A FEASIBILITY STUDY FOR THE
MAIN LINE CANAL GREENWAY TRAIL
(A SEGMENT OF THE SEPTEMBER 11TH NATIONAL MEMORIAL TRAIL)
HUNTINGDON AND MIFFLIN COUNTIES, PA

Prepared for:
Allegheny Ridge Corporation
Altoona Heritage Discovery Center
1421-1427 12th Avenue
PO Box 348, Altoona PA 16603

Prepared by:
Campbell Thomas & Co.
1504 South Street
Philadelphia, PA 19146
215-545-1076

In association with:
Laird LA, PLLC
821 Dick Schoolhouse Rd...
Roaring Spring, PA 16673
814-614-4707

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Feasibility Study for the
Main Line Canal Greenway Trail / 911-Trail
From the Lower Trail at Alfarata (Huntingdon Co.) to Lewistown (Mifflin Co.)

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I. Introduction

A. Project Scope

The Main Line Canal Greenway Trail Feasibility Study investigates the opportunity and feasibility of creating a multi-use trail through the Juniata River Valley of Huntingdon and Mifflin Counties, Pennsylvania. The proposed trail aims to connect the Lower Trail, just west of Alfarata in Huntingdon County to Victory Park in downtown Lewistown, Mifflin County. The proposed Main Line Canal Greenway Trail would serve as a central section of the September 11th National Memorial Trail, envisioned as a 1300-mile pilgrimage trail that will form a loop connecting the National September 11 Memorial and Museum in New York, the National 9/11 Pentagon Memorial in Arlington VA and the Flight 93 National Memorial in Shanksville, PA. (See Appendix A-ii for the overall 911 National Memorial Trail Alignment)

This Feasibility Study has considered the opportunities and constraints affecting the proposed alternative trail alignments and makes recommendations for proceeding with future phases of trail implementation. In addition to identifying a preferred trail alignment, the study looks at potential right-of-way acquisition requirements and recommends appropriate management entities to control, operate, and maintain the Trail. Potential funding sources and development strategies have also been formulated and sequenced into a phased Implementation Plan. The plan includes opinions of probable cost for acquisition, development, and operation of the Trail and lays the groundwork for project development and implementation actions by local governments, non-profit organizations, and the private sector.

Public participation has been a key component to the success of this project. Input from community groups and stakeholders, local governments and planning commissions, and the public in general has been solicited through trail steering committees, stakeholder workshops, public meetings, planning commission meetings, maps, graphic presentation and displays, and interviews.

This study’s recommendations are the result of community input garnered through a structured public participation process. The proposed trail alignments and configurations were developed through a series of meetings with the project study committee and in public forums.

B. Project Partners

The progress that has been achieved would not have been possible without the talent and vision of the project’s many partners. These partners generously contributed their time and ideas through participation on the Trail Study Committee. Funding for this study has been generously provided by a grant from The Pennsylvania Department of Conservation & Natural Resources (DCNR) with matching funds from other generous contributors, including Mifflin County,
Huntingdon County, the Southern Alleghenies Planning & Development Commission (SAPDC) and the Allegheny Ridge Corporation (ARC).

Project partners include among others:
- Allegheny Ridge Corporation (ARC)
- Huntingdon County Planning & Development
- Mifflin County Planning and Development Department
- Mifflin County Conservation District
- Southern Alleghenies Planning & Development (SAPDC)
- Central PA Rails to Trails
- Huntingdon County DMO
- FirstEnergy Electric
- PennDOT (District 2 & District 9)
- Raystown Mountain Bike Association
- Dirt Rag Events
- Juniata River Valley Visitors Bureau

C. Regional Context

Huntingdon and Mifflin County fall within the Ridge and Valley Geologic Province. The topographic features of the region and consequent natural beauty was formed when pressure from the southwest compressed with the region to the northwest, buckling the rock into long, continuous ridgelines extending from southeastern New York, through New Jersey and Pennsylvania to Maryland, West Virginia, Virginia, Kentucky, Tennessee, Georgia, and Alabama. Soft shales and silts eroded over time to form the valleys, while sandstones eroded at a slower rate, leaving behind the long, even ridges you see today. This Ridge and Valley region of Huntingdon and Mifflin County drains to the Susquehanna River by way of the Juniata River and a host of smaller streams.

Since the area was established in the late 1780’s, the Ridge and Valley Province has presented an important obstacle to east-west travel, which has been significant in guiding the development of the region’s transportation and industry throughout history. The Juniata River, weaving its way from west to east, became one of the early main travel arteries through the interior of Pennsylvania to the Ohio Valley. Trading in the region preceded agriculture as an early inducement for settlement along the Juniata. Trading outposts and early settlement towns such as Huntingdon, Mt. Union, and Lewistown were built in key locations, establishing the communities that we see today. The American Revolution gave push for domestic trade between the major east coast towns and cities and opportunities to the west. Major transportation and infrastructure improvements were required to aid this demand for domestic trade, leading to the formation of transportation corridors that followed the watercourses, valleys, and gaps within each ridge.
In 1821 the Huntingdon, Cambria, and Indiana Turnpike routed traffic west through the mountains, connecting a number of agricultural settlements that had evolved by this time. Rich soils in the area produced grains and grasses that supported horses, cattle, and sheep farms as well as industries including woolen mills, gristmills, flourmills, and breweries.

To aid expansion and combat competition with trade routes out of New York, new roads, railroads, and canals were built. Following the initial success of the Erie Canal between New York, Buffalo, and Lake Erie, The Pennsylvania Canal and Railroad aimed at connecting Philadelphia to Harrisburg and Pittsburgh, as well as to the agricultural resources along its length. The Pennsylvania Main Line was completed in 1834 and ultimately covered 390 miles over five segments—a 103-mile Western division, a 36-mile Allegheny Portage Railroad, a 127-mile Juniata division, a 43-mile Eastern division, and an 82-mile Philadelphia and Columbia Railroad.

The Canal system transformed the largely self-sustaining settlements into communities that were economically grounded in industry and transportation. The mining industry prospered along the canal corridor and iron production increased profoundly with improved accessibility to new markets. The Canal ultimately gave way to the Pennsylvania Railroad which purchased the alignment in 1857 and slowly closed the Eastern Division Canal through the end of the 19th century. Due to limitations in the landscape, the railroad built along much of the same alignments as the historic canal, often right over the existing infrastructure. Little remains of the old Main Line Canal today, but there are a few sections within Huntingdon and Mifflin County that are still visible.
Many Canal Towns were bypassed by the Railroad and their economies suffered. Meanwhile, towns that remained connected with a railroad station continued to grow and prosper. Although iron production declined in the late 19th century, limestone quarrying and sand quarrying grew in the area.

In the last century, Huntingdon and Mifflin County have witnessed periods of prosperity, as well as depression. Increased use of the automobile and trucking have largely impacted the rail transportation industry. As with other mining regions across the U.S., the Juniata Valley has seen a major downturn. Unemployment has increased substantially, and the population has gradually decreased.

The region, however, has a long and diverse history and culture and is home to areas of unmatched natural beauty. In recent years, there has been an increased recognition of the natural, cultural, and economic value of these unique resources and preserving the regions history and natural beauty has become apparent through an increased interest in recreation and tourism. Public access to the Juniata River has been substantially increased through boat launch locations and trail development in both Huntingdon and Mifflin Counties. Residents and visitors alike are beginning to see the opportunity for recreational amenities and tourism within their communities, as well as the potential for economic development.

D. Benefits of the Trail

Huntingdon and Mifflin County are exceptionally rich with natural, historical, and cultural assets. Opportunities exist to incorporate these resources into a premier nationally significant recreational trail system – the Main Line Canal Greenway Trail / September 11th National Memorial Trail – that will benefit area residents and visitors alike. The Trail will enhance the quality of life for existing residents, not only by providing for recreation and appreciation of the beauty of the agricultural landscape and natural scenery, but also by stimulating economic revitalization of the traditional main streets in the corridor’s historic canal and railroad towns.

Potential recreational business activities that could be generated by the Trail include: eateries, bed and breakfasts, bicycle rental, recreation activities, sightseeing excursions, bicycle related shops and equestrian support centers.

The proposed Trail will also enhance mobility and connectivity within and between Huntingdon and Mifflin Counties. The Trail will also aim to provide safe walking and bicycle commuting opportunities to businesses, parks, schools and the like. The enhanced recreational opportunities that this trail system will provide are an attraction to workers in the “knowledge industries,” making the Counties more competitive in the new economy.

“Mayfest” in downtown Huntingdon provides is a major community event that draws thousands of visitors to the Region. The Main Line Canal Greenway Trail will look to build upon tourism and existing resources and events to enhance communities along the entire corridor.
The Trail will encourage economic development as it passes through urban centers and connects existing facilities offered by Alexandria, Petersburg, Huntingdon, Mill Creek, Mapleton, Mt. Union, Kistler, Newton Hamilton, McVeytown, and Lewistown. Bringing the Trail through these historic canal and railroad towns and industrial/agricultural centers provides mutually for the benefit of the town, its citizens, and the trail users. Town centers and their related businesses will provide amenities to trail users in the form of restaurants, hotels, shops and site-seeing. Thus, the Trail users will bring a new source of income to help grow current businesses and create opportunity for the development of new ones.

E. Study Goals and Objectives

This study's primary goal is to assess the feasibility of developing a recreational multi-use trail that will connect from the Lower Trail in Alfarata, Huntingdon County to Victory Park in Lewistown, Mifflin County, as part of the Main Line Canal Greenway between Pittsburgh and Harrisburg. This trail corridor must also serve as the September 11th National Memorial Trail corridor as it traverses Pennsylvania through Huntingdon and Mifflin County on its way from the Flight 93 National Memorial in Somerset, PA to the National September 11th Memorial and Museum in New York City. Objectives of this study aim to evaluate the feasibility of several proposed alternative trail alignments, and where appropriate, the team has made recommendations to guide the creation of the preferred interim and ultimate trail alignment.

Key objectives and tasks of this Trail Feasibility Study that tie into the efforts of past planning studies include:

- Explore existing assets and enhance the Regions parks, recreation, greenways, trails, and open space for current and future generations.
- Enhance the quality of life for citizens through the conservation of open space and provisions of parks and recreation opportunities.
- Conserve a historic landscape and protect natural resources.
- Expand the public park system for people who live work and visit.
- Provide connectivity to as many features as possible along the route – population centers, recreation facilities, boat launches, business or commercial sites, historical features, schools, and such.
- Create a safe and secure trail facilitate that minimizes hazardous interface between trail users and other motorized traffic.
- Plan for a trail facility that protects adjacent landowners and works to meet landowner needs and enhance the existing landscape.
- Provide opportunity for increased economic development within the communities through which the trail passes.
- Prepare logical project phasing for the implementation of the trail corridor.
• Recommend management and maintenance techniques for the trail corridor.
• Provide an opinion of probable cost for trail construction and recommend potential funding techniques and strategies for ongoing implementation.

F. Trail Characteristics

The proposed interim and ultimate trail alignment of the Main Line Canal Greenway Trail generally follows the Juniata River and Historic Main Line Canal Corridor. This alignment will ultimately cover over 60 miles from Alfarata to Lewistown. Along the way, it will pass through a mix of landscapes from rural to urban, heavily forested to agricultural farmland, and open flat plateaus to constrained ridge and valley country. The interim route is primarily on-road and utilizes some existing sections of trail in Mt. Union, while the ultimate alignment proposes a mostly off-road alignment. Several different trail types are recommended for the various landscapes through which the trail passes.

Trail Type 1: Existing on-road trail route to be signed. Signed interim trail routes generally follow the safest, low-volume, back road routes, that require minimal improvement. An example of trail type 1 includes Wakefield road, just west of Strodes Mills, which is identified as part of the interim on-road trail alignment.

Trail Type 2: Bicycles utilize the existing street and pedestrians utilize the existing sidewalk. Trail type 2 tends to follow low-volume urban streets. Directional signage would be placed at appropriate intervals and bike lanes would potentially be painted. Installation of textured pavement may also be appropriate. This trail would be appropriate for the many canal towns along the proposed trail alignment. This

Wakefield Rd., West of Strodes Mills: Temporary on-road trail alignment and example of Trail Type 1.

Main St. Mapleton: Bicycles in street and pedestrians on existing sidewalk is an example of Trail Type 2.

Old Route 22 East of Huntingdon could be adapted for use of the trail. This is an example of Trail Type 3.
type is common in Trail Towns along the Great Allegheny Passage.

**Trail Type 3: Existing road to have surface improvements for trail use/local traffic use.** Where the ultimate trail alignment follows mostly low-traffic rural roads (this includes campground access roads), the road surface may need repair and signage would need to be installed to indicate trail use. In certain areas, old roads will require vehicular access for residents. Old Route 22 and the Fire Trail between Mapleton and Mt. Union are a good example of Trail Type 3.

**Trail Type 4: Historic Main Line Canal.** Trail type 4 follows abandoned, but still visible sections of canal corridor, such as the FirstEnergy Utility corridor south of Kistler. Beyond tying into the historical significance of the corridor, the advantage of utilizing the existing canal path is the carefully engineered alignment (flat grades) that lends itself to non-motorized trail uses. The original canal path typically had drainage, so trail construction may be less costly.

**Trail Type 5: Historic railroad track-bed.** Certain sections of trail may follow an abandoned railroad corridor, such as that proposed along the Dinkey Grades between Mapleton and Mt. Union. Similar to the canal bed, existing railroad track-beds are carefully engineered with gradual grade changes and have substantial stone ballast that can serve as a solid and economical subbase for the future trail.

**Trail Type 6: New trail.** Much for the ultimate trail alignment will be newly constructed and will require the placement of a new crushed stone subbase and a new trail surface (crushed stone or asphalt). The majority of the Main Line Canal Trail will be of this type. Trail Types 4, 5, and 6 may be comprised of either of two types of surface material:
**Typical Section A:** Gravel multi-use bicycle/walking trail (10-12’ wide, compact, finely crushed stone).

**Typical Section B:** Asphalt multi-use bicycle/walking trail (10-12’ wide). In areas prone to flooding, areas of steep terrain, and areas of bridge and roadway approaches, an asphalt trail surface is recommended. An asphalt trail surface can better provide all-season traction, a visible and textural transition to new trail conditions, and the ability to apply striping or arrows to the trail surface. This trail type is beneficial in locations that interface with PennDOT and local roadways to maintain typical conditions required by the respective agency.

**Providing a Trail Surface that meets all user needs:** If equestrian use is anticipated, this will necessitate special consideration to ensure that the trail can accommodate all trail users and that surfaces are not damaged by horse traffic. A typical asphalt trail may also consider incorporating a 2-4’ wide crushed stone edge that is typically preferable for equestrian users and runners who prefer a softer surface. Providing both an asphalt trail and crushed stone edge also encourages the separation of trail user modes which helps to increase trail safety. If cross-country skiing is desired by the trail community, the trail design should also consider leaving the trail un-plowed or partially un-plowed during the winter season.

**Typical Asphalt Trail Surface with Crushed Stone Edge**
(meeting the needs of all trail users)
Meeting ADA Accessibility Requirements: In certain areas along the alignment, the proposed trail has steep slopes. To the extent possible, gravel should be tightly packed or paved to meet ADA requirements. Steep areas, if they cannot be avoided, should be minimized. Any new restroom and other facilities must also be ADA compliant.

G. Projected Use

The Main Line Canal Greenway Trail will appeal to a broad spectrum of users. It is intended that the highest benefit of this trail corridor will be the reestablishment of connections between towns, parks, residential and business communities, cultural, natural and historic resources. The Trail is further envisioned as a strategic element of the future growth and development of the region’s potential for increased markets in heritage tourism and economic development.

Fortunately, the region has a few multi-use trails in existence including the Lower Trail and Mid-State Trail. These trails, along with the 911 National Memorial Trail, recreational trails at Raystown lake, and water trails such as the Juniata River Water Trail, have helped spark the interest and momentum that has led to this study. The citizens that use these trails have realized and appreciated the many benefits of trails and greenways and have initiated various studies and plans such as this one. Some current uses that would be immediately enhanced include: local joggers, picnickers, hikers, and anglers; recreational and commuting bicyclists; and employees and patrons of local businesses.

H. Examples of Other Long-Distance Multi-Use Trails

The 150-mile-long Great Allegheny Passage links Pittsburgh with Cumberland, Maryland, at which point the trail connects with the C&O Canal National Historical Park, whose towpath goes all the way from Cumberland to Washington DC. Much of the route is a rail-trail. An excellent on-line guide is available with maps, lists of services and contacts, at www.atatrail.org. The evidence of trail-related economic revitalization of the small towns through which it passes is quite evident. Over time, the trail has been located completely off-road; however, it once made good use of on-road detours to provide a continuously signed route.

Although bicycling and hiking are the two most popular activities, certain sections of the Great Allegheny Passage with grassy areas are open to equestrians, and other users include fishermen and cross-country skiers. Most of the trail is a packed, crushed limestone surface.
Section Map 2 of the Allegheny Trail Alliance – Note shared sections of Trail and links to services.
**Chesapeake & Ohio Canal National Historical Park:** As noted by the National Park Service, “Preserving America’s colorful canal era and transportation history, the Chesapeake & Ohio Canal National Historical Park is 184.5 miles of adventure. Originally, the C&O Canal was a lifeline for communities and businesses along the Potomac River as coal, lumber, grain and other agricultural products floated down the canal to market. Today millions of visitor’s hike or bike the C&O Canal each year to enjoy the natural, cultural and recreational opportunities available.”

The C&O Canal begins at the fall line at tidewater in Georgetown and heads off into the wilderness through steep mountains. Many of the rural towns along the C&O depend heavily on trail users for their business, and vice-versa.

As will be the case with the Main Line Canal Greenway, the width and surfacing of the C&O towpath varies depending upon its location in small and large towns, and rural areas. The majority of the towpath is surfaced with crushed stone.

**The Erie Canalway Trail:** Named for the famous canal opened in 1825, between Albany on the Hudson River and Buffalo on Lake Erie, the Erie Canalway will eventually span 524 miles across New York State following existing and previous routes of the canal. Already over 200 miles are open and in use. Here again, the trail is an economic lifeline for many older rural towns bypassed by modern transportation routes. In urban centers, the trail enhances the quality of life through its recreational and non-motorized transportation assets, while giving access to the canal and adjacent rivers.
However, the guidebook published by Parks and Trails New York reflects the use of temporary on-road segments linking the completed off-road sections. The sample map section (Map 19 Syracuse East) illustrated here shows the trail as it comes out of the eastern end of Syracuse. The solid line is the completed trail; the dotted line is the temporary on-road route.

The Erie Canalway Trail leaves streets in Syracuse and then follows the historic canal into the countryside.

Here again, as with other long-distance trails, the type and width of paving varies depending upon location and volume of usage. Also, while some of the trail is on the former towpath, much is also on old railbeds, as much of the old towpath was lost when the canal was significantly upgraded to its current 200'-width and made into a barge canal in the early 20th century that is still in use.
The September 11th National Memorial Trail: The Main Line Canal Greenway Trail will hardly be an isolated trail as it co-locates directly with the September 11th National Memorial Trail between Johnstown and Harrisburg. The September 11th National Memorial Trail is an evolving network of off-road multi-use trails, greenways and scenic roads and byways that link the three National Memorials dedicated to the memory of those who died in the tragic events of September 11, 2001; the National September 11th Memorial in New York City, the Pentagon Memorial in Washington D.C., and the United Airlines Flight 93 National Memorial near Shanksville, Pennsylvania. Conceptually, the corridor connecting these sites forms a roughly triangular pilgrimage route that will eventually not only link the national memorials, but also to cities, towns and communities along the way. Many of these communities are home to local memorials and significant sites that reflect that spirit of American patriotism, resilience and perseverance that brought the nation back from the tragic events of that day and helped enhance the great nation that we see today.

The September 11th National Memorial Trail with the spur to Pittsburgh via the Great Allegheny Passage. Green lines are completed off-road trail sections. Red lines are temporary on-road sections. Numbers indicate photos on the guided 911 Trail tour which can be seen at http://www.911trail.org/trail-map/

In 2015, the September 11th National Memorial Trail Alliance worked with Campbell Thomas & Co., LairdLA, and TPW Design Studios to study and ultimately select a trail alignment for the September 11th National Memorial Trail’s Northern Pilgrimage route across Pennsylvania. This northern pilgrimage route connects Garrett, PA on the Great Allegheny Passage, twenty miles south of the Flight 93 National Memorial, and then runs across Pennsylvania, collocating with trails such as the Main Line Canal Greenway to the Delaware Water Gap at Portland, PA. The route then continues eastward into New Jersey to connect to the National September 11th Memorial in New York City.

Utilizing the initial 2015 alignment study, and the work conducted between Garrett, PA and the Flight 93 National Memorial, The September 11th National Memorial Trail Alliance is continuing to work with state, county, and local municipal governments to further promote, implement, and advance the trail. The Main Line Canal Greenway Trail is an example of that continued effort.
II. Existing Conditions & Alternate Alignments

A. Analysis of Existing Conditions

Geology and Natural Resources Supported Local and National Industry:

The Ridge and Valley Province of central Pennsylvania is well represented through Huntingdon and Mifflin Countites containing as diverse an array of landscapes as the people groups that have inhabited the region. The characteristics and properties of the soils on the ridge tops, footslopes, and adjacent limestone valley areas in the Ridge and Valley Province of central Pennsylvania have been strongly influenced by their parent material and geomorphic history, which includes primary bedrock parent materials of sandstone and limestone. The diversity in the Juniata River Valley landscapes is certainly among the most intriguing characteristics that make the corridor so attractive to residents and visitors alike. It is this natural diversity of flora and fauna that have made the region so desirable as both residence and destination for centuries. Many of the woodlands and forests – common to Pennsylvania were heavily harvested in the 1800’s and 1900’s as resources for heating fuel, tanning hides, construction and in support of the region’s growing demand for railroad support and export to other regions that needed great volumes of timber for processing of iron, coke (by product of coal) and steel. These rich natural resources supported many of the key industries that not only shaped the regional landscape, but also fueled the development of our nation.

Environmental and Cultural Resources in the Project Area:

Wetlands and Waterways: A review of the National Wetland Inventory (NWI) revealed there are wetlands within the project area. Wetland and waterway delineations will be necessary during preliminary design tasks for each of the various planned development phases.

Threatened and Endangered Species: The entire state of PA is considered within the range of the Indiana Bat and the Northern Long-eared Bat. Depending on coordination with The U.S. Fish and Wildlife Service (USFWS), the agency may request that any tree cutting be conducted between November 15 and March 31. During Preliminary Engineering, an Assessment Summary for Indiana Bat and Northern Long-Eared Bat may be necessary. These assessments evaluate potential habitat and potential roost trees in the project study area. The project area is also within the known range of the Northeastern Burrush. During Preliminary Engineering, coordination with USFWS and state agencies will occur to discuss project impacts and to resolve any potential threatened and endangered species impact identified on the Pennsylvania Natural Diversity Index (PNDI) review.

Historic: Much of the study area entails rich cultural and historic value in terms of sites of interest and architecture that will need to be coordinated with National Register listing and eligibility determination by the Pennsylvania Historical and Museum Commission (PHMC).
**Archeology:** Most of the area is designated as medium to high sensitivity for precontact archaeological resources, therefore, investigative inventory will need to be assessed on an individual project basis.

**Potential Waste Concerns:** The presence of former railroads and industrial sites present tremendous opportunities for educational and historic interpretation; however, due diligence soil sampling may be required for each individual project basis.

**Vegetation Management (Flora):**

Many areas throughout the region – especially the riparian edge lines, wetlands and floodplains are experiencing tremendous pressure from invasive species that are encroaching, and in many ways overtaking prior dominance of natural species. Both Terrestrial (land based) and Palustrine (waterways) Plant Communities are becoming threatened by introduced invasive species that must be monitored and managed in order to preserve the historic and native vegetation indicative of the region. The Pennsylvania Natural Heritage Program (PNHP), DNCR Office of Conservation Science identifies this region as one of the state’s most diverse landscapes including a wide array of Forests, Woodlands and Shrublands.

Many of these landscapes are at risk of inundation by invasive species, which will need to be a continual priority of the managing entities to fund and execute. Removal and inoculation of Mile-a-Minute Weed, Kudzu and Giant Hogweed and less conspicuous species such as Japanese Barberries, Multiflora Rose are becoming regular management tasks and expenses that will need to be considered in annual budgets and staff labor regimes.

Major canopy trees found in the region are chestnut and red oak on steep upper slopes and hickory and white oak on lower slopes. Other trees found on mountainsides include various maples, black gum and sweet birch. Lowland areas contain red maple, black gum, conifers such as hemlock and white pine, yellow birch, sweet birch and paper birch. Secondary woody plants include silky dogwood, spice brush, witch hazel, huckleberry, dewberry and blueberry. Riparian habitats along the corridor support box elder, sycamore, silver maple, and willow canopy vegetation along with American elm, red maple, American Hornbeam, hawthorn and spice brush. Dominant species include hemlock, white ash, rhododendron, white and yellow birch in the gorge areas.

**Wildlife Diversity (Fauna):**

The area supports roughly 50 species of mammals, the smaller of which include bats, mice, shrews, squirrels, voles, weasels, rats, rabbits, foxes, raccoons, opossums, porcupines and beavers. Larger animals that may be found here are white-tailed deer, black bears, bobcats and coyotes. Two Important Mammal Areas (IMA) can be found throughout The Juniata River Water Valley. The Canoe Creek IMA is home to the endangered Indiana bat as well as the largest maternity colony of little brown bats in Pennsylvania. The Thousand Steps IMA is home to the threatened Allegheny woodrat, a small mammal that lives in high-elevation rock outcrops.

Four Important Bird Areas (IBA) exist within the immediate vicinity of the Juniata River Water Trail. The Greater Tussey Mountain IBA features the greatest population density of Cerulean warblers in Pennsylvania and is noted as being the primary spring migration route for golden eagles east of the Mississippi River. Noteworthy species to watch for include the golden-winged warbler, the Cerulean warbler, the golden eagle and the bald eagle. Juniata College is studying numerous unique habitats that support rare and endangered species such as the Map Turtle, which will need to be enhanced and protected.
Cultural Resources

Native Americans: In the 17th century, the Juniata River valley was home to the OnojuttaHaga Indians. Onojutta (pronounced Ooh-nee-ooh-ah-tah) means vertical or standing stone, and is the origin of today’s “Juniata”. It is these people who are credited with erecting the ancient “Standing Stone” monument. Three tribes of the Lenni Lenape, or “Original People,” were also in the region. The Lenni Lenape became known as the “Delawares” by the colonists, and shortly thereafter began occupying land farther west as they were forced from their homelands. (Juniata Water Trail Map & Guide)

Cultural Features, Historic Sites and Land Use: The consulting team inventoried existing and proposed land use, cultural features, and destination and activity nodes within and adjacent to the study area.

One purpose of the Trail is to connect important cultural features within the community, such as schools and parks. Other important features include museums, historic sites, business districts and employment nodes.

Historic Main Line Canal Boats
B. Analysis of Alternate Alignments

Upon completion of initial research and analysis work which included several site visits, two stakeholder workshops, and an initial public meeting; the design team presented several alternate study corridors for the trail alignment. These potential corridor opportunities included sections of the Kishacoquillas Valley, back roads alignments that included a “fire access trail”, abandoned sections of railroad, field edges, utility corridors, and the Main Line Canal corridor. Further review, comment, and recommendations were provided for these alternative alignments by the Study Committee and at Planning Commission meetings for Huntingdon and Mifflin County.

The following Alternative Alignments were analyzed as part of the Main Line Canal Greenway Trail Feasibility Study, prior to selecting a preferred alignment. (Please see the Alternative Study Corridor Trail Map in Appendix B-ii for detailed information).

C. Kishacoquillas Valley Route

Location and Background:

One alternative alignment for the Trail is The Kishacoquillas Valley, also known locally as the “Kish Valley” or the “Big Valley.” It is a major highlight of Pennsylvania’s ridge-and-valley geography with some of the oldest continuous Amish farming settlements lying between two high forested ridges, Stone Mountain and Jacks Mountain.

Gaps in Stone Mountain at the southern end of this long valley, and to the north in Jacks Mountain provide an easy route through the mountains going from Mill Creek on the Juniata River in
Huntingdon County, then through the Valley, and exiting through Reeds Gap in Jacks Mountain to rejoin the Juniata at Lewistown in Mifflin County. Back roads were reviewed that parallel PA Rt. 655, the main highway down center of the valley, such as Front Mountain Road at the base of Jacks Mountain and Back Mountain Road at the base of Stone Mountain.

The study team also reviewed the surviving railbed of the Kishacoquillas Valley RR that operated from through the northern part of the Valley to Belleville. However, despite the enthusiasm of some members of the public, the team learned that many property owners along the route are opposed to any trail development at this time.

**Conclusions**

A trail route through the Big Valley would provide visitors an extraordinarily picturesque cultural experience.

![The Kishacoquillas Valley](image)

However, such a route, by leaving the Juniata River valley from Lewistown to Mill Creek, would bypass numerous river towns such as McVeytown, Newton-Hamilton, Mt. Union, and Mapleton. During project meetings the consensus was clearly to “follow the River and the towns.”

Nevertheless, people also sought the creation of loops that would connect with the Trail, and a loop using the Big Valley would be one of the highlights of the Main Line Canal Greenway and the 911 Trail.
D. Back Roads Routes

**Share the Road /County Walking Roads:**

There are several opportunities for ultimate trail alignment to utilizes existing low-volume roads. From a trail perspective, we believe that many of these low-volume back-roads can accommodate trail traffic, as well as existing automobile traffic with minimal improvements. “Share the Road” signage may be all that is needed on certain on-road routes, while road surface improvements might be required elsewhere. Many of these roads are unpaved or without painted lines and can easily accommodate a mix of walkers, bicyclists, and automobiles.

Often described as “country walking roads” these roads are typically low-speed back-road driving routes, providing access for residents, campsites, and local businesses. Many of these roads may have originally been high-traffic PennDOT roads in their prime but have reverted to back roads since the construction of the modern Route 22. They may also serve as riverside access roads for residents and campers living along the Juniata River. Although many of these roads lead to a dead end, there is an opportunity to connect sections of dead-end road with a trail that can help to link the communities they serve, while still maintaining a quiet back-road environment.

Potential on-road routes for the trail alignment include:

**Huntingdon County:**

- **Warrior Ridge Rd.** (South from Petersburg)
- The Alignment of the **William Penn Highway/Old Route 22** (Standing Stone Creek to Ardenheim)
- **Ardenheim Cottage Rd.** (Residential river access rd. south of Ardenheim)
- **Pike Run Drive/Glen Burk Dr.** (Old Route 22 between Ardenheim and Mill Creek)
- **Main St.** (Mill Creek)
- **Water View Ln., Malley Run Dr., and Shangri-La Ln.** (Residential river access roads in Mill Creek)
- **Railroad St.** (Right bank of the Juniata River north of Mapleton)
Mifflin County:

- **Lower Country Club Rd** and **Front Dr.** (West of American Legion Country Club)
- **Aqueduct Rd.** and **Campsite Circle** (South of Newton-Hamilton)
- **Norton Rd.** and **Barben River Ln.** (Northeast for Newton-Hamilton)
- **Riverside Dr.** and a **private access road** through Harshbargers Campground (southwest of McVeytown)
- **Vance Dr.** (Southwest of McVeytown)
- **Old Fishermans Crossing Rd.** (Northeast of McVeytown)
- **S. Sandbeach Rd./N. Sanbeach Rd.** (Northeast of McVeytown)
- **Old Canal Way/Red Barn Ln.** (Southwest of Lewistown)
- **Locust Rd., Mainline Rd., and Juniata Division Rd.** (Locust Campground Southwest of Lewistown)
- **Blue Juniata Dr.** (Southwest of Lewistown)

If the trail alignment is recommended along existing on-road routes and future trail demand warrants a separated sidepath along these roads, trail right-of-way and potential easements through adjacent property would need to be determined.

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The Fire Trail offers a potential trail corridor between Mapleton and Mt. Union. Property Negotiation will be required.
Unpaved Roads and the Fire Trail (Mapleton to Mt. Union):

In field surveying the corridor, it became obvious that there are sections of unpaved private access roads that could be improved to accommodate a trail with the approval of land owners. Some of these alignments appear to see use from ATV traffic and for hunting access, which would need to be discussed and addressed.

One unpaved road that traverses the narrows between Mapleton to Mt. Union is the “Fire Trail” which was used to fight fires caused by the steam railroad locomotives below. This Fire Trail has been considered for trail use in the past and would create a beautiful off-road connection between Mapleton and Mt. Union through a challenging section of the corridor. The crushed stone surface could be improved to accommodate all trail user modes and signage. Because this is a private access road through hunting camps, negotiations will need to take place with existing/future property owners.

E. Active / Inactive / Abandoned Railroads

Norfolk Southern Pittsburgh Line (Active):

The original Pennsylvania Railroad Main Line is now owned and operated by Norfolk Southern as the Pittsburgh Line. This line is Norfolk Southern’s primary east-west freight rail artery between Harrisburg and Pittsburgh and is also part of the Amtrak passenger service corridor. The Pittsburgh Line is arguably Norfolk Southern’s busiest freight corridors with 50-70 freight trains and 2 passenger trains passing through the corridor daily. If the Norfolk Southern-Amtrak railroad corridor was available for trail use, it would be ideal trail geographical connection between the Petersburg and Lewistown. The corridor between Petersburg and Lewistown as the Pittsburgh Line. This line is Norfolk Southern’s primary east-west freight rail artery between Harrisburg and Pittsburgh and is also part of the Amtrak passenger service corridor. The Pittsburgh Line is arguably Norfolk Southern’s busiest freight corridors with 50-70 freight trains and 2 passenger trains passing through the corridor daily. If the Norfolk Southern-Amtrak railroad corridor was available for trail use, it would be ideal trail geographical connection between the Petersburg and Lewistown. Although the railroad through this corridor has largely downsized from four track to two tracks and there are areas that could physically support the trail, it is our understanding that...
Norfolk Southern is not interested in a shared rail-to-trail option at this time. There is also local and regional interest to expand freight and passenger rail service between Harrisburg and Pittsburg in the coming years, which might require additional trackage.

Early in the study, it was determined that the Norfolk Southern Railroad line between Pittsburgh and Harrisburg is not a feasible trail alignment at this time. Representatives of NS Railroads have explained that they do not allow or endorse any form of recreation within their right-of-way or land holdings. Recognizing that this policy may change in the future, the railroad corridor should remain a potential future option for the trail.

Kishacoquillas Valley Railroad (Abandoned):

The abandoned Kishacoquillas Valley (KV) Railroad was investigated as a potential alternative for the Main Line Canal Greenway Trail. The KV Railroad connects from Belleville to Lewistown for 9.2 miles and is located parallel to the Kisk Creek. It last operated in 1940 when the tracks were removed. According to the “Juniata/Mifflin County Greenway, Open Space and Rural Recreation Plan” (2010) the rail corridor has since reverted to private ownership. As part a county resident mail-out survey the KV Railroad corridor was investigated as a potential recreation trail. The survey found substantial opposition to the trail, which passes through multiple private landowners along its length, including the Lewistown Water Authority and Maple Grove Mennonite Church. As part of the public outreach and stakeholder interviews for this feasibility study, the project team found that there is still some interest in pursuing the KV railroad for a trail alignment, but most landowners are not interested, and ongoing negotiations would be required.

Dinkey Grades (Abandoned):

Mt. Union Dinkey Bridge was built in 1936 by Harbison-Walker Refractories Company across U.S. 22, The Juniata River and The Pennsylvania Railroad (currently Norfolk Southern) just west of Mt. Union.

The destroyed bridge was later reconstructed and used through the 1940’s, (as evidenced in the 1944 Mt. Union, PA USGS Quad Map) but subsequently decommissioned and dismantled in stages in the 1950’s.

The ‘Dinkey grades’ were carved into Jack’s Mountain to reach quarries that produced the famous ‘Ganister’ stone - the prime ingredient for silica bricks that are used to build industrial furnaces. With the rapid expansion of the
manufacturing economy from the late 1880’s onwards, these bricks were in high demand, especially by the iron and steel industries. Long ago, the waters of the Juniata River cut right through Jack’s Mountain near present day Mount Union and exposed ganister deposits on both sides of the river. While there are plenty of other sources of ganister, none had the benefits of this location. The river, which exposed the ganister became an artery of commerce, first by barge and then as a natural water level course for the Pennsylvania Railroad – in many locations, building on top of the former Mainline Canal rights-of-way. The railroad followed the river as it built a mainline across the state with the goal of linking Philadelphia to Pittsburgh, where the steel industry’s need for durable high temperature blast furnaces would become the biggest market for silica bricks.

“With two railroads in Mount Union and a supply of ganister within close proximity, the W. H. Hawes Fire Brick Company built the first plant in here in 1899. The plant was sold to the Harbison-Walker Refractories Company the following year and they opened a second plant in 1903. Combined, they created the largest refractory brick plant in the world.”

(Quotes and paraphrases accredited to: www.Ericwilliamsblog.com/jacks-mountain-the-rest-of-the-story)

The current interest in the Dinkey grades, which currently traverse PA State Game Lands 112 is to consider the possibility of adaptive re-use of the grades as a multi-use trail that could connect the Boroughs of Mapleton and Mt. Union as a section of the Main Line Canal Greenway Trail. These grades provide one of very few options to thread a public trail through the famous ‘Jacks Narrows’. These narrows were originally utilized by native American Indian tribes as a major route of commerce and transportation. Modern railroads and the modern highway (SR 22) now consume much of the original narrow ‘gap’ produced by the enduring Juniata River.

Concrete piers from the Dinkey Bridge across the Juniata River are still visible from Route 22.

A series of Public Meetings conducted through 2018 revealed tremendous local and regional interest in restoring the Dinkey Bridge as a significant structure that would once again provide transportation (motor vehicle free multi-use bicycle and pedestrian) access across the river. Support is emerging from all types of trail users, bird watchers, historic canal and bridge enthusiasts as well as the ever increasingly numerous ‘train watching’ fans.

Meetings with The PA State Game Commission have revealed that enhanced use of the Dinkey Grade would be of high potential due to the current location of the Mid State Trail, which could co-locate with the Mainline Canal Greenway and September 11th National Memorial Trail. Significant efforts in planning, design and environmental/historic resources would need to be undertaken to ensure that the narrow bench that once conveyed the railroad could be enhanced to also convey an accessible route in the form of a public trail. Preliminary observations indicate that the gradient along the centerline of the former rail grade averages around 5%, which is the preferred standard for most multi-use ‘rail-trail’ style trails developed within the Commonwealth.
F. Field Edges / Agricultural Preservation and Conservation

Both Mifflin County and Huntingdon County have extensive resources farmland and agriculture which are the foundation of the region. Agriculture is the chief industry and should remain preserved for generations to come. Outdoor recreation, open space, and greenways have an opportunity to not only serve residents and visitors but enhance the region and increase economic impact through farming and tourism.

The Main Line Canal Trail will look to not only preserve existing agricultural practices, but advocate for and expand support for the counties’ agricultural preservation and conservation programs. The trail intends to enhance the landscape with improved parks and an interconnected greenway that benefits communities along its extent. Recognizing that enhancing both the agricultural practices and recreational resources is a challenge for Main Line Canal Greenway Trail, the proposed trail alignment will need to coordinate directly with the landowners and existing farming practices along its extent. This coordination will ensure that all agricultural and recreational needs are met.

In a situation where the trail encounters an existing farm, it is recommended that there be in-person negotiations with land owners to discuss the opportunity for a trail that follows the field and/or river edge. This strategy would help not only to preserve the existing farm practices but could improve the field edge, reduce runoff, and enhance the river bank with a riparian buffer.

Pennsylvania Land Trust Association (PALTA) Maps were used as a resource to identify Conserved Lands within the study area. Additional PALTA Maps used for the study can be found in Appendix A-iv: “Background Research and Analysis – Analysis Overview Maps”
**Conservation Easements:**

On any property (agricultural or residential use), existing Conservation Easements or state and federally funded programs such as the Conservation Reserve Program (CRP/CREP) and Transfer of Development Rights (TDR/PDR) will need to be investigated to confirm that introduction of overlay easements will not conflict with the underlying land use or easement.

Similarly, deed and title search (or current survey) will need to be reviewed to confirm that no limitations, preclusions or deed restrictions would prevent additional overlay easement(s) or that new easements would create conflicts with adjacent or overlying easements.

**The Conservation Reserve Program (CRP):**

CRP is a USDA administered voluntary program aimed at conserving soil, water and wildlife resources by removing highly erodible and environmentally sensitive lands from agricultural production and installing resource-conserving practices. Contracts for land enrolled in CRP are 10 to 15 years in length. In exchange for enrolling land in CRP, USDA provides a yearly rental payment. Since 1987, USDA has made nearly $50 billion in CRP payments to landowners. 2017 Rental Rates for environmentally sensitive lands enrolled in the CRP Program in the Huntingdon and Mifflin County range between $100 to $200 per acre. The Farm Service Agency for Mifflintown is located in Mifflintown, PA

**Conservation Reserve Enhancement Program (CREP):**

CREP is another program where lands that share common easement with a public trail would require coordination. As an example, within a 30’ wide trail easement, the actual area of CREP impacted would be the trail surface and the full width of mowed grass area (possibly 20’ in width). CREP participants would have to determine whether they would want to disenroll the mowed/trail area from their CREP program. However, introduction of a public trail easement would not negate the overall CREP contract (typically 10-15 year lease terms).

**NOTE:** In each of the above land ownership scenarios, Tax Credits or Tax reduction for eased land should be provided through introduced legislation in coordination with the County Tax Assessment Office.

**NOTE:** In all of the above land ownership scenarios, any property owner that provides an easement for conveyance of public access is eligible for landowner liability protection under Act 98 - The Rural Use of Land and Water Act (RULWA). This Act has recently been updated with Amendments proposed in House Bill 544 that now provide additional provisions to include: access and parking areas, trails or piers used by Recreational Users and Recreational Users with Disabilities. The Act now also includes indemnifications for legal snowmobiling, all-terrain vehicle and motorcycle riding activities and further clarifies the difference in terms of ‘charging fee’ versus ‘acceptable contributions’.

*Act 98 can be read in full at website:*
https://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=PDF&sessYr=2017&sessInd=0&billBody=H&billTyp=B&billNbr=0544&pn=4273

**G. Utility Corridors**

As with many trail corridors, sharing right-of-way with a utility corridor can be an efficient use of space. Water, sewer, gas, and electric utilities can have their lines buried beneath a trail corridor,
while telecommunications, cable, and electric utilities can be run overhead of a trail corridor without interference. Within the Main Line Canal Greenway corridor there are sections of visible sewer and overhead electric. In certain areas the electric easements travel over steep terrain, as they are not constrained by topography, but there are sections of powerline along the Juniata that might be ideal for the trail. The sewer alignments are typically gravity fed and generally follow the Juniata River through the urban sections of the corridor. More rural parts of the alignment typically utilize on-site septic.

**Sewer Easements:**

Both Granville Township sanitary sewer and FirstEnergy overhead electric utility easements extend along the left bank of the Juniata River west of Lewistown and are part of the alignment being developed for the S.H. Rothermel Walking Trail. Phase 1 of the S.H. Rothermel Walking Trail officially opened to the public on November 28, 2018 to connect from Victory Park to the Concrete Company. The sewer and overhead electric utility easements may offer opportunities to connect beyond the concrete company to Blue Juniata Drive.

Although the land owners and both easement owners would need to sign-off on co-alignment with the Trail, it is our experience that the addition of a trail within a utility corridor can not only provide better access to the right-of-way for electric and sewer authority maintenance, but additional security from trail users who are utilizing the corridor.

**Overhead Electric:**

FirstEnergy operates overhead electric throughout the study area between Petersburg and Lewistown. Much of their eased land and owned right-of-way was investigated to see if there are co-location opportunities for the Trail. As with sewer utility rights-of-way, overhead electric utility companies require access for maintenance. Trail corridors can greatly improve the maintenance access to FirstEnergy’s overhead utility corridors.

As part of the analysis of potential alternatives, the project team spoke with FirstEnergy representatives on August 21st, 2018 to discuss potentially available right-of-way and any upcoming improvement projects *(Feedback from this meeting can be seen in the Interview Spreadsheet in Appendix G-i).* In addition to identifying key utility alignments that FirstEnergy would consider co-locating with the trail, the utility company also notified the team that they plan to repair/replace utility poles along much of the alignment in 2019/2020 and future coordination efforts for the trail design should be shared with FirstEnergy.
Several key sections of FirstEnergy Corporation corridors were identified as potential trail corridors for the Main Line Canal Greenway:

**Petersburg to Huntingdon:**
Extending from the south end of Warrior Ridge Rd. near the Warrior Ridge Dam an overhead electric easement follows the left bank of the Juniata on the hillside above Norfolk Southern to the north end of Huntingdon Borough at Chapel Hill Rd. Although the topography is challenging and the overhead electric corridor traverses state game lands, and large sections of privately hunting club lands, there is evidence of existing hiking trails that could serve as a pedestrian corridor. Additional easement negotiation, survey and design opportunities would need to be investigated if this section of trail is pursued.

**Old Route 22 to Ardenheim Cottage Rd. in Ardenheim, PA:**
One key section of FirstEnergy overhead electric, south of Huntingdon, is located along the historic canal corridor from the Old Route 22 (William Penn Hwy.) to Ardenheim Cottage Rd. in Ardenheim PA. This section is owned by FirstEnergy and would not require an easement from surrounding landowners.

**South from Kistler - Chris Lane. to Country Club Rd.:**
From Chris Lane to Lower County Club Rd. the historic canal corridor is visible and utilized by a FirstEnergy powerline easement through several private properties. The canal towpath is largely intact and would require minimal improvements to serve as a trail corridor. As with other sections of trail, agreements and property owner negotiations will likely be required to utilize this overhead electric utility corridor.

**East from McVeytown – Route 22/N. Water St. to S. Sand Beach Dr.:**
At the intersection of Route 22 and N. Water St. at the northeast end of McVeytown, FirstEnergy owns and operates a utility right-of-way to S. Sand Beach Dr. This utility right-of-way is ideal for an off-road trail as it is owned by the Utility. Upon further investigation, it is evident that numerous campsites located along Old Fishermans Crossing, which crosses the utility right-of-way appear to be located within the FirstEnergy land. Negotiations will again be required for this section of trail.

**H. Main Line Canal Corridor (Alfarata To Lewistown)**

The Main Line Canal Corridor provides numerous potential opportunities for the trail for the extent of the trail between the Lower Trail in Huntingdon County and Victory Park in Mifflin County. As one will see, much of the canal alignment also co-locates with sections previously
described. This includes back-road routes, abandoned railroads, utility corridors and field edges. The canal alignment also provides the most opportunity to connect to the Juniata River, the historic canal towns, and community resources along the way.

**Lower Trail to Huntingdon:**

The Main Line Canal Greenway Trail alignment was studied in detail as part of the 2010 “Feasibility Study for the Lower Trail Extension – Juniata Clean Water Partnership”. For further detail on prior findings, please reference the 2010 study.

From the Lower Trail trailhead at Route 22, approximately 1 mile west of Alexandria, the Main Line Canal Corridor extends behind large industrial property before reaching Shelton Rd. at the Alexandria Borough Park. Following Shelton Rd. the canal berm is barely visible as it enters the residential center of Alexandria, where the alignment is no longer available. Upon crossing to the south side of Route 22 at High Street, the canal corridor is once again visible next to the Alexandria Pike. Alexandria Pike turns south leaving the canal corridor, while the canal continues eastward through some woods dividing a farm on the left bank of the Juniata River.

Historically, the canal crossed from the left to the right bank of the Frankstown Branch of the Juniata River at the location of the Edgewater Inn and Riverside Grill. The aqueduct abutments are still visible in this location. The canal heads eastward along the general alignment of River Rd. and Burket Ln., where it is still visible next to the road, to several private properties on Burket Ln at the edge of the Juniata River. At the end of Burket Ln. the canal exited into the Juniata River slack water, while the towpath followed the right bank before crossing to the left bank on a towpath bridge, just south of Petersburg Borough. In this deeper portion of the river, the canal boats utilized a series of locks to traverse the river itself rather than in an adjacent canal. Several large property owners now occupy the river edge before reaching the Warrior Ridge Dam where the trail. Today, the left bank is largely comprised of land owned by the Southern Alleghenies Conservancy, which may offer opportunities for the trail.

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*Feasibility Study for the Main Line Canal Greenway – Huntingdon and Mifflin Counties, Pennsylvania January 2019*
At the Warrior Ridge Dam, the canal boats re-entered the canal on the left bank of the Juniata River and continued south into Huntingdon. This section of canal has is no longer visible due to both flooding of the Juniata River and expansion/development of the PA Railroad (Norfolk Southern Railroad). The canal continued into and through Huntingdon along the general alignment of the Pennsylvania Railroad and is no longer visible today.

**Huntingdon to Mt. Union:**

![Huntingdon, Pa. in 1850, showing Canal and Single Track P.R.R.](image)

East of Huntingdon, the Canal crossed Standing Stone Creek by way of an aqueduct, continuing the left bank of the Juniata towards Mill Creek. Old Route 22 was subsequently constructed on top of the original canal corridor between Standing Stone Creek and Ardenheim. Continuing south-east from Ardenheim, the canal corridor now follows a FirstEnergy overhead electric utility right-of-way to Ardenheim Cottages Rd. (T-545). This powerline right-of-way offers a potential trail connection for the Main Line Canal Greenway Trail. The canal corridor continues to parallel the Juniata between the Norfolk Southern Railroad and Juniata River through a mix of private residential properties and large tracts of farm land.

The canal corridor eventually connects to another residential community at Water View Lane, crossing Through Creek Valley Rd. (PA-829) to the south side of Malley Run Dr. and Shangri-La Lane. Although the berm of the original canal is still visible in places, it is now occupied by a number of residential properties and back yards.

East of Shangri-La Lane, the canal corridor enters several large parcels of forested land between the river and Norfolk Southern railroad. Many of these properties are difficult to access and appear to be owned by Norfolk Southern Railroad, although some are owned by private landowners that gain access using a culvert under the rail line. Although the canal corridor is mostly visible from aerial perspectives, parts of the canal appear to be compromised by the railroad, especially where the railroad jumps from the left to the right bank of the river, just north.
of the U.S. Silica Plant. Should the trail corridor be pursued through this section of canal, right-of-way negotiations would need to take place with the private land owners and Norfolk Southern.

South of the Norfolk Southern Railroad Bridge, the canal has been compromised by the U.S. Silica Plant and P.A. 655. Recent property owner discussions with the U.S. Silica Plant expressed support of the trail, but ongoing discussions and negotiations for the trail alignment will be necessary (see Appendix B-iv and B-v for additional information in the property owner parcel spreadsheet and accompanying maps).

Along PA-655, south of the U.S. Silica Plant, the historic canal corridor is now compromised and a sideway would be required. East of Bridge St. the Canal corridor once existed through the Mapleton Borough Recreation and Ball Field, which could potentially serve as a trailhead for the Maine Line Canal Greenway Trail.

At the end of the Mapleton Borough Park, one can still see remains of the canal aqueduct, which once brought the canal from the left to the right bank of the Juniata. Should this alignment be used, a new bridge would be required. Continuing east towards Mt. Union on the right bank of the Juniata, the canal corridor has been compromised by the Norfolk Southern Railroad. As one will read in the “Back Road Alignments” section on page 20, there is an opportunity to follow a fire access trail through this section.

Upon entering Mt. Union from the West, the canal corridor once followed W. Poplar St. The canal has subsequently been buried, but a new section of trail along W. Philadelphia Ave. offers opportunities for the Main Line Canal Greenway Trail.

**Mt. Union to Newton-Hamilton:**

Heading East from Mt. Union, the canal corridor crossed the Juniata River to the left bank, just north of the Kistler Rd. bridge where the Norfolk Southern railroad bridge now exists. The canal followed the alignment of Kistler Rd. but is no longer visible. The canal re-appears as it leaves the Kistler Rd./Country Club Ln. at Chris Lane. From Chris Lane to Lower County Club Rd. the canal corridor is visible, as it is now utilized by a FirstEnergy powerline easement through several private properties. There may be an opportunity to share this utility easement with the Trail. Although the canal has been compromised by residential development in this location, the alignment generally follows County Club Rd. around the American Legion Country Club on the left bank of the Juniata. The canal once continued around the bend in the river from County Club Rd. to Aqueduct Rd.
Continuing towards Newton-Hamilton the canal is adjacent to Acqueduct Rd. but is largely compromised by campground properties and the road itself. Upon leaving Aqueduct Dr. at Bowers Ln., the canal passed by an historic lockkeepers house and other examples of canal era buildings. Sam Miller and Dave Harmon of the Newton-Hamilton Historic Society have been working to preserve this property (See Appendix B for a map overview of the Lock House in relation to the Historic Canal and Newton Hamilton).

Preserving this lockkeepers house, as well as other canal remnants along the trail is recommended as part of this study. These canal features tie into the history of the region and offer opportunities for historic interpretation and education.

Beyond the lockkeepers house, the canal follows the eastern edge of Ferguson Valley Rd. into Newton-Hamilton. The canal corridor once traveled behind several homes between Ferguson Valley Rd. and the left bank of the Juniata to Bridge St. and the PA Fish & Boat Commission Boat Launch.

**Newton-Hamilton to McVeytown:**

Heading east from Newton-Hamilton, the canal corridor is still largely visible along Ferguson-Valley Rd. and Norton Rd. The corridor appears to be under private ownership as it approaches Barben River Ln. Although a sidepath could likely be completed along the canal corridor without directly impacting the farm practices along Ferguson-Valley Rd. and Norton Rd., negotiations with landowners will need to take place.

At Barben River Ln. the canal corridor leaves the road and enters the woods through a large farm property and eventually meets land owned by Norfolk Southern Railroad. For the next ~3 miles the canal corridor has been compromised due to the railroad and flooding from the Juniata River. There appears to be a narrow section of land located between the Norfolk Southern Railroad Tracks and the left bank of the Juniata that may support a trail. Further investigation will need to take place to ensure that this land is suitable for a trail or if a boardwalk section would be necessary.

Ultimately, the railroad tracks retreat from the Juniata’s left bank and the canal corridor reappears at a campsite along Riverside Drive. Once again, a number of campsite properties are within the original canal corridor. Riverside Drive passes beneath a Norfolk Southern Bridge in the location of the canal corridor and could be used to bring the trail eastward towards McVeytown. The canal corridor continues eastward through several other private campsites along Riverside Drive and an unnamed campsite access rd.
Upon reaching Vance Drive the canal corridor appears to have been compromised by several large farms. Historically, the canal left the edge of the Juniata River and followed the general alignment of Vance Drive, now passing through the center of several farm fields before re-joining the Juniata River bank downstream before entering McVeytown. If this corridor were selected for the Main Line Canal Greenway Trail, it would not be recommended that the trail pass directly through the farm fields, but rather follow the field edges along the left bank of the Juniata River. This strategy would help not only to preserve the existing farm practices but could improve the field edge, reduce runoff, and enhance the river bank with a riparian buffer.

When entering the southwest end of McVeytown, the canal again left the river bank and follows the edges of farm fields, before joining Route 22 at Harshbargers Restaurant. It is recommended that the trail be connected to existing towns resources such as Harshbargers. Through McVeytown, Route 22 is now built over the canal corridor.
McVeytown to Lewistown:

At the intersection of Route 22 and N. Water St. at the northeast end of McVeytown, the canal reappears along a FirstEnergy overhead electric utility right-of-way and extends to S. Sand Beach Dr. This Utility right-of-way is ideal for an off-road trail, but several campsite located along Old Fishermans Crossing appear to be located within the right-of-way.

The canal corridor continues along S. Sand Beach Rd., past another campsite to N. Sand Beach Rd. before passing through several large farm properties on private driveways. Farmland that now utilizes the canal corridor is a typical situation as one continues towards Lewistown on the left bank of the Juniata, but field edges may offer an opportunity for a trail. Upon reaching the Lewistown Country Club, the canal corridor is barely visible. As with numerous other trail corridors throughout Pennsylvania, trails can be worked through and around golf courses, but negotiations and coordination will need to take place.

Continuing east from the Lewistown Country Club, the canal passes through several other private properties on the left bank of the Juniata before reaching Old Canal Way and Red Barn Ln. which parallel Loop Rd. These old canal roads could be connected and improved for a trail corridor with landowner approval. Continuing eastward from Red Barn Ln. the canal follows a field edge to Locust Rd., which is now built on top of the canal corridor as it passes beneath the Norfolk Southern Railroad bridge into Locust Campground.

Locust Campground offers a unique opportunity to experience the historic canal. The owner of the campground now operates a working canal boat that traverses a section of the canal though the campground for approximately 1.5 miles. As part of the research and analysis for this study, the project team met with Dave Knox; the man responsible for revitalizing the canal corridor and past owner of the Locust Campground. Dave was very enthusiastic about the trail and would have loved to see it connect through the campsite, and adjacent residential development. If the original canal towpath is not an option, Dave recommended that the trail either take Main Line Rd. or extend through the campsite driveway to Juniata Division Rd.
At the northeast end of Juniata Division Dr. there is room to bring a trail under the Norfolk Southern Railroad bridge to connect to Blue Juniata Dr. Exd. There appears to be an existing footpath that is used by local residents beneath this railroad bridge, but negotiations with Norfolk Southern and abutting residents will be required.

Blue Juniata Dr. Exd. continues along the original canal alignment as it passes through another campsite towards Lewistown. Beyond Blue Juniata Dr. Exd. the canal corridor is mostly visible as it extends along the Juniata River’s left bank behind the Lowe’s Department Store, Pennsylvania State Fire Academy, and Mifflin Concrete Company, before connecting into land owned by Lewistown Borough. Although Mifflin Concrete Company is utilizing the river bank, there are plans currently in place for Mifflin County to develop the S.H. Rothermel Walking Trail between Blue Juniata Dr. Exd. and Victory Park.

Phase 1 of the S.H. Rothermel Walking Trail recently opened between Victory Park and Crystal Springs Ave. It is a ¾ mile trail stopping at the eastern edge of the concrete company property. Assuming an easement and funding is secured by Mifflin County, the next phase will include a trail extension through the concrete company property and the Fire Academy property. Beyond the Fire Academy property, the trail will need to connect through a private property between Lowe’s Department Store and the Juniata river to connect to Blue Juniata Dr.

1. **Key Outcomes:**

Key outcomes from the project research and analysis phase of the study were utilized along with input from a series of stakeholder workshops, public meetings, interviews, and steering committee meetings to guide future recommendations and selection of the preferred ultimate trail alignment and interim on-road alignment.

A major key outcome from this study was identified as prioritizing access to the Juniata River and boat launches. The Juniata River Trail Map identifies numerous river access points along the corridor.
Key Research and Analysis Outcomes included prioritizing the following:

• Staying close to the original corridor and Juniata River.
• Connecting to the Mid-State Trail and Standing Stone Trail.
• Incorporating river access, parking, education, and historical interpretation.
• Connecting our downtowns.
• Prioritizing economic development, as well as potential and envision future business needs.
• Planning for recreation and transportation
• Serving both residents and tourist traffic
• Promoting awareness of our history and regional significance
• Interfacing between water sports (kayaking, canoeing, fishing, rafting, and such)
III. Recommendations

A. Selecting an Alignment for the Main Line Canal Greenway Trail

Upon evaluating the information gathered through the initial research and analysis work, public and stakeholder input, and steering committee feedback from the presented trail alignments, it became evident that the general alignment of the Main Line Canal Greenway Corridor will offer the best opportunity to meet the goals of this study and implement a feasible trail corridor between the Lower Trail in Alfarata and Victory Park in Lewistown.

As with most trail corridors, we recognize that there are many sections of the Main Line Canal alignment that will not enable a trail and alternatives will need to be utilized to circumvent existing conditions to ensure that the existing landowner needs are met, and the trail alignment is not left disconnected. Many of the alternatives that were presented in the Trail Characteristics and Trail Alternate Alignments sections of this report describe how the trail might best work around residential, industrial, transportation, and agricultural land uses that currently utilize the canal corridor.

Due to the substantial length of the proposed trail alignment and extensive time likely required for ongoing trail analysis, acquisition, design, and construction, it is also recommended that the alignment adopt an interim on-road alignment that can be opened in the shorter-term.

Please Reference Maps 2A-2G in Appendix B-iii showing the Proposed Interim and Ultimate Trail Alignment.
Phase 1 and 2 will implement the initial on-road alignment, while phases 3 through 6 will implement the ultimate trail alignment. For more detail pertaining to all phases of the trail implementation, please reference the Project Phasing Section of the Report. The proposed interim on-road and ultimate trail alignments are recommended as follows:

AN INTERIM ON-ROAD MAIN LINE CANAL TRAIL ALIGNMENT

Huntingdon County:
Alfarata (Lower trailhead at Route 4014) to Mifflin County Line at Kistler:
TOTAL DISTANCE: ~ 23 miles

- (Phase 1) On-road Route (Alfarata to Huntingdon):
  - Route 4014 (Main St.) – From Lower Trail Trailhead to Route 4004 (Barree Rd.)
  - Alexandra Urban Streets
    - Barree Rd. – Route 4014 (Main St.) to Shelton Ave.
    - Shelton Ave. – Route 4004 (Barree Rd.) to Hartslog St.
    - Hartslog St. – Shelton Ave to Brewhouse Ln./Canal St.
    - Brewhouse Ln./Canal St. – Hartslog St. to Bridge St.
    - Bridge St. – Brewhouse Ln./Canal St. to Route 305 (Main St./Alexandria Pike)
  - Route S4005 (Main St./Alexandria Pike Rd.)– Bridge St. to Route 26 (Pennsylvania Ave.)
  - Route 26 (Pennsylvania Ave.) – From Route S4005 (Alexandria Pike Rd.) to 4th St.
  - 4th St. – Pennsylvania Ave. to Penn St.
• **(Phase 2) On-road Route (Huntingdon to Mifflin County Line):**
  - Penn St. – 4th St. to Route 22 (William Penn Hwy.)
  - Route 22 (William Penn Hwy.) – Penn St. to Pike Run Dr.
  - Pike Run Dr./Glen Burk Dr. – Route 22 (William Penn Hwy.) at “Bruce’s Lakeside Motors” to Route 22 (William Penn Hwy.) at “Cisney & O’Donnell Pools”
  - Route 22 (William Penn Hwy.) – Glen Burke Dr. to Route 22 at T444 (Main St./Smokers Hill Rd.)
    - Old Route 22 on Glen Burke Dr. is currently being occupied by adjacent landowners in places. Re-opening this PennDOT Right-of-way will be required for the interim and ultimate trail alignment.
  - T444 (Main St.) – Route 22 (William Penn Hwy.) at Smokers Hill Rd. to Route 22 (William Penn Hwy.) south of Mill Creek.
    - Vehicular Traffic on Main St. currently ends at the Mill Creek Area Municipal Authority. It is recommended that trail user access be made allowable on this section of Main St.
  - Route 22 (William Penn Hwy.) – Main St. to Route 655 (Oriskany Rd.)
  - Route 655 (Oriskany Rd.) – Route 22 (William Penn Hwy.) to Route 22 (William Penn Hwy.) just west of Thousand Steps.
  - Route 22 (William Penn Hwy.) – Route 655 (Oriskany Rd.) to Route 747 (N. Jefferson St.)
  - Route 747 (N Jefferson St.) – Route 22 (William Penn Hwy.) to existing trail on E. Pennsylvania Ave. (Mt. Union).
  - Existing E. Pennsylvania Ave. Multi-Use Trail: Route 747 (N. Jefferson St.) to N. Franklin St.
  - Logging Rd. 44018: N. Franklin St. to Mifflin County Line/ Juniata River
    - Bike/Ped. Enhancements are recommended on the Logging Rd. 44018 Bridge over the Juniata River as part of Phase 2.

• **Recommended Trailhead Locations:**
  - Expand and Upgrade existing trailhead at Lower Trail (Alfarata).
  - Expand and Upgrade existing trailhead at Riverside Park (Huntingdon).
  - Expand and Upgrade existing trailhead at Blair Park (Huntingdon).
  - Expand and Upgrade existing trailhead at Mapleton Riverside Park (Huntingdon).
  - Incorporate Trailhead at Mt. Union Boat Launch (Mt. Union).

• **Recommended Trail Crossing Signage / Crossing Improvements:**
  - Main St. at Lower Trail Trailhead
  - Main St. at Barree Rd.
  - Barree Rd. at Shelton Ave.
  - Main St. at Bridge St.
  - Alexandria Pike at River Rd.
  - Alexandria Pike at Pennsylvania Ave.
  - Pennsylvania Ave at Penn St.
  - Pennsylvania Ave at 4th St.
  - Penn St. at 4th St.
  - Penn St. at Route 22
  - Route 22 and Pike Run Dr.
- Route 22 at Smokers Hill Rd./Main St. (Western end)
- Route 22 at Main St. (Eastern end)
- Route 22 at Route 655 (Western end)
- Route 22 at Bridge St. (Mapleton)
- Route 22 at Route 655 (Eastern end)
- Route 22 at Thousand Steps
- Route 22 at N. Jefferson St.
- N. Jefferson St. at Pennsylvania Ave.

**Recommended Trail Signage:**
- “Share the Road”/ “Bike Route” signage for entire on-road corridor.
- Trailhead maps at Lower Trail, Riverside Park, Blair Park, Mapleton Riverside Park, Thousand Steps, and Mt. Union Boat Launch Trailheads.

**Mifflin County:**

**Huntingdon County Line at Kistler to Victory Park in Lewistown:**

**TOTAL DISTANCE: ~ 31 miles**

- **(Phase 2) On-road Route (Huntingdon County Line at Kistler to McVeytown):**
  - Kistler Ave. (Logging Rd. 44018) – Mifflin County Line/Juniata River to Park Rd.
  - Kistler Urban Streets
    - Park Rd. – Kistler Rd. to Birch St.
    - Birch St. – Park Rd. to N. Riverside Dr.
    - N. Riverside Dr. – Birch St. to Pine St.
    - Pine St. – N. Riverside Dr. to Cedar St.
    - Cedar St. – Pine St. to School St.
    - School St. – Cedar St. to Kistler Rd.
  - Kistler Rd. – School St. to T746 (1\textsuperscript{st} St.)
  - T746 (1\textsuperscript{st} St.) – Kistler Rd. to Walnut Ave.
  - Walnut Ave. – T746 (1\textsuperscript{st} St.) to Ferguson Valley Rd.
  - Ferguson Valley Rd. / Water St. / Front St. / Ferguson Valley Rd.) – Walnut Ave. to T327 Fairview Rd.
  - T327 (Fairview Rd.) – Ferguson Valley Rd. to Irvin Hill Rd.
  - Irvin Hill Rd. – T327 (Fairview Rd.) to Little Brick Rd.
    - (A section of Irvin Hill Rd. will need to be re-opened for trail users. It was previously closed at the old stone quarry in Oliver Township)
  - Little Brick Rd. – Irvin Hill Rd. to T329 (River Rd.)
  - T329 (River Rd.) – Little Brick Rd. to John St.

- **(Phase 1) On-road Route (McVeytown to Lewistown):**
  - McVeytown Urban Streets
    - John St. – T329 (River Rd.) to Queen St.
    - Queen St. – John St. to Furnace Rd.
  - Furnace Rd. – Queen St. to Route 4003 (Ferguson Valley Rd.)
  - Route 4003 (Ferguson Valley Rd.) – Furnace Rd. to Wakefield Rd.
  - Wakefield Rd. – Route 4003 (Ferguson Valley Rd.) to Route 22/ U.S. 522
  - Route 22/522 – Wakefield Rd. to T710 (Lockport Rd.)
  - T710 (Lockport Rd.) – Route 22/ U.S. 522 to Middle Rd.
• Middle Rd. – T710 (Lockport Rd.) to Loop Rd.
• Loop Rd. – Middle Rd. to U.S. 522
• U.S. 522 – Loop Rd. to State St.
• State St. – U.S. 522 to Riverview Ln.
• Riverview Ln. – State St. to Rosewood Ave.
• Rosewood Ave. – Riverview Ln. to Riverside Dr. & The S.H. Rothermel Walking Trail
• The S.H. Rothermel Walking Trail – Rosewood Ave. at Riverside Dr. to Victory Park

**Recommended Trailhead Locations:**
- Incorporate Trailhead at Mt. Union-Kistler Elementary School and Recreation Fields (Kistler).
- Expand and Upgrade existing trailhead at Newton Hamilton Boat Launch (Newton Hamilton).
- Incorporate Trailhead at McVeytown Town Center. Harshbarger’s Sub N’ Malt may be interested in designating trailhead parking (McVeytown).
- Expand and upgrade existing trailhead at Victory Park (Lewistown).

**Recommended Trail Crossing Signage / Crossing Improvements:**
- Kistler Rd. at Park Rd.
- Kistler Rd. at School Rd.
- Kistler Rd. at T746 (1st Ave.)
- Ferguson Valley Rd. at Walnut Ave.
- Ferguson Valley Rd. at T327 (Fairview Rd.)
- T327 (Fairview Rd.) at Irwin Hill Rd.
- Little Brick Rd. at Irwin Hill Rd.
- River Rd. at Little Brick Rd.
- Furnace Rd. at Queen St.
- Ferguson Valley Rd. at Wakefield Rd.
- Route 22 / U.S. 522 at Wakefield Rd. and at T710 (Lockport Rd.)
- Middle Rd. at T710 (Lockport Rd.)
- Loop Rd. at Middle Rd.
- U.S. 522 at Loop Rd.
- U.S. 522 at State St.

**Recommended Trail Signage:**
- “Share the Road”/ “Bike Route” signage for entire on-road corridor.
- Trailhead maps at Juniata River Trail, McVeytown / Harshbargers, Newton Hamilton Boat Launch, and Mt. Union / Kistler Elementary School Trailheads.
AN ULTIMATE MAIN LINE CANAL GREENWAY ALIGNMENT – SEGMENT DESCRIPTIONS

Segment 1: Lower Trail to Alexandria to Shelton Rd. at Barre Rd.
Length: 0.85 miles
Type: 10-12 ft Multi-Use Trail
Construction Phasing: Phase 4 of 6

From the Lower Trail trailhead at Route 22, the trail will extend along the general alignment of the Main Line Canal Corridor before reaching the intersection of Shelton Rd. and Barre Rd. at Shelton Borough Park. A trail crossing of Route 22 will be required to connect to the existing trailhead at the Lower Trail (A more detailed study of this crossing will be required). Additional coordination/acquisition will be required to bring the trail behind ACCO Brands Corporation and a few other private landowners.

Segment 2: Shelton Rd. from Barre Rd. to Hartslog St.
Length: 0.5 miles
Type: 10-12 ft. Multi-Use Sidepath
Construction Phasing: Phase 4 of 6

Following the canal alignment along Shelton Rd. from Barre Rd. to Hartslog St. a multi-use sidepath can be built on the canal berm. Trail Right of way will need to be acquired for this section. Alternatively, this section can remain an on-road route with a new pedestrian sidewalk.

Proposed Ultimate Trail Alignment to be implemented in Phases 3-6

(For Segments 1-8, please reference Detailed Segment Map 4A in Appendix B-vi)
**Segment 3:** Hartslog St. at Shelton Rd. to Main St./Alexandria Pike at High St.  
**Length:** 0.3 miles  
**Type:** On-Road Bicycling w/ pedestrian sidewalk.  
**Construction Phasing:** Phase 4 of 6

The canal alignment is no longer available through Alexandria Borough. Therefore, it is recommended that the on-road route be utilized for bicycles and an off-road sidewalk be extended for pedestrians. It is recommended that the route will continue from Shelton Rd. at Hartslog Rd., along Hartslog Rd. to Brewhouse Ln./Canal St. to Bridge St. to Main St. to the intersection of Main St. and High St. The trail will also require a crossing of Main St. at High St., where it rejoins the original Canal alignment behind Alexandria Appliances. There is an opportunity for historic interpretation along the Brewhouse Ln./Canal St. portion of this alignment where the historic Alexandria Station is still visible.

**Segment 4:** Main St./Alexandria Pike at High St. to Coddington Ln. (T481)  
**Length:** 1.65 miles  
**Type:** 10-12 ft Multi-Use Trail  
**Construction Phasing:** Phase 4 of 6

Upon crossing to the south side of Route 22 at High Street, it is recommended that a multiuse trail continue through the woods on the canal corridor next to the Alexandria Pike. Alexandria Pike turns south leaving the canal corridor, but the trail will continue along canal alignment as it continues eastward to Coddington Ln. (T481) through some woods which divide a farm. Negotiations with the farm and adjacent properties will be required.

**Segment 5:** Coddington Ln. (T481) to site of the Canal Aqueduct over the Juniata River  
**Length:** 0.25 miles  
**Type:** Sidepath /On-Road Alignment  
**Construction Phasing:** Phase 4 of 6

Coddington Ln. provides access to a farm property at the location of the canal aqueduct across the Juniata River. Either a strip of land will need to be acquired from the adjacent farmland for a separated sidepath, or Coddington Ln. can be utilized for an on-road alignment.

**Segment 6A:** Cottington Ln. (T481) at the site of the Canal Aqueduct to River Rd. at the Abandoned Railroad (Utilizing the Left Bank of the Junita River and the abandoned railroad alignment)  
**Length:** 1.6 miles  
**Type:** 10-12 ft Multi-Use Trail on abandoned Railroad/Juniata River Left Bank  
**Construction Phasing:** Phase 4 of 6
From Coddington Rd. to River Rd. we recommend the use of an abandoned railroad corridor, which once connected Petersburg. As noted in the previous Lower Trail Extension Feasibility Study, landowners along this section are not supportive of the trail on the former railroad, as it bisects their farm fields. It is our recommendation that negotiations take place with these landowners to see if they are amenable to a trail closer to the river edge, around their farm fields.

Segment 6A and 6B of the Proposed Ultimate Trail Alignment will look at following either the Abandoned Railroad Spur or the Canal Route to connect to Petersburg

Segment 6B: Coddington Ln. (T481) at the site of the Canal Aqueduct to River Rd. at the abandoned railroad (trail bridge required)
Length: 1.4 miles
Type: New Trail Bridge/River Rd. Sidepath
Construction Phasing: Phase 4 of 6

As noted in Segment 3, the canal once crossed from the left to the right bank of the Frankstown Branch of the Juniata River at the location of the Edgewater Inn and Riverside Grill. The aqueduct abutments are still visible in this location and pending landowner negotiation, a trail bridge could be reconstructed along the historic alignment. Continuing along River Rd. a sidepath could be constructed along existing farm fields to the intersection of the Abandoned Railroad and River Rd. Should landowners not be amenable to a sidepath along River Rd., segment 4B could also work as an on-road route.
Segment 7: River Rd. at the abandoned Railroad Alignment to Downtown Petersburg at Route 305/SR 3004  
Length: 1.5 miles  
Type: Sidepath on River Rd., Route 305 (Juniata Valley Pike)  
Construction Phasing: Phase 4 of 6

From the intersection of River Rd. and the abandoned railroad alignment, a sidepath can continue north on River Rd. and East on Route 305 to connect into downtown Petersburg. Depending on road right-of-way dimension, negotiations with property owners will likely be required for a side path along this section. Should landowners not be amenable to a sidepath along this segment, an on-road route that utilizes Petersburg sidewalks could work temporarily.

It is also recommended that a new trailhead be constructed at River Rd. and Route 305 where there is an existing carry-in canoe access site with parking. Another trailhead should also be considered at the river access ramp at Route 305 and Shaver Creek at the Petersburg Volunteer Fire Department. Negotiations with both property owner will be required.

Other important resources along this segment that should be identified include the Petersburg Borough Park and King St., which hosts several canal-era buildings that would be ideal for interpretive signage.

Segment 8: Downtown Petersburg at Route 305/SR 3004 to River Rd. the south-eastern end of Warrior Ridge Rd. at the Norfolk Southern Railroad Tracks.  
Length: 2.1 miles  
Type: Sidepath  
Construction Phasing: Phase 5 of 6

A sidepath should continue south from Petersburg along SR 4007, and Warrior Ridge Rd., which continues south to the Warrior Ridge Dam. Depending on road right-of-way dimension, negotiations with property owners will likely be required for a side path along this section. Should landowners not be amenable to a sidepath along this segment, an on-road route could work temporarily. It should be noted that most of the Warrior Ridge alignment is also within State Game Lands property.

Segment 9: Warrior Ridge Rd. at the Norfolk Southern railroad tracks to Chapel Hill Rd./Autumn Wood Dr. in Huntingdon Borough.  
Length: 2.9  
Type: 10-12 ft Multi-Use Trail  
Construction Phasing: Phase 5 of 6

(For Segments 9-13, please reference Detailed Segment Map 4B in Appendix B-vi)

From the southern end or Warrior Ridge Rd., just north of the Norfolk Southern Railroad, the Trail will extend as an off-road multi-use trail along the general corridor of the FirstEnergy 

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overhead electric easement, which climbs its way up the hillside and south towards Huntingdon. Recognizing the terrain is very steep through much of this area, the trail will need to follow contours and potentially cut in a bench to climb up the hillside. Fortunately, there is evidence of hiking/mountain bike tracks that work their way through this segment already. The FirstEnergy easement traverses’ large properties owned by the Pennsylvania State Game Lands 322 and privately-owned land. Further investigation and property negotiation will be necessary for this section of trail.

**Segment 10:** Huntingdon Borough from Chapel Hill Rd./Autumn Wood Dr. to Penn St./Pennsylvania Ave.

**Length:** 2.25 miles

**Type:** On-Road Bicycling w/ pedestrian sidewalk.

**Construction Phasing:** Phase 5 of 6

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The boat launch just south of Warrior Ridge Dam could be connected by the Trail.

Segment 10 of the Ultimate Trail Alignment will look to follow the left bank of the Juniata through State Game Lands 322. An Overhead Utility Corridor and unimproved roads and trails should be utilized. (See [www.pgc.pa.gov/HuntTrap/StateGameLands](http://www.pgc.pa.gov/HuntTrap/StateGameLands) for full-size Map)
Upon Entering Huntingdon Borough through the residential development at Chapel Hill Rd. and Autumn Wood Dr., the Main Line Canal Greenway Trail will continue as an on-road route for bicycles and sidewalk for pedestrians. This route will continue west on Chapel Hill Rd., then south on Wooded Way and Arbor Bluff Dr. which will all require additional sidewalks and signage. Arbor Bluff Dr. turns into Moore St., where sidewalks are already in place. The on-road route continues south on Moore St. through the Juniata College Campus before turning west on 9th St, then south on Mifflin St., and west on 8th St. At 8th and Penn St. it is recommended that trail users utilize the existing pedestrian culvert under the Norfolk Southern Railroad to enter Portstown Park, an ideal location for an expanded trailhead. There may be future opportunity to utilize the abandoned Railroad Bridge to cross from Portstown Park to Pennsylvania Ave on the Juniata River right bank, but until this moves ahead, the Main Line Canal will utilize the Penn St. Bridge to connect to cross the river.

**Segment 11:** Pennsylvania Ave. - Penn St. to Riverside Park at 4th St.  
**Length:** 0.55 miles  
**Type:** 10-12 ft Multi-Use Trail  
**Construction Phasing:** Phase 5 of 6

From Penn. St. at Pennsylvania Ave. the trail will extend as an off-road trail along the existing berm on the right bank of the Juniata River to connect with an existing bridge over Crooked Creek and Trails through Riverside Park to 4th St. and Pennsylvania Ave. Planning for this section of trail has been proposed as part of previous planning efforts and could serve as an ideal section of the Main Line Canal Greenway. Additionally, the two parking lots at Riverside Park can serve a large trailhead.

**Segment 12:** Riverside Park at 4th St and Pennsylvania Ave. to Penn St. at Standing Stone Creek.  
**Length:** 0.6 miles  
**Type:** On-Road Bicycling w/ pedestrian sidewalk.  
**Construction Phasing:** Phase 5 of 6

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**Proposed Trail Bridge Over Standing Stone Creek to the Old William Penn Hwy.**
Existing sidewalks and an improved on-road bicycle route with signage can serve as an ideal connection for the Main Line Canal Greenway Trail from Riverside Park to Standing Stone Creek. Utilizing the on-road route from Phases 1 and 2, the trail will cross the Juniata River on the 4th St. Bridge, before turning east on Penn St. to connect the Isett Community Swimming Pool, War Veterans Memorial Field and Blair Park at Standing Stone Creek. These facilities will also serve as ideal trailheads.

**Segment 13:** Penn St. at Standing Stone Creek to Ardenheim Cottages Rd. (T-545)

*Length:* 2.35 miles  
*Type:* New Trail Bridge/10-12ft Multi-Use Trail  
*Construction Phasing:* Phase 3 of 6

From Penn St., at Standing Stone Creek, there is an opportunity to bring a multi-use trail beneath the Norfolk Southern Bridge to re-connect with the original Main Line Canal alignment. A new trail bridge could be constructed at the location of the canal aqueduct, to bring the trail along left bank of the Juniata towards Ardenheim. Old Route 22 was subsequently constructed on top of the original canal corridor between Standing Stone Creek Numers Hollow Rd. where it now passes through a culvert under the railroad and Route 22.

Continuing southeast beyond Old Route 22 along the original canal corridor and current FirstEnergy overhead electric utility corridor, the trail will extend as a multi-use trail to Ardenheim Cottages Rd. (T-545) in Ardenheim. Negotiations with Norfolk Southern, PennDOT and adjacent property owners, and FirstEnergy will be required for this segment of trail.

**Segment 14:** Ardenheim Cottages Rd. (T-545) to Mill Creek at Main St. (T-444) and Route 22  

*Length:* 1.9 miles  
*Type:* Shared On-Road Route for Local Residents and Trail Users (with gates), Two crossing of Route 22 are required.  
*Construction Phasing:* Phase 3 of 6

(For Segments 14-16, please reference Detailed Segment Map 4C in Appendix B-vi)

Continuing south-east beyond the FirstEnergy electric corridor, the trail will leave the canal corridor, continue on-road through Ardenheim Cottages Rd. (T-545) and Jacobs Crossing Rd. out to Route 22. A pedestrian-actuated trail crossing will need to be studied to cross Route 22 at Jacobs Crossing Rd. to connect back to the Old Route 22 Corridor, which extends south-east towards Mill Creek.
Old Route 22, now known as Pike Run Dr. and Glen Burk Dr. as it extends towards Mill Creek, is a very lightly used dirt road that accesses several residential and business properties. This road could be updated as a multi-use trail and private local driveway with gates at either end to ensure only local residents/businesses and maintenance vehicles have access. It should be recognized that sections of Glen Burk Dr. are no longer passable due to businesses such as Huntingdon Motor Co., utilizing sections of this old road for storage. Negotiations with these adjacent property owners will be required.

As part of this feasibility study, the project team met with PennDOT District 9 on 06/19/18. It is our understanding that the Old Route 22 corridor was never sold and is still under the ownership of PennDOT. (Please see meeting minutes from the Steering Committee Meeting #3 in Appendix G.ii. for further information on our discussion with PennDOT District 9).

Before reaching Mill Creek at the eastern end of Glen Burk Dr., a pedestrian actuated trail crossing will need to be studied to cross Route 22 to Main St. A partial sidepath on Route 22 may also be needed in this location to create a direct connection to Main St. (T-444)

**Segment 15:** Main St. (T-444) / Route 22 (West end of Mill Creek) to Main St. (T-444) / Route 22 (East end of Mill Creek)
- **Length:** 2.1 miles
- **Type:** Shared On-Road Route / Multi-Use Trail with Gates.
- **Construction Phasing:** Phase 6 of 6

Through Mill Creek Borough, the trail will extend as a shared on-road signed route along Main St., which is a low-volume local road, to a gate at Mill Creek Municipal Authority where the road has been closed out to Route 22. It is recommended that this gate remain in place, but the road be re-opened and improved as a multiuse trail and emergency access road to connect eastward to Route 22.

**Segment 16:** Main St. (T-444) / Route 22 (East end of Mill Creek) to Mapleton Riverside Park at Bridge St and Oriskany Rd. (Route 655)
- **Length:** 2.05 miles
- **Type:** 10-12 ft Multi-Use Trail/Sidepath with retaining wall along Route 22.
- **Construction Phasing:** Phase 6 of 6

From Main St. at Route 22 on the eastern end of Mill Creek, Route 22 runs directly next to and above the Norfolk Southern Railroad for a short distance (approximately ¼ mile) before reaching Oriskany Rd. (Route 655). Rather than pursuing two at grade crossings of Route 22, it is recommended that negotiations take place with PennDOT and Norfolk Southern to enable construction of a bench in the railroad/roadway embankment to host the trail for this short distance. Similar work has been constructed on other major trails throughout the country.
Upon reaching Oriskany Rd. (Route 655), it is recommended that the trail continue as a multi-use trail or sidepath. Land on both sides of Oriskany Rd. is owned and operated by U.S. Silica Corporation and is heavily used by truck traffic between Route 22 and Bridge St.

In discussions with Francis Rizzano, Plant Manager of the U.S. Silica Plant on November 6, 2018, Francis noted he is a proponent of the trail and is open to working a trail through the U.S. Silica Plant property. Due to plant operations and safety of the trail users, the detailed alignment would need to be discussed in detail. *(Please see the Interview Spreadsheet in Appendix G.i. for details from this meeting).*

Upon reaching Bridge St., the trail should make a connection to Mapleton Riverside Park and boat access ramp, where a trailhead is recommended.

**Segment 17A:** Mapleton Riverside Park at Bridge St to The W. Pennsylvania Ave Trail at N. Washington St. in Mt. Union (Fire Trail Alignment)

**Length:** 3.4 miles

**Type:** Shared On-Road Route / Multi-Use Trail with Gates

**Construction Phasing:** Phase 3 of 6

*(For Segments 17-26, please reference Detailed Segment Map 4D in Appendix B-vi and Mifflin County (Segment 18-39 Detail Maps) in Appendix B-vii)*

Two alternative alignments have been discussed to connect Mapleton to Mt. Union through Jacks Narrows. The first option would extend the trail as an on-road route with enhanced pedestrian sidewalks across Bridge St. to the right bank of the Juniata River and Mapleton Borough. It would continue as an on-road route with sidewalks eastward on Main St. before extending along the “Fire Trail” beyond the Borough Line.

The “Fire Trail” was once used as a fire access road between Mt. Union and Mapleton to fight fires from the steam railroad locomotives within the Narrows. The Fire Trail now exists as a narrow, crushed stone/earthen trail that provides gated access to several large private parcels including a private hunting club. As with the trail proposed along Old Route 22 West of Mill
Creek, surface upgrades for the trail are recommended with gated access to allow access to private properties. As with all private land along the corridor, right-of-way negotiations will be required. It should also be noted that the private Columbia hunting club property between Mapleton and Mt. Union. is currently for sale as of Fall 2018.

Beyond the Fire Trail, the Main Line Canal Greenway will continue into Mt. Union on W. Small Street, and N. Washington St. as an on-road route with improved pedestrian sidewalks to the existing Trail on W. Pennsylvania St. Additional on-road connections should also be made to the two Boat Launch facilities in Mt. Union as well as the Mt. Union Riverwalk hiking trail. Both boat launch parking areas could serve as trailheads.

**Segment 17B:** Mapleton Riverside Park at Bridge St to The W. Pennsylvania Ave Trail at N. Washington St. in Mt. Union (Dinkey Grades Alignment)

**Length:** 3.8 miles

**Type:** Multi-Use Trail with new trail bridge

**Construction Phasing:** Phase 3 of 6

The second alternative alignment between Mapleton Riverside Park extends along the general alignment of the Standing Sone Trail/Mid State Trail – an existing north/south hiking trail that follows the ridge line through Pennsylvania. Between Mapleton at Bridge St. the Mid State Trail would need to be realigned/upgraded to a multi-use trail, as it climbs up to Route 22 to a crossing at Motel 22. This crossing should also be updated for use by the Main Line Canal Greenway. From Route 22, the Mid-State Trail and recommended Main Line Canal Greenway Trail alignment follow the Dinkey Grades above Route 22 towards the Thousand Steps through State Game Lands 112.

Where the Mid-State Trail continues up the Thousand Steps, the Main Line Canal Greenway Trail could continue eastward on the Dinkey Grades to the location of the historic Dinkey Bridge that once crossed Route 22, the Junata River, and the Railroad into Mt. Union.

Utilizing the existing bridge abutments and piers, there may be an option to replace this bridge with a multi-use trail. Although this project would come with a large price-tag, it offers a unique opportunity to provide access to both the Mid-State Trail and Thousand Steps from Mt. Union and Mapleton.
Upon crossing the Dinkey Bridge, this alternative would follow the same alignment as Segment 18A into Mt. Union.

**Segment 18:** The W. Pennsylvania Ave. Trail from N. Washington St. to N. Franklin St. in Mt. Union  
**Length:** 0.35 miles  
**Type:** Existing Multi-Use Trail  
**Construction Phasing:** Existing

![Existing Multi-Use Trail along W. Pennsylvania Ave. in Mt. Union](image_url)

The existing trail along W. Pennsylvania Ave. should be utilized as a segment of the Main Line Canal Greenway through town. Any proposed trail extensions for this trail should also be considered.

**Segment 19:** The W. Pennsylvania Ave. Trail at N. Franklin St. to Kistler Rd. at School Rd.  
**Length:** 1.15 miles  
**Type:** Extension of Pennsylvania Ave. Sidepath / On-Road Bicycling w/ pedestrian sidewalk through Kistler.  
**Construction Phasing:** Phase 4 of 6

Although the existing trail on Pennsylvania Ave. currently terminates at N. Franklin St., there appears to be space to continue it to the Kistler Rd. Bridge over the Juniata, where an existing pedestrian walkway currently exists. This sidewalk can accommodate pedestrians, while bicyclists utilize the road. It is recommended that if the Kistler Rd. bridge is reconstructed, it incorporate a wider side path for trail users traveling west of Mt. Union.

The side path should continue beyond the Kistler St. Bridge to Park Rd. where it enters Kistler.
Borough Streets. The Trail can continue as an on-road route for bicycles and utilize existing and extended sidewalks for pedestrians through Kistler on Park Rd., along Birch St., N. Riverside Dr., Pine St., Cedar St., and School St. to the intersection of School St. and Kistler Rd.

The Mt. Union/Kistler Elementary School on School St. could serve as a small trailhead and the Trail could enable a safe walking/biking environment for children traveling to school.

Segment 20: Kistler Rd. at School Rd. to FirstEnergy easement at Country Club Rd. and Chris Ln.
Length: 1.05 miles
Type: 10-12 ft Multi-Use Sidpath
Construction Phasing: Phase 4 of 6

At Kistler Rd. and School Rd. the trail re-joins the alignment of the Main Line Canal. Although the canal alignment is no longer visible on Kistler Rd./Country Club Rd. and a number of residential properties have yards abutting Kistler Rd., a sidepath is recommended. If a sidepath cannot be negotiated, a pedestrian sidewalk with on-road cycling should be established out to Chris Ln. and County Club Rd.

Length: 0.9 miles
Type: 10-12 ft Multi-Use Sidpath on Canal Path/FirstEnergy Easement
Construction Phasing: Phase 4 of 6
The canal re-appears as it leaves the Kistler Rd./Country Club Ln. alignment at Chris Lane. From Chris Lane to Lower County Club Rd. the canal corridor is visible, as it is now utilized by a FirstEnergy powerline easement through several private properties. We recommend improving this canal path as a 10-12ft multi-use trail. Property owner and utility negotiations will be required.

**Segment 22**: Lower Country Club Rd. from FirstEnergy easement to the eastern end of Front Street  
**Length**: 1.0 miles  
**Type**: Shared On-Road Route for Local Residents and Trail Users  
**Construction Phasing**: Phase 4 of 6

Although the canal has been compromised through residential development in this location, it generally follows County Club Rd. and Front St. around the American Legion Country Club. It is recommended that an on-road route with trail signage be utilized on both Lower Country Club Rd. and Front St.

**Segment 23**: Front Street to Aqueduct Dr.  
**Length**: 1.0 miles  
**Type**: 10-12 ft Multi-Use Trail on the left bank of the Juniata.  
**Construction Phasing**: Phase 4 of 6

The canal once followed the left bank of the Juniata between Front Street and Aqueduct Dr. but is now owned and utilized by a private farm. It is recommended that the trail be constructed through the wooded left bank of the Juniata between both roads. Negotiations with private land owners between Country Club Rd. and Aqueduct Dr. will be required to bring the trail though this corridor.

**Segment 24**: Aqueduct Dr. from gate at east end to Bowers Ln.  
**Length**: 1.6 miles  
**Type**: Shared On-Road Route for Local Residents and Trail Users. There is an opportunity for a Kiosk/sign at Lock Keepers House.  
**Construction Phasing**: Phase 4 of 6

Aqueduct Drive, just west of Newton Hamilton, could serve both trail users and residents.
Continuing towards Newton Hamilton the canal once ran adjacent to Aqueduct Dr. but has mostly been compromised by campground properties and private residences. The road surface can be improved to serve as a share-the-road trail with access for local residents. As Aqueduct Rd. approaches Bowers Ln., there is an opportunity to continue the trail as a sidepath/multi-use trail along a small leg of the Juniata towards a Historic Lock Keepers House at Bowers Ln. and Ferguson Valley Rd. Negotiation with adjacent landowners will be required.

It is our understanding that Sam Miller and Dave Harmon from the Newton-Hamilton Historical Society are actively working to preserve of the Lock Keepers House with the owner. A sign/kiosk in this location offers opportunities for historic interpretation and education.

**Segment 25: Aqueduct Dr. at Bowers Ln. to the PA Fish & Boat Commission Boat Launch at Bridge St. (Newton Hamilton)**

**Length:** 0.75 miles  
**Type:** 10-12 ft Multi-Use Sidepath/Trail on Canal Alignment  
**Construction Phasing:** Phase 4 of 6

Heading towards Newton Hamilton from the lockkeeper’s house, a sidepath is recommended along the eastern edge of Ferguson Valley Rd., before following the canal corridor behind several homes between Ferguson Valley Rd. and a small leg of the Juniata. There appears to be a paper street behind these properties that should enable a trail to connect towards Newton Hamilton. Negotiations with adjacent property owners that now own the canal right-of-way on the left bank of the Juniata River will need to take place to bring the trail beneath Bridge St. to the PA Fish & Boat Commission Boat Launch. Tying into the boat launch parking area could help to serve as a trailhead for the Trail.

Alternatively, the trail could continue on-road along Bowers Ln. through a private campsite. Beyond Bowers Ln. the trail would follow the left bank of the Junita River to the PA Fish & Boat Commission Boat Launch.

**Segment 26: PA Fish & Boat Commission Boat Launch at Bridge St. to Barben River Ln.**

**Length:** 1.65 miles  
**Type:** 10-12 ft. Multi-Use Trail / Sidepath  
**Construction Phasing:** Phase 5 of 6

![The Canal Corridor (located in the woods adjacent to Norton Rd.), may support a sidepath](image-url)
Heading east from Newton-Hamilton, the canal corridor follows the edge of Ferguson Valley Rd. and Norton Rd. to Barben River Ln. The canal corridor is largely wooded and follows farm fields and the roads edge but could be improved as a buffered sidepath that is separated from the road and adjacent properties. Alternatively, the trail could leave the canal corridor and Norton Rd. and continue closer to the left bank of the Juniata River through the wooded river bank or follow Norton Rd. as an on-road route. Negotiations with adjacent property owners that now own the canal right-of-way and river bank will need to take place to bring the trail through this segment.

Segment 27: Norton Rd. at Barben River Ln. to Riverside Dr.
Length: 3.5 miles
Type: 10-12 ft. Multi-Use Trail
Construction Phasing: Phase 5 of 6

Beyond Barben River Ln. the canal corridor leaves the roadside and enters the woods through a large property and eventually meets land owned by Norfolk Southern Railroad. For the next ~3 miles the canal corridor has been compromised due to railroad expansion and flooding from the Juniata River, but there appears to be a section of land located between the Norfolk Southern Railroad Tracks and the left bank of the Juniata that may support a trail. Further investigation will need to take place to ensure that this land is suitable for a trail. Additionally, because this section of land is largely owned by large properties on the north side of the railroad tracks, right-of-way negotiations will need to take place. As the railroad traverses away from the river, the canal corridor reappears and joins with a campground at Riverside Dr.

Although Norfolk Southern Railroad now operates on the Left bank of the Juniata between Norton Rd. and Riverside Dr. in Ryde, Pa, it is believed that there is room to bring the trail along a narrow section of land between the railroad and Juniata River. Further investigation is required.
**Segment 28**: Riverside Dr.- Western end to eastern end at S. River Rd./Riverview Dr. **Length**: 1.4 miles  
**Type**: Shared On-Road Route for Local Residents and Trail Users (Surface improvements required)  
**Construction Phasing**: Phase 5 of 6  

The canal corridor reappears at a campsite along Riverside Drive. Heading east, Riverside Dr. and the canal corridor pass beneath the Norfolk Southern Railroad. It is recommended that trail users and campsite visitors/owners share the public and private on-road route along Riverside Drive from S. River Rd./Riverview Dr. Improvements to sections of public/private road that have an earthen road surface could provide more reliable access to residents and campers, as well as a suitable trail surface. The trail will also provide an additional amenity to campsite visitors.

To connect to Phase 1 and Phase 2 of the Interim on-road trail alignment, a 2.6-mile interim connection should continue eastward on S. River Rd. from Riverside Dr. to Little Brick Rd.

**Segment 29**: Riverside Dr. at S. River Rd. to a campsite at the Western end of Vance Dr.  
**Length**: 1.5 miles  
**Type**: Shared On-Road Route for Local Residents and Trail Users (Surface improvements required)  
**Construction Phasing**: Phase 6 of 6  

Heading east, from Riverside Dr. the canal corridor passes through several other campsites, including Harshbarger’s Campground on the left bank of the Juniata. It is recommended that trail users and campsite visitors/owners share the campsite roads out to Vance Dr. Improvements to sections of public/private road that have an earthen road surface could provide more reliable access to residents and campers, as well as a suitable trail surface.

As with other campsites along the trail, this corridor will largely need to be negotiated with campground landowners and tenants.

**Segment 30**: The Campsite at the Western end of Vance Dr. to McVeytown Borough at Criswell St. at Harshbarger’s Sub N’ Malt  
**Length**: 2.9 miles  
**Type**: 10-12 ft. Multi-Use Trail  
**Construction Phasing**: Phase 6 of 6  

*(For Segments 30-34, please reference Detailed Segment Map 4F in Appendix B-vi and Mifflin County Segment 18-39 Detail Maps in Appendix B-vii)*

Heading east from the campsite at the Western end of Vance Drive, the canal corridor leaves the river’s edge and has largely been compromised by several farms. Rather than follow the canal alignment along Vance Rd. before bisecting farm fields, it is recommended that the trail continue on the left bank of the Juniata River as a multi-use trail, circumventing the farm fields through the wooded river bank. Approaching McVeytown, the trail re-connects with the original canal corridor and follows a field edge away from the Juniata River into McVeytown Borough at S. Water St.

As with other agricultural property along the trail alignment, it is recommended that there be in-person negotiations with land owners to discuss the opportunity for a trail that follows the field edges along the left bank of the Juniata River. This strategy would help not only to preserve the existing farm practices but could improve the field edge, reduce runoff, and enhance the river bank with a riparian buffer.
Upon entering McVeytown, negotiation with landowners will again be necessary to help guide the exact route of the trail into town. It is recommended that the trail be connected to existing towns resources such as Harshbarger’s.

**Segment 31:** McVeytown Borough - Criswell St. at Harshbarger’s Sub N’ Malt to S. Water St. at Route 22  
**Length:** 0.5 miles  
**Type:** On-Road Bicycling w/ pedestrian sidewalk.  
**Construction Phasing:** Phase 6 of 6

Through McVeytown, Route 22 is now built on top of the canal corridor, but the Borough’s existing sidewalk network could be utilized. It is recommended that the Main Line Canal Greenway Trail will continues as an on-road route for bicycles and sidewalks for pedestrians from Harshbarger’s at Chris well and Route 22., along E. Cristwell St., to South Market St., to John St., to Water St., to the North end of McVeytown at Water St. and Route 22, where the canal alignment reapers. Although there is a more direct route along Water St., we recommend the Trail make a direct connection to the Market St. and the resources McVeytown has to offer. The exact on-road alignment will need to be discussed with PennDOT and McVeytown Borough.

**Segment 32:** McVeytown Borough at S. Water St. and Route 22 to S. Sandbeach Rd.  
**Length:** 1.5 miles  
**Type:** 10-12 ft. Multi-Use Trail  
**Construction Phasing:** Phase 3 of 6

At the intersection of Route 22 and N. Water St. at the northeast end of McVeytown, the canal reappears along a FirstEnergy overhead electric utility right-of-way and extends to S. Sand Beach Rd. This utility right-of-way is ideal for a 10-12 ft off-road trail, but an easement will need to be negotiated. Additionally, campsites located along Old Fishermans Crossing appear to be located within the right-of-way and may require additional negotiation.

Based on our meeting with FirstEnergy on August 27, 2018, the utility company is amenable to the idea of developing a trail along their alignment. Therefore, this section of FirstEnergy owned right-of-way is recommended as an initial phase of implementation or the ultimate trail alignment.

**Segment 33:** S. Sandbeach Rd. to N. Sandbeach Rd.  
**Length:** 0.9 miles  
**Type:** On-Road Bicycling w/ pedestrian sidewalk.  
**Construction Phasing:** Phase 3 of 6

The canal corridor continues through two large agricultural properties that also contain campsites along S. Sand Beach Rd. and N. Sand Beach Rd. on the left bank of the Juniata river. Although Sand Beach Rd. could serve as a share-the-road trail for camp residents and trail users, negotiations with landowners will be required.

As part of phase 3, it is recommended that an on-road interim connection be made 0.75 miles from Sandbeach Rd., along Sandbeach Dr. and Route 22 to the Phase 1/Phase 2 Interim route at Route 22 and Lockport Rd.

**Segment 34:** N. Sandbeach Rd. to Aqueduct Dr. at Strodes Mill
Length: 5.15 miles  
Type: 10-12 ft. Multi-Use Trail  
Construction Phasing: Phase 5 of 6

Heading East from N. Sandbeach Rd., it is recommended that the Main Line Canal Greenway follow the left bank of the Juniata River to Aqueduct Dr. Several Large Farms once again utilize the land through which the canal corridor once traveled, but there may be an opportunity to utilize field edges adjacent to the Juniata River. Negotiations with property owners along this alignment will help to determine the most suitable alignment.

It is also recommended that trail signage at Aqueduct Dr. provide information and mapping on trail amenities in Strodes Mill.

Segment 35: Aqueduct Dr. at Strodes Mill to Waterside Campground and RV Park at Locust Rd.  
Length: 3.5 miles  
Type: 10-12 ft. Multi-Use Trail  
Construction Phasing: Phase 4 of 6

(For Segments 35-39, please reference Detailed Segment Map 4G in Appendix B-vi) and Mifflin County (Segment 18-39 Detail Maps) in Appendix B-vii)

Along Segment 35, the Pennsylvania Canal now traverses several Farms as shown above. The Trail would look to work with landowners find an alternative along field edges on the Left Bank of the Juniata

Heading East from Aqueduct Dr. it is recommended that the Main Line Canal Greenway Trail continue along the left bank of the Juniata River and original canal corridor. Ownership is a mix of small and large agricultural properties, private residential, and private recreational. Upon reaching the Lewistown Country Club, the canal corridor is barely visible. As with numerous other trail corridors throughout Pennsylvania, trails can be worked through and around golf courses, but negotiations and coordination will need to take place.

Continuing northeast from the Lewistown Country Club, the Trail will continue along the left bank of the river, through several other private properties located along Old Canal Way and Red
Barn Ln. which parallel Loop Rd. These old canal roads should be connected and improved for both trail users and residents. Continuing eastward from Red Barn Ln. the canal follows a field edge to Locust Rd. It is recommended that the trail stay close to the Left bank of the Juniata River out to Locust Rd., where it does not interrupt existing agricultural resources. Right-of-way negotiations will be required for the extent of Segment 34.

**Segment 36: Waterside Campground – Locust Rd. to Blue Juniata Dr. Exd.**

**Length:** 2.0 miles  
**Type:** Shared On-Road Route for Local Residents and Trail Users (Surface improvements required) / 10-12 ft. Multi-Use Trail  
**Construction Phasing:** Phase 4 of 6

Upon reaching Locust Rd. at the active Norfolk Southern Railroad Bridge (Mayes Bridge), the road has been constructed over the original canal alignment. An on-road alignment can be utilized to connect into the Waterside Campground in this location.

Locust Campground offers a unique opportunity to experience the historic canal, as the owner of the campground now operates a working canal boat that traverses a section of the canal though the campground for approximately 1.5 miles. In discussing the trail with the late Dave Knox, the developer and past owner of the campground, he believed the Trail could potentially connect through the campsite to the adjacent residential development either the canal towpath or on Locust Rd. to Juniata Division Rd. This would require roadway surface improvements to serve as a multi-use trail. Right-of-way negotiations with the current owner and residents of the adjacent community will be required.

At the northeast end of Juniata Division Dr. there is room to bring a multi-use trail under the Norfolk Southern Railroad bridge to connect to Blue Juniata Dr. Exd. but negotiations with Norfolk Southern and adjacent residents will be required.

**Segment 37: Blue Juniata Dr. Exd. - Western end to the Eastern end of Blue Juniata Dr.**

**Length:** 1.0 miles  
**Type:** Shared On-Road Route for Local Residents and Trail Users (Surface improvements required)  
**Construction Phasing:** Phase 4 of 6

Blue Juniata Drive continues along the original canal alignment as it passes through another campsite towards Lewistown. With roadway surface improvements, Blue Juniata Drive could serve as an ideal on-road alignment along the Juniata Rivers left bank. Coordination with campsite residents will be required.

**Segment 38: Eastern end of Blue Juniata Dr. Exd. to the S.H. Rothermel Walking Trail at Crystal Springs Ave.**

**Length:** 0.7 miles  
**Type:** 10-12 ft. Multi-Use Trail  
**Construction Phasing:** Phase 3 of 6

East of Blue Juniata Dr. Exd. the canal corridor is visible as it extends along the Juniata River’s left bank behind the Lowes Department Store, Pennsylvania State Fire Academy, and Mifflin Concrete Company, before connecting to the recently completed S.H. Rothermel Walking Trail at Crystal Springs Ave. As identified in past studies, this corridor, which is occupied by both sewer and overhead electrical easements should serve as a trail alignment. Negotiations with property owners and utility companies will be required.
As part of phase 3, it is recommended that an on-road interim connection be made 0.3 miles from Blue Juniata Dr. Exd., along Loop Rd. to the Phase 1/Phase 2 Interim route at Loop Rd. and Middle Rd.

**Segment 39:** S.H. Rothermel Walking Trail – Crystal Springs Ave. to Victory Park  
**Length:** 0.75 miles  
**Type:** Existing Multi-Use Trail  
**Construction Phasing:** Existing

From Crystal Springs Ave., just east of Mifflin County Concrete, to Victory Park in Downtown Lewistown, the S.H. Rothermel Walking Trail is now open. This trail connects with the Juniata River Boat Launch at Victory Park and will ultimately serve as a trailhead and key segment of the Main Line Canal Greenway.

**B. Trail and Trailhead Facilities**

1. **Parking and Access**

Strategically located destination and arrival points along the trail corridor are often referred to as “trailheads.” These points are generally best placed with approximately similar distances between each to provide users with points of access, information and accommodation. The preferred distance between trailhead locations varies based primarily upon the number (density) of users and local geography. Trailheads can be placed in appropriate locations to accommodate users, limit access to the site, and concentrate amenities in a relatively compact area. More often than not, multiple smaller scale trailheads serve major corridors best by distributing users throughout the corridor rather than one or two central parking areas.

Trailheads along the Main Line Canal Trail can also be strategically located at existing businesses and services. Existing businesses often see increased revenue from trail users who start or end their trail walk or bike ride at their destination. Additionally, these businesses can often provide trail users with opportunities for bathroom facilities, parking, food, and other trailside services.

2. **Comfort Accommodations**

Often subconsciously, trail users gauge the usability of a trail by the level of basic physical accommodations that were available during the experience. The key to providing accommodations is not volume or frequency as much as communication of the location of the amenities. As long as users know where they can find a detailed orientation map, restroom, sources of potable water, and rest areas, they...
will have confidence in venturing out on their ride or trek.

In addition to parking, seating, picnic and rest areas, information kiosks and orientation signs and restrooms are the basic elements that provide an attractive and well used trailhead. Rest facilities can range from port-a-john type portable units to highly sophisticated permanent restroom facilities that tie into the local sanitary sewer system. Remote areas can now be provided with long-life (extremely durable) composting toilet units with fans that run on solar powered roof panels.

3. Signage and Orientation

First and last impressions of any facility are often based upon the level of ease in which one can comprehend, visualize and orient with a facility. Properly placed, durable and graphically attractive orientation signs can quickly direct and orient a first-time visitor to appropriate areas of the trailhead and the trail or equestrian facility and the overall regional trail system. The first map that a visitor experiences should provide a clear sense of “you are here,” and where you can or should travel. More detailed information can be provided in the form of written brochures including written policy and more detailed maps. These maps and text can convey details such as facility regulations, local resources (stores), eateries and attractions. For example, bicyclists want to know where they can find a local bike repair shop and hikers want to know where natural areas are located.

4. Emergency Contact

As important as proper orientation, emergency contact is critical to all users. With the increasing number of cell phone users today, chances are good that trail users are never far from a source of emergency contact although alternatives are necessary in areas of poor coverage. In extreme cases of emergency, such as a severe trail accident, users need to know where the closest hospital, doctor, and emergency room can be located. Much of the Huntingdon and Mifflin County region which encompasses this trail system is within the 911 service area.

5. Location of Trailhead Facilities

Facilities should take advantage of existing parks, boat launches, and public facilities in Alfarata, Alexandria, Petersburg, Huntingdon, Mill Creek, Mapleton, Mt. Union, Kistler, Newton Hamilton, McVeytown, and Lewistown. Logical trailhead locations for walkers and bicyclists could include locating enhanced facilities at connections to the Lower Trail Trailhead, Thousand Steps, and Juniata River Water Trail.

C. Proposed Easements and Property Acquisition Techniques

This study examines the viability of threading a multi-use trail through the Juniata River Valley from the terminus of the Lower Trail in Alfarata, PA through Huntingdon, Mapleton, Mt. Union, and other river towns to Lewistown, PA. Most of the study area through the corridor consists of challenges associated with the Ridge and Valley geologic formation, which presents low lying flatlands along the river’s edge with sudden transitions to steeply sloped mountain passes already congested with railroad, highway and the River – traditionally known as ‘The Narrows’. The tightly compressed mountain ‘gaps’ have been nearly maximized with other forms of transportation (river, train and highway) – often leaving very minimal physical space for introduction of a dedicated bicycle-pedestrian (multi-use) trail. Due to severely limited area for passage of railbeds, the area’s historic rail infrastructure has been sustained and maintained in
their historic locations in the form of modern active rail service operated by AMTRAK passenger and Norfolk Southern freight lines.

The next stage in the implementation of the Mainline Canal Greenway and September 11th National Memorial Trail must include a comprehensive program of interviews with the scores of property owners with whom easements would need to be negotiated.

Although the railroad generally follows the Juniata River corridor, approval to place the Trail directly adjacent to the active NS Railroad tracks is not desirable or recommended, nor would it be able to be endorsed by the various regulatory authorities. Fortunately, there are many miles of low volume, lesser traveled roadways that can be used in the short and long term for co-location of a public multi-use trail. Many of these lesser roads have been superseded by larger highways which render them useful as ‘country walking roads’. In many cases, these old river edge roads convey a hint of local canal way history in titles such as ‘Towpath Road’, ‘Mill Road’, ‘Aqueduct Road’ and commonly ‘River Road’.

*Maps showing existing ownership patterns and property line information along the proposed trail corridor is provided in Appendix B-iv and B-v.*

Property acquisition techniques can generally be categorized as the following key property ownership scenarios:

**Residential**

- Traditionally, two forms of public passage through private residential property are preferable:
  - **Fee Simple Sale:** One method is fee simple acquisition of a portion of property at fair market value (based upon current appraisal, local comparable property values and the land area); The benefit of sale is that the former property owner is not associated with the newly formed parcel and liability and tax responsibility is transferred to the new owner. A slight reduction in acreage-based taxation may be realized, but typically nominal.
  - **Easement:** In other cases where the residential lot may be of minimal regulatory acreage (lot size), easement would be the preferable method to avoid creation of a zoning violation (lot coverage, lot size, setback restrictions, other easements, etc.). Easement area would still be taxable to the property owner, but would not preclude access to the eased area by the property owner under terms of the easement/deed language. Such an easement should be conveyed in perpetuity with the parcel of land.
  - Values of residential property ranks potentially higher than agricultural land considering the typical higher assessed values of residential land and the customary higher level of landscape investment and impact proportional to the lot size. Negotiation of private properties is also likely the most variable as fair market values would need to be based upon tax assessment as well as comparable recent sales histories within the region.
  - Often in residential property negotiation, offerings of landscape buffers, privacy fencing and security cameras can be more palatable and valuable than fee simple or lease agreement-based easement arrangements.
  - Possible land fair market values vary considerably based on location and residential acreage and should be investigated locally (or as determined in a formal land valuation appraisal).
Farm/Agricultural

- Equestrian estates, hobby farms and farmettes under 10 acres can be considered to function as residential lots and could follow similar land acquisition processes;
- Farms over 10 acres up to 100 acres may be considered as traditional farms and may consider easement or long term lease agreement of a narrow 20-30’ wide easement for conveyance of a public trail in areas of the property that area already encumbered by other easement (sewer, water or overhead utility) so as to not further limit the farm operation or future building construction options.
- Farms over 100 acres or Agricultural operations that lease or use multiple farm properties should be considered corporate farms – those that are comprised as partnership, multiple owner, trust or incorporated status.
- Tax Credits or Tax deduction for eased land should be provided through introduced legislation in coordination with the County Tax Assessment Office. Through this process, properties that provide a trail easement can receive a tax deduction for the portion of land that is being preserved for trail development.
- Confirmation should be provided that the area committed to trail easement and buffering will not reduce the acreage of required dispersion of gallons/tons of manure per acre. Similarly, consideration must be given to the proximity of trails to fields where highly concentrated liquid manure is being dispersed.
- Possible land fair market values vary considerably based on location and farm/agricultural acreage and should be investigated locally (or as determined in a formal land valuation appraisal).

Commercial

- Commercial properties (Including large scale corporate farms) may opt to donate easements in exchange for tax assessment reduction or credits on the enrolled easement land. The donation may be able to be considered a charitable donation if made to a non-profit or at a minimum, certainly produce a significant return value in positive public relations, community service or simply offering to on-campus health and insurance reduction programs through the provision of immediately accessible active outdoor recreation.
- Corporate property owners may be in a better position to consider long term license agreements, which will define more detailed terms of allowed use, location, transfer of liabilities, insurance benefits and ease of relocating the trail facility to other locations on site as land use dictates.
- Consideration will need to be given to areas of a corporate property or park that may entail stormwater drainage and discharge facilities, utility easements, adjoining land use buffers, heavy truck access and loading areas and rail service safety zones.
- Possible land fair market values vary considerably based on location and Commercial acreage and should be investigated locally (or as determined in a formal land valuation appraisal).

Seasonal Vacation and Campsite

- The vision of this Feasibility Study is to utilize where possible, existing (previously disturbed land) for river roads, camp access roads and public or private driveways (within terms amenable to the property owner and/ or lease holder). In many cases where private campgrounds are located, they are typically within view of the river’s edge and it is not necessary to encroach or disturb the small lot river frontage, but rather align the trail on the existing access drive, road or lane. In most cases, the trail design and funding can offer to upgrade or provide capital improvements for upgrade of these access drives from soil to gravel or course gravel to tightly compacted fine
gravel surfaces. In these situations, an overlay easement may be issued to the trail management entity or the roadway may already be a designated township or county road. Trail construction funding could indirectly benefit the township or county by upgrading the roadway as a shared use road or access drive.

- Possible land fair market values would likely be the lowest values owing to the seasonal and low assessment values. Easement and shared use lands in this scenario still vary considerably based on location and Seasonal Campsite acreage. The trail may also produce a heightened interest in simple cooperative mutually beneficial capital roadway and access drive enhancements.

**Private/Public Campground**

- Private Campgrounds are becoming more amenable to the idea of providing public access through their properties due to the potential for marketing and return customer base as well as trail related revenues that the campgrounds already provide such as camping/hiking gear, retail sales of beverages, food and equipment, and emerging markets such as provision of overnight (through hiker) tent and primitive camping for through hikers. Similar to seasonal camping venues, trail construction funding can provide capital improvement monies to provide updated or better-quality access roads, site stabilization and grading and drainage improvements along shared use roadways, lanes and access drives.

- Possible land fair market values vary considerably based on location and Campground acreage (or as determined in a formal land valuation appraisal), however, similar incentives may be more relevant based upon the property owner/management’s interest in potential Public Relations, marketing and on-campus sales revenue.

**State Game, State Forest, State Park**

- In several locations throughout the Juniata River Valley, State Game, State Forest, and State Park properties may produce a critical connection for the trail system. In some cases, this may come in the form of shared use of an existing access road or former railbed such as the Dinkey Grades parallel to Route 22 (north edge of ROW) within State Game Lands 112.

- While many State Parks and Forests are practicing a ‘no net increase in trails’ policy, critical trail gap closure and connectivity projects may need to be considered and negotiated to allow provision for public passage on otherwise public lands.

- There should be no monetary exchange required for the public use of state lands, however careful negotiation for location of trails will ensure the minimal impact upon the functionality and intended uses within state lands.

**D. Operation and Maintenance**

1. **Proposed Agency Responsibility**

It is important to note first that all trail corridors are different. Therefore, the management, operation, and maintenance for these trails can vary dramatically depending on the interests and resources of the municipalities through which the trail passes. Trail corridors that have more populous municipalities and existing township parks departments, may be able to expand their parks maintenance programs to include the new trail; less populous jurisdictions are often less able to assume maintenance responsibilities. In the case that a municipality has limited
resources, a maintenance arrangement could be made for joint municipal responsibility where tasks are shared.

This section of the Main Line Canal Greenway Trail corridor passes through both Huntingdon and Mifflin Counties, and numerous townships and boroughs. Should Huntingdon and Mifflin County not have the resources to perform the required trail maintenance, the Allegheny Ridge Corporation (ARC) can advise in organizing the necessary resources. A critical next step in the Trail implementation process is to clarify and formalize maintenance responsibilities for each trail segment. For the Main Line Canal Greenway, there will likely be a collaborative of management entities that are responsible for the ongoing maintenance and upkeep.

The following chart indicates how specific trail entities may best contribute to the Main Line Canal Greenway Trail implementation and ongoing maintenance.

<table>
<thead>
<tr>
<th>Typical Checklist for Management/Operation/Maintenance Responsibilities*</th>
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<tbody>
<tr>
<td><strong>Type</strong></td>
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<tr>
<td>County/Local Government</td>
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<td>Municipal Authority</td>
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<tr>
<td>Non-Profit Organization</td>
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<td>Individual Landowner Mgt.</td>
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<tr>
<td>Volunteers</td>
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<td>PennDOT/Utility Company</td>
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</tbody>
</table>

*See Appendix E-ii. for a “Trail Management Examples” Spreadsheet that shows how several other long-distance trails are managed, maintained, and funded. The skills and interests of different municipalities vary widely. Any gaps in these alternatives must be addressed. Partnerships of different entities are not uncommon.

Trail facilities can sometimes be neglected when municipal recreation departments must set priorities among many different facilities. For this reason, it is recommended that an entity such as Allegheny Ridge Corporation (ARC), whose interest is in the entire trail corridor, take on a role as an independent trail advocacy group. Through a coordinating agency, trails such as the Lower Trail as well as others in Huntingdon and Mifflin County, can help find volunteers and assist in regular trail maintenance, communication, and outreach functions. Acting across the limits of the land management organizations already mentioned, this type of independent trail organization would assure that the different agencies coordinate their efforts and would provide a representative group amongst trail users.

As part of this Study, the project steering committee indicated a need to develop a full or part time position tasked with implementing the Main Line Canal Greenway Trail. The Circuit Rider program at DCNR may be appropriate to develop funding for such a position. In discussing the potential of the Circuit Rider program, it was indicated that a multi-municipal coordinator position may be the most appropriate for the application. Pursuing a multi-county position through a Circuit Rider program is recommended as a key next step in implementing the Main Line Canal Greenway.
If Huntingdon and Mifflin County Commissioners are not supportive of a multi-municipal coordinator position application to the Circuit Rider, a municipal authority application may also be appropriate. A Huntingdon and Mifflin County “Greenways Authority” could potentially be formed to focus on trails and green initiatives, as well as apply for Circuit Rider Funds.

2. Overview and Description

Successful operation will rely on a continued and regular program of maintenance of the Trail and support facilities. A Maintenance and Management Program will not only ensure a quality recreational or travel experience for the trail user but is also an essential ingredient of a risk management plan for the trail operator. Sufficient manpower and resources must be devoted to a regular maintenance schedule in order to meet these goals.

Among the factors determining maintenance requirements are existing landscape character and the nature and quality of capital improvements.

Another key element of the maintenance and management system of the Trail would revolve around communication and information that would allow trail users to provide feedback and report on issues concerning trail maintenance and safety issues. This component of maintenance would be facilitated through the establishment of a trail users’ organization as mentioned as well as through effective signage throughout the Trail providing users with information on who to contact regarding such matters. A thoughtfully designed and maintained web site could be effective in this regard.

A group of volunteers provide help maintaining the the Schuylkill Banks in Philadelphia, PA

The maintenance guidelines that follow are necessarily somewhat generalized and will need to be re-evaluated at such a time when a detailed capital improvement program has been defined. The maintenance implications of trail improvements should be reviewed carefully when
considering capital improvements. One particular area of concern, given the existing landscape conditions, is the problem of flooding from the Juniata River that can quickly undermine pavement structures. Money saved during the trail development process may be spent many times over if inadequate design and development creates a greater than normal maintenance burden. Trail maintenance is a major program that is related to trail safety, attractiveness, and image. The trail operator risks liability for accidents, if maintenance is ignored or negligently executed.

It is anticipated that the operating agencies will develop management systems for their respective segments of the Trail. It is recommended that consulting agreements for trail design services include a requirement that a detailed trail maintenance manual and schedule be provided.

The elements of this system should include:
- Inventory of the Trail and its related facilities.
- Setting of maintenance goals and standards for the quality of maintenance, hours of operation, and such.
- Developing the tasks necessary to achieve maintenance quality levels.
- Assigning the maintenance tasks to designated groups or individuals.
- Monitoring the quality and frequency of the work.
- Implementing a control system for tracking accomplishments and relevant costs.
- Evaluating the maintenance management program.

3. Table of Maintenance Tasks and Operations

Important maintenance tasks that management agencies must consider are indicated in the following Major Maintenance Tasks table as follows:
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
<th>FREQUENCY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mowing</td>
<td>4-foot min. wide each side of trail (where applicable)</td>
<td>3-4 times annually</td>
<td>Flail type mower best - less debris on trail</td>
</tr>
<tr>
<td>Pruning</td>
<td>Prune woody vegetation 4-feet back from sides of trail – 14-feet vertical clearance – remove invasive vines</td>
<td>Annually</td>
<td>Vegetation Management Program may reduce this task long term</td>
</tr>
<tr>
<td>Removal of Trees/Limbs</td>
<td>Evaluation/removal of unhealthy or dead trees and limbs</td>
<td>Annual</td>
<td>Fallen trees may remain as access control and to minimize disturbance</td>
</tr>
<tr>
<td>Signage</td>
<td>Maintain directional and informational signs</td>
<td>Permanent signs - periodically as required</td>
<td></td>
</tr>
<tr>
<td>Access Control</td>
<td>Replace damaged access control devices</td>
<td>Periodically as required</td>
<td>Estimated frequency: 10% annually due to vandalism</td>
</tr>
<tr>
<td>Trail Surface (on local roads)</td>
<td>Resurface</td>
<td>Periodically as required</td>
<td>Based on municipal schedule</td>
</tr>
<tr>
<td>Trail Surface (gravel road)</td>
<td>Repair surface damage from vehicles, erosion, etc.</td>
<td>Periodically as required</td>
<td>Based on municipal schedule</td>
</tr>
<tr>
<td>Trail Surface (boardwalk)</td>
<td>Replace damaged areas</td>
<td>Periodically as required</td>
<td>Spur trails only</td>
</tr>
<tr>
<td>Drainage Structures</td>
<td>Clean inlets, keep swales clear of debris</td>
<td>Minimum - Annually</td>
<td>Complete rehabilitation during construction would dramatically reduce necessity for this type of maintenance after storms</td>
</tr>
<tr>
<td>Litter Pick Up</td>
<td>Trailside-litter pickup</td>
<td>Weekly or as required</td>
<td>Encourage continued user ‘carry-in, carry-out’ policy</td>
</tr>
<tr>
<td></td>
<td>Access area litter pickup</td>
<td>Weekly</td>
<td></td>
</tr>
<tr>
<td>Trash Collection</td>
<td>Removal of trash from receptacles at access areas</td>
<td>Weekly</td>
<td>Problems with non-user trash. Some agencies do not have trash containers at access points for this reason</td>
</tr>
<tr>
<td>Bridges</td>
<td>Inspection by Prof Engr (P.E.) every 2 years</td>
<td>Annually by PennDOT, Municipal or County Engineer</td>
<td>Bridges associated with public roads are already on a regular inspection schedule.</td>
</tr>
<tr>
<td></td>
<td>Maintenance of bridge to ensure structural integrity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graffiti Control</td>
<td>Repaint bridges/abutments as required</td>
<td>Annual/spot basis</td>
<td></td>
</tr>
</tbody>
</table>
4. Law Enforcement and Safety

Trail managers should take necessary steps to provide both a safe trail for the users and to protect themselves from liability claims. Where possible, hazardous conditions and attractive nuisances should be identified and removed during the original construction of the Trail. Those that cannot be removed should have warning signs posted.

If trail segments are opened in phases, as is recommended in this study, clear mention should be made at all trail entrances and in any printed/electronic material (especially trail signage, maps, guidebooks and pamphlets) that portions of the Trail are still not yet fully developed nor open to the public and that users must exercise the necessary care when using the Trail.

An effective maintenance program is critical for trail safety. The maintenance program should provide for regular safety inspections. Proper tree work and vegetation management are an important part of the safety program. This includes trimming of vegetation to maintain adequate sight distance for traffic safety and crime prevention purposes.

Several individuals at public meetings expressed concern that conflicts might arise between trail usage and hunting. A program to encourage awareness by both hunters and trail users of the need for responsible usage is critical.

In addition to reducing trail hazards, documentation of trail maintenance activities is essential in combating possible liability claims. Through written records of good maintenance practices, the managing agencies will be able to protect themselves from liability claims. In terms of property ownership and liability, it should be noted that Pennsylvania recreational use laws largely protect landowners from liability related to recreational use of their properties as long as no fee is charged, and the landowners use due diligence to maintain the property and/or warn recreational users of any safety hazards.

With the ever-increasing use of cell phones by the general public, including trail users, aspects of security have changed in recent years. Users are very well prepared to report and locate questionable activity on or within trail corridors. However, safety planning must take poor service areas into account. User surveillance tends to deter potential criminal activity.

5. Trail Facilities and Orientation Systems/Markings

A trail marking and orientation system benefits both users and trail managers. Signs should be erected at all cross streets and highways, even expressways, identifying the name of the cross street. On-road or share-the-road signage will also be required for both the interim on-road alignment and sections of the ultimate trail alignment that utilize low-volume back roads. Similarly, town names should be posted where the Trail enters a town. This system helps trail managers to coordinate maintenance activities. The trail marking system could also help save lives in the event that emergency services might be required.

6. Vegetation Management

Effective vegetation management is a critical dimension of the maintenance program. Effective vegetation management is necessary to preserve and enhance the natural and scenic interest of the Trail. Effective vegetation management is an important component of trail safety. Adequate
sight distances along the Trail should be maintained for crime prevention purposes. Hazardous tree limbs and other obstructions should be promptly removed.

The following system-wide standards for vegetation management are proposed:

1. **Mowing** - Herbaceous material should be mown three to four times a year a minimum of 4-feet from the trail edge (where the trail adjoins meadows, roadways or grain fields). A flail type mower is recommended as rotary types blow the screenings, gravel and mulch (surfacing) off the trail.

2. **Removal of Vegetation from Trail surfaces** – In order to maintain the integrity of trail surfaces, invasive vegetation should be eradicated through very limited and selective application of herbicides.

3. **Woody vegetation control** - Trees and shrubs should be controlled by an annual mowing along the edges of the trail (where trail is adjacent to fields, meadows and managed grass areas). Removal of woody vegetation in this width should minimize the need for frequent mechanical or hand pruning to maintain adequate horizontal and vertical clearances. Selective removal or “limbing up” of trees should also be scheduled to maintain or create desirable views from trail. Trees should also be kept clear of all drainage structures, bridges and walls that may be subject to mechanical damage by tree roots.

4. **Invasive Plant Species and Vegetation Control:** Vegetation control should discourage poison ivy along the trail and the removal of invasive plant species such as Mile a Minute weed.

### E. Opinion of Probable Costs

**1. Acquisition**

Trail development will require acquisition of easements or rights-of-way from a number of existing property owners. Some owners of other trail corridors have donated easements, often taking a tax deduction for such an easement. If easements or right-of-way are to be purchased, the use of an appraiser is recommended for help in determining a reasonable price.

Right of way and easement acquisition costs are not included in the estimate of probable construction costs. **For a more detailed description of Proposed Easements and Property Acquisition Techniques, please refer to Section III.C. of this report.**

**2. Construction**

In the opinion of Campbell Thomas & Company, the probable construction cost for the Trail will be approximately **$23 - $29 million**, depending on the corridor chosen. Additional costs can be anticipated for easement or right-of-way acquisition, testing and clean-up of hazardous materials, and for the removal of debris observed along the trail rights-of-way. A more detailed analysis would be required to support an estimate of these probable costs. This figure does not include design fees, which can be anticipated to be 15 percent of construction costs. The analysis supporting this estimate of probable construction costs follows.

The budgetary opinion of probable construction costs presented in this report is based on analysis of trail characteristics across each phase of trail. Linear foot costs for each trail type are derived from CTC’s experience with trails of similar characteristics in Pennsylvania. The typical linear foot cost for each trail type is adjusted by a factor reflecting special construction characteristics within the reach. An assumption has been made that trail widths and surfacing
will reflect an initial lower volume of trail use, and, in many places, a rural environment. Over time, upgrades and widening of the trail may be considered.

The Summary of Probable Costs table follows. (For a detailed analysis of probable construction costs, please refer to Appendix C-ii and C-iii)

| SUMMARY OF PROBABLE COSTS BASED ON PHASE  |
| (Please reference phasing Maps in Appendix B-viii) |
| MIFFLIN COUNTY PHASING | Miles | Cost |
| PHASE 1 (Interim On-Road Alignment) – Mifflin County | 16.82 | $225,000 |
| PHASE 2 (Interim On-Road Alignment) – Mifflin County | 13.98 | $165,000 |
| PHASE 3A (Ultimate Trail Alignment / Interim Extension) – Mifflin County | 2.68 | $660,000 |
| PHASE 3B (Ultimate Trail Alignment / Interim Extension) – Mifflin County | 0.93 | $395,000 |
| PHASE 4A (Ultimate Trail Alignment) – Mifflin County | 8.49 | $2,410,000 |
| PHASE 4B (Ultimate Trail Alignment) – Mifflin County | 7.31 | $2,080,000 |
| PHASE 5A (Ultimate Trail Alignment / Interim Extension) – Mifflin County | 9.15 | $2,615,000 |
| PHASE 5B (Ultimate Trail Alignment) – Mifflin County | 5.15 | $2,575,000 |
| PHASE 6 (Ultimate Trail Alignment) – Mifflin County | 4.90 | $1,470,000 |
| **Subtotal** | **38.60** | ~$12 Million |

| HUNTINGDON COUNTY PHASING | Miles | Cost |
| PHASE 1 (Interim On-Road Alignment) – Huntingdon County | 9.01 | $125,000 |
| PHASE 2 (Interim On-Road Alignment) – Huntingdon County | 12.99 | $190,000 |
| PHASE 3A (Ultimate Trail Alignment) – Huntingdon County | 4.10 | $1,825,000 |
| PHASE 3B (Ultimate Trail Alignment) – Huntingdon County (Fire Trail Alignment vs. Dinkey Grades Alignment) | 3.59 | $975,000 |
| PHASE 4 (Ultimate Trail Alignment) – Huntingdon County | 10.28 | $4,350,000 |
| PHASE 5 (Ultimate Trail Alignment) – Huntingdon County | 10.50 | $3,920,000 |
| PHASE 6 (Ultimate Trail Alignment) – Huntingdon County | 4.42 | $1,460,000 |
| **Subtotal** | **32.89** | $12 – $18 Million |

**TOTAL** | **70.99** | ~$24 – $31 Million |
3. Maintenance Costs

Maintenance costs generally range from $1,500 to $2,000/per mile/year for similar trails. We recommend that the responsible agencies use a figure of $2,000 per mile to estimate maintenance costs during the first year after development. This figure can be evaluated at the end of the first year. This cost can be used for fundraising purposes as well as to solicit volunteer help for maintenance.

Many trail operators have been able to supplement their maintenance program by creating partnership agreements with local businesses, clubs and organizations. Formal cooperative agreements can be made with these partners that clearly define the roles and responsibilities of each party. Developing an effective maintenance management system is an on-going process.

F. Implementation, Priorities, and Action Plan

In reviewing this section, the reader is asked to refer to the Trail Phase Development Maps included in Appendix B-viii.

In developing the following recommended action plan for trail development, the study team took into account such factors as:

- initial implementation of an on-road temporary trail alignment
- the ability of each phase of construction to “stand on its own,” i.e., that each such phase will receive significant usage, even if the entire trail remains to be constructed
- new sections of trail that serve, where possible, as extension of existing sections of trail
- topography
- public ownership
- ease of acquiring easements or rights-of-way
- ease and expense of construction
- inclusion of both Mifflin County and Huntingdon County for each phase of work
- use of safe low-volume back-roads that avoid Route 22 (William Penn Hwy) where possible.

1. First Phase of Development (see Appendix B-viii)

Phase 1 and Phase 2 are aimed at “opening” the trail through development of an interim on-road alignment.

- Within Huntingdon County, Phase 1 includes an eastward on-road extension from the Lower Trail in Alfarata, to Alexandria, Petersburg, and Huntingdon.
- Within Mifflin County, Phase 1 includes an on-road alignment that will connect from the S.H. Rothermel Walking Trail and Victory Park in Lewistown westward to Strodes Mills and McVeytown.

2. Second Phase of Development (see Appendix B-viii)

Phase 2 continues as an extension of the Phase 1 interim on-road alignment to complete the trail between Alfarata and Lewistown.

- Within Huntingdon County, Phase 2 includes an eastward on-road extension from Huntingdon to Ardenheim, Mill Creek, Mapleton, and Mt. Union.
• Within Mifflin County, Phase 2 includes a westward on-road extension from McVeytown, to Ryde, Newton Hamilton, and Kistler, where the trail connects to the Huntingdon County portion of Phase 2.

3. Third Phase of Development (see Appendix B-viii)
Phase 3 thorough Phase 6 are aimed at completing the ultimate trail alignment between Alfarata and Lewistown. Multiple sections are often recommended within each phase of work.

• Within Huntingdon County, Phase 3A recommends an ultimate off-road trail/share-the-road alignment from Standing Stone Creek at the east end of Huntingdon to Ardenheim and the west end of Mill Creek.
• Phase 3B recommends implementation of an off-road trail from Mapleton to the existing Pennsylvania Ave. Walking Trail in Mt. Union. Phase 3B may include the Fire Trail alignment and/or Dinkey Grade Alignment detailed in Segment 17A and 17B.
• Within Mifflin County, Phase 3A includes an off-road trail/share-the-road alignment that will connect eastward from McVeytown to N. Sandbeach Rd. As part of Phase 3A, an on-road connection will also be made from Sandbeach Dr. to Route 22 at Lockport Rd., to temporarily re-connect with the on-road alignment from phase 1 and 2.
• Phase 3B recommends an off-road extension of the S.H. Rothermel Walking Trail, westward to Blue Juniata Dr. Additionally, an interim on-road connection along Loop Rd. will be made to Middle Rd. to re-connect with the on-road alignment from phase 1 and 2.

4. Fourth Phase of Development (see Appendix B-viii)
Phase 4 further implements the ultimate off-road trail alignment.

• Within Huntingdon County, Phase 4 recommends an ultimate off-road trail/share-the-road alignment from the Lower Trail in Alfarata, to Alexandria, and Petersburg. Two alternatives have been recommended for segments 6A and 6B between Cottingdon Ln. (T481) and River Rd., just east of Petersburg.
• Within Mifflin County, Phase 4A recommends an ultimate off-road trail/share-the-road alignment from the Existing Pennsylvania Ave. Walking Trail in Mt. Union, eastward to Kistler and Newton Hamilton.
• Phase 4B recommends an ultimate off-road alignment/share-the-road alignment from Strodes Mills to Phase 3B at the S.H. Rothermel Walking Trail at Blue Juniata Dr.

5. Fifth Phase of Development (see Appendix B-viii)
Phase 5 further implements the ultimate off-road trail alignment.

• Within Huntingdon County, Phase 5 recommends an ultimate off-road trail/share-the-road alignment from the eastern end of Phase 4 in Petersburg, to Huntingdon, to connect with Phase 3A at Standing Stone Creek.
• Within Mifflin County, Phase 5A recommends an ultimate off-road trail/share-the-road alignment from Phase 4A in Newton Hamilton, eastward to Ryde at Riverside Dr. An on-road connection along Aqueduct Dr. to Middle Rd. will temporarily re-connect with the on-road alignment from phase 1 and 2.
• Phase 5B recommends an ultimate off-road trail alignment from Phase 3A at N. Sandbeach Rd. to Phase 4B at Strodes Mills.
6. Sixth Phase of Development (see Appendix B-viii)

Phase 6 completes the implementation of the ultimate off-road trail alignment between Alfarata and Lewistown.

- Within **Huntingdon County**, **Phase 6** recommends an ultimate off-road trail/share-the-road alignment from the eastern end of Phase 3A in Mill Creek, to the western end of Phase 3B in Mapleton.
- Within **Mifflin County**, **Phase 6** recommends an ultimate off-road trail/share-the-road alignment from Phase 5A in Ryde, eastward to Phase 3A in McVeytown.

G. Potential Funding Sources

Funding sources will vary according to the type of work being performed: studies, acquisition, design or construction. *A list of potential sources is provided in Appendix F-i.*
IV. Methodology

A. Existing Plans and Field Survey

This feasibility study builds upon previous studies, planning efforts, current field surveys, interviews and workshops. The findings in this report are the products of information found in existing planning studies, synthesized with field observations, and input from the public participation process.

As part of the initial research for the Main Line Canal Greenway Trail Feasibility Study the project team researched numerous regional and local planning efforts to ensure that the planning goals and objectives complimented past efforts. Past planning studies that helped guide this report included:

- Tourism Roadmap to Success - Juniata River Valley Tourism (2017)
- The Bicycle and Pedestrian Plan by Southern Alleghenies Planning & Development Commission (2016)
- Juniata River Trail Feasibility Study – Mifflin County (2015)
- Huntingdon County Heritage Plan (2015)
- Juniata/Mifflin County Greenway, Open Space and Rural Recreation Plan (2010)
- Southern Alleghenies Greenways and Open Space Network Plan (2007)
- The Lewistown River Walk Trail Feasibility Study (2005)
- Pennsylvania Main Line Canal - Juniata and Western Divisions – Special Study (1992)
- Juniata River Corridor Reconnaissance Survey (America’s Industrial Heritage Project) (1991)

B. GIS / Base Mapping

High-resolution aerial photography was obtained from the Pennsylvania Spatial Data Access (PASDA Counties). Information on existing conditions that included municipal boundaries, services and facilities, roads, railroads, parks, conservation easements, campsites, streams and waterbodies were also obtained from Huntingdon and Mifflin County GIS Departments. Information on ownership was also obtained. This information was supplemented and updated by field observation. (See Appendix B-iv and B-v for a list of Property Owners along the alignment and accompanying Ownership Parcel Maps)

In addition to the initial planning research and GIS information from Huntingdon and Mifflin County, the study team utilized several overlays and analysis maps to identify resources throughout the corridor. Overlay maps and background materials helped the study team determine potential alternative alignments (See Appendix A-iv for the overlay/analysis maps utilized in guiding alternatives). Among the features inventoried and assessed were:

- Existing Huntingdon and Mifflin County greenway open space, and recreation planning recommendations
- Historic canal towns
- Historic and existing railroad corridors and stations
- Topography and natural beauty
- Historic trails and highways, including historic Indian trails
- Opportunities for trail loops
• 911 Historic sites, museums, and cultural resources
• Connecting trails and bike routes
• Water trails and boat launches
• Access to public transportation
• Conserved lands
• Utility rights-of-way
• PennDOT rights-of-way

C. Public Participation

Public participation has been a critical aspect of the trail planning process for the study. Benefits of public participation include:

• Stakeholders and their constituents can exchange ideas and learn about the recreational, environmental and socio-economic benefits of the proposed trail.
• Public participation is an opportunity for consensus building. Conflict and delay are minimized.
• Additional resources to support trail implementation and management are discovered.

The public participation process served as the basis for understanding the constraints and opportunities of the proposed alternatives and helped determine a preferred interim and ultimate trail alignment. The process itself included:

• 4 steering committee meetings
  o 08/09/2017 (Huntingdon County Planning & Development – Annex 1)
  o 01/25/2017 (Mifflin county Courthouse – Room A)
  o 06/19/2017 (Huntingdon County Planning & Development – Annex 1)
  o 09/12/2018 (Huntingdon County Planning & Development – Annex 1)
• 2 stakeholder workshops
  o 12/05/2017 (Huntingdon County Historical Society)
  o 01/25/2018 (Regional Business Center, Lewistown, PA)
• 3 public meetings
  o 04/05/2018 (Huntingdon County Planning & Development – Annex 1)
  o 06/28/2018 (Body & Soul Community Center, McVeytown, PA)
  o 09/20/2018 (Bailey Building Ballroom, Huntingdon, PA)
• Numerous small group and individual interviews
  o See Interview Spreadsheet in Appendix G-i.

During this inventory and analysis phase, project stakeholders were identified and interviewed (an interview spreadsheet is located in Appendix G-i). As a preferred trail corridor became evident, property ownership was identified. Several of the major landowners, with whom an easement would likely need to be negotiated, were contacted as part of the study. Prior to design, engineering and construction, property negotiations will need to take place for all land owners who would be directly impacted along the extent of the corridor.

Throughout the study, meetings were held with the Project Study Committee, where issues of trail implementation, maintenance and management, acquisition techniques, and project phasing were presented, critiqued and agreed upon by consensus of the group. Stakeholder Workshops and Public Meetings that were held in both Huntingdon and Mifflin County also provided several opportunities to engage the public, share information and ideas on the study, and gather critical feedback along the way. Meetings with Huntingdon and Mifflin County Planning Commissions,
PennDOT, and FirstEnergy Corporation were also enormously influential in determining the availability of right-of-way and in guiding the study.

Stakeholder Workshop #1 took place at the Huntingdon County Historical Society in Huntingdon, PA on December 5th, 2018.
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