

Northumberland County **NON-MOTORIZED RAIL TRAIL MASTER PLAN**



PREPARED BY

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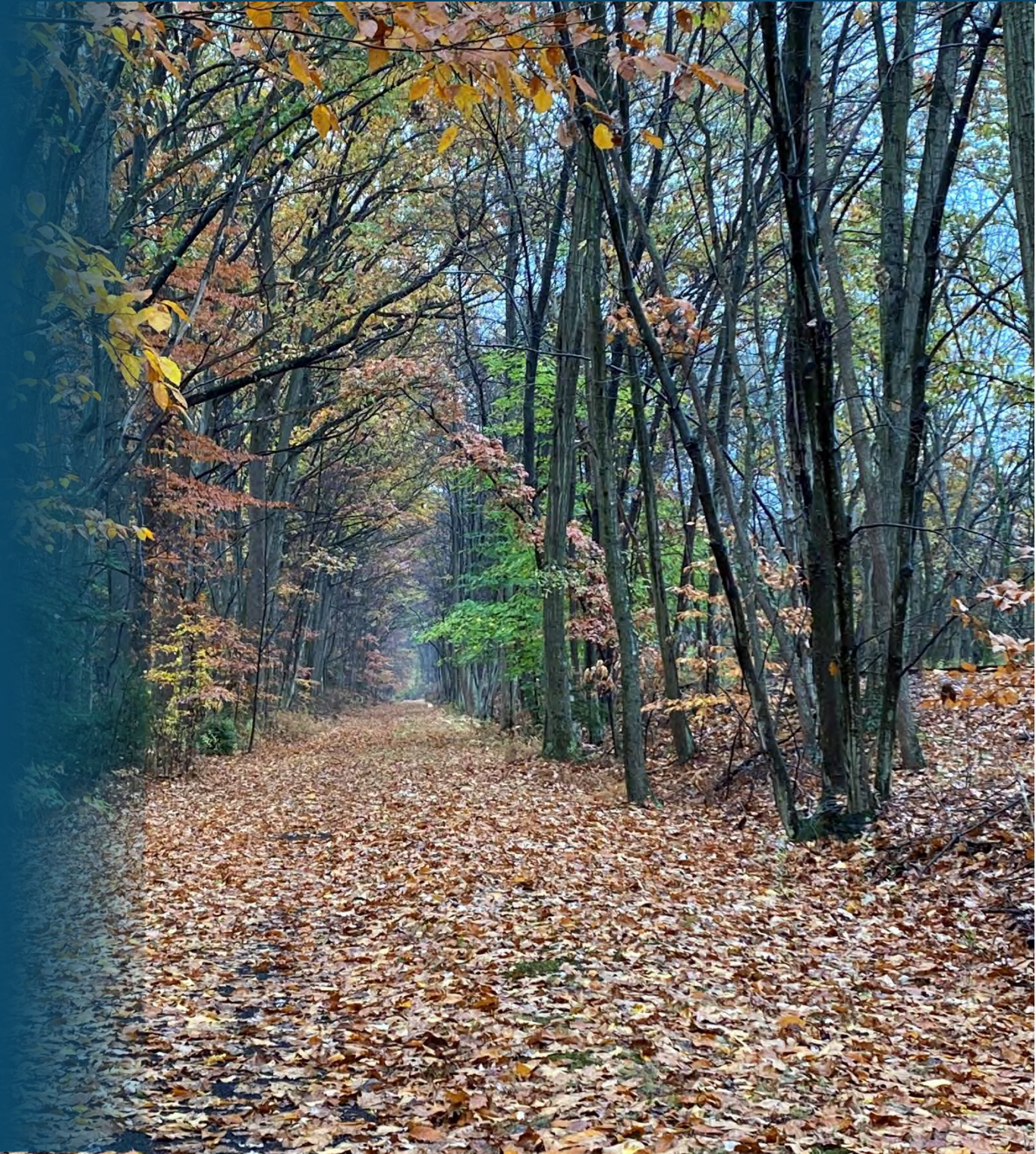


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Background and Introduction





Background and Introduction

The Anthracite Outdoor Adventure Area Authority (AOAA Authority) and Northumberland County are studying and researching the Northumberland County Non-Motorized Rail Trail Master Plan, a proposed 35 linear mile non-motorized rail trail that will be located along the former Philadelphia & Reading Railroad. The proposed rail trail will be a non-motorized, multi-use recreational corridor linking the Borough of Sunbury with the Borough of Mount Carmel, traversing eight municipalities.

Currently, the only non-motorized trails in the immediate area are the Weiser State Forest and a three-mile walking trail at the AOAA Authority's main facility in Coal Township. By embarking on the Northumberland County Non-Motorized Rail Trail Master Plan, the AOAA Authority and County hope to create a new, nonmotorized trail network to connect local communities, provide new opportunities for recreation, economic development and showcase the county's natural landscape.

Figure 1: History of Philadelphia and Reading Railroad

PHILADELPHIA AND READING RAILROAD

The Philadelphia & Reading Railroad (P&R) was chartered in 1833 to transport coal to the industries between Reading and Philadelphia from the anthracite rich mountains and valleys of the Northumberland and Schuylkill County coal fields. Though the transportation of coal was the railroad's top priority, the line also included short-distance passenger and U.S. postal mail services in later years. Construction was started in 1835, and service began in 1837, under horse-power with termini in Sunbury and Pottsville. The line went through many name changes before becoming the Shamokin Branch of the Pennsylvania Railroad, which encompassed 27 miles from the Susquehanna River valley at Sunbury to a Lehigh Valley interchange in Mount Carmel.

In 1923, P&R merged the companies it acquired into the Reading Company and divested itself of the Philadelphia & Reading Coal & Iron Co. following a government antitrust suit. The last passenger train ultimately departed from Shamokin in 1963, with the Reading Company filing for bankruptcy protection following shortly in 1971, and their assets eventually transferring to Conrail in 1976.

Master Plan Overview

The Northumberland County Non-Motorized Rail Trail Master Plan was initiated by the AOAA Authority and Northumberland County in 2019 by submitting a grant application through the Pennsylvania Department of Conservation and Natural Resources' Community Conservation Partnerships Program (C2P2). The grant was awarded in 2019 and the AOAA Authority and Northumberland County subsequently issued a Request for Proposals (RFP) to select a consultant firm. Based on a publicly competitive Request for Proposal (RFP) process, Michael Baker International, Inc. (Michael Baker) of Harrisburg, Pennsylvania was selected.

The Master Plan was prepared over a nine-month period from April 2021 to December 2021. The planning process included the following task items:

- Public Participation
- Physical Inventory & Assessments
- Community Profile
- Legal Feasibility
- Trail Concept Plan
- Long-Term Operations and Maintenance

This Master Plan document is the cumulation of the above referenced tasks. Any implementation of the Master Plan would be completed in a phased, multi-year approach as parcel ownership or easements are obtained for the rail trail alignment based on property access availability and funding.

Figure 2: A Master Plan at a Glance

What a Master Plan *is*:

- A visionary document
- Community feedback
- Demographic research
- Potential uses
- Corridor alignment *options*
- Environmental scoping
- Partner capacity and support
- Management alternatives

What a Master Plan is *not*:

- Does not provide design and engineering
- Does not start construction
- Does not provide the final trail alignment, subject to change
- Does not specify implementation phasing



Community Need

The Northumberland County Non-Motorized Rail Trail was originally envisioned as a 10.25-mile corridor of abandoned rail line running from the Sunbury to Paxinos areas. Based on Steering Committee, Focus Group, and municipal feedback through the initial public engagement process, the rail trail is now envisioned as a 35-mile corridor connecting the City of Sunbury to the Borough of Mount Carmel. The eight host municipalities of the proposed rail trail include the following:

- City of Sunbury
- Upper Augusta Township
- Borough of Snyderstown
- Shamokin Township
- Coal Township
- City of Shamokin
- Mount Carmel Township
- Mount Carmel Borough

Based on extensive public input, the rail trail will meet the following needs in Northumberland County.

- For all eight municipalities and the county at large, the rail trail is viewed as an important **recreational amenity for families and households** living in the county, improving the overall quality of life through the addition of active transportation and a family-friendly off-road path for walking and biking.
- In tandem, the rail trail is viewed as a **health and wellness tool** the county can harness to combat a number of health indicators identified in a recent Community Health Needs Assessment prepared by the local health system. Providing a convenient and free activity that encourages active lifestyles not only improves the quality of life socially, but physically as well.



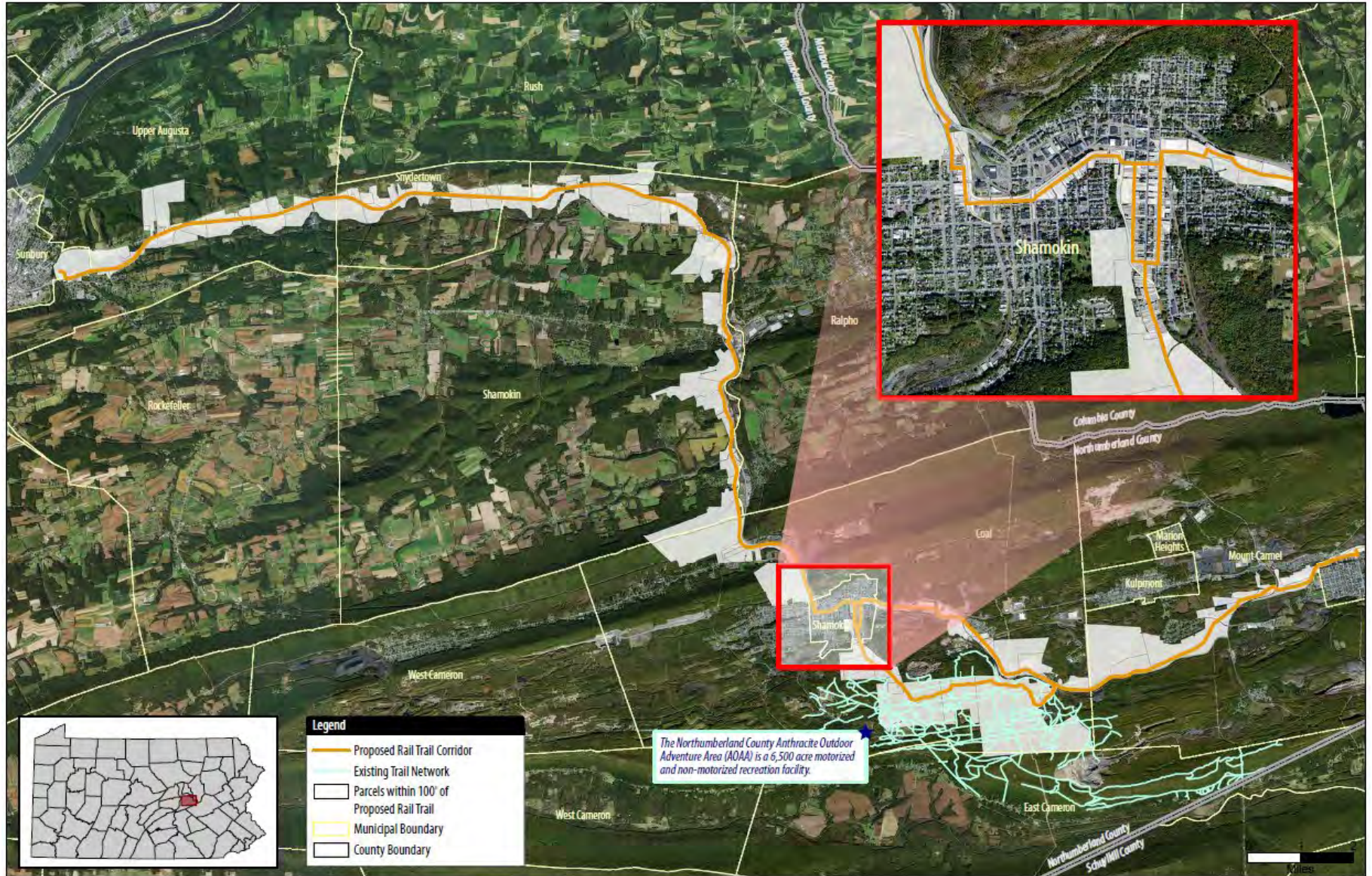
- For the cities and boroughs found along the alignment, the trail is viewed as a once in a lifetime opportunity to support Northumberland County's **tourism** industry. From large scale events such as biking and running to general foot traffic generated in the downtowns, the rail trail is envisioned as an opportunity to increase visitor stays and spending in the county.

Figure 3: Existing Abandoned Railroad Bed in Upper Augusta Township



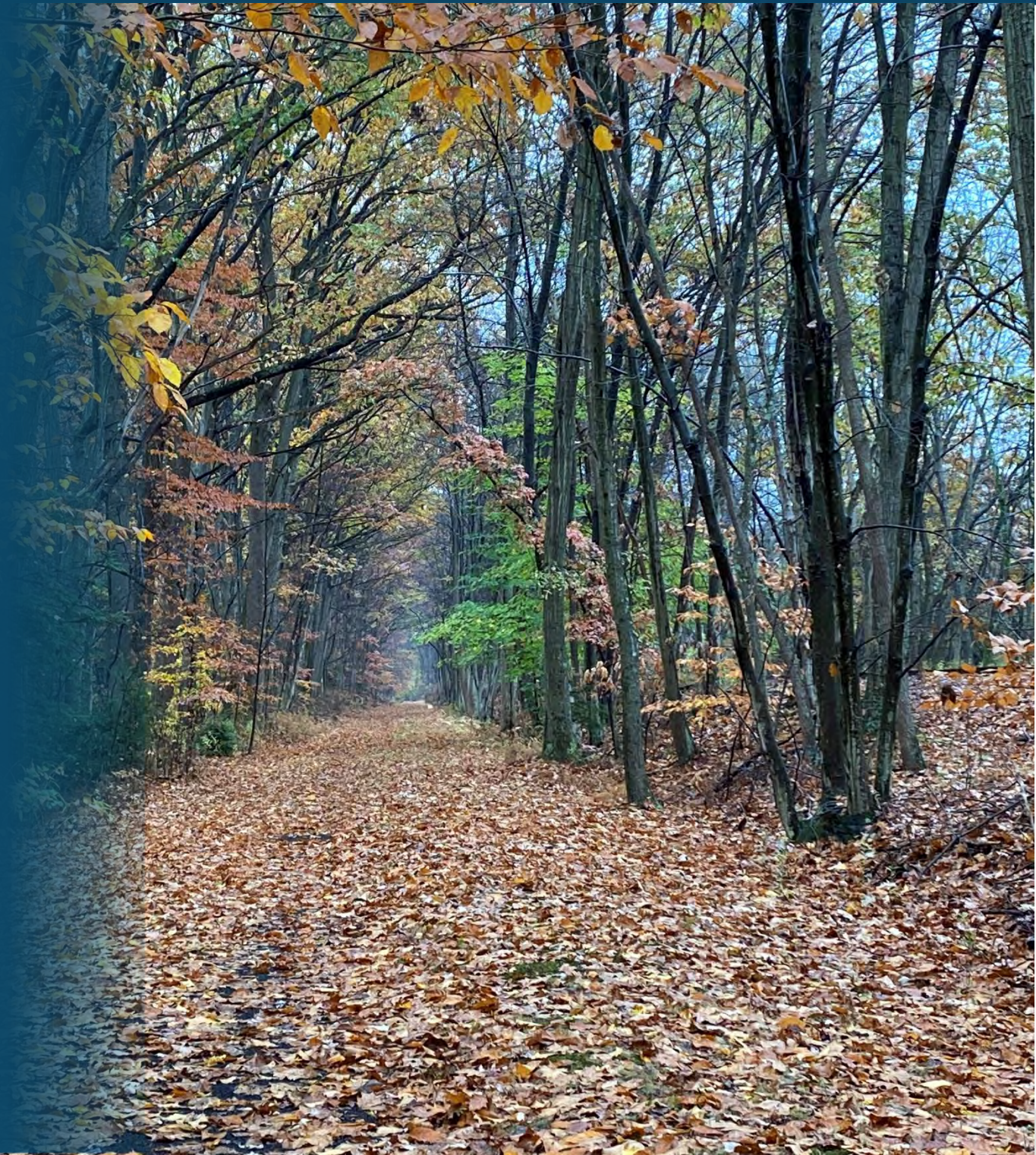


Figure 4: Proposed Rail Trail Corridor Map





The Process





The Process

The project team, including the AOAA Authority, Northumberland County, and Michael Baker International, guided the overall planning effort. The master plan study process is summarized below.

Project Steering Committee

At the onset of the project, a 26-person Steering Committee was convened to provide local guidance and feedback throughout the planning process. The committee was comprised of 16 organizations representing a variety of localities and local interests and was responsible for directing the project team based on key milestone updates provided every two months.

In total, the Steering Committee met three times in April, June, and August of 2021.

Figure 5: Steering Committee Organizations

LOCAL MUNICIPALITIES		
City of Sunbury	Shamokin Township	City of Shamokin
Upper Augusta Township	Ralpho Township	Mount Carmel Township
Borough of Snyderstown	Coal Township	Mount Carmel Borough

REGIONAL STAKEHOLDERS	STATE LEGISLATIVE DELEGATION	LEAD ORGANIZATIONS
Shikellamy School District	Representative Masser, 107th Legislative District	Anthracite Outdoor Adventure Area
Northumberland Co. Conservation District	Representative Culver, 108th Legislative District	Northumberland County
SEDA-COG		

Focus Groups

Early in the process, more than 40 community representatives were invited to participate in focus group sessions to provide local input on the overall need, vision, and desires for the proposed rail trail. The Steering Committee recommended organizations for the Focus Group outreach. Three focus group sessions were held in June 2021 and shaped the initial preliminary

concept plan, including inputs on overall need, trail corridor, trail design, trail users, connections, and public desires and concerns.

Figure 6: Participating Focus Group Organizations

PARTICIPATING ORGANIZATIONS	
Covered Bridge Brewhouse and Taproom	Susquehanna Greenway Partnership
Mount Carmel Downtown Inc	Susquehanna Valley Visitor Bureau
Shamokin Area School District	City of Sunbury
Shamokin Township	Shamokin Creek Restoration Alliance
Snyderstown Borough	Mount Carmel Borough
The Northumberland County Council for The Arts & Humanities	SABER - Shamokin Area Businesses for Economic Revitalization
Geisinger Shamokin Area Community Hospital	Susquehanna Valley Visitor Bureau
Greater Susquehanna Valley Chamber of Commerce	

Municipal Interviews

Based on the information collected from the Steering Committee and Focus Groups, one-on-one interviews were held with each host municipality to review public input findings to date and collect municipal feedback on conceptual trail alignment and trailhead locations. For each interview (held in August 2021), the project team verified the preferred trail alignment through the municipality, discussed alternative route options, trailhead locations, and concerns surrounding intersections and physical barriers. It should be noted, an individual interview was not held with Mount Carmel Township due to multiple scheduling conflicts; however, the Township did actively participate in Steering Committee Meetings.

The municipal interviews were the final input utilized to prepare the initial draft concept plan for the trail, which was presented for additional public input in October 2021.



Figure 7: Intersection of SR 61 and SR 487; Existing Railroad Bed in Upper Augusta Township



Online Public Survey

An online survey was administered in October 2021 through November 5, 2021 to collect broad public input on the proposed rail trail. The online survey was promoted in tandem with the two public meetings. Promotional activities included a direct mailing to all property owners who abutted the proposed corridor as identified from County tax parcels, a random sample mailing to residential properties in the eight host municipalities, press releases, social media posts, and grassroots promotion supported by the Steering Committee. In total, 514 direct mailers were distributed to County residents.

In total, 1,380 individuals participated in the survey. Findings are summarized on page 13.

Public Meetings

Two public meetings were held for the Master Plan on October 27, 2021 in Sunbury and October 28, 2021 in Shamokin from 5:00 – 6:30 pm. These locations were selected to provide access to the public for comment while limiting the distance any resident would have to travel to participate. In total, 180 members of the public attended the events. A formal presentation was provided at 5:30 pm both evenings followed by an open forum for attendees to share their perspectives and concerns about important considerations in future trail location and design.

A copy of the public presentation is enclosed in Appendix A, and was made available online at the following two websites:

- www.norrycopa.net/index.php/planning
- www.aoaatrails.com/news/northumberland-rail-trail

Technical Tasks

Concurrent with the public engagement tasks, the project team undertook several technical tasks to profile existing conditions of the proposed rail trail and community, as well as to finalize the concept plan. These technical tasks included:

- Community Profile and Market Demand
- Technical Inventory and Analysis
 - Environmental Screening
 - Physical Inventory & Assessments of Structures
 - Physical Inventory & Assessment of Roadway Intersections
- Concept Plan
- Legal Feasibility
- Long-Term Operations and Maintenance



Public Engagement Findings





Public Engagement Findings

The following subsections summarize key findings obtained through the public engagement process, which included:

- Focus Groups
- Online Survey
- Public Meetings

Focus Group Sessions

In June 2021, the project team facilitated three focus group sessions with a variety of residents, local businesses, and community organizations. The list of residents and stakeholders invited to participate totaled nearly 50 and was generated through close coordination with the project Steering Committee and Northumberland County. Overall, the focus groups demonstrated strong support for the proposed rail trail.

Desires and Benefits

- Connect Northumberland communities
- Grow tourism
- Promote economic development (supporting local small businesses by increasing foot-traffic and visitor spending)
- Promote healthy lifestyles (active transportation and recreation)

Trail Construction

- Crushed stone
- Paved trail potentially desired near towns for families, but consideration of cost acknowledged

Trail Users

- Support for nonmotorized uses only (no ATVs, etc.)
- Focus on families, students, and senior citizens
- Additional focus on tourists and adventurers (mountain biking, organized races, etc.)
- Campers and bird watchers

- An equestrian use generally not considered needed

Desire for Future Connections

- Weiser State Forest (and Natalie Mountain)
- Sunbury Riverfront (Susquehanna Greenway)
- Shikellamy State Park
- Bicycle PA Route J
- Kulpmont Borough
- Existing destinations

Desired Trail and Trailhead Amenities

- Restrooms and parking
- Bike racks and bike repair stations
- Rest areas with benches, water
- Wayfinding/signage
- Educational markers
- Designated nature watching areas and/or nature preserves

Figure 8: Public Meeting in Shamokin





Public Meetings

As noted, two public meetings were held in October 2021. The meeting's primary goals and objectives were to inform the public about the Master Plan and offer an opportunity to provide feedback, input, ideas, and suggestions directly to the project team or submit a comment card.

To ensure all community members had the opportunity to actively participate in the meetings, the AOAA undertook a proactive promotional campaign in the fall of 2021. The promotional campaign included the following elements:

- An event flyer and supporting postcards posted to the County's and the AOAA's websites and Facebook pages as well as hardcopies distributed at-large.
- A direct mailing to individuals on the AOAA's Contacts list.
- A direct simple, random mailing distributed to 300 individuals in municipalities that encompassed the rail trail.
- Direct mailings to property owners that live within 100 feet of the proposed trail alignment, based on County tax parcel information.
- Grassroots advocacy through AOAA and Northumberland County provided through direct email blasts and word of mouth.

The meetings rendered vital public input from County residents, public officials, and property owners. Overall, through discussions and written comments, the meetings demonstrated support with resounding concerns for privacy, property ownership, and liability. The meeting attendees were extremely concerned about their property being "taken" for the trail construction.

During this phase of the planning process, local residents circulated a petition in opposition of the trail that was forwarded to the AOAA and the County. Additionally, Shamokin Township specifically corresponded with the AOAA and the County, offering their input on the trail corridor.

Benefits

- Economic improvement, revitalization, and tourism
- Needed recreational asset
- Retention of younger generations
- Improved safety
- Formalization of sections of trail that are already in use
- Promote healthy lifestyles

Concerns

- Ownership/property rights of the rail trail right-of-way
- Adjacent landowners' liability and responsibility for the safety of trail users
- Safety and security of adjacent landowners
- Trespassing and infringement of privacy
- The maintaining organization and accountability
- Maintenance/security
- Policing/enforcement and EMS response times
- Hunting and fishing rights
- Farm equipment access
- ADA accessibility

Figure 9: Public Meeting in Shamokin



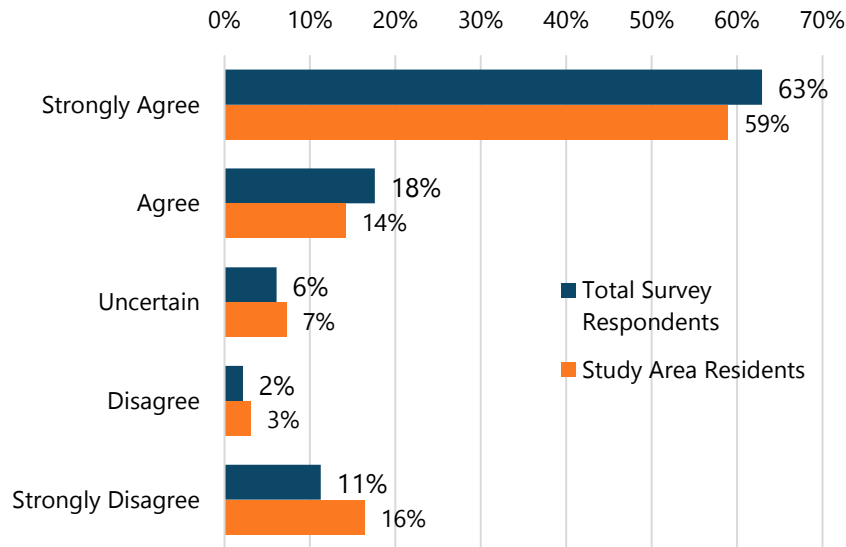


Online Survey

Administered and advertised from October 2021 through November 5, 2021, a total of 1,380 individuals participated in the survey, of which 70.1% were residents of Northumberland County and 56.2% were residents of municipalities that abut the rail trail corridor, this population grouping will be referred to as "study area residents." Overall, the survey demonstrated strong support and excitement for the rail trail among both non-residents and residents. The full survey results are available in Appendix C.

One of the key questions of the survey asked participants, "if the Northumberland County Non-Motorized Rail Trail is constructed, would you or members of your household use the trail for general recreation (non-motorized uses only)?" 80.5% (1,085) of total survey takers agreed or strongly agreed they would use the trail, 13.4% (181) disagreed or strongly disagreed, and 6.1% (82) indicated they were uncertain. This trend was mirrored among study area residents.

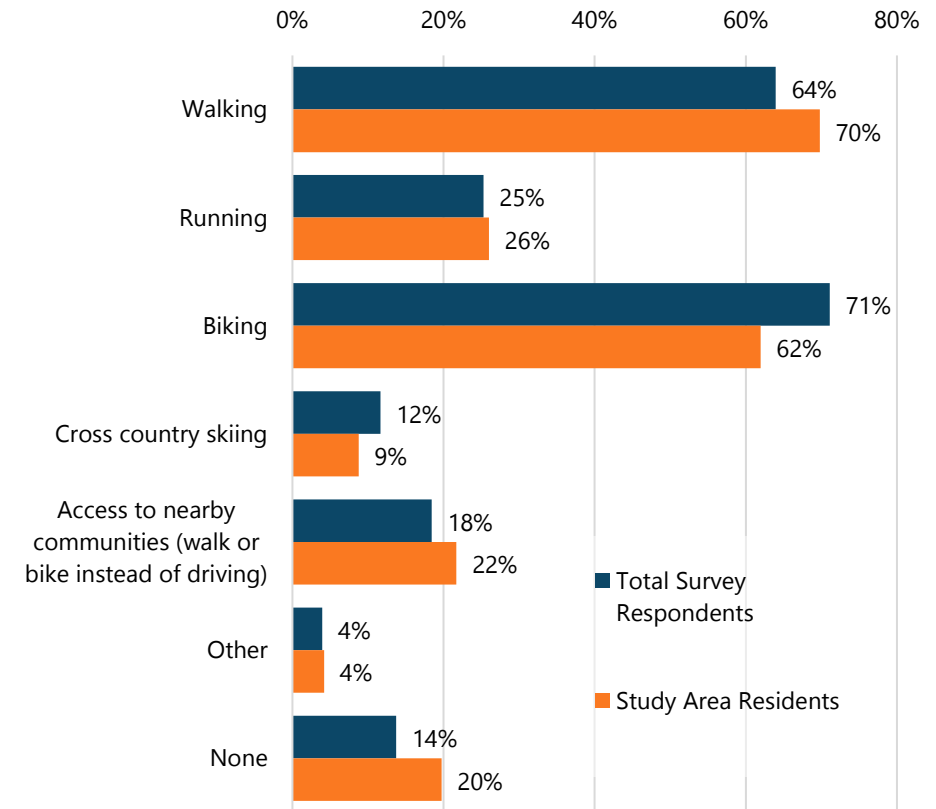
Figure 10: Survey Respondents Use of the Trail for General Recreation



Respondents were then asked how they would use the trail if it were built. The large majority indicated they would use it for walking or biking. It should be noted that 20% of study area residents indicated they would not use the trail.

Aside from recreational uses, 18% of survey takers (22% study area residents) specified using the trail to access nearby communities.

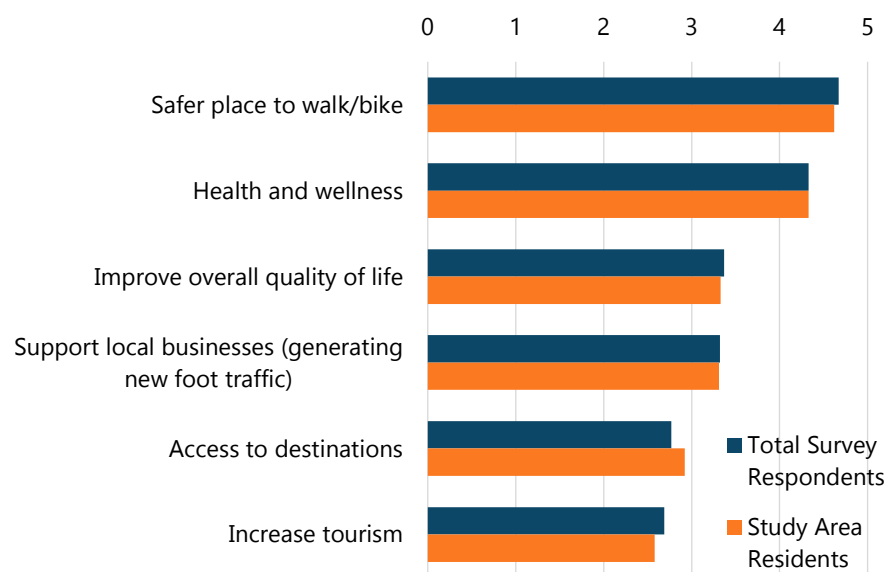
Figure 11: Types of Uses Utilized on the Trail





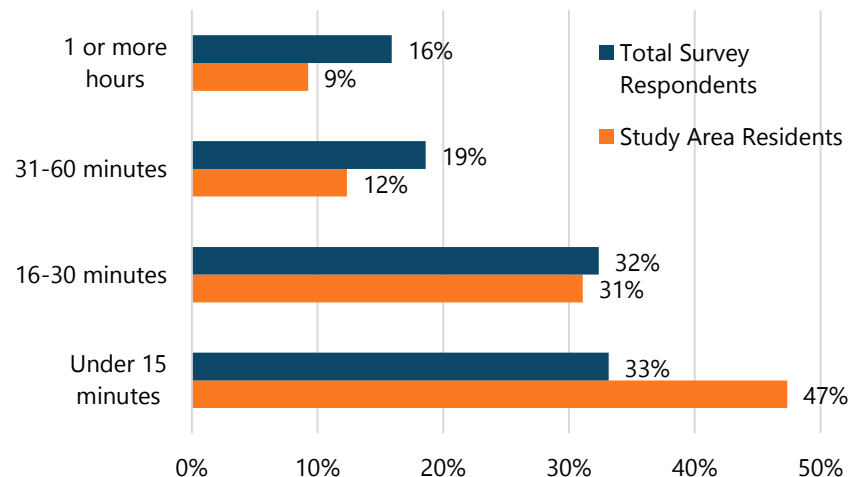
Another question asked respondents to rate the benefits the rail trail would provide the Northumberland County Community using a score between one and five; the higher the score depicts the highest benefit. The benefits of the rail trail indicated by survey respondents closely echoed the input received from the Focus Groups and public meetings. Providing a safer place to walk/bike and an avenue to improved health and wellness were rated as the highest benefits. These themes were also determined as prominent needs throughout the existing conditions analysis and stakeholder outreach.

Figure 12: Benefits the Northumberland County Rail Trail Would Provide



When asked how far they would be willing to travel to use a trail on a regular basis (weekly or monthly use), most survey takers indicated they would be willing to drive up to 30 minutes on a regular basis. Among the study area residents, just under half indicated a willingness to only travel to a trail that is under 15 minutes away, reinforcing the need for an asset that is local.

Figure 13: Respondents Willingness to Travel to Use a Trail On a Regular Basis



Participants were also given the opportunity to provide input on locations for additional trailheads, rules and regulations, and an open-ended section for any supplementary feedback. These responses were used to inform the different sections of the Master Plan.

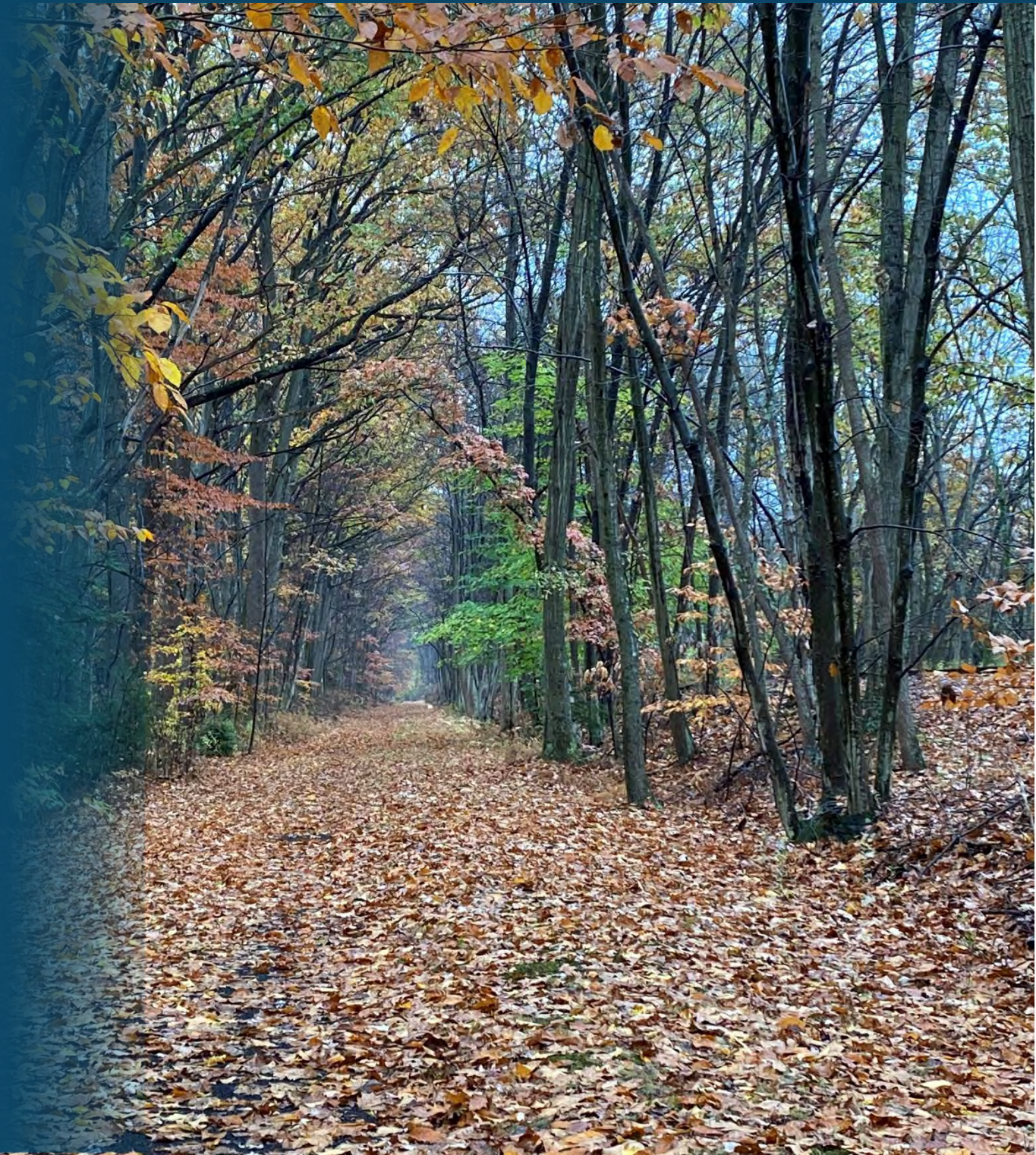
Additionally, to ensure communication is maintained with those interested in the rail trail's progress and Master Plan updates, a section was included for respondents to provide their contact information and emails.

“Maintaining the integrity of the trail, keeping it safe, and well maintained/cleanly is important...We have created a space for those who ride ATV's, yet we have next to nothing in terms of public outdoor space for non-motorized uses. Green space is a key component for healthy, flourishing communities. We owe our residents that much. Make it happen.”

- Coal Township Resident, Online Survey



*Community Profile
and Market
Demand*





Community Profile and Market Demand

About Northumberland County

Northumberland County is a rural county located in the central part of Pennsylvania and home to 91,329 residents. Sitting within the Susquehanna River Basin, the County is bordered to the west by the Susquehanna River and, moving east, the landscape is dominated by mountains and agricultural farmland. Generally, the county is comprised of three primary regions:

- In the **northern portion** of the county, there is convenient access to the statewide transportation network (I-81, US 11, and I-180) and, in recent decades, has become home to light industrial uses and new residential and commercial development.
- In the **central portion** of the county, the City of Sunbury offers convenient access to US 15 and has become an attractive location for households by providing access to employment centers in adjacent counties to the west.
- In the **southeastern portion** of the county, population hubs are found in the City of Shamokin, Coal Township, and Mount Carmel Borough. The decline of coal mining and manufacturing industries in this area during the latter half of the Twentieth Century led to the outmigration of working-age households.

The proposed Northumberland County Non-Motorized Rail Trail is located in the central and southeastern portions of the county, beginning in the City of Sunbury and traversing southeast to the Borough of Mount Carmel.

Profile of Potential Users

As part of the planning process, a Community Profile was prepared for the eight host municipalities (Study Area) to characterize the local community and better understand the local user base for the proposed rail trail. One

component of this Community Profile research included looking at the local consumer market segmentation. Consumer market segmentation is commonly used to describe the typical consumer within a study area based on local socioeconomic characteristics and consumer behaviors. ESRI Business Analyst groups neighborhoods nationwide into one of 67 distinct tapestry segments and is able to provide a simple but wholistic picture of a community – for example, who lives there, what is their lifestyle is like, how they spend their money, and so forth.

For Northumberland County, the top three tapestry segments are Salt of the Earth, Heartland Communities, and Small Town Simplicity. Under all three, households in the county are predominantly families that value a rural lifestyle and traditional values. They are cost conscious, enjoy outdoor recreation, and work mostly blue-collar jobs. The county's three primary tapestry segments, described in more detail below, suggest the importance of:

- **Creating a trail network designed for older and younger households** (e.g., senior citizens and young families) that will use the trail for recreational purposes. This is opposed to a trail developed for avid cycling or hiking that may feature more challenging segments.
- Ensuring there are relatively **short distances between trailheads** to promote family-friendly outings.
- **Retaining and featuring the rural nature of the trail**, which aligns well with the rural lifestyles of county residents and protecting the tranquilly and privacy of neighboring properties.
- **Devising a cost-effective long-term maintenance and operations plan** to minimize the potential for property tax increases or other county or municipal fees that could potentially be passed on to the population base. The rail trail will be free for all users.



Northumberland County's Communities at a Glance

Salt of the Earth



Heartland Communities



Small Town Simplicity



Demographic and Socioeconomic Trends

Population Trends

Based on 2020 population data, the resident population within the Study Area (the eight host municipalities) experienced a 4.3% decline in population between 2010 and 2020. Northumberland County experienced a 3.4% decline in population over the same period, while Pennsylvania's overall population grew by 4.2%.

Based on public input received, the addition of a prominent rail trail may help improve resident retention by providing a new amenity for outdoor recreation. In a post-pandemic world, remote work capabilities provide working members of a household more flexibility in home location and provides communities like those in Northumberland County an opportunity to market its low cost of living, small town living, and access to the outdoors.

Table 1: Population Change, 2010-2020

	2010	2020	2010-2020 Net Change	2010-2020 % Change
City of Sunbury	9,905	9,487	-418	-4.2%
Upper Augusta Township	2,586	2,427	-159	-6.1%
Snydertown Borough	339	347	8	2.4%
Shamokin Township	2,407	2,392	-15	-0.6%
Coal Township	10,383	10,270	-113	-1.1%
City of Shamokin	7,374	7,092	-282	-3.8%
Mount Carmel Township	3,139	2,952	-187	-6.0%
Mount Carmel Borough	5,893	5,434	-459	-7.8%
Study Area	42,026	40,222	-1,804	-4.3%
Northumberland County	94,528	91,329	-3,199	-3.4%

Esri Business Analyst, 2021

Age Distribution Trends

Over the past decade, the Study Area's population has grown older. Based on 2010-2020 data, age groups 0-14, 15-34, and 35-54 years have decreased in size. In total, there was a combined decrease of 2,018

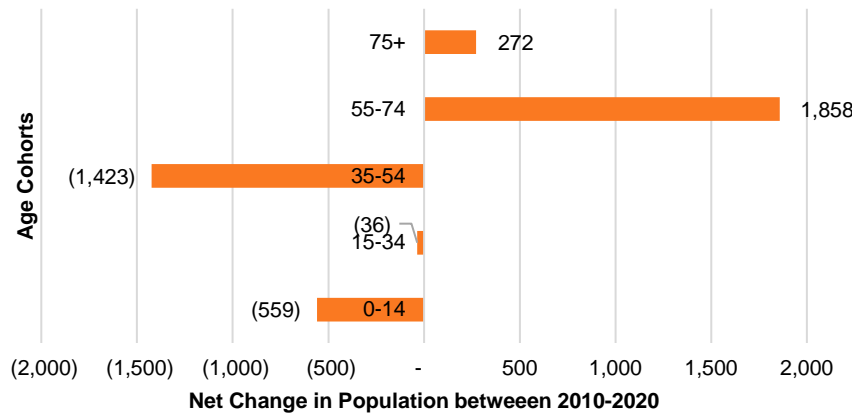


individuals in this age span (0-54) over the past decade. In contrast, older age groups (55-74 and 75+) have increased in size as the area’s population has aged. In total, there are 2,130 more individuals aged 55+ than there were 10 years ago. The median age for the Study Area is 43.1, compared to 41.6 at the statewide level.

The Study Area’s aging population is not unique to Northumberland County. It’s a trend seen across the nation as the Baby Boomer generation reaches retirement age. However, this trend is more pronounced in rural areas when compared to urban areas, which are attracting younger households and growing as a whole. The age distribution trends for the Study Area suggest the need for the trail to meet the needs of older citizens, including adherence to ADA design standards.

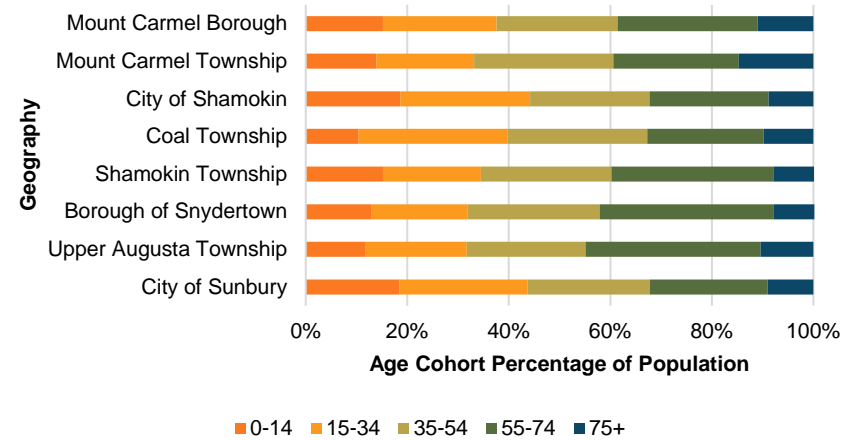
Looking at age cohort data by geography, the City of Sunbury and City of Shamokin feature the largest percentage of children by population when compared to the other localities. Trailheads in these locations may benefit from co-location with parks and playgrounds.

Figure 14: Net Population Change by Age Cohort in Study Area, 2010-2020



Esri Business Analyst, 2021

Figure 15: Population by Age, 2020



Esri Business Analyst, 2021

Family Composition Trends

The Study Area’s family composition trends are relatively similar with county and statewide trends.

Table 2: Family Composition, 2019

	Study Area		Northumberland County		PA	
Total Households	17,593		39,075		5,053,106	
Average Household Size	2.22*		2.24		2.45	
	Count	Percent	Count	Percent	Count	Percent
Family Households	10,390	59.1%	25,075	64.2%	3.2 million	64.0%
Non-family Households	7,203	40.9%	14,000	35.8%	1.8 million	36.0%
Households with one or more people under 18 years	25.4%		26.1%		28.1%	
Households with one or more people 60 years and over	44.9%		45.8%		42.4%	

U.S. Census Bureau, 2019



Education

The Study Area’s educational attainment for individuals age 25+ are consistent with county trends. Based on 2020 data, 51.6% of adults have earned their high school diploma or equivalent, 9.2% have earned a bachelor’s degree, and 3.9% have earned a graduate/professional degree. Compared to statewide trends, the Study Area’s 25+ population has lower educational attainment than the Pennsylvania statewide average. Statewide, 19.4% of adults have earned a bachelor’s degree and 12.9% have earned a graduate/professional degree.

Table 3: Population 25+ by Educational Attainment, 2020

	Study Area	Northumberland County	Pennsylvania
25+ Population Total	29,753	67,735	9,193,362
No High School Diploma	13.4%	11.5%	8.7%
High School Graduate / GED	51.6%	49.5%	34.3%
Some College or Associate Degree	21.9%	21.8%	24.6%
Bachelor's Degree	9.2%	10.9%	19.4%
Graduate/Professional Degree	3.9%	6.3%	12.9%

Esri Business Analyst, 2021

Median Household Income

The median household income in the Study Area is \$38,928, according to Esri Business Analyst 2020 estimates, and is projected to increase to \$41,591 by 2025. The Study Area’s median household income is lower than the county (\$48,497) and statewide (\$60,671) medians. Like the tapestry segmentation findings, this points to the importance of devising a cost-effective long-term maintenance and operations plan to minimize the potential for property tax increases or other county or municipal fees. The rail trail will be free for all users.

Health and Wellness Indicators

In May 2015, Geisinger Health released its most recent Community Health Needs Assessment for three of its healthcare facilities located in Pennsylvania, including Geisinger-Shamokin Area Community Hospital

located within the Northumberland County Non-Motorized Rail Trail Study Area. Community health needs assessments are utilized by health systems to identify the primary needs of local patients and to development recommendations to address these challenges and improve overall health and wellness.

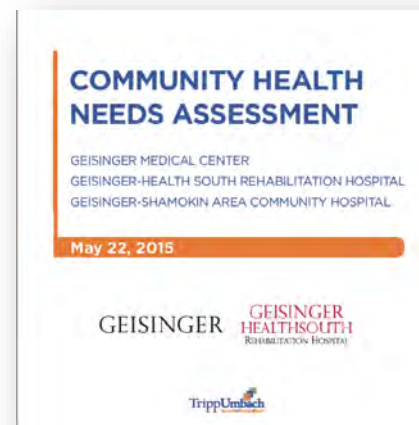
The 2015 Community Health Needs Assessment was prepared in collaboration with healthcare providers and organizations located across a 13-county region. Findings were prepared for three geographic areas as follows:

- Central Regional Forum: Columbia, Montour, Schuylkill, Northumberland, Union, Snyder, Lycoming and Sullivan Counties.
- Northeast Regional Forum: Lackawanna, Luzerne, and Wayne Counties.
- West Regional Forum: Juniata, Mifflin, and Centre Counties.

In the Central Regional Forum, the four community health priorities identified include:

- (1) Addressing needs related to behavioral health and substance abuse,
- (2) Increasing the access to and affordability of healthcare,
- (3) Improving resources awareness and health literacy, and
- (4) Reducing the impact of health concerns related to lifestyle.

Figure 16: Report Cover of Geisinger Health's 2015 Community Health Needs Assessment





Community health priority #4, reducing the impact of health concerns related to lifestyle, directly relates to health and wellness promoted by physical activity. The Needs Assessment found that the poor health status of many residents is tied to a prevalence of chronic lifestyle-related illnesses, limited education on healthy lifestyle choices and prevention, and access to healthy options. These factors all contribute to chronic health conditions including diabetes, obesity, and respiratory issues. For the Central Regional Forum (which includes Northumberland County), the Needs Assessment reported:

- There are higher death rates in the hospital service area for diseases that are typically linked to lifestyle including heart disease, coronary heart disease, and diabetes.
- Since 2012, the Central Regional Forum has seen increases in preventable hospitalizations and illnesses linked to lifestyle.

Based on a survey completed for the Community Health Needs Assessment, Northumberland County residents report lower levels of physical activity rates (59.5% responded yes, they are physically active) when compared to Pennsylvania (73.9%) and the nation (74.7%).

The limited infrastructure available in Northumberland County for recreational walking and biking may be a contributing factor to the county's health needs. By creating a 35-mile rail trail, in conjunction with future non-motorized recreational amenities, the County and the AOAA Authority can help improve the overall health and wellness of its residents. This correlation between providing new recreational amenities as a tool to improve health outcomes was a leading discussion item during the focus group sessions with a number of organizations. Participants felt strongly the rail trail will help improve health and wellness of residents over the long-term.



Lifestyle related illness has a negative impact on health outcomes:

Obesity, diabetes, and heart disease could be in part connected to the diet of a rural farming culture and sedentary lifestyle.

Respondents show higher weight and BMI than national and state averages regardless of gender

Survey respondents in every county in the study area reported that diabetes, obesity and cancer are among the top five health concerns in their community. All of these health concerns have some connection to lifestyle.

Survey respondents in every county in the study area report higher diagnosis rates for diabetes than is average for the state and nation (10.1% and 9.7% respectively).

CENTRAL REGION										
Physical Activities	Columbia County	Montour County	Northumberland County	Snyder County	Union County	Lycoming County	Schuylkill County	Sullivan County	PA*	U.S.*
Yes	69.2%	54.5%	59.5%	57.0%	56.1%	52.7%	80.6%	52.5%	73.7%	74.7%
No	30.8%	45.5%	40.5%	43.0%	43.9%	47.3%	19.4%	47.5%	26.3%	25.3%



User Demand Estimate

The Study Area (eight host municipalities) is home to 40,222 residents comprising 44% of the county's total population. These local residents are anticipated to be the primary users of the rail trail and will predominantly use the trail for walking and biking.

To estimate user demand for the Northumberland County Non-Motorized Rail Trail, the project team utilized 2019 trail counts from the Buffalo Valley Rail Trail in Union County. The methodology used a population extrapolation approach to compare the number of residents living within a 30-minute drive time of each trail.

At full build out, user demand estimates project the rail trail will attract 105,659 annual trips, or 2,032 weekly trips. Initial usage may range from 25 to 50 users per day with larger amounts of usage on weekends. Future usage is estimated to reach up to 290 users per day. Most usage will occur during the spring, summer, and fall seasons with 80% of usage occurring in these months and 20% of occurring over the winter.

Figure 17: 30-Minute Drive Time from Paxinos

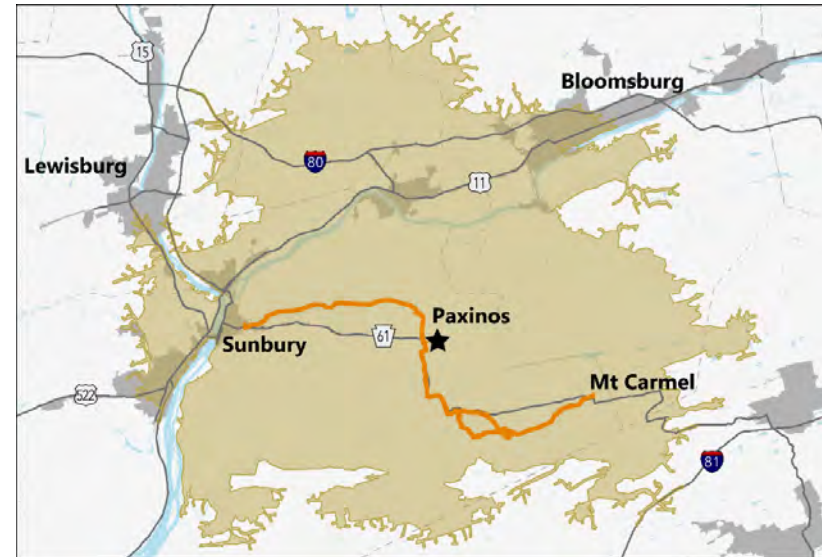
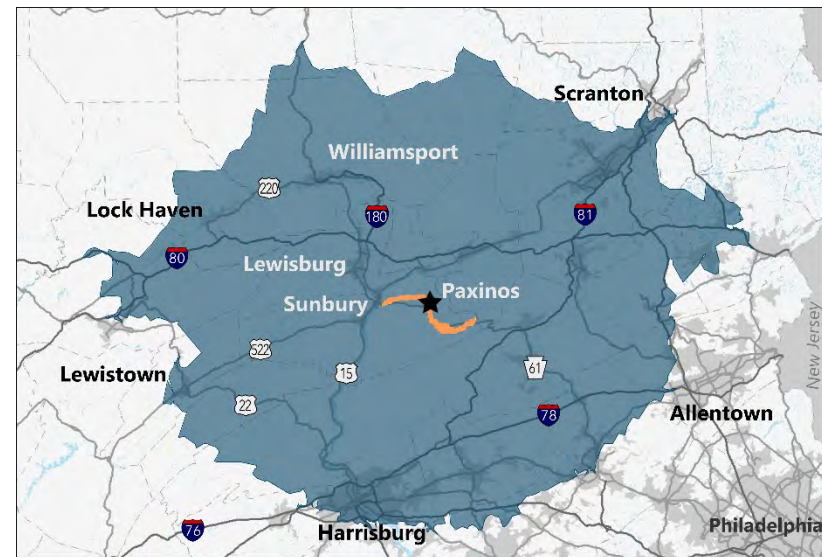
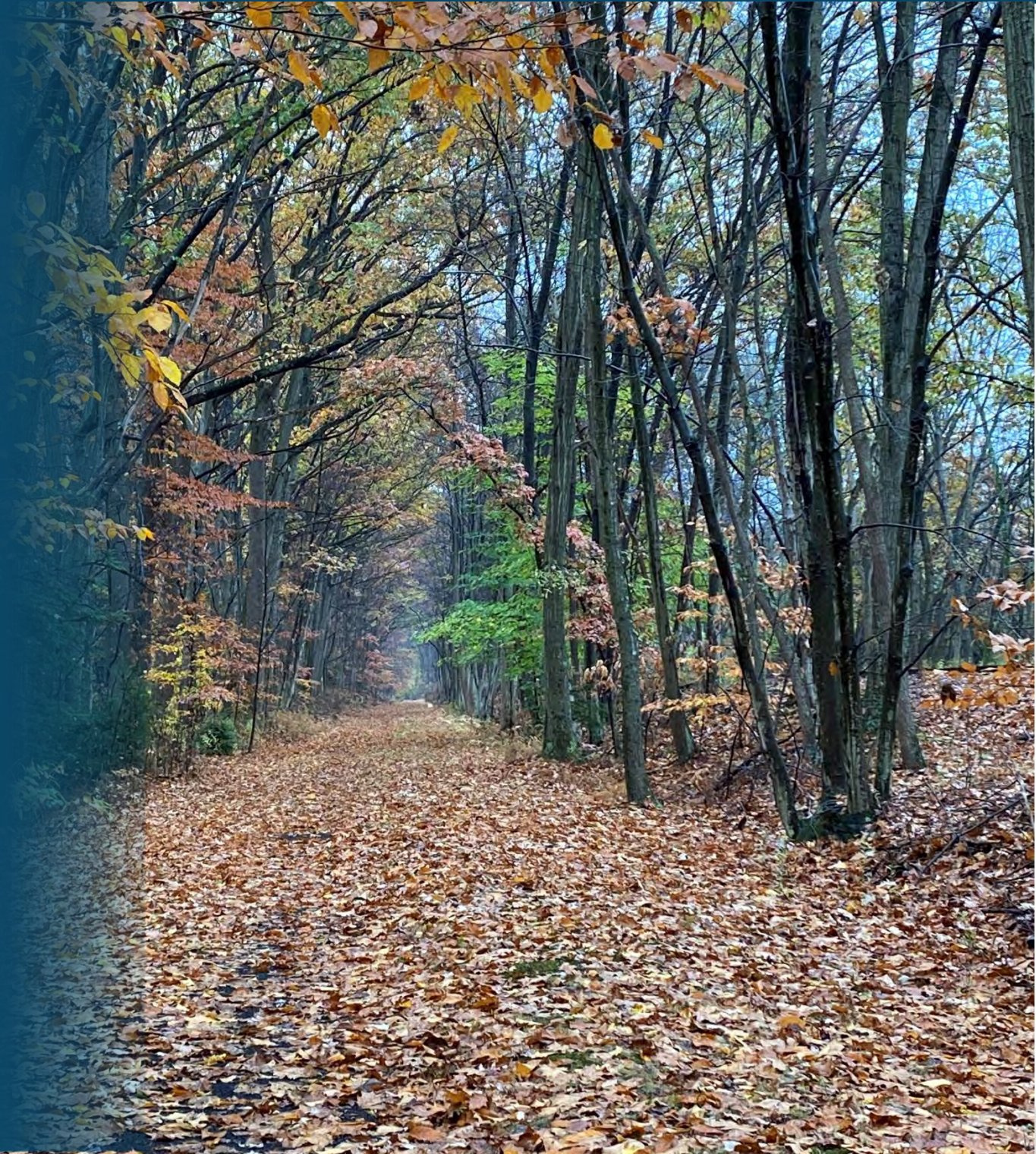


Figure 18: 90-Minute Drive Time from Paxinos





*Technical
Inventory and
Analysis*





Technical Inventory and Analysis

Environmental Screening

A desktop level environmental screening was conducted to determine if environmental mitigation or agency coordination would be required for the potential construction of the trail. The presence of environmental resources was assessed via desktop research, within a 100-foot buffer of the trail alignment. These resources included threatened and endangered species, water resources, recreational resources, historic resources, Stafford Act Properties, hazardous materials facilities, and abandoned mine lands (AML).

Pennsylvania Natural Diversity Inventory (PNDI) records indicate that due to the length of the proposed trail, further review was required by the Department of Conservation and Natural Resources (DCNR), Pennsylvania Game Commission (PGC), the Pennsylvania Fish and Boat Commission (PFBC), and the U.S. Fish and Wildlife Service (USFWS). Agency coordination occurred between September and December of 2021, resulting in determinations of “No Impacts Anticipated” to species under the jurisdiction of the DCNR, PGC, PFBC, and USFWS. The final PNDI receipt and all four agency clearance letters are in Appendix E. If the final alignment of the rail trail moves outside of the existing alignment and the investigated 100-foot buffer area, then the project team will need to update the trail’s footprint and submit the new alignment in the PNDI system. If the updated PNDI receipt indicates a potential impact to threatened, endangered, and/or special concern species, then agency coordination must be reinitiated.

Water Resources

The screening determined that the project has the potential to impact water resources including Shamokin Creek and its floodplain, numerous tributaries, and Little Shamokin Creek (a Stocked Trout Stream).

Although impacts to these resources are anticipated to be minimal, the following strategies must be implemented during design and construction phases:

- **Conduct a wetland and waterway field identification/delineation** within areas of proposed earth disturbance. If the proposed design results in >0.05 acre of wetland impacts, then mitigation actions are required.
- **Coordinate with municipal officials** to discuss any potential impacts to the base floodplain.
- **Coordinate with Pennsylvania Fish and Boat Commission (PFBC)** to discuss trout designations and associated in-stream construction restrictions if needed. Stocked Trout designations typically require an in-stream construction restriction from March 1st through June 15th, assuming that the stream is stocked in spring only.

Figure 19: Shamokin Creek in Mount Carmel Township





Recreational Resources

Local recreational resources identified include existing AOAA Trails, the Lawton W. Shroyer Memorial Swimming Pool in the City of Shamokin, and the North Oak Street Municipal Park and Recreation Area in Mount Carmel. These resources may qualify as Section 2002 and/or Section 6(f) resources therefore coordination with funding partners to discuss the impacts to these resources should take place.

Historic Resources

The Pennsylvania State Historic Preservation Office (PA SHPO) online database identified 15 previously recorded, aboveground historic resources along the trail corridor from Sunbury to Mount Carmel, including two railroad corridors, two bridges, nine buildings, one historic district, and one waterway control system. Additionally, six Stafford Act properties are located near the proposed trail extension, which must be dedicated and maintained in perpetuity for a use compatible with open space, recreational, or wetlands management practices.

Right-of-way acquisition is not likely required given the current nature of the project; however, a historic resource and archaeological survey will likely be required to determine if historic properties exist within the area of potential effects (APE) once the trail corridor is finalized and preliminary engineering begins.

Abandoned Mine Lands (AML)

Numerous AML sites exist within the focus area. The presence of AMLs begins in Shamokin and continues east throughout the remainder of the proposed trail length. AML sites pose a great safety hazard with dangers of structures at risk of collapse, water-filled pits, hazardous chemicals, and old explosives. Falls and cave-ins are also common in old mines.

Ensuring appropriate signage is posted warning of the dangers and locations of AMLs is a common strategy to mitigate any potential interaction. Coordination with municipal officials to ensure there are no mine structures in imminent threat of collapse along the trail is recommended, in addition to coordination with the Pennsylvania

Department of Environmental Protection (DEP) to determine exact AML locations as design progresses.



Physical Inventory & Assessments of Structures

In January 2021, an assessment of five bridges along the proposed trail alignment was conducted to verify structural integrity and ensure the structures could safely accommodate pedestrians, cyclists, and emergency and maintenance vehicles. The full bridge inventory and assessment can be found in Appendix F.

Bridge 1 – Upper Augusta Girder Bridge

The first structure is on an approximately 85 feet long, (2) span riveted, built up plate girder bridge over the Shamokin Creek in Upper Augusta Township. The original year of construction is unknown however, the overall condition of the superstructure was observed to be satisfactory for the intended purpose of the rail trail. The depth of the beams was measured at 45 inches and contains two cover plates on the top and bottom flanges. Additionally, the timber ties have been removed from the

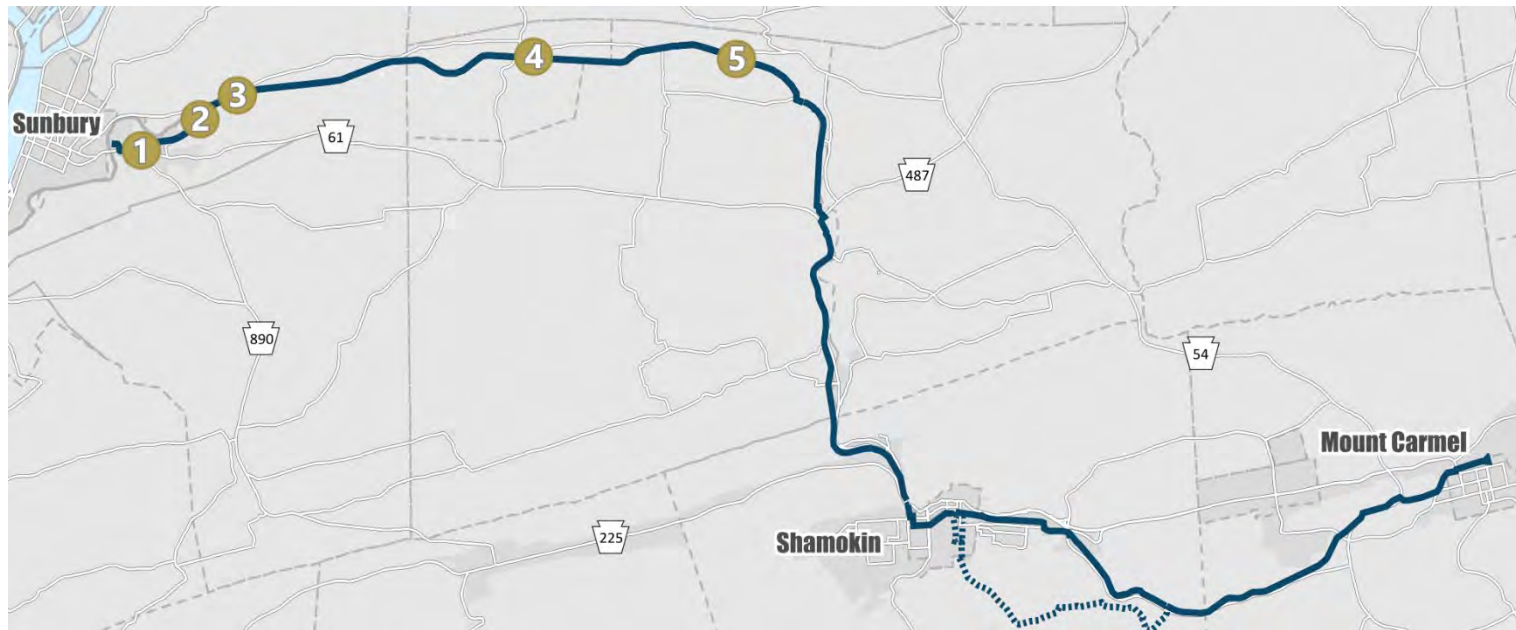
structure. Approximately 20% of the bridge superstructure is coated in paint, which is suspected to be lead-based and minor surface corrosion exists throughout the structure.

The bridge substructure appeared to be stone masonry with concrete encasement and was also observed to be in good condition. Substantial amounts of debris were found in the Shamokin Creek between the inspected structure and an adjacent active railroad bridge, indicating the bridge is subject to pressure flow.

Bridge 2 – Upper Augusta Truss Bridge

The second structure is a (2) span pinned steel truss bridge approximately 240 feet long over the Shamokin Creek in Upper Augusta Township. The original year of construction is believed to be 1902 based on a plaque found on the structure. The overall condition of the superstructure was observed to be satisfactory with several areas of severe deterioration where debris has accumulated. Due to the robust design of railroad structures, it

Figure 20: Locations of Bridges 1-5





is unlikely that the deterioration is significant enough to impact the load carrying capacity for pedestrian and emergency vehicle use.

Approximately 35% of the bridge superstructure remains coated in paint, which is suspected to be lead-based. The remainder of the steel members are rust coated. The bridge is decked with creosoted timber ties connected with steel straps along the outer edge of the top. In general, the timbers are badly rotted and should be removed. A 20-inch diameter tree is growing up through the truss and would need to be removed. The stone masonry substructure was observed to be in fair condition. Substantial

Figure 21: Bridge 1 – Upper Augusta Girder Bridge in Upper Augusta Township



debris has also accumulated at each of the abutments and will need to be removed to thoroughly inspect the bearings.

Bridge 3 – Upper Augusta Plate Bridge

The third structure is on a single span riveted, built up plate girder bridge over a tributary to Shamokin Creek in Upper Augusta Township. The depth of the beams was measured at approximately 45 inches and contains two cover plates on the top and bottom flange. A natural gas line runs parallel to the bridge, approximately 2 feet from the superstructure, and is self-supported. The original year of construction is unknown however, the overall condition of the superstructure was observed to be fair.

Figure 22: Bridge 3 – Upper Augusta Plate Bridge in Upper Augusta Township



Approximately 10% of the bridge superstructure is still coated in paint, which is suspected to be lead-based. The bridge is decked with creosoted timber ties connected with steel straps along the outer edge of the top. In general, the timbers are badly rotted and should be removed. The concrete abutments are in poor condition. There is extensive spalling and a large vertical crack below one of the girders was noted at the West abutment.



The remaining concrete was friable and there is loss of bearing beneath at least one of the bearings. The East abutment is in much better condition with only light cracking, however the wingwalls are in poor condition.

Bridge 4 – Snyderstown Girder Bridge

The fourth structure was on an approximately 20-foot long single span rolled steel girder bridge over a tributary to Shamokin Creek in Snyderstown Borough. A natural gas line runs parallel to the bridge and is self-supported. The original year of construction is unknown and the overall condition of the above noted superstructure was observed to be satisfactory. The bridge is decked with creosoted timber ties connected with steel straps along the outer edge of the top. In general, the timbers are badly rotted and should be removed. The bridge substructure was observed to be in poor condition. The beams are bearing on a timber cross member on top of deteriorated concrete and rehabilitation of the bearing areas is required.

Figure 24: Bridge 4 – Snyderstown Girder Bridge in Snyderstown Borough



Bridge 5 – Shamokin Truss Bridge

The fifth structure, constructed in 1902, is a 120-foot single span pinned steel truss bridge over Shamokin Creek in Shamokin Township. A natural

gas line runs parallel to the structure and is supported by steel brackets that extend from the lower truss chord.

Figure 23: Bridge 5 – Shamokin Truss Bridge in Shamokin Township



The overall condition of the above noted superstructure was observed to be satisfactory with several areas of severe deterioration where debris has accumulated. Due to the robust design of railroad structures, it is unlikely that the deterioration is significant enough to impact the load carrying capacity for pedestrian use, however the bridge should have a thorough cleaning and detailed inspection to determine if any structural repairs are necessary. Approximately 20% of the bridge superstructure remains coated in paint, which is suspected to be lead-based and minor surface corrosion exists throughout the structure. The East abutment is in poor condition and is undermined by scour and has rotated forward. Separation of the abutment and wingwall was also noted. The West abutment is stone masonry and was observed to be in fair condition with no major cracking or spalling, however most of the joint mortar is missing.



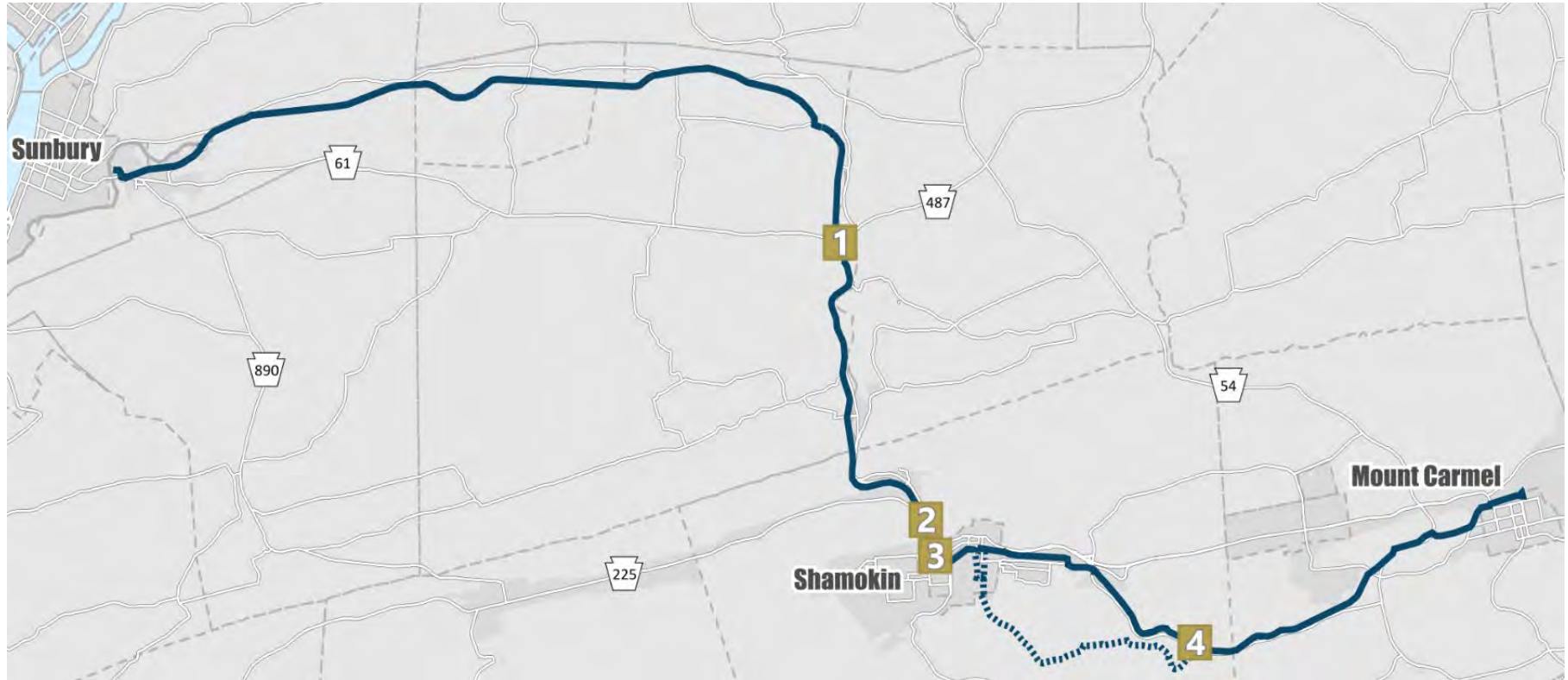
Physical Inventory & Assessment of Key Roadway Intersections

The trail corridor studied crosses and parallels a variety of local and state routes. For purposes of the study, four key intersections of interest were evaluated in detail for pedestrian accommodation and crossings. These intersections posed unique geometry, higher traffic volumes, higher traffic speeds and/or would require changes to safely accommodate pedestrians. There are other intersections that may require modification once a final trail alignment is established.

For the purposes of this study, the four intersections studied in detail included:

1. SR 61 & SR 487/Main Street intersection
2. SR61 & SR 225/2nd Street intersection
3. 2nd Street/3rd Street Shared Pathway
4. SR 901 & Upper Excelsior Road/Upper Main Street intersection

Figure 25: Key Roadway Intersection Locations





SR 61 & SR 487/Main Street Intersection

The intersection of State Route (SR) 61 and SR 487/Main Street is a signalized intersection located in Paxinos in Shamokin Township. The intersection is surrounded by restaurants and businesses with driveways located in close proximity to intersection approaches. The intersection is located on a horizontal curve and the lanes along all approaches are separated by a concrete median. The abandoned Shamokin Valley Railroad corridor crosses SR 61 approximately 350 feet north of the intersection.

Figure 26: SR 61 & SR 487/Main Street Intersection



SR 61 is a north-south principal arterial highway connecting Sunbury to Shamokin and owned by PennDOT. The roadway has a posted speed limit of 45 MPH through the intersection; however, actual travel speeds appear to be much higher. To the north of the intersection, the road consists of three travel lanes (two northbound and one southbound), while the road consists of four travel lanes (two northbound and one southbound) to the

south of the intersection. The average lane width is 11 feet with barrier curbing and narrow shoulders along both approaches.

Traffic along SR 61 is of medium volume, with approximately 5,900 vehicles entering the intersection from the south and 3,000 vehicles entering from the north each day. The percentage of heavy vehicles traveling along the road is high, with truck volumes ranging from 4-6%.

SR 487 is a east-west minor arterial highway with a posted speed limit of 45 MPH through the intersection. The average lane width along SR 487 is 12 feet, with 8 foot shoulder widths present on both sides to the east of the railroad tracks.

Traffic along SR 487 is fairly low volume, with approximately 8,700 vehicles traveling along the road each day. Approximately 4,700 vehicles enter the intersection from SR 487. The percentage of heavy vehicles traveling along the road is 6% of the total traffic.

Main Street in Paxinos is a local road that provides access to businesses along SR 61 to the south of the intersection and creates the fourth leg of the intersection.

The crash history at the intersection indicates that over the last five years (2016-2020), there have been eight crashes at the intersection, which comprise of:

- 3 rear end crashes
- 3 angle crashes
- 2 hit fixed objects

All of the reported crashes were of low severity, with five property damage only crashes (PDO crashes) and three suspected minor injury crashes. Common driver actions responsible for the crashes include driving too fast for conditions (3 crashes) and running red lights (2 crashes). Additionally, high travel speeds appear to be a contributing factor to these crashes. None of the crashes involved pedestrians nor cyclists.



Because of the existing conditions, the intersection has regulatory “No Pedestrian Crossing” signs posted on all four quadrants.

SR 61 & SR 225/2nd Street Intersection

The intersection of SR 61 & SR 225/2nd Street is located in Coal Township, just north of the City of Shamokin. The intersection sits on the edge of the city, with the Shamokin Creek and the Shamokin Valley Railroad running parallel to SR 61.

Figure 27: SR 61 & SR 225/2nd Street Intersection



At the intersection, SR 61 consists of two lanes of bi-directional movement with average lane widths of 12 feet. 10-foot shoulder widths are observed on both north and southbound SR 61 approaching the intersection. A sidewalk is present on the east side of the road and is located on both sides of the road south of the intersection. The speed limit is 25 MPH to the south of the intersection and 35 MPH to the north. Traffic along SR 61 is of high volume compared to the SR 61 & SR 487 intersection, with

approximately 12,400 vehicles traveling to the north of the intersection and 11,300 vehicles traveling to the south each day. The heavy vehicle percentages along the roadway vary between 4-6%.

SR 225 is a north-south minor arterial highway with a posted speed limit of 45 MPH through the intersection. The average lane width is 12 feet with a 5-foot shoulder present on the east side of the road. Traffic volumes are low, with approximately 3,000 vehicles traveling along the roadway each day. Of the average daily traffic, approximately 5% of the traffic is heavy vehicles.

2nd Street is a north-south minor arterial local highway with a posted speed limit of 25 MPH through the intersection. The road serves as a secondary entrance/exit for Shamokin. Both a sidewalk and a 10-foot shoulder are present on the east side of the road. The average lane width is 12 feet. Approximately 7,300 vehicles travel along 2nd Street each day, with a low percentage of heavy vehicles (3%).

The intersection’s crash history indicates that over the last five years (2016-2020), there have been a total of 14 crashes at the intersection. 12 of these crashes occurred along the SR 61 approaches with the remaining two taking place along SR 225/2nd Street. The crashes are comprised of the following:

- 6 angle crashes
- 3 rear end crashes
- 2 non-collisions
- 1 hit fixed object
- 1 opposite direction sideswipe
- 1 unknown crash

Of the 14 crashes, there was one suspected serious injury crash, which involved a motorcycle hitting an animal in the roadway. In addition, there were five suspected minor injury crashes, one possible injury crash, two unknown severity crashes, and five PDO crashes. Common driver actions responsible for the crashes include distracted drivers (four crashes),



improper/careless turns (three crashes), and over/undercompensating the curve (two crashes). None of the crashes involved pedestrians nor cyclists.

The two crashes observed at SR 225/2nd Street were both angle crashes. These crashes were the result of vehicles turning left onto SR 225 and making improper/careless turns, which led to crashes with vehicles traveling northbound on 2nd Street vehicle proceeding straight through the intersection. One crash was a suspected minor injury crash, while the other was a PDO crash. None of the crashes involved pedestrians nor cyclists.

2nd Street/3rd Street Shared Pathway Concept

Just south of the SR 61 and SR 225/2nd Street Intersection, a shared on-road pathway is proposed. Both 2nd Street and 3rd Streets are local roads located within the City of Shamokin. Both roads are in urban settings and are surrounded by a mixture of residential homes and small businesses. No crash records were found at 2nd Street or 3rd Street along the proposed shared pathway route.

SR 901 & Upper Excelsior Road/Upper Main Street Intersection

The unsignalized intersection of SR 901 and Upper Excelsior Road/Upper Main Street is located in Coal Township, east of Shamokin. The intersection is stop-controlled along Upper Excelsior Road and Upper Main Street and is located along a horizontal curve. The intersection is within a rural area, with heavy vegetation located close to the roadway edges. Residential homes are sparsely located throughout the area. An intersection advisory speed sign of 45 MPH is located along both approaches of SR 901; however, actual running speeds appear to be higher than the posted limit.

SR 901 is an east-west minor arterial highway with a posted speed limit of 55 MPH through the intersection. The road consists of two lanes with bi-directional movement and lane widths of 11 feet. 3 to 5-foot shoulders are present on both sides of SR 901, with edge line rumble strips present through the intersection. Traffic along the roadway is low volume, with approximately 4,800 vehicles traveling along the roadway each day. The percentage of heavy vehicle traffic is high comparatively, with approximately 10% of all traffic being heavy vehicles.

Figure 28: SR 901 & Upper Excelsior Road/Upper Main Street Intersection

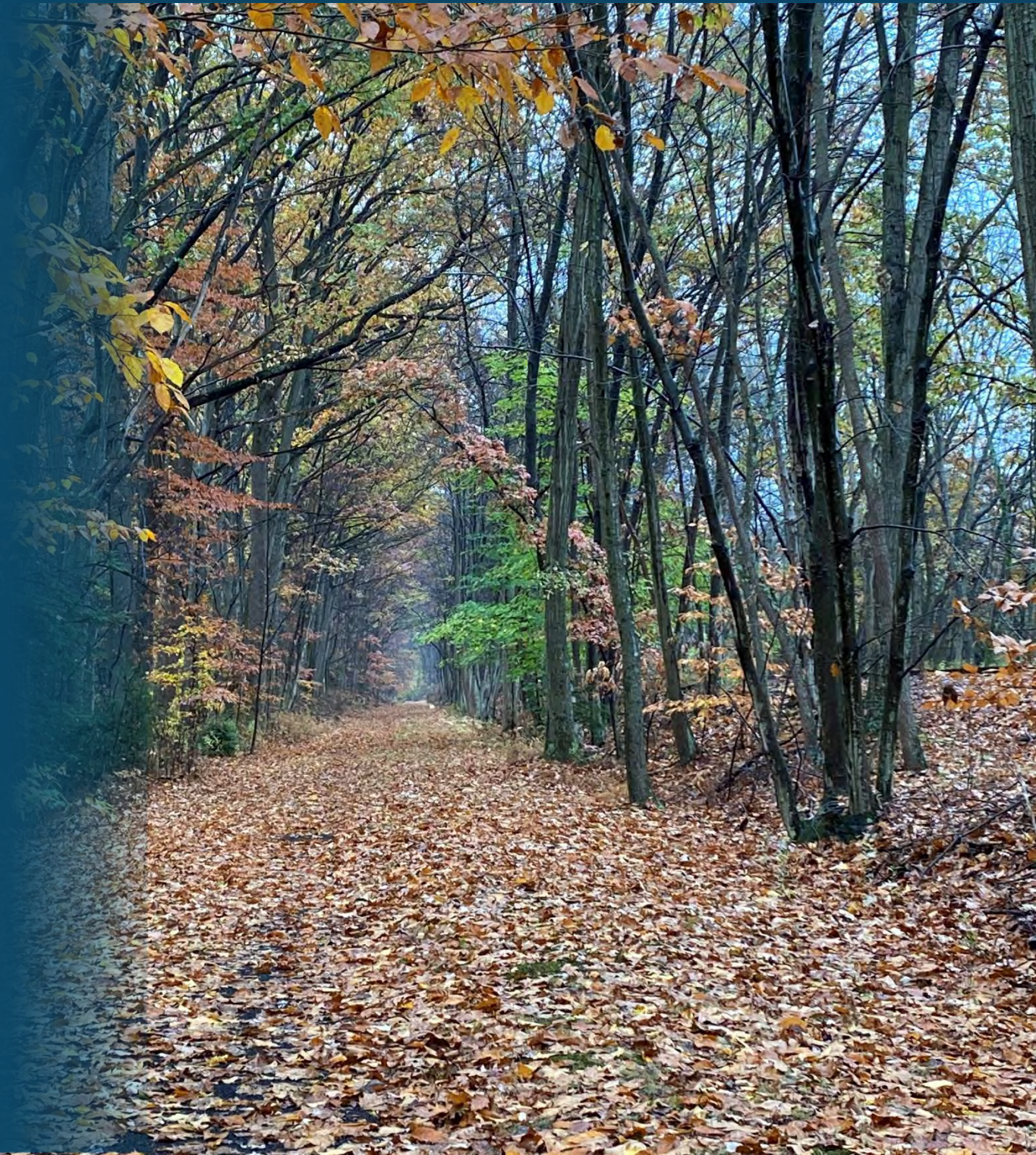


Upper Excelsior Road and Upper Main Street are local roads serving as access points to residential homes located to the north and south of SR 901. The roads are narrow, with approximately 10-foot lane widths along both roads with no shoulders present.

The crash history at the intersection indicates that over the last five years (2016-2020), there have been a total of four crashes, all associated with hitting fixed objects. All crashes were of low severity, including one possible injury, one unknown severity, and two PDO crashes. High travel speeds are attributed to the cause of these crashes, with common driver actions being over/undercompensating for the road curve, driving too fast for conditions, failure to maintain proper speed, and speeding. None of the crashes involved pedestrians nor cyclists.



Concept Plan





Concept Plan

Trail Alignment

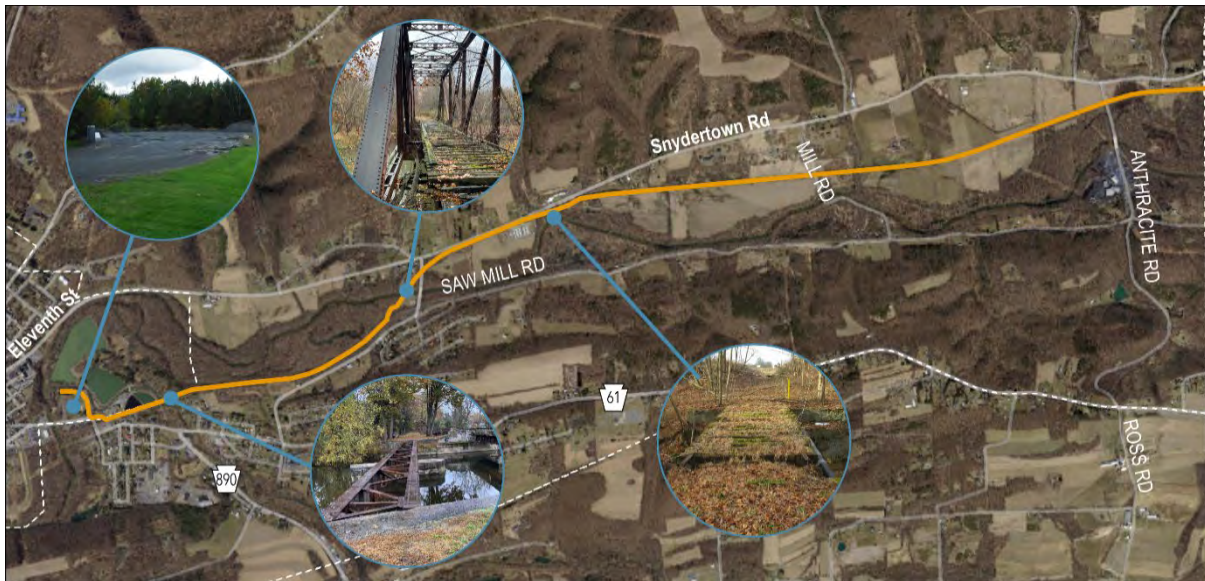
The Northumberland County Non-Motorized Rail Trail is currently envisioned as a 35-mile corridor connecting the City of Sunbury to the Borough of Mount Carmel and traversing eight municipalities. The trail is intended to function as a shared-use, non-motorized recreation facility. Much of the trail alignment primarily follows the former Pennsylvania & Reading Railroad while also utilizing existing low-volume local and state roads to navigate trail users through safer and more accessible passages.

As envisioned, the rail trail will pass through remote natural areas, rural communities, cities, and main streets. The final phases of trail design and location through each of these areas will ultimately be determined by a variety of factors as funding becomes available and must be context sensitive. The alignment, evaluated in this Master Plan, is subject to change to ensure that property ownership/easements, trail design, development, management, and maintenance strategies reflect the needs of the community and the partnering agencies and organizations. The following provides design concepts that are intended to guide the framework for the decision-making process during the next phases of the rail trail's development and its associated amenities. These conceptual designs for the Master Plan were developed based upon field visits and the existing conditions analysis. Stakeholder input and public feedback helped to refine the alignment and inform potential opportunities and constraints throughout.



Sunbury & Upper Augusta Township

The westernmost section of the Northumberland County Non-Motorized Rail Trail kicks off at a proposed trail head near the City of Sunbury's Municipal Authority grounds and promptly enters Upper Augusta Township. This section of the trail is aligned along the former Philadelphia & Reading Railroad bed and is currently used by the local community and the school's cross-country teams, with nearby residents independently maintaining the trail. Three bridges are located on this section.



OPPORTUNITIES

- Potential location for a trail head at the City of Sunbury's Municipal Authority parcel
- 1 mile of informally established, utilized, and maintained trail
- Off-road trail with flat elevation
- Connection to the City of Sunbury's bicycle and pedestrian network
- Historic covered bridge located on Mill Road
- Potential campground amenity

CONSTRAINTS:

- Three road crossings. Black Mill Road and Anthracite Road experience heavy truck traffic
- Debris blockages occur at Bridge 1
- Active hunting grounds surround this section of the trail



Snydertown Borough

Through four miles of Snydertown Borough, the trail continues along the former railroad bed and crosses one bridge before entering Shamokin Township.



OPPORTUNITIES:

- A vacant Borough-owned building is located on South Main Street, potential to serve as a trail amenity
- The entirety of this section is off-road trail with flat elevation
- Nearby restaurant destinations on South Main Street

CONSTRAINTS:

- 2 road crossings. South Main Street experiences heavy traffic at high speeds
- Active hunting grounds surround this section of the trail
- Rural nature and limited options for access points cause for safety/EMS safety concerns



Shamokin Township

The third section of the trail runs north to south in Shamokin Township. A portion of this trail departs from the former railroad bed and realigns onto Shamrock Road for just over 0.5 miles until returning to the former railbed. This alignment continues for one mile before reaching Paxinos. The trail will then traverse on-road behind the Masser's Restaurant property to the shoulder of State Route 487 and cross the roadway intersection with State Route 61. The trail will remain on-road for 0.2 miles until returning to the railbed south of Paxinos. There is one bridge on this section.



OPPORTUNITIES:

- A number of nearby restaurant and retail destinations are located in Paxinos
- An inn located at the southern portion of the township
- The majority of this section is off-road with flat elevation
- 2 historic tunnels on Badmans Hill Road and Irish Valley Road

CONSTRAINTS:

- 3 road crossings. State Routes 61 and 487 experience high vehicle and truck traffic
- State Route 61 and State Route 487 intersection will require extensive accommodations
- Active hunting grounds surround portions of this section trail
- Current ATV usage along the trail



Coal Township & the City of Shamokin

The trail continues on the former railroad bed from Shamokin Township into Coal Township until just before the intersection of State Route 61 and State Route 225 north of the City of Shamokin. The trail remains on-road through the city's limits and breaks off into two alternative alignments. The first alternative exits the city south into AOAA owned property; however, this alternative is least desirable due to ATV usage and safety concerns. The second alternative exits the city eastward onto an informal, off-road trail bed paralleling State Routes 61 and 901.



OPPORTUNITIES:

- Potential location for a trail head at the Claude Kehler Community Park with restrooms
- A number of restaurant and retail destinations
- Independence Street pocket park
- Greater Shamokin Heritage Museum
- On street alignment and access points currently maintained by the city

CONSTRAINTS:

- State Routes 61 and 225 intersection will require extensive accommodations
- Trail intersection with State Route 901, high vehicle speeds
- On-road traffic and congestion



Coal Township & Mount Carmel Township

This section of the trail is off-road, predominantly along the former railroad bed through Coal Township and into Mount Carmel Township. The preferred alignment is located north of State Route 901. The alternative travels through AOAA property and crosses State Route 901 in Excelsior.



OPPORTUNITIES:

- The entirety of this section is off-road trail with flat elevation
- A portion of this section is currently used as an informal trail

CONSTRAINTS:

- 1 road crossing
- Alternative option includes State Route 901 intersection with needed accommodations
- Rural nature and limited options for access points cause for safety/EMS safety concerns



Mount Carmel Township & Mount Carmel Borough

The final section of the trail enters Mount Carmel Borough using an informal trail alignment and ends on-road near the Mount Carmel Pool.



OPPORTUNITIES:

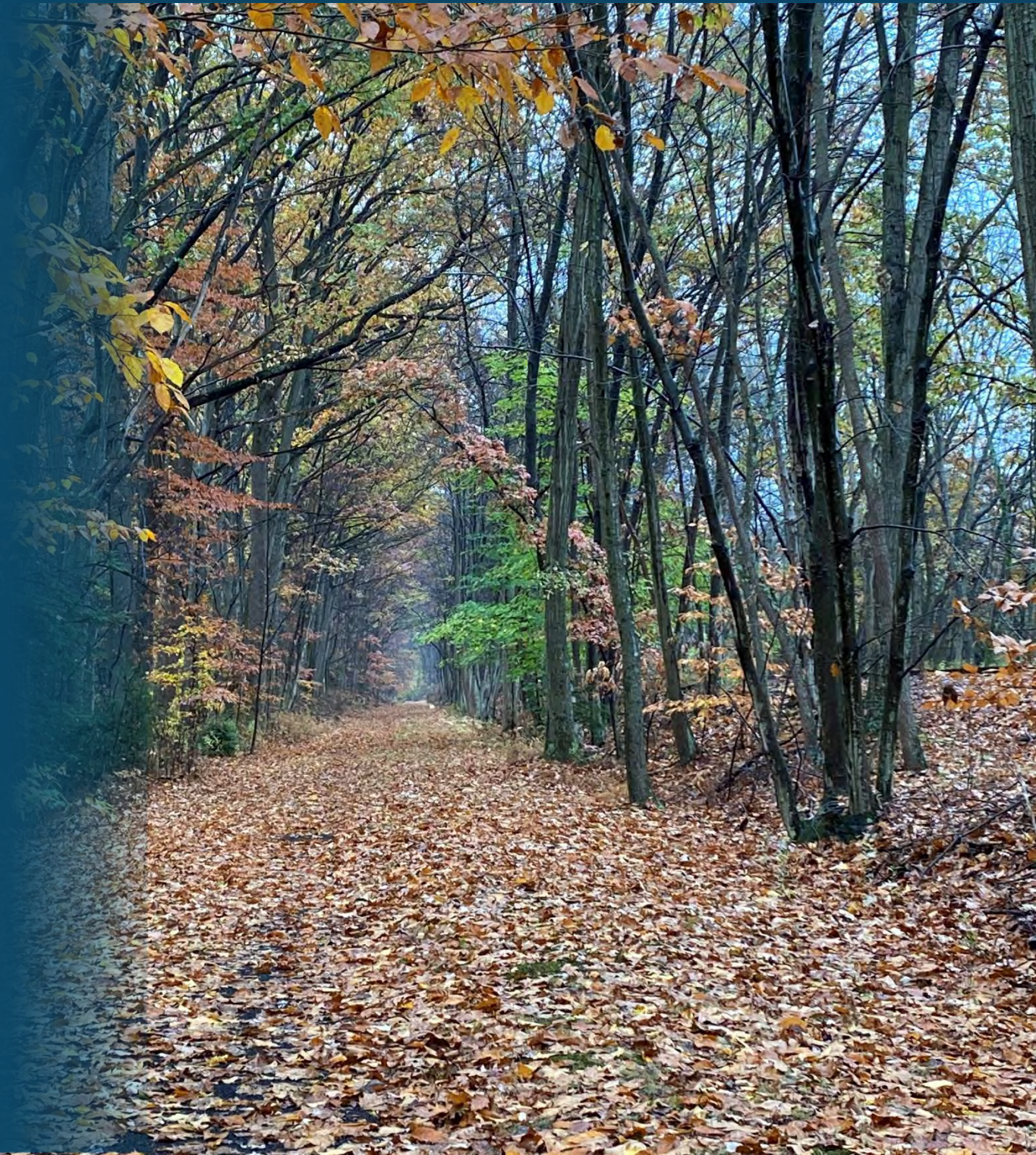
- Potential location for a trail head at the Mount Carmel Pool
- The entirety of this section is off-road trail with flat elevation and current informal use
- Adjacent Crater Lake
- A number of nearby restaurant and retail destinations located in the Borough

CONSTRAINTS:

- 1 road crossing. State Route 54 experiences high vehicle and truck traffic



Findings and Alternatives





Findings and Alternatives

The existing conditions of the corridor, technical inventory and analysis, the opportunities and constraints, and the voices of stakeholders and community members each informed the recommendations outlined in this section. These recommendations address trailheads and access areas, major intersection crossings, structure rehabilitations, and other considerations unique to the Northumberland County Non-Motorized Rail Trail.

Trailheads and Access Points

Three potential trailheads¹ were identified during Focus Groups meetings and Municipal Interviews.

- **Trailhead 1:** Hamilton Field in the City of Sunbury
- **Trailhead 2:** Claude Kehler Community Park in the City of Shamokin
- **Trailhead 3:** Anthracite Baseball Field in the Borough of Mount Carmel

Results from the public survey indicated a desire for future trailheads in the following locations:

- Paxinos
- Snyderstown
- Sunnyside/Overlook
- Excelsior

Major trailheads should provide all essential amenities to trail users and serve as recognizable points of access for the trail. Similar to the accompanying illustrative rendering, these trailheads should include ADA accommodations, parking areas, shelters, restrooms, drinking fountains,

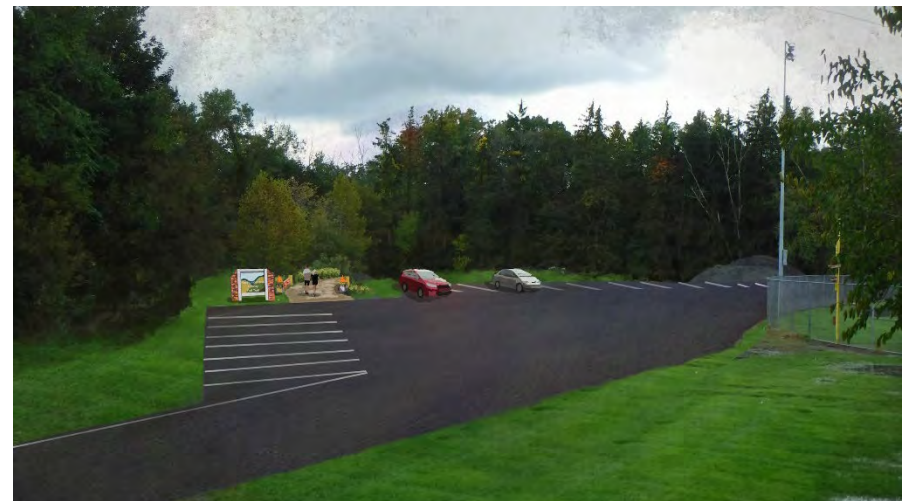
¹ Feasibility of the proposed locations and ownership and management negotiations will be explored in the future design phase. The concept graphics show potential trailhead layouts and amenities; however, are illustrative only.

benches, trash receptacles, location & route/system map kiosk, bicycle racks, and landscaping.

Figure 29: Existing Conditions at Hamilton Field in the City of Sunbury



Figure 30: Conceptual Design of Proposed Trailhead at Hamilton Field





In addition to the designated trail heads, ancillary amenities such as bike racks near destinations, bike repair stations, exercise equipment, dog waste stations, drinking water stations, wayfinding/educational markers, and picnic tables may be installed throughout the length of the trail to enhance trail user experience and comfort.

Figure 31: Existing Conditions of Bridge 1 near proposed trailhead in the City of Sunbury



Figure 32: Conceptual Design of Bridge 1 near proposed trailhead in the City of Sunbury



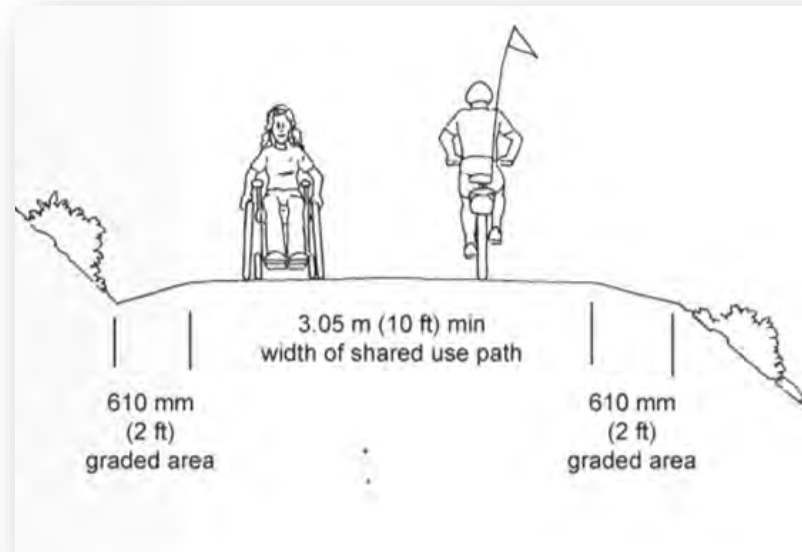


Typical Sections

Cross Sections

The proposed cross section for the trail is a width of 10 feet. Given the variety of landscaped areas in which the trail traverses, there is opportunity for an asphalt paved trail through urban areas, while the rural trail is proposed as a crushed stone surface. The sections will also include shoulders on both edges of the path that will be a minimum of two feet in width. These will provide clearance to adjacent obstacles, such as utility poles, guy wires, equipment enclosures, and similar objects along the route.

Figure 33: Potential Typical Cross Sections



ADA Accessibility

As a public recreation facility, accessibility is mandated by the federal Americans with Disabilities Act of 1990 (ADA), which requires certain design standards for facilities to be fully accessible to persons with varying mobility and abilities. A number of strategies to ensure an ease of accessibility during trail development include:

- A minimum trail width of 8 feet
- Choosing a trail surface material that provides a firm and stable surface
- A 5% sustained gradient, up to 12.5% for 10 feet with landings
- A maximum cross slope of 5%
- A clear tread width of a minimum of 36 inches
- Resting intervals and passing spaces especially along steeper grades
- Clear signage that indicates length of trail or segments, surface type, and typical and maximum tread, running grade, and cross slope
- All trailheads shall include ADA parking accommodations and applicable protection area requirements



Figure 34: Buffalo Valley Rail Trail Accessibility Sign



Structures

As noted in the physical inventory section, each of the five structures evaluated appear to be in satisfactory condition to carry pedestrians and limited maintenance and emergency vehicles. Each of the structures will require some level of rehabilitation. Based on the proposed use, typical details were developed that included installing a timber deck and railing on top of the existing floor beams to create a pedestrian structure. These recommendations were made based on a visual structural inspection. A structural design analysis will be required to identify specific improvements required to handle the proposed trail use.

From the January 2021 physical assessment of the five bridges along the proposed trail alignment, a rehabilitation effort and associated cost was determined for each structure. The cost for each structure includes new timber decking and railing. These totals can be found on page 63.

Figure 35: Typical Section for Bridges 1, 3, and 4

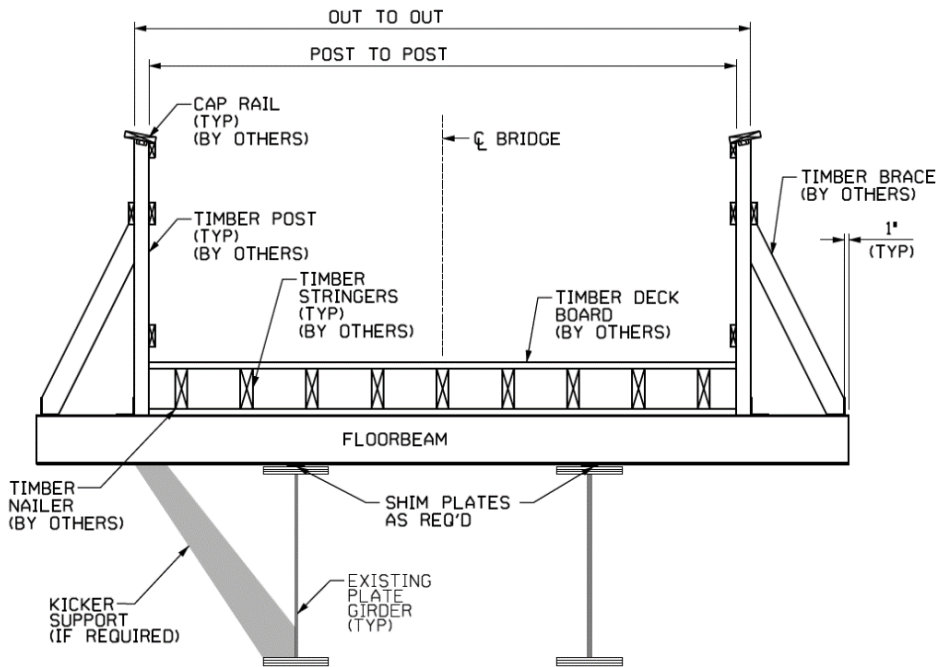
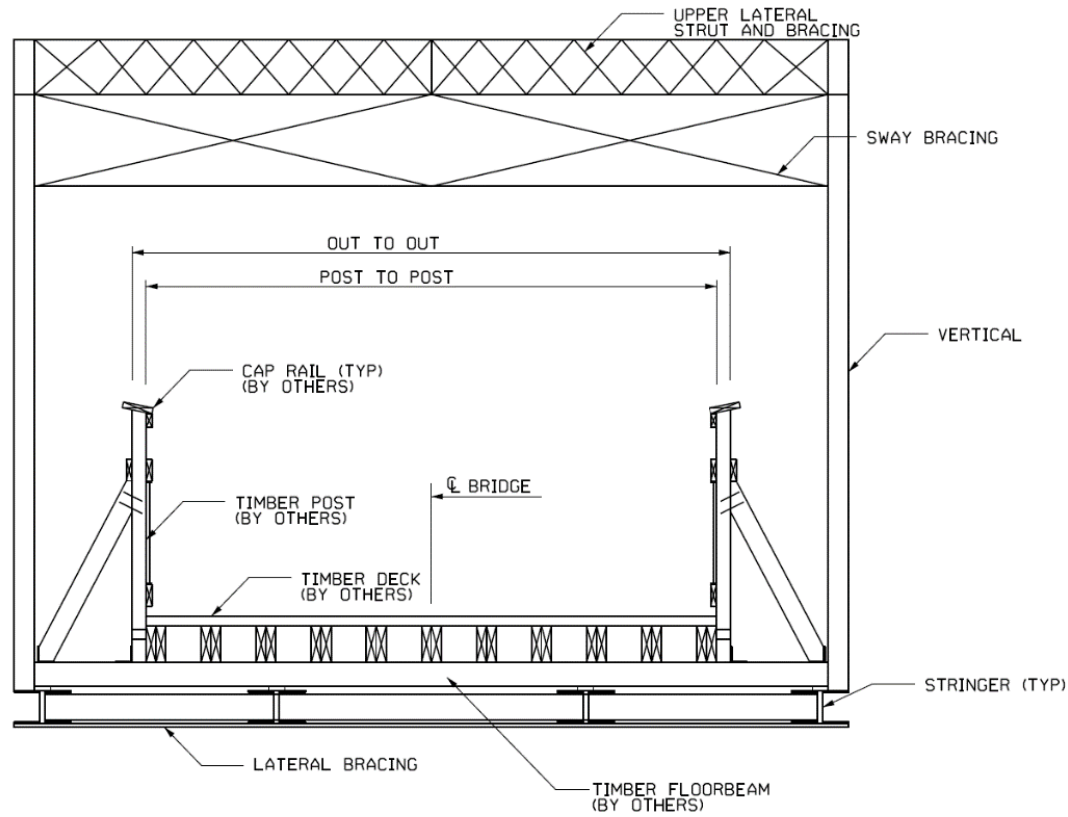


Table 4: Structures Improvements

Structure	Improvements
Bridge 1	<ul style="list-style-type: none"> Satisfactory overall condition of the bridge superstructure and substructure. Work includes painting of top flange of beams, pressure treated decking, and railing system.
Bridge 2	<ul style="list-style-type: none"> Satisfactory overall condition of the bridge superstructure and substructure. Work includes removing trees and existing timbers on deck to construct a new timber deck with railing, remove debris and clean bearing areas, pressure wash structure, paint top flange of steel.
Bridge 3	<ul style="list-style-type: none"> Fair overall condition of the bridge superstructure and substructure. Work includes removing existing timber deck, pressure washing the structure, concrete repair to the substructure, and adding a timber deck with railing.
Bridge 4	<ul style="list-style-type: none"> Satisfactory overall condition of the bridge superstructure and fair condition of the substructure. Work includes removing the existing timber deck, cleaning and repairing beam bearing areas, and new timber deck and railing.
Bridge 5	<ul style="list-style-type: none"> Satisfactory overall condition of the bridge superstructure, and poor condition of the substructure. Further study will be required to determine if the east side abutment can be salvaged. Work includes removing existing timbers, pressure washing structure and painting of top flange of beams, stabilization of the east abutment, and concrete repairs and new timber deck and railing.



Figure 36: Typical Section for Truss of Bridges 2 and 5





Roadway Intersections

The rail trail corridor primarily runs adjacent to Snydertown Road, State Route (SR) 61, and SR 901 and safely crosses several low-capacity roadways. In addition to signage and pavement markings at select crossings, four intersections require more extensive accommodations to ensure safety of the rail trail's users. Design sketches were developed with several elements including alignment, approach, sight distance, access, signage, pavement markings, and traffic control. Each concept would require detailed design and appropriate permitting and approvals. In some cases, additional right-of-way will be required.

Intersection 1: SR 61 & SR 487/Main Street Paxinos Intersection

This concept crosses the intersection of SR 61 and SR 487/Main Street in Shamokin Township. The study corridor enters SR 487 approximately 300 feet east of the SR 61 and SR 487 intersection. From this point, an ADA accessible, 10-foot-wide shared use path could be developed on the north side of SR 487. Establishing this path would require securing right-of-way from three different property owners. Additionally, there are several utility poles that would require relocation.

Figure 37: SR 487 West Toward SR 61 Paxinos Intersection



Pedestrian crosswalk pavement markings would be required as the path crosses a right-turn lane from SR 487 to SR 61. The path would utilize the existing traffic island as a pedestrian refuge area to make the crossing more feasible. Pedestrian crossing pavement markings, associated signing, traffic signal timing and pedestrian push buttons would all be required to accommodate safe pedestrian crossings at the intersection. Additionally, the stop-bars for southbound SR 61 would require relocation to provide the required separation from the new pedestrian crossing area.

Figure 38: SR 61 & SR 487/Main Street Paxinos Intersection North View



Additionally, pavement marking changes would also be required for the southbound SR 61 left turn lane. These intersection modifications would require a PennDOT Highway Occupancy Permit (HOP) and coordination with the local municipality.



Figure 39: SR 61 & SR 487/Main Street Paxinos Intersection South View



Figure 40: SR 61 & SR 487/Main Street Paxinos Intersection Concept

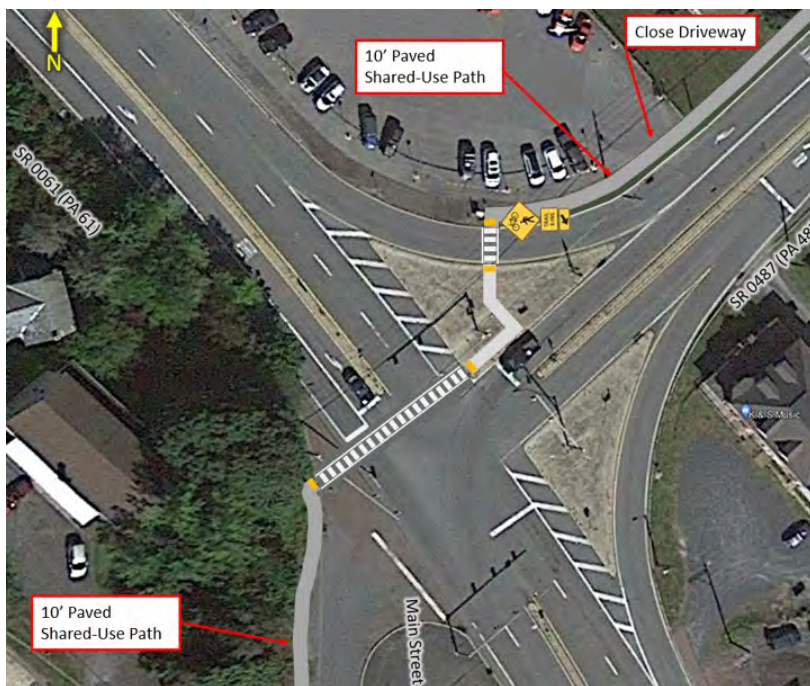


Table 5: SR 61 & SR 487/Main Street Paxinos Intersection Alternatives

Rationale	Feature
Construct shared-use path	Install crosswalk markings across SR 61 and SR 487 <ul style="list-style-type: none"> Continental, Zebra, or Ladder
	Install crosswalk signage on channelized right turn: <ul style="list-style-type: none"> Combined Bike/Ped Warning Signs (W11-15) Trail X-ING Plaques (W11-15P) Diagonal Downward Pointing Arrow Plaques (W16-7P) Install Pedestrian Signals and Push-Buttons Signal timing revisions Creation of Pedestrian phasing and timings. Construct a 10' paved shared-use path along SR 61 and SR 487, along with a 5' grass buffer between the path and SR 487.



Intersection 2: SR 61 & SR 225/2nd Street Intersection

The abandoned Reading and Philadelphia rail line appears to intersect SR 61 approximately 720 feet north of the SR 61 and SR 225 intersection. At this point, the old rail line aligns onto SR 61. SR 61 has a 12-foot paved shoulder in this area which could be converted to a shared use path with a barrier separating vehicular and pedestrian traffic.

Figure 41: Corridor Alignment on SR 61 Facing North



This concept travels along SR 61 before crossing the intersection of SR 61 and SR 225/2nd Street. SR 61 experiences a high volume of vehicles, therefore increasing safety along the roadway is critical in order to adequately protect trail users.

Figure 42: SR 61 & SR 225 Intersection Facing South



The intersection of SR 225 and 2nd Street in Shamokin is currently a signalized intersection. Because of the existing conditions, the intersection has regulatory “No Pedestrian Crossing” signs posted on all four quadrants. In addition to establishing the shared use path, the signalized intersection would require pedestrian crossing pavement markings, associated signing, traffic signal timing and pedestrian push buttons to accommodate pedestrians safely across the intersection. These intersection modifications would require a PennDOT Highway Occupancy Permit (HOP) and coordination with the local municipality.

Figure 43: SR 225 & 2nd Street Intersection South View





Figure 44: SR 61 & SR 225/2nd Street Intersection Concept

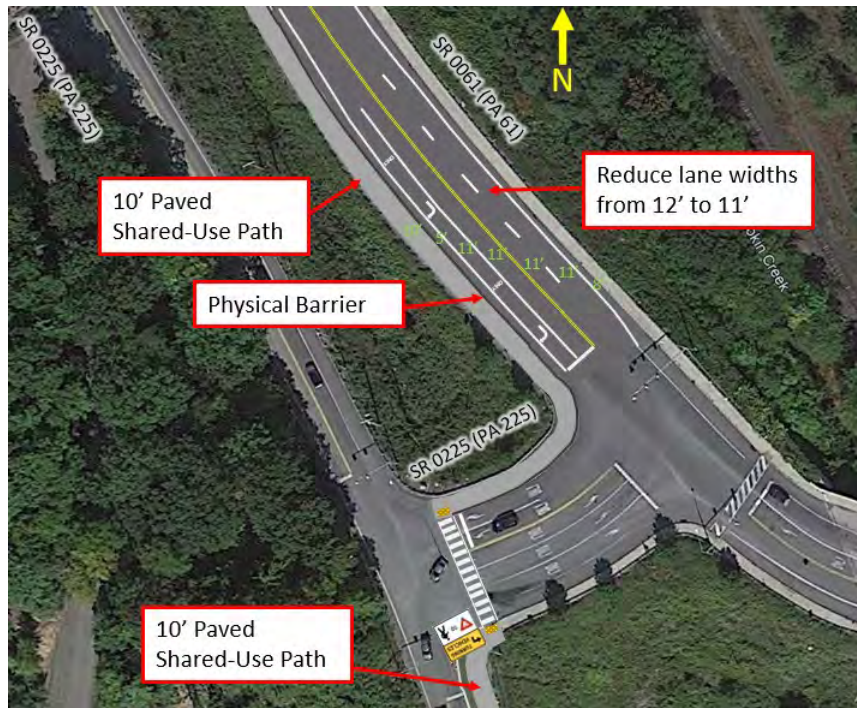


Table 6: SR 61 & SR 225/2nd Street Alternatives

Rationale	Feature
<p>Increase visibility of crosswalk location.</p>	<p>Install crosswalk markings across SR 225</p> <ul style="list-style-type: none"> Continental, Zebra, or Ladder
<p>Install barrier between vehicle lanes and path to protect pedestrians/bicyclists.</p>	<p>Install crosswalk signage on channelized right turn:</p> <ul style="list-style-type: none"> Combined Bike/Ped Warning Signs (W11-15) Trail X-ING Plaques (W11-15P) Diagonal Downward Pointing Arrow Plaques (W16-7P) Install Pedestrian Signals and Push-Buttons Signal timing revisions Creation of Pedestrian phasing and timings. Construct a concrete barrier along SR 61 and SR 225 to prevent path users from making undesirable movements, to reinforce the path is an independent facility, and to separate vehicles from path users.



2nd Street/3rd Street Sidepath Concept

After crossing through the intersection of SR 61 & SR 225/2nd Street, the conceptual trail continues south along 2nd Street, on the east side of 2nd Street, before crossing over to 3rd Street.

Figure 45: 2nd Street South View Toward the City of Shamokin



Figure 46: 2nd Street/3rd Street Sidepath Concept 1



A concept sketch of the trail along 2nd Street and 3rd Street is provided in an aerial view and a street view. Because the shared-use path would be flowing against normal traffic direction along this segment of 2nd Street, both physical barriers and pavement markings will be required for the safety of trail users and the motoring public.



Figure 47: 2nd Street/3rd Street Sidepath Concept 2



Table 7: 2nd Street/3rd Street Sidepath Alternatives

Rationale	Feature
Increase visibility of trail location.	Include pavement restriping/additional pavement markings
Install barrier between vehicle lanes and path to protect pedestrians/bicyclists.	Construct a concrete barrier along SR 61 and SR 225 to prevent path users from making undesirable movements, to reinforce the path is an independent facility, and to separate vehicles from path users.



Intersection 3: SR 901 & Upper Excelsior Road/Upper Main Street Intersection

This concept is located along one of the alternative trail routes, where it crosses the intersection of SR 901 and Upper Excelsior Road/Upper Main Street in Coal Township. SR 901 is a roadway with high travel speeds, with a 55 MPH speed limit; however, 45 MPH speed advisory signs are currently located near the intersection. Additional mitigations would be required to provide safety for trail users to cross the road due to the vehicle speeds and vertical/horizontal roadway geometry in this area.

Figure 48: SR 901 & Upper Excelsior Road/Upper Main Street Intersection Eastbound View



Because of the geometric challenges in the area of this crossing, advanced warning signage and pavement markings would be required.

Figure 49: SR 901 & Upper Excelsior Road/Upper Main Street Intersection Westbound View





Figure 50: SR 901 & Upper Excelsior Road/Upper Main Street Intersection Concept

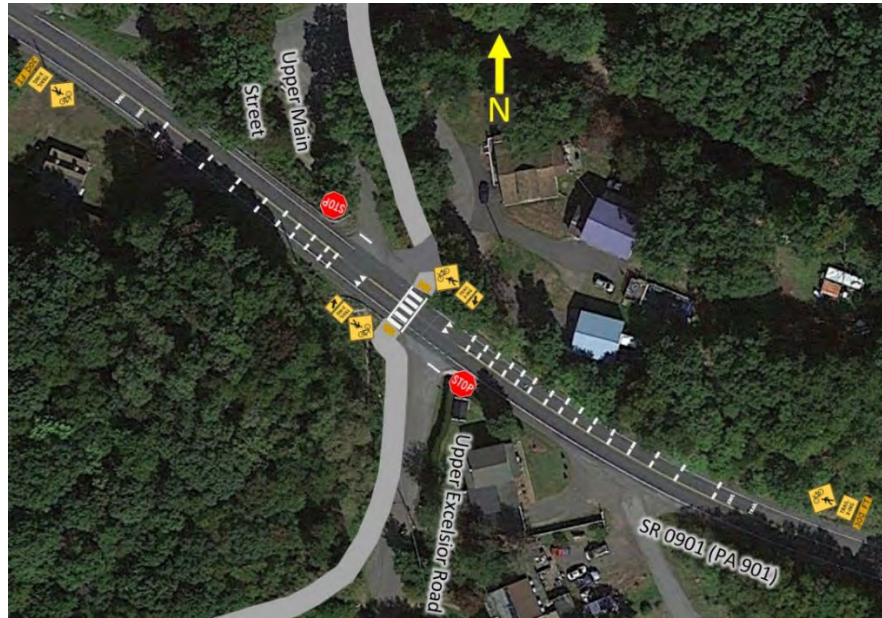


Table 8: SR 901 & Upper Excelsior Road/Upper Main Street Intersection Alternatives

Rationale	Feature
<p>Supplement sight distance limitations by alerting drivers of the upcoming trail crossing and increase visibility of crosswalk location</p>	<p>Install advanced warning signage:</p> <ul style="list-style-type: none"> • Combined Bike/Ped Warning Signs (W11-15) • Trail X-ING Plaques (W11-15P) • Distance Plaques (W16-103P) (North & Southbound - 300 FT) <p>Install crosswalk markings</p> <ul style="list-style-type: none"> • Continental, Zebra, or Ladder <p>Install yield lines</p> <ul style="list-style-type: none"> • White yield arrows in advance of the crosswalk <p>Advanced Pavement Markings</p> <ul style="list-style-type: none"> • TRAIL XING
<p>Reduce vehicle speeds.</p>	<p>Install speed reduction markings</p> <ul style="list-style-type: none"> • Transverse pavement markings in progressively reducing spacing to give impression of speed increase
<p>Communicates that bicyclists need to stop at the crosswalk <i>(and dismount to cross as a pedestrian).</i></p>	<p>Median & Reduced Lane Widths</p> <p>Install trail approach signage</p> <ul style="list-style-type: none"> • STOP Signs (R1-1) with optional supplemental plaque: <i>"Dismount Bike to Cross as a Pedestrian"</i> • STOP Ahead Signs (W3-1) • No Motor Vehicle Signs (R5-3)



Other Considerations and Alternatives

Motorized Usage

The Northumberland County Non-Motorized Rail Trail will operate as a non-motorized use trail. Emerging from the public outreach and municipal interviews, concerns of illegal ATV use along the rail trail were discussed. It is recommended that signage stating that motor vehicles are prohibited is prominently posted along the trail corridor. Bollard installation is another effective solution to preventing unauthorized motor vehicle entry and should be utilized at all major access points and trail heads. Targeted surveillance and enforcement at specific intrusion locations may be considered, if issues arise and persist.

E-bikes

E-bikes are defined as “pedalcycles with electric assist,” so long as the e-bike’s motor is under 750 watts, has a maximum speed of 20 MPH, and has operable pedals. E-bikes are defined by three classes:

- **Class 1:** a two-wheeled bicycle equipped with fully operable pedals and an electric motor of 750 watts or less that provides assistance only when the rider is actively pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 MPH.
- **Class 2:** a bicycle equipped with fully operable pedals and a throttle-actuated 750-watt motor that ceases to provide assistance when the e-bike reaches 20 MPH. The bike can operate without pedaling.
- **Class 3:** a bicycle equipped with fully operable pedals, with or without a throttle, that can reach up to 28 MPH.

According to the Pennsylvania Game Commission, e-bikes are currently prohibited on State Game Lands. However, the Pennsylvania Department of Conservation and Natural Resources (DCNR) permits Class 1 e-bikes anywhere a traditional bike is allowed. The Northumberland County Non-Motorized Rail Trail will follow these same guidelines allowing for the use of Class 1 e-bikes.

Figure 51: E-Bike Signage



*Photo by John Dorsz
AllTrails*

Hunting

In 2020, the Pennsylvania Game Commission reported a total of 887,221 General Hunting License Sales. Some sections of the rail trail alignment traverse through known hunting areas. Big game hunting season in Pennsylvania occurs between November and December. Small game hunting with firearms starts in mid-September and big game archery season begins in October each year.

Given concerns raised from stakeholders and the public regarding hunter and trail user conflicts, it may be recommended to adjust hours that the rail trail is open for use during peak hunting seasons.

Safety and Privacy Concerns

Safety, both real and perceived, heavily influences a trail user’s decision to use a trail and a community’s decision to embrace a trail system. Property owners along the trail alignment voiced concerns of trespassing on adjacent land given as well as general concerns of vandalism, personal safety of homeowners, and other criminal activity.



Figure 52: Example of Fencing along the Pine Creek Rail Trail



Photo by Linda Stager,
The Pine Creek Rail Trail
Guidebook

Studies have shown that effective deterrents to illegal activity on the trail will be the presence of legitimate users. Additionally, Crime Prevention through Environmental Design (CPTED) is a proactive approach to deterring undesired behavior in neighborhoods and communities and should be implemented in the design process. CPTED is defined as “the proper design and effective use of the built environment that can lead to a reduction in the fear and incidence of crime and an improvement in the quality of life.” Strategies that could be considered include:

- Fencing to define trail edges and delineate between public and private property
- Landscaping and vegetative screening to provide natural barriers
- Volunteer patrol groups or trail ambassador groups
- Adequate pedestrian-scaled lighting, specifically at trail head locations

Coordination with local police organizations, fire, and EMS should also take place prior to trail implementation. Given the rural nature of the trail and lengths between trail heads, proper risk management should be prioritized. Additional strategies that can be leveraged include:

- Use signage to warn users of potentially dangerous areas
- Regular inspections of the trail and corrections to any unsafe conditions
- Prominently post hours of operation and other rules and regulations, along with emergency contact information
- Coordinate with local police and EMS and develop procedures for handling medical emergencies

Emergency Services

Emergency response is a crucial component of trail operation. Response includes locating an incident, accessing the incident site, and providing access for emergency vehicles. The proposed rail trail crosses multiple municipal boundaries through a very rural landscape, therefore an emergency access plan should be developed.

Emergency access plan begins with initial development of the trail and designating trail location marker identifiers. In addition, a coordinated plan should be established with individual emergency response agencies. This response plan should include access points and corridor familiarization.

Rules and Regulations

As part of the online survey, respondents were also offered an opportunity to provide input regarding rules and regulations for the trail. The highest rated rules that would ensure a quality recreational experience included:

- No graffiti or vandalism
- Pick up and carry out pet waste
- Respect rail trail neighbors: users should remain on the trail at all times
- No motorized vehicles
- Avoid disturbing natural features



Rules and regulations that survey takers disagreed with or deemed unimportant include:

- Prohibiting Horses
- Prohibiting Firearms
- Prohibiting camping or campfires
- Closing the trail to the public during deer firearm season
- Prohibiting climbing, jumping, and fishing from trail bridges

Figure 53: Caution Sign Along Buffalo Valley Rail Trail



Liability

Concerns of liability of injury or damages were raised throughout the planning process. These concerns included the liability of private landowners granting access to trail users to their lands. There are a number of legal protections that limit landowner exposure to liability when land access is granted for recreational use.

One of the most powerful safeguards for private landowners is Pennsylvania’s recreational use statute, called the Recreation Use of Land and Water Act (RULWA), 68 P.S. §§ 477-1 to 477-8 (2003). Under RULWA, “an owner of land owes no duty of care to keep the premises safe for entry or use by others for recreational purposes, or to give any warning of a dangerous condition, use, structure, or activity on such premises to persons entering for such purposes,” 68 P.S. § 477-3. However, liability is not limited “for willful or malicious failure to guard or warn against a dangerous condition, use, structure, or activity,” 68 P.S. § 477-6(1). Liability is also not limited for injuries suffered if the owner charges for entry onto the land, 68 P.S. § 477-6(2). Outreach and education surrounding liability should take place with all municipal officials and landowners during property access negotiations.



Act 98 of 2018 PA Recreational Liability Law

Protects owners of land from liability when they make land and water areas available to the public for recreational purposes.



Utilities

Utility and recreational trail co-use often have a minimal effect—and can even offer a host of benefits—on the trail with properly negotiated maintenance and land agreements.

A UGI Gas Company gas pipeline runs beneath multiple sections of the proposed trail alignment. This pipeline alignment is included in property deeds along the corridor. There are also associated pipeline structures in fenced areas present along the trail corridor. Further evaluation into these impacts and locations is needed to ensure a safe, shared-use path.

Figure 54: UGI Pipeline Adjacent to Bridge 3



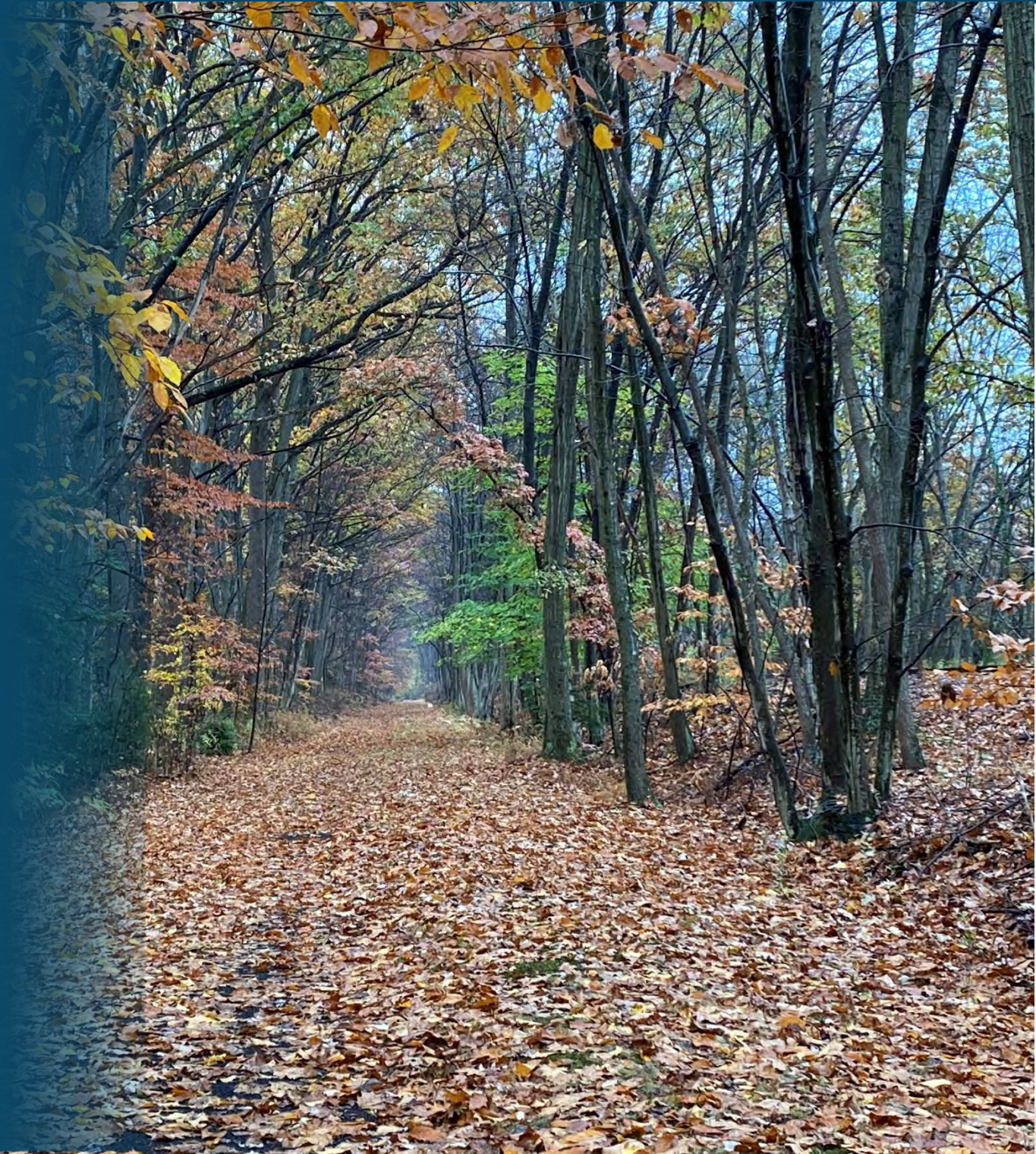
Figure 55: UGI Gate Station near Anthracite Road



Other utilities such as lighting, telephone, cable/ fiber, water, electric, sanitary and storm sewers can be expected within any public right-of-way. Further utility exploration will be necessary where the potential trail corridor intersects major roadway crossing and roadway sections in the City of Shamokin and the Borough of Mount Carmel.



Legal Feasibility





Legal Feasibility

Because of the length of the trail, the corridor crosses many residential, commercial and industrial property parcels. Property ownership for any impacted parcels must be established early during any future design phases. This Master Plan did not evaluate individual property ownership due to the large number of parcels and the variability of the final routing.

The trail will require the use of public right-of-ways, public roadways, negotiated easements and/or property purchase with private landowners. Confirming legal feasibility for this portion of the trail is out of the scope of work for this Master Plan. Development of the trail will require a multi-year implementation process. Property ownership should be considered when establishing an implementation phasing plan. While this study did not do any detailed property ownership research, the Master Plan does provide the preferred rail alignment and therefore identifies the parcels and landowners where easements or property purchases would need to be acquired.

Legal Research

The study team acquired property ownership data from Northumberland County Tax Parcel records. The area studied included over 113 parcels with 66 individual parcel owners. These records were used through the study process for ownership and public outreach efforts. The study did not conduct detailed deed research.

Right-of-Way Acquisition

Using public data available on record, the information collected for the parcels along the proposed alignment provides a current picture of the status of ownership. A number of the parcels the proposed trail alignment utilizes are publicly owned properties or properties owned by the AOAA. In addition, some additional parcels are privately owned, therefore may be necessary to pursue easements or purchases where right-of-way is not currently acquired. If easements are to be obtained, the following well-

established methods are available to obtain the land needed for the project.

Easements

One of the least costly and most effective methods for acquiring the legal permission for the trail to cross a property is through a permanent easement agreement. This easement agreement entails a legal document that modifies the property owner's deed to allow the use of a portion of their property for the construction of the trail and permanent use of the area by trail users. Typically, the County or other agency would be responsible for maintenance and liability issues related to the trail within the easement.

Lease Agreement

This type of document is similar to an easement except that a specific time frame is stipulated in the agreement for use of the area for the trail. Some private property owners may have long range plans for their properties and may not want to have a permanent easement attached to their deed. However, these agreements are usually formed for relatively long time periods such as 10-20 years or more, are typically renewable and can function just as well as permanent easements.

Fee Simple Purchase

Although a more costly alternative and potentially time-consuming method, a fee simple purchase is the outright purchase of portions of property from owners. If easements or other agreements cannot be formed, the County can negotiate a land purchase with a property owner for the trail. This process can often be complicated by disagreements over property appraisals, questions of property ownership, the need for right-of-way plans and modifications to deeds. However, this process is commonly used on transportation projects and could be used for trail projects as well.

Rerouting

All adjacent private property owners should be notified of the project phases and their concerns understood prior to the design of each phase. If adjacent landowners do not approve of easements or purchase agreements

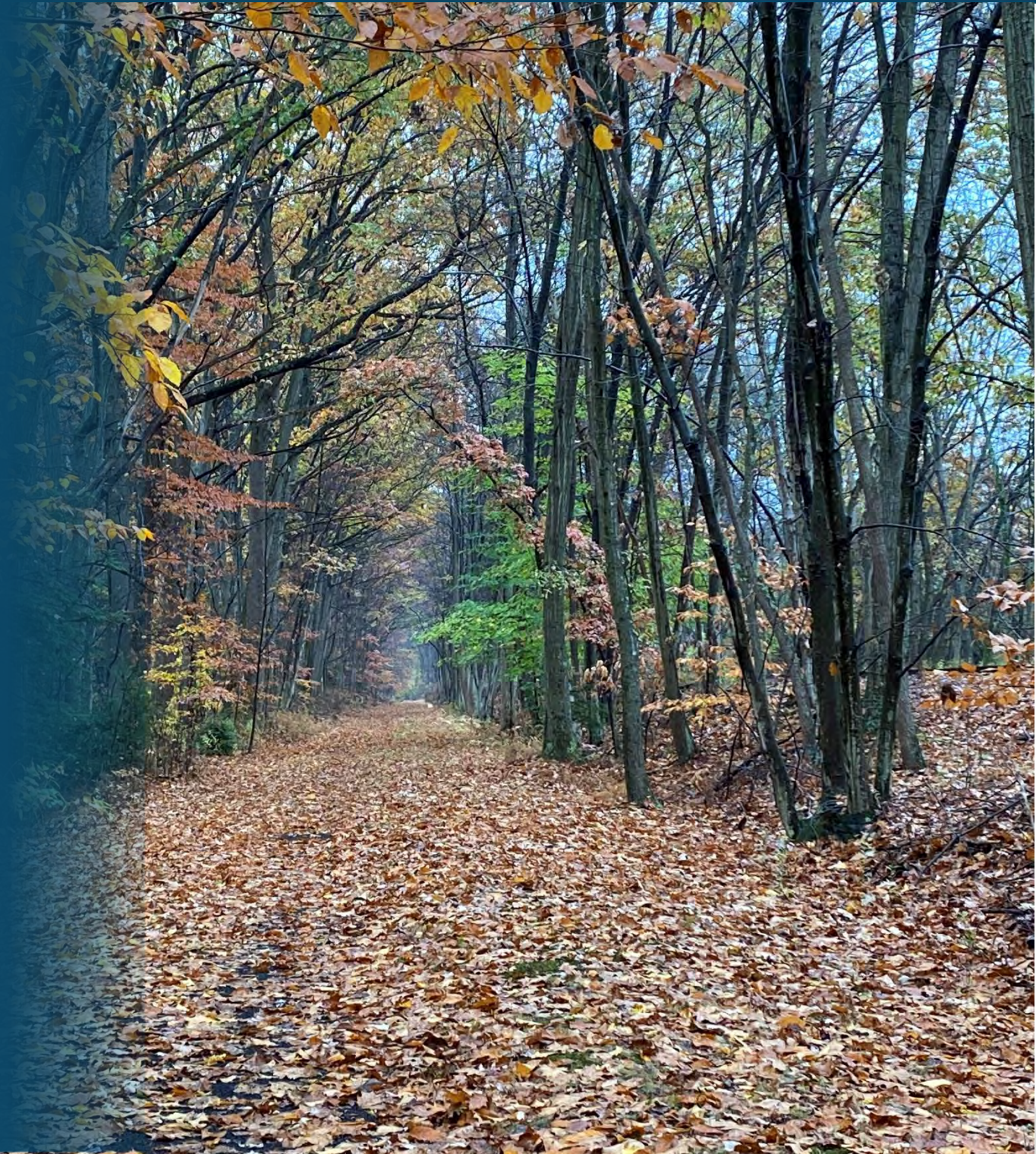


and no other accommodations can be made, the alignment must be rerouted to a more feasible location.

During the public meetings, a suggestion was made to hold individual meetings with landowners, as an educational opportunity and to discuss concerns, as well as a meeting with other private property owners in the nearby vicinity who would be open to making land available if rerouting should take place.



Development Alternatives





Development Alternatives

Segment Opportunities

Constructing the Northumberland County Non-Motorized Rail Trail is a long-term endeavor that will require the proper alignment of political will, local and external funding, rights-of-way and easements, and community support. The 35-mile length of the corridor allows for ample opportunity to design and construct the rail trail in multiple phases and segments as they meet the above requirements.

Findings from the stakeholder and public outreach, land use analysis, and technical inventory, support three distinct segments of the trail in which phasing design and construction would be most feasible.

- **Segment 1:** The City of Sunbury to Snyderstown Borough
- **Segment 2:** Snyderstown Borough to Paxinos
- **Segment 3:** Paxinos to the City of Shamokin
- **Segment 4:** The City of Shamokin
- **Segment 5:** The City of Shamokin to Mount Carmel Borough

In order to maximize the impact of the Northumberland County Non-Motorized Rail Trail's growth and development over time, each segment includes opportunities and constraints that must be considered as part of the implementation process and will ultimately determine the phasing of trail development. As funding is available or opportunities change, the development and sequence in which the trail is constructed will be determined. Therefore, the segments listed above do not necessarily need to occur in a sequential order and associated gaps will be filled as properties are negotiated and as money is available.



Segment 1: The City of Sunbury to Snyderstown Borough

Segment 1 of the trail traverses 8 miles of a rural landscape, connecting the City of Sunbury to Main Street in Snyderstown Borough.

A subsegment (Segment 1a) is also included based on interest expressed by the City of Sunbury. This subsegment would extend the trail westward into the city, connecting to the Riverfront Trail. An additional extension will traverse the Susquehanna River north to Shikellamy State Park.

Potential Trailheads/Rest Areas:

- Hamilton Field in Sunbury

Distance: 8 Miles



OPPORTUNITIES

- Rail bed is largely intact
- Structures along alignment are intact, will need rehabilitation
- No significant environmental constraints
- Minor constructability challenges
- Community support

CHALLENGES

- Ownership concerns
- Hunting restrictions and safety concerns



Segment 2: Snyderstown Borough to Paxinos

Similar to Segment 1, Segment 2 traverses 8 miles of a rural landscape to the intersegment of State Route 61 and State Route 487 in Paxinos.

Potential Trailheads/Rest Areas:

- Along Main Street in Snyderstown

Distance: 8 Miles



OPPORTUNITIES

- Rail bed is largely intact
- Structures along alignment are intact, will need rehabilitation
- No significant environmental constraints
- Minor constructability challenges

CHALLENGES

- Public feedback
- Security concerns
- Revising intersection configuration/safety concerns at State Routes 61 & 487 signalized intersection



Segment 3: Paxinos to the City of Shamokin

Segment 3 of the trail traverses 6 miles south to the State Route 225 and State Route 61 in the City of Shamokin.

Potential Trailheads/Rest Areas:

- Paxinos

Distance: 6.3 Miles



OPPORTUNITIES

- No significant environmental constraints
- Amenities and historic features along corridor

CHALLENGES

- Public feedback
- Alignments within close proximity to residences
- Security concerns
- Intersection of State Route 61 and State Route 225 will require extensive accommodations



Segment 4: The City of Shamokin

Segment 2 is comprised of mostly on-road trail through the City of Shamokin. The segment begins to the south of the intersegment of State Route 225 and State Route 61 and ends just east of Water Street. A potential alternative route (1.3 miles) was identified in the southern portion of the City into AOAA owned property, although this alternative is least desirable due to ATV usage and safety concerns.

Potential Trailheads/Rest Areas:

- Claude Kehler Community Park

Distance: 1.7 Miles



OPPORTUNITIES

- Maintenance currently administered by the City
- Political, municipal, and public support
- Established and maintained trail head with public restrooms
- Alignment on-road
- No construction concerns
- No significant environmental constraints

CHALLENGES

- Trail user and vehicular conflict concerns



Segment 5: The City of Shamokin to Mount Carmel Borough

Segment 5 connects the City of Shamokin to the Borough of Mount Carmel. A large portion of this segment is located in wooded areas along the former railroad bed. The alternative route noted above (5 miles), traverses through AOAA owned property before crossing State Route 901 and joining with preferred alignment.

Potential Trailheads/Rest Areas:

- Mount Carmel Swimming Pool
- Excelsior
- Big Mountain

Distance: 11.2 Miles



OPPORTUNITIES

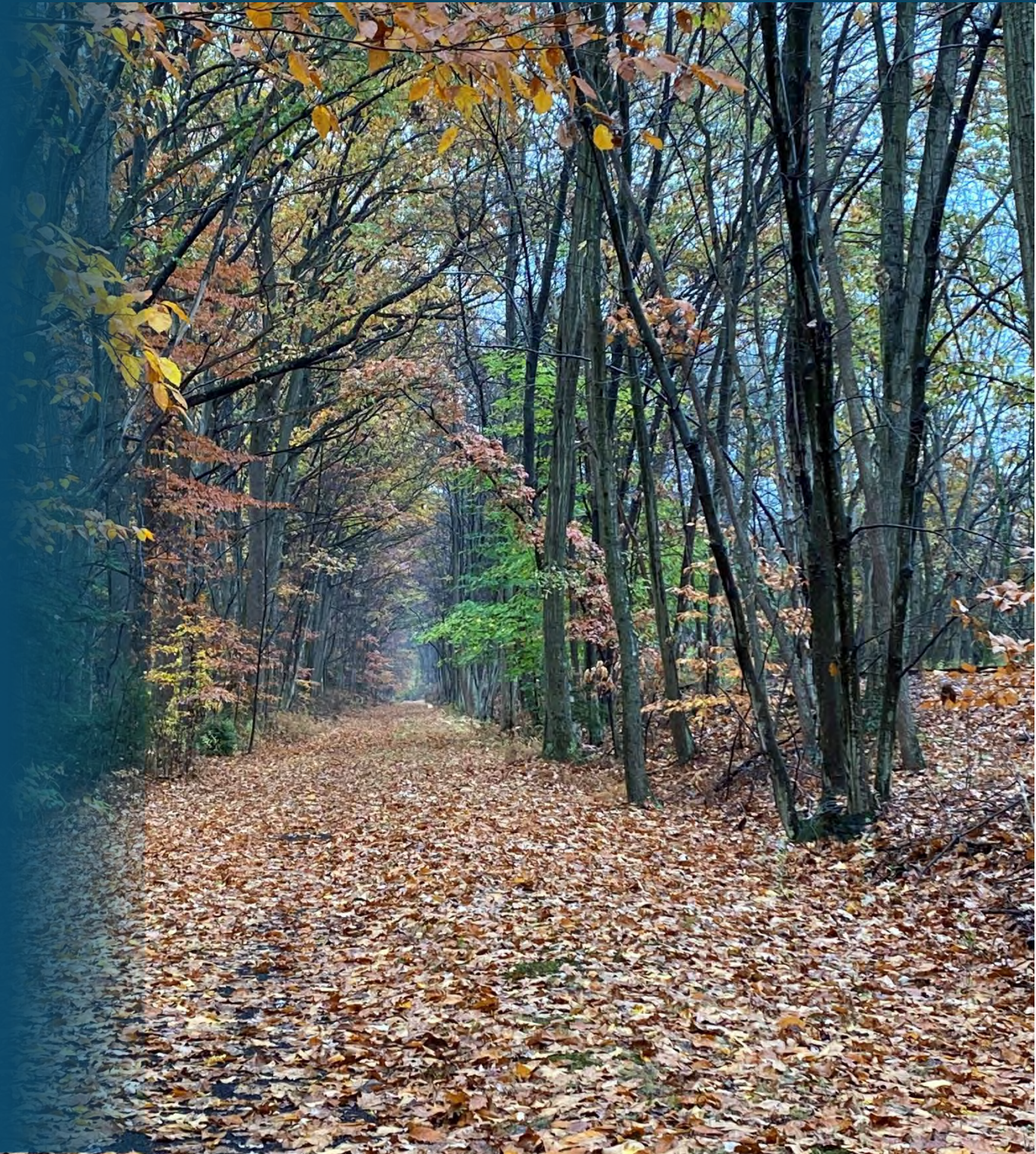
- Maintenance currently administered within the Borough
- Political, municipal, and public support
- Scenic trail experience
- Limited residential properties - large parcels

CHALLENGES

- Private landowners - right of way impacts
- Constructability challenges to establish trail bed and alignment
- Potential environmental permitting constraints
- Illegal ATV use
- Remote trail segments – long distances between rest facilities
- Potential industrial truck and trail user conflicts



Financial Feasibility





Financial Feasibility

Cost Estimates

The below costs are **planning level cost estimates only**. Once final trail alignment is agreed upon by AOAA and the County with property owners and other stakeholders more detail cost estimates will be needed before a true construction cost can be quantified. Segment opportunities and phasing is discussed in more detail below.

Table 9: Planning Level Cost Estimates

Section	Section Extent	Cost Estimate*
Segment 1: City of Sunbury to Snydertown Borough	Trail Construction	\$2,231,000
	Bridge 1	\$230,484
	Bridge 2	\$544,459
	Bridge 3	\$169,612
Segment 2: Snydertown Borough to Paxinos	Trail Construction	\$2,013,000
	Bridge 4	\$158,707
	Intersection 1: SR 61 & SR 487/Main Street Paxinos	\$1,600,000
Segment 3: Paxinos to the City of Shamokin	Trail Construction	\$1,646,000
	Intersection 2: SR 61 & SR 225/2nd Street	\$1,200,000
Segment 4: City of Shamokin	Trail Construction	\$19,000
	Sidepath Concept: 2nd Street/3rd Street	\$725,000
Segment 5: City of Shamokin to Mount Carmel Borough	Trail Construction	\$3,176,000
	Intersection 3: SR 901 & Upper Excelsior Road/Upper Main Street	\$559,800

*Note: Cost estimates do not include any right-of-way purchases nor utility relocation costs.

Funding

There are numerous opportunities for implementation funding for trail initiatives. Due to the costs associated with full development, it is likely the Northumberland County Non-Motorized Rail Trail will need to secure funding from multiple sources at the federal, state, local, and private levels. Below are sources of state and federal funding that could potentially be utilized:

Table 10: Funding Programs

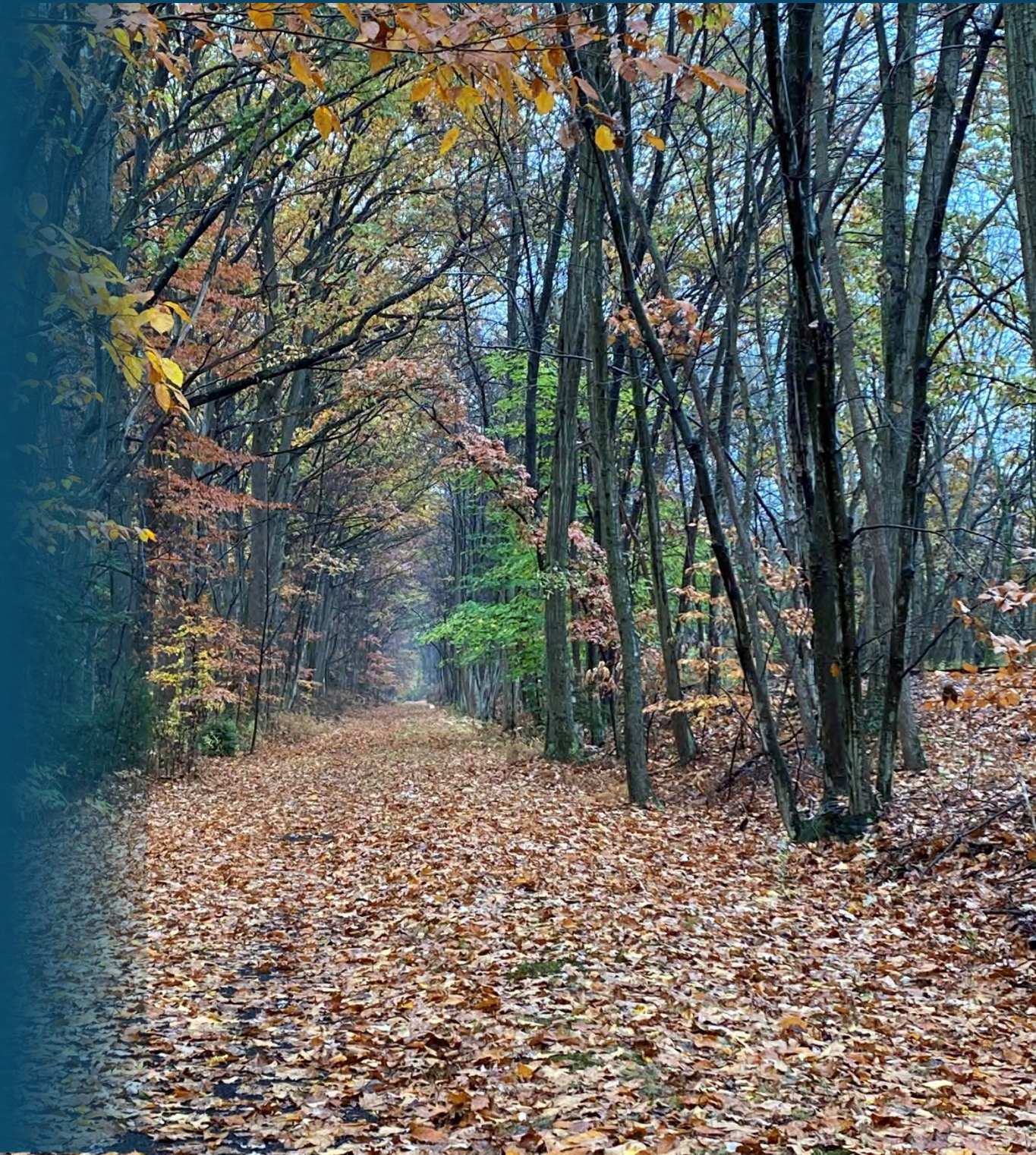
Program	Description	Source
Transportation Alternatives Set-Aside (TASA)	Provides funding for projects and activities defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, environmental mitigation, trails that serve a transportation purpose, and safe routes to school projects.	PennDOT
Greenways, Trails and Recreation Program (GTRP)	Act 13 of 2012 establishes the Marcellus Legacy Fund and allocates funds to the Commonwealth Financing Authority for planning, acquisition, development, rehabilitation and repair of greenways, recreational trails, open space, parks and beautification projects using the GTRP.	DCED
Multimodal Transportation Fund	Provides grants to encourage economic development and ensure that a safe and reliable system of	DCED



	transportation is available to the residents of the commonwealth.	
Multimodal Transportation Fund (MTF)	Act 89 established a dedicated Multimodal Transportation Fund that stabilizes funding for ports and rail freight, increases aviation investments, establishes dedicated funding for bicycle and pedestrian improvements, and allows targeted funding for priority investments in any mode.	PennDOT
Rivers, Trails and Conservation Assistance Program (NPS-RTCA)	The program will assist communities in evolving climate resiliency strategies, developing or restoring parks, conservation areas, rivers, and wildlife habitats, as well as creating outdoor recreation opportunities and programs that engage future generations in the outdoors.	National Parks Service
Community Conservation Partnerships Program (C2P2)	DCNR's goal is to have a trail within 15 minutes of every Pennsylvania citizen. DCNR's Bureau of Recreation and Conservation provides grants to support the enhancement and expansion of non-motorized and motorized trails to meet this goal.	PA DCNR



*Long-Term
Operations and
Maintenance*





Long-Term Operations and Maintenance

Operations

The long-term success of the Northumberland County Non-Motorized Rail Trail will require an effective ownership and maintenance structure. Given the length of the rail trail, and the number of municipalities through which the rail trail alignment passes, stakeholders will need to consider the best option(s) for ownership and maintenance. A few options include:

- Owned and operated by the County
- Owned and operated by AOAA
- Independent rail trail County authority that would include representatives from each of the municipalities

Maintenance

The Master Plan process included a brief look into the maintenance capabilities of the AOAA and study area municipalities. The intent was to better understand the capabilities that already exist, and to identify additional maintenance needs the proposed rail trail would require. This effort was not intended to identify a maintenance sponsor for the rail trail corridor at this stage.

Coordination with the municipalities was still ongoing at the time of study development; however through discussions held during the municipal interviews, it was determined that most municipalities along the corridor do not have the maintenance capabilities required to manage and maintain the rail trail. It was noted that most municipalities would be willing to provide support when resources are available, and capacity allowed.

Costs associated with maintenance annually can range from approximately \$2,000 to \$10,000 per mile. Some of these anticipated efforts may include:

- Trail Surface (Paved) – sealcoating and pavement repairs every 10-12 years

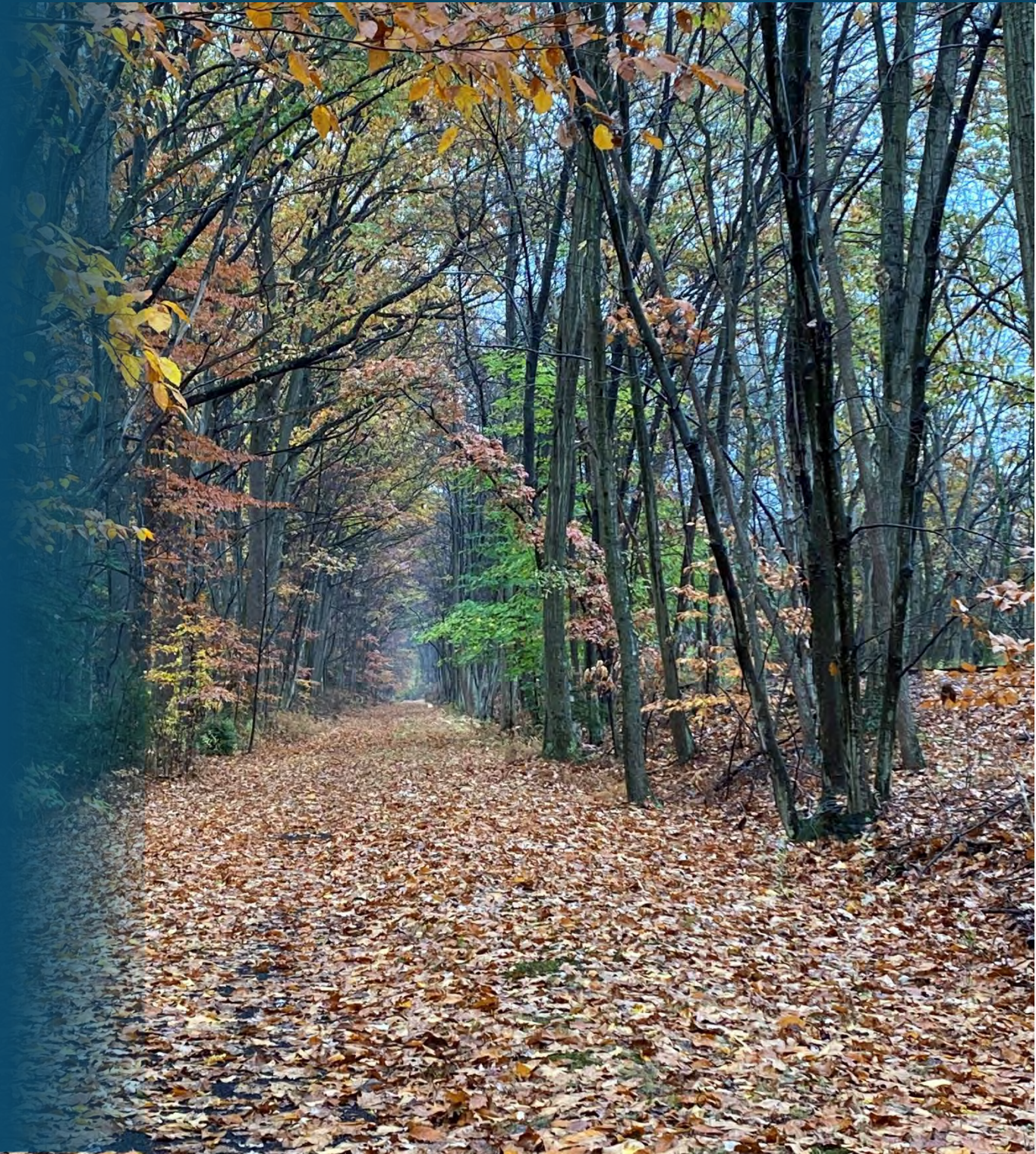
- Trail Surface (Crushed Stone) – regrading annually / periodic repairs from storms
- Bridges – inspected every two years by a certified professional as required by Federal Highway Administration (FHWA)
- Drainage structures- cleaned annually / periodic repairs from storms
- Mowing of trailside areas- minimum of 4 times / year
- Tree Trimming – annually
- Litter Pickup/Trash Collection – biweekly and as needed
- Signage/Gates/Bollards – repair/replace as required

Figure 56: Pine Creek Rail Trail Crushed Stone Surface & Vegetation





Summary





Summary

The Northumberland County Non-Motorized Rail Trail represents a significant opportunity for Northumberland County to provide an exciting recreational and transportation amenity that benefits both local residents and regional trail users. The envisioned rail trail offers:

- Non-motorized recreation opportunities
- Quality of life and healthy lifestyle enhancements
- Economic revitalization opportunity
- Recreational Safety improvements

Potential challenges were addressed with mitigation options as part of this Master Plan. Some of these challenges include:

- Securing property access for the trail corridor
- Ownership and liability concerns among adjacent landowners
- Privacy and personal safety concerns
- Roadway intersections
- Bridge repairs and design considerations

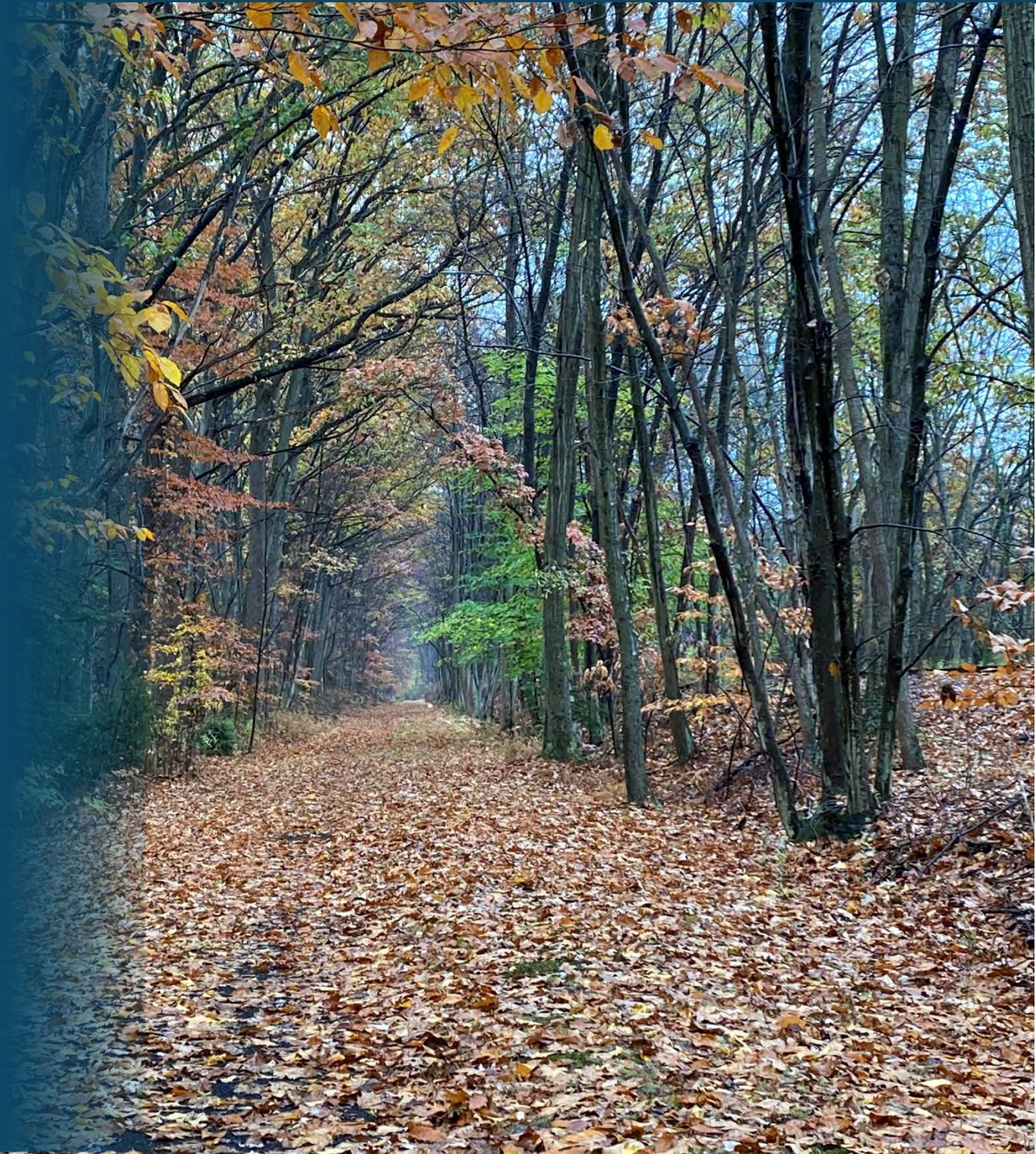
This Master Plan developed a planning-level alignment for the proposed rail trail, identified possible trailhead locations, structural and safety improvements, and amenities along the corridor. Alternatives and improvements from this study can be used to guide the future design and construction efforts of the Northumberland County Non-Motorized Rail Trail corridor when funding is obtained. The Master Plan also included planning level cost estimates for construction. As the property access is negotiated and phasing of the project is refined, more detailed cost estimates will be required to finalize the financial need for trail construction.

Project success will hinge upon the successful mitigation of each of the challenges laid out in this document, as well as successful negotiation and acquisition of land that comprises the rail trail alignment. The county or

operating entity should continue outreach and education to the community and have thorough discussion with adjacent landowners within each municipality.

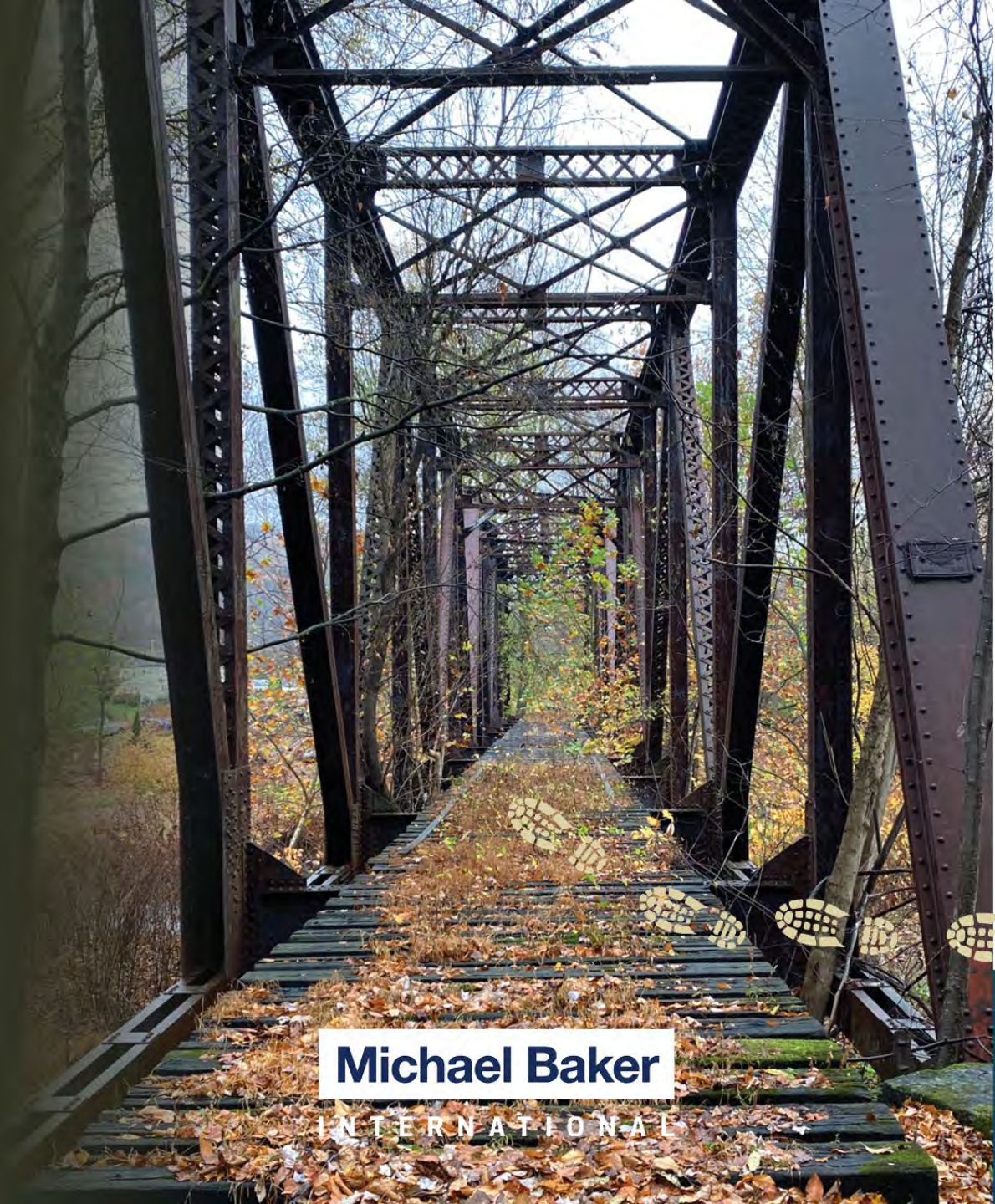


Appendices





Appendix A:
Public Meeting Presentation



Welcome

Northumberland County Rail Trail Master Planning

Public Meeting

October 27, 2021

Open House **5:00-6:30 PM**

Presentation & Q/A **5:30 PM**

Michael Baker
INTERNATIONAL



Welcome and Introductions



Jim Backes

Anthracite Outdoor Adventure Area
Authority (AOAA)
Chairman

Steven Barber, P.E.

Michael Baker International
Project Manager

Purpose and Agenda



Purpose

To provide information on the Master Plan and gather citizen input regarding the proposed Northumberland County Rail Trail from Sunbury to Mount Carmel.



Agenda

Master Plan Process
Proposed Rail Trail
Public Engagement Process Research
Draft Concept Plan
Your Feedback and Next Steps

Housekeeping

- All comments & questions are being accepted in the Comment Box (These will be recorded and responses to questions will be made available following this meeting)
- This presentation will be made available online following the meeting at:
www.norrycopa.net/index.php/planning
www.aoatrails.com/news/northumberland-rail-trail
- Written comments are also being accepted through November 30 via email or in writing to:

Justin Skavery, Planning Coordinator
Northumberland County
399 Stadium Drive
Sunbury, PA 17801
justin.skavery@norrycopa.net

Master Plan

Process



Partners and Process

Partners and Project Team

- PA Department of Conservation and Natural Resources
- Northumberland County
- The AOAA Authority
- Michael Baker International



The AOAA Authority is a municipal public authority created to provide recreation in Northumberland County.

What a Master Plan *is*:

- A visionary document
- Community feedback
- Demographic research
- Potential uses
- Corridor alignment *options*
- Environmental scoping
- Partner capacity and support
- Management alternatives

What a Master Plan is *not*:

- Does not provide design and engineering
- Does not start construction
- Does not provide the final trail alignment, subject to change
- Does not specify implementation phasing

Property Ownership Concerns

- **Approach to Concerns**

- The AOAA Authority has hired a title researcher and is reviewing the deeds of 3 parcels. The 3 parcels contain 75 acres and comprise the rail trail from the Sunbury to Paxinos area.
- The remaining proposed trail will require:
 - Public roadways
 - Negotiated easements
 - Property purchases



Act 98 of 2018: PA Recreational Liability Law

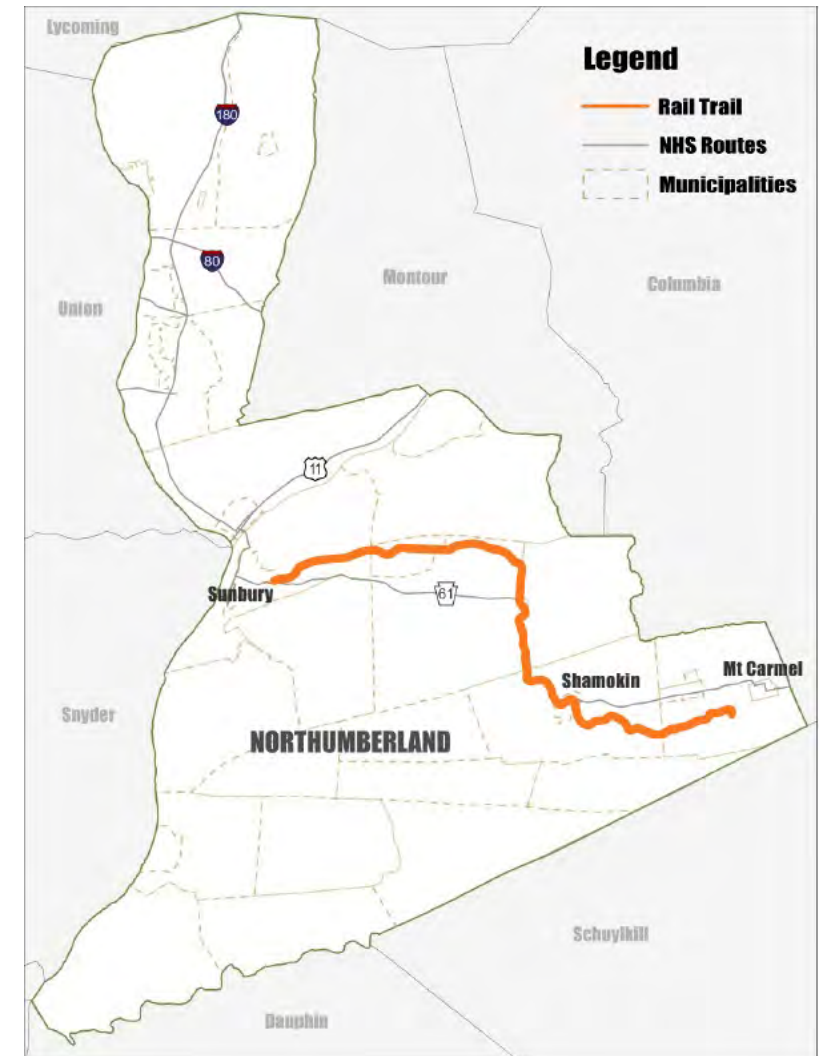
Protects owners of land from liability when they make land and water areas available to the public for recreational purposes.

Proposed Rail Trail



Location

- **36-mile trail along the former Philadelphia & Reading Railroad**
- **Connect Sunbury to Mount Carmel**
 - Sunbury City
 - Upper Augusta Township
 - Borough of Snyderstown
 - Shamokin Township
 - Coal Township
 - Shamokin City
 - Mount Carmel Township
 - Mount Carmel Borough



Non-Motorized Uses Only

(no ATVs, no dirt bikes, no vehicles)

Daily Uses

- Walking
- Jogging
- Wheelchairs/strollers
- Bicycling (and e-bikes)
- Cross country running
- Cross country skiing
- Other non-motorized recreation

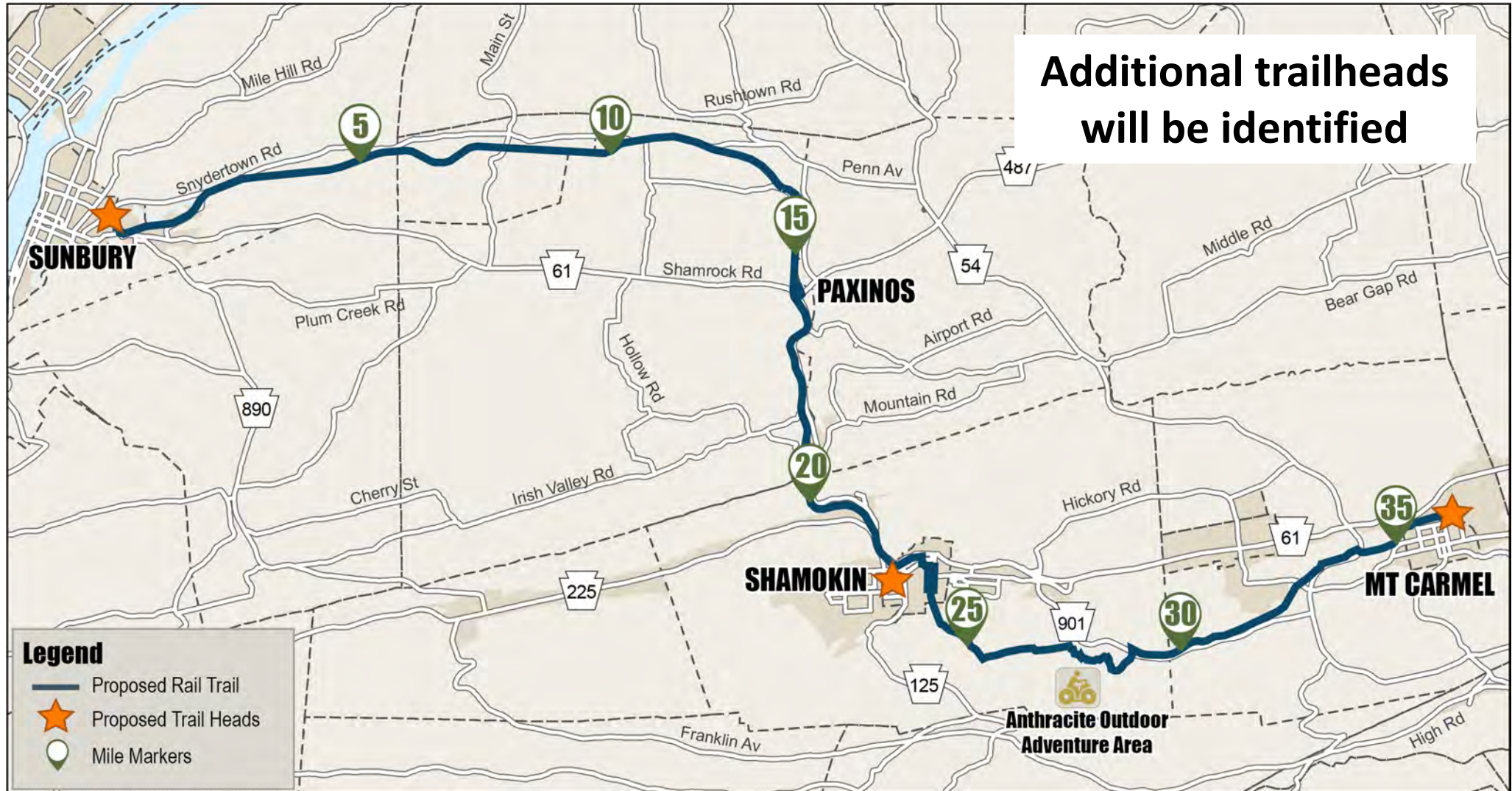
Special Events

- Races
- Fundraisers
- Group fitness



The Rail Trail
will be **FREE** –
No Fees!

Trailheads and Mile Markers



Illustrative Rendering – Sunbury Trailhead

Before



After



Illustrative only; The parcel is owned by Sunbury Municipal Authority and would require approval/coordination to utilize as a trailhead.

Illustrative Rendering – Sunbury Trailhead

Before



After



Public Engagement Process



1. Steering Committee

- **Broad community representation of Study Area**
 - 26-person committee
 - 16 organizations
- **Guidance and feedback throughout planning process**
- **Support community engagement**

LOCAL MUNICIPALITIES		
City of Sunbury	Shamokin Township	City of Shamokin
Upper Augusta Township	Ralpho Township	Mount Carmel Township
Borough of Snyderstown	Coal Township	Mount Carmel Borough

REGIONAL STAKEHOLDERS	STATE LEGISLATIVE DELEGATION	LEAD ORGANIZATIONS
Shikellamy School District	Representative Masser, 107th Legislative District	Anthracite Outdoor Adventure Area
Northumberland Co. Conservation District	Representative Culver, 108th Legislative District	Northumberland County
SEDA-COG		

2. Community Focus Groups

- **3 Sessions**
- **15 Participating Organizations**
- **Community Input**
 - Need and desires
 - Concerns
 - Trail design
 - Trail users
 - Connections

PARTICIPATING ORGANIZATIONS
Covered Bridge Brewhouse and Taproom
Mount Carmel Downtown Inc
Shamokin Area School District
Shamokin Township
Snydertown Borough
The Northumberland County Council For The Arts & Humanities
Geisinger Shamokin Area Community Hospital
Greater Susquehanna Valley Chamber of Commerce
Susquehanna Greenway Partnership
Susquehanna Valley Visitor Bureau
City of Sunbury
Shamokin Creek Restoration Alliance
Mount Carmel Borough
SABER - Shamokin Area Businesses for Economic Revitalization
Susquehanna Valley Visitor Bureau

3. Municipal Interviews

- **8 Municipal Interviews**
- **Community Input**
 - Community desires and concerns
 - Alignment/route alternatives
 - Trailhead locations (3 identified)
 - Intersections and physical barriers



4. Public Meetings and Online Survey

- **2 Public Meetings**
 - October 27 in Sunbury
 - October 28 in Shamokin
- **Online Community Survey**
 - Open through November 5
 - 700+ participants to date



JOINUS!

PUBLIC MEETINGS

Northumberland County Rail Trail

PUBLIC MEETING #1
When: Wednesday, October 27, 2021
from 5:00pm – 6:30pm
Attend In-Person: Northumberland County Administration Center
399 Stadium Drive, Sunbury, PA 17801

PUBLIC MEETING #2
When: Thursday, October 28, 2021
from 5:00pm – 6:30pm
Attend In-Person: County Career and Arts Center
2 East Arch Street, Shamokin, PA 17872

ONLINE SURVEY
Open Now Through November 5, 2021
www.surveymonkey.com/r/northumberlandrailtrail



ABOUT THE RAIL TRAIL
The Northumberland County Rail Trail Master Plan is a public process to determine the feasibility of creating a **non-motorized** trail along the former Philadelphia and Reading railroad in Northumberland County. The Rail Trail will connect the City of Sunbury with Mount Carmel Borough, traveling 36-miles through the communities of:

Market Research



Purpose and Need – Focus Group Findings

- **Advance recreation** in Northumberland County and make the community a more attractive location for residents
- **Improve interconnectivity** between municipalities through active transportation
- **Promote health and wellness** by increasing access to physical activity
- **Generate economic development** in the local towns by increasing foot-traffic and tourism



Purpose and Need – Focus Group Findings

Latent demand for bike/ped infrastructure

- Sunbury and Shamokin are both walkable, but walkability scores are low between towns
- Limited off-road walking/biking amenities (Weiser State Forest and AOAA 3-mile trail)
- On-road infrastructure primarily serves higher-skilled users

Investing in Health and Wellness*

- The county reports lower levels of physical activity than at the state and national levels
- Sedentary lifestyles in the county are contributing to chronic health conditions (diabetes, obesity)
- Identified need to provide healthy options and improve access to physical activities

COMMUNITY HEALTH NEEDS ASSESSMENT

GEISINGER MEDICAL CENTER
GEISINGER-HEALTH SOUTH REHABILITATION HOSPITAL
GEISINGER-SHAMOKIN AREA COMMUNITY HOSPITAL

May 22, 2015

**Source: Geisinger Community Health Needs Assessment, 2015*

Estimated Demand

Study Area is Home to:

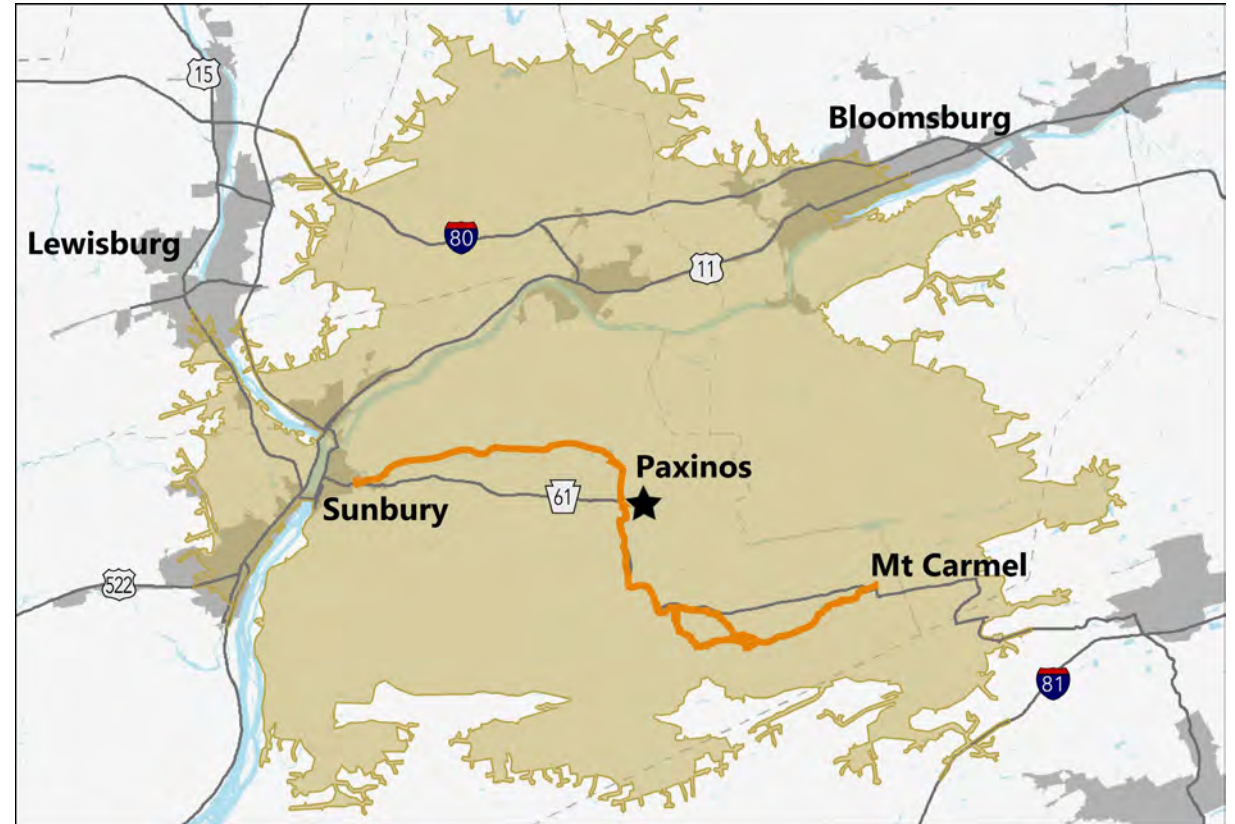
- 40,222 residents
- 44% of county population

Estimated Demand*

- Annual Trips: 105,659
- Weekly Trips: 2,032

*Demand calculations based on actual 2019 trail counts from the Buffalo Valley Rail Trail.
Extrapolated for population within a 30-minute drive-time from the center of the trail.*

30-Minute Drive Time From Paxinos



Draft Concept Plan



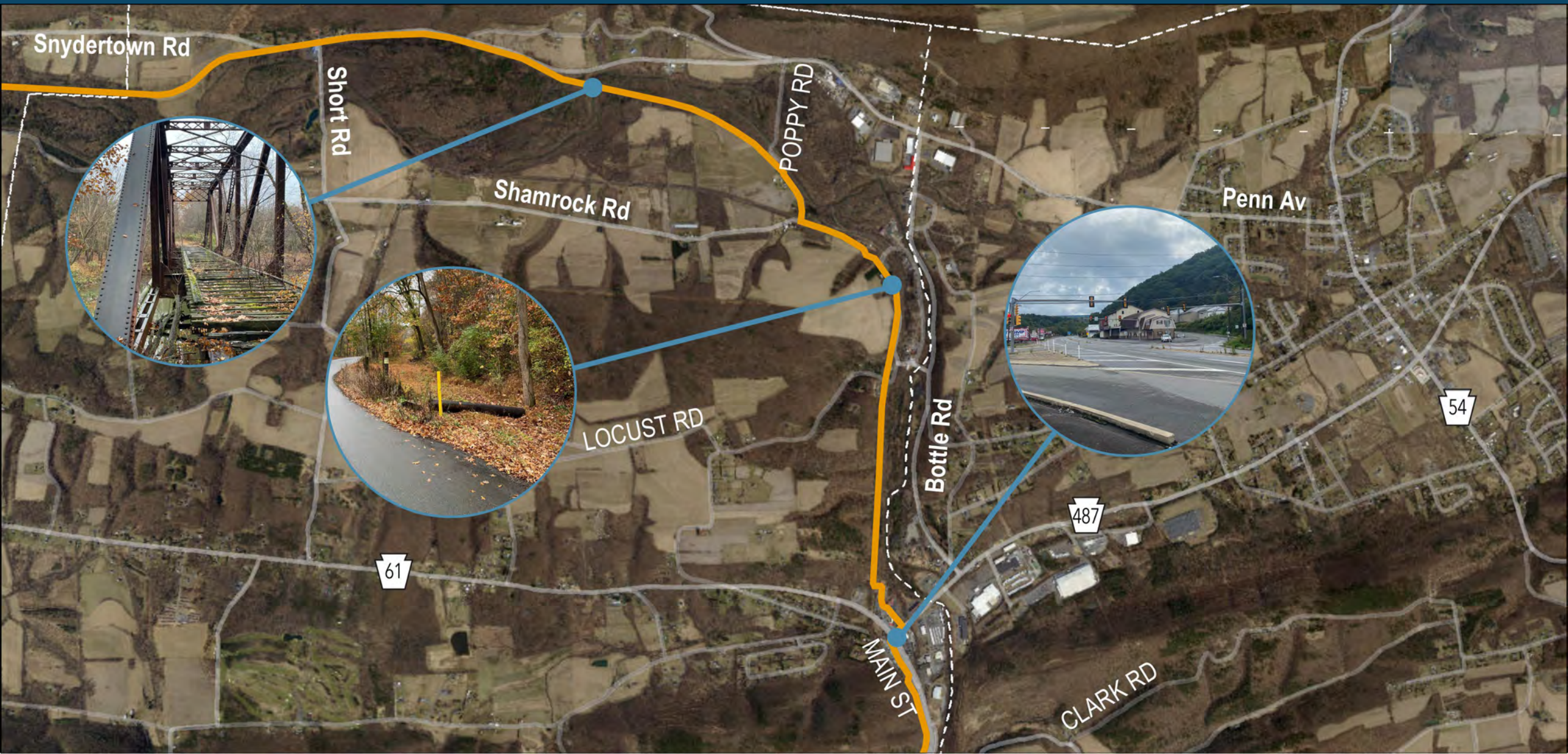
Trail Alignment – Sunbury & Upper Augusta Township



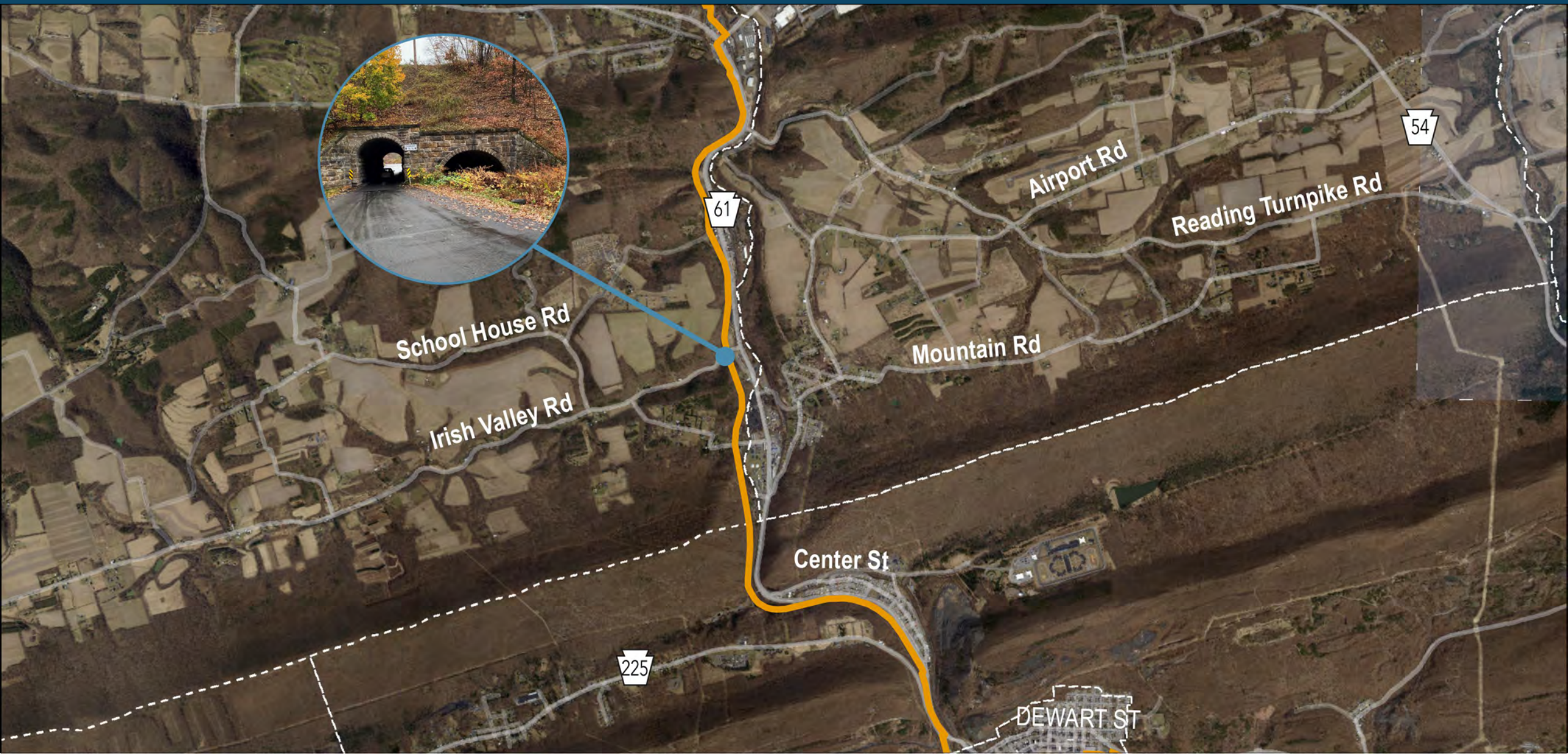
Trail Alignment – Snyderstown Borough



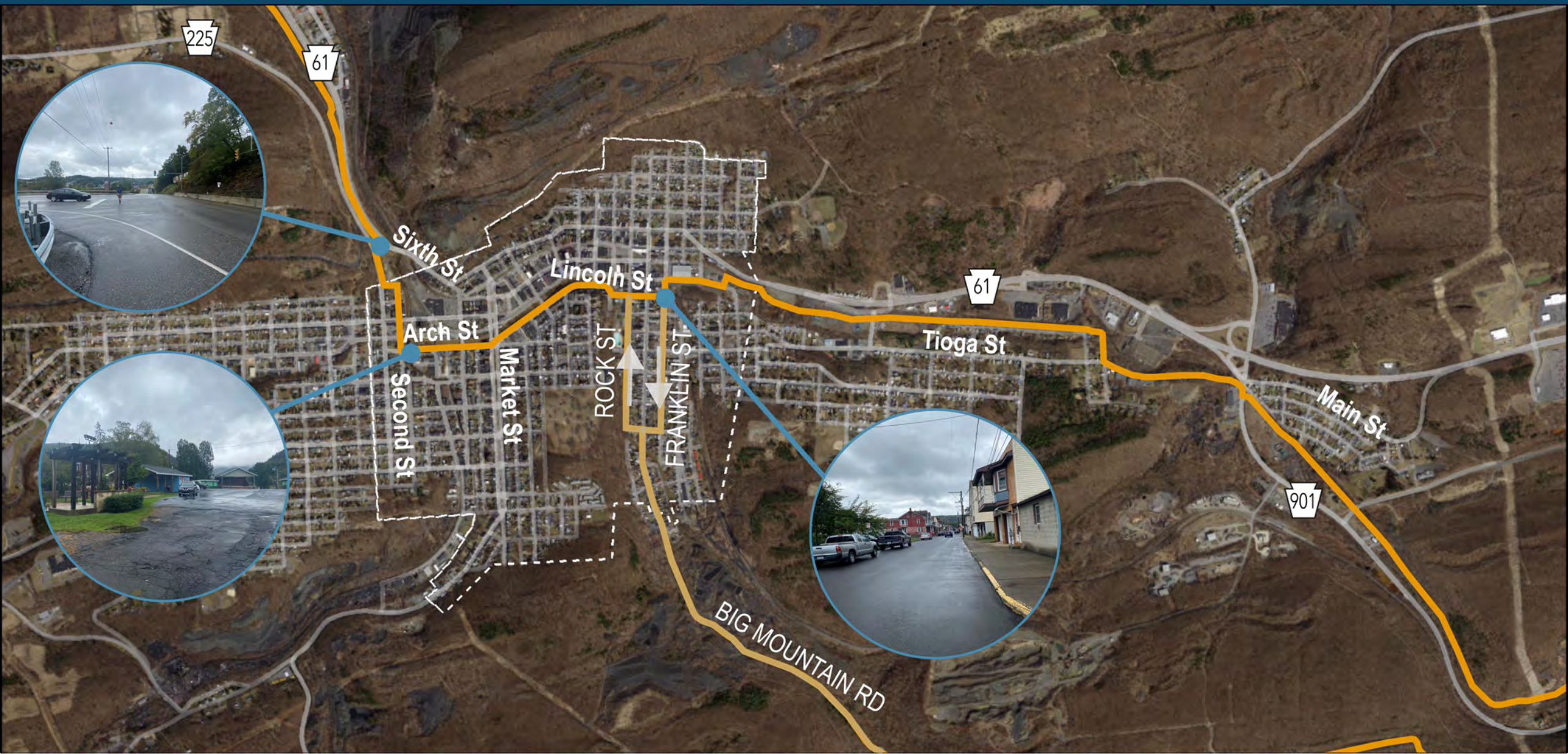
Trail Alignment – Shamokin Township



Trail Alignment – Shamokin Township



Trail Alignment – City of Shamokin



Trail Alignment – Coal Township to Mt Carmel Township

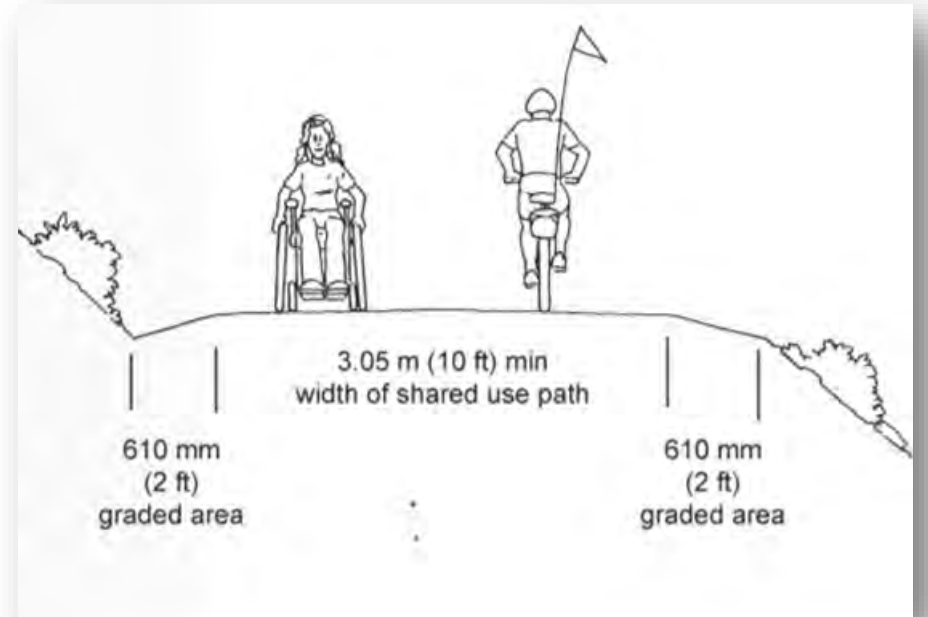


Trail Alignment – Mt Carmel Borough



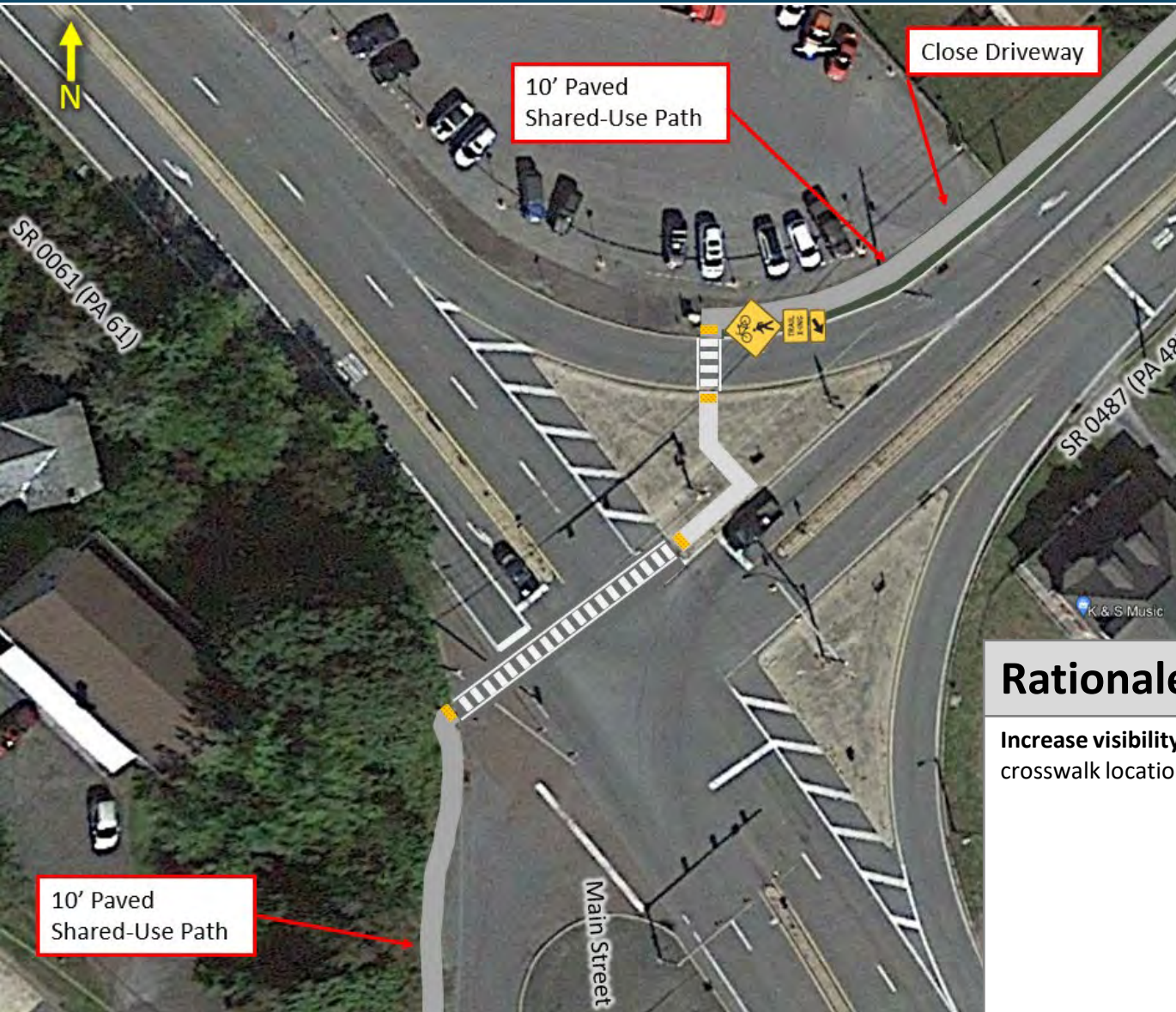
Trail Design


- **Trail Length:** 36 miles (Sunbury to Mount Carmel Borough)
- **Trail Specifications:** 10-foot wide with graded shoulders
- **Crushed Stone Surface:** 33.8 miles
- **On-Road Trail:** 2.2 miles



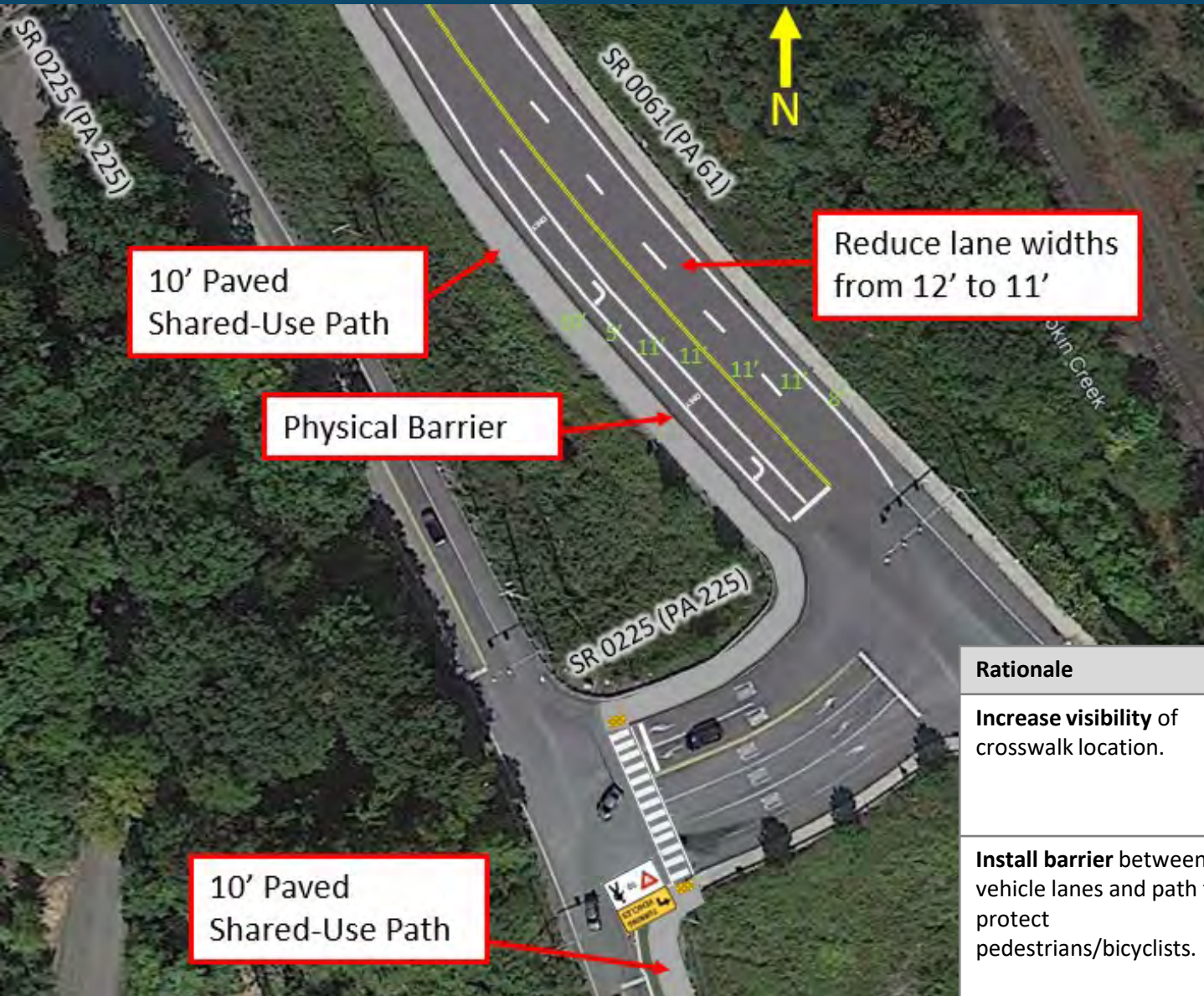
- **# of Roadway Crossings:** 16 road crossings with 4 primary intersections of concern
 - Paxinos, SR 61 & SR 487 Crossing
 - Cameron Bridge, SR 225 & SR 61
 - Route through Shamokin
 - Excelsior, Upper/Lower Excelsior Rd & SR 901
- **# of Structures:**
 - 5 Bridges inspected between City of Sunbury and Shamokin Township

SR 61 & SR 487/Main St.



Rationale	Feature	Example
<p>Increase visibility of crosswalk location.</p>	<p>Crosswalk Markings</p> <ul style="list-style-type: none"> Continental, Zebra, or Ladder <p>Crosswalk Signage on Channelized Right Turn:</p> <ul style="list-style-type: none"> Combined Bike/Ped Warning Signs (W11-15) Trail X-ING Plaques (W11-15P) Diagonal Downward Pointing Arrow Plaques (W16-7P) Install Pedestrian Signals and Push-Buttons Leading Pedestrian Interval 	

SR 61 & SR 225



10' Paved Shared-Use Path

Physical Barrier

Reduce lane widths from 12' to 11'

10' Paved Shared-Use Path

Rationale	Feature	Example
Increase visibility of crosswalk location.	Crosswalk Markings <ul style="list-style-type: none"> Continental, Zebra, or Ladder 	
Install barrier between vehicle lanes and path to protect pedestrians/bicyclists.	Concrete Barrier <ul style="list-style-type: none"> Constructing concrete barrier along SR 0061 and SR 0225 to prevent path users from making undesirable movements, to reinforce the path is an independent facility, and to separate vehicles from path users 	

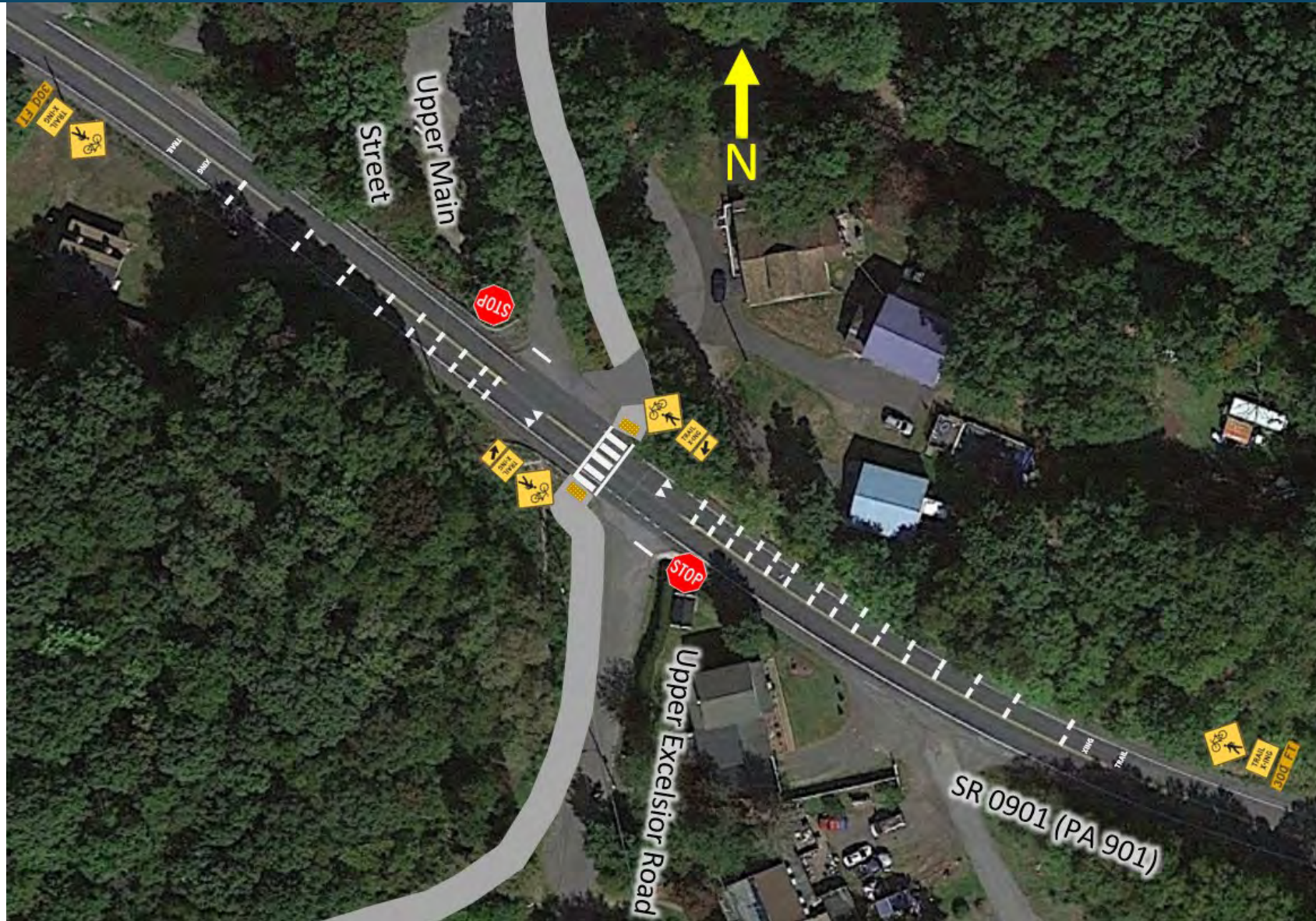
2nd St./3rd St. Sidepaths



Rationale	Feature	Example
<p>Install barrier between vehicle lanes and path to protect pedestrians/bicyclists.</p>	<p>Concrete Barrier</p> <ul style="list-style-type: none"> Constructing concrete barrier along roadway to prevent path users from making undesirable movements, to reinforce the path is an independent facility, and to separate vehicles from path users 	



SR 901 & Upper Excelsior Rd.



Your Feedback and Next Steps



Your Feedback and Next Steps

- Collect and incorporate public comments
- Finalize proposed alignment
- Finalize structures, intersections, and environmental analyses
- Estimate construction costs
- Finalize recommendations with Steering Committee

Thank You.



Comments or Concerns? Please send to:

Justin Skavery, Planning Coordinator

Northumberland County

399 Stadium Drive, Sunbury, PA 17801

justin.skavery@norrycopa.net



Appendix B: Focus Groups Summary

AOAA Rail Trail Connectivity Master Plan: Focus Group Summary

Focus Group #1: June 2 @ 9:00 AM			
Desires & Benefits	Concerns	Trail Amenities & Connections	Trail Users
<ul style="list-style-type: none"> The AOAA rail trail will traverse through Snydertown Borough providing not only a recreational amenity for families, but also an economic generator for small businesses in the municipality. The rail trail will enhance connectivity among the communities in the county. From the school district's perspective, this trail would be an opportunity for students to participate in activities that are healthy and family-oriented. 	<ul style="list-style-type: none"> In Snydertown, most community members support development of the rail trail, however, there are a number of property owners who have property adjacent to the trail. In the past, certain property owners voiced concerns about potential risks of activity generated from the trail. It is assumed these same property owners will voice similar concerns again. Focus group members shared general concerns regarding maintenance and liability. Attendees questioned which agency or organization would be responsible for maintaining the trail/trail sections, as well as restroom and waste facilities. For example, trash collection to ensure the trail remains free of trash/debris. On the liability side, who is liable for potential accidents, etc. 	<ul style="list-style-type: none"> A connection to Weiser State Forest should be considered. An access point should be created in each of the seven municipalities along the trail. Restroom facilities should be designated in each of the seven municipalities. This would be crucial for families planning their routes. There is a desire to extend the trail to connect with Mount Carmel Borough. This would provide an end or beginning destination that would benefit borough residents and businesses. 	<ul style="list-style-type: none"> Senior citizens could utilize the trail and benefit (flat elevation). Cross country skiers are present in the county and would likely take advantage of this connection to different trails and its proximity to Weiser State Forest. Organized events including marathons would likely be hosted on the trail. Nature/bird watching groups would be a great use of the trail. It was recommended designated bird watching areas, etc. be created. Students including cross country teams would use the trail. Equestrian users will likely not use the trail.

Focus Group #2: June 2 @ 11:00 AM

Desires & Benefits	Concerns	Trail Amenities & Connections	Trail Users	Questions/Notes
<ul style="list-style-type: none"> The Visitors Bureau has directed their focus to transforming the region into an outdoor recreational destination. According to State's 2019 Visitor Spending Impact Report, this region is the smallest tourism region in the Commonwealth but ties fourth for the amount of visitor spending on entertainment and recreation. The rail trail will bring even more visibility to the region. Providing a new outdoor recreational amenity for families is a desired outcome, but also serving as an economic generator for small businesses in the community. From a healthcare perspective, there are many community members in the area that have comorbidities and would benefit greatly from an asset that promotes a healthy lifestyle. The rail trail would enhance connectivity among the communities in the county. 	<ul style="list-style-type: none"> Concerns were raised regarding maintenance and liability. Attendees questioned which agency or organization would be responsible for maintaining the trail/trail sections, as well as restroom and waste facilities. During the Buffalo Rail Trail designation, there were concerns among property owners about liability if an injury occurs. These concerns will likely be raised during this process as well. There are very active private and public hunting grounds along Snyder Road that may cause safety concerns. 	<ul style="list-style-type: none"> A connection to Weiser State Forest should be considered. A connection should be made to Sunbury's riverfront trail. This would make the rail trail more competitive by connecting into the Susquehanna Greenway that is a 500-mile connected system of trails, parks, and open space. The riverfront trail also connects to the Shikellamy State Park and trail system. There is a plan for a proposed loop trail around Lake Augusta that would eventually extend to the riverfront trail and other trail systems. There is a trail system around the high school in Shamokin that also leads trail users to an important rock formation. This would help create a "loop experience." There should eventually be connections to other State-owned lands for activities such as hunting. A connection should be considered to the PA Bike Route J. 	<ul style="list-style-type: none"> There is consensus on permitting only nonmotorized uses of the trail. One participant felt there should be a consideration for a multiuse option that includes motorized vehicles. Shamokin recently and successfully permitted ATV's on roadways within the city. Most participants felt permitting this use would have challenges such as liability, interactions with other users, wear and tear, and safety concerns. Cross country skiers are present in the county and would likely take advantage of this connection to different trails and its proximity to Weiser State Forest. Organized events including marathons would likely be hosted on the trail. Nature/bird watching groups may use the trail. Students. Equestrian users are not a desired trail user. There would be challenges surrounding permitting use such as trail width, 	<ul style="list-style-type: none"> Is there a natural connection to Weiser State Forest or could there be a designated on-road route? Would uses such as motorized wheelchairs or motorized bikes/scooters be permitted on the trail? Will there be a wayfinding strategy developed? This should include amenities including businesses, repair shops, restaurants, and historical and educational opportunities. Educational campaigns for the community members and property owners would help to mitigate questions and concerns raised during the planning process. There is a suggestion to prioritize constructing the eastern and western end sections of the rail trail first, as opposed to a linear phased approach for trail construction. Doing so helps ensure the entire trail is eventually completed. If a less than 5-mile gap is created, the trail would be considered as a DCNR trail gap, elevating the

<ul style="list-style-type: none"> A focus on “tourism” will elevate the Master Plan regarding funding, visibility, and partnerships. 		<ul style="list-style-type: none"> The City of Shamokin should be a major trail head location. As part of the interpretation of the trail, historical and educational components should be incorporated. For example, there is a historic silk mill in Shamokin. An access point should be created in each of the seven municipalities along the trail. Restroom facilities should be designated in each of the seven municipalities. Established restroom facilities should also be incorporated into connections (“cyclist friendly” businesses/ restaurants). Locations of all these facilities should be promoted and made readily available to users. Businesses should be encouraged to provide bike racks. Site seeing destinations should be promoted. Rest areas with water bottle refilling stations, picnic tables, and benches are desired. 	<p>interactions among other users, and cleanup.</p> <ul style="list-style-type: none"> Trail surface could differ depending on location. A paved surface would be most suitable in Sunbury and Shamokin while crushed stone may be most appropriate in rural areas. Participants referred to the cost as a consideration. 	<p>trail in terms of funding opportunities.</p>
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Focus Group #3: June 3 @ 1:00 PM

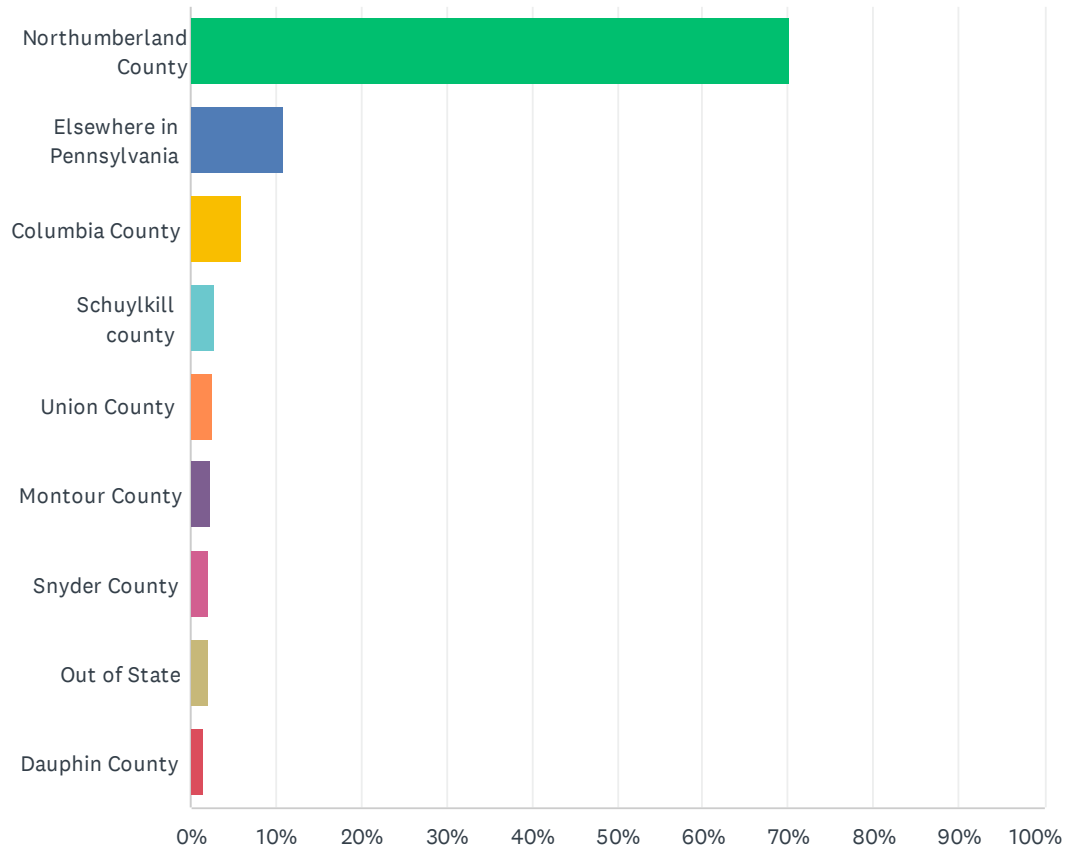
Desires & Benefits	Concerns	Trail Amenities & Connections	Trail Users	Questions/Notes
<ul style="list-style-type: none"> • Healthy living and healthy lifestyles are crucial to this region. According to an article (<i>18 miles, 18 years</i>) from the Daily Item out of Sunbury, individuals that live in Selinsgrove have a greater life expectancy of 18 years as compared to individuals who live in Shamokin. The trail will help promote a healthy lifestyle and wellness. • The trail transforms the communities into tourism destinations. The trail's location within the city of Shamokin will contribute to the revitalization of the municipality. • It will provide an opportunity for residents to commute safely to different parts of the community. • This will provide a larger tax base. 	<ul style="list-style-type: none"> • Numerous concerns were raised regarding maintenance and liability. Attendees questioned which agency or organization would be responsible for maintaining the trail/trail sections. 	<ul style="list-style-type: none"> • A connection should be made to Sunbury's riverfront trail. The river is a large draw for tourism. • A camping site along the trail would be a great benefit. This would be marketable to Boy/Girl Scouts inside and outside of the region. • There is a desire to extend the trail to connect to Mt Carmel Borough. This would provide an end or beginning destination that would benefit the borough residents and businesses. • Kulpmont has a local park that the trail should connect to. • There is a suggestion to connect the trail to Shikellamy State Park where parking facilities are already present. • Heavily used mountain biking trails are located near Natalie, Mt Carmel adjacent to Weiser State Park. • Restroom facilities should be designated in each of the seven municipalities. Claude Kehler Community Park has public restrooms. • First responder or emergency access should be considered. 	<ul style="list-style-type: none"> • One participant felt equestrian users could be drawn to this trail. • There is a consensus that an aggregate/crushed stone surface along the trail would be most beneficial when considering desire of users, maintenance, and cost. 	<ul style="list-style-type: none"> • Residents may be concerned about limited parking in Sunbury. The City, however, noted there is not a parking shortage, just a perception.



Appendix C: Online Survey Summary Results

Q1 Which county do you live in?

Answered: 1,380 Skipped: 0



ANSWER CHOICES	RESPONSES	
Northumberland County	70.07%	967
Elsewhere in Pennsylvania	10.80%	149
Columbia County	6.01%	83
Schuylkill county	2.68%	37
Union County	2.54%	35
Montour County	2.39%	33
Snyder County	2.03%	28
Out of State	2.03%	28
Dauphin County	1.45%	20
TOTAL		1,380

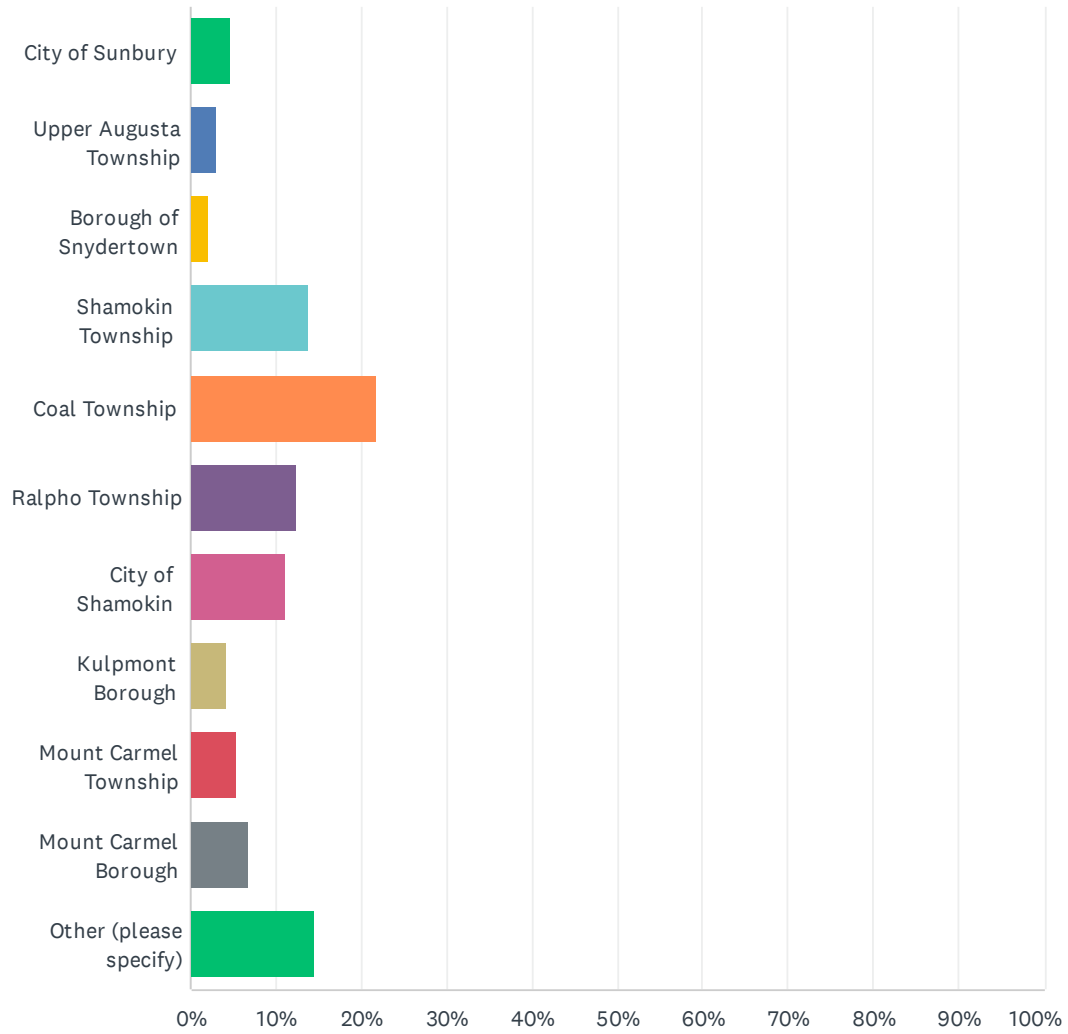
Q2 What is your zip code?

Answered: 1,380 Skipped: 0

This is an open ended question with 1,380 responses received.

Q3 Which municipality do you live in?

Answered: 961 Skipped: 419

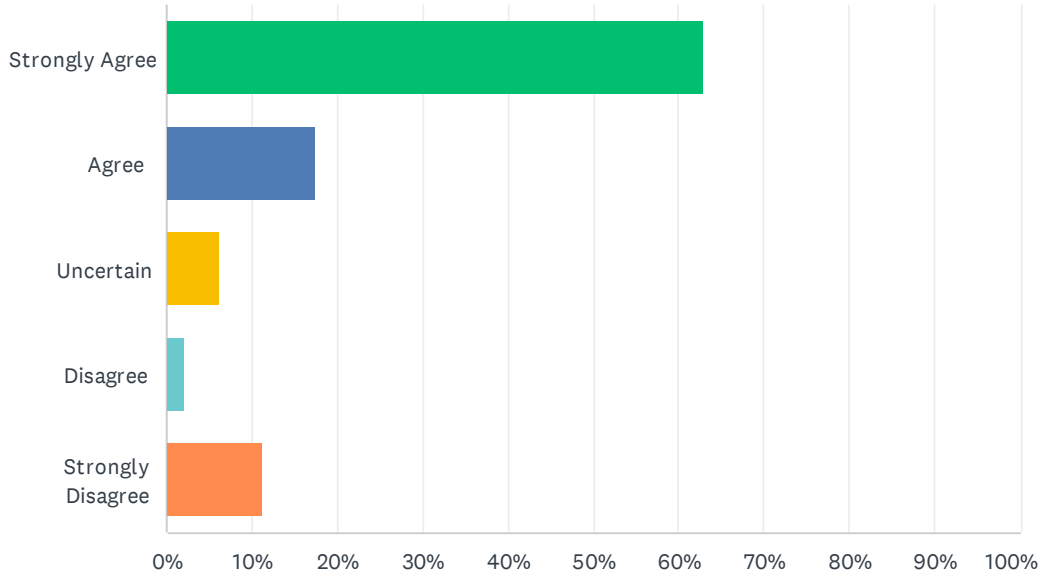


Northumberland County Rail Trail Public Survey

ANSWER CHOICES	RESPONSES	
City of Sunbury	4.79%	46
Upper Augusta Township	2.91%	28
Borough of Snyderstown	2.19%	21
Shamokin Township	13.94%	134
Coal Township	21.64%	208
Ralpho Township	12.28%	118
City of Shamokin	11.13%	107
Kulpmont Borough	4.37%	42
Mount Carmel Township	5.31%	51
Mount Carmel Borough	6.87%	66
Other (please specify)	14.57%	140
TOTAL		961

Q4 If the Northumberland County Rail Trail is constructed, would you or members of your household use the trail for general recreation (non-motorized uses only)?

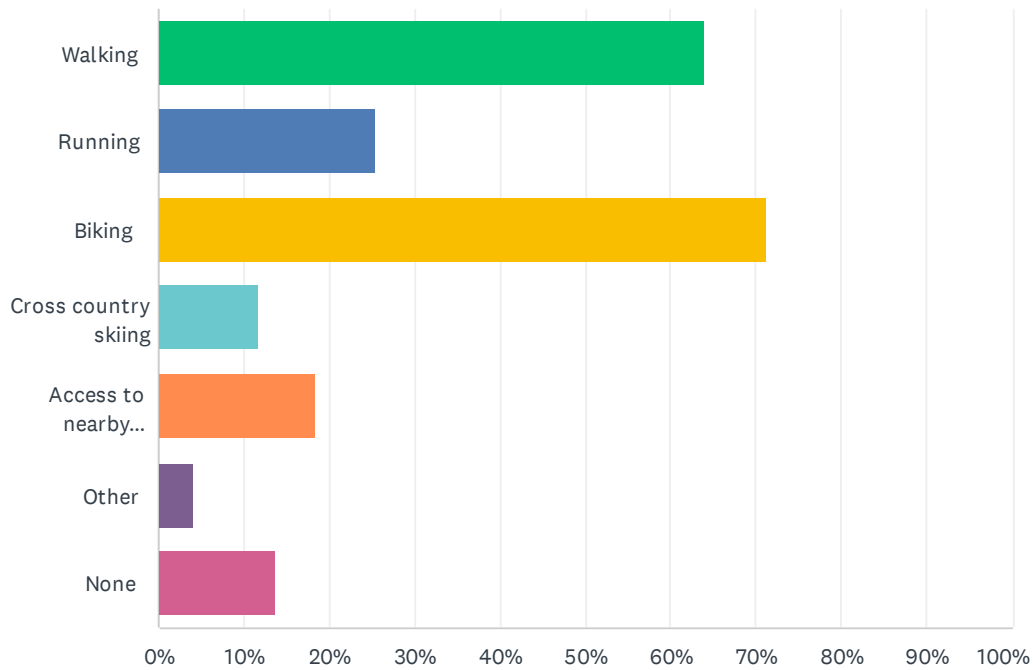
Answered: 1,348 Skipped: 32



ANSWER CHOICES	RESPONSES	
Strongly Agree	62.91%	848
Agree	17.58%	237
Uncertain	6.08%	82
Disagree	2.15%	29
Strongly Disagree	11.28%	152
TOTAL		1,348

Q5 If built, how would you use the trail?

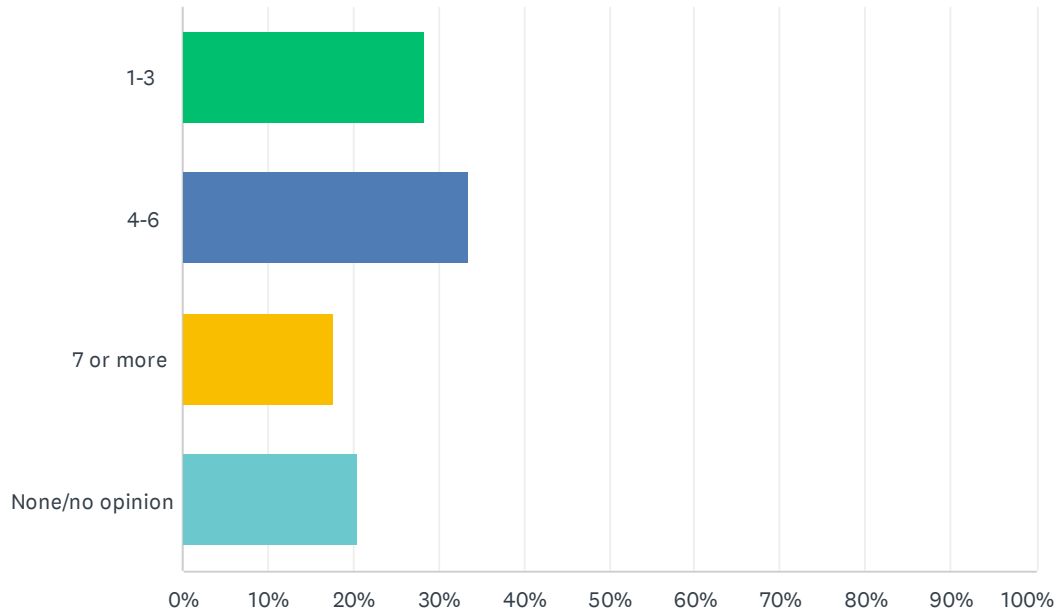
Answered: 1,340 Skipped: 40



ANSWER CHOICES	RESPONSES	
Walking	63.96%	857
Running	25.30%	339
Biking	71.12%	953
Cross country skiing	11.64%	156
Access to nearby communities (walk or bike instead of driving)	18.43%	247
Other	3.96%	53
None	13.73%	184
Total Respondents: 1,340		

Q6 On average, how many total miles would you travel while using the trail if you were walking or running?

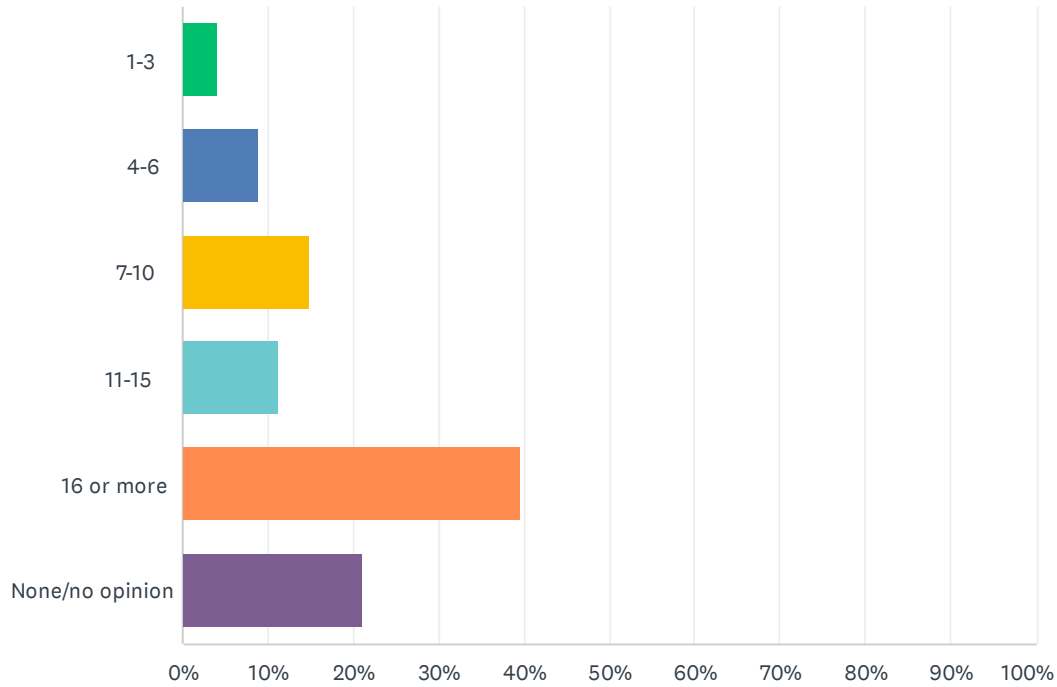
Answered: 1,317 Skipped: 63



ANSWER CHOICES	RESPONSES
1-3	28.32% 373
4-6	33.56% 442
7 or more	17.69% 233
None/no opinion	20.43% 269
TOTAL	1,317

Q7 On average, how many total miles would you travel while using the trail if you were biking?

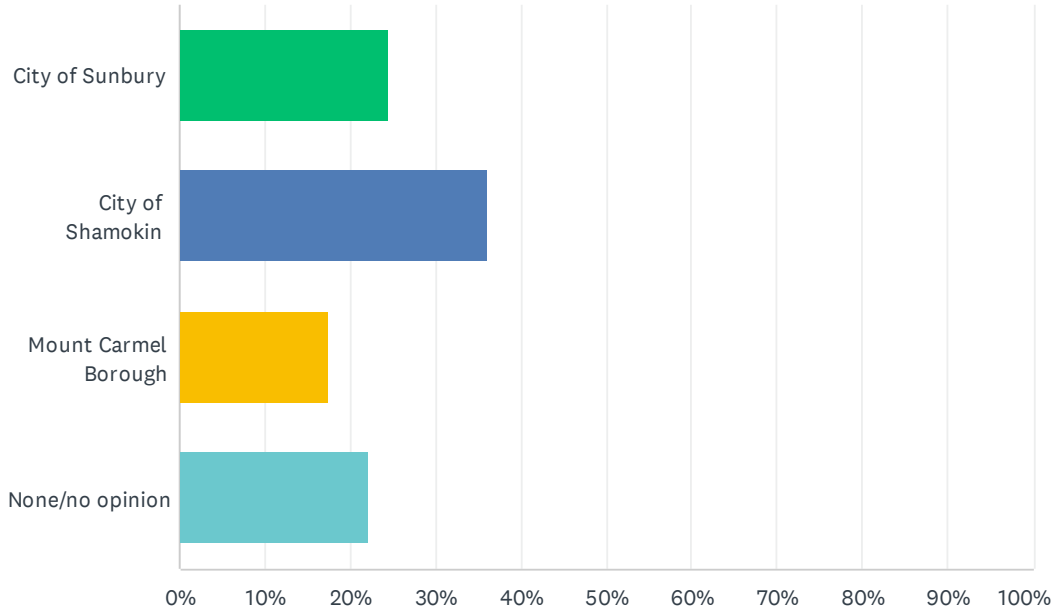
Answered: 1,317 Skipped: 63



ANSWER CHOICES	RESPONSES	
1-3	4.02%	53
4-6	9.04%	119
7-10	14.96%	197
11-15	11.24%	148
16 or more	39.56%	521
None/no opinion	21.18%	279
TOTAL		1,317

Q8 Based on the below list of potential trailheads/public access points, which location would you be most likely to use?

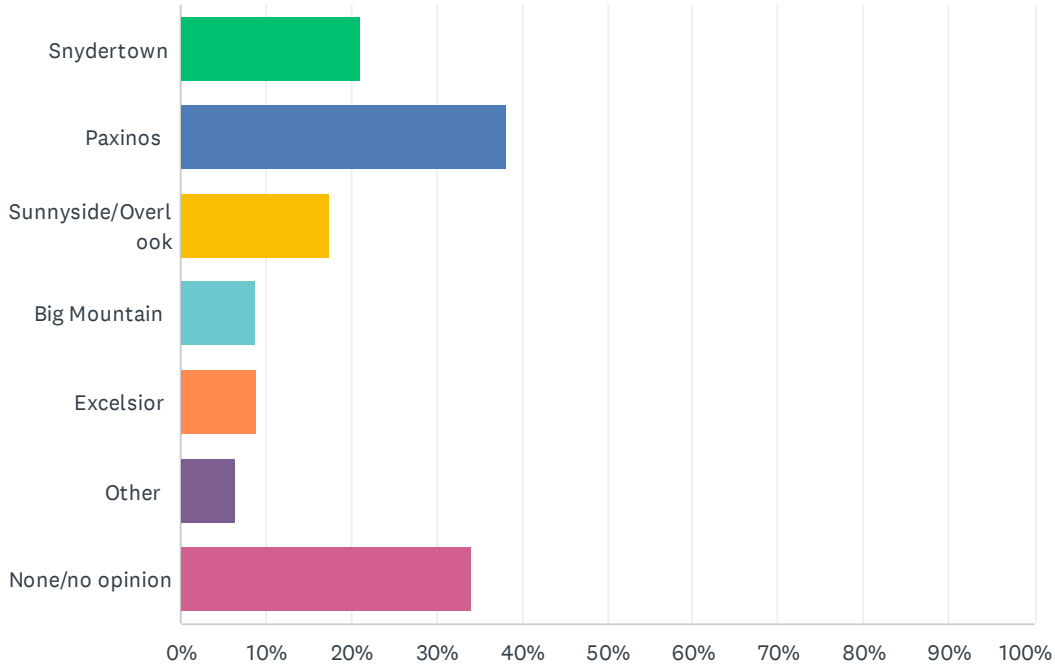
Answered: 1,299 Skipped: 81



ANSWER CHOICES	RESPONSES	
City of Sunbury	24.48%	318
City of Shamokin	35.95%	467
Mount Carmel Borough	17.40%	226
None/no opinion	22.17%	288
TOTAL		1,299

Q9 As we work to identify additional trailheads, which of the following locations would be most important to you? (select up to 2)

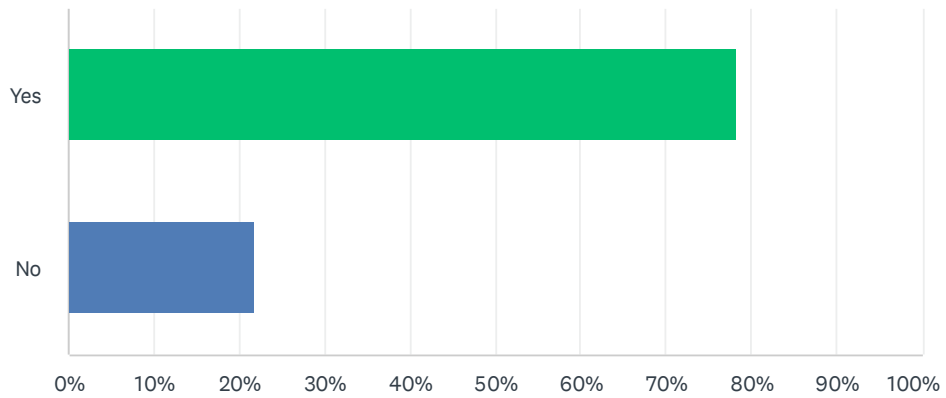
Answered: 1,292 Skipped: 88



ANSWER CHOICES	RESPONSES	
Snyderstown	21.21%	274
Paxinos	38.24%	494
Sunnyside/Overlook	17.41%	225
Big Mountain	8.67%	112
Excelsior	9.06%	117
Other	6.35%	82
None/no opinion	34.13%	441
Total Respondents: 1,292		

Q10 Do you use other existing trails in Pennsylvania?

Answered: 1,298 Skipped: 82



ANSWER CHOICES	RESPONSES	
Yes	78.20%	1,015
No	21.80%	283
TOTAL		1,298

Q11 Please list the top 1-2 trails you frequent most often.

Answered: 893 Skipped: 487

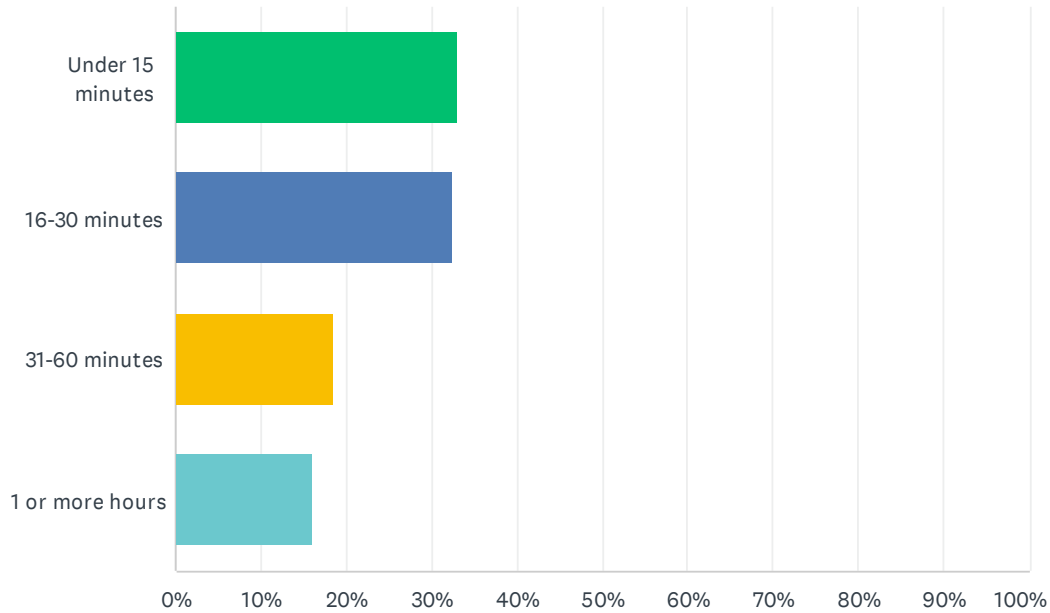
This is an open ended question with 893 responses received.

Some trails included:

- Allegheny River Valley Trail
- Appalachian Trail
- Wieser State Forest
- Ricketts Glenn
- Bear Gap
- Pine Creek Rail Trail
- Buffalo Valley Rail Trail
- Cumberland Valley Rail Trail
- D and L Trail
- Geisinger trails
- Hawk Mountain a
- Roaring Creek Trail
- Enola Low Grade Trail
- Northwest Lancaster County Rail Trail
- Hawk Mountain
- Delaware Water Gap
- Harrisburg Greenbelt
- Cumberland Valley Trail
- Heritage trail
- Jim Thorpe Trails
- Lehigh Valley Gorge
- Swatara State Park

Q12 How far are you willing to travel to use a trail on a regular basis (weekly or monthly use)?

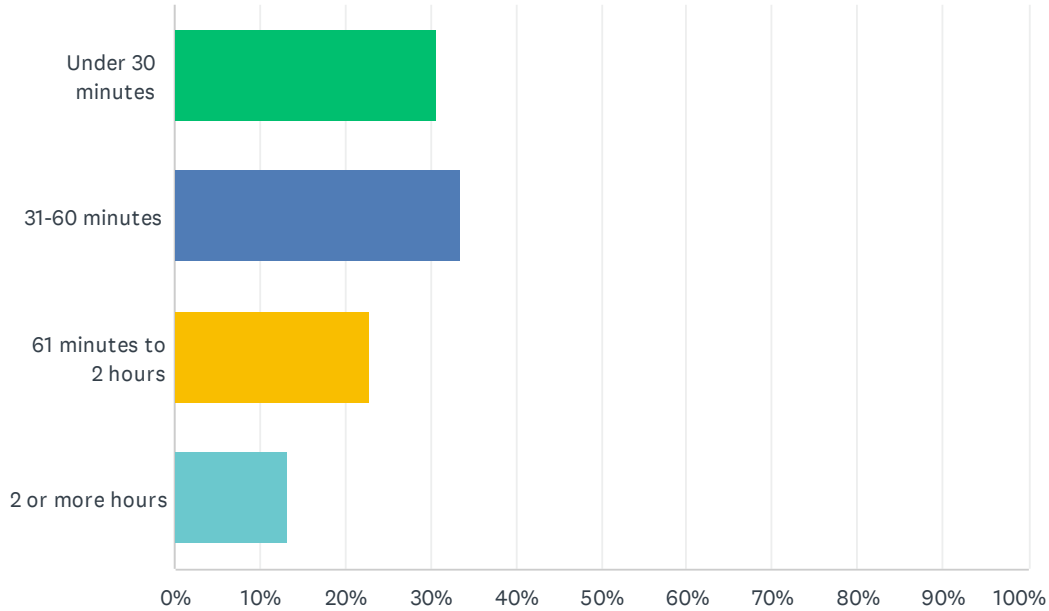
Answered: 1,258 Skipped: 122



ANSWER CHOICES	RESPONSES	
Under 15 minutes	33.15%	417
16-30 minutes	32.35%	407
31-60 minutes	18.60%	234
1 or more hours	15.90%	200
TOTAL		1,258

Q13 How far are you willing to travel to use a trail for special events (charity events, races, cross county meets, etc.)?

Answered: 1,258 Skipped: 122



ANSWER CHOICES	RESPONSES	
Under 30 minutes	30.60%	385
31-60 minutes	33.47%	421
61 minutes to 2 hours	22.73%	286
2 or more hours	13.20%	166
TOTAL		1,258

Q14 Are there any destinations you would like to see the Northumberland County Rail Trail connect to in the future either via trail extension or on road connections?

Answered: 531 Skipped: 849

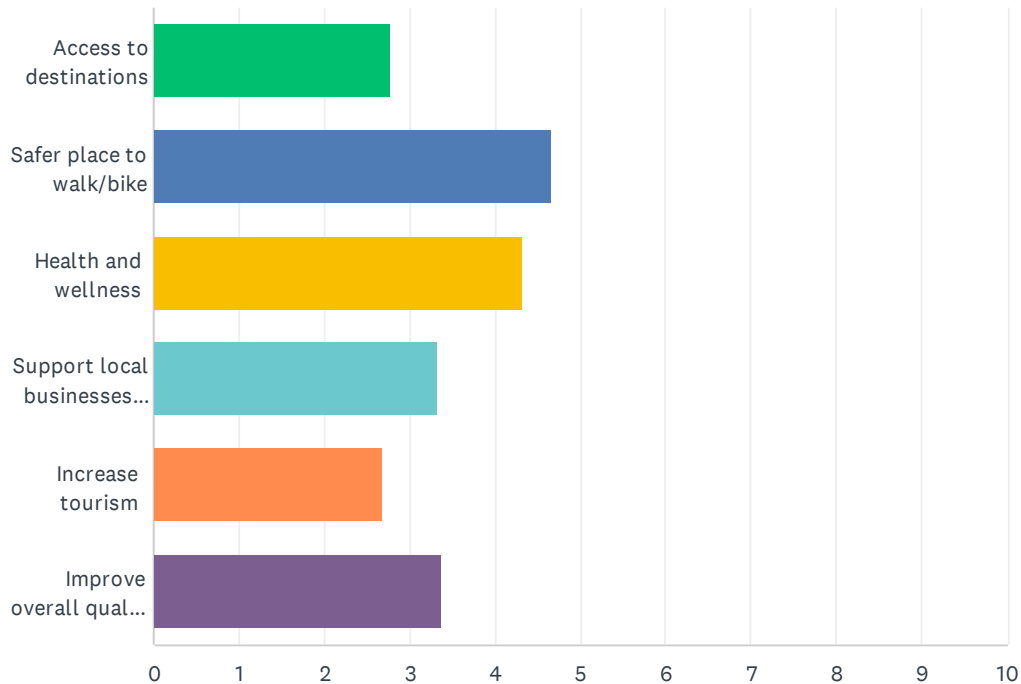
This is an open ended question with 531 responses received.

Some destinations included:

- Local businesses
- Weiser State Forest
- Historic landmarks or historic points of interest
- Ashland
- Centralia
- Bloomsburg
- Danville
- Elysburg
- Kulpmont
- Selinsgrove
- Lewisburg
- Trevorton
- Shikellamy State Park
- White Haven
- Stateparks and other recreational areas
- Zerbe Township

Q15 What benefits do you feel the Northumberland County Rail Trail would provide the Northumberland County community? Rank 1 (highest benefit) to 6 (lowest benefit).

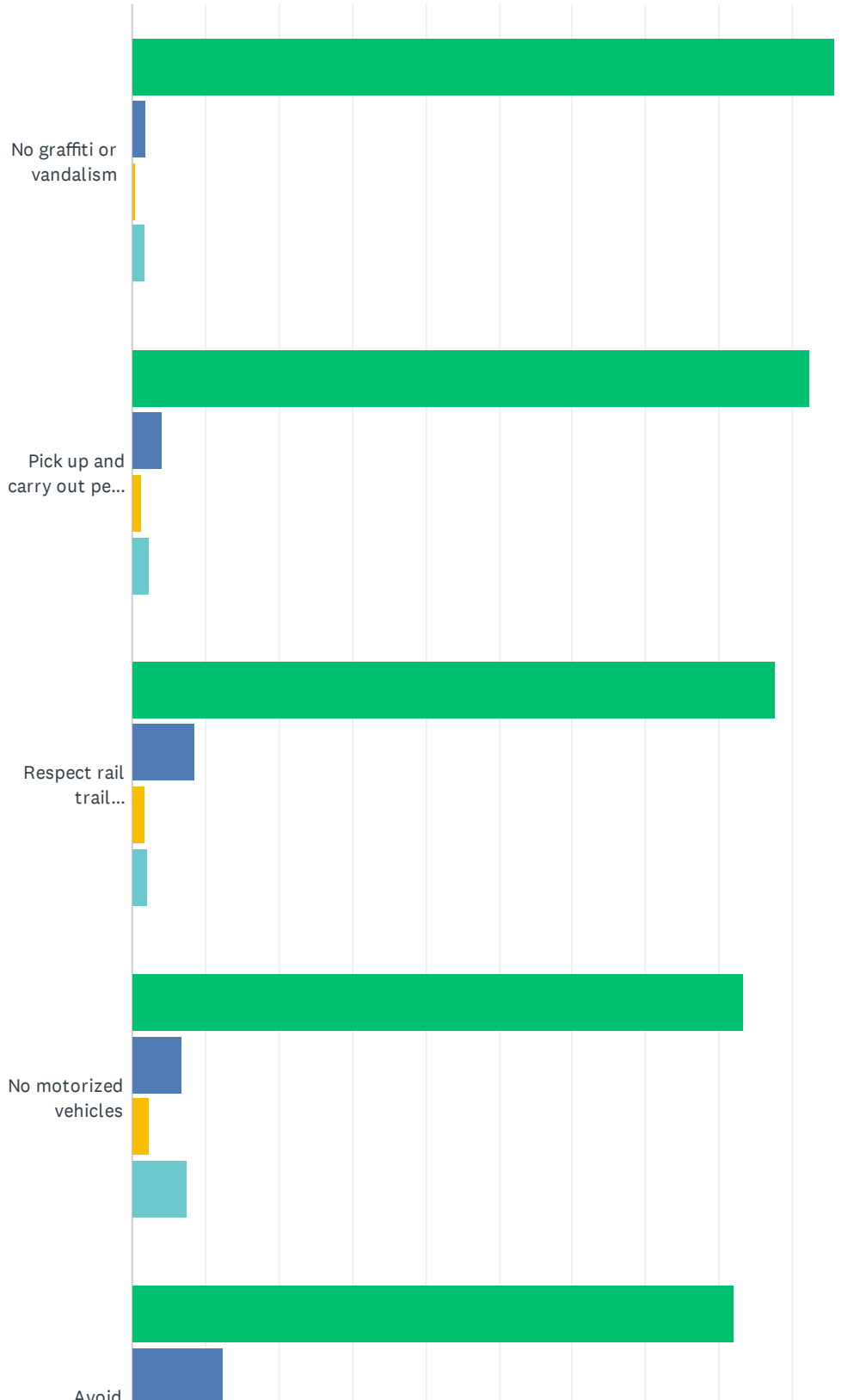
Answered: 1,134 Skipped: 246



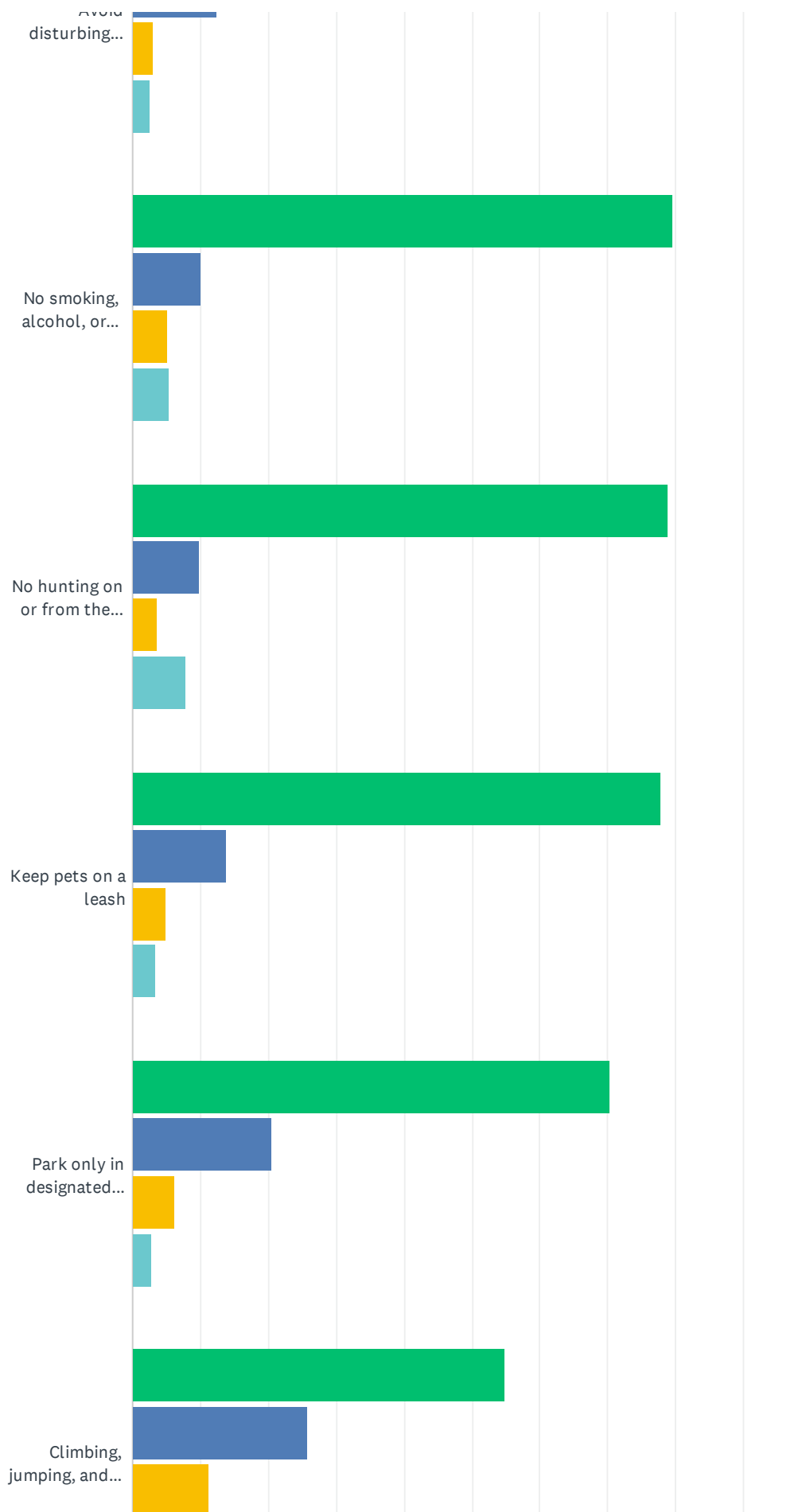
	1	2	3	4	5	6	TOTAL	SCORE
Access to destinations	11.49% 120	11.59% 121	8.52% 89	15.33% 160	17.15% 179	35.92% 375	1,044	2.77
Safer place to walk/bike	42.16% 441	22.08% 231	14.44% 151	8.80% 92	7.17% 75	5.35% 56	1,046	4.67
Health and wellness	21.41% 225	31.97% 336	20.84% 219	13.89% 146	7.99% 84	3.90% 41	1,051	4.33
Support local businesses (generating new foot traffic)	6.72% 71	13.72% 145	22.89% 242	26.68% 282	21.76% 230	8.23% 87	1,057	3.32
Increase tourism	6.54% 69	9.67% 102	11.09% 117	17.91% 189	28.53% 301	26.26% 277	1,055	2.69
Improve overall quality of life	15.14% 167	12.24% 135	21.67% 239	16.14% 178	15.14% 167	19.67% 217	1,103	3.37

Q16 From your perspective, please rate how important the following potential trail rules are to ensure a quality recreational experience.

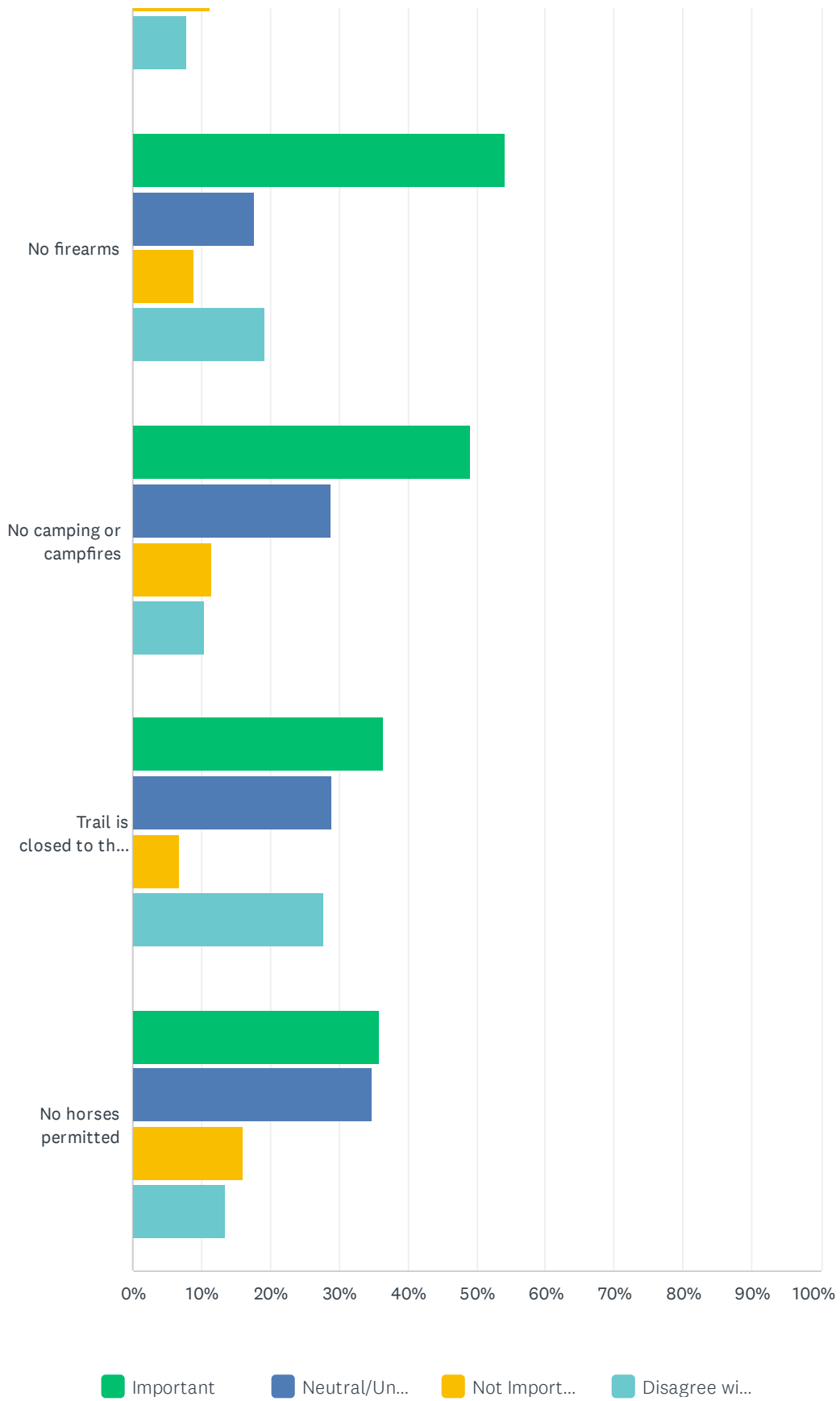
Answered: 1,169 Skipped: 211



Northumberland County Rail Trail Public Survey



Northumberland County Rail Trail Public Survey



Northumberland County Rail Trail Public Survey

	IMPORTANT	NEUTRAL/UNDECIDED	NOT IMPORTANT	DISAGREE WITH PROPOSED RULE	TOTAL
No graffiti or vandalism	95.79% 1,114	1.89% 22	0.52% 6	1.81% 21	1,163
Pick up and carry out pet waste	92.26% 1,073	4.13% 48	1.20% 14	2.41% 28	1,163
Respect rail trail neighbors: remain on trail at all times	87.54% 1,019	8.59% 100	1.80% 21	2.06% 24	1,164
No motorized vehicles	83.28% 971	6.78% 79	2.40% 28	7.55% 88	1,166
Avoid disturbing natural features	82.06% 956	12.45% 145	2.92% 34	2.58% 30	1,165
No smoking, alcohol, or illegal drugs	79.55% 926	9.97% 116	5.15% 60	5.33% 62	1,164
No hunting on or from the trail	78.80% 918	9.87% 115	3.52% 41	7.81% 91	1,165
Keep pets on a leash	77.88% 905	13.77% 160	4.99% 58	3.36% 39	1,162
Park only in designated areas	70.34% 818	20.55% 239	6.28% 73	2.84% 33	1,163
Climbing, jumping, and fishing from trail bridges is prohibited	54.82% 637	25.90% 301	11.36% 132	7.92% 92	1,162
No firearms	54.21% 631	17.70% 206	8.93% 104	19.16% 223	1,164
No camping or campfires	49.10% 573	28.88% 337	11.57% 135	10.45% 122	1,167
Trail is closed to the public during deer firearm season	36.55% 424	28.97% 336	6.72% 78	27.76% 322	1,160
No horses permitted	35.75% 415	34.80% 404	16.02% 186	13.44% 156	1,161

Q17 What concerns do you feel the Northumberland County Rail Trail might cause that should be addressed as part of the Master Plan and future implementation?

Answered: 583 Skipped: 797

Q18 Yes! Please email me future updates on the rail trail and opportunities for additional public input.

Answered: 649 Skipped: 731

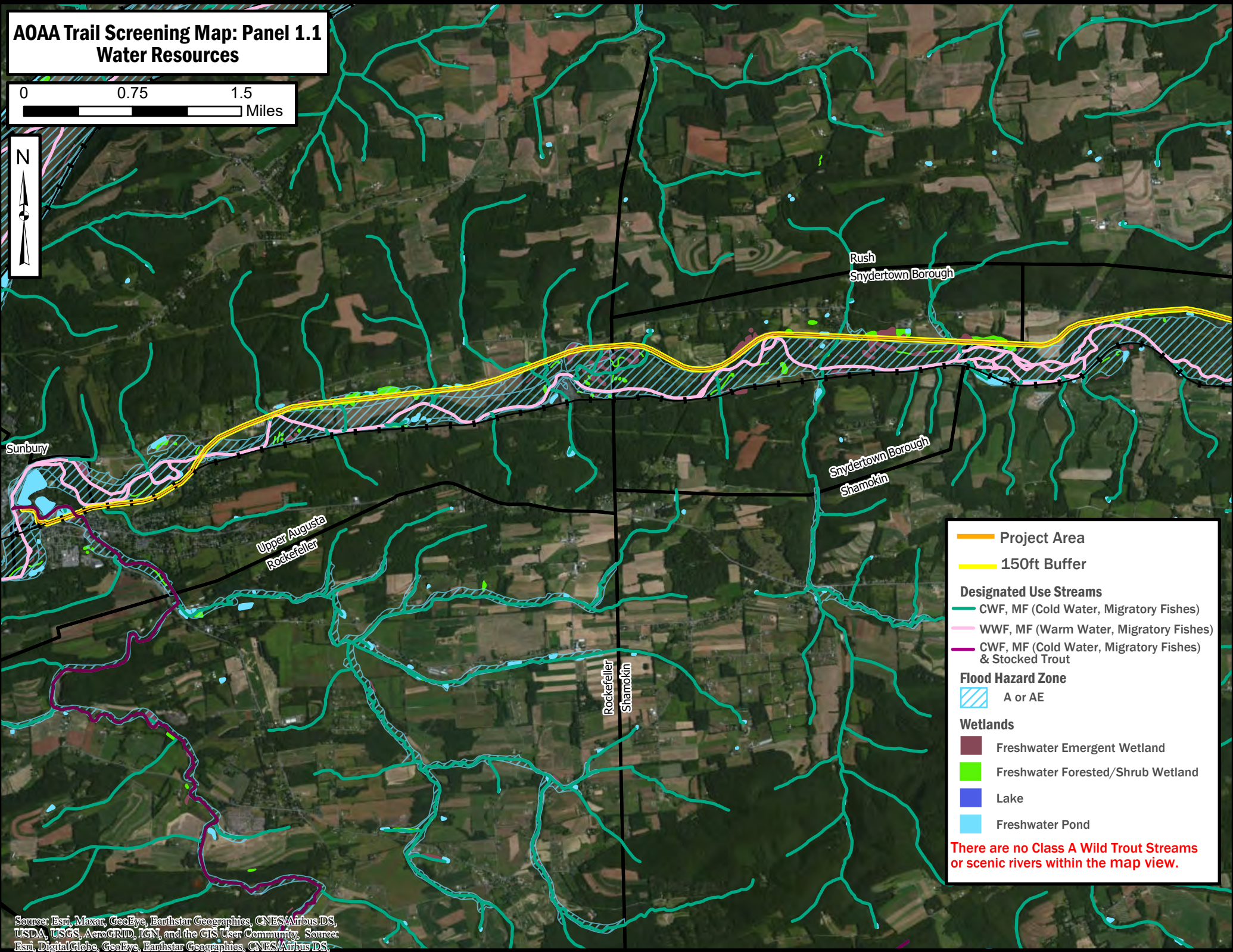
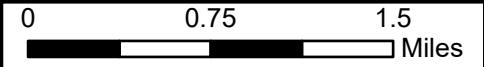
ANSWER CHOICES	RESPONSES	
Name	98.92%	642
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	98.77%	641
Phone Number	0.00%	0



Appendix D: Environmental Resource Maps

AOAA Trail Screening Map: Panel 1.1

Water Resources

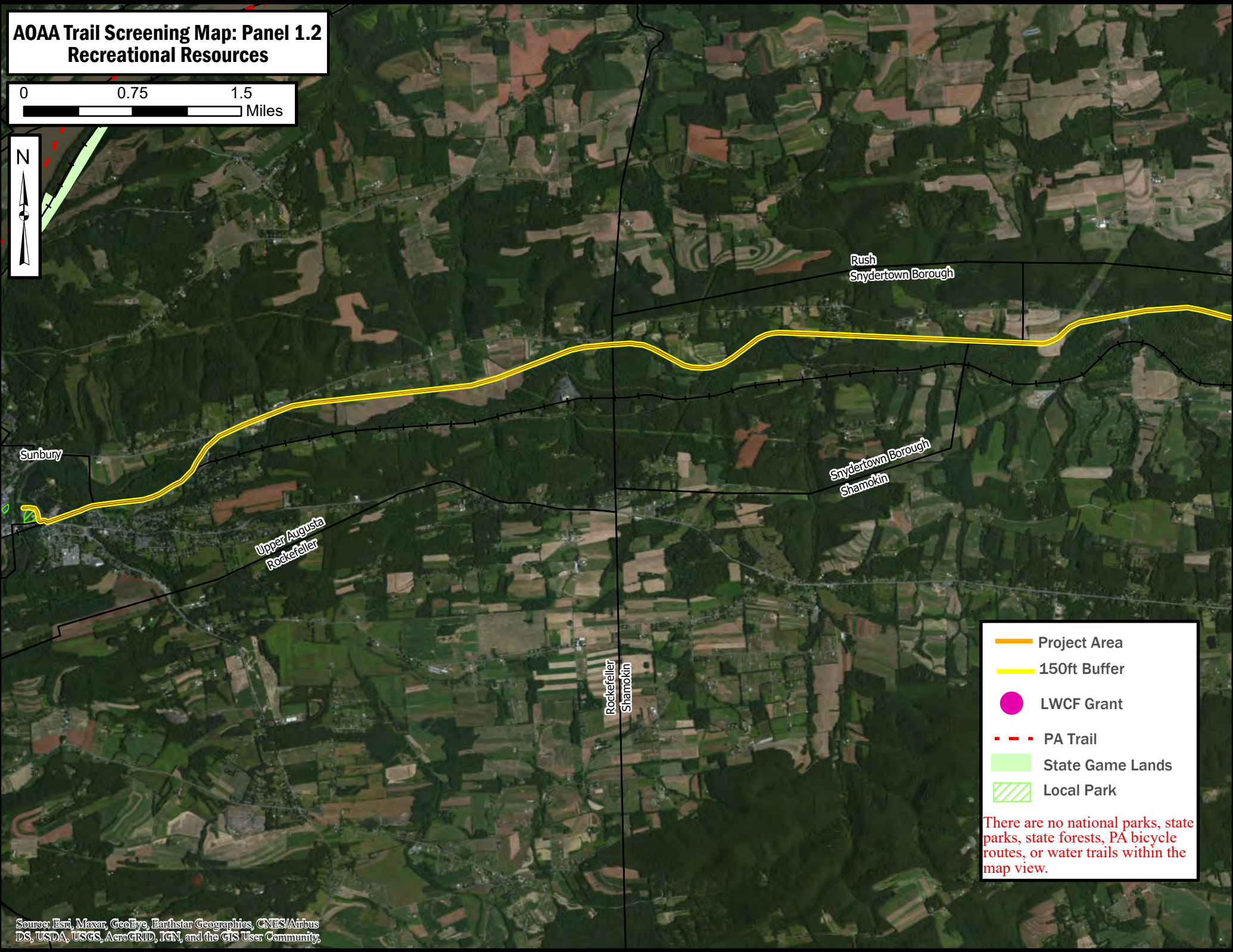
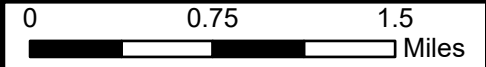


- Project Area
- 150ft Buffer
- Designated Use Streams**
 - CWF, MF (Cold Water, Migratory Fishes)
 - WWF, MF (Warm Water, Migratory Fishes)
 - CWF, MF (Cold Water, Migratory Fishes) & Stocked Trout
- Flood Hazard Zone**
 - A or AE
- Wetlands**
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Lake
 - Freshwater Pond

There are no Class A Wild Trout Streams or scenic rivers within the map view.

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS,

AOAA Trail Screening Map: Panel 1.2 Recreational Resources

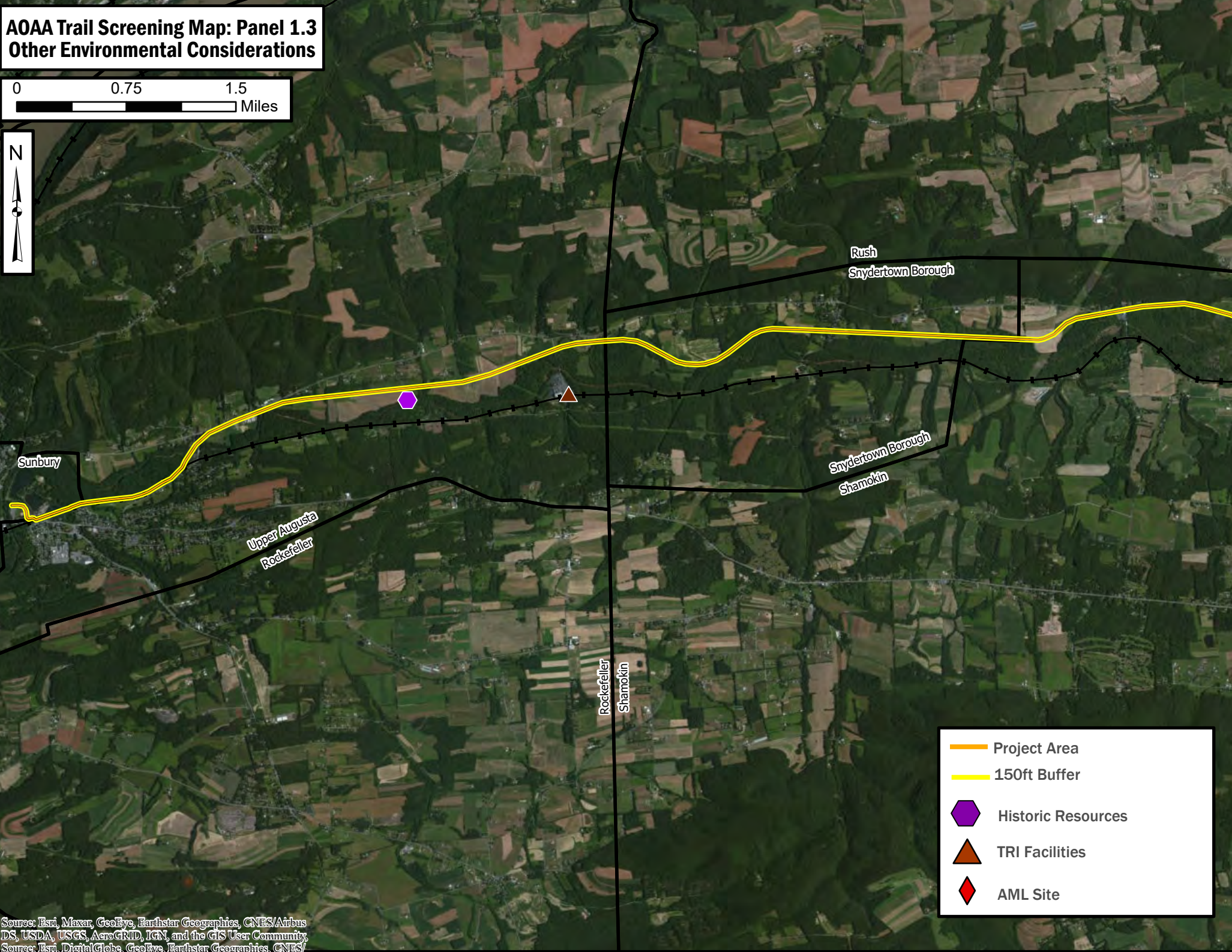
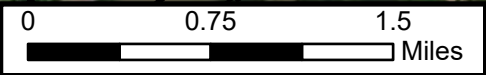


- Project Area
- 150ft Buffer
- LWCF Grant
- PA Trail
- State Game Lands
- Local Park

There are no national parks, state parks, state forests, PA bicycle routes, or water trails within the map view.

AOAA Trail Screening Map: Panel 1.3

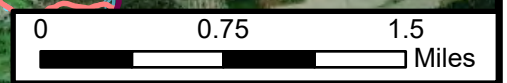
Other Environmental Considerations



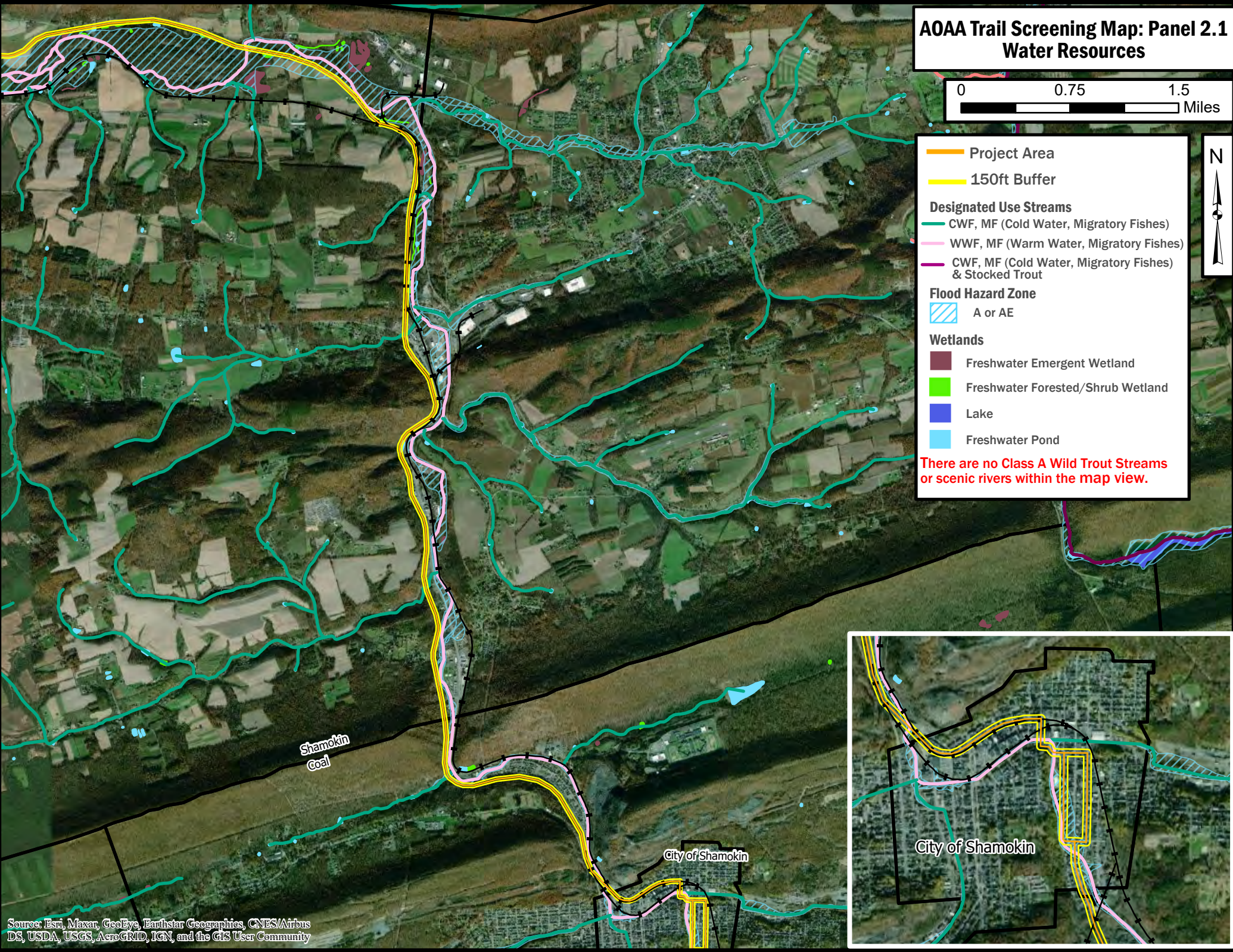
-  Project Area
-  150ft Buffer
-  Historic Resources
-  TRI Facilities
-  AML Site

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/

A0AA Trail Screening Map: Panel 2.1 Water Resources

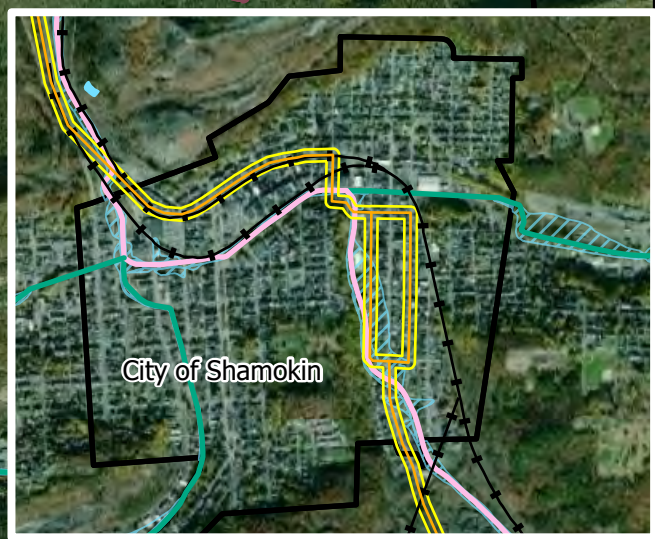


- Project Area
 - 150ft Buffer
 - Designated Use Streams**
 - CWF, MF (Cold Water, Migratory Fishes)
 - WWF, MF (Warm Water, Migratory Fishes)
 - CWF, MF (Cold Water, Migratory Fishes) & Stocked Trout
 - Flood Hazard Zone**
 - A or AE
 - Wetlands**
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Lake
 - Freshwater Pond
- There are no Class A Wild Trout Streams or scenic rivers within the map view.**



Shamokin
Coal

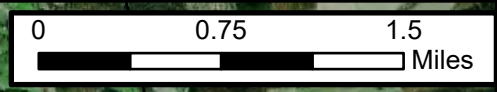
City of Shamokin



City of Shamokin

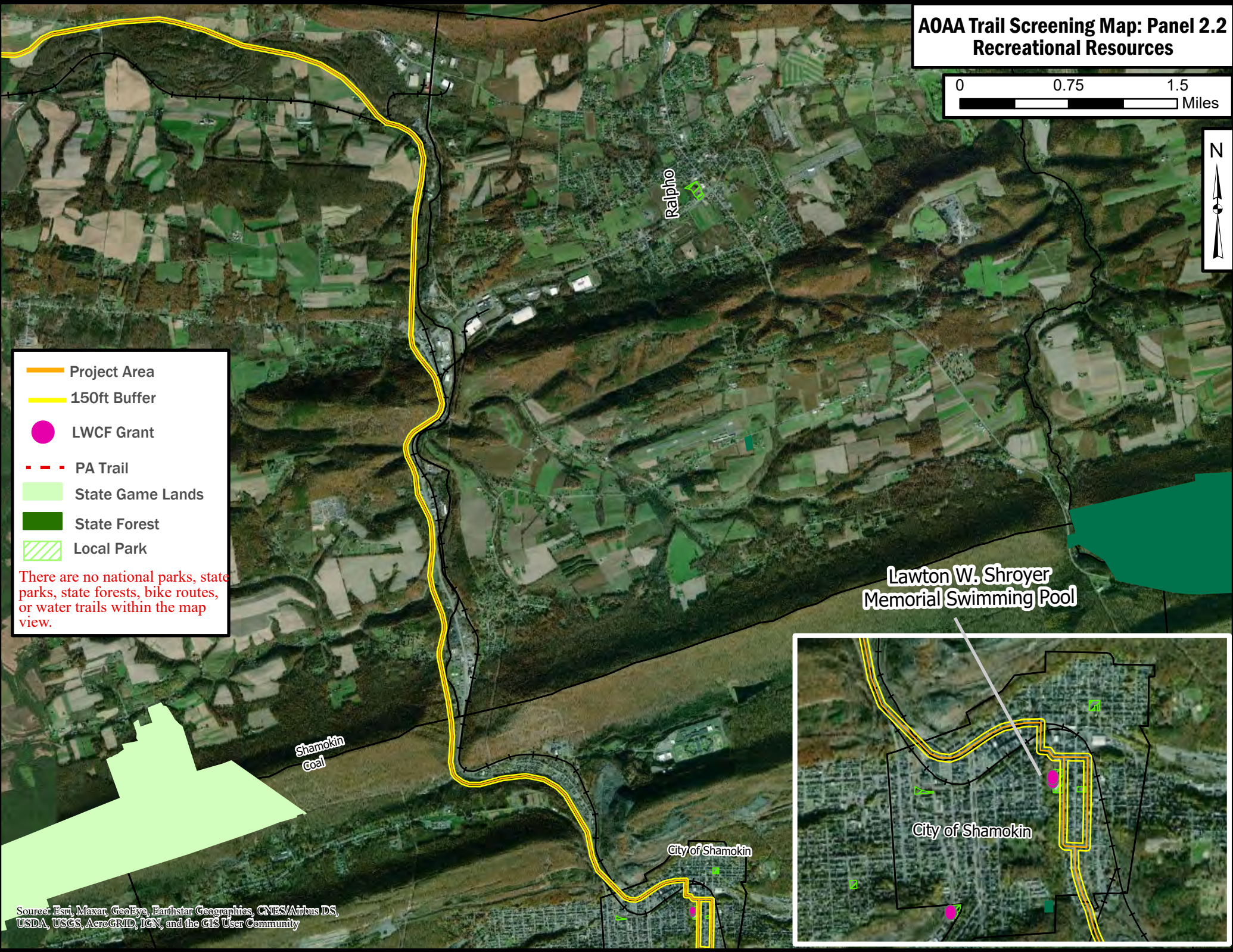
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

AOAA Trail Screening Map: Panel 2.2 Recreational Resources

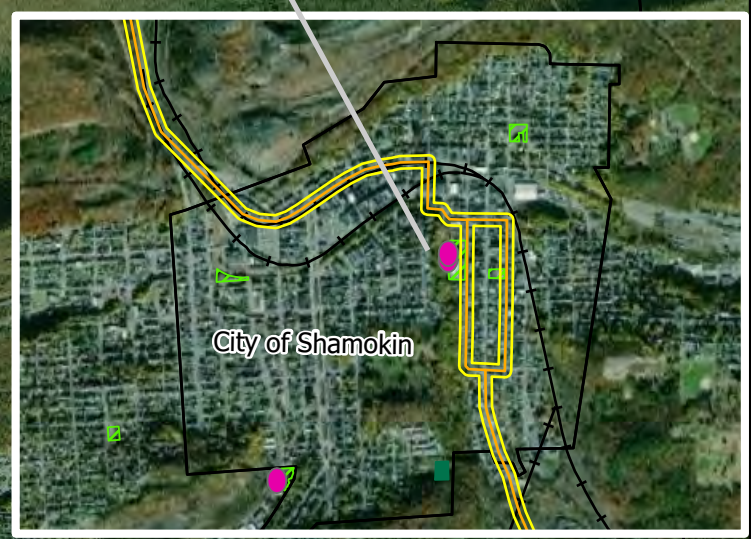


- Project Area
- 150ft Buffer
- LWCF Grant
- PA Trail
- State Game Lands
- State Forest
- Local Park

There are no national parks, state parks, state forests, bike routes, or water trails within the map view.

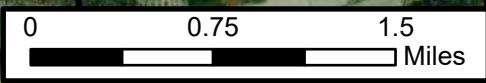







Lawton W. Shroyer
Memorial Swimming Pool

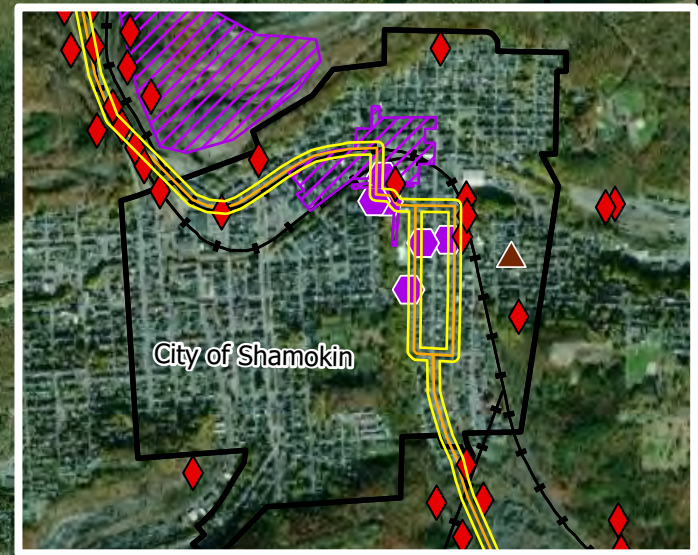
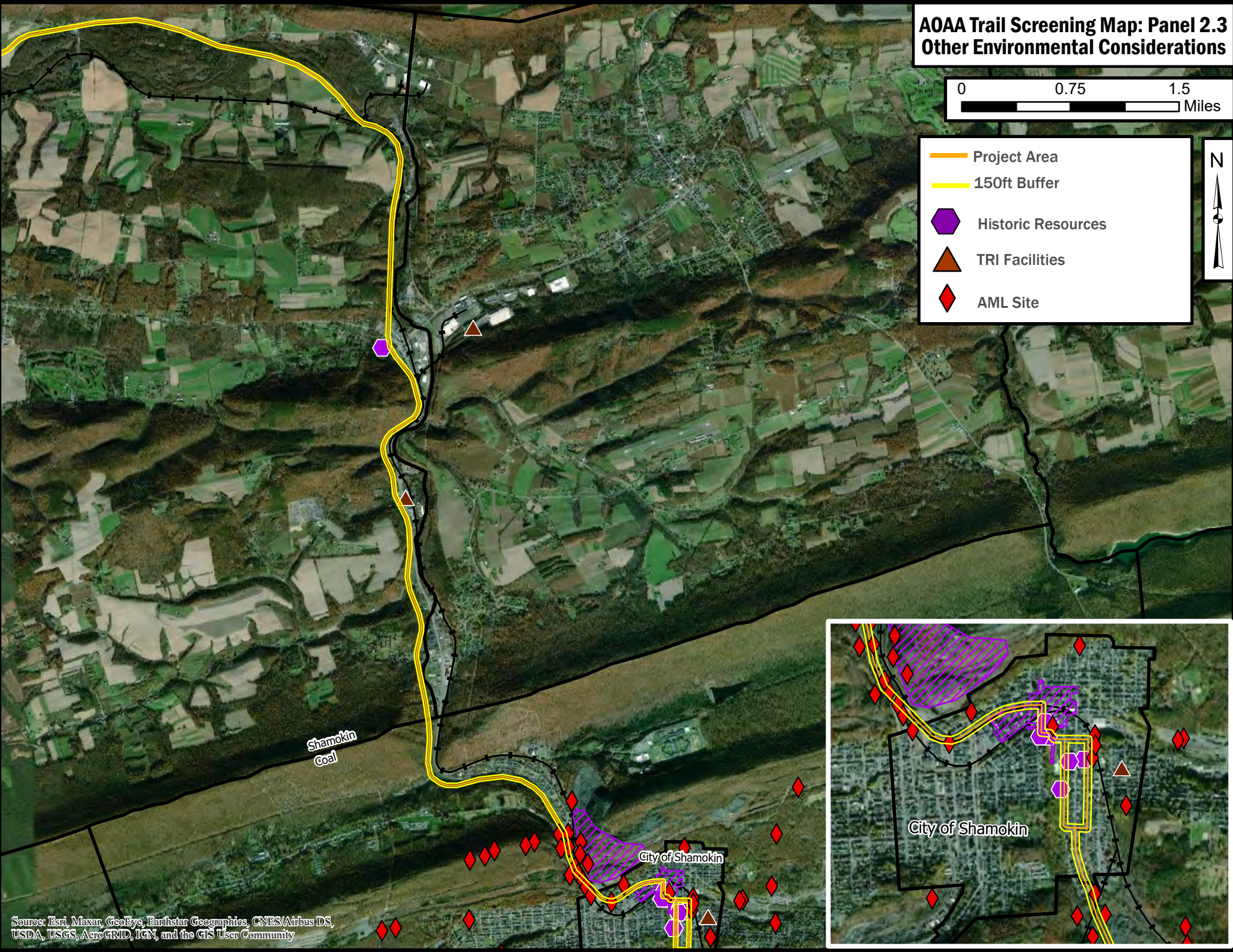


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

AOOA Trail Screening Map: Panel 2.3 Other Environmental Considerations

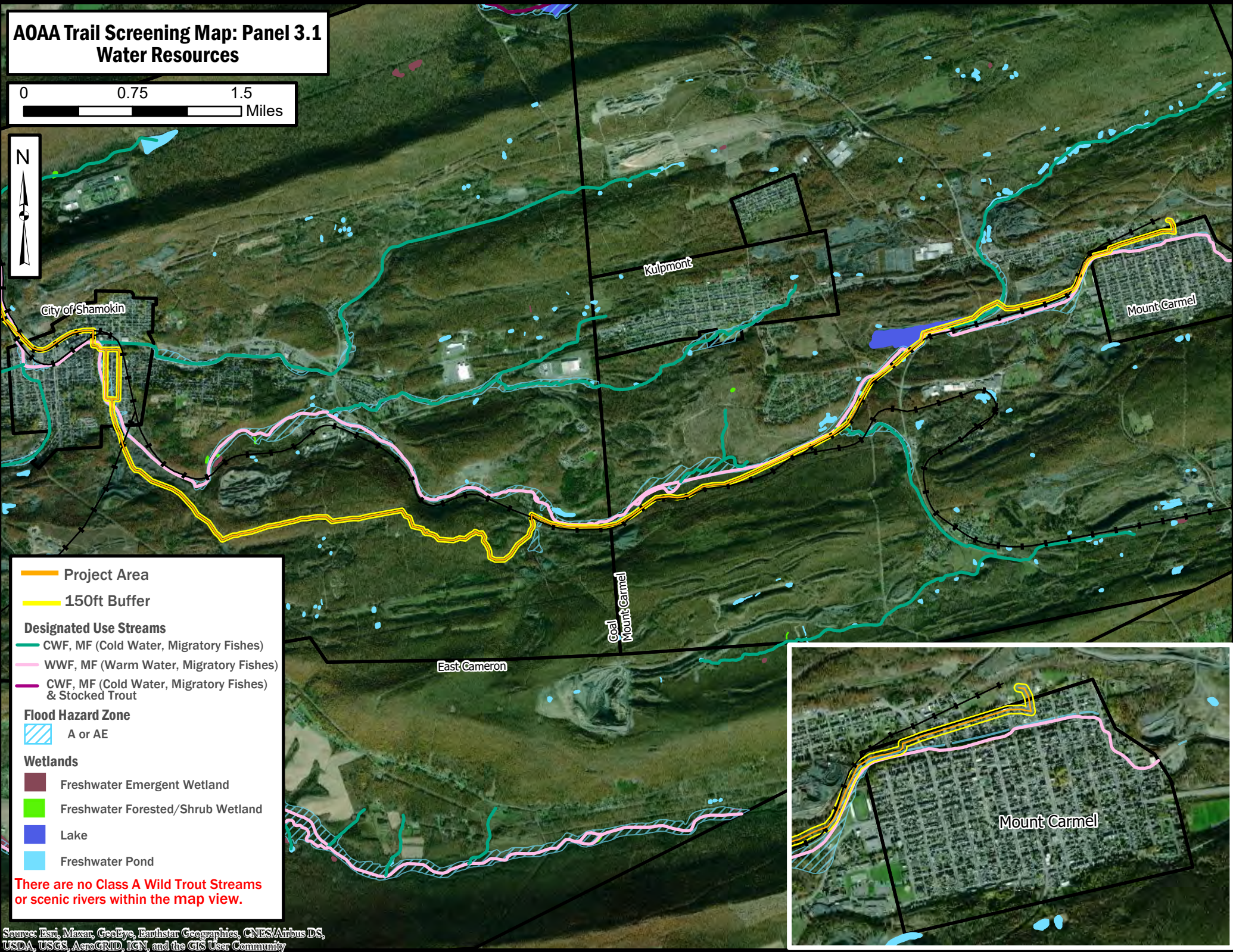
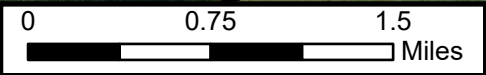


-  Project Area
-  150ft Buffer
-  Historic Resources
-  TRI Facilities
-  AML Site



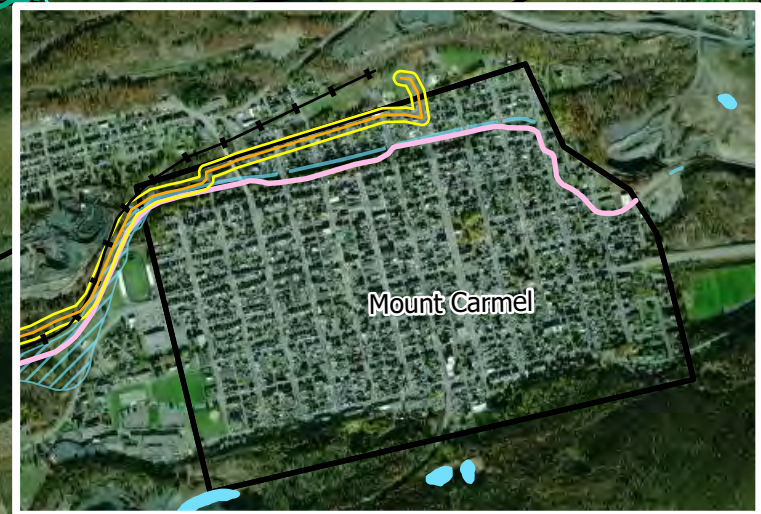
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

AOAA Trail Screening Map: Panel 3.1 Water Resources

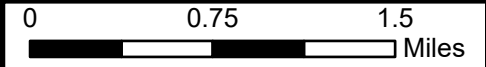


- Project Area
- 150ft Buffer
- Designated Use Streams**
 - CWF, MF (Cold Water, Migratory Fishes)
 - WWF, MF (Warm Water, Migratory Fishes)
 - CWF, MF (Cold Water, Migratory Fishes) & Stocked Trout
- Flood Hazard Zone**
 - A or AE
- Wetlands**
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Lake
 - Freshwater Pond

There are no Class A Wild Trout Streams or scenic rivers within the map view.



AOAA Trail Screening Map: Panel 3.2 Recreational Resources



City of Shamokin

Coal
Mount Carmel

Kulpmont

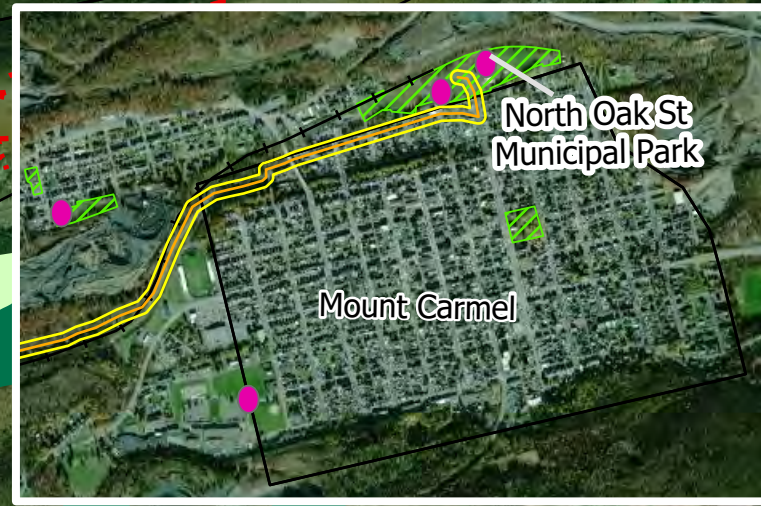
Mount Carmel

AOAA

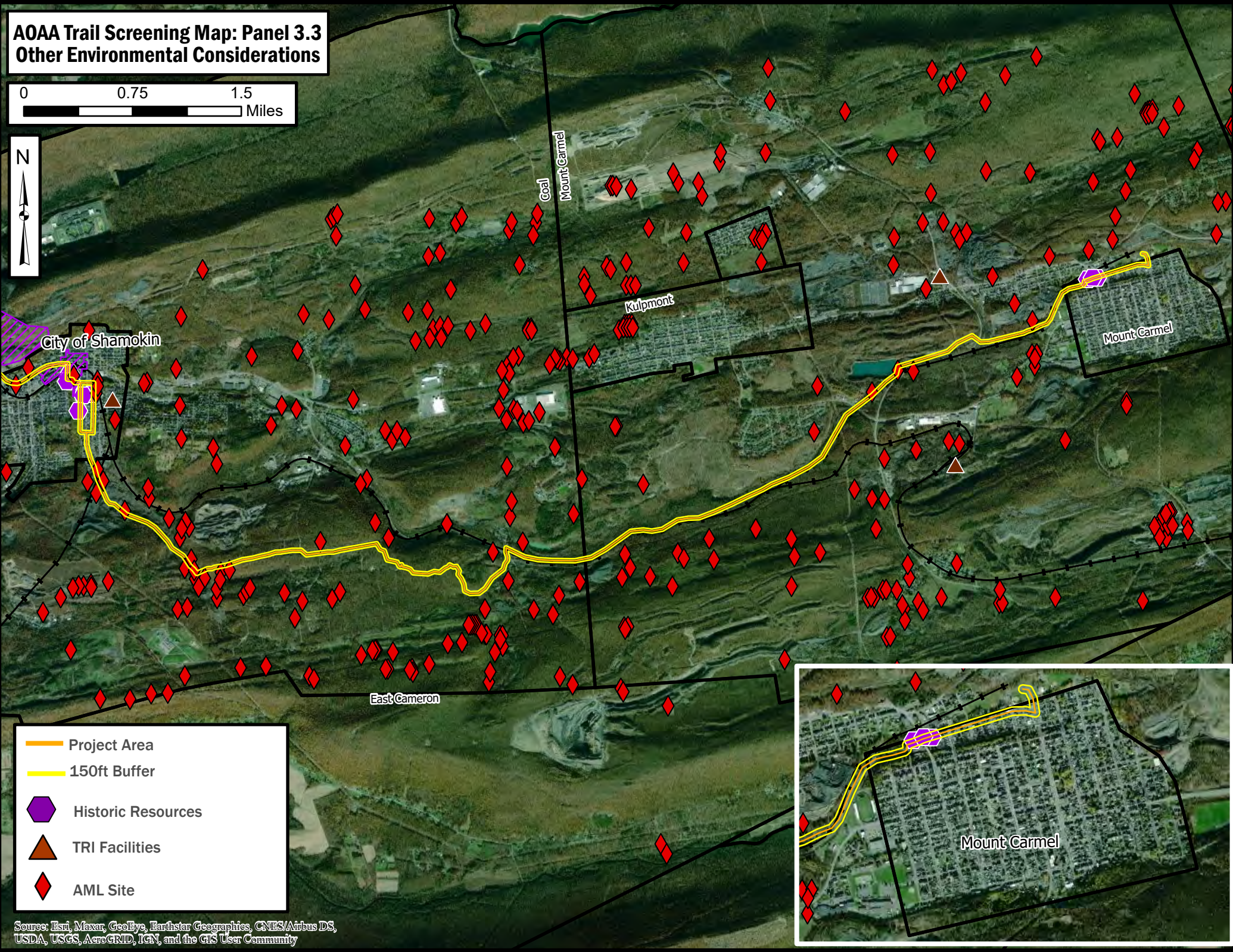
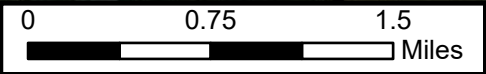
East Cameron

- Project Area
- 150ft Buffer
- LWCF Grant
- PA Trail
- State Forest
- State Game Lands
- Local Park

There are no national parks, state parks, state forests, bike routes, or water trails within the map view.



AOAA Trail Screening Map: Panel 3.3 Other Environmental Considerations



- Project Area
- 150ft Buffer
- Historic Resources
- TRI Facilities
- AML Site



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Appendix E: Threatened and Endangered Species Documentation

1. PROJECT INFORMATION

Project Name: **AOAA Rail Trail Connectivity Planning Project**

Date of Review: **9/29/2021 11:10:29 AM**

Project Category: **Recreation, Rails-to-Trails**

Project Area: **506.96 acres**

County(s): **Northumberland**

Watersheds HUC 8: **Lower Susquehanna-Penns**

Watersheds HUC 12: **Carbon Run-Shamokin Creek; Little Shamokin Creek; Shamokin Creek-City of Shamokin; Shamokin Creek-Susquehanna River**

Decimal Degrees: **40.869716, -76.593240**

Degrees Minutes Seconds: **40° 52' 10.9765" N, 76° 35' 35.6626" W**

2. SEARCH RESULTS - LARGE PROJECT

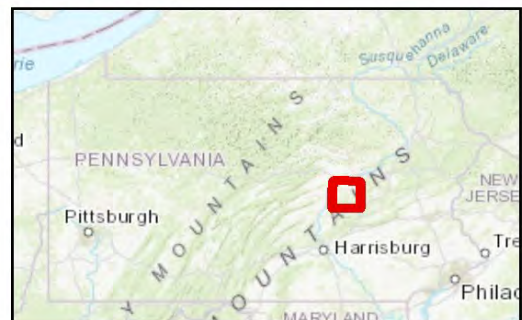
Agency	Results	Response
PA Game Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response

Large Project. The project area is greater than 10 miles and/or 5,165 acres and therefore is categorized as a Large Project, and is not analyzed by the PNDI tool. Coordination is therefore required with the four jurisdictional agencies to determine if potential impacts to threatened and endangered and/or special concern species and resources within the project area. Please see the DEP Information section of the receipt if a PA Department of Environmental Protection Permit is required.

AOAA Rail Trail Connectivity Planning Project

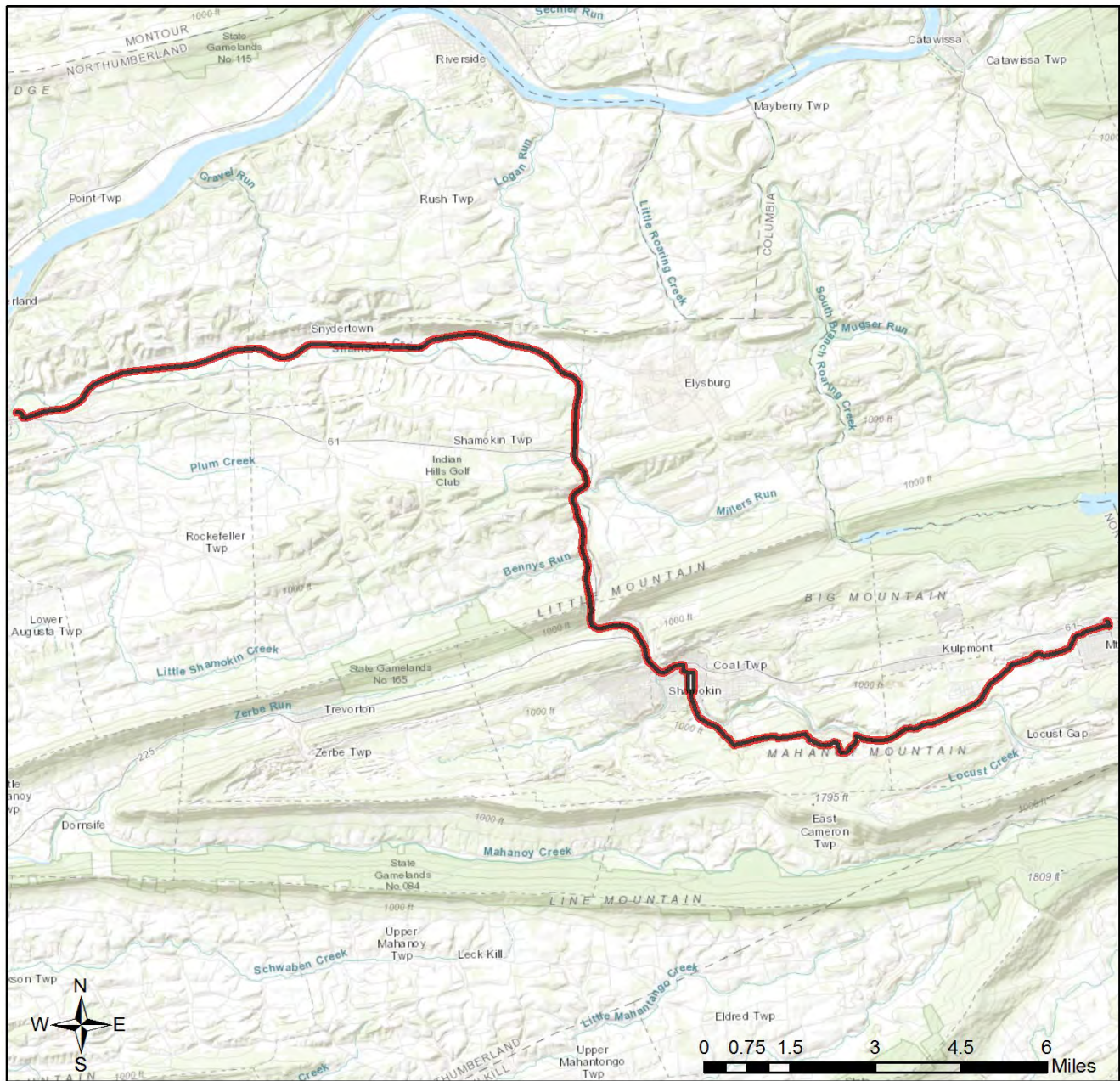


- Project Boundary
- Buffered Project Boundary



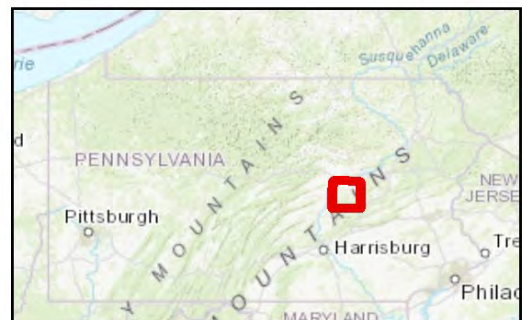
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
 Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China

AOAA Rail Trail Connectivity Planning Project



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, Garmin, Intemap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PA Department of Conservation and Natural Resources

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

U.S. Fish and Wildlife Service

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).

*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:

____ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

____ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

____ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

____ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

____ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

PA Fish and Boat Commission

Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone: (_____) _____ Fax: (_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date

September 30, 2021

PNDI Number: 743285

Version: Final_1; 9/29/21

Kelly Asselin

Michael Baker International

4431 N Front St. 2nd Floor

Harrisburg, PA 17110

Email: kelly.asselin@mbakerintl.com (hard copy will not follow)

**Re: AOAA Rail Trail Connectivity Planning Project
Northumberland County, PA**

Dear Kelly Asselin,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **743285 (Final_1)** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

Recommended Actions:

- Clean boot treads, construction equipment, and vehicles thoroughly (especially the undercarriage and wheels) before they are brought on site. This will remove invasive plant seeds and invasive earthworms/cocoons that may have been picked up at other sites.
- Do not transport unsterilized leaves, mulch, compost, or soil to the site from another location.
- Revegetate or cover disturbed soil and soil stockpiles as soon as possible to discourage the germination of invasive plants. Implement proper erosion control practices to stabilize soil and reduce runoff.
- Do not use seed mixes that include invasive species. Please also use weed-free straw or hay mixes. More information about invasive species in Pennsylvania can be found at the following link: <http://www.dcnr.pa.gov/Conservation/WildPlants/InvasivePlants/Pages/default.aspx>
- Use habitat appropriate seed mixes. For example, when reseeding along a waterway, utilize a riparian seed mix. The Bureau of Forestry Planting & Seeding Guidelines can be found here for recommendations: http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20031083.pdf
- **Use native plants for landscaping, revegetation, and stormwater management. Do not use nonnative invasive species. Reduce the area of lawn and impermeable surfaces to the fullest extent practicable in favor of native gardens or native habitat restoration (e.g., forest, meadow, wetland, etc.).**
- Report occurrences of invasive species to iMapInvasives at <https://www.imapinvasives.org/>. Focus on large infestations and species that are not yet well established in the region or in Pennsylvania (<https://www.paimapinvasives.org/be-on-the-lookout>).

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely

A handwritten signature in black ink that reads "Greg Podnieszinski". The signature is written in a cursive style and is centered within a light gray rectangular box.

Greg Podnieszinski, Section Chief
Natural Heritage Section



Pennsylvania Fish & Boat Commission

Division of Environmental Services

Natural Diversity Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823
814-359-5237

November 1, 2021

IN REPLY REFER TO

SIR# 55128

Michael Baker International
Kelly Asselin
4431 North Front Street
2nd Floor
Harrisburg, Pennsylvania 17110

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 743285_1
AOAA Rail Trail Connectivity Planning Project
NORTHUMBERLAND County:**

Dear Kelly Asselin:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

If you have any questions regarding this review, please contact Josh Brown at 814-359-5129 and refer to the SIR # 55128. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Christopher A. Urban". The signature is written in a cursive style with a large, prominent initial "C".

Christopher A. Urban, Chief
Natural Diversity Section

CAU/JRB/dn



Appendix F: Preliminary Structure Assessment Report

PRELIMINARY STRUCTURE ASSESSMENT REPORT

LOCATIONS (COORDINATES):

BRIDGE 1 - (40.860325, -76.768268)
BRIDGE 2 - (40.865883, -76.751721)
BRIDGE 3 - (40.869997, -76.742475)
BRIDGE 4 - (40.876967, -76.663603)
BRIDGE 5 - (40.876538, -76.609348)

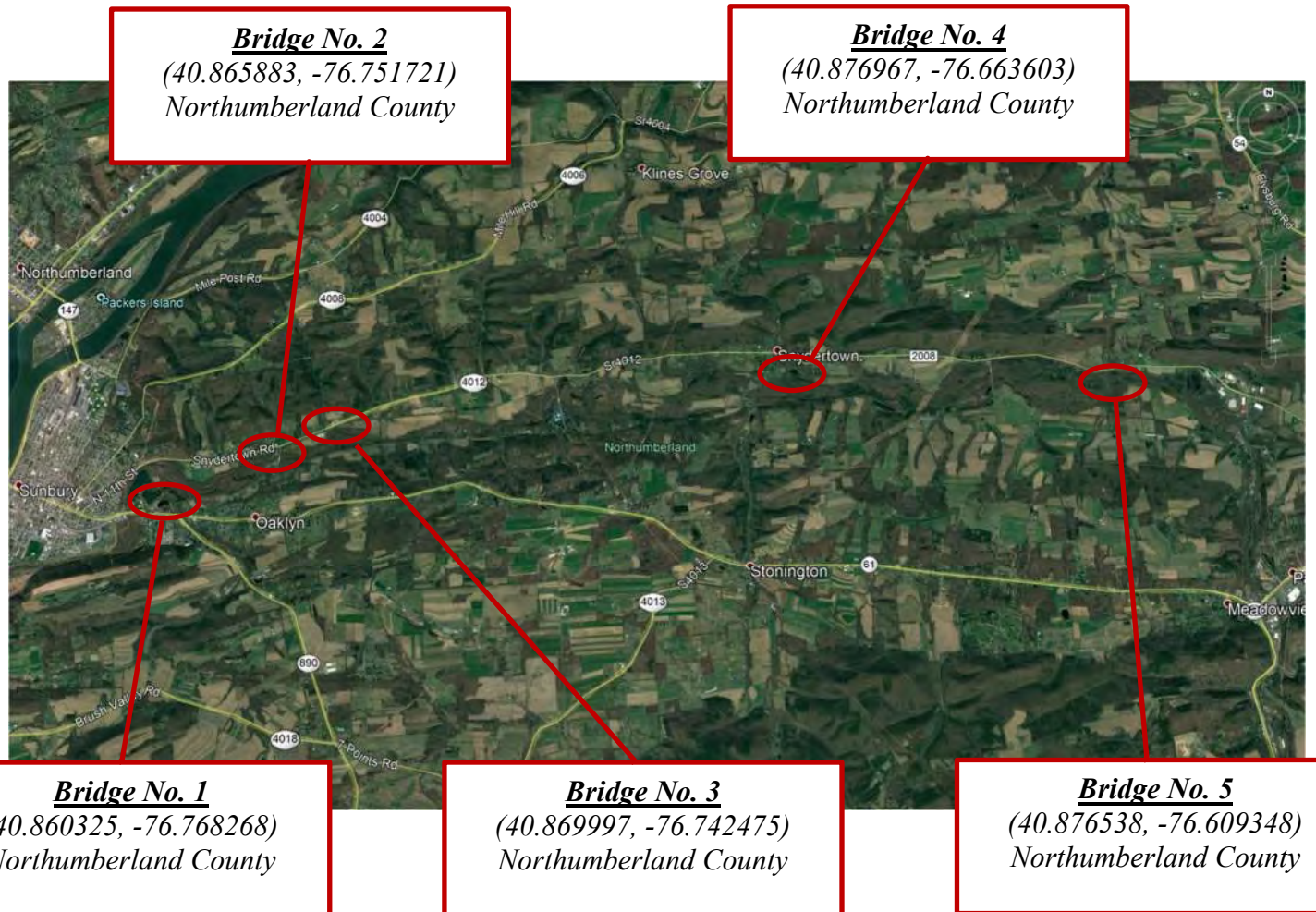
INSPECTION DATE:

JANUARY 8, 2021

PREPARED BY:

JARED GROGAN, E.I.T., C.B.S.I.
DANIEL L. SNOW, P.E.

LOCATION MAP



INSPECTED BY:



Michael Baker International
4431 N. Front St., 2nd Floor
Harrisburg, PA 17110-1709

PREPARED FOR:



BRIDGE 1 CONDITION ASSESSMENT

The first structure assessment conducted by the Michael Baker International (MBI) inspection staff on 01/08/2021 was on an approximately 85' long, (2) span riveted, built up plate girder bridge over Shamokin Creek. The depth of the beams was measured at 45" and contains 2 cover plates on the top and bottom flanges. The out to out width of the girders is approximately 6'. Each girder contains vertical stiffeners on the interior and exterior faces, and there is top flange lateral bracing and cross frame bracing that supports the two-girder system. The original year of construction is unknown. Additionally, the timber ties have been removed from the structure.

The overall condition of the above noted superstructure was observed to be satisfactory for the intended purpose. Approximately 20% of the bridge superstructure is coated in paint, which is suspected to be lead-based. Minor surface corrosion exists throughout the structure. Minor section loss is present on the bottom of the interior angles at the pier and abutments, however the total section loss is less than 5% and not structurally significant. The plate bearings also appeared to have moderate surface corrosion and minor insignificant section loss. Furthermore, approximately 50% section loss was observed on the rivet heads at the top of the structure which is not expected to adversely impact the function of the bridge. Flood debris indicates the bridge is subject to pressure flow.

The bridge substructure appeared to be stone masonry with concrete encasement and was also observed to be in good condition. No major cracking or spalling was noted. Substantial debris is located in Shamokin Creek between the inspected structure and an adjacent active railroad bridge, as shown in the picture below.

RECOMMENDATIONS:

Due to the satisfactory overall condition of the bridge superstructure and substructure, MBI recommends rehabilitation of the existing structure. The total cost to rehabilitate the existing structure, and add a wooden deck with railing, can be found in the preliminary cost estimate table located on the last page of this report.

BRIDGE 1 PHOTO LOG



Photo 1: Interior view of riveted plate girders. Note flood debris trapped on diaphragms and vertical stiffeners on the interior of the structure.



Photo 2: Debris observed in creek adjacent to East side abutment, superstructure, and substructure.



Photo3: View of subject structure in foreground and active railroad bridge adjacent to inspected structure.



Photo 4: General view of the bracing for the two-girder system. Top flange lateral bracing (red arrow). Cross frame bracing (yellow arrow). Also note section loss of rivet heads.

BRIDGE 2 CONDITION ASSESSMENT

The second structure assessment conducted by the Michael Baker International (MBI) inspection staff on 01/08/2021 was on a (2) span pinned steel truss bridge approximately 240' long over Shamokin Creek. The original year of construction is believed to be 1902 based on a plaque on the structure.

The overall condition of the above noted superstructure was observed to be satisfactory with several areas of severe deterioration where debris has accumulated. Due to the robust design of railroad structures, it is unlikely that the deterioration is significant enough to impact the load carrying capacity for pedestrian use, however the bridge should have a thorough cleaning and detailed inspection to determine if any structural repairs are necessary. Approximately 35% of the bridge superstructure remains coated in paint, which is suspected to be lead-based. The remainder of the steel members are rust coated. Minor surface corrosion exists throughout the structure. Section loss measured up to ¼" was observed on the bottom flange of the lower truss chords where debris is the heaviest, and in some locations, on the lateral steel girder bracing. Additionally, minor section loss and holes were observed under the railroad ties in the top flange plate of the stringers but could not be fully investigated.

The bridge is decked with creosoted timber ties connected with steel straps along the outer edge of the top. In general, the timbers are badly rotted and should be removed. Additionally, numerous small trees are growing up through the truss. One is approximately 20" in diameter. The trees must be removed to construct a new deck.

The stone masonry substructure was also observed to be in fair condition. No major cracking or spalling was noted, however most of the joint mortar is missing. Substantial debris has also accumulated at each of the abutments and will need to be removed to thoroughly inspect the bearings.

RECOMMENDATIONS:

Due to the satisfactory overall condition of the bridge superstructure and substructure, MBI recommends rehabilitation of the existing structure. The total cost to rehabilitate the existing structure, and add a wooden deck with railing, can be found in the preliminary cost estimate table located on the last page of this report.

BRIDGE 2 PHOTO LOG



Photo 1: Span 1 of truss bridge looking West.



Photo 2: North abutment face. Note section loss to bottom of floorbeam.



Photo 3: Span 1 side of stone masonry pier face.



Photo 4: Manufacture plaque.



Photo 5: Heavy debris and severe section loss between lower cord truss members.



Photo 6: Looking South along centerline of structure. Note deterioration of timber and tree growing through superstructure.

BRIDGE 3 CONDITION ASSESSMENT

The third structure assessment conducted by the Michael Baker International (MBI) inspection staff on 01/08/2021 was on a single span riveted, built up plate girder bridge over a tributary to Shamokin Creek. The depth of the beams was measured at approximately 45" and contains 2 cover plates on the top and bottom flange. Each girder contains vertical stiffeners on the interior and exterior faces, and there is top flange lateral bracing and cross frame bracing that supports the two-girder system. A natural gas line runs parallel to the bridge, approximately 2' from the superstructure, and is self-supported. The original year of construction is unknown.

The overall condition of the above noted superstructure was observed to be fair. Approximately 10% of the bridge superstructure is still coated in paint, which is suspected to be lead-based. The remainder of the superstructure is rust covered. Heavy corrosion and section loss was found on the bottom flange of the girder and top flange lateral bracing, upper and lower angle, flange plates, and cover plates (up to 1/4"). Furthermore, section loss was observed on the bottoms of the vertical stiffeners.

The bridge is decked with creosoted timber ties connected with steel straps along the outer edge of the top. In general, the timbers are badly rotted and should be removed.

The concrete abutments are in poor condition. There is extensive spalling and a large vertical crack below one of the girders was noted at the West abutment. The remaining concrete was friable. There is loss of bearing beneath at least one of the bearings. The East abutment is in much better condition with only light cracking, however the wingwalls are in poor condition.

RECOMMENDATIONS:

Due to the fair overall condition of the bridge superstructure and substructure, MBI recommends rehabilitation of the existing superstructure and substructure. The total cost to rehabilitate the existing structure, replace the substructure, and add a wooden deck with railing, can be found in the preliminary cost estimate table located on the last page of this report.

BRIDGE 3 PHOTO LOG



Photo 1: Overview of riveted plate girder bridge.



Photo 2: Upstream view from under bridge of concrete arch carrying SR 4012 over a tributary to Shamokin Creek.



Photo 3: Overview of structure facing West. Note deterioration on West abutment.



Photo 4: View of bearing area on East abutment with loss of support. Also note deterioration to top of bottom flange



Photo 5: View of East abutment where only minor cracking is present.



Photo 6: General view of the bottom flange of the built-up plate girder.

BRIDGE 4 CONDITION ASSESSMENT

The fourth structure assessment conducted by the Michael Baker International (MBI) inspection staff on 01/08/2021 was on an approximately 20' long single span rolled steel girder bridge over a tributary to Shamokin Creek. Each pair of rolled girders are joined by riveted plates. The bridge contains lateral bracing at each abutment, and top flange bracing over the length of the structure. A natural gas line runs parallel to the bridge and is self-supported. The original year of construction is unknown.

The overall condition of the above noted superstructure was observed to be satisfactory. No residual paint was observed on the superstructure with all steel components coated with rust. Minor surface corrosion exists throughout the bridge, and minor section loss was noted on the top flanges (up to 1/16"). Heavy corrosion was observed on the lateral bracing connection plates.

The bridge is decked with creosoted timber ties connected with steel straps along the outer edge of the top. In general, the timbers are badly rotted and should be removed.

The bridge substructure was observed to be in poor condition. The beams are bearing on a timber cross member on top of deteriorated concrete. There is extensive spalling of the concrete and the timber on the West side has severe deterioration. Also, one of the bridge anchor bolts is loose. Rehabilitation of the bearing areas is required.

RECOMMENDATIONS:

Due to the satisfactory overall condition of the bridge superstructure and fair condition of the substructure, MBI recommends rehabilitation of the existing structure. The total cost to rehabilitate the existing structure, and add a wooden deck with railing, can be found in the preliminary cost estimate table located on the last page of this report.

BRIDGE 4 PHOTO LOG



Photo 1: Overview of rolled steel girder bridge



Photo 2: Self supported natural gas line.



Photo 3: Concrete spalling at backwall.



Photo 4: View of East abutment. Note deteriorated timber member supported by spalled concrete.



Photo 5: View of West abutment. Note severe deterioration of supporting timber.

BRIDGE 5 CONDITION ASSESSMENT

The fifth structure assessment conducted by the Michael Baker International (MBI) inspection staff on 01/08/2021 was on a 120' single span pinned steel truss bridge over Shamokin Creek. The original year of construction is believed to be 1902. A natural gas line runs parallel to the structure and is supported by steel brackets that extend from the lower truss chord.

The overall condition of the above noted superstructure was observed to be satisfactory with several areas of severe deterioration where debris has accumulated. Due to the robust design of railroad structures, it is unlikely that the deterioration is significant enough to impact the load carrying capacity for pedestrian use, however the bridge should have a thorough cleaning and detailed inspection to determine if any structural repairs are necessary. Approximately 20% of the bridge superstructure remains coated in paint, which is suspected to be lead-based. The remainder of the steel members are rust coated. Minor surface corrosion exists throughout the structure. Section loss measured up to ¼" was observed on the bottom flange of the lower truss chords where debris are the heaviest and in some locations on the lateral steel girder bracing. Approximately 50% section loss was observed on the rivet heads at the top of the structure. Additionally, minor section loss was observed under the railroad ties in the top flange plate of the stringers but could not be fully investigated.

The bridge is decked with creosoted timber ties connected with steel straps along the outer edge of the top. In general, the timbers are badly rotted and should be removed. Numerous small trees are growing up through the truss and must be removed to construct a new deck.

The backwalls of the bridge have failed or are buried in soil and the bearings could not be inspected.

The East abutment is in poor condition. The abutment is undermined by scour and has rotated forward. The front face was noted tilted towards the stream approximately 1" over 12". Inspectors were able to probe into soft infill soils up to 1' horizontally beneath the timber cribbing foundation. The abutment appears to be concrete and is full height. Separation of the abutment and wingwall was also noted.

The West abutment is stone masonry and was observed to be in fair condition. No major cracking or spalling was noted, however most of the joint mortar is missing.

RECOMMENDATIONS

Due to the satisfactory overall condition of the bridge superstructure, and poor condition of the substructure, MBI believes that rehabilitation of the existing structure is feasible. Further study will be required to determine if the East side abutment can be salvaged. The total cost to rehabilitate the existing structure, and add a wooden deck with railing, can be found in the preliminary cost estimate table located on the last page of this report.

BRIDGE 5 PHOTO LOG



Photo 1: Overview of steel truss bridge.



Photo 2: West Abutment. Note slots, and soil falling over the face of abutment and buried backwall/bearings.



Photo 3: Abutment 2. Note spalling and undermining at footing.



Photo 4: Note tilting of East side abutment. Tilt was measured at approximately 1” per foot.



Photo 5: Exposed and undermined timber cribbing at East Abutment.



Photo 6: Lower lateral bracing for support.

PRELIMINARY COST ESTIMATE

PRELIMINARY ESTIMATED COST SUMMARY	
BRIDGE NUMBER	COST
<i>BRIDGE NO. 1 REHABILITATION</i>	\$ 132,607.60
<i>BRIDGE NO. 2 REHABILITATION</i>	\$ 312,672.45
<i>BRIDGE NO. 3 REHABILITATION</i>	\$ 81,141.47
<i>BRIDGE NO. 4 REHABILITATION</i>	\$ 43,588.26
<i>BRIDGE NO. 5 REHABILITATION</i>	\$ 188,105.43
<i>TOTAL =</i>	\$ 758,115.21



Appendix G: Detail Construction Cost Estimates



Section 1: The City of Sunbury to Snyderstown Borough

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1	MOBILIZATION	LS	1	\$ 120,000.00	\$ 120,000
2	CONSTRUCTION SURVEYING	MI	9	\$ 5,200.00	\$ 46,800
3	CLEARING AND GRUBBING	AC	14.5	\$ 2,200.00	\$ 32,000
4	FINAL GRADING	SY	46,933	\$ 2.50	\$ 117,333
5	SUBBASE 4" DEPTH (NO. 2A)	SY	46,933	\$ 15.00	\$ 704,000
6	STONE DUST (2" DEPTH)	SY	46,933	\$ 5.00	\$ 234,667
7	FINAL GRADING AND SEEDING	SY	23,467	\$ 10.00	\$ 234,667
8	ROAD CROSSINGS	EA	1	\$ 15,000.00	\$ 15,000
9	SPLIT RAIL FENCE	LF	5,000	\$ 20.00	\$ 100,000
10	TRAIL HEAD	LS	1	\$ 200,000.00	\$ 200,000
11	EROSION AND SEDIMENT POLLUTION CONTROL	LS	1	\$ 127,000.00	\$ 127,000
12	STORMWATER	EA	4	\$ 5,000.00	\$ 20,000
				SUBTOTAL	\$1,784,667
				CONST INSP	5% \$89,233
				CONTINGENCY	20% \$356,933
				DESIGN	10% \$178,467
				TOTAL	\$2,230,833
				TOTAL ESTIMATE	\$2,231,000



Section 2: Snyderstown Borough to Paxinos

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1	MOBILIZATION	LS	1	\$ 120,000.00	\$ 120,000
2	CONSTRUCTION SURVEYING	MI	10	\$ 5,200.00	\$ 52,000
3	CLEARING AND GRUBBING	AC	14.5	\$ 2,200.00	\$ 32,000
4	FINAL GRADING	SY	46,933	\$ 2.50	\$ 117,333
5	SUBBASE 4" DEPTH (NO. 2A)	SY	46,933	\$ 15.00	\$ 704,000
6	STONE DUST (2" DEPTH)	SY	46,933	\$ 5.00	\$ 234,667
7	FINAL GRADING AND SEEDING	SY	23,467	\$ 10.00	\$ 234,667
8	ROAD CROSSINGS	EA	3	\$ 15,000.00	\$ 45,000
9	SPLIT RAIL FENCE	LF	5,000	\$ 20.00	\$ 100,000
10	TRAIL HEAD	LS		\$ 200,000.00	\$ 0
11	EROSION AND SEDIMENT POLLUTION CONTROL	LS	1	\$ 127,000.00	\$ 127,000
12	STORMWATER	EA	3	\$ 5,000.00	\$ 15,000
SUBTOTAL					\$1,609,667
CONST INSP				5%	\$80,483
CONTINGENCY				20%	\$321,933
DESIGN				10%	\$160,967
TOTAL					\$2,012,083
TOTAL ESTIMATE					\$2,013,000



Section 3: Paxinos to the City of Shamokin

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1	MOBILIZATION	LS	1	\$ 120,000.00	\$ 120,000
2	CONSTRUCTION SURVEYING	MI	28	\$ 5,200.00	\$ 145,600
3	CLEARING AND GRUBBING	AC	11.5	\$ 2,200.00	\$ 25,200
4	FINAL GRADING	SY	36,960	\$ 2.50	\$ 92,400
5	SUBBASE 4" DEPTH (NO. 2A)	SY	36,960	\$ 15.00	\$ 554,400
6	STONE DUST (2" DEPTH)	SY	36,960	\$ 5.00	\$ 184,800
7	FINAL GRADING AND SEEDING	SY	18,480	\$ 10.00	\$ 184,800
8	ROAD CROSSINGS	EA	4	\$ 15,000.00	\$ 60,000
9	SPLIT RAIL FENCE	LF	5,000	\$ 20.00	\$ 100,000
10	TRAIL HEAD	LS		\$ 200,000.00	\$ 0
11	EROSION AND SEDIMENT POLLUTION CONTROL	LS	1	\$ 127,000.00	\$ 100,000
12	STORMWATER	EA	3	\$ 5,000.00	\$ 15,000
SUBTOTAL					\$1,316,600
CONST INSP				5%	\$65,830
CONTINGENCY				20%	\$263,320
DESIGN				10%	\$131,660
TOTAL					\$1,645,750
TOTAL ESTIMATE					\$1,646,000



Section 4: The City of Shamokin

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1	MOBILIZATION	LS	0	\$ 120,000.00	\$ 0
2	CONSTRUCTION SURVEYING	MI	0	\$ 5,200.00	\$ 0
3	CLEARING AND GRUBBING	AC	0	\$ 2,200.00	\$ 0
4	FINAL GRADING	SY	0	\$ 2.50	\$ 0
5	SUBBASE 4" DEPTH (NO. 2A)	SY	0	\$ 15.00	\$ 0
6	STONE DUST (2" DEPTH)	SY	0	\$ 5.00	\$ 0
7	FINAL GRADING AND SEEDING	SY	0	\$ 10.00	\$ 0
8	ROAD CROSSINGS	EA	0	\$ 15,000.00	\$ 0
9	SPLIT RAIL FENCE	LF	0	\$ 20.00	\$ 0
10	TRAIL HEAD	LS	1	\$ 200,000.00	\$ 15,000
11	EROSION AND SEDIMENT POLLUTION CONTROL	LS	0	\$ 127,000.00	\$ 0
12	STORMWATER	EA	0	\$ 5,000.00	\$ 0
				SUBTOTAL	\$15,000.00
				CONST INSP	5% \$750.00
				CONTINGENCY	20% \$3,000.00
				DESIGN	10% \$1,500.00
				TOTAL	\$18,750.00
				TOTAL ESTIMATE	\$19,000.00



Section 5: The City of Shamokin to Mount Carmel Borough

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1	MOBILIZATION	LS	1	\$ 120,000.00	\$ 100,000
2	CONSTRUCTION SURVEYING	MI	19	\$ 5,200.00	\$ 98,280
3	CLEARING AND GRUBBING	AC	20.4	\$ 2,200.00	\$ 71,273
4	FINAL GRADING	SY	65,707	\$ 2.50	\$ 328,533
5	SUBBASE 4" DEPTH (NO. 2A)	SY	65,707	\$ 15.00	\$ 985,600
6	STONE DUST (2" DEPTH)	SY	65,707	\$ 5.00	\$ 328,533
7	FINAL GRADING AND SEEDING	SY	32,853	\$ 10.00	\$ 328,533
8	ROAD CROSSINGS	EA	2	\$ 15,000.00	\$ 30,000
9	SPLIT RAIL FENCE	LF	2,000	\$ 20.00	\$ 40,000
10	TRAIL HEAD	LS	1	\$ 200,000.00	\$ 200,000
11	EROSION AND SEDIMENT POLLUTION CONTROL	LS	1	\$ 127,000.00	\$ 178,000
12	STORMWATER	EA	10	\$ 5,000.00	\$ 50,000
SUBTOTAL					\$2,540,473
CONST INSP				5%	\$127,024
CONTINGENCY				20%	\$508,095
DESIGN				10%	\$254,047
TOTAL					\$3,175,591
TOTAL ESTIMATE					\$3,176,000