looking at the breakdown of the population in 2010 based on age reveals another trend greatly influencing the current population composition and future demographics of Lycoming County. Currently, the largest age cohort in Lycoming County is individuals aged 50-54. Individuals aged 45-49 and aged 55-59 also make up a large proportion of the population. Our large (2,211 in the 2010 census) college student population buoys the numbers of those aged 15-24 in the county. Over the lifespan of this plan, with a 20 year planning horizon, the largest age group within the county (those aged 45-59 in 2010, 22% of the total population) will enter their retirement years and then begin to decline in numbers due to mortality. Without an influx of population from outside of the county or a drastic increase in birth rates, Lycoming County is likely to see a dramatic decline in population between the years 2018 and 2038.



Racial and Ethnic Composition

The racial composition of Lycoming County in the 2010 Census is provided on the following table:

Race	2010 Population	Percent Share of Population
White	107,573	92.6%
Black or African-American	5,203	4.5%
American Indian and Alaska Native	217	0.2%
Asian	617	0.6%
Native Hawaiian and other Pacific Islander	25	0.02%
Some Other Race	421	0.4%
Two or More Races	2,001	1.7%

There are 1,559 persons of Hispanic or Latino minority ethnicity which represent 1.3% of Lycoming County's population according to the 2010 Census which is considerably lower than the State-wide 5.7% Hispanic or Latino minority population figure. As shown in the above statistics, the County's racial composition is predominantly white. The 7.4% of the population identified as non-white is substantially lower than the 14.7% state-wide non-white population figure.

2011-2015 American Community Survey (ACS) Estimates for Other Demographics

The US Census Bureau has multiple data sets that it releases pertaining to population and transportation characteristics. Unlike the decennial census, the [American Community Survey \(ACS\)](#) is not a count of individuals but estimates based on surveys mailed to randomly selected addresses. ACS estimates are reported as both single-year and 5-year estimates. Five year estimates are more precise because they have the largest sample size but are the least "current" in that the reported estimates apply to a five year window of time instead of a single year. Single-year estimates are more useful for looking at trends but are less precise. For the purposes of this plan, WATS has looked at 5-year estimates to get a highest precision available estimate of demographics. Below is a summary of the latest ACS 5-year estimates for additional characteristics of the population in Lycoming County that have relevance to the WATS Long Range Transportation Plan.

Limited English Proficiency

According to ACS 2011-2015 5-year estimates, there were 110,132 persons in Lycoming County aged five years and older. Of them, a total of 855 persons (0.8%) speak a primary language at home other than English **and also** speak English less than very well. Lycoming County is significantly lower than the statewide estimate of 4.1% primary non English speaking population and the national estimate of 8.6%.

Disabled Population

In terms of the total Civilian Non-institutionalized population of Lycoming County, there are 113,522 persons residing in the County, where 16,883 persons (14.9%) have a physical or mental disability. The 65 years and over age group of this population grouping is estimated at 19,120 persons with 38.1% having a physical or mental disability. Lycoming County population disability percentages are slightly higher than the state-wide disability estimates of 13.5% of the population with a disability and 34.7% over age 65 with disability. The estimated proportion of the population of Lycoming County living with a disability is significantly higher than the estimated proportion nationwide at 12.4%.

Poverty Status

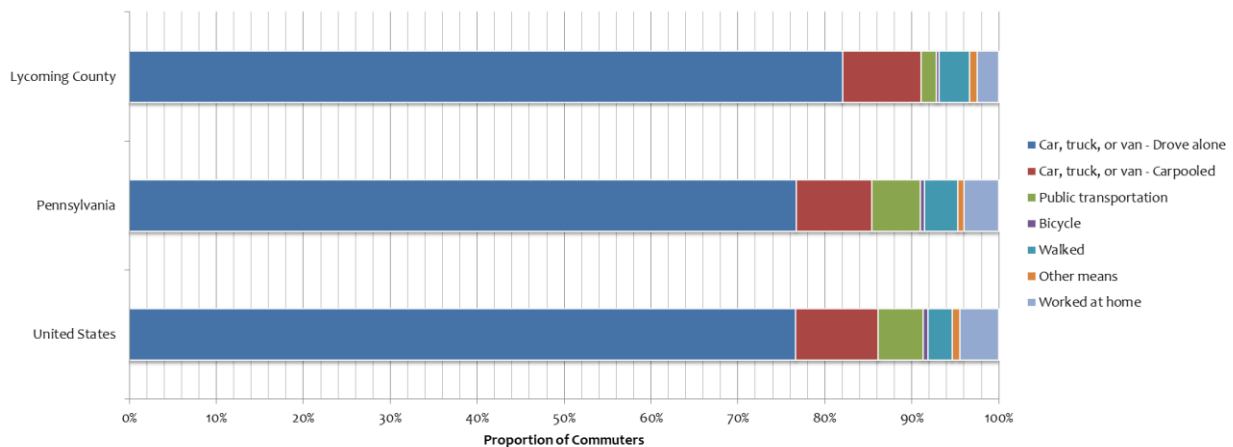
There are an estimated 110,999 persons in Lycoming County for whom poverty status is determined. Of this number, 16,150 persons (14.5%) were determined to be falling below the poverty level which is slightly higher than the Pennsylvania 13.5% poverty level estimate and lower than the national estimate of 15.5%.

Households

There are an estimated 45,906 households in Lycoming County. The average household size is 2.42 persons. The average family size is 2.99 persons. There are an estimated 52,651 housing units. 45,906 housing units (87.2%) are estimated occupied and 6,735 housing units (12.8%) are estimated vacant. Of the occupied housing units, 32,187 (70.1%) are owner occupied while 13,719 (29.9%) are renter-occupied. There are an estimated 4,212 households in Lycoming County without a vehicle available for transportation which represents 9.2% of total households. This is somewhat lower than the state-wide estimate of 11.4% but very similar to the nationwide estimate of 9.1%.

Journey to Work

The graph below compares Lycoming County, Pennsylvania, and United States journey to work information provided by the 2011-2015 American Community Survey relating to the type of transportation modes that are used for work commute.

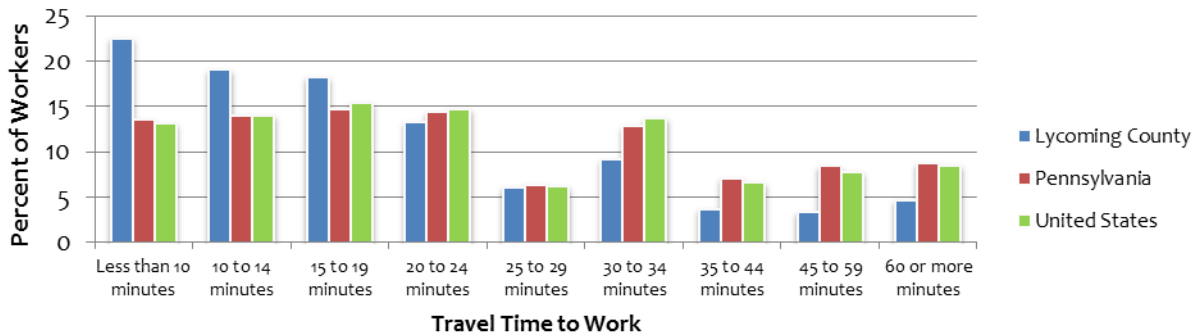


An estimated 82% of commuters in Lycoming County drive a motor vehicle to work alone. This is higher than the Pennsylvania and national proportion of 77%. The estimate of transit usage is also much lower in Lycoming County (1.7%) than the state and national rates of transit usage for commuting to work (5.5% and 5% respectively). In Lycoming County, 4% of commuters walked to work which is double the statewide rate of 2% and higher than the nationwide rate of 2.7%.

In Lycoming County, an estimated 86% of workers both reside and work within the county. In terms of travel time to work, Lycoming County residents have a shorter estimated commute time than statewide and nationwide.

	Lycoming County	Pennsylvania	United States
Average Travel Time to Work (Minutes)	20.2	26.3	25.9

In Lycoming County, a much larger estimated share of workers have very short commute times (less than 15 minutes) compared to workers statewide and nationwide:

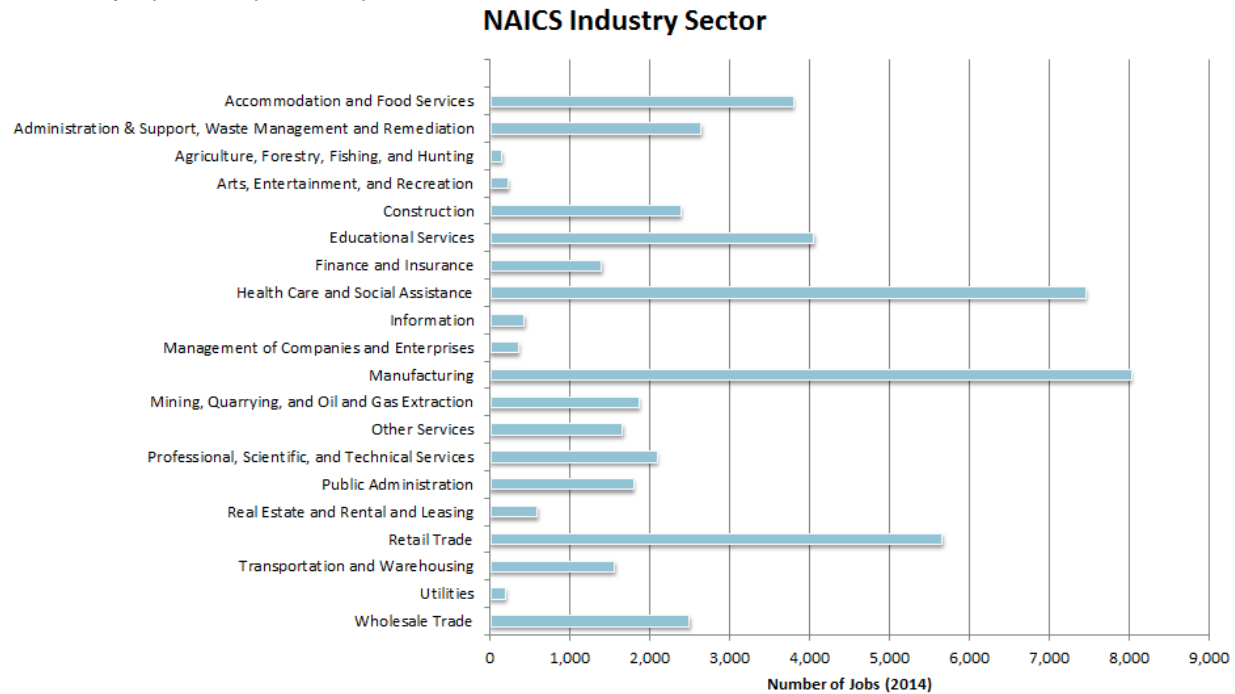


Lycoming County Workforce Data Summary

The US Census Bureau, Center for Economic Studies “[On the Map](#)” data exploration tool was used to derive best available data on jobs, workers and earning in Lycoming County. According to the most recent extract available from this source (2014), there were a total of 48,733 jobs in Lycoming County. Over half (52.9%) of the workforce is between the ages of 30 and 54 years with workers ages 29 and younger comprising 22.2% of the workforce and those 55 or older at 25%. The workforce was slightly more male than female (52.4% vs. 47.6%). The following table shows the educational attainment of the workforce in 2014 (the remaining 22.2% of workers are aged 29 or under and considered to be still in the process of attaining education):

Educational Attainment	Number of workers	Percent share of workforce
Less than high school	3,669	7.5%
High school or equivalent	14,000	28.7%
Some college	12,321	25.3%
Bachelor’s degree or advanced degree	7,937	16.3%

2014 Employment by industry sector is shown on the bar chart below:



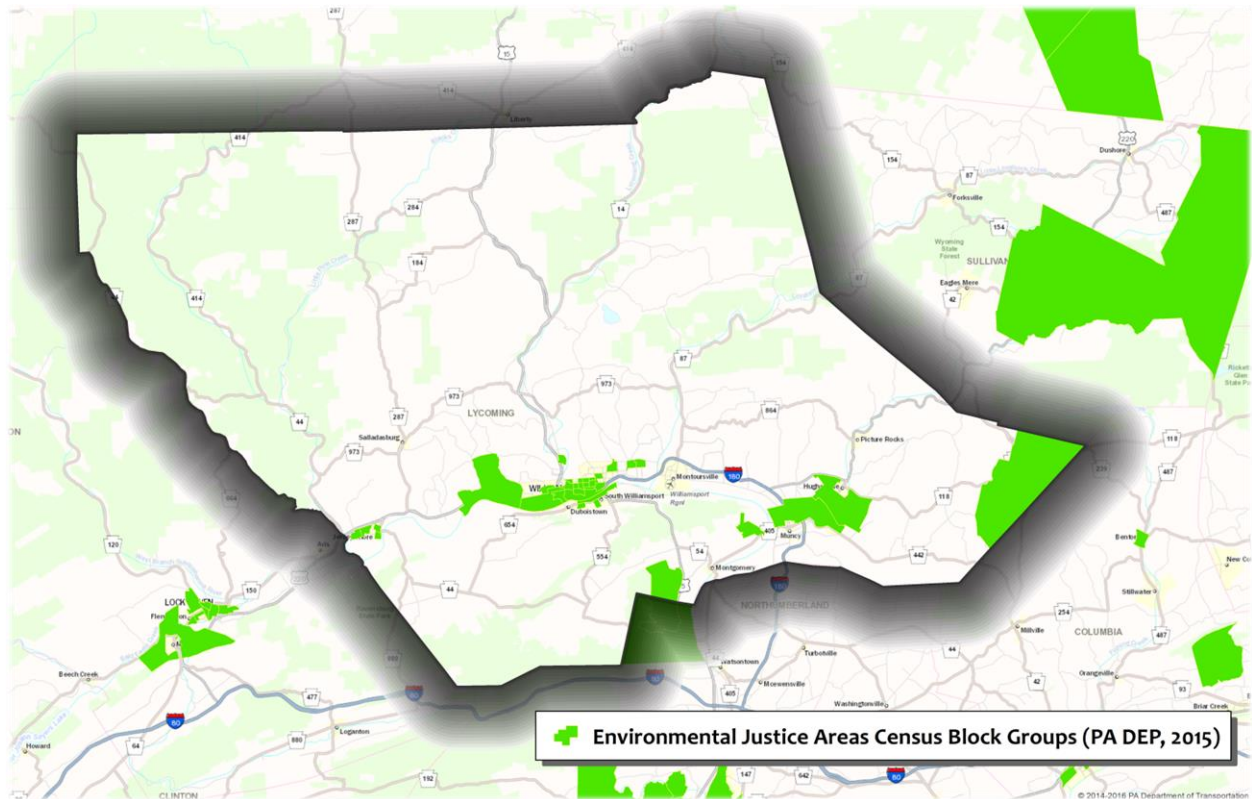
Other Employment Trends

The [Pennsylvania Department of Labor and Industry](#) compiles statistics on employment and employers by county. According to the most recent data from the Department (June, 2017), the Lycoming County unemployment rate was 5.6%. As of the 4th Quarter of 2016, the top 10 employers in Lycoming County were:

1. Susquehanna Health System
2. State Government
3. Pennsylvania College of Technology
4. Williamsport Area School District
5. Weis Markets Inc.
6. Lycoming County Government
7. West Pharmaceutical Services Inc.
8. Aramark Facility Services LLC
9. CS Group Payroll Services LLC
10. Wal-Mart Associates Inc

Environmental Justice Areas

The Pennsylvania Department of Environmental Protection defines environmental justice areas as areas where there is “a poverty rate of 20% or greater or a non-white population of 30% or greater” based on the latest US Census Bureau American Community Survey. PA DEP then makes spatial data available through their [Open Data](#) portal showing all census block groups in Pennsylvania that currently meet those criteria. WATS uses the latest version of this data set to identify environmental justice implications of projects.



Lycoming County Land Use Patterns

As indicated earlier in this chapter, Lycoming County comprehensive planning efforts include six multi-municipal growth area plans along with a countywide plan encompassing the non-growth area covering the remaining geographic portion of the County. The portion of the county outside of the growth areas is referred to as the special resource protection area. Part of the development of the comprehensive plans and the review has been development of Future Land Use maps. These maps were all updated in late 2016-early 2017 to reflect current conditions and the evolving community vision for future land use patterns. Future Land Use categories are defined as the general type of community character desired for areas within the planning area. These categories are used to guide growth and future development. The land use categories are split into those used to characterize lands for desirable and suitable growth (growth areas) from lands to be used for rural use applications (rural resource areas). The primary determining factor for whether or not an area is designated a “growth” area or a “rural resource” area is the existing or planned presence of necessary infrastructure to support development. This includes public water, public sewer, other utilities, and especially transportation infrastructure. Other considerations include specific property occupancy types and density of development.

The following table lists and defines the land use categories used during the most recent comprehensive plan:

Future Land Use Category		Purpose
Growth Areas	Business/Industry	To function as centers of commerce supported by industrial activity, and accompanied by institutional facilities and infrastructure
	Downtown	To serve as the diverse community center of mixed uses including commercial activity, civic and institutional facilities, cultural amenities, and affordable housing opportunities
	Neighborhood	To accommodate residential neighborhoods interspersed with public and private services
Rural Resource Areas	Rural	To support traditional agriculture, forestry, and other natural resource production/extraction uses and to accommodate supporting activities
	Rural Center	To concentrate a variety of residential uses and small-scale retail and service activities that support rural communities
	Village	To preserve concentrated residential uses as rural neighborhoods

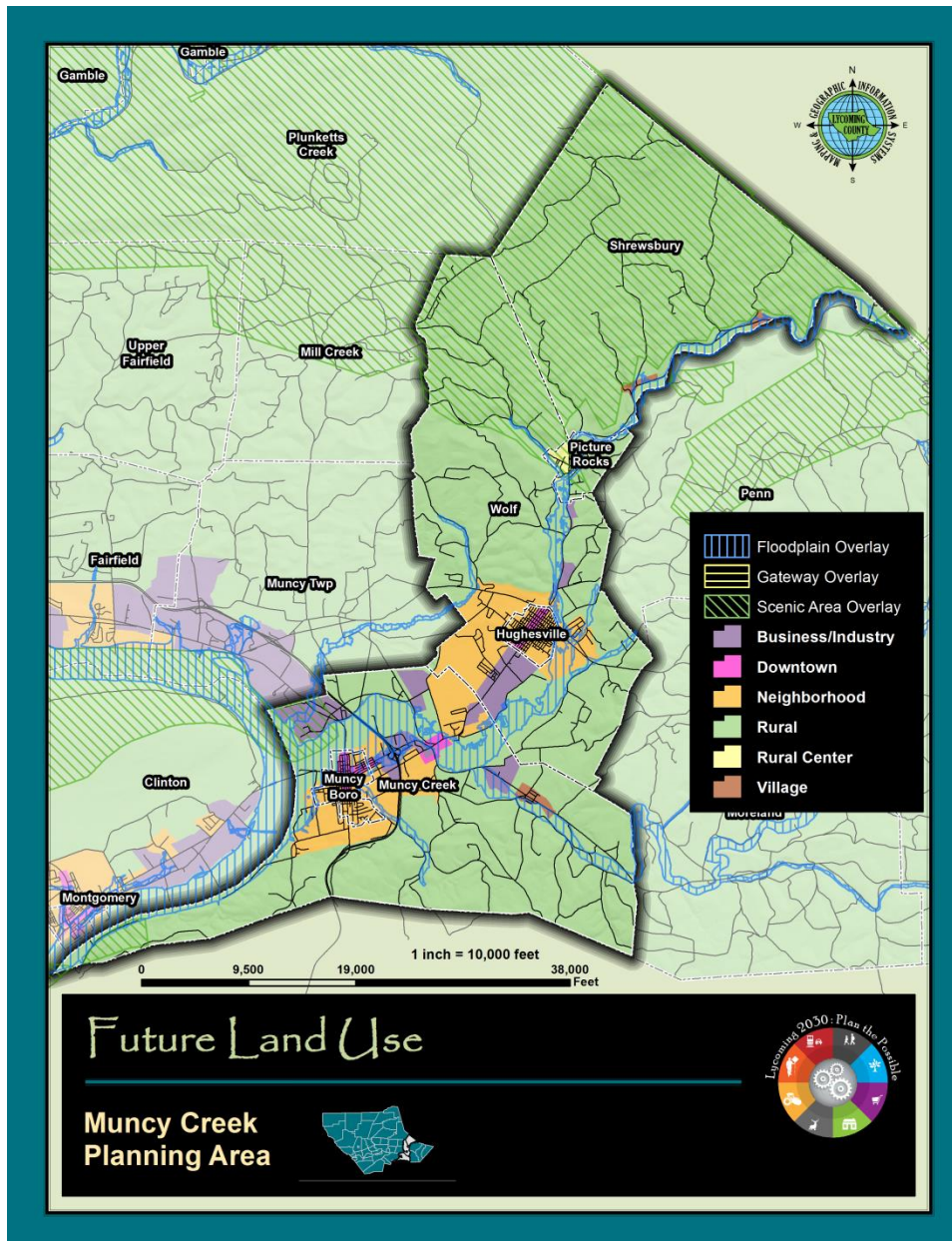
In addition to these six future land use designations, there are three land use special overlays to provide special protection or development guidance for specific resources or locations. The overlays are:

Overlay	Purpose
Gateway	To provide special land use and development guidance at the major (and historic) entry points to communities
Scenic Area	To protect significant natural resources, including stream corridors, high quality watersheds, woodlands, wetlands, groundwater recharge areas, steep slopes (>25%), prime agricultural soils, and scenic areas through special land use and development guidance.
Floodplain	To conserve lands areas naturally affected by flood events

Periodically, zoning district boundaries are compared to the future land use areas and the overlays. Comparing the desired uses from the future land use categories and overlays, as shown in the previous tables, to existing land use and current zoning illustrates where zoning ordinance revisions will need to be implemented to enable the future land use pattern to happen.

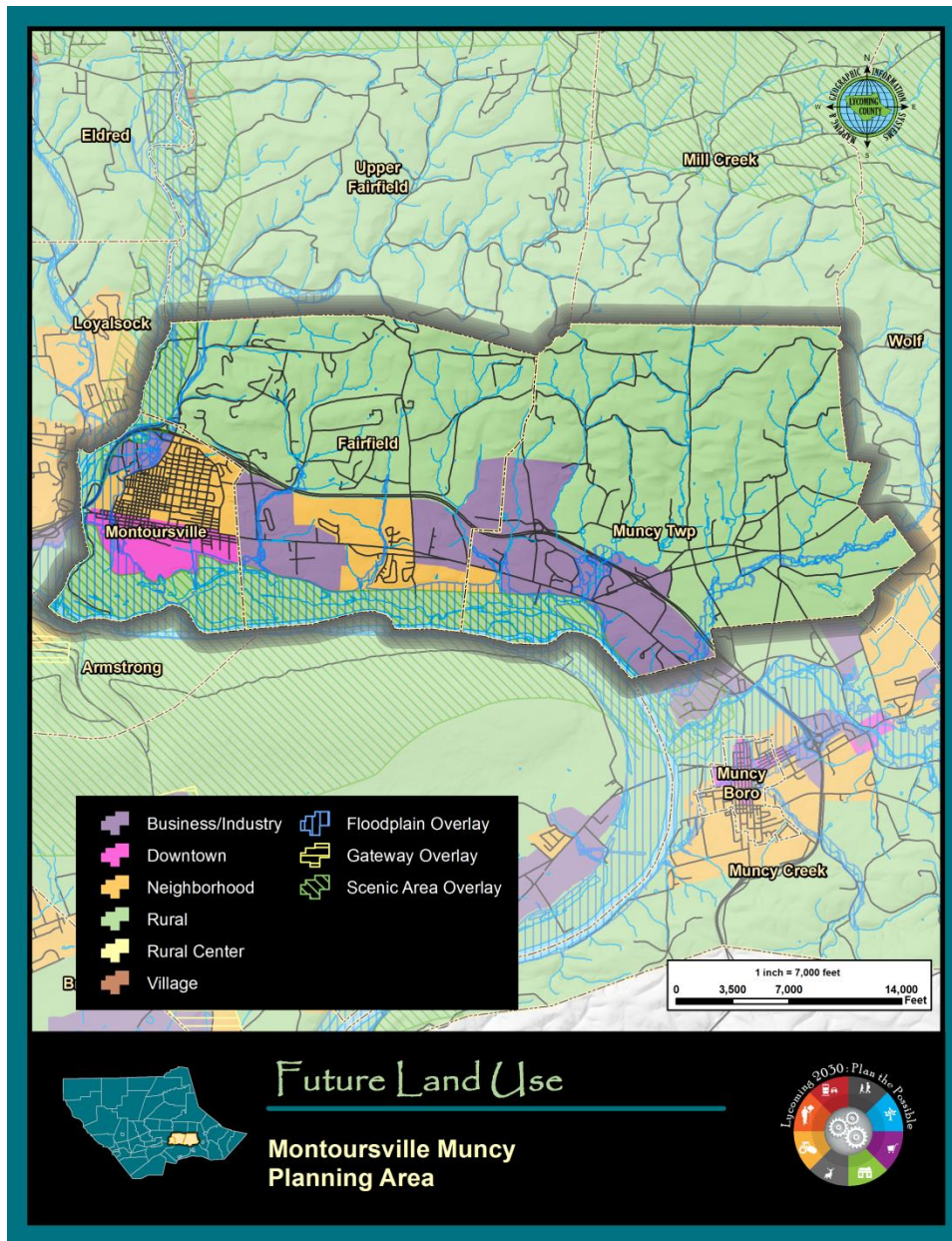
Muncy Creek Multi-Municipal Growth Plan Area

The growth area for the Muncy Creek Planning Area encompasses the PA 405 corridor anchored by Hughesville and Muncy Boroughs. Portions of Muncy Creek and Wolf Townships are included in this corridor. This growth corridor promotes a mixed use, downtown environment in Muncy and Hughesville. Business and industry uses are recommended around the I-180 interchange and along a small segment of PA 442. Neighborhood uses are promoted to expand the development patterns of Hughesville into Wolf Township and of Muncy into Muncy Creek Township.



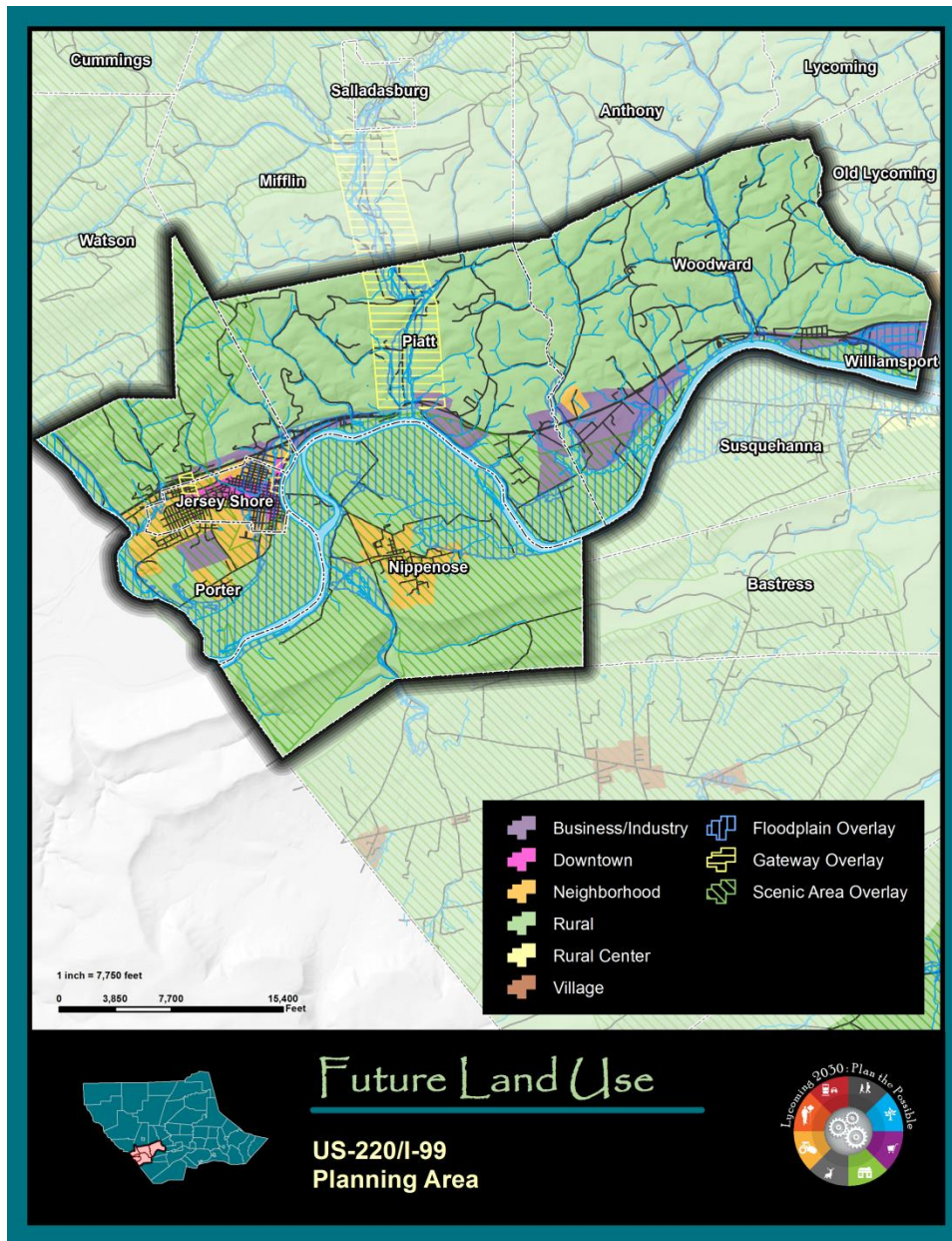
Montoursville-Muncy Multi-Municipal Growth Plan Area

The growth area for the Montoursville-Muncy Planning Area is the corridor between I-180 and the Lycoming Valley Railroad. This growth area promotes the expansion of a downtown, mixed use environment in Montoursville. It recommends business and industry uses east of Montoursville and throughout the eastern half of the corridor. Neighborhood uses at densities and patterns similar to Montoursville are recommended north and south of the central roadway corridor (Broad Street/Lycoming Mall Drive/John Brady Drive) to keep residents in near proximity to employment centers and community services, thereby supporting the efficient provision of public utilities, as well as the use of transit and other transportation alternatives.



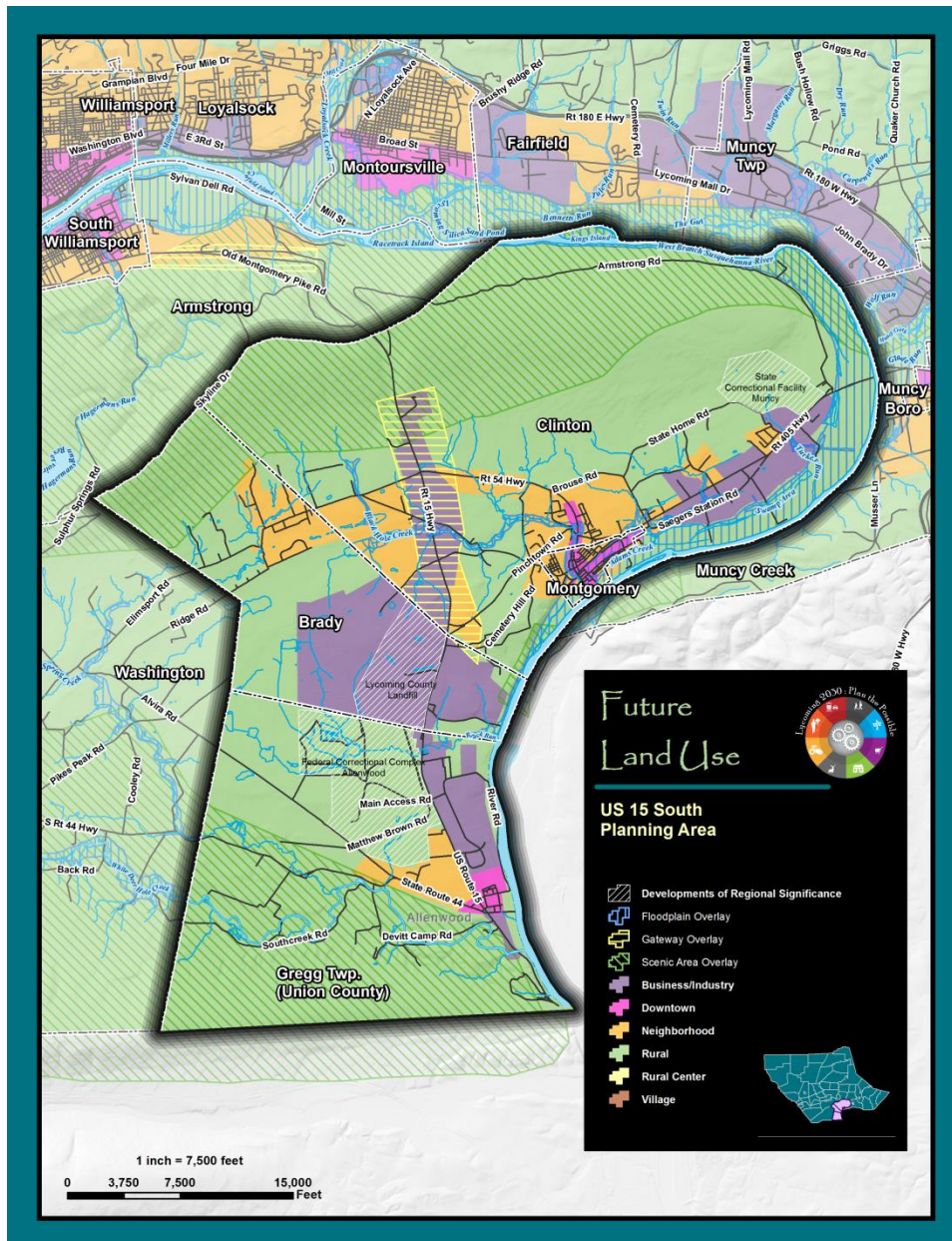
Us 220 / Future I-99 Multi-Municipal Growth Plan Area

The growth area for the US 220/Future I-99 Planning Area is a ½ to 1 mile wide corridor along the current US 220 and I-99 study alignments. The growth area includes all of Jersey Shore Borough. The growth area promotes neighborhood uses and business and industry uses in Porter Township as an extension of Borough use and development patterns. Business and industry uses are also recommended in the vicinity of Pine Run, Larry’s Creek, and the 4th Street exit in Woodward Township. Future interchanges may support further expansion of these business and industry locations in the future.



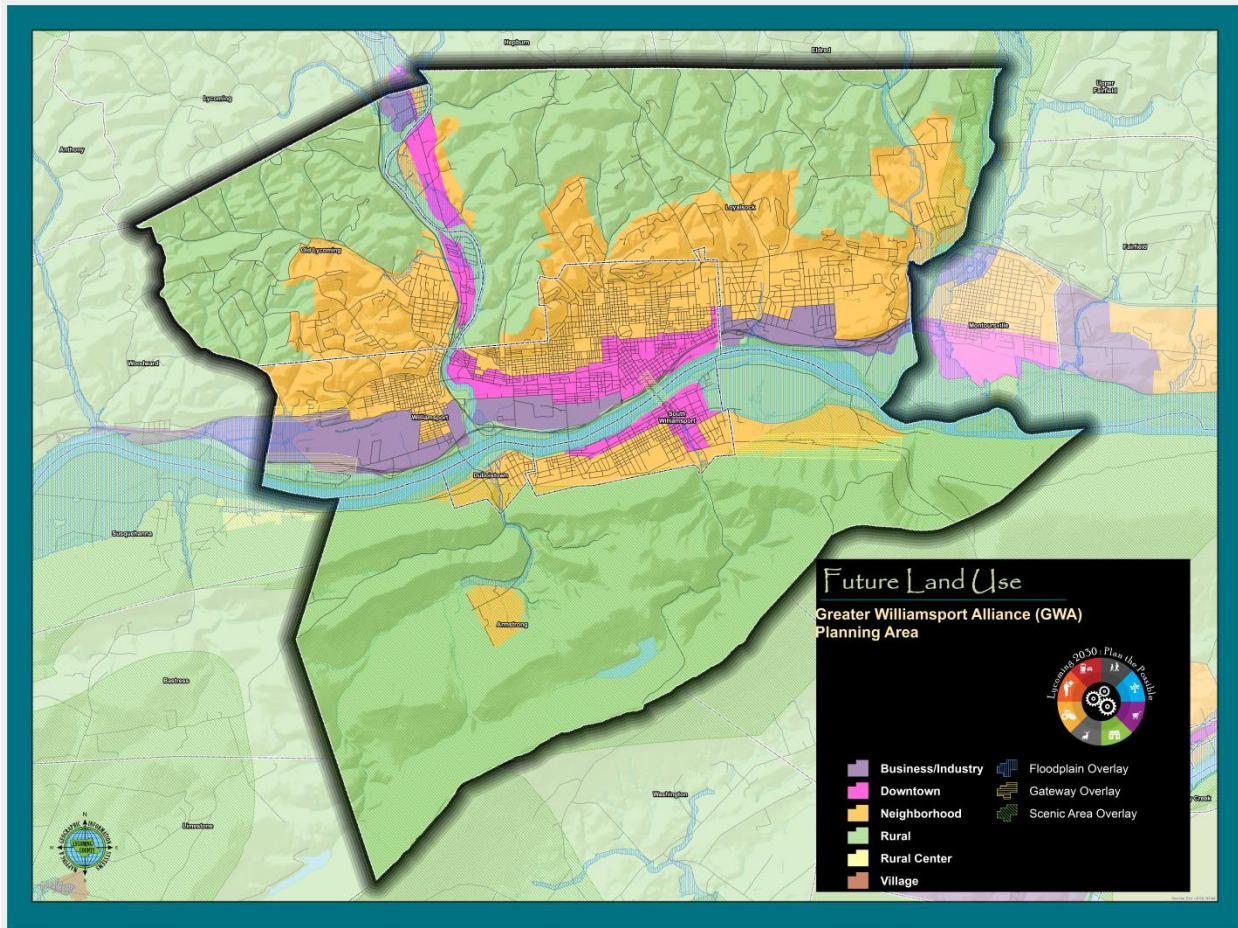
US-15 South Multi-Municipal Growth Area Plan

The growth areas for the US 15 South Planning Area follow the US-15 corridor, the PA-54 corridor and the PA-405 corridor, and include most of the Borough of Montgomery. The US-15 corridor growth area recommends a combination of business/industry and neighborhood future land uses. Business/industry uses are also recommended for the PA 405 corridor east of Montgomery. Downtown and Neighborhood uses are recommended for the Borough. Neighborhood uses are recommended for the PA 54 corridor.



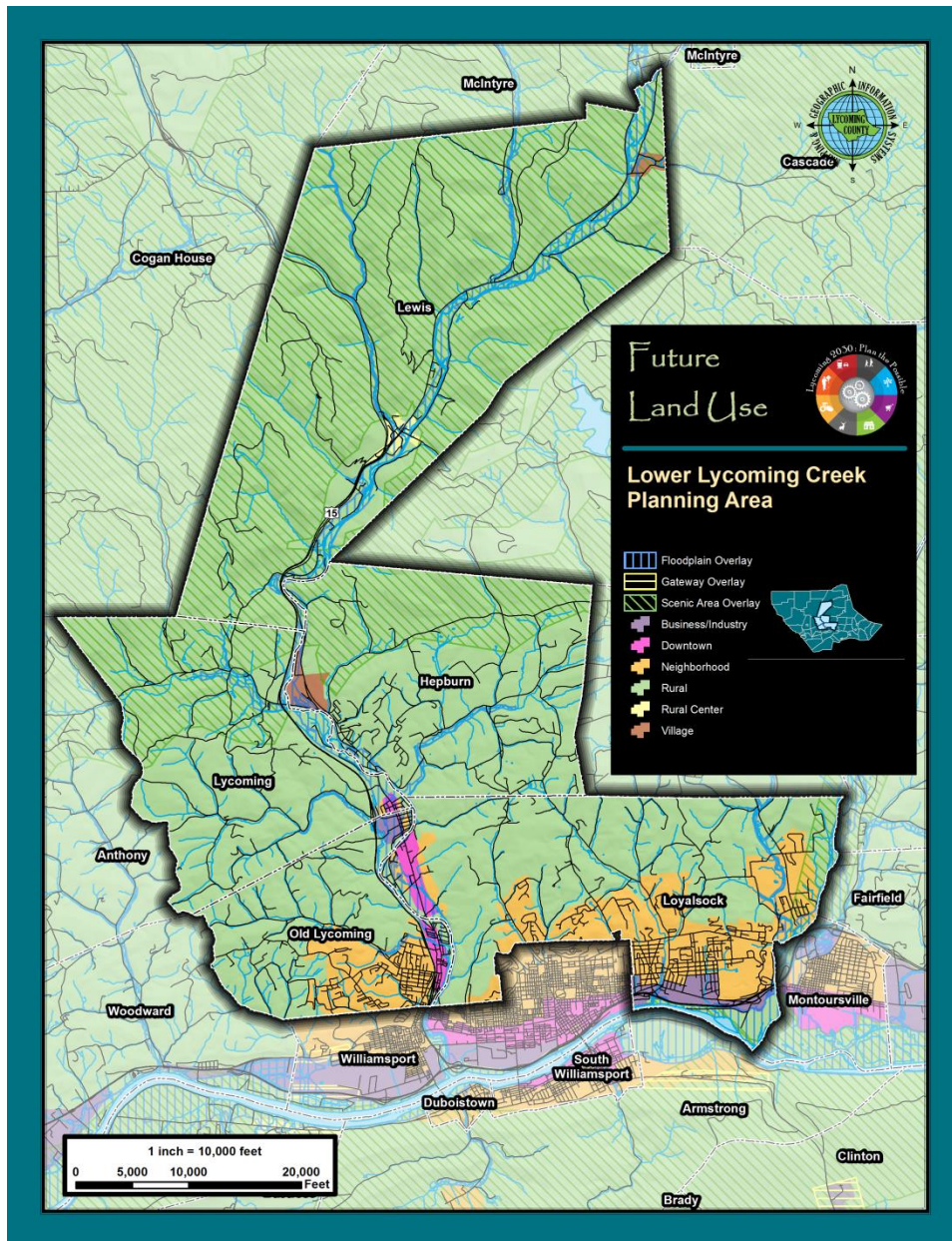
Greater Williamsport Alliance Multi-Municipal Growth Area Plan

The growth area for the Greater Williamsport Alliance Planning Area encompasses the City of Williamsport, nearly all of South Williamsport and Duboistown, and portions of Armstrong, Loyalsock, and Old Lycoming Townships. This growth area promotes an expansion and further diversification of the existing downtown, mixed use environment throughout the most urbanized portions of the planning area.



Lower Lycoming Creek Multi-Municipal Growth Plan Area

The growth area for the Lower Lycoming Creek Planning Area centers on the urbanized areas of Loyalsock, Lycoming and Old Lycoming Townships. This growth area promotes business and industry uses on the south side of Oak Lynn and mixed residential and commercial uses in a downtown environment along Lycoming Creek Road. Neighborhood uses are recommended for Loyalsock Township east and west of the downtown corridor, as well as north of Williamsport; for Old Lycoming Township west of US 15, and around Oak Lynn.

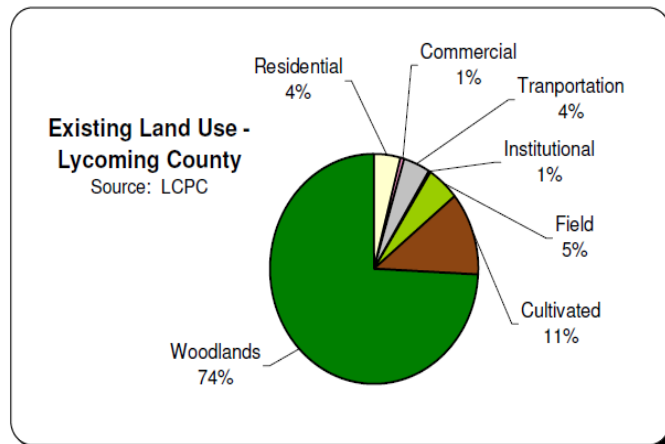


Special Resource Protection Areas

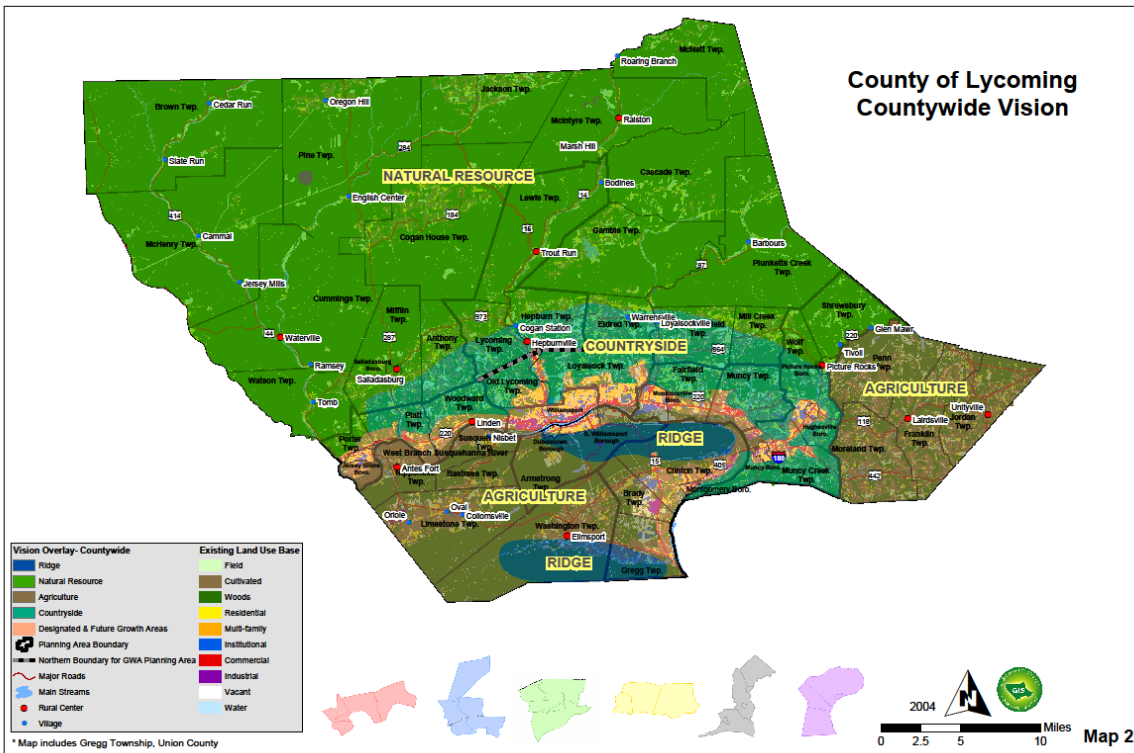
Municipalities that are not part of one of the six Multi-Municipal Comprehensive Plan growth areas are included in the Lycoming County Comprehensive Plan special resource protection areas. These 26 municipalities consist of Brown, McHenry, Cummings, Watson, Pine, Mifflin, Anthony, Salladasburg, Cogan House, Jackson, McIntyre, McNett, Cascade, Gamble, Plunketts Creek, Eldred, Upper Fairfield, Mill Creek, Penn, Moreland, Franklin, Jordan, Washington, Limestone, Bastress, and Susquehanna which represent half of all Lycoming County municipalities.



The rural character and natural resources present in this vast portion of Lycoming County are evident in that approximately 90% of the land use in this part of the county consists of undeveloped woodlands (including an abundance of State Forest and Game Lands), open space and agricultural areas. Only 4% of land uses consist of residential development, 1% are commercial development and 1% are institutional. Transportation facilities occupy the remaining 4% of land use. The Lycoming County Comprehensive Plan encourages future preservation of this land area and avoidance of large scale development patterns which would cause negative impacts to natural resources and require costly public infrastructure extension such as water and sewer and roads. Emphasis should be placed on maintenance of current infrastructure, recreational promotion and prudent land conservation stewardship practices.

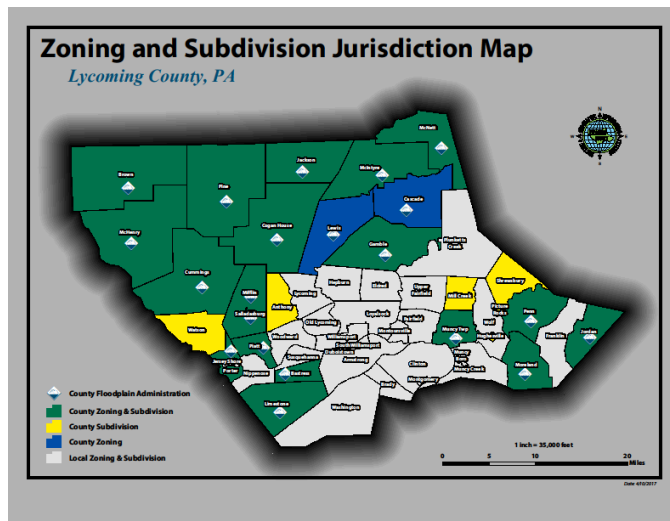


When compiling existing and future land use mapping, the Lycoming County Planning Commission has established an overall county-wide vision of future land uses that will be used as a basis to further integrate, land use and transportation planning connectivity as part of this Long Range Transportation Plan.



However, in order to achieve this vision, the County needs full cooperation from Lycoming County municipalities regarding subdivision, land development and zoning decisions because the County lacks land use decision making authority in many areas, especially in the six multi-municipal plan growth areas. The map to the right illustrates county-wide land use jurisdiction for each of the 52 municipalities.

As noted on the map, the Lycoming County Planning Commission through an adopted Subdivision and Land Development Ordinance, (SALDO) regulates subdivision and land development activity in 24 of the 52 Lycoming County municipalities. The remaining 28 municipalities have adopted their own ordinances and thus have decision-making jurisdiction over subdivision and land developments. In those cases, the Lycoming County Planning Commission provides advisory review comments to the municipality under PA Act 247. Further, the Lycoming County Zoning Ordinance adopted by the Lycoming County Board of Commissioners regulates zoning activity in 18 of 52 municipalities through a County Zoning Hearing Board appointed by the Commissioners. Again, the remaining 34 municipalities have adopted their own zoning ordinances



and possess decision-making over zoning matters with county comment provided in those areas. It is important to state that all land use areas of Lycoming County are zoned.

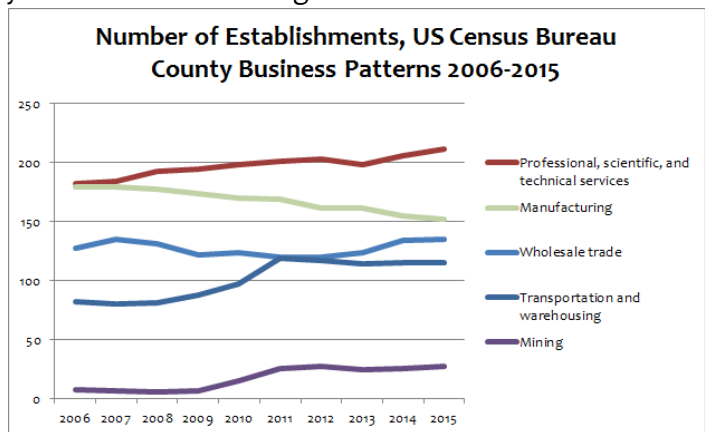
Economic Development

Historically, Lycoming County developed in response to demand for lumber. More recently, steel fabrication, manufacturing, plastics-related industry, outdoor recreation and tourism, and natural gas extraction have become more prominent. Agriculture has also been a constant, major component of the region’s economy. Approximately 29% of Lycoming County is currently zoned for agricultural use. The Williamsport metropolitan area, in general, and the City of Williamsport, in particular, play host to major elements of federal, state and county governments, including courthouses and the county prison and to major educational and healthcare facilities.

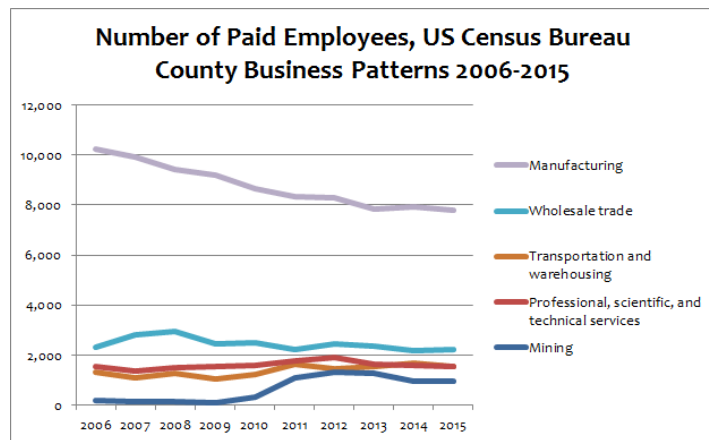
Industrial Development

According to [US Census Bureau County Business Patterns](#) data from 2008 to 2015, the manufacturing sector of the Lycoming County economy has been decreasing both in numbers of business establishments and in the number of paid employees.

Despite these overall decreases, manufacturing is a large and critical component of the local economy and Lycoming County is home to one of the top freight generating areas in the state of Pennsylvania in the Reach Road industrial area in the city of Williamsport. There have also been increases in the number of wholesale trades business establishments and professional, scientific, and technical business establishments. According to current Lycoming County land records, there are approximately 5,600 acres of land currently zoned for industrial use within the growth areas of the county.



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Perhaps the most intriguing trend present in the US Census County Business Patterns data is a steady increase in both the number of business establishments and paid employees in the transport and warehousing sector of the economy. Lycoming County is extremely well situated to serve as a shipment, fulfillment, and logistics center for much of the Northeast and Great Lakes regions of the United States. There are 19 metro areas with populations greater than

500,000 within 250 miles of Williamsport. These metro areas have a combined population of nearly

50,000,000. That is approximately 1 in every seven individuals in the United States. This sector of the economy was also specifically identified as a strong and growing freight generator in the 2016 Pennsylvania Comprehensive Freight Movement Plan. Warehousing and distribution were the largest freight commodities by value in the central Pennsylvania region of the state and projected to remain as such until at least the year 2040.



Major Metro Areas with population over 500,000 Located Within 250 Miles of Williamsport	Population (2010 Census)
New York-Northern New Jersey-Long Island, NY-NJ-PA Metro Area	18,897,109
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metro Area	5,965,343
Washington-Arlington-Alexandria, DC-VA-MD-WV Metro Area	5,582,170
Baltimore-Towson, MD Metro Area	2,710,489
Pittsburgh, PA Metro Area	2,356,285
Cleveland-Elyria-Mentor, OH Metro Area	2,077,240
Buffalo-Niagara Falls, NY Metro Area	1,135,509
Rochester, NY Metro Area	1,054,323
Bridgeport-Stamford-Norwalk, CT Metro Area	916,829
Albany-Schenectady-Troy, NY Metro Area	870,716
New Haven-Milford, CT Metro Area	862,477
Allentown-Bethlehem-Easton, PA-NJ Metro Area	821,173
Springfield, MA Metro Area	692,942
Poughkeepsie-Newburgh-Middletown, NY Metro Area	670,301
Syracuse, NY Metro Area	662,577
Youngstown-Warren-Boardman, OH-PA Metro Area	565,773
Scranton-Wilkes-Barre, PA Metro Area	563,631
Harrisburg-Carlisle, PA Metro Area	549,475
Lancaster, PA Metro Area	519,445
TOTAL	47,473,807

Tourism and Outdoor Recreation

Lycoming County serves as a convenient gateway to the [PA Wilds region](#), a tourism promotion region in northcentral Pennsylvania. According to Pennsylvania Department of Conservation and Natural Resources data, Lycoming County has 295 miles of hiking trails, 202 miles of biking trails and routes, and about 250,000 acres of public lands. There are 16 public boat launches according to Pennsylvania Fish & Boat Commission information. The county also contains numerous historic and cultural resources, not the least of which is the annual Little League World Series and the headquarters of Little League International. Because of its central location in the northeast, Lycoming County would be a natural site for large events such as sports tournaments and music festivals.

According to the 2017 Outdoor Industry Association report [The Outdoor Recreation Economy](#), outdoor recreation creates \$887 billion in consumer spending annually and contributes to the creation of 7.6 million jobs in the United States. 10% of the spending was reported to have occurred in the Middle Atlantic states including Pennsylvania. These huge spending numbers indicate a national appetite for the recreational resources offered in Lycoming County. It is likely that this sector of the economy will continue to grow.

Agriculture

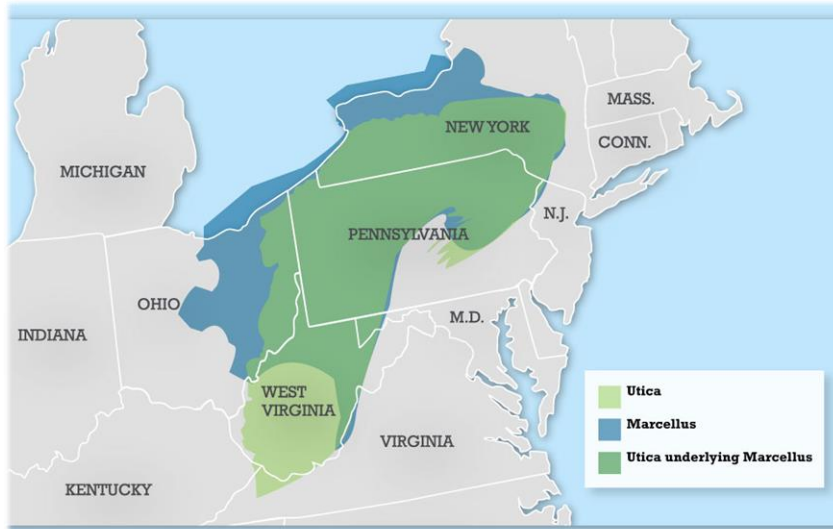
Every five years, the United States Department of Agriculture conducts a “[Census of Agriculture](#).” The most recent census results available during the preparation of this plan were acquired in 2012. The results of that census reveal the large to which agriculture contributes to the economy of Lycoming County. In the 2012 Census of Agriculture, Lycoming County had 1,207 farms with a total area of 158,462 acres. This represents a stunning 20% of the total land area of the county. Most encouragingly, from 2007 to 2012, farms in Lycoming County saw a 35% increase in the market value of the products they sold. The total value of agricultural products produced in Lycoming County in 2012 was \$72,202,000. The major commodities produced in 2012 in Lycoming County by value were grains, greenhouse/floriculture, dairy products, and hogs/pigs.

As part of the central region of the Commonwealth, Lycoming County as identified in the Pennsylvania Comprehensive Freight Movement Plan as an area where growing international demand for United States food products would produce slow and steady growth in the agriculture industry with strong ties to a growing segment of the economy devoted to producing prepared foods.

Marcellus Shale Natural Gas Exploration

Background

The largest single economic impact to Lycoming County since the lumbering boom over a century ago is the emergence of Marcellus Shale natural gas exploration. The Marcellus Shale gas formation and its underlying Utica Shale is abundant in natural gas resources. In fact, the Marcellus gas play is estimated to be the largest natural gas find in the nation and second largest globally. Stretching



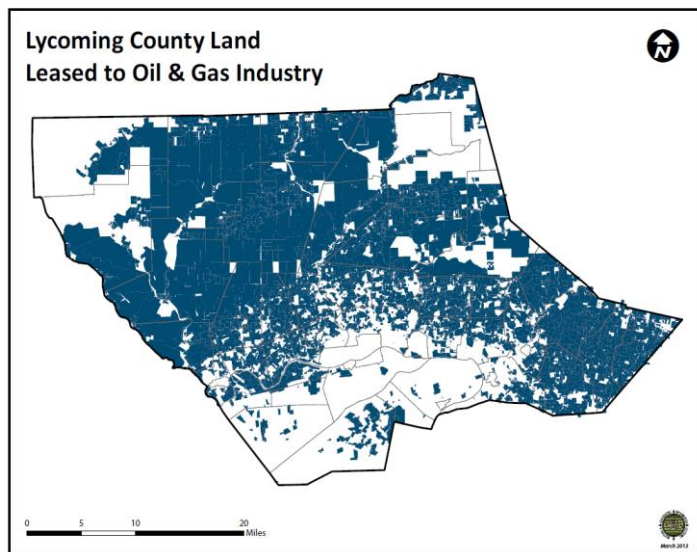
across Pennsylvania, New York, West Virginia, Ohio and Maryland, the United States Geological Survey estimates the formations total area to be around 95,000 square miles, ranging in depth from 4,000 to 8,000 feet containing more than 410 trillion cubic feet of natural gas supplying the nation’s energy needs for generations to come. Technological advances attributed to horizontal drilling paired with hydraulic fracturing have allowed

energy companies to harvest natural gas in a much more efficient and profitable manner in relation to traditional vertical well drilling techniques.

Lycoming County has a history of energy production attributed to timber harvesting as part of the lumbering boom as well as coal mining operations, however until 2007 there was a very limited

amount of conventional oil and gas drilling operations underway. The first Marcellus Shale natural gas well was drilled that year in Cogan House Township. Drilling then rapidly expanded to a level where Lycoming County witnessed the highest number of wells drilled during 2012 among all counties in Pennsylvania. (Approximately 40 PA counties are included as part of the Marcellus Play). Despite this intense level of gas exploration, it is recognized that this new industry is still in its early growth stage with continued drilling and gas production likely to occur for decades, although perhaps not at the remarkable levels previously seen in the past five years.

Much of the rapid development of Marcellus wells was attributed to more profitable natural gas commodity prices, need for drilling due to the value and expiration of current land leases along with industry competition. This fact, combined with the current volatile nature of fluctuating natural gas commodity prices creates challenges in establishing meaningful industry activity trends and predicting future industry activity level forecasts for planning purposes. Potential changes to federal and state regulations on natural gas exploration along with changes to energy consumption patterns among residential, commercial and industrial sources are also among key the factors affecting the future growth of this industry. Finally, industry shifts between development of the “dry gas” portion of the Marcellus and the “wet gas” areas in Western PA, Ohio and other plays throughout the nation due to profitability considerations will also continue to affect future drilling levels in Lycoming County.



The impact of natural gas drilling on the landscape of Lycoming County is quite evident when considering that, according to the most recent information available, approximately 60% of the County’s total land area is currently under land lease for gas exploration which comprises about 691 square miles. Given the size of the land area currently under lease, the potential exists for the future number of wells to exceed 3,000.



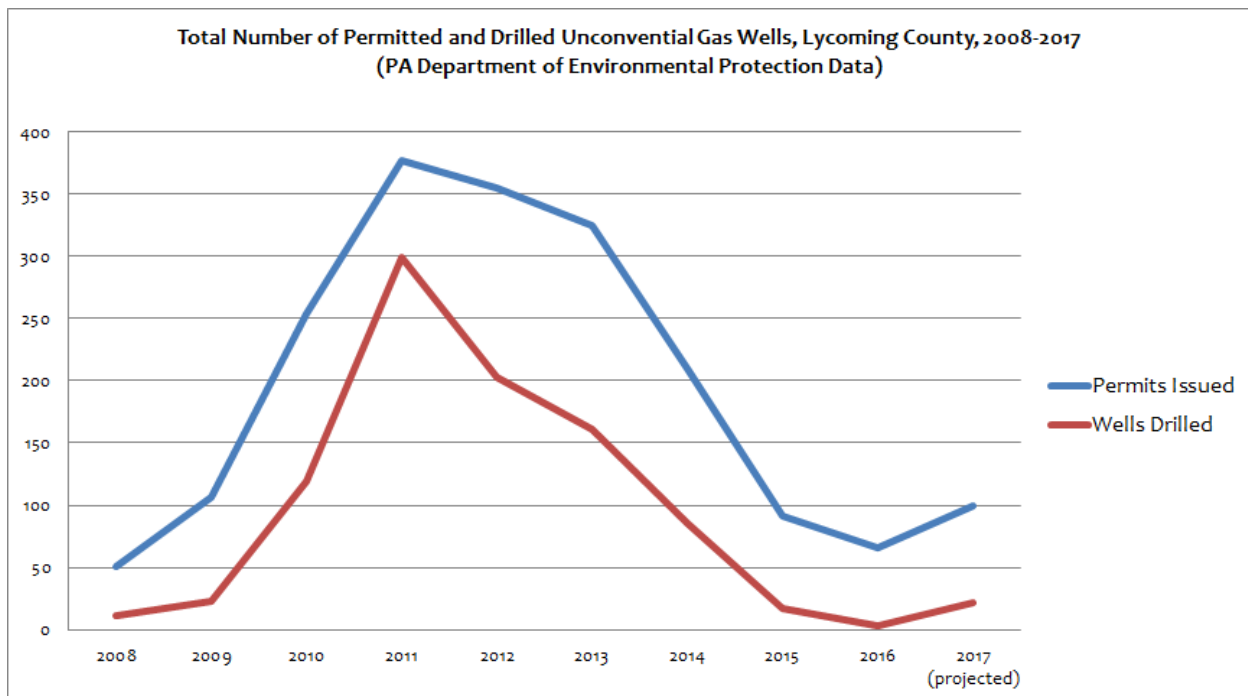
Marcellus Natural Gas Exploration Activity

Since the first Marcellus well drilling rig arrived in Lycoming County in 2007, the gas boom has transformed the entire Northcentral PA region with permitting and drilling of several thousand wells over a multi-county area including, Lycoming, Bradford, Tioga, Sullivan, Susquehanna, and Clinton Counties. Impacts from gas exploration are widespread and far reaching touching upon virtually every aspect of

everyday life in the region. This section of the plan will provide an overview of Marcellus activity with an emphasis on multi-modal transportation system infrastructure impacts, as this is a transportation plan, however it should be recognized that numerous other infrastructure impacts have occurred affecting available and affordable housing supply, water and sewer infrastructure, schools, pipeline development to name a few.

In terms of monitoring gas well permitting and drilling activity, the [PA Department of Environmental Protection](#) maintains an updated database that provides names and locations of well sites. Further, the Lycoming County Department of Public Safety maintains a supplementary database where all well sites receive a physical location address primarily to enhance emergency 911 response capability in the event of safety related incidents since the vast majority of gas wells are located in remote areas.

From 2008 to 2017, both the number of DEP permitted gas wells and drilled wells rapidly increased and then decreased as noted in the graph below. There has been a noticeable uptick in permitting and drilling of unconventional gas wells in Lycoming County in 2017. WATS staff will continue to monitor natural gas well drilling activity to assess and anticipate possible future impacts.



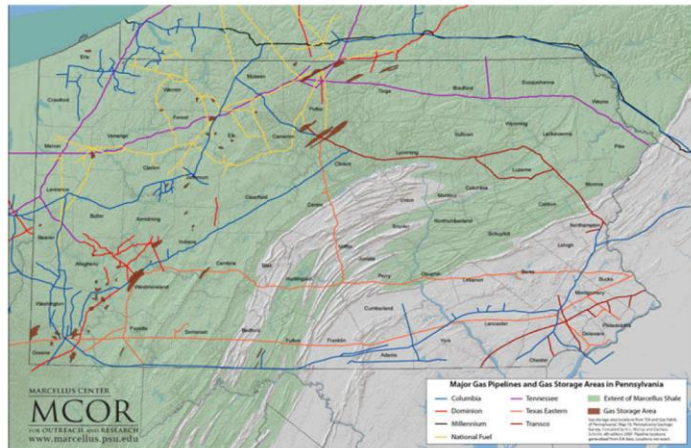
Infrastructure Impacts from Gas Drilling Activity

There are several major natural gas transmission pipelines in PA including the Transco pipeline that traverses the heart of Lycoming County in an east-west direction. Hundreds of miles of gathering lines are under development throughout the county.

In terms of natural gas well development, each well pad typically uses about 3-5 acres of land with 6-8 wells per pad. The pad development occurs over a 4-6 week period. Approximately 5,000 tons of

aggregate are needed during well pad construction generating 300-400 truck trips. Once a pad is constructed well drilling operations involve transportation of more equipment, water and cement generating another 150-200 truck trips over a 4-5 week period. Finally, after the well is drilled and the fracking operation resumes an additional 800-1,000 truck trips are needed to transport 3-6 million gallons of water and frack sand to the well location over a 1-2 week period which totals 1,250-1,600 cumulative truck trips per pad site for construction of the

2-3 month well pad development, well drilling and gas fracking production process. Obviously, this level of truck and employee traffic occurring largely on the rural roads creates substantial impacts given the weight, size and frequency of vehicles on roads and bridges that were not originally designed or built to accommodate such intense heavy hauling activity.



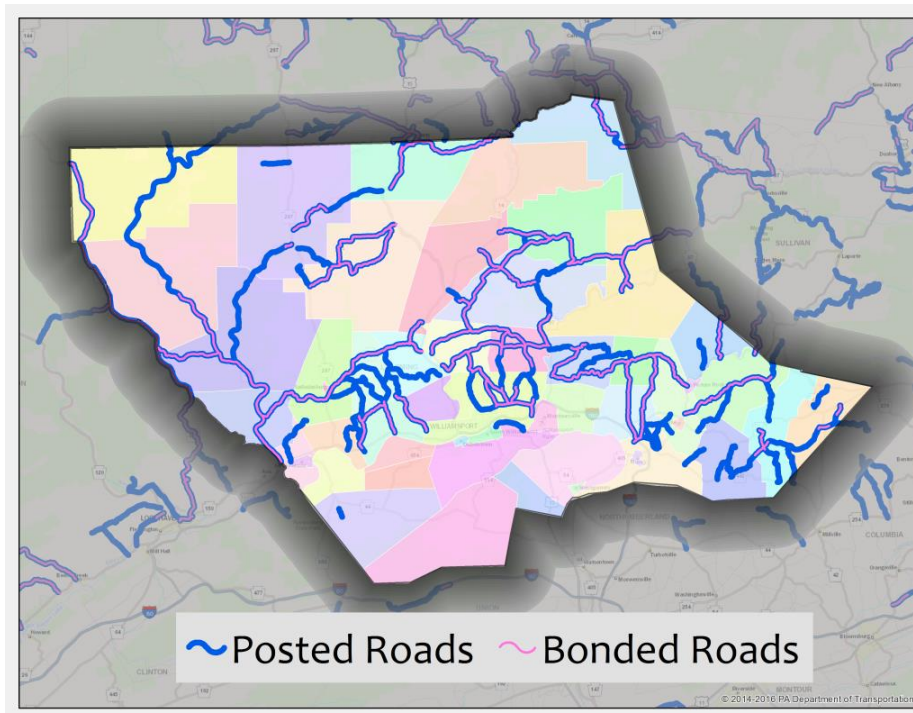
To properly address impacts of heavy hauling, Title 75 and 67 of the PA Motor Vehicle Code along with PennDOT Publication 23 establishes laws, regulations and policy governing the posting of vehicle weight and size restrictions for roads and bridges and authorizing bonding to secure financial security from heavy haulers to correct damages caused by their heavy hauling activity. The [State Posting and Bonding Program](#) manages vehicle weights over 10 tons and less than 40 tons for roads and bridges unable to support heavy truck traffic. In PA, if a road or bridge cannot structurally support 40 ton loads it should be posted for the appropriate weight limit based on engineering analysis.

According to Section 189.4 of the PA Motor Vehicle Code, “No over-posted weight vehicle, shall be driven on a posted highway with a gross weight in excess of the posted weight limit unless the posting authority has issued a permit for the vehicle or vehicles in accordance with this section.” The posting authority must follow proper procedures such as conducting an engineering study to determine the appropriate weight limit for the road or bridge, providing required public notice, notifying law enforcement and installing appropriate signage. PennDOT approves posting and bonding on State-owned highways while local municipalities approve posting and bonding on their locally owned roads, however municipalities must follow the same PA Motor Vehicle Code when posting and bonding locally owned roads and bridges to be able to enforce weight limits and issue heavy hauling permits. Various types of permits are issued to heavy haulers which include:



- Type 1 permitting one truck on one travel route.
- Type 2 permitting multiple trucks on one travel route (Most Marcellus activity)
- Type 3 permitting one truck on multiple travel routes.
- LoLD permitting multiple trucks on multiple routes

An excess maintenance agreement is executed between the road posting authority and heavy hauler which establishes an initial road inspection, excess maintenance responsibilities and payments to make necessary repairs, approved road maintenance plan and roadway condition surveys for heavy users. The hauler provides financial security based on permit type ranging from \$ 6,000 / mile for unpaved roads or \$ 12,500 / mile for paved roads under Type 1 and 2 permits. Type 3 permits are county/municipality wide for \$ 10,000. Certain types of local traffic can be exempt from posting and bonding requirements. According to the most recent data supplied by the PA Department of Transportation Bureau of Maintenance and Operations there are currently 382 miles of PennDOT posted state-owned roadways which represents about 50% of total state-owned road mileage in Lycoming County. Currently, there is a total of 225 miles (25%) of bonded state-owned roads in Lycoming County. Unlike the state-owned road system, there is not an up to date, comprehensive or reliable database that exists for locally-owned roadways that are posted and bonded in Lycoming County which is typical across the Commonwealth. Rather, each municipality establishes its own database system. The County does have very limited and outdated local road posting and bonding information based on LCPC outreach efforts, however there is not a high confidence level in this data so it will not be included in this plan. Municipal outreach to collect this data in the past was largely



unsuccessful as many municipalities were not responsive in providing the requested data. There are 3 state-owned bridges and 27 locally owned bridges that are posted for weight limits in Lycoming County. A more comprehensive discussion of the structurally deficient load posted bridges is provided in Chapter 3 of this Plan.

It should be noted that the Marcellus industry has spent millions of dollars maintaining and upgrading those state

and locally owned roads that have been posted and bonded in order to ensure these roads remain safe and passable and meet industry transportation needs and the overall pavement condition of these roads is generally improved as a result. However, a concern is that the major state-owned roads that are not posted and bonded are receiving accelerated life cycle pavement deterioration

due to the substantial increases in truck traffic that may require more frequent and costly treatments.

Marcellus impacts on the transportation system are not just limited to roads and bridges. Other transportation modes such as air service, rail service and public transit have experienced significant positive impacts. These impacts are summarized herewith by transportation mode. (Chapter 3 of this Long Range Plan will provide a more detailed overview of all Lycoming County multi-modal facilities.)

Impacts on Other Modes

Because Marcellus Shale related natural gas exploration and drilling activity peaked in 2011-2012, we have a very clear picture of the demands that resurgence in activity would place on our transportation system.

The Williamsport Regional Airport is the only commercial airport in Lycoming County serving a 13 county service area in Northcentral PA. At the peak of Marcellus development, enplanements at the airport rose from approximately 18,000 annual passengers to over 26,000 annual passengers at the end of 2012 representing a 44% increase. At that time, about 50% of total passenger enplanements were Marcellus related customers.



The Lycoming Valley Railroad (LVRR) is the short line railroad primarily serving the Marcellus business rail service activity. The railroad facilities are owed by the SEDA-COG Joint Rail Authority and operated through a contract with the North Shore Railroad Company. Again, similar to the airport, the Lycoming Valley Railroad has witnessed a

substantial increase in rail freight traffic during the peak period of Marcellus gas exploration. Approximately 20% of all rail freight carloads handled by the LVRR were Marcellus related freight at that time.

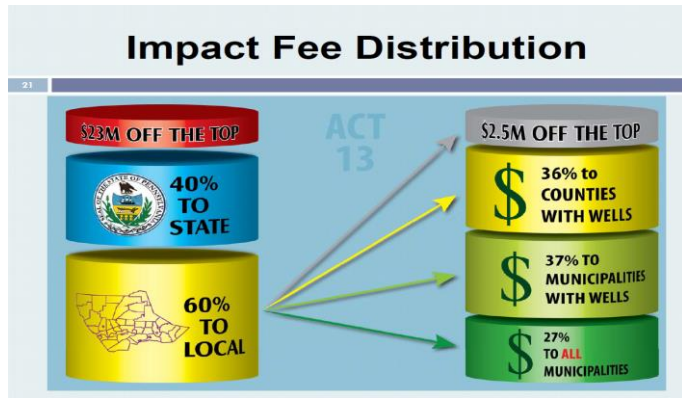
The arrival and expansion of the Marcellus Shale gas industry has also increased demands and pressures on the existing fixed route transit system, River Valley Transit. The substantially increased presence of gas workers has saturated local hotels and increased the number of riders utilizing the local and regional transit system. In 2012, River Valley Transit recorded over 1.4 million passengers which is an all-time record.

A more in-depth overview of air service, the rail system, and transit in Lycoming County will be provided in Chapter 3.

Act 13 Funding

To help address Marcellus related impacts, such as transportation system impacts, the Pennsylvania General Assembly approved Act 13 which provides funding assistance to Counties, local municipalities and other state agencies (such as PennDOT) through impact fees levied on natural gas drillers. The funds are administered through the Pennsylvania Public Utility Commission (PUC). This

funding will be helpful to address such impacts, however in no way should it be regarded as fully sufficient to cover all associated infrastructure impacts created by the industry. During the peak periods of gas development in Lycoming County, Act 13 funds were used in several major transportation projects to improve infrastructure. Projects included \$ 1 million from the County’s allocation of Act 13 funds for the Williamsport Regional Airport Terminal Building Replacement project and \$ 117,200 for the City of Williamsport to reconstruct and widen Reach Road, the main local road serving the growing Williamsport Industrial Park and Newberry Rail Yard. These facilities are high County priorities and have been substantially impacted by natural gas extraction related activity. The County anticipates making continued transportation investments through Act 13 if gas development activity increases in the future.



Environmental, Natural, and Cultural Resources

Lycoming County is rich in scenic and natural resources, including mountains, woodlands, wildlife, vegetation, agriculture and water sources. These resources form unique and scenic landscapes. Natural resources are discussed in two broad categories: water resources and land resources. The major development centers of the county are located along the West Branch of the Susquehanna River. An abundance of open space lands exist adjacent to developed communities as well as within the floodplain.

Water Resources

Rivers and Streams

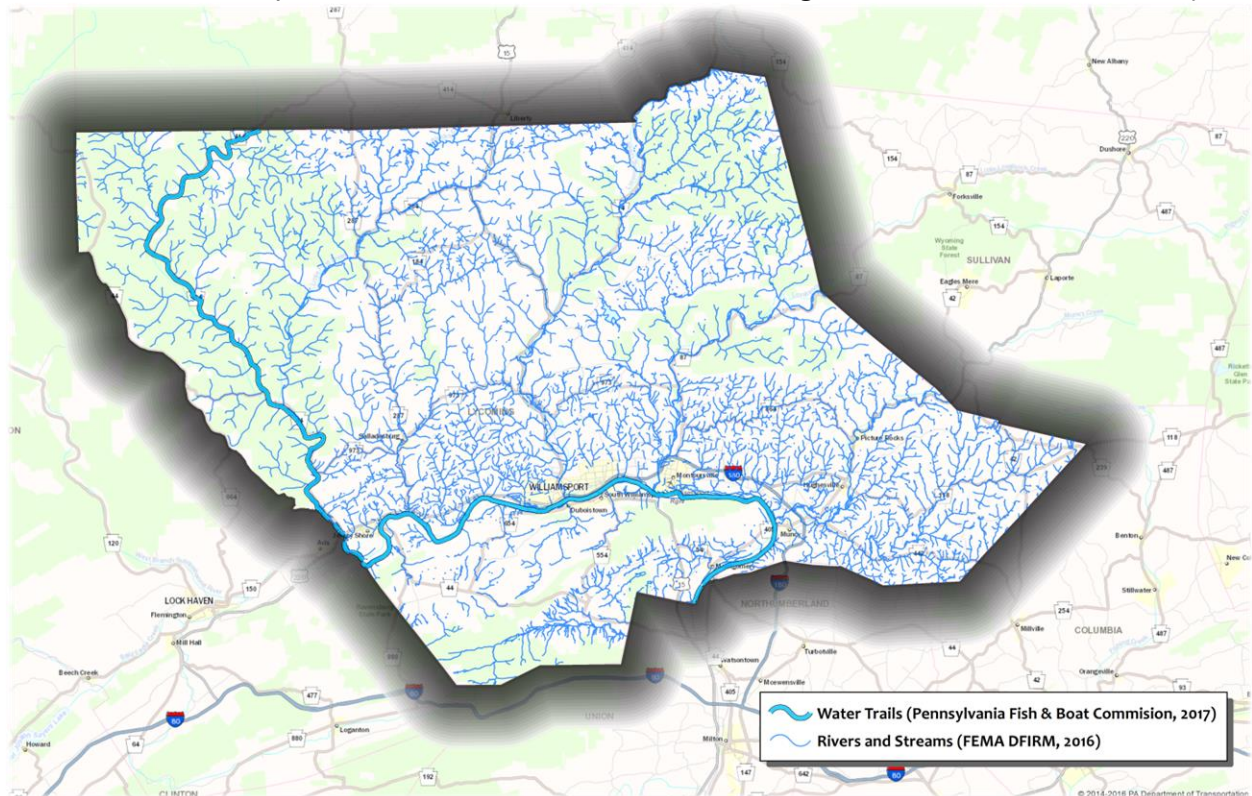
Lycoming County is completely situated within the Susquehanna River Basin. The major water body, the West Branch of the Susquehanna River, runs almost horizontally through the county for a distance of 38 miles. This river collects all the water from numerous streams and tributaries (total 2,200 miles in length) formed within the surrounding mountains. The water resource of the river is the largest in the county by a wide margin, and prime scenic areas and farmlands are found along much of the river frontage. Major tributaries include Pine Creek, Larry’s Creek, Lycoming Creek, Loyalsock Creek, and Muncy Creek. Lycoming County waters support various fish species. Rainbow, brook and brown trout, panfish, large and small mouth bass, and muskellunge live in rivers, streams, and lakes throughout the county, and are highly valued by fishermen throughout the region. The six watersheds in Lycoming County are illustrated below in term of their size.

Watershed	Acres	% of Watershed within Lycoming Co
Pine Creek	633,867	33.8%
Larrys Creek	56,958	100%
Lycoming Creek	173,079	81%
Loyalsock Creek	317,689	33.1%
West Branch Susqueha	270,783	1.54%
Muncy Creek	131,179	64.9%

Each watershed is a complex network of natural resources – topography, water, soil, flora, fauna, etc. A watershed is an area of land where all of the underground and surface water goes into the particular place, such as a lake or river. When surface waters run downhill, they carry all kinds of non-point source pollution, (NPS), sediments and other materials into our hydrologic system depositing in streams, lakes, wetlands and groundwater. EPA has identified NPS pollution as one of the most significant contributing factors in the decline of watersheds and water quality. The West Branch Susquehanna River is a watershed that is impaired by NPS pollution, primarily as a result of farming, disturbed riparian buffers, and land development.

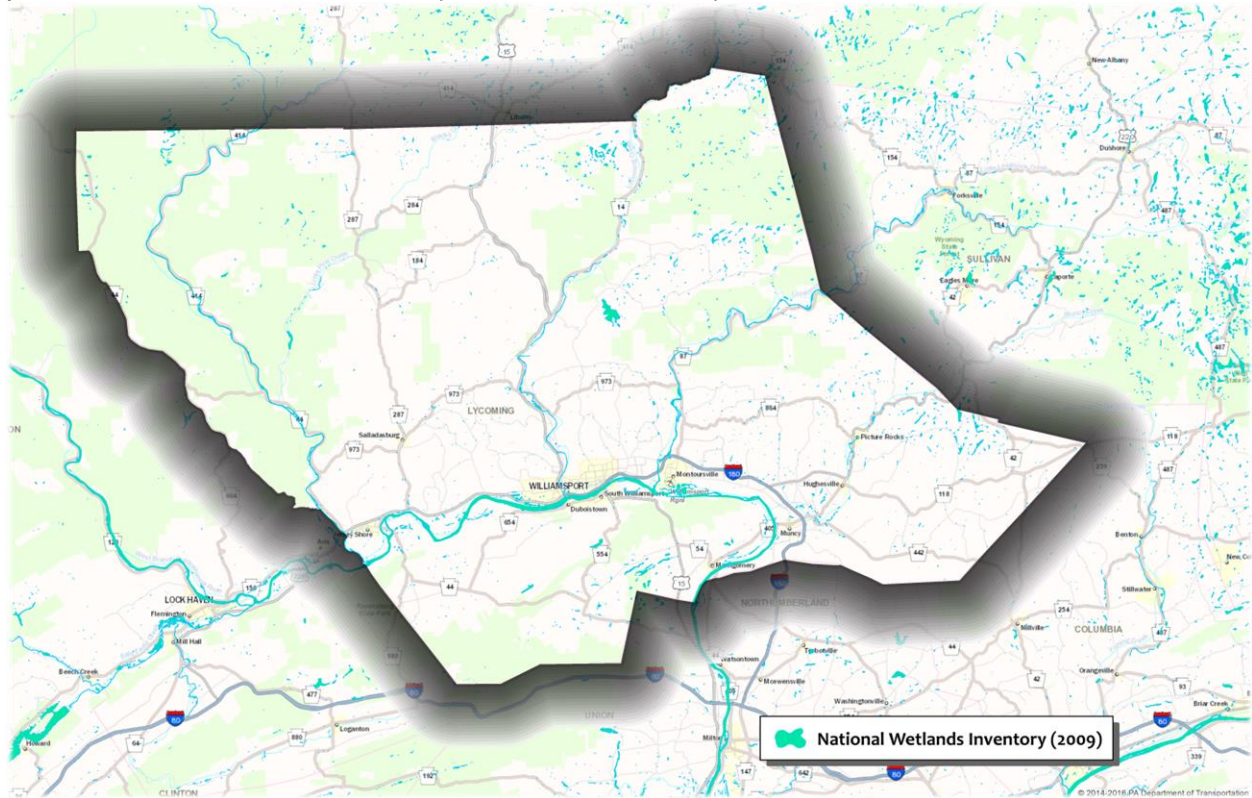
Streambanks have been eroding and collapsing under pressure from seasonal stormwater and floodwaters. The natural strength of the streambanks has been weakened by management practices such as tree removal and uncontrolled livestock access to the waterway. Lycoming County encourages streambank preservation programs and preservation of natural undeveloped water retention areas. Lycoming Creek and Big Bear Creek, a tributary to Loyalsock Creek have also been restored through applied theories of fluvial geomorphology where natural channel design techniques have been used to direct stream flows and improve sediment and gravel carrying capacity, thus improving water quality and stream habitat, however major recent floods have caused damage to such stream improvements. Acid mine drainage from Tioga County into downstream Lycoming County watersheds have also been an issue where remediation efforts have been underway for some time.

The West Branch Susquehanna River and Pine Creek are the designated water trails in the County.



Wetlands

Lycoming County encompasses 4,645 acres of wetlands or about .6% of total county acreage. Wetlands are important habitats necessary for the survival of a host of aquatic and terrestrial species and integral parts of the hydrologic system necessary for the maintenance of water supplies, water quality and flood control. Three indications for wetlands include hydric soils, plants adapted to life in wet environments, and the presence of water during growing season. The National Wetland Inventory areas have been identified, and wetlands identified as part of the Natural Area Inventory should be included as part of open space protection planning due to their impacts on water quality. The National Wetlands Inventory maps are general indicators of wetlands in the County; site specific determinations of wetlands should be conducted as part of the transportation project development process. There are 12,613 acres of hydric soils in the county.

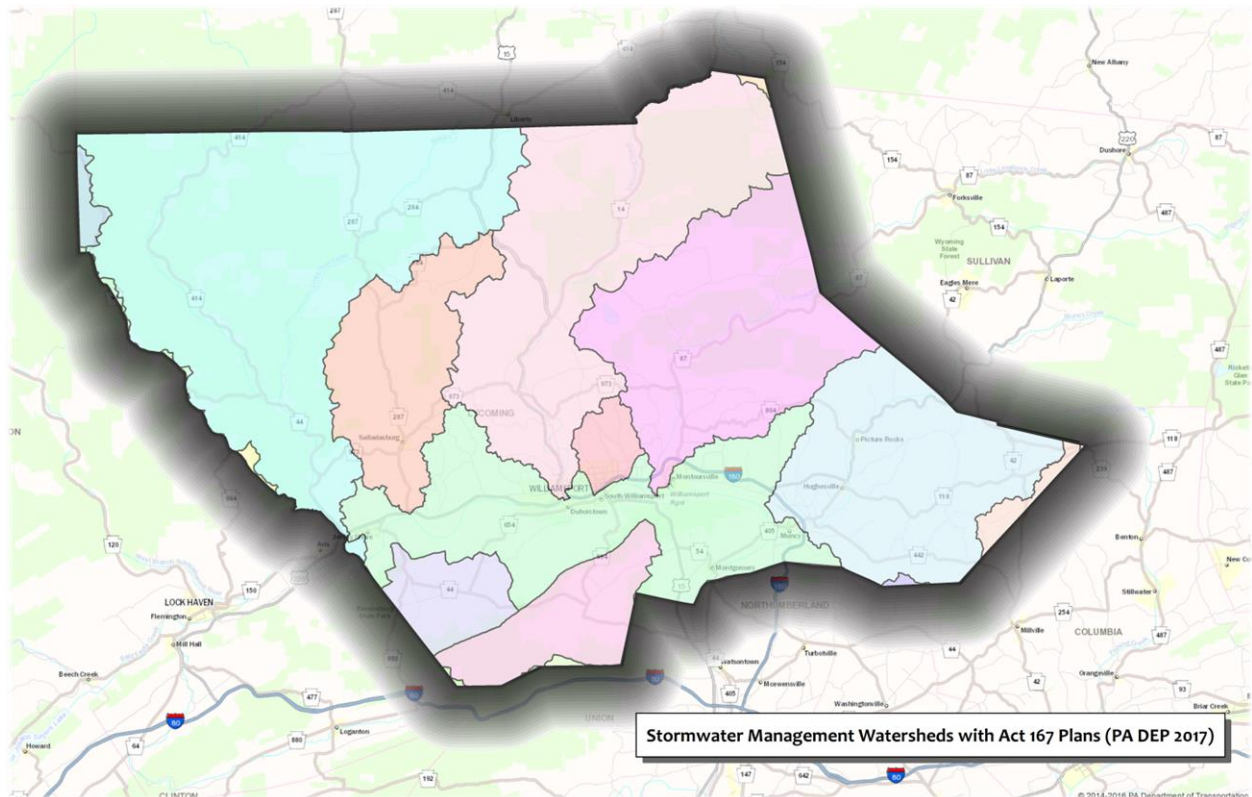


Groundwater

In terms of groundwater, the glacial lake and stream deposits are the most productive sources in Lycoming County. These deposits underlay the majority of industrial areas in the county and have been exploited for large supplies of water at numerous locations. Much of Lycoming County relies on groundwater as a source of drinking water, therefore protection of this resource is essential to preserve the quality of life in the county. The quality of the natural groundwater is not high in many areas. Although well water may be potable, often it is not palatable without treatment (e.g. sulfur taste and odor). Pollution of groundwater from non-point sources, such as agriculture, has not been identified as problematic in a widespread degree. Historically, groundwater resources have provided an adequate water supply to wells in the region. However, in recent years, water supply has not been as reliable.

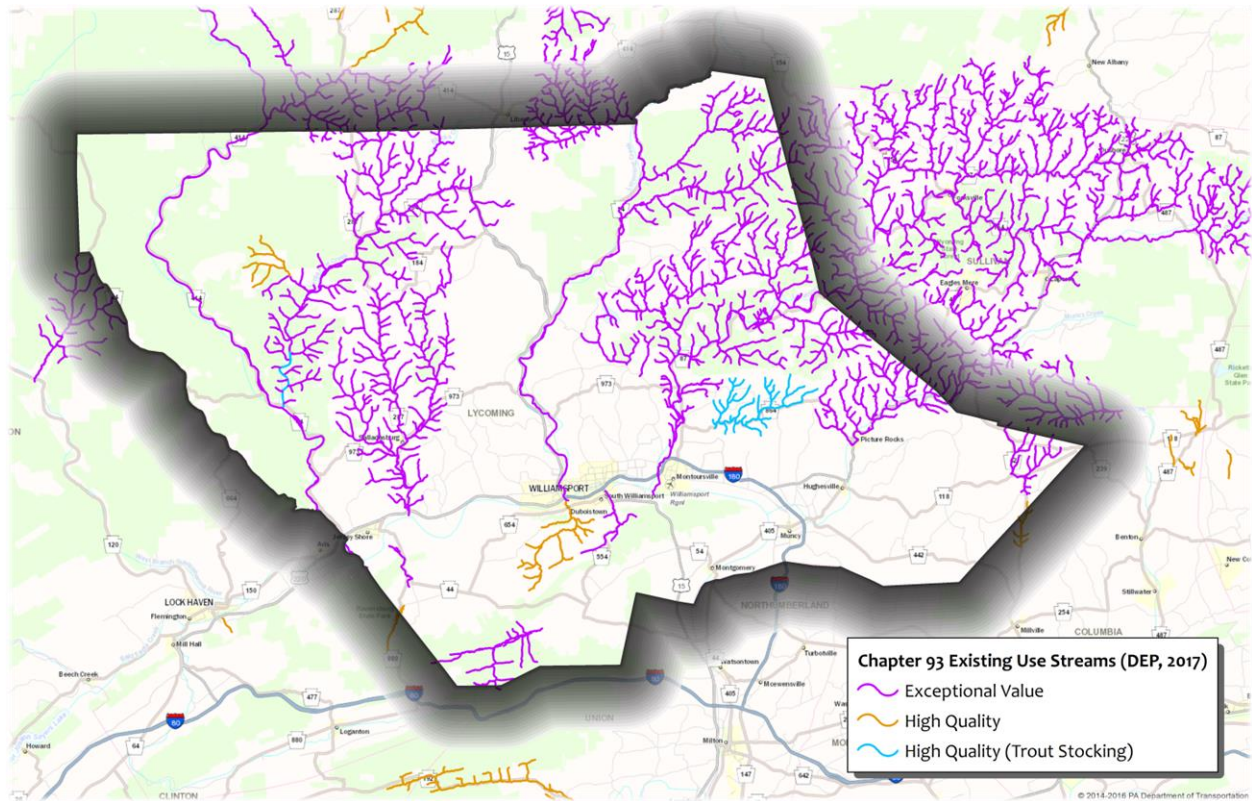
Stormwater Management

A number of watersheds within the county are experiencing stormwater management problems, some of which are severe. This contributes to flood damages, degraded water quality, and a reduction in the biodiversity. Design of controls for managing stormwater should incorporate Best Management Practices, (BMPs), and infiltration to improve the quality of discharges and runoff. PA Act 167 requires counties to prepare stormwater management plans that provide standards for controlling runoff from new development on a watershed basis. The County has completed an Act 167 Comprehensive County-wide Stormwater Management Plan with implementing ordinance in 2011.



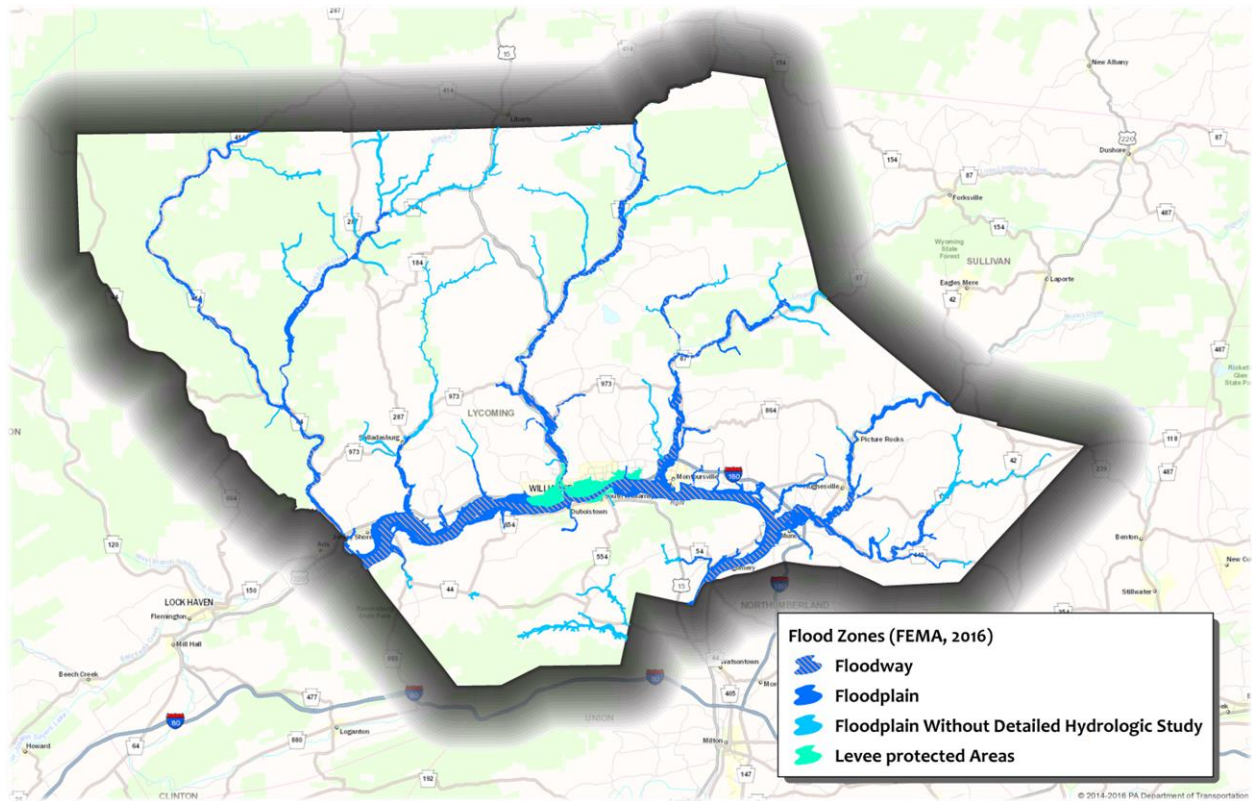
High Quality / Exceptional Value Watersheds

Lycoming County has 193 high quality / exceptional value streams encompassing 1,240 miles where the county supports watershed overlay provisions especially for the Susquehanna River, Loyalsock, Lycoming, Pine and Muncy Creek corridors along with the Mosquito Creek watershed and lands owned by the Williamsport Municipal Water Authority. These watersheds are excellent fresh water fisheries having the benefit of good water quality, which supports warm water species and cold water species. Native brook trout inhabit the cold-water streams, while large and small mouth bass and muskies populate the warmer waters. A large portion of the Appalachian Plateau, which is located in the County, has been designated as either exceptional value or high quality watershed under PA Chapter 93 Water Quality Standards. There are over 117 miles of wild trout streams and 154 miles of stocked trout streams throughout the county.



Floodplains

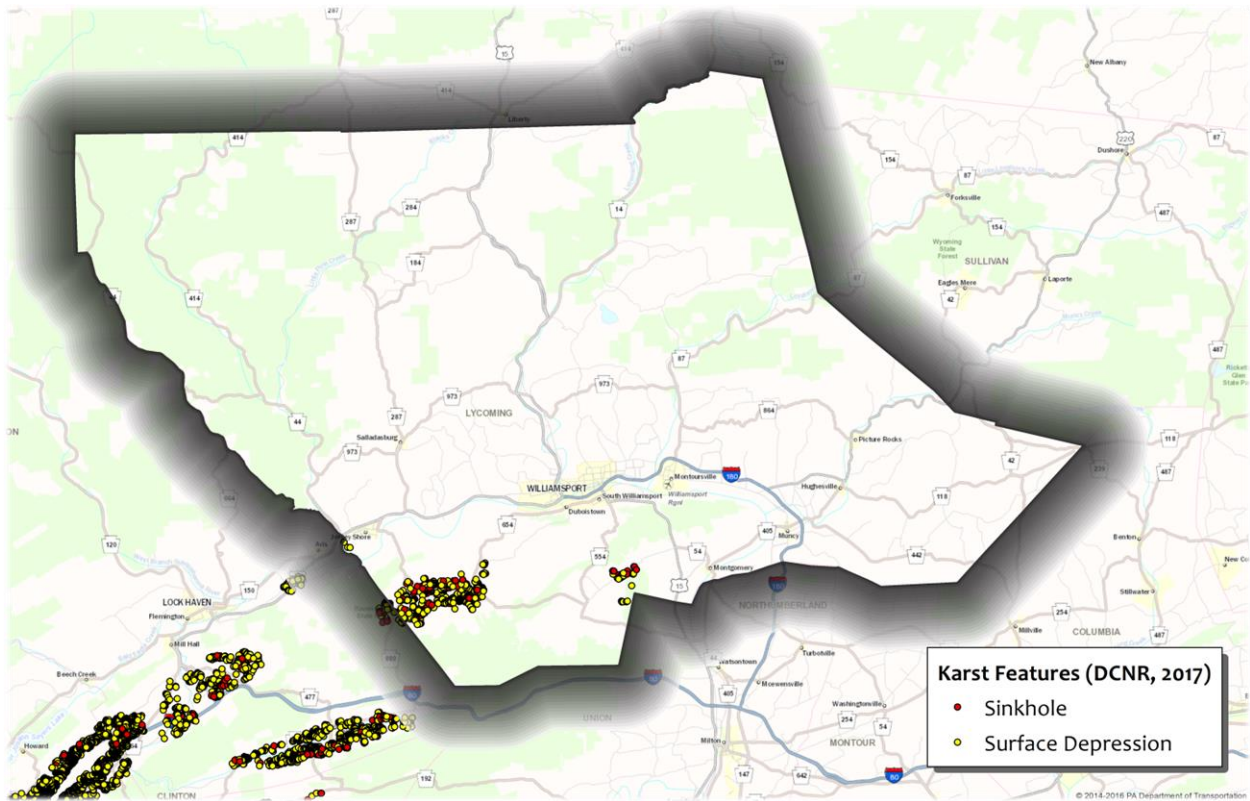
Because of the vast network of 2,200 miles of the river and streams, many areas of the county are situated in the regulatory floodplain. Because floodplains are relatively flat and have good soils, they are convenient for development. However, natural flooding cycles can cause tremendous damage to man-made structures. Therefore, accurate delineation and floodplain management practices are imperative to reduce hazards and ensure a healthy ecosystem. Lycoming County is active in regulating further expansion of existing floodplain development and pursues funding for property buyouts and retrofits in the floodplain.



Land Resources

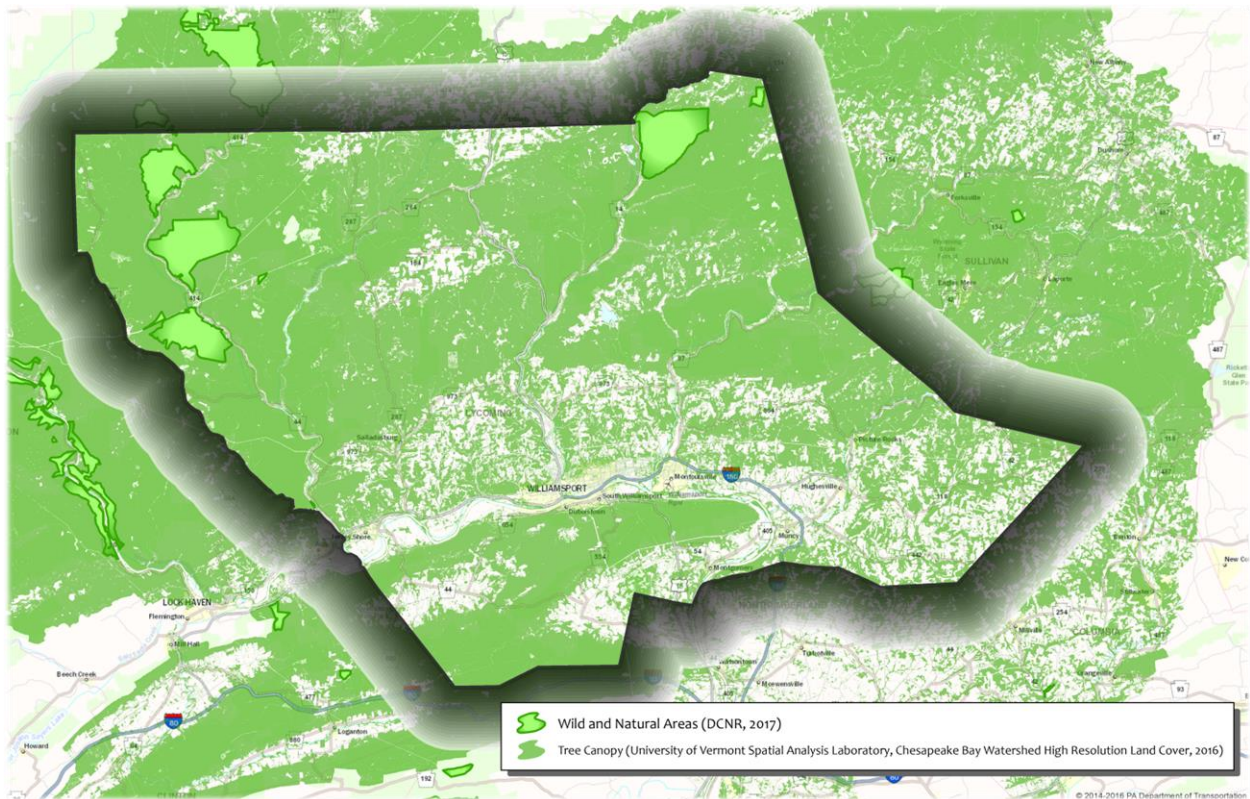
Topography

Lycoming County is located within two geomorphic provinces, the Appalachian Plateau Province and the Valley and Ridge Province. The Appalachian Plateau, differentiated by rolling hills dissected by steep stream valleys, is found north of the Susquehanna River. The Allegheny Front, the distinctive wall of mountains north of Williamsport, separates the two provinces. The Ridge and Valley Province, a series of sharp-crested ridges and narrow valleys, is found south of the Susquehanna River, extending in an arc from southwest to northeast across the central part of the state. Areas of steep slope mainly follow stream valleys, especially in the northern region beyond the Allegheny Front. Portions of the County's landscape are underlain by limestone based geologic formations that are susceptible to the formation of solution caverns and sinkholes. Also known as Karst topography, these areas are considered to be both hazardous, because of the danger of collapse, and beneficial because they provide unique habitats, mineral sources and recreational opportunities. A major sinkhole (Maple Hill Sinks) likely fed from underground springs in Brady Township near Elimsport periodically causes severe and prolonged flooding along State Route 2001 (Elimsport Rd) that shuts down a portion of the roadway and causes substantial detours disrupting the local community for uncertain periods of time.



Forests

In Lycoming County, more than 70% of the land area is forested. Over 60% of forest cover falls within the oak-hickory and associated varieties classification, the most common forest type in Pennsylvania. Maple-beech-birch and associated species are the second most prevalent. Other varieties include cherry, ash, white pine and hemlock. These areas serve many purposes including watershed protection, wildlife habitat, outdoor recreation, and a source of income from wood crops. It should be noted that forested open space performs the crucial role of stormwater absorption and groundwater recharge, which reduces the severity of flooding for downstream properties and urban communities. Lycoming County supports incentives for sound forest management and encourages development of forest stewardship plans to promote forest retention.

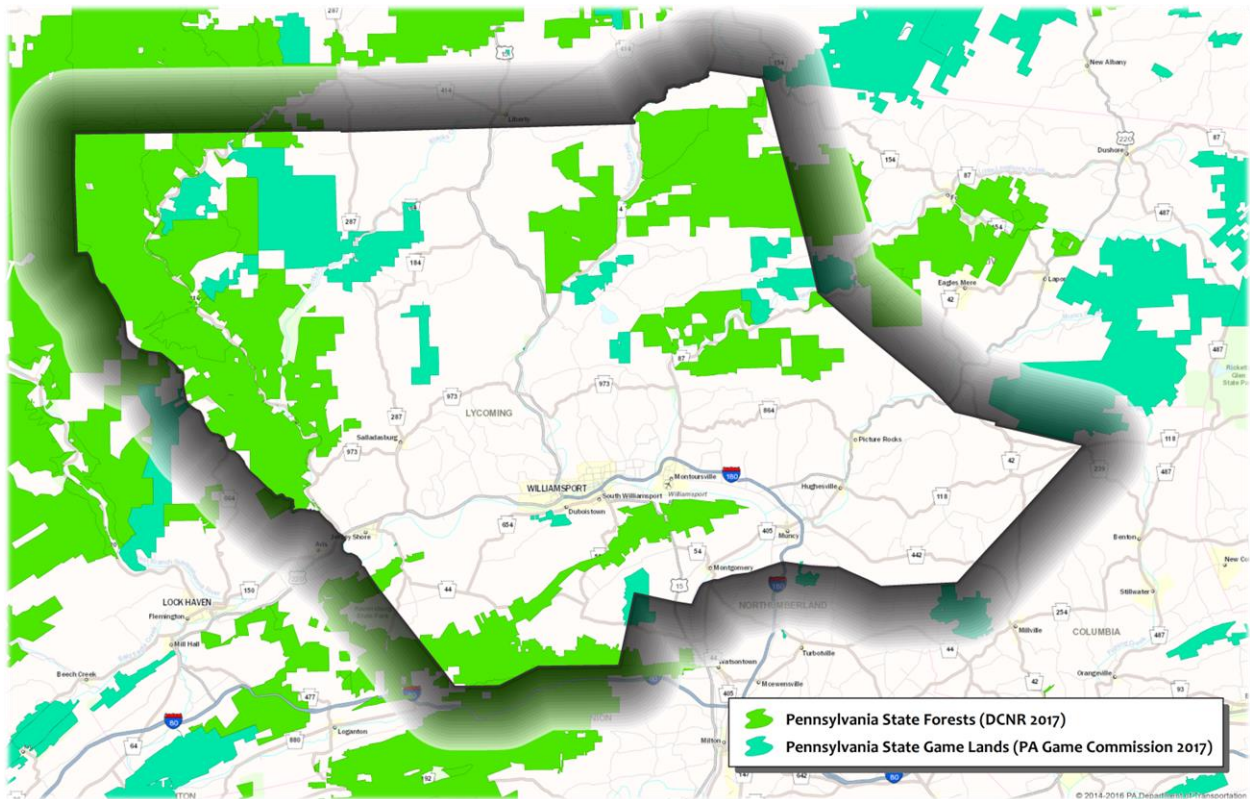


Wildlife

The large number of acres of forestland, waterways and open space land areas previously described support and abundance and variety of habitat. This habitat supports a variety of wildlife, including a variety of small birds and animals, big game animals, and many migratory birds. Game species, such as deer, black bear, turkey, grouse, pheasant and coyote, thrive in forest and forest edge habitats. Non-game species flourish as well including bobcat, otter, herons, bald eagles, osprey, hawks, and owls. The county supports wildlife protection through state agencies and local, private organizations.

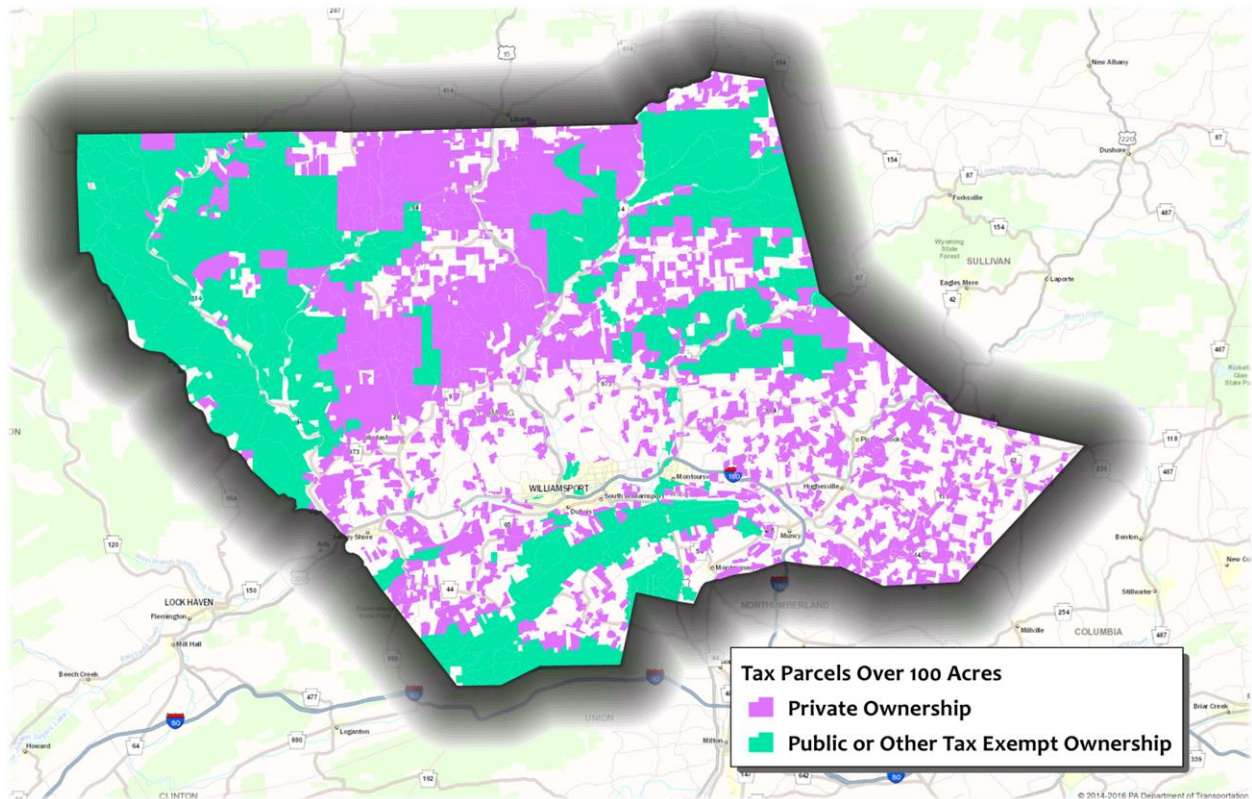
State and Federal Lands

There are extensive public land holdings in Lycoming County. These lands comprise more than 30% of the total land area within the County. A majority of the mountainous area is State Forest or State Game Land, especially in the northern portion of the county. The Tiadaghton State Forest is the largest of the state forests in the county with small portions of Sproul and Tioga State Forests also reaching into the county. Private development is not permitted under current State policy. Timber production on these lands is managed by the PA DCNR Bureau of Forestry and State Game Commission. There are natural gas exploration operations permitted and occurring on these lands but the primary use generally consists of outdoor recreation.



Large Parcel Landowners

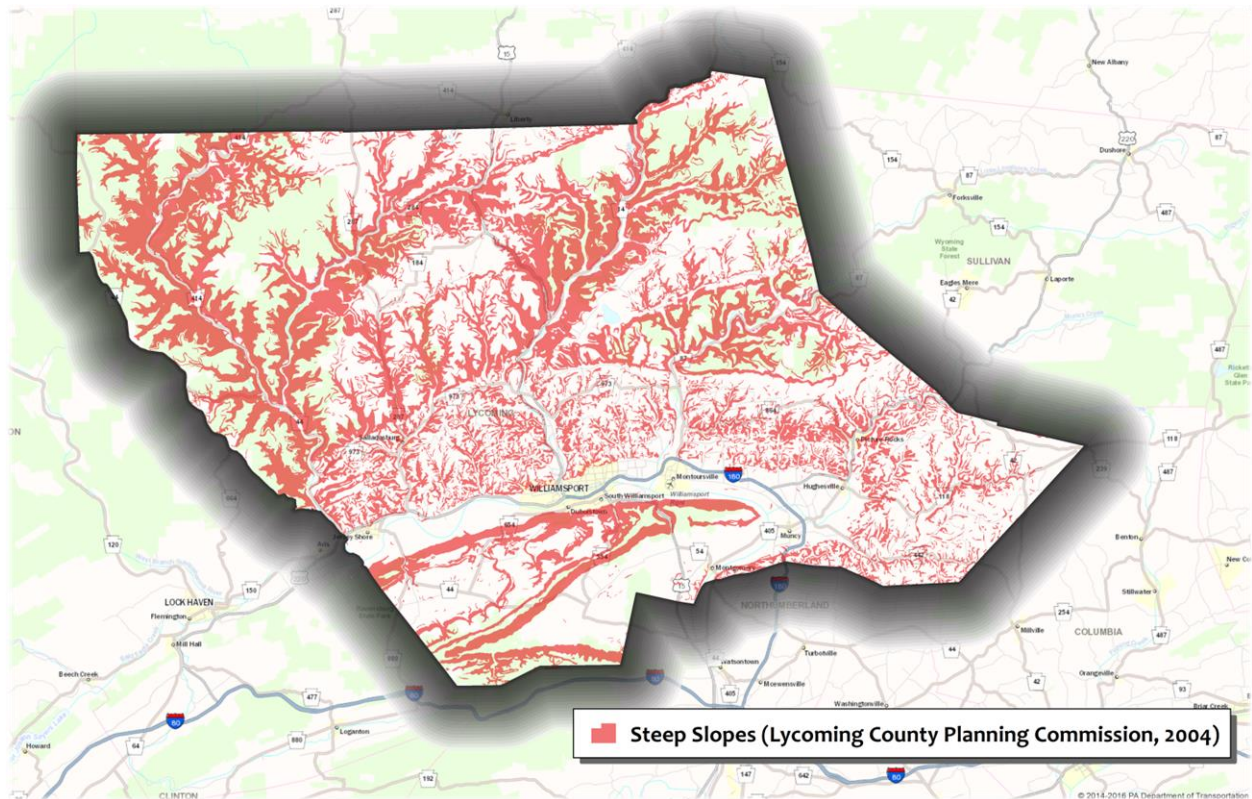
Land parcels of 100 or more acres comprise 66% of the total land area in the County with the majority of this acreage being State Lands and Hunting and Fishing Clubs. These areas have remained intact over many years and have not been the subject of development or subdivision, with the exception of agricultural farms.



Steep Slopes

A significant portion of the county has slope gradients equal to or in excess of 25%. A number of soils are highly sensitive to disturbance and development. The highly erodible soils are typically found on the steep slopes, which cover about 50% of the county land area. These soils are unstable under conditions of disturbance and pressure and contribute sediment to surface waters and can increase flooding.

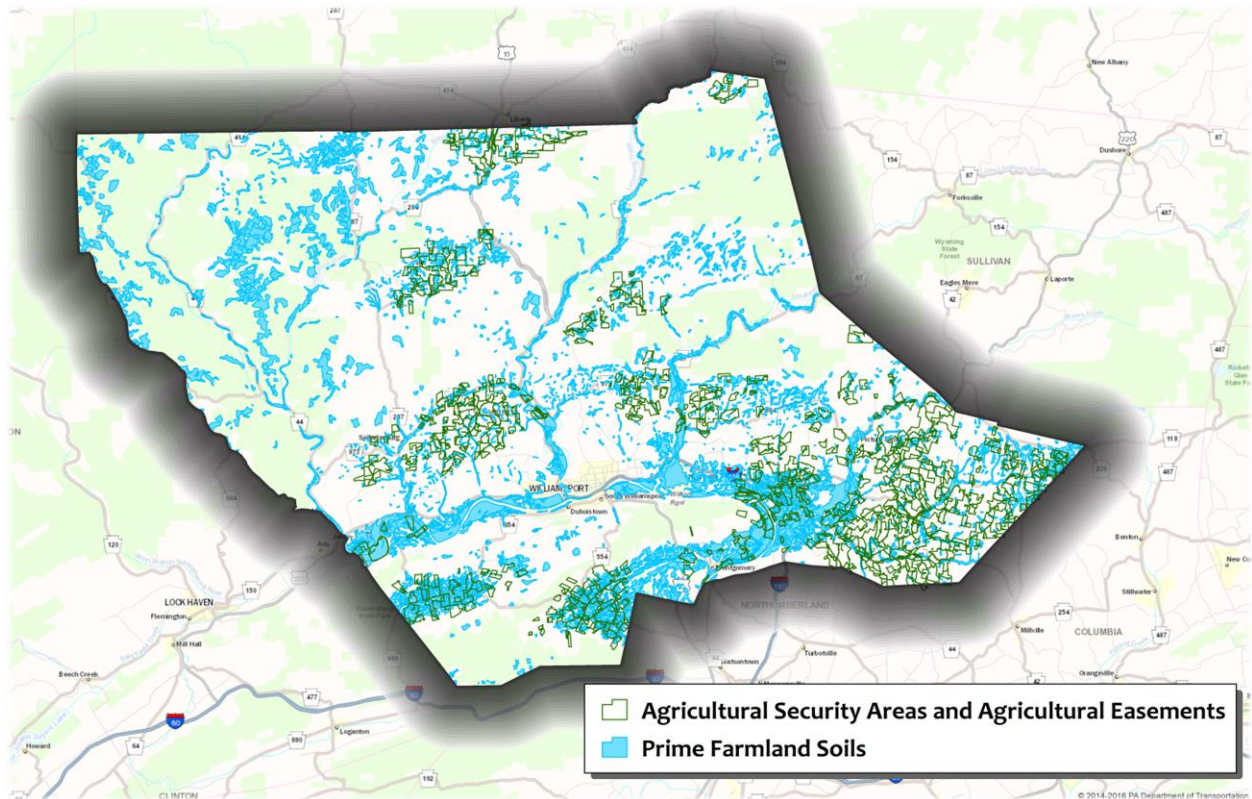
Although current zoning does not prohibit development in these locations, in most cases development plans are required to incorporate erosion and sedimentation controls and a soil stability analysis along with defining an aquatic resource buffer width graduated on the slope gradient.



Agricultural Soils & Preservation Efforts

Lycoming County has an abundance of agricultural Prime Farmland Soils currently in agricultural uses. These soils are well drained, however in many areas steep slopes are a limitation to development or agricultural uses. The Prime Farmland Soils produce the highest yields with minimal additional inputs. There are 106,000 acres of Prime Farmland Soils in the county which is 13% of total county land area. The next most productive soils are classified as Soils of Statewide Importance where 110,000 acres fall in this classification county-wide yielding another 14% of total county land area. Many farmland protection programs use soil classifications

The most popular form of agricultural protection throughout the county is the Clean and Green Program, in which 368,590 acres or 575 square miles are currently enrolled representing nearly half of all the land area in the county. However there are only limited acres enrolled in the Agricultural Security Area Program or permanently protected through easements. The agricultural landscape is most prominent in the eastern and southern regions of the County. Here, soils readily support crop production and pasturing. Lycoming County is continually active to identify farmland that should be permanently preserved for agricultural use considering soil quality and local paths of development and infrastructure availability in the identification and enrollment process to expand Agricultural Security Areas and Clean and Green Programs, where appropriate.



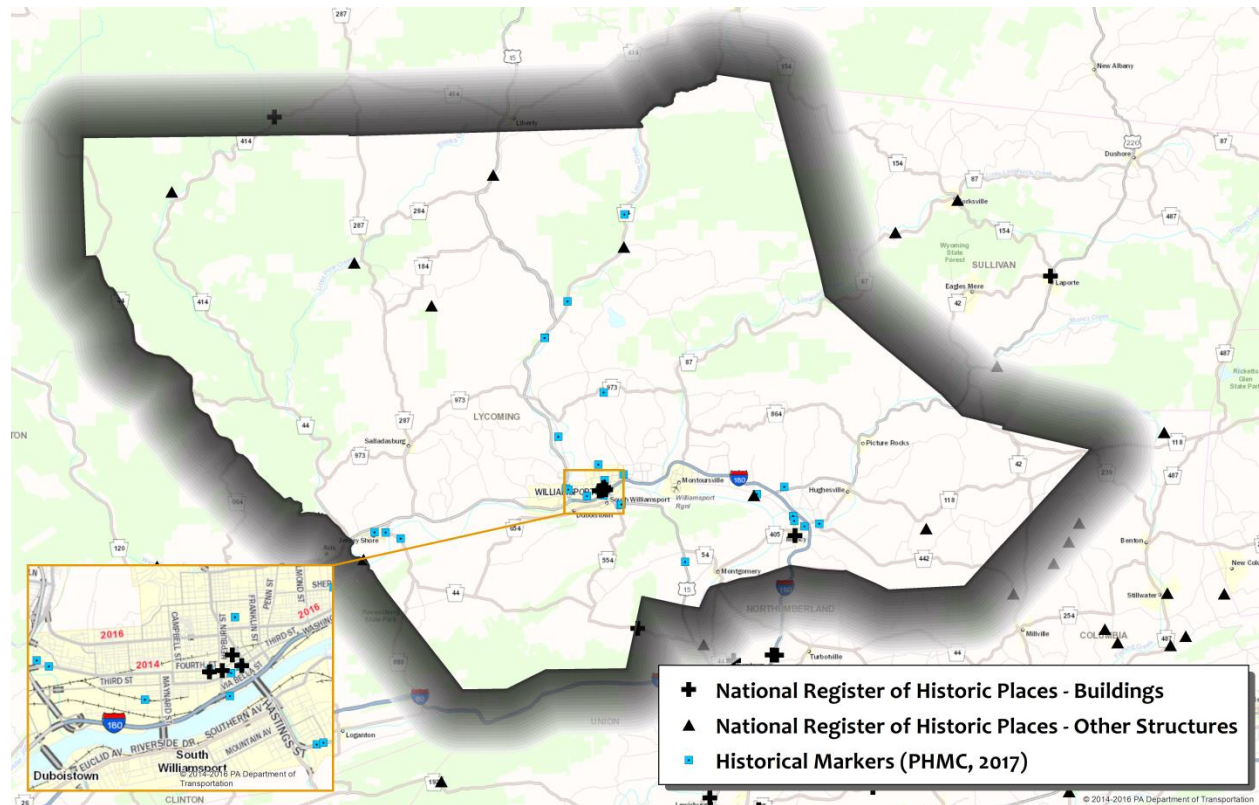
Historic, Archaeological, and Cultural Resources

Lycoming County has many significant cultural, historic and archaeological resources that define our local heritage that should be protected. It is the policy of the county to conserve these resources, promote state and federal historic preservation programs locally through identification and application of historic properties to the PA Inventory and National Register of Historic Places eligibility list. There are 36 properties located throughout the county that are either eligible or listed on the National Register of Historic Places with 21 of these properties situated in the City of Williamsport. Further, the county encourages development of guidelines for historic site / district redevelopment with flexibility for conversion and adaptive re-use of historically significant structures, including use of Historic District Overlays, where appropriate. Williamsport Millionaires Row and the Muncy Historic Districts are excellent and among the most prominent examples of historic districts in the County with outstanding architectural and historic structures, many of which have been recently restored. In addition, there are also several Century Farms that have been held by the same family for over 100 years.

Historic Markers

National Register of Historic Places

Antes Fort	Archeological Site 36 LY 37
Blooming Grove Dunkard Meeting House	Bridge in Brown Township
Bowman Field	Bridge in Lewis Township
Capt. John Brady	Bridge in Porter Township
Carl E. Stotz	Buttonwood Covered Bridge
Civilian Conservation Corps	Cogan House Covered Bridge
Dietrick Lamade	English Center Suspension Bridge
Eagle Grange No. 1	Hart Building
Fort Antes	Herdic, Peter, House
Fort Muncy	Houseknecht Farm
Freedom Road Cemetery	Jersey Shore Historic District
Julia C. Collins (? - 1865)	Lairdsville Covered Bridge
Lycoming County	Millionaire's Row Historic District
Muncy	Muncy Historic District
Muncy Mills	Original Little League Field
Pennsdale Meeting	Reading-Halls Station Bridge
Peter Herdic	St. James Episcopal Church
Pine Creek Presbyterian Church	U.S. Post Office
Repasz Band	Williamsport Armory
Sheshequin Path	Williamsport City Hall
Susquehanna Log Boom	
W. D. Crooks & Sons Door Plant	
Williamson Road	
Williamsport	



The county also supports close coordination with archaeological protection organizations to inventory and protect sites of archaeological significance. The Ault site, which is located along the Susquehanna River near the Canfield Island archaeological site (Riverfront Park in Loyalsock Township) contains the remains of a fortified Native American village. It is Lycoming County’s most significant archaeological site to date. Discovered in 1993, thousands of artifacts have been uncovered, some dating back 3,500 years. It is protected permanently by a conservation easement. In terms of major cultural resources, Lycoming County is blessed with excellent facilities and programs in visual and performing arts. The Williamsport Area serves as a major cultural arts and events center showcased by the Community Arts Center. The Williamsport Areas also has worldwide recognition as the origin and host for the Little League Baseball World Series as well as home of Bowman Field the second oldest functioning minor league baseball park in the nation. The Thomas T. Taber Museum and James V. Brown Library are other significant cultural facilities in Williamsport.

Transportation System Resiliency

In 2005, Lycoming County was the first county in the Commonwealth to work with the Federal Emergency Management Agency and PA Emergency Management Agency to prepare and adopt a comprehensive Hazard Mitigation Plan. The Plan was most recently updated in 2015. This plan identifies and prioritizes hazards that may affect the County and its municipalities, assesses vulnerability to these hazards, identifies mitigation actions that can reduce that vulnerability and develops strategies for implementing needed actions, including parties responsible for plan implementation.

The most common hazard occurrence that causes long term and costly recovery is major damage to transportation facilities attributed to major floods. However, strong storms producing snow and wind are increasingly causing acute disruptions in the transportation system. Floods are generally categorized based on the annual probability of a certain severity flood event. “Floodplain” is commonly understood to be all areas with at least a 1% annual probability of seeing a flood event. In Lycoming County, there have



been three flood events of a scale meeting or exceeding the 1% annual probability extent since 1996: the January, 1996 flood, the September, 2004 Tropical Storm Ivan flood and the September, 2011 Tropical Storm Lee flood. This last flood cause nearly \$ 50 million in public transportation infrastructure damages.

Lycoming County Emergency Management Approach

Emergency management is a comprehensive, integrated system of mitigation, preparedness, response, and recovery for emergencies and disasters of any kind. No public or private entity is immune to disasters and no single segment of society can meet the complex needs of a major

emergency or disaster on its own. The PA Emergency Management Services Code, Title 35, requires all political jurisdictions in the Commonwealth to have an emergency operations plan, (EOP), an emergency management coordinator, (EMC), and an emergency operations center (EOC). Lycoming County has met all these basic requirements and the EOC is located at the County Department of Public Safety headquarters at the Lysock View Complex north of Montoursville. The County EOP is an all-hazards plan that complies with the National Incident Management System, (NIMS) and is the basis for a coordinated and effective response to any disaster that may occur in the County. The Lycoming County Transportation Planner serves as the EOC Transportation Officer as the chief point of contact with all transportation agencies and emergency providers to ensure issues and unmet needs pertaining to transportation facilities and services, including evacuation during emergencies are addressed and properly coordinated.

The WATS MPO has long recognized the importance of integrating emergency operations planning into the transportation planning and project development processes. Considerable effort has been made to targeting improvements where needed to ensure major evacuation routes and emergency response highway routes are upgraded and kept in a good state of repair. ITS technologies discussed earlier in this Chapter are deployed to enhance emergency response. Bridge replacement projects carefully consider flooding conditions and new bridges are designed to improve hydraulic waterway capacity where appropriate. Bridge projects are never designed to worsen flood conditions.



The Williamsport Regional Airport plays a vital role as a primary emergency staging area for response and recovery efforts such as deployment of Civil Air Patrol, Military and Geisinger Medical Center Life Flight Operations which are now fully housed at the former State Police Hanger at the Airport. (Loss of the PA State Police helicopter due to state budget issues was strongly opposed by the Lycoming County Commissioners, our state legislators, Airport Authority, emergency responders and the community at large.) Despite its proximity to Loysock Creek and the Susquehanna River which caused airport runway flooding in all three recent major floods, the airport remained open to accommodate emergency operations. In terms of transportation security, the Williamsport Regional Airport currently meets or exceeds all Transportation Security Administration, TSA developed following the September 11, 2011 terrorist attacks.



Tropical Storm Lee completely destroyed the LVRR Loysock Creek Railroad Bridge. The SEDA-COG Joint Rail Authority quickly mobilized and re-established rail freight service using Norfolk Southern lines in an arrangement where no disruption occurred to rail served industries along the LVRR. The JRA has also ensured that design of the new

railroad bridge will have improved hydraulic capacity and will tie into the planned Montoursville Levee System being undertaken by PA DEP. The new railroad bridge is currently under construction and will be completed by June, 2014.

Flood Risk Assessment

In 2016, Lycoming County completed a multiyear effort to update and enhance local flood data. One outcome of this effort was an updated flood risk database that was used to assess the flood risk to all road segments in Lycoming County. The resulting analysis was then provided to PennDOT and used in an innovative extreme weather vulnerability pilot study along with Philadelphia and Allegheny County. This study produced a database showing the future flood risk to road segments and gives WATS the ability to analyze the road system in terms of future high flooding risk at the road segment level countywide.

