Feasibility Study & Phase I Master Plan for:

North Pocono Pedestrian / Bicycle Trail & Greenway

Located in the Townships of Elmhurst, Jefferson, Madison
Roaring Brook and The Borough of Dunmore
Lackawanna County, Pennsylvania

Prepared for: the Rotary Club of North Pocono,
the Lackawanna River Corridor Association, & the
Lackawanna Heritage Valley Authority

Submitted by
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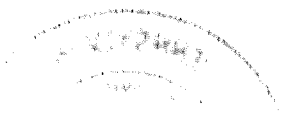

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In association with:
Lackawanna River Corridor Association
Rotary Club of North Pocono

Table of Contents

Vision Statement

The North Pocono Pedestrian Bicycle Trail represents the unique promise of a superbly implemented trail accomplished through joint participation of the Lackawanna River Corridor Association, four corridor municipalities, the Lackawanna Heritage Valley Authority, Lackawanna County and the Rotary Club of North Pocono. The primary goal is to maximize public enjoyment of county owned property and create a multi-use recreational trail that fulfills the needs of the communities it traverses. Dovetailing appropriately with the Lackawanna Luzerne Bi-County Open Space Greenways and Outdoor Recreation Master Plan, the trail conserves important natural areas, creates an economic asset and offers linkage opportunities in the near future and long term. The trail has the potential to one day be a model for alternate means of transportation between existing and proposed recreation facilities, activities and the corridor communities.

Summary / Key Recommendations

- Immediately pursue design and construction funding for the Phase I area.
- Complete the first section of trail through volunteer efforts as construction of this small section does not require a master plan. This early effort can coalesce support for the project and show early success.
- Work to include the project on the Transportation Improvement Program (TIP) list that is managed by the Lackawanna, Luzerne Metropolitan Planning Organization (MPO) the Northeast Pennsylvania Alliance (NEPA) as this is essential for securing T-21 enhancement funding and other transportation funding from Penn DOT.
- Work to establish linkages to this ten mile corridor in the surrounding area and to extend the corridor along the abandoned rail bed not owned by the County.

- Work with the Saint Mary's Villa senior home to develop an early segment of the trail aimed at serving its residents in Elmhurst Township.

- Work with local equestrians to help identify special needs and opportunities.

- Public safety signs should be installed to warn the public of all hazardous conditions located on county-owned property

- Work in the context of the Lackawanna Luzerne Bi-County Open Space Recreation and Greenway plan to determine appropriate management policies for ATV uses along the North Pocono Corridor.

- Since a majority of the corridor is currently owned by Lackawanna County - a trail developed along the corridor could be managed directly through the County Department of Parks and Recreation, through a cooperative agreement with the municipalities and community organizations or through an open space, Greenway and Recreation Authority as suggested in the Bi-County Open Space Plan.

- Develop a fact sheet for distribution and a calendar, poster or note cards for visibility, support and early recognition and fund raising efforts.

- Explore opportunities for a segment or series of segments on Channel 16's Pennsylvania Outdoor Life program.

- Build on community support generated by this project through annual events such as National Trails Day, Earth Day, etc.

- Produce a promotional video.

A. Introduction

1.0 Background & Study Purpose

The vision for the North Pocono Pedestrian Bicycle Trail evolved through collaborative efforts of the Lackawanna River Corridor Association (LRCA) and the Rotary Club of North Pocono (Rotary).

In 1980, funds from the Commonwealth of Pennsylvania's state recreation funding allowed Lackawanna County to acquire a ten-mile section of the former Erie Lackawanna Railroad Corridor for the purpose of developing an open purpose trail. The section had been abandoned and tracks removed after the flood of 1972. Subsequently, it was owned by a private investor until purchased by the County. The LRCA identified the importance of this corridor in its 1990 inventory and thought it vital that this corridor, part of the largest tributary to the Lackawanna River, be secured, developed and protected.

The intent of the county's ownership of this property was to provide for public trail/open space/recreation opportunities. The county has not made any improvements on the property, it does not advertise the property as being open to the public for recreation, and there are no points of entry, legal or defined, onto the property. There are numerous public safety issues related to the property. These include, railroad bridges and trestles, wash outs, rail bed surface conditions, vegetative condition, litter, dumping and a great deal of informal use of the property by the public.

The LRCA and Rotary obtained funding for this feasibility study through the Lackawanna Heritage Valley Authority's Community Partnerships Challenge Grant. Heritage funds have provided $20,000. for this project. Rotary and LRCA have provided an additional $12,000 in cash and in-kind as a match. The study is aimed at determining the feasibility of developing a proposed pedestrian and bicycle trail and greenway along the railroad corridor in Lackawanna County, Pennsylvania. It passes through four municipalities: The Townships of Elmhurst, Jefferson, Madison and Roaring Brook and the Borough of Dunmore. The corridor is owned in fee primarily by Lackawanna County with an approximate one mile area owned in fee by the Pennsylvania American Water Company along the Curtis Reservoir to the intersection of the Rail Corridor and PA Route 590 at Grace Road.

The corridor offers unique opportunities to incorporate both active and passive recreation, to conserve important natural areas, to create an economic asset for the local communities and to provide linkages between existing and proposed recreation sites, activities and the corridor communities. It is important to note that the latter be recognized as an alternative mode of transportation in order to qualify for future transportation enhancement funding opportunities.

Current uses on the undeveloped corridor consist of, but are not limited to, equestrian trail riding, hiking, mountain biking, ATV and other motorized vehicle use. The focus of efforts thus far has been to identify opportunities for

increased and varied enjoyment along uninterrupted stretches. The obvious and ultimate goal is to meet the needs and fulfill the desires of the communities with a multi-use trail.

Presently, the corridor is used informally by a variety of users. Local ATV riders use the corridor to link to an extensive informal trail network along the Moosic Mountains. Mountain/Trail bicycle riders also use reaches of the corridor as do anglers to access the fishery in adjacent Roaring Brook.

In general the planning and design of a greenway and/or trail is composed of three basic steps prior to the construction and operations and maintenance of the system. These are: concept development, feasibility study and master planning. As described below this effort is focused on the feasibility of the abandoned rail corridor owned primarily by the County of Lackawanna. However, it also helps to further develop the concept and targets a Phase I area for master planning. Operations and maintenance requirements are also addressed in a preliminary fashion.

2.0 Study Goals & Objectives

The major focus of the feasibility study was to gain a comprehensive understanding of the issues, constraints and opportunities in the entire corridor and to develop complementary mapping that may be used to further develop the proposed trail and greenway project; and then to identify a logical and practical first step or phase one for development that will substantiate a subsequent grant request for project implementation.

The feasibility study and phase one master plan will provide a guide for subsequent development of the multi-use trail and provide specific guidance for the phase one effort.

Specific challenges addressed in this feasibility study included:

- Researching and acquiring the best spatial data to use in developing the most useful mapping product;
- Identifying and assessing requirements for a Phase I project within the corridor;
- Obtaining the most "bang-for-the-buck" given limited project financing and the short project duration;
- Addressing a range of recreation uses: walking, hiking, biking, motorized vehicle use, horseback riding, snowmobiling, cross country skiing and sightseeing;
- Public education and consensus building during the development of the concept plan, and
- Identifying partnerships that are essential for project success of the ultimate physical development.

3.0 Regional Context

Figure1 shows the general location of proposed trail corridor, detailing the four municipalities it will traverse: The Townships of Elmhurst, Jefferson, Madison and Roaring Brook and the Borough of Dunmore. The approximately 10-mile length will be the fifth such trail developed in Lackawanna County, the first in conjunction with the LRCA, the Lackawanna Heritage Authority and the first which will involve the Rotary Club of North Pocono. The study corridor crosses under Interstate 84 three times and generally parallels the Old Drinker Turnpike.

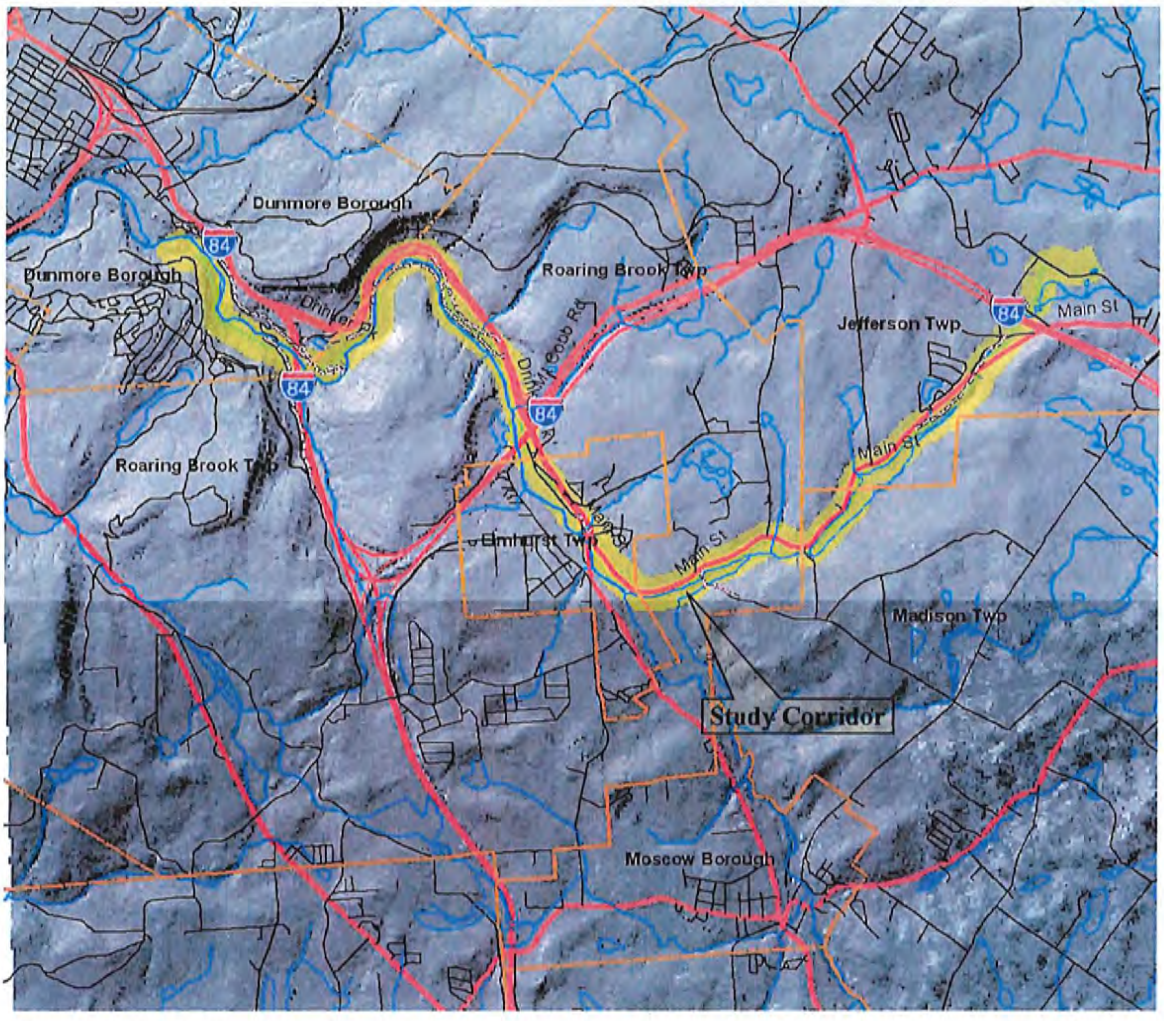


Figure 1: Study Corridor Location

4.0 Historical Overview of Local Railroads

The water gap in the Moosic Mountains created by glacial activity and by Roaring Brook provides the main eastern point of entry to the Lackawanna Valley. This passage known as the Nay Aug Gap or Cobbs Gap provides a strategic transportation corridor between the Pocono Plateau and the Lackawanna and Wyoming valleys. This corridor and pathways along the adjacent Moosic Mountain Ridgeline have been used by humans since the prehistoric era.

At the time of European settlement, there was a Native American path known as the Minisink Trail that ran from the confluence of the Lackawaxen and Delaware rivers up along the Wallenpaupack Creek to its headwaters at Moosic Lake from there the path descended Moosic Mountain into the Roaring Brook watershed and ran on down through Dunmore Corners and on to Capouse Meadows, a Native American village along the flats of the Lackawanna River in Scranton.

This pathway was later expanded by Connecticut settlers in the 1760s to carry their wagons to the settlement in the Wyoming – Lackawanna Valley. By the early 19th Century, Henry Drinker, a land speculator, developed the Drinker Turnpike along Roaring Brook.

With the rise of the Industrial Revolution, several railroads were developed along the Roaring Brook corridor. The Pennsylvania Coal Company (PCC) was formed to open coalmines near Pittston and Dunmore by the late 1840s. The PCC built a gravity railroad from Pittston to Dunmore and Hawley where it transshipped its coal on the Delaware and Hudson Canal.

The PCC Gravity Railroad was designed as a series of inclined planes with stationary stream engines hoisting rail cars to the top of the planes after which the cars were disconnected from the hoisting cable and were coasted down a level track to the base of the next incline. The PCC system used one set of inclines and levels to run from Pittston to Dunmore, ascending Moosic Mountain to its summit and then descending to Hawley. The alignment was known as the Loaded Track.

A different alignment was used for the inclines and levels to route empty coal cars back to the mines. This alignment, known as the Light Track followed the watersheds of Middle Creek and Jones Creek to the headwaters of White Oak Creek, a tributary of Roaring Brook. The alignment followed Roaring Brook through Dunmore and Scranton and then it crossed the Stafford Meadow and Spring Brook watersheds gradually descending 19 miles form Wimmers to Pittston.

The PCC abandoned this gravity system in 1885 and formed a partnership with the Erie Railroad to redesign the Light Track route as a locomotive-powered railroad. Some of the gradients and

alignments were altered and new track was installed. The road began operation as the Erie and Wyoming Valley Railroad in 1886. It was later incorporated as the Erie and Wyoming Valley Division of the Erie Railroad.

The line was incorporated into the merger of the Erie and Delaware Lackawanna and Western Railroads in 1961. The Erie Lackawanna continued to operate trains on the line until 1974 when the tracks were removed and the right-of-way was sold off between Rock Junction in Dunmore and Hawley.

Lackawanna County Department of Parks and Recreation purchased 10.6 miles of the abandoned property fromRock Junction to Wimmers Road. Since abandonment, the overpass of PA 435 at Elmhurst was removed. However, two underpasses of Interstate 84 have been retained.

The Erie Hotel in Elmhurst was closely associated with the Elmhurst passenger station across Main Street from the hotel. The Wimmers Station was acquired by the Hamlin Episcopal Church and moved to the Church property on PA 191 in the early 1980s.

The area around Silver Lake in Dunmore was once the site of a resort hotel. The Silver Lake Hotel was noted for its Chatauqua programs in the summers of the late 19th and early 20th centuries. The hotel property had unfortunately become derelict by the 1930s and was the site of a slaughterhouse by the 1950s.

There are two other rail corridors along Roaring Brook. The Delaware Lackawanna and Western Railroad was developed by business interests in Scranton to serve the growing Lackawanna Valley in 1852. The DL&W or Lackawanna Railroad built its Cobbs Gap and Delaware line up Roaring Brook across the Poconos and down into New Jersey between 1852 and 1856. The Lackawanna Railroad mainline saw the movement of millions of tons of anthracite coal slowly hauled up and over the Poconos by hundreds of chugging Mother Hubbard or Camelback locomotives. The mainline also saw the sleek rush of first class Pullman trains like the Lackawanna Limited and the Phoebe Snow.

Coal veins within District I
Source: US Department of Labor, Mine Safety and Health Administration

After the merger of the Erie and Lackawanna Railroads in 1961, rail service continued into the Conrail system in 1976. Conrail degraded the Pocono mainline and was in the process of removing track and abandoning

service until stopped by a resolution of Congress in 1982.

The mainline has been acquired by the Lackawanna County Rail Authority from Scranton to Mt. Pocono, and by the Monroe County Rail Authority from Mt. Pocono to the Delaware Water Gap. The authorities franchise a private operator to provide frequent service to many customers along the line. Presently, a Federal-Interstate program is underway to restore passenger rail service from Scranton, Pennsylvania to Hoboken, New Jersey. The service is expected to commence by 2010 with six to ten trains per day.

There was also an electric trolley railroad along the Roaring Brook corridor. The Scranton Dunmore and Moosic Lake Railway was built by the Burke Brothers developers of Moosic Lake in the late 1800s. The Burke Brothers ran the line with second-hand steam locomotives and passenger cars at first. This proved expensive and an agreement was reached with the Scranton Traction Company in 1910 to electrify the line and operate it with electric trolley cars. From 1910 to 1928 street cars could be taken from downtown Scranton to Moosic Lake or any spot between for a day of recreation, swimming, picnicking, dancing to big band music, huckleberry picking or fishing. The line was abandoned in 1928. About 8 miles of this trolley line are accessible from the base of the Moosic Mountain escarpment near PA 435 around the mountain towards Mt. Cobb and up to the Moosic Lake glen. Although privately owned, the property is a strategic regional asset as a potential trail and utility corridor.

The Lackawanna Valley Conservancy has purchased a portion of PCC Gravity Railroad inclines 8 and 9 on Moosic Mountain in 2004. This section of PCC Gravity, the Moosic Lake Trolley line and the North Pocono Greenway Trail along the E&WV RR can be developed into a trail system for multiple uses. These concepts are further discussed in the recently completed *Open Space Plan for Lackawanna & Luzerne Counties.*

5.0 Related Plans & Studies

Bi-County Open Space Greenways and Outdoor Recreation Master Plan

The Luzerne and Lackawanna County Planning Commissions recently collaborated with the Pennsylvania Department of Natural Resources, the Lackawanna Heritage Valley Authority, the Pennsylvania Environmental Council and the Lackawanna River Corridor Association to formulate a Bi-County Open Space Greenways and Outdoor Recreation Master Plan. This is the first bi-county planning effort of its kind in the Commonwealth.

The plan recommends the conservation of over 300,000 acres of watershed lands; natural habitat resource areas; mountain slopes and ridgelines; river, streams and railroad corridors across both counties. The plan also suggests creation of an open space authority to fund and manage partnership programs with state, private and municipal participants to implement the plan.

The plan looks at conservation of large blocks of forested watershed habitat lands joined by greenway and recreational trail corridors to the

developed portions of our towns and cities. The "Forever Wild" network will protect game lands, scenic and historic sites, high quality natural habitat areas and critical watershed lands. It is intended to compliment future smart growth that the plan suggests should be guided to adjacent areas away from the critical open space sites.

The integration of greenway trails such as the Roaring Brook Greenway with the Lackawanna River Heritage Trail, the D&H Rail-Trail, and the Countryside Trolley Trail in the Abingtons can provide Lackawanna County with a vital recreational trail system complementary to smart growth policies utilizing conservation subdivisions which maximize yield while conserving a majority of the development parcel in green open space. As the North Pocono Trail traverses five municipalities, it will be a vital 10-mile link in the chain of trails as the system develops.

These concepts are further supported in the updated *Plan For The Lackawanna Heritage Valley* and the *Lackawanna River Watershed Conservation Plan.* The watershed plan is available at www.lrca.org.

Monroe County Open Space Plan
Guided by the County's Open Space Plan, bond funds are allocated to conserve open space through a multi-faceted approach. The guiding initiative is the creation of a network of open spaces to include: natural areas; riparian corridors; abandoned rail and trolley lines; farmland; land for recreational opportunities; and developments which leave a portion of their land in open space. County bond funds have been allocated to provide incentives and/or funding assistance for all of the above-noted open space objectives.

D & H Rail-Trail
The D&H rail-trail runs from the Simpson Viaduct at Route 171 north through Lanesboro to the New York State Border. Trail access points have been constructed at Simpson, Forest City and Thompson; a trailside park was landscaped in Union Dale; and a trailhead is being designed for Starrucca. Improvements to the surface have occurred on the first mile of the O&W out of Simpson, with a river access park recently completed. Construction documents for stabilization, drainage improvements, and resurfacing are currently under review by our PA DOT partner. The first bridge decking project is underway. A major trailhead which maximizes parking is being designed off the new Greater Forest City Industrial Park road.

Wooded area along North Pocono Rail Corridor

B. Inventory & Analysis

1.0 Study Methodology for Physical Aspects of the Corridor

1.1 Spatial Data Research

While title analysis and research was not within the scope of this study, we did research County and private agency sources for existing property map data, railroad valuation maps (VAL maps), engineering survey maps and other related geographic spatial data for the purpose of creating an appropriate project inventory and basemap for project planning purposes. Current orthophotography was obtained of Lackawanna County for background imagery. We conducted a search of the National Archives in Washington DC for railroad valuation maps (VAL maps). Along with the county parcel maps these maps help identify the project area under the County's ownership and they also provide additional information with regard to potential historic resources and engineering structures such as drainage features that were installed as part of the development of the railroad. These maps were scanned into a digital file format and rectified to "best fit" with the other spatial data assembled for the project. A set of thirteen VAL maps including an index sheet were obtained and delivered to the LRCA.

1.2 Project Base Map

As discussed above the orthophotographic imagery was utilized as the background for the base mapping. The project base map was prepared, indexed and divided into seven sheets showing about a mile and a half of the abandoned railbed alignment covering the approximate ten (10) miles of abandoned rail corridor. The base map was developed in a standardized digital format using GIS software, available data assembled and interpolated in task 1.1, and GPS receivers to collect supplementary data from field reconnaissance as described below. The base map also indicates approximate municipal and property boundaries, available parcel information, roadways, and watercourses. Seven (7) map sheets were developed to inventory the ten-mile corridor. Two supplemental sheets (1A & 4A) show areas where appropriate linkages may occur.

Chapter C of this report: *Trail Design and Linkage Considerations* provides a segment by segment description of trail design and linkage opportunities and constraints tied to a series of map sheets at the end of the chapter. A general description of these corridor conditions follows along with a needs assessment that highlights public involvement and potential trail use.

1.3 Inventory & Analysis

1.3.1 Site Conditions/Comprehensive Site Analysis - Existing site conditions are located on the basemap using information available from existing prior studies, air photo interpretation and field reconnaissance. Field reconnaissance located significant features throughout the corridor with the assistance of GPS receivers to transfer the collected data to the digital basemap (Task 1.2). Concurrently a complementary digital photographic log was developed. Good design is dependant on good analysis and consequently a good comprehensive

site analysis will foster good trail design. Significant features noted include: existing physical structures, significant historic remnants, sites requiring remedial design solutions such as washouts, etc., and other unique features that could contribute to trail development such as those outlined below:

1.3.2 Access Opportunities - Throughout the length of the proposed rail-trail corridor, we examined opportunities offered for pedestrian, bicyclists, equestrians and vehicular access to and from the corridor. These opportunities may include access to: existing and proposed recreation areas, state game lands, historical and cultural resources, natural features, communities and community development projects. Existing side trails that intersect the corridor or run parallel to the corridor were identified. There are numerous trails that lead off of the rail corridor which were once used as old roadways or are currently used by ATVs and there are many parallel pathways developed through ATV use or used by utility companies for access. These trails also offer the possibility of being utilized by trail users to access the surrounding woods and streams as linkages. In many instances, there are side trails that run parallel to the corridor and at different levels than the rail bed. Some of these trails are remnants of the older gravity railroad. Others are older alignments of state highways. Several mile long reaches of parallel abandoned highway are paved with asphalt and concrete

1.3.3 Potential Trail Heads – In addition to the potential access points located along the trail, a number of potential locations for trail heads were also identified. These areas are significant because they provide good access to the proposed trail from local roads and have sufficient room for parking. The trail head sites also offer potential for other amenities such as restrooms, staging areas, trail information, etc. Trailheads are also important for the development of the trail because they provide designated or identifiable access points for users of the proposed trail and the general public.

1.3.4 Utilities and Easements – The location and proximity of major easements and utilities to the rail corridor influences the design of the trail. Along the approximate ten miles of the North Pocono Rail corridor many public and private utility structures run parallel to, are within, or cross the corridor. Utilities that impact the North Pocono Rail corridor include the Pennsylvania American Water Company, overhead electric and phone lines, water lines, sewer lines, water treatment, stormwater culverts, and utility easements. In general, the utility that has the greatest influence on the design and layout of the trail is the Pennsylvania American Water Company with the largest easement along the corridor. Other right-of-ways include the major underpasses such as the culvert under Route 84 near Wimmers.

1.3.4 Potential Conflict Areas Sections of the proposed trail corridor with vehicular traffic running parallel to or crossing (at-grade intersections) the corridor require special consideration and were evaluated for potential user conflicts and other considerations such as traffic volume, warning signage, and highway occupancy.

1.3.6 Trail Bed Constraints – Aspects of the existing rail corridor and surroundings will have an impact on trail design, management and maintenance. These factors may affect user group movement and require extra consideration in trail design. Typically the surface of the rail bed may be unstable due to the use of culm as a primary fill. This condition restricts movement for general bicycle users and is also susceptible to washouts. Consideration needs to be taken to stabilize parts of the trail, especially where there are steep side slopes to one or both sides. The loose surface also affects air quality because of air born soot particles.

Modifications to the rail bed over time may have removed ballast and otherwise affected the original drainage structure. As a result, the combination of the soft soil surface and large amounts of water drainage through the rail corridor may have caused washout and erosion points and introduced drainage problems. In addition adjacent and intersecting streams may pose flooding problems if the rail bed is not elevated above the floodplain.

1.3.7 Siting Opportunities – The potential for siting interpretive areas, rest areas, campsites, and other staging areas were examined throughout the corridor. These locations are often found in conjunction with identified scenic, historic and cultural resources. Historic railroad structures could be the focal points for historic interpretation. Areas for placing picnic tables and/or rest areas may often be found that overlook adjacent stream corridors and water bodies. Other areas where topography changes dramatically may provide excellent views of the surrounding area. In addition lakes, ponds, wetland areas all provide opportunities for natural interpretive areas.

1.3.8 Special Use Trails – Some areas within the corridor, and access approaches may provide opportunities for special use trails such as equestrian use, snowmobiling, roller blading, handicap accessibility, etc.

1.3.9 Scenic, Historic, and Cultural Resources – Many of the artifacts left behind by the railroad are rich in history. Therefore, many of the cultural and scenic resources within the corridor are significant due to the railroad.

1.3.10 Potential Linkage Corridors - There may be sections along the trail where private property adjacent to the trail and local roads could be utilized as potential linkage corridors. Further investigation of these opportunities will be ongoing. These corridors could link the trail to points of interest in the surrounding communities. Also, stream corridors offer potential linkages connecting the trail to various nature interpretive areas.

2.0 Needs Assessment

A two part public involvement effort was conducted to advance the feasibility study and to help determine the needs and demands while establishing an overall vision for the realization of a developed trail in the corridor.

2.1 Study Advisory Committee
The committee, composed of members of the North Pocono Rotary (Rotary) and

the Lackawanna River Corridor Association (LRCA), was assembled to facilitate the study's progress and process.

- The committee met several times throughout the project and was provided a status report at each meeting. The committee acted as a local resource information base and sounding board for project issues and offered feedback. The primary function has been to help guide the development of the project.

- The committee contacted key persons and organizations for the purpose of conducting focus group meetings facilitated by the project consultant. In addition to community and business leaders, recreational users and environmentalists were invited to participate.

2.2 Focus Groups & Public Meetings
Collaborating with the Rotary and the LRCA, the project consultant developed and conducted focus group sessions and a public meeting to present findings.

- Focus Group Meeting #1
Public officials from the four municipalities met to discuss the concerns which may be of primary interest to residents.

- Focus Group Meeting #2
Recreational Users and Environmental Concerns met to discuss the potential use and/or conflicts related to trail development.

- Focus Group Meeting #3
Business and Economic concerns met to discuss the possible impact of trail development.

- Public Meeting for presentation of findings
Bloss Associates presented recommendations and identification of community needs, potential trail use concerns and opportunities. Input from the Study Committee and individuals attending Focus Group and public meetings are incorporated into appropriate areas of the document. Summaries of these meetings are included in the appendix.

2.3 Greenway Movement –
Rail-trails are the fastest moving part of the greenway movement in the United Sates today. As of August 2004 this movement has resulted in the construction of 1,006 rail-trails totaling 12,650 miles. Pennsylvania leads the nation with 116 trails totaling over 1200 miles. Also, there are over 1,000 miles of additional planned projects in Pennsylvania.

Since off-road trails such as a rail-trail are generally free of vehicular traffic, they offer a unique combination of outdoor activities to people of all ages and abilities and are a great way of introducing children, novice bicyclists or in-line skaters to the sport. They also offer users of trails for transportation a pleasant respite in a setting free from automobile traffic. Pennsylvania needs more off-road facilities to complement the increasing demand for bicycle and pedestrian friendly on-road systems.

3.0 Potential Trail Use

Recreational usages along the corridor, as well as opportunities for historical markers and scenic destinations are detailed as below. User groups are intended to be primarily non-motorized users, however some sections are anticipated to be motorized use based on their local popularity and need for accommodation. Primary pedestrian user groups will likely include: walkers, hikers, runners/joggers and informal strollers. Other non motorized users include mountain bicyclists, in-line skaters, equestrians, cross country skiers and snowshoers. Snowmobiling and ATV are anticipated motorized uses.

3.1 Pedestrian Use
Anticipated heavy use by walkers or runners/joggers along the length of the trail. Birding, sightseeing and fitness users would likely comprise the majority. Areas with hard-surface pavement would be attractive to seniors, baby strollers, and in-line skaters.

3.2 Bicycling/Mountain Biking
The trails will be designed for non motorized biking, which is very likely to be significant.

3.2 Equestrian Use
Development of trail sections for horse back riding are important based on needs identified through public involvement. Equestrians noted that they are less comfortable sharing trail use with mountain bikers than they are with ATVs. Considerations for the design of equestrian trails are included in Appendix B.

3.3 ATV & other motorized vehicle usage
Possible development of sections for motorized vehicle usage need to be explored and recognized in the overall development of the Master Plan.

3.4 Snowmobiling
Opportunities exist when conditions permit along sections of the trail for snowmobiling.

3.5 Cross Country Skiing/Snowshoeing
When conditions permit, sections of the trail may be utilized for skiing or snowshoeing

Rock outcropping along trail

3.6 In-line skating
Likely when hard trail surfaces are installed in relatively level areas.

The following table outlines trail usage by location, length and surface, both nationwide and in Pennsylvania.

Table 1
Average Use of Rail-Trails According to Location, Trail Length and Surface

Location & Surface	10 Miles or less		5.1 - 10 Miles		5 Miles or Less	
	Avg. # of Users	# of Trails	Avg. # of Users	# of Trails	Avg. # of Users	# of Trails
United States	63,980	304	69,169	98	61,499	206
Mixed trails	70,864	158	80,010	57	65,058	101
Other than asphalt	21,104	186	24,119	131	13,922	55
Community Type and Other than Asphalt Trails						
Urban	21,749	16	23,007	5	21,177	11
Suburban	38,434	24	26,752	6	42,328	18
Rural	11,628	71	10,301	17	12,045	54
Mixed	24,651	91	14,336	30	29,724	61
Pennsylvania*						
Mixed trails	22,904	35	(total for all mixed trail lengths in Pennsylvania)			
Other than asphalt	16,911	27	13,700	10	18,800	17

* Pennsylvania also reports trails greater than 10 miles in length: 50,532 users on 23 trails
Source: Rail-Trail Council

4.0 Existing Land Use

The undeveloped corridor is used primarily by nearby local residents. ATV and other motorized vehicles, equestrian use and hiking and biking are common along portions of the extant trail. Current land uses along the corridor are: transportation with PA 435 and 590, Interstates 380 and 84 and the Pocono mainline of the Lackawanna County Rail Authority; watershed and forestry; village commercial and suburban at Elmhurst and rural residential in Roaring Brook and Jefferson with some dairy agriculture in Madison.

5.0 Natural Features Description

Opportunities for enjoying the region's scenic beauty are many along the corridor. Traversing thickly forested hills and valleys, healthy streams and waterfalls, the completed trail will open access to areas heretofore difficult or impossible to easily reach.

6.0 Heritage & Cultural Features

The rich history of the region was defined by the railroad, coal mining and timber industries. Key to industrial growth at the time, the railroads serviced businesses along the route. The Lackawanna Railroad and the extant track of the Pennsylvania Coal Company's Gravity Railroad were built along Roaring Brook in the 1850's. The Erie and Wyoming Valley Railroad was re-engineered along the PA Gravity in 1885-86. It operated as a steam and later diesel locomotive railroad until 1972 when it was abandoned by the Erie Lackawanna Railroad. In addition, along the corridor, areas may exist where temporary tracks lay. Identifying

uses and locations could be of significant historical importance.

Current concerns and development direction for the region have identified a need for dedicated space for recreation, linkages to open space, other trails, nearby communities and farms. The hope is to be able to tie the trails together and offer alternative means of travel to and from points along the length of the trail.

Rock formations at Nay Aug Tubs

7.0 Opportunities & Constraints Summary

Interpretive areas, rest areas, campsites and other areas were identified along the length of the proposed trail. On site visits and a trail wide bicycle trip by members of the LRCA and the consultants allowed for discussion of focal points and locations along the way. Many exceptional scenic vistas, historic and cultural resources will be made accessible with the development of the trail. Natural resources such as water features, wildlife and older structures have superb potential for creation of interpretive sites or areas.

Certain aspects of the existing rail corridor and adjacent property may have an impact on trail design, maintenance and management. These factors require additional consideration in trail design: surface, topography, and adjacent and intersecting streams and roadways.

Surface

Unstable rail bed surfaces in many sections are due to the use of culm as primary fill. Susceptibility to washouts, and difficult movement for bicyclists is common. Areas along the trail that have been affected by erosion and washout need to be stabilized. Air quality could be a factor in areas because of airborne soot particles.

Topography

Many steep slopes exist along the length of the trail, particularly in the western sections. Large volumes of surface water cross the trails and have led to erosion and washouts. Modifications over time may have affected the original drainage structure.

Adjacent and intersecting streams

Flooding is not considered a serious threat along the corridor as it is above the floodplain. There are two existing bridge structures that are in disrepair and in some cases dangerous. The trestle located near the Interstate 84 overpasses at Silver Lake in Dunmore is very dangerous. Until safety improvements are made on this trestle, this point may be looked into for additional options for crossing such as fording Roaring Brook . Improvements are necessary to accommodate a variety of trail use. The other trestle is not located within the

county owned property and is part of the Winton Branch of the Erie and Wyoming Valley Railroad. It is approximately 400' across the Lackawanna/Pocono Mainline and Roaring Brook. The County owned property begins approximately 0.19 miles past the end of the existing trestle. Aquisition of this trestle and right of way to Drinker Street would be a strategic link to the Borough of Dunmore proper and would support linkages to other trails along the valley corridor.

Historical marker nearby

Adjacent and intersecting roadways

The trail parallels roadways along sections of the trail. A portion of the trail is parallel to Route 435 for a distance and must cross the road at Elmhurst near the PA 590 intersection. After crossing PA 435 the corridor parallels Hamlin Road (S.R. 590) and has numerous access opportunities along this stretch. It then passes under Route 84 via a culvert. This culvert has a very strong stench that is unappealing. Proper cleaning and maintenance will need to be performed to make it acceptable for public use.

Potential conflicts between trail users and vehicular traffic exist in certain areas of the proposed trail, especially where the roadways intersect or parallel.

Traffic volume is generally low, however, measures to minimize conflict and ensure safety is recommended. Also, sections of the trail in its undeveloped state are currently used by equestrians and motorized vehicles i.e., ATVs, dirt bikes (motorcycles). The ATVs help to make it passable by dispersing the stones and leaving a smooth path for a bike to travel along. They also assist in controlling the weeds from overgrowing the railbed.

C. Trail Design and Linkage Considerations

1.0 Segment Descriptions

The proposed North Pocono Pedestrian Bicycle Trail passes through portions of four municipalities: Dunmore Borough, Elmhurst, Roaring Brook, Madison and Jefferson Townships. Seven segments have been identified for planning purposes.

1.1 Segment # 1 (Map Sheets 1&2)

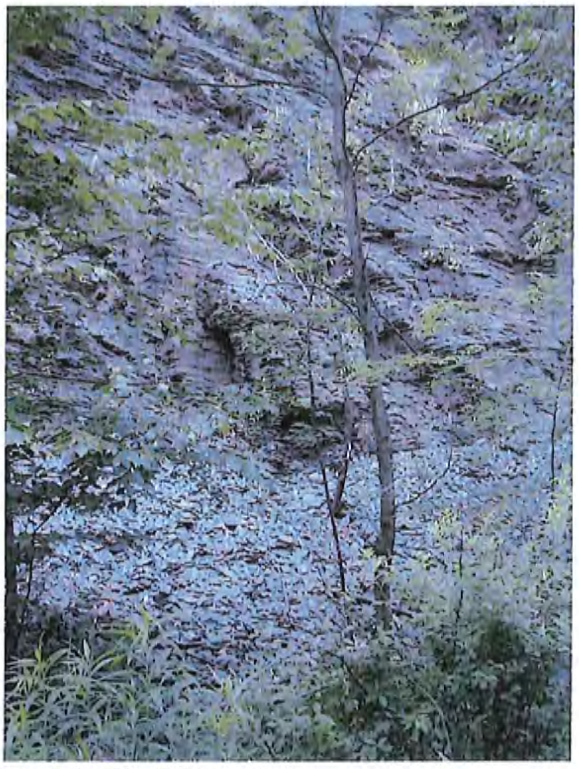
Location: Mile 0.00 from the Winton Branch Trestle of the Winton Branch of Erie and Wyoming Valley Railroad Rail to the Nay Aug Trestle bisecting the Pocono Mainline

Length: 1.5 Mile

Overview: This segment follows Roaring Brook and the Greenville Cliffs and offers expansive views of the greater valley region.

Natural Features: The general topography of this segment is partially rocky with a slight grade change along the path. The left side of the trail is wooded and there is a steep drop in elevation down to the Roaring Brook. To the right is a steep embankment that is mainly wooded. As you travel down the railbed a rock formations will appear on the right. The Greenville Cliffs are located west of the trail and begin approximately where the county owned property begins near the Rock Junction Switch. The unique rock formation known as Spetchy Kopf is located just past the overlook to the valley.

Overlook near Greenville Cliffs



Spetchy Kopf formation

Built Features: At the beginning of this segment, approximately 0.26 miles before the County owned property begins, an old abandoned rail road trestle

Nay Aug trestle

crosses Roaring Brook. It is approximately 400' long. This portion of railroad is owned by the Denaples Interests. A construction/utility trench waste landfill is in progress along the Right of Way between Drinker Street and the Winton Branch trestle. Marking the end of segment 1 is another, the Nay Aug trestle which requires extensive repair.

Access Opportunities: Off of Drinker Street on the Winton Branch of the Erie and Wyoming Valley Railroad. Although owned by others, arrangements to obtain right-of-way access and improvements to the Trestle are recommended.

Potential Interpretive Areas: Overlook to Roaring Brook is an area along the corridor that provides scenic vistas of the valley and of Roaring Brook. There are also numerous rock formations in the area that can be viewed close and from a distance. This overlook offers many interpretive opportunities.

Potential Trailheads: Near mile 1.50 just east of the Nay Aug Trestle, numerous trail opportunities intersect. The Silver Lake Access is a large flat and open area providing a significant area for parking and could be approached from Drinker Pike / PA Route 435 by approximately 1,000 feet of a private driveway accessing the Silver Lake complex. Another 800-1,000 feet of undeveloped pathway would then reach the Silver Lake access area.

Potential Conflict Areas: Access to this portion of the trail requires crossing Roaring Brook at two locations. Currently both ends have abandoned trestles.

Trail Bed Constraints: Regrading the surface is necessary and access to this segment requires crossing Roaring Brook on abandoned and unsafe trestles.

Utilities and Easements: Route 84 overpass has an easement.

Special Use Trails: n/a

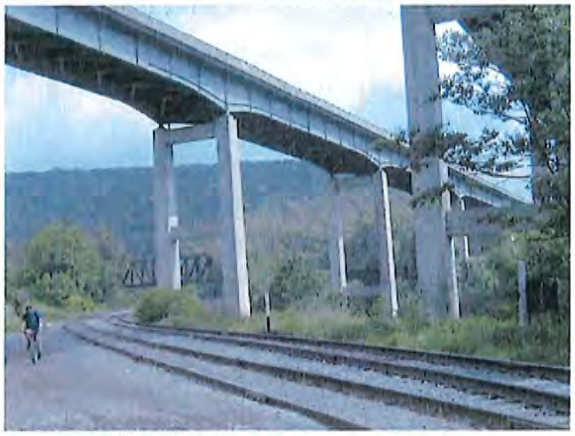
Scenic, Historic and Cultural Resources: Abandoned overturned railcar from 1970. View of Valley, Spetchy Kopf Rock formations and Greenville Cliffs.

Potential Linkage Corridors: Use of old township road to link to Elmhurst Boulevard, Mt. Margaret residential subdivision, Scrub Oak Mountain, Lake Scranton and East Mountain, Oakmont neighborhoods in the City of Scranton. See Supplemental Sheet 1a.

Other potential linkages are recommended in Dunmore using the Old Drinker Turnpike and the Winton Branch to reach Drinker Street. Potential alignment of the trail using signage along Drinker Street and Electric Street is possible and from these an alignment through the Marywood University campus could provide access to the Interstate 81 drainage channel maintenance road that intersects the alignment of the Lackawanna River Heritage Trail near the County recycling center.

Other linkages from Drinker Street could be developed to the PA Gravity Railroad Loaded Track on Moosic Mountain.

At Silver Lake and at Chico's there is potential linkage to the Moosic Lake Trolley corridor.



Pocono Mainline

Old Drinker Turnpike

1.2 Segment # 2 (Map Sheet 2)

Location: Nay Aug Trestle bisecting the Pocono Mainline to Chicos.

Length: 1.40 miles

Overview: This segment begins just south of Silver Lake and then runs parallel with Route 435 and Roaring Brook to the site of Chicos spring and a potential access location.

Natural Features: Waterfall near trestle. The general topography of this segment has a slight change in elevation. The embankment to the creek is on the right of the trail and slightly steep. On the left of the corridor is a wooded embankment to Route 435.

Nay Aug Tubs

Built Features: The PAWC Aqueduct bisects the corridor approximately 0.25 miles from the start of this segment.

Access Opportunities: There are numerous access points that are currently utilized by the ATV riders and equestrian users. Old Drinker Turnpike parallels the rail bed and is partially paved creating good opportunities for a multi use trail system. The development of access to and along Old Drinker Turnpike to the end of Drinker Street in Dunmore is recommended as an alternative and supplementary access to Dunmore. There is a trail that will guide you to the Nay Aug Tubs, a swimming hole often visited by locals. Further up the trail just upstream from the aqueduct crossing is another swimming hole. There is an existing pull-off of Route 435 near Chicos used for accessing the corridor.

Beginning of washout area

Potential Interpretive Areas: The PAWC Aqueduct could be used as an educational landmark.. The Nay Aug Tubs provide a geological focal point.

Potential Trailheads: The Silver Lake as described in Segment 1. At Chicos an existing pull-off of Route 435 could be upgraded as a minor access and trailhead.

Potential Conflict Areas: The extent of excavation may be limited for trail construction where the PAWC Aqueduct crosses the corridor. At the end of Segment 2 a portion of the trail has a severe washout that will need to be repaired and preventative measures taken to prevent future washouts. Heavy ATV use appears throughout this segment.

Trail Bed Constraints: The majority of this segment has large rocks that could be dangerous. These appear to be the remnants of coal. This section will need to be regarded and smaller stones applied.

Utilities and Easements: The PA Aqueduct crosses the trail and has an easement associated with the water line.

Special Use Trails: ATV and Equestrians could share a trail should an upper and lower trail be developed.

Scenic, Historic and Cultural Resources: Nay Aug Village, Chicos, Silver Lake Hotel. Silver Lake was originally developed as a hotel resort and was the site of many Chataqua type events between the 1880's and 1910 era. Chico's Bakery was located along PA 435 near the rail corridor east of Silver Lake. It Served as a truck stop during the 1920's and 30's and had a reputation associated with speakeasies.

Potential Linkage Corridors: Linkage to the Old Drinker Turnpike just north of Route 435. The Scranton Dunmore & Moosic Lake Trail (Trolley Line) is located further up Moosic Mountain to the north of the corridor. Also located within this vicinity are the old Timber Roads. On the other side of Roaring Brook is a Pipeline Road which may have the potential as a trail.

1.3 Segment # 3 (Map Sheets 2 & 3)

Location: Chicos to Main Street Elmhurst Access.

Length: 1.75 miles

Overview: This segment begins at Chicos and runs parallel with Route 435 and Roaring Brook going under Interstate 84 and ending at the north end of Main St. in Elmhurst.

Natural Features: The general topography of this segment has a slight change in elevation. The embankment to the creek is on the west of the trail and fairly steep. On the east of the corridor is a wooded embankment to Route 435. Large amounts of coarse rail ballast remain along the trail surface making even mountain bike passage difficult. Apparent ATV use helps to make it passable by dispersing the stones and leaving a smoother path for a bike to ride along. Weeds are also controlled from overgrowing the railbed by this use. There is a waterfall upstream approximately 500' on Rock Bottom Creek which passes through a culvert under Route 435.

Built Features: Further north on corridor there is a culvert located under the railbed that empties into a small pool near mile 3.75. This area appears to be pristine and a great swimming hole. Adjacent to the swimming hole is evidence of camping. There is a grassy area with a campfire pit. Right before the underpass of Route 84 upstream of the bridge is a culvert where the creek passes under PA 435. The culvert provides passage to a small hemlock glen and several splash pools. The trail crosses over Rock Bottom Creek on a steel girder truss.

Rock Bottom Creek Waterfall

Access Opportunities: There are numerous access points that are currently utilized by the ATV riders and equestrian users. Just before the

Interstate 84 overpass is an area that appears to offer adequate space for

parking accessible from a dead end reach of Old Pa 611.

Rock Bottom Creek Bridge

Potential Interpretive Areas: Rock Bottom Creek and waterfall.

Potential Trailheads: Just north of the Interstate 84 overpass is an area that appears to offer adequate space for parking and provides access to the Old Route 611. A trailhead may also be considered just south of the Interstate 84

Chicos Spring

overpass at the dead end of Main Street in Elmhurst. The Pipeline Road access point is located within this segment and provides an additional access point. This road is currently used by ATVs.

Potential Conflict Areas: Ownership of real estate between rail corridor and PA highway Right of Way needs to be determined and acquisitions are recommended where necessary. Considerable ATV use.

Trail Bed Constraints: The majority of this segment has large stone rail ballast that provides rough and rocky surface. This section will need to be regraded and a compacted smooth surface installed.

Utilities and Easements: Interstate 84 overpass right-of-way.

Special Use Trails: ATV and Equestrians could share a trail should an upper and lower trail be developed.

Scenic, Historic and Cultural Resources: Waterfall, swimming holes, camping, access to Roaring Brook for fishing.

Potential Linkage Corridors: Linkage to the Old Drinker's Turnpike. Just north of Route 435 the Scranton Dunmore & Moosic Lake Trail (Trolley Line) is located. Also located within this vicinity are old timber roads. On the west side of Roaring Brook is a pipeline maintenance road which may have potential as a trail alternate.

1.4 Segment # 4 (Map Sheets 3 & 4)

Location: Main Street Elmhurst to Elmhurst Reservoir Dam (mile 5.75).

Length: 1.50 miles

Overview: This segment follows Main Street in Elmhurst, crosses PA Route 435, and then parallels PA Route 590 on its westerly side to the Elmhurst Reservoir dam site.

Natural Features: The topography of this segment has a severe change in elevation at the PA Route 435 crossing up to PA Route 590. There was a rail trestle here that has been removed creating the severe change in elevation. Once along PA Route 590 there are minor gradient changes. The corridor runs through mature wooded vegetation as it parallels Pa Route 590 to the dam site. The reservoir is on the western side of the trail.

Built Features: Dam, village residential and commercial along Main Street and PA Route 435. A series of four (4) culverts under PA Route 590 has resulted in washouts of the rail bed surface.

Access Opportunities:
Along Main Street at the west end near the township garage at a large dirt and gravel area which appears to be partly in the PA Route 590 right-of-way and that of the rail corridor, and at a site on the southwest side of PA Route 590 near the dam site.

Potential Interpretive Areas: Main Street, Erie Hotel, Elmhurst Reservoir, old railroad station site.

Potential Trailheads:
A major trailhead is recommended at the PA Route 590 site (Elmhurst Access) opposite the Cabinet World Factory. A minor access near the dam in conjunction with a maintenance access for the dam.

Abandoned Elmhurst Reservoir Bridge

PA Route 590 - Elmhurst

Potential Conflict Areas: The Pennsylvania American Water Company may require certain requirements for

safety be met along the dam. A new trail bridge as an overpass of PA Route 435 would provide the best option to resolve this conflict in the long term. In lieu of building a bridge for the trail over PA Route 435 an at grade crossing could be provided.

Potential trailhead - Elmhurst

Trail Bed Constraints: The rail bed corridor along PA Route 590 is overgrown with vegetation and needs grading and repair of the four major washout areas.

Elmhurst Reservoir Dam

Utilities and Easements: The Pennsylvania American Water Company has an easement for a portion of the trial along the reservoir.

Special Use Trails: The link to Elmhurst Township property and other links through the village areas can be developed.

Scenic, Historic and Cultural Resources: Erie Hotel and station site, Elmhurst Village, Elmhurst Reservoir.

Potential Linkage Corridors: An additional pedestrian overpass on an Elmhurst Village trail system could link over the active Pocono rail line to the southern part of the village.

1.5 Segment # 5 (Map Sheets 4 & 5)

Location: Elmhurst Reservoir (mile 5.75) to Curtis Reservoir gate.

Length: 1.40 miles

Overview: This segment follows along the north side of the Elmhurst Reservoir and parallels PA Route 590 to the south all the way to the Curtis Reservoir gate.

Natural Features: The general topography of this segment has minor gradient changes. The first quarter mile along Elmhurst Reservoir is open with mown grass and a buffer stripe of trees between the rail corridor and PA Route 590. the remaining distance is through mature woods

Built Features: Dams, abandoned bridge across the Elmhurst Reservoir, stone walls near the Elmhurst dam site.

Access Opportunities: There is a trail located on the other side of the reservoir. The abandoned bridge may be rehabilitated for linkage to Moscow. There are also pipeline maintenance and timber roads to aid in creating a Pocono/ North Pocono integrated trail system. An easement would have to be developed with the PAWC and the Theta Companies. Near mile 7.75 there is an area that provides limited access that is currently used for maintenance.

Potential Interpretive Areas: Reservoir and dam development.

Potential Trailheads: A minor trailhead at the Elmhurst reservoir dam site and another at the Curtis Reservoir gate which may be developed off PA Route 590 or off the township road (Reservoir Road).

Potential Conflict Areas: The Pennsylvania American Water Company may require certain requirements for safety be met along the dam. ATV use.

Trail Bed Constraints: Need for grading, drainage improvements and finish surfacing.

Utilities and Easements: The Pennsylvania American Water Company has an easement for a portion of the trial along the Curtis Reservoir.

Special Use Trails: Dual corridor may be developed to allow ATV passage separated from other uses.

Scenic, Historic and Cultural Resources: Elmhurst Reservoir and reservoir bridge.

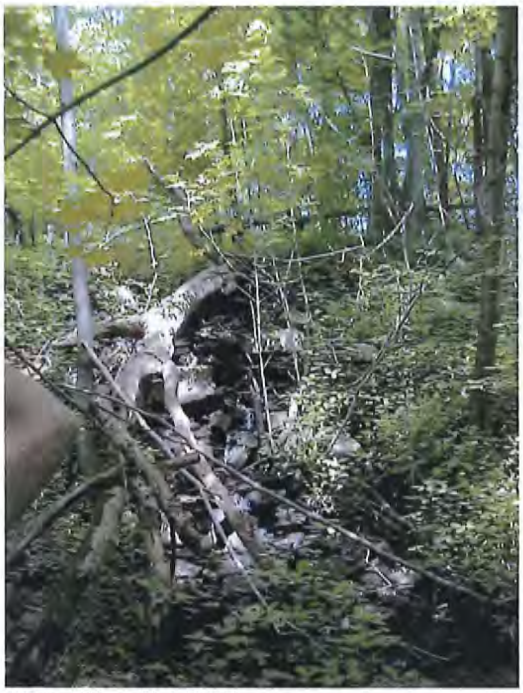
Curtis Reservoir

Potential Linkage Corridors: There are physical opportunities utilizing timber management roadways on PAWC property and Theta Co. property to develop a trail from the Elmhurst Reservoir bridge along the northeast shoreline of Elmhurst Reservoir across the Kellum Creek watershed along Roaring Brook to the vicinity of the Moscow Borough treatment plant. This important link would provide trail access and linkage to the population and commercial shopping area of the Borough of Moscow and Daleville Corners area of Covington Township. This link would also provide opportunities to link through the Moffat Estate property to the proposed Lackawanna County owned North Pocono Park.

1.6 Segment # 6 (Map Sheet 6)

Location: Curtis Reservoir gate to Hamlin Road (PA Rt. 590) intersection.

Length: 1.75 miles



White Oak Run Tributary

Overview: This segment follows along the north side of Curtis Reservoir, just south of PA Route 590 or Hamlin Road.

Natural Features: The general topography of this segment has minor gradient changes. Intersection of the corridor and Hamlin Road is also the watershed divide for the Susquehanna and Delaware River Basins. The corridor in this section is through mature woods.

Built Features:

An overpass which carried PA Route 590, Hamlin Road over the rail corridor was filled by PA DOT with a rock fill in 1974-75 after abandonment of the railroad. Intersection with Old Route 590 provides alternative link to potential trailhead and way around the rock filled corridor section.

Access Opportunities: There are numerous access points along Route 590 that may provide ample room for equestrian users. There may be some opportunities near the intersection of Hamlin Road and Grace Road. Old Route 590 has a paved trail that may be developed as a spur/alternative to the corridor.

Potential Interpretive Areas: The woodlands just past the dam have numerous fallen trees and are quite lush. Along this section a salamander was spotted. This may provide a nice wildlife observation area. The watershed divide would provide an opportunity to discuss waterflows.

Potential Trailheads: At the intersection of Hamlin Road (PA Route 590) and the corridor, near mile 8.25 there is a pull off that leads to Old Route 590. A farmer currently utilizes a portion of Old 590 for hay storage. This area may provide parking.

Potential Conflict Areas: Crossing of Hamlin Road to Grace Road. ATV use.

Trail Bed Constraints: There are numerous fallen trees that will need to be removed and sections of the trail that

are overgrown and need to be cleared. Several culverts need reconstruction. The corridor surrounding the waterway crossing near mile 8.5 is wet and badly drained.

Utilities and Easements: The Pennsylvania American Water Company has an easement for a portion of the trial along the reservoir.

Special Use Trails: n/a

Scenic, Historic and Cultural Resources: Old Route 590.

Potential Linkage Corridors: The North Pocono Rotary and its partners may consider acquisition of additional rail corridor between Wimmers and PA Route 348. The rail corridor continues into Wayne County near Silkman's Swamp and Lake Henry approximately three miles up the corridor. It provides access to and is included in state game lands. The corridor continues intact to Lake Ariel and Hawley. Future interests may wish to continue the trail through this corridor.

Other potential links could include the site of a shared roadway through Jefferson Township to provide a link to future trail development on the Loaded Trail of the PA Gravity Railroad. Potential links could include the right-of –way being developed for the Jefferson Township sanitary sewer collection system.

Filled Railbed at Rt 590 and Grace Road

Wimmers Wye

Pool along rail corridor

1.7 Segment # 7 (Map Sheets 7)

Location: Intersection of Hamlin Road to Wimmers Grove Road at Wimmers Station

Length: 1.00 mile

Wimmers Grove Road Access

Overview: This segment travels through a relatively flat wooded area to the end of the County owned property at Wimmers.

Natural Features: The general topography of this segment is relatively flat and wet.

Built Features: There is a large box culvert under Interstate 84.

Access Opportunities: The location of Old Wimmers Station is a potential access point. Currently this land is being used as a storage area for a neighboring farmer. Old Gravity Line branched off near mile marker 10.50

Potential Interpretive Areas: A large portion of the trail runs through lowlands. An opportunity exists here for wetland observation points.

Potential Trailheads: Wimmers Grove Road Access off Wimmers Grove Road.

Potential Conflict Areas: Crossing Martini Drive and traveling under the culvert of Route 84. Utilizing Bicycle Path Road and Grace Road as an alternative to the corridor. This section of the corridor is very wet and overgrown. Alternative routing is suggested along Grace Road. Use of corridor by farmer on Wimmers Grove Road.

Trail Bed Constraints: The lowland portion of the rail bed is completely overgrown and inundated with water during rainy periods. Recommend an alternate trail alignment via Grace Road.

Utilities and Easements: Interstate 84 right-of-way, Martini Drive right-of-way.

Special Use Trails: n/a

Scenic, Historic and Cultural Resources: Wimmer's Station, Wimmer's Wye.

Potential Linkage Corridors: Old Gravity Line, Bicycle Path Road.

Parcel lines shown on these maps are for general reference only and are not precise in terms of geographic position. They were "best fit" onto the orthophotographic graphic base from digital mapping produced by Lackawanna County using 1990 tax mapping and are useful in terms of relative locations to the rail corridor.

BLOSS ASSOCIATES

Site Assessment & Potential Trail Development Options

North Pocono Pedestrian/Bicycle Feasibility Study

Dunmore Borough / Roaring Brook Township / Madison Township / Jefferson Township
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segment 1

Sheet 1 of 7

Old Drinker Turnpike

PAWG Aqueduct

Nay Aug Tubs

1.75

To Nay aug Tubs

DUNMORE BOROUGH

Nay Aug Tubs Alternate

Silver Lake

Silver Lake Access

Nay Aug Tubs

1.50

To Silver Lake

Abandoned Trestle (Significant repair needed)

Drinker Pk

84

Old Drinker Turnpike

Elmhurst Boulevard Access

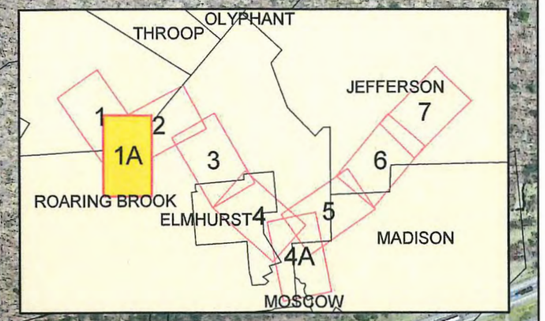
1.25

Roaring Brook Access

ROARING BROOK TWP

1.00

Overturned Boxcar



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LEGEND

- Access Points
- Alternate Alignments
- Unique Features
- Mile Posts
- Railbed Alignment
- Municipal Boundary

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Site Assessment & Potential Trail Development Options

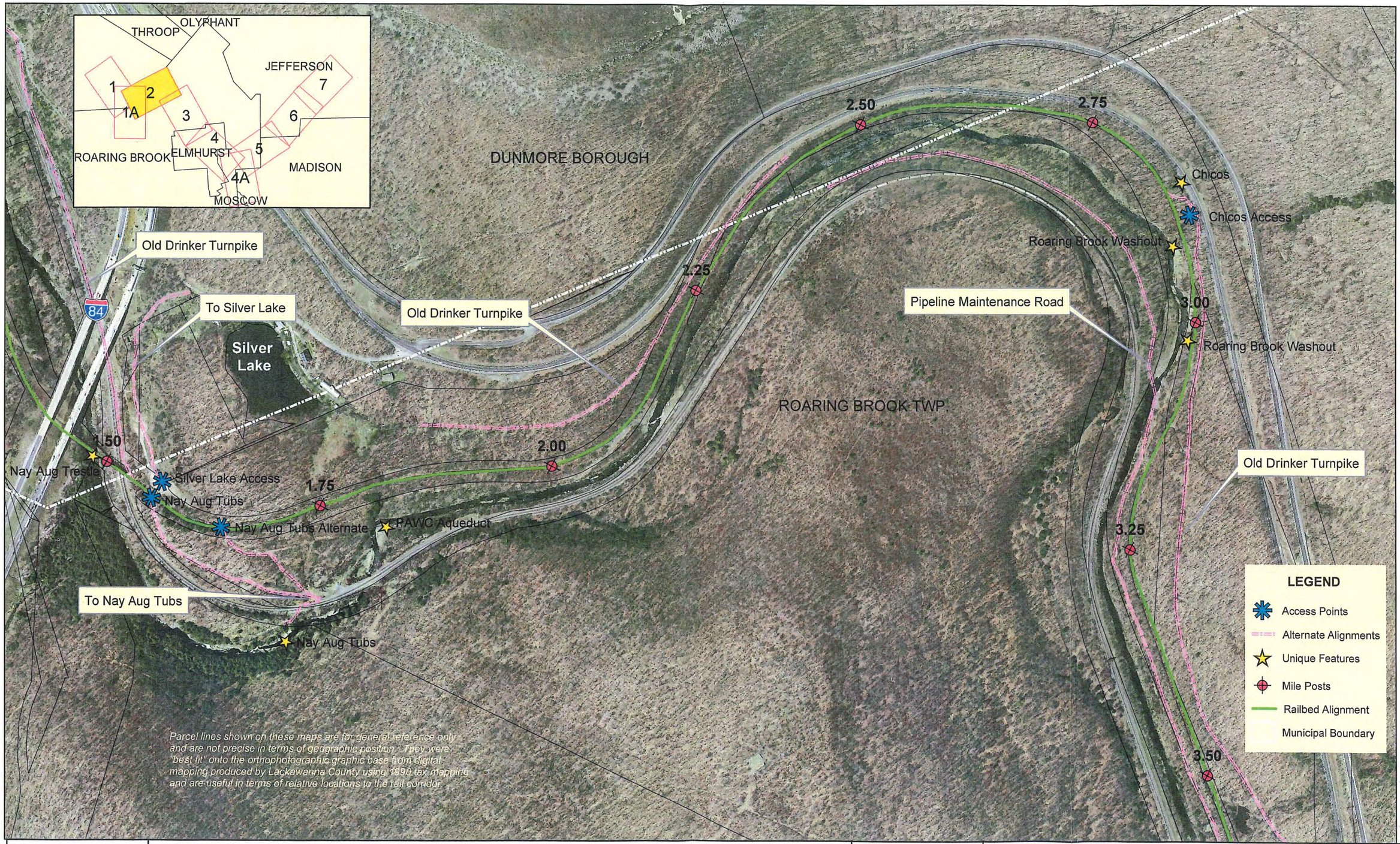
North Pocono Pedestrian/Bicycle Feasibility Study

Townships of Elmhurst, Jefferson, Madison, Roaring Brook, and the Borough of Dunmore
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segment 1

Sheet 1a
Supplemental



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Site Assessment & Potential Trail Development Options

North Pocono Pedestrian/Bicycle Feasibility Study

Dunmore Borough / Roaring Brook Township / Madison Township / Jefferson Township
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segments 2 / 3

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North Pocono Pedestrian/Bicycle Feasibility Study

Dunmore Borough / Roaring Brook Township / Madison Township / Jefferson Township
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segments 3 /4

Sheet 3 of 7

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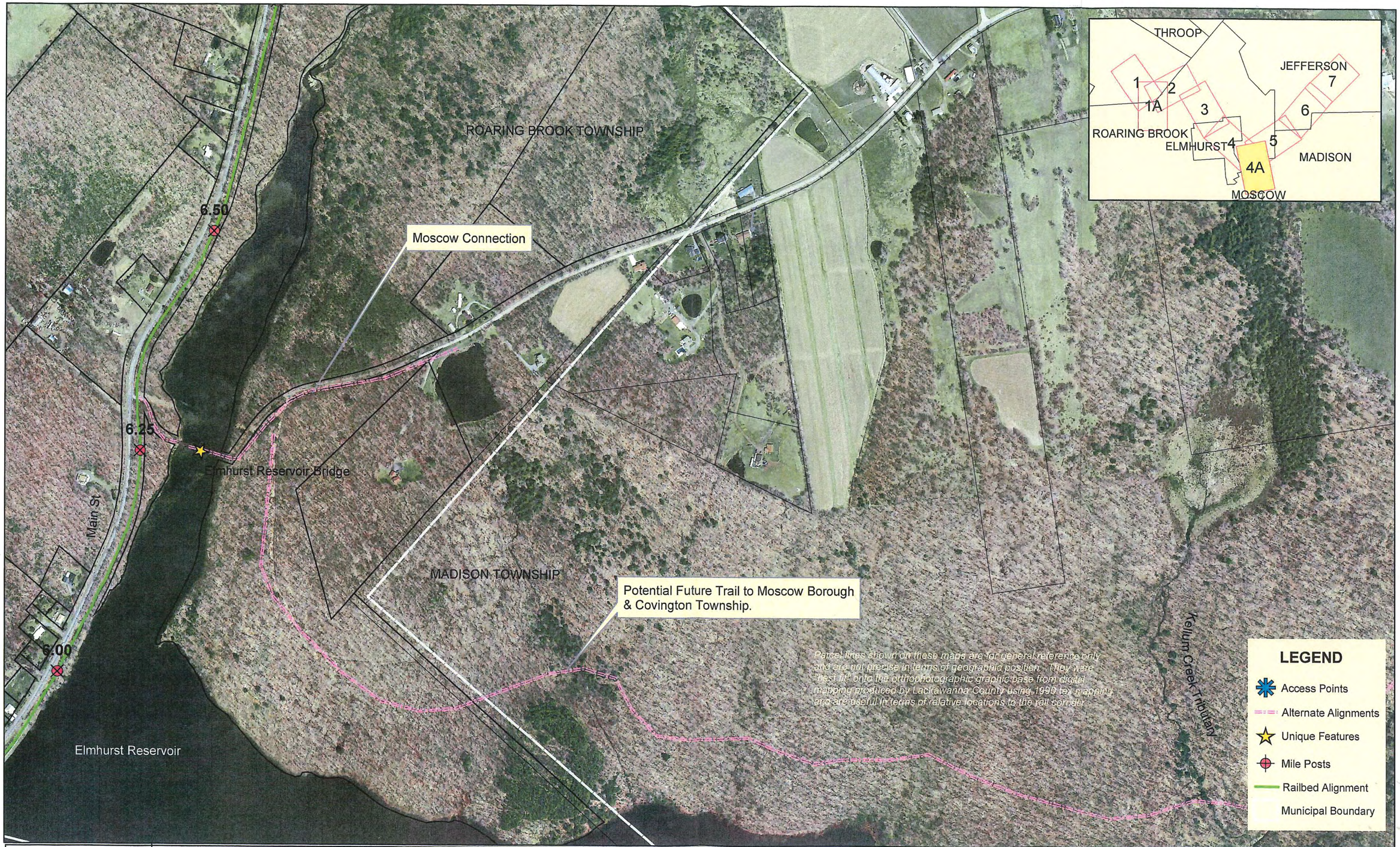
Site Assessment & Potential Trail Development Options

North Pocono Pedestrian/Bicycle Feasibility Study

Townships of Elmhurst, Jefferson, Madison, Roaring Brook, and the Borough of Dunmore
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segments 4/ 5



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Site Assessment & Potential Trail Development Options

North Pocono Pedestrian/Bicycle Feasibility Study

Townships of Elmhurst, Jefferson, Madison, Roaring Brook, and the Borough of Dunmore
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segment 5

Sheet 4a
Supplemental

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Site Assessment & Potential Trail Development Options

North Pocono Pedestrian/Bicycle Feasibility Study

Townships of Elmhurst, Jefferson, Madison, Roaring Brook, and the Borough of Dunmore
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segments 5 / 6

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Site Assessment & Potential Trail Development Options

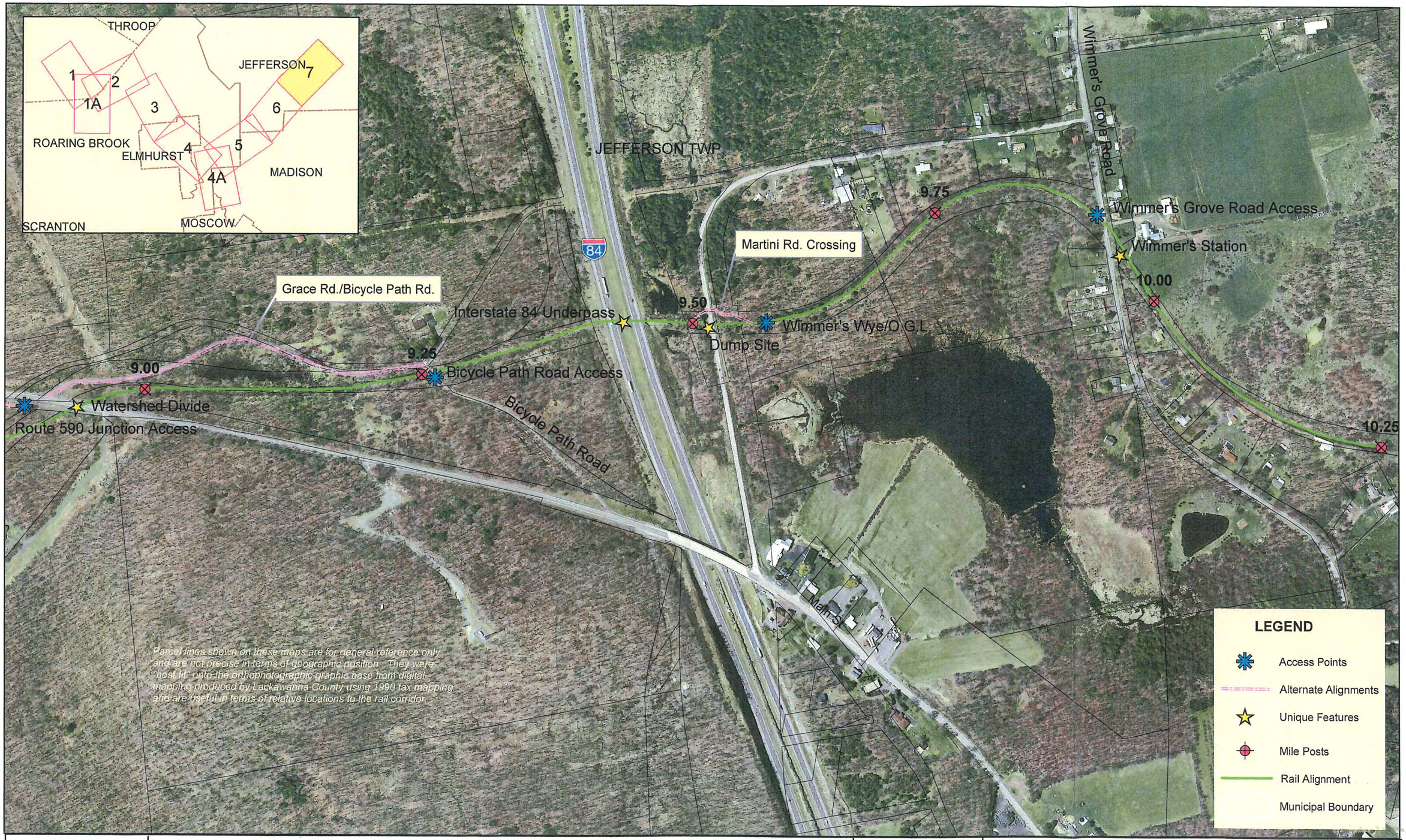
North Pocono Pedestrian/Bicycle Feasibility Study

Townships of Elmhurst, Jefferson, Madison, Roaring Brook, and the Borough of Dunmore
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segment 6

Sheet 6 of 7



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Site Assessment & Potential Trail Development Options

North Pocono Pedestrian/Bicycle Feasibility Study

Townships of Elmhurst, Jefferson, Madison, Roaring Brook, and the Borough of Dunmore
Lackawanna County, Pennsylvania

0 250 500 1,000 Feet

Segment 7

Sheet 7 of 7

D. Trail Design Options & Potential Phasing

Information gathered and collected in the inventory and analysis conducted for this study was used to development recommendations with regard to project feasibility and development within the project corridor. Concepts for proposed improvements required to realize the trail as envisioned by its sponsors and through the public involvement process conducted as part of this study are put forth herein. Also, a potential phasing of the project in manageable increments is described and put forth. A Phase I conceptual development plan was given particular attention in order to initiate the project, seek funding, and to provide a visible and early example of success that can help coalesce project support and partnerships. Remaining phases can build upon the successful completion of a well executed first step. Actual phasing would be up to the discretion of the project sponsors and the municipalities and may vary or change based on available resources, public sentiment, and funding opportunities.

1.0 Trail Types

1.1 Multi-Use Trail - The primary trail to be developed throughout the corridor is a multi-use off road trail. This trail type would be developed according to nationally accepted design standards as put forth by the American Association of State Highway and Transportation Officials (AASHTO).[1] "Multi-use trails invite various users – including walkers, joggers, bicyclists, people in wheelchairs, cross-county skiers, and equestrians to share a corridor collectively...."[2] However, not all user groups need to be accommodated thought-out the corridor, as location within the corridor generally recommends what user groups are best served. Some sections of the trail will be designed using a single tread width while other sections lend themselves to a double tread width, which also allows the separation of user groups. Figures D1 and D2 illustrate recommended tread widths for these two alternatives.

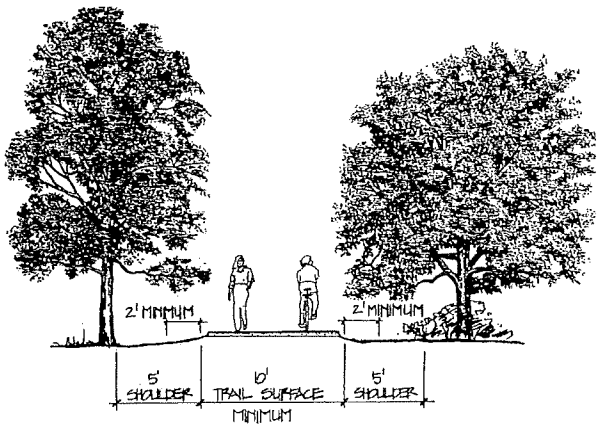

Figure D1 – recommended single tread width
Source: Rails-to-Trails Conservancy

1.2 Equestrian / ATV Trail – Equestrians were strongly represented during the public involvement efforts conducted for this study and indicated a strong need for accommodating them in the design of a trail system within the corridor. Another user group strongly represented was ATV users. While rail

[1] Guide for the Development of Bicycle Facilites, AASHTO publication GBF-3, 1999.

[2] Trails for the Twenty-First Century - Planning, Design and Management Manual for Multi-Use Trials, Edited by Karen –Lee Ryan, Rails-toTrails Conservancy Island Press, 1993.

trails are generally limited to non-motorized users, ATV users should be accommodated to some degree in the corridor particularly given their historic use of the corridor and their role in essentially maintaining the pathways through the corridor as they now exist. It was also noted by the equestrians that ATVs are generally more compatible with them than are mountain bikes. This notion is also supported by equestrians nationally (see: *Appendix B – Guidelines for the development of Equestrian Trails*). There are many opportunities throughout the corridor where double treads may be developed and where trail users groups can be separated for safety and compatibility reasons.

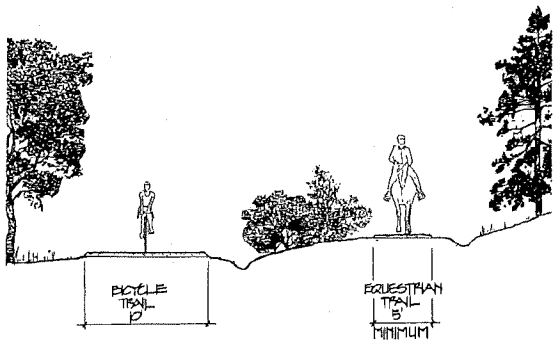

Figure D2 – recommended widths for double tread
Source: Rails-to-Trails Conservancy

1.2 On-Road Routes – In some cases constraints were encountered within the corridor that recommend the use of local roads as an alternate route to link trails in the corridor. On-road routes are particully suited to accommodate bicycle users. AASHTO identifies three potential facility types for suitable for this situation.

- Shared Roadway (No Bikeway Designation)
- Signed Shared Roadway
- Bike Lane or Bicycle Lane

2.0 Trail Surfaces

The structural quality of the trail surface is determined by three layered components: the *sub-grade* or native soil, the *sub-base* or a manmade layer of stone and rock, and the *trail surface* layer that is a material installed on top of the subase.

A typical profile for trail construction recommends a suitable compacted sub-grade, a six inch minimum sub-base, and a two inch minimum trail surface.

Rail corridors also typically contain a layer of crushed rock called *ballast* that was used to elevate the rail bed above the surrounding grade in order to provide a suitable grade level for trains and to also provide structural stability and solve drainage issues. While the ballast is missing or removed in many sections of the corridor, in some areas it remains and can contribute to help form the subase layer as a working component although it generally needs to be compacted and regraded.

For the proposed multi-use trail in the corridor two primary trail surfaces are anticipated. Hard surface *asphalt* would be used around more densely populated areas and would accommodate an expanded range of users. A soft but firm *granular stone* would be used on a more extensive basis. While the later is less expensive to install it requires regular maintenance to keep a consistent trail surface, but it still accommodates a wide range of user groups. The former has a high installation cost and requires less maintenance but is costly to repair.

Ancillary trails to the multi-use trail may use *native soil, gravel, wood chips* or *recycled material* as a trail surface.

The following are average construction costs for rail-trails based on trail surface type as compiled by the Rails-to-Trails Conservancy:

Material	Cost/mile
Asphalt	$110,450
Crushed Stone	$24,795
Gravel	$14,200
Dirt	$7,055

The above numbers are only averages and would not include the cost of bridge or tunnel repair and other capital costs. Also, local trail developers may secure free sources of surfacing material such as wood chips, broken pottery, culm material, etc.

3.0 Trail Signage

An appropriate overall signage system should be developed for the proposed trail system. Trail signage would include both designed and standardized types along the length of the trail. Directional, permitted usage, location markers, and specific location / interpretive signage will identify the trail and guide users. Signage should also establish an easily recognized identity for the trail system. Rails to Trails Conservancy's *Trails for the 21st Century,* displays examples of trail signage which can be adapted for use.

4.0 Trail Heads

Major Trail Heads would likely have 30-40 parking spaces and may include some or all of the following: an open information kiosk, phone booth, shelter / pavilion / maintenance shed, and rest rooms. The provision of a rest room facility could add between $30,000 to $120,000 depending on the type of facility. Where there is no sewer access, for example in the Silver Lake area, port-a-johns in a protected structure might be considered. Also, a Trail Headquarters, staffed by part time volunteers might be considered for a major trail head.

Minor Trail Heads would provide a gravel parking area for between 10-12 vehicle parking spaces, include access improvements, site furnishings, and basic signage. A budget cost opinion for a trailhead is approximately $20,000.

All trail heads necessitating access from a state highway would require a Highway Occupancy Permit (HOP) for driveway access submitted by the property owner (the County) and may require additionally require a Traffic Impact Study (TIS). However the later is not likely given the anticipated usage - (Reference 67 PA Code, Chapter 441.3).

5.0 Potential Trail Phasing Descriptions

Trail improvements are described below by plausible phases in order to develop the trail in a logical and reasoned manner over a period of years whereby commensurate funding can be sought for the development of the entire ten-plus mile overall vision for the corridor and trail system. Probable development costs are outlined by phase consistent with a feasibility level analysis in Chapter E - Implementation.

5.1 Phase I – Elmhurst Trail Head to Curtis Reservoir Gate

The Phase I area traverses between a proposed trail head in Elmhurst to Curtis Reservoir Road near the Curtis Reservoir Gate. This section is just west of mile 5.25 and extends to mile 7.14 (see: map sheets 4, 4a, and 5). It is located in Elmhurst and Roaring Brook Townships with a small portion extending into Madison Township.

This phase would develop a granular stone surfaced trail of approximately 5,400 feet of trail from the major trail head in Elmhurst to a minor trail head at the Elmhurst dam. This section parallels PA Route 590 and would also require the design and construction of four culverts associated washouts of the rail bed. From the minor trail head at the Elmhurst dam approximately 2,000 feet of asphalt trail would be developed traversing along the open area of the Elmhurst Reservoir. Beyond this open area another approximate 5,000 feet of a granular stone surfaced trail would extend to a minor trail head at the Curtis Reservoir Gate.

This phase would also include the development of the three proposed trail heads. The major trail head would be the Elmhurst Trail Head in the existing graveled pull off on the west side of PA Route 590. A minor trail head near the Elmhurst Dam (with an associated picnic area) also serving as maintenance access for the dam, and minor trail head either off Reservoir Road or off PA Route 590. In order to best develop the Elmhurst Trail Head the County would need to negotiate a lease of State highway right-of-way property to establish a surface parking lot under PennDOT Regulation 495.6 to expand the trail head from that of the rail corridor.

5.2 Phase II – Curtis Reservoir Gate to PA Route 590 Junction

Phase II would extend the trail system from Curtis Reservoir Gate to PA Route 590 access, where the rail bed was filled for construction of Route 590. This section is just west of mile 7.25 and extends east beyond mile 8.75 to the PA Route 590 intersection. (see: map sheets 5 and 6). It is located in Madison and Jefferson Townships.

This phase would develop a granular stone surfaced trail of approximately 7,000 feet of trail from the minor trail head at Curtis Reservoir Gate to an intersection of the rail bed with the paved remains of old Route 590 near mile 8.50. From there it could extend approximately 2,000 feet along the old Route 590 surface to a minor trail head at its intersect with the new Route 590 alignment. This section also generally parallels PA Route 590 through wooded and wet terrain. The development of this section would also require an agreement with the Pennsylvania American Water Company as this is one section of the corridor not owned by Lackawanna County.

Potentially three additional minor trail heads could be developed in conjunction with improvements for this phase: one near mile 7.75 and one just east of mile 8.25. The later also provides an access point to the remains of old route 590 which parallels the rail corridor east of this location to the next proposed trail head at the extant PA Route 590 junction. A minor trailhead at this junction could be developed more

extensively, however a portion of this trailhead lies in the old route 590 right-of-way. Again ownership would need to be established through lease or purchase.

5.3 Phase III – Old Erie Hotel to Chico's Access

Phase III would extend from the old Erie Hotel in Elmhurst north to a proposed minor trail head at Chico's. This section is just south of mile 5.00 to just north of mile 3.00 at Chico's located off PA Route 435 (see: map sheets 2-4). It is located in Elmhurst and Roaring Brook Townships.

This phase would develop a granular stone surfaced trail of approximately 11,000 feet of trail from the rail corridor near the old Erie Hotel paralleling Main Street in Elmhurst for approximately 2,000 feet, then extending under Interstate 84 to a proposed trail head near a junction with PA Rout 435 and Rock Bottom Creek, then on to a proposed minor trail head at Chico's with and existing pull off on PA Route 435. Near mile 3.75 Old Drinkers Turnpike and PAWC pipeline maintenance road provide additional parallel and looping trail opportunities.

Three additional minor trail heads could potentially be developed in conjunction with improvements for this phase: one near mile 4.50 off Main Street in Elmhurst, one at the Route 435 junction near mile 4.25 and one at the Chico's pull-off of Route 435.

An extensive section off washout south of Chico's would need to be improved in order to develop a trail through this section. Also the Rock Bottom Bridge would need improvement.

5.4 Phase IV – Elmhurst Trail Head – Route 435 Overpass

A proposed PA Route 435 bicycle/pedestrian overpass would replace a railroad bridge that was removed at this location. It would extend from the major trail head in Elmhurst to the area near the old Erie Hotel and would provide a safe crossing to link the trail on either side of PA Route 435 in Elmhurst.

5.5 Phase V – Chico's Access to Nay Aug Trestle

Phase V would extend from Chico's to the Nay Aug Trestle with a major access located near Silver Lake. This section is just north of mile 3.00 to near mile 1.5 near Silver Lake (see: map sheets 2). It is located in Roaring Brook Township and Dunmore Borough.

This phase would develop a granular stone surfaced trail of approximately 6,500 feet of trail from Chico's to the proposed Silver Lake major trail head and would include an upgrade to the Nay Aug trestle. Drainage improvements, resurfacing of the Elmhurst Boulevard access road and development of a small trail head access at Elmhurst Boulevard would also be included in this phase.

An agreement for access over a private drive to the proposed Silver Lake trail head from PA Route 435 would need to be established. This section offers linkage via auxiliary trails to the Nay Aug Tubs and an alternate route via the Old Drinker Turnpike.

5.6 Phase VI – Nay Aug Trestle to Winton Trestle

Phase VI would extend the trail system from the improved Nay Aug Trestle and Elmhurst Boulevard access trail westward through Rock Junction across the Winton Branch Trestle to Drinker Street in Dunmore where a major trail head access site is suggested. This section lies between mile 1.5 and mile 0.0 (see: Map Sheet 1). The suggested Drinker Street Trail Head and access actually extends past mile 0.0. Phase VI is located entirely in the Borough of Dunmore.

This phase would develop a granular stone surface of approximately 6,500 feet of trail between the two trestles. This section offers some of the most dramatic views in the corridor. At least one overlook station and interpretive site could be developed. And additional 2000 feet of trail development to Drinker Street and the construction of a trail head are also suggested.

This phase could require the lease or purchase of the Winton Branch Trestle and approximately 3000 feet of rail corridor from the F & L Realty Company.

An alternative to the Winton Branch acquisition would be the acquisition and development of the Silver Lake trail head access and right-of-way acquisition to the Drinker Turnpike. Improvements to the Drinker Turnpike are also recommended to provide trail access directly to East Drinker Street in Dunmore. Linkages to and through Dunmore Borough are critical to reach the Lackawanna River Heritage Trail and its connections. The Dunmore access also provides visibility and safe access to the North Pocono Trail system for residents of the metropolitan areas of the Lackawanna Valley.

5.7 Phase VII – PA Route 590 Junction to Wimmers Station

Phase VII would extend the trail system from the proposed PA Route 590 trail head where the rail bed was filled for construction of Route 590. This section is just south of mile 9.00 on the watershed divide to just beyond the site of the old Wimmers Station at mile 10.00 (see: map sheet 7). It is located in Jefferson Township.

This phase would develop a granular stone surfaced trail of approximately 3,700 feet of trail from the PA Route 590 junction trail head to Wimmers Grove Road where a minor trailhead would be developed. An on-road route, along Grace Road, would be utilized for approximately 1,500 feet from the trail head at PARoute 590 junction to Bicycle Path Road at mile 9.25. Improvement to the Interstate 84 under pass would also be involved.

6.0 Development Process

The process for completion of the North Pocono Pedestrian Bicycle Trail will likely depend on a number of factors, primarily and in general, the level of participation among responsible partners. Each phase of the project or section of the trail will require coordinated efforts of municipalities, the LRCA, North Pocono Rotary and volunteers. Successful completion of grant applications, with an eye toward deadlines for each successive round is

critical. The next chapter examines other considerations to successfully implant this proposed project. Aspects of financial feasibility are examined including probable costs for each proposed phase. Maintenance and operation features are also addressed; and few special considerations for the implementation of the North Pocono Pedestrian / Bicycle Trail and Greenway are noted.

E. Implementation

1.0 Financial Feasibility

1. 1 Acquisition Costs - As noted in the Introduction the majority of the approximate ten mile study corridor is owned by Lackawanna County and an approximate one mile section is owned in fee by the Pennsylvania American Water Company (Phase II section). An agreement and/or lease would have to be negotiated with the Pennsylvania American Water Company prior to development of plan for this segment. Preliminary talks with Pennsylvania American Water Company have indicated a willingness on their part to provide such an arrangement.

The development of other sections of the trail system could be enhanced and/or expanded through acquisition of additional lands to complement its development as indicated in the Potential Trail Phasing Descriptions provided in the previous chapter. There is great variation in Pennsylvania in acquiring the railroad rights-of-way (ROW) for rail-trail purposes. The cost per mile of purchasing a rail-trail corridor can be as little as $1,000 per mile to as much as $300,000 per mile. As with all real estate this variation is caused by one main factor----location. This issue may be of lesser importance if the municipalities involved are able to secure an easement from private property owners.

In general, Lackawanna County, its municipalities, or other trail development sponsors may:

- Acquire in fee simple privately-owned lands;
- Acquire in fee simple a trail right-of-way while granting rights of legal and physical access to remainder parcels whose value or use may be severed by the fee simple acquisition;
- Acquire by conservation easement privately-owned lands;
- Acquire a trail or access easement to selected trails;
- Enter into lease agreements with landowners for public access along trails or larger land parcels; and
- Enter into revocable license agreements with landowners for public access along trails or larger land parcels.

The conceptual design examined in this study is based on the historic, "abandoned" transportation corridor of the former Erie Lackawanna Railroad. The legal width of each trail cross-section would vary according to the railroad corridor conveyed. The minimum width is generally 100' as indicated by the Right of Way and Track Maps (VAL maps) obtained for this study.

In addition, whenever a non-Department of Transportation facility intersects or crosses a State highway, a Highway Occupancy Agreement (HOA) is needed to establish the responsibilities of each party for this joint use of public right-of-way. Appendix E contains the basic *Instructions for Highway Occupancy Agreements for Recreation / Transportation Trails Intersecting State Highways* (PennDOT Strike-off Letter 430-03-01). Currently, the majority of

the cost for this agreement is borne by PennDOT however the trail owner would be required to submit the application and provide all relevant information requested by the Department to complete the agreement.

1. 2 Development Costs - Probable development costs were projected for each potential phase outlined in the previous chapter based on a number of general assumptions. First, it is anticipated that two basic types of trail surface will be utilized to establish a ten foot wide "spine" or main multi-purpose pathway through the corridor. The predominate surface type would be crushed rock, while an asphalt surface around more populated sections of the trail corridor would be constructed on a limited basis. Additional trail surfaces would include compacted dirt and/or gravel for auxiliary trails that would parallel the main trail or be used to access auxiliary trail linkages. Equestrian trails would be five foot in width with a ten foot high vegetative clearance zone.

Basic costs for these trail surfaces assume a relatively flat and open corridor. Additional cost for corridor preparation was added to account for sections of trail were more vegetative clearing, grading, earthwork and stabilization of the original rail bed would be required and where an adjacent equestrian trail might be incorporated. Also, were it was evident that special structural improvements are necessary or desirable; a budget estimate was added to that phase's development. Also, an allotment for directional and interpretive signage was also incorporated.

Table 2 summarizes the probable cost associated with improvements for each phase as generally described in the previous chapter. Some additional notes regarding cost by phase are outlined below:

Phase I – Elmhurst Trail Head to Curtis Reservoir Gate - The trail spine in this phase is approximately 2.0 miles in length. The budget cost assumes the spine is developed as a ten foot wide multi-use trail with a crushed gravel surface and approximately 2000' of asphalt surface. Additional allowance was applied for treatment of sections of the trail with drainage washouts. One major trail head and two minor trail heads were included. The overall budget cost opinion for its construction including design is $535,750.

Phase II – Curtis Reservoir Gate to PA Route 590 Junction - The trail spine in this phase is approximately 1.5 miles in length. The budget cost assumes the spine is developed as a ten foot wide multi-use trail with a crushed gravel surface and utilizes approximately 2000' of the paved remains of old Route 590 asphalt surface. Additional allowance was applied for treatment of sections of the trail with drainage washouts. Three additional minor trail heads were included. The overall budget cost opinion for its construction including design is $256,000.

The cost for does not include acquisition or agreement fees required to obtain access to the Pennsylvania American Water Company property.

Phase III – Old Erie Hotel to Chico's Access - The trail spine in this phase is approximately 2.0 miles in length. The budget cost assumes the spine is developed as a ten foot wide multi-use trail with a crushed gravel surface. Additional allowance was applied for treatment of sections of the trail with drainage washouts. For one extreme washout of approximately five hundred feet of rail bed near Chico's a special structural retaining wall was assumed. Three minor trail heads were included. The overall budget cost opinion for its construction including design is $411,200.

Phase IV – Elmhurst Trail Head – Route 435 Overpass - This phase is focused on the provision of a trail bridge over PA Route 435 in Elmhurst that would connect the Phase I and Phase II sections outlined above. There needs to be an evaluation of the site to determine which category the bridge falls under according to PennDOT's design manual revision revealed in Strike-Off-Letter 431-95-16 (See: Appendix E). However, since the structure would be built over a state road it would appear to be a Group I structure. There is a big difference in cost with regard to this classification. A Group III type structure would be the most desirable and economical since it is essentially the same as the AASHTO Guide Specifications for Pedestrian Bridges. A Group III structure if allowed for this location could be a prefabricated bridge that would roughly span between 150'-175', have a width between ten to twelve feet, support a live load of 10,000 lbs. (large maintenance vehicle), be fabricated from weathering steel with wood decking and rub-rail plus an appropriate hand rail system. A budget cost opinion for a pedestrian/bicycle bridge proposed of this type would be in the neighborhood of $275,000 to $300,000 plus roughly $85,000 for design and permitting. However, a Group I type structure would be required to conform to DM-4 PennDOT specifications and procedures and would drive the cost to approximately $1,000,000 for construction and roughly $175,000 for design and permitting.

Phase V – Chico's Access to Nay Aug Trestle - The trail spine in this phase is approximately 1.75 miles in length. The budget cost assumes the spine is developed as a ten foot wide multi-use trail with a crushed gravel surface. Additional allowance was applied for treatment of sections of the trail with drainage washouts. One major trail head would be included and an upgrade to the Nay Aug trestle (trestle to trail conversion, e.g. decking and railing). Drainage improvements, resurfacing of the Elmhurst Boulevard access road and development of a small trail head access at Elmhurst Boulevard would also be included in this phase. The overall budget cost opinion for its construction including design is $607,600.

Phase VI – Nay Aug Trestle to Winton Trestle - The trail spine in this phase is approximately 1.25 miles in length. The budget cost assumes the spine is developed as a ten foot wide multi-use trail with a crushed gravel surface. Additional allowance was applied for treatment of sections of the trail with drainage washouts. One major trail head would be included and an upgrade to the Winton Trestle (trestle to trail conversion, e.g. decking and railing).

Drainage improvements, resurfacing of the Elmhurst Boulevard access road and development of a small trail head access at Elmhurst Boulevard would also be included in this phase. The overall budget cost opinion for its construction including design is $505,100.

The cost for this phase does not include acquisition or agreement fees required to lease or purchase of the Winton Branch Trestle and approximately 3000 feet of rail corridor from the F & L Realty Company.

Phase VII – PA Route 590 Junction to Wimmers Station - The trail spine in this phase is approximately 1.0 miles in length. The budget cost assumes the spine is developed as a ten foot wide multi-use trail with a crushed gravel surface and utilizes an on-road route, along Grace Road for approximately 1,500 feet from the trail head at PA Route 590 junction to Bicycle Path Road at mile 9.25. Additional allowance was applied for treatment of sections of the trail with drainage washouts. One additional minor trail head was included. The overall budget cost opinion for its construction including design is $129,800.

Additional permitting and contingency costs would need to be added to all of the above costs. In addition, an appropriate overall signage system should be developed in conjunction with development of the trail system.

1. 3 Sources of Revenue

Potential sources of funding include the following:

TEA-21 Enhancements

The Transportation Equity Act for the 21st Century (TEA-21) is a federal program for transportation related projects. The bill allocated $217 billion nationwide over six year sand includes funding for recreational trails and parks. In Pennsylvania, the Department of Transportation (PennDOT) administers several bicycle and pedestrian related programs through TEA-21.

New federal legislation is due to consider reauthorization of a similar transportation bill in 2004-5. Applications will likely be due in October of 2004, with grants awarded in the spring of 2005.

The Committee and municipal concerns should position themselves to apply for this funding. Large grant awards could be in excess of $1 million and are not unreasonable for trail projects such as the North Pocono Pedestrian Bicycle Trail.

Home Town Streets and Safe Routes to School

This new program was begun to improve the quality of life for the people of Pennsylvania. It is intended to revitalize through the repair, redesign and reconstruction of main streets, commercial corridors and major boulevards in older communities. Eligible projects for HTS include sidewalk improvements, planters, benches, street lighting, pedestrian crossings, traffic calming, bicycle

amenities, transit bus shelters, kiosks, signage and other visual elements. SRS include sidewalks, crosswalks, bike lanes or trails, traffic diversion improvements, curb extensions, traffic circles, raised median islands and walking paths. Government agencies, school districts or non-profit organizations are eligible to apply as a project sponsor.

PA Growing Greener II Initiative
The Governor's Plan for a New Pennsylvania takes bold steps necessary to improve the lives of every Pennsylvanian through quality education, jobs, and economic stimulus. Central to the plan is ability to create and sustain attractive places where people want to live and work. Cleaning up degraded streams and rivers is a critical investment in restoring possibilities for economic progress, particularly in rural communities where acid mine drainage and non-point pollution are likely. Projects such as trail development are normally funded by the Department of Conservation and Natural Resources

Surface Transportation Program (STP)
Projects such as the construction of bicycle transportation facilities, construction of pedestrian walkways, production of bicycle safety brochures, maps and public service announcements are eligible. Any bicycle project must be primarily for transportation, encourage desirable traffic patterns, and sensitize people to environmental and social concerns. 10% of STP funds are set aside for Transportation Enhancements (TE) to enhance the environs of the transportation network. These projects are not required to demonstrate impacts on traffic or transit.

National Scenic Byway Program
Part of the U.S. Department of Transportation, Federal Highway Administration. The program is a grass-roots collaborative effort established to help recognize, preserve and enhance selected roads throughout the United States. The U.S. Secretary of

Transportation recognizes certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational and scenic qualities The significance of the features contributing to the distinctive characteristics of the corridor's intrinsic qualities must be recognized throughout the multi-state region. The process is by nomination and the first point of contact should be the state's byway coordinator. http://www.byways.org

DCNR – Geologic Survey
Technical assistance would be provided by the Survey for the purpose of geologic interpretation expressed through text for signage.

PA Historic and Museum Commission (PHMC)
The relatively small grant awards and competition and time constraints should be considered when deciding to apply.

DCED Community Revitalization
Provides grant funds to support local initiatives that promote the stability of communities. The program also assists communities in achieving and maintaining social and economic diversity to ensure a productive tax base and a good quality of life. Eligible groups are local governments, Municipal and redevelopment authorities and

agencies, industrial development agencies, non-profit corporations incorporated under the laws of the Commonwealth. Eligible Uses are for construction or rehabilitation of infrastructure; building rehabilitation, acquisition and demolition of structures; revitalization or construction of community facilities; purchase or upgrade of machinery and equipment ; planning of community assets, public safety, crime prevention, recreation, training; and acquisition of land, buildings and rights-of-way. Grant amounts are typically between $5,000 and $25,000.

National Recreation and Parks Association
Grant opportunities are posted on the NRPA website in a monthly format and may feature programs applicable to the North Pocono Trail project. Continual monitoring of the site could produce additional funds at some time.
www.nrpa.org

Lackawanna & Luzerne
Presently, there is no regular source of county funding. The county's annual budget process could be a way to request funding through the Department of Parks and Recreation.

Local Municipalities
It may be possible to approach each involved community for budget allocations on an annual basis. There may also be opportunities to obtain federal CDBG funds through the county redevelopment authority and a municipal sponsor.

USDA Forest Service
The Northeast Pennsylvania community & Urban Forestry program can provide funding for landscape planting and interpretive signage.

Private Foundations
There are several private foundations which would consider proposals for projects related to the North Pocono Trail.

2.0 Maintenance

Annual trail maintenance costs as estimated by the National Park Service fall between $500 per mile to $5,000 per mile, depending on frequency of use. It is anticipated that the North Pocono Pedestrian Bicycle Trail will experience high and low use – therefore overall, will average moderate trail use. Trail use is anticipated to be highest in around sections of the trail that are more populated.

Trail maintenance tasks will include clearing fallen trees and limbs, removing invasive or dangerous vegetation, periodic bridge and tunnel inspections, shoulder clearances along trail where necessary, clean-up of drainage structures, repairing eroded and/or damaged trail surfaces, trash pick up and removal, overall inspections and associated tasks.

2.1 Maintenance Task Schedule
Outlined in the following chart (Table B) are tasks necessary to be completed on a regular seasonal basis. Specific days may be established in addition to the annual clean up already conducted by the Rotary.

	Volunteer	Contracted or Municipal
Winter Weather permitting	Trash pick up and removal. Tree, limb or vine removal, keep drainage ways and culverts, fences and railings clear of debris and vegetation.	Inspection and repair of eroded areas, minor repair of structures, i.e., fences, bridge railing, etc
Spring	Trash pickup and removal, schedule plantings, disseminate information about trail repair and expansion projects for summer, keep drainage & culverts bridge surfaces fencing and railings clear of debris and vegetation.	Inspection to assess winter damage, schedule repair work, Bridge and Structure inspections, Initial mowing and trimming, First spraying of invasive species, mow and trim, install spring plantings, remove downed trees.
Summer	Trash pick up and removal, continue trail maintenance, distribute/post information about trail repair/expansion for fall, keep drainage culverts, bridge surfaces, fences and railings clear.	Continue trail repairs, remove downed trees, second spraying of invasive species, mow and trim, plan for fall plantings.
Fall	Trash pick up and removal, continue trail maintenance, keep drainage ways and culverts, bridge surfaces, fences and railings clear.	Continue trail repairs, third spraying of invasive species, mow and trim, complete fall plantings, plan for spring planting, remove downed trees, inspection of length of trail

Volunteers will be a major component of the development and maintenance of the trail. Costs can be dramatically reduced when volunteer labor is utilized to regularly complete tasks such as clearing drainage swales and structures, trash pick-up and removal.

Municipalities are encouraged to form committees to organize volunteer involvement in trail maintenance and to determine type of work and individual labor hours current township crews would be able to dedicate to the trail. Since the length of the trail within each township varies, established commitment in the form of in-kind donations of labor and equipment is critical to optimize operating condition. Identifying options for maintenance facilitation is necessary as the project progresses. It is recommended that discussion of maintenance issues continue as the trail is developed.

The Rotary has maintained a three mile section of the trail for several years with an annual cleanup conducted in conjunction with September's County cleanup.

It is recommended that strict adherence to maintenance schedules be followed to ensure long-term success of the project. For support and funding to continue, optimum physical condition must be maintained to keep operating costs down.

Support for the Trail has been consistent in all municipalities through which the corridor runs. Evaluation of maintenance capability of the four municipalities is a crucial element at this time. As available municipal person hours and/or equipment is promised for routine maintenance, so the overall costs can be determined.

Each municipality contains various length of the proposed trail. Determining a definitive maintenance structure is necessary to keep the trail in optimum operating condition. Two options at this time exist: First; each municipality maintains its own section, and second, a cooperative arrangement is devised. It is recommended that the study committee continue to discuss maintenance with regard to the aforementioned as the project progresses.

3.0 Operation

It's likely that as each section of the trail is completed and use increases, operation and security becomes easier. Based on evidence provided by individuals already using and observing activity along the undeveloped trail, when development efforts begin there may be instances of vandalism, dumping, underage drinking, etc. These activities should diminish as use along certain sections increases concurrent with the ability to report to proper authorities. This has been the general course of events on developed trails across the country. Establishing Trail Rules and posting them prominently along the length of the trail is critical. The following figure (Figure E1) is a sample of signage and rules commonly used.

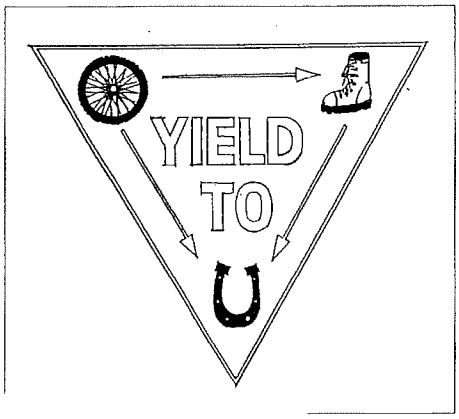

Figure E1

1. For your safety and enjoyment, use: CAUTION, COURTESY and COMMON SENSE.
2. Trail open daily, dawn to dusk. No overnight use, except in authorized areas.
3. Please respect private property, stay on the Trail
4. No motorized vehicles, except wheelchairs
5. Please keep to the right, Pass on the left.
6. Please keep horses off the improved hiker/biker surface. Stay on the grass.
7. Give audible signal when passing other users.
8. Keep pets on a short leash, under control and pet waste off the Trail.
9. Dumping and littering are prohibited. If you see litter, pick it up.
10. Do not discharge or carry loaded firearms on or near the Trail.

Trail users should be encouraged to help municipalities maintain and operate the trail. When there are problems, trail users notify the municipalities about the issue. This process helps the trail to operate smoothly. Municipal office and emergency phone numbers and email addresses should be posted at Trail Head locales and various access points as part of signage.

Injuries are inevitable on the trail and the multi use sections of the trail will be accessible by police vehicles and ambulance. Each municipality should prepare an access plan with their local police and fire authorities to determine how to best respond in an emergency situation.
Structures along the length of the trail should be designed either to support or allow access to an emergency vehicle. Municipal vehicles, such as pick up trucks, will also access the trail for periodic inspections and maintenance. Bollards, gates and other controls will be installed to prevent private motor vehicle access.

4.0 Special Implementation Considerations

The continuity of the rail corridor is interrupted by several bridges and trestles in need of repair, the absence of an overpass over PA 435, the removal and fill of the underpass at PA 590 and Grace Road, and an overpass at Martini Drive. There are two significant wash outs near Chico's at mile 3.0 where Roaring Brook has cut away two 500 to 800 foot long reaches of the rail embankment.

I-84 underpass near Elmhurst

Alternative pedestrian road crossings may be recommended at PA Route 435 and Bicycle Path Road along Grace Road, the rail grade is excessively wet most of the year. The use of Grace Road as an alternative route is recommended.

From the Route 590 fill proceeding toward Curtis Reservoir, the use of the Old 590 alignment is recommended as an alternative for approximately ¾ mile.

The development of an alternative alignment using the OCD Drinker Turnpike from Silver Lake trestle under Interstate 380 to Drinker Street is recommended. This route provides an important link to Dunmore and the metropolitan area.

Consideration should be given to the acquisition of right-of-way to the Winton Trestle and Drinker Street. The rehabilitation costs of the Winton Trestle and the Drinker Turnpike route represent a fairly cost effective, safe accessible alternative.

A major linkage opportunity exists at the old Elmhurst Reservoir bridge. The four span steel angle iron truss has the potential to be rehabilitated or replaced using the existing abutments, piers and trusses. One truss is collapsed into the reservoir and will need to be rebuilt. A new deck will be needed as well.

There are two potential trail routes on the opposite shore toward Madison Township. First, there is a potential trail alignment that would run along the east shoreline of the Elmhurst Reservoir or along upland timber trails to Kellum Creek and then along Roaring Brook to Moscow Borough. Development of easements, agreements and acquisitions with PAWC and Theta Company would be needed to facilitate this linkage. Secondly, a trail alignment could be run along the old township road to Moscow Borough.

A new pedestrian overpass at PA Route 435 in Elmhurst joining trail segments between the Erie Hotel on PA 435 at Main Street and the proposed major trail head access located off PA Route 590 near Cabinet World is recommended and would provide a safe crossing in alignment with the former overpass that was removed.

The rehabilitation of the Nay Aug trestle and linkages to Elmhurst Boulevard and a Mount Margaret Trailhead are also recommended in later phases.

5.0 Other Considerations

5.1 Boundary Surveys
There are no known boundary or property owner disputes along the county owned sections of the proposed

trail. For purposes of the preparation of construction documentation, a centerline survey with cross sections of the trail alignment every fifty to one hundred feet, depending on topography and existing site features, would be the minimum necessary. Also, surveys need to be completed for proposed bridge/ trestle and drainage structure locations.

5.2 Environmental Assessments
A Phase I environmental investigation was not completed as part of this feasibility study. Environmental clearance documentation would need to be completed for Federally funded projects (see below).

5.3 Permits - The development of each trail section or phase may require different permit scenarios. Permit procedures and permitting will occur at various times over the course of development.

- ✓ As noted above Highway Occupancy Permits will be particularly crucial to the proposed trail development. Federal Highway Administration requirements must be met as funding becomes available. Any environmental or historic resource affected will also necessitate additional requirements and review.

- ✓ A review by the Pennsylvania Historic and Museum Commissions may be required to verify impact.

- ✓ A major aspect of the U.S. Army Corps of Engineers (USACE) regulatory program is determining which areas qualify for protection as wetlands. In reaching these decisions, the Corps uses its 1987 Wetland Delineation Manual. In making decisions on whether to grant, deny or set conditions on permits, District commanders are required to consider "all factors in the public interest," including economic development and environmental protection.

- ✓ The PA Department of Environmental Protection may require permits for various sections of the trail as the project progresses, i.e.; PAG-2 NPDES GP for Stormwater Discharges Associated with Construction Activities; GP-01 Fish Habitat Enhancement Structures; GP-03 Bank Rehabilitation, Bank Protection & Gravel Bar Removal; GP-04 Intake & Outfall Structures; GP-05 Utility Line Stream Crossings; GP-06 Agricultural Crossings & Ramps; GP-07 Minor Road Crossings; GP-08 Temporary Road Crossings; GP-09 Agricultural Activities; GP-11 Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments.

- ✓ The greatest potential source of funding is Federal, through TEA-21. However, funding of this nature has a significant number of additional requirements. Improvements must meet standards of the National Environmental Policy Act (NEPA). This provides that projects go through Categorical Exclusion Evaluation (CEE) for two levels of Categorical Exclusions (CE). A level 1 CEE can be reviewed and approved by the State agency, in this case PennDOT. A level 2 CEE must

be reviewed at the Federal level by the Federal Highway Administration (FHWA)

Class I Actions (Environmental Impact Statements) for significant effects to the environment. Most likely will not be a factor for the North Pocono Trail.

Class II Actions (Categorical Exclusions) for actions that do not have a significant environmental effect. This is the likely level for this project.

Class III Actions (Environmental Assessments) for actions for which the significance of the impacts are not clearly established. Not typically applied to trail projects.

Categorical Exclusions can involve archeological studies and reports, Determination of Effects Report (for historical resources affected) wetland identifications and proposed mitigations, and identification of further environmental resources and mitigations.

For Federally funded projects, documentation must be done in conformance with PennDOT standards which follow the FHWA requirements. These include: Type, Size and Locations reports for each proposed bridge, Utility Clearances, Right-of-Way Certification and Environmental Clearance.

Strategic targeting of Federal funds throughout development is crucial in sections that require the greatest funding. State or local funding can then be used in the appropriate time or fashion, thus costs can be controlled more easily. Meetings with appropriate funding agencies are recommended throughout the course of the project. Reviews of permitting processes for each phase can then be done in a detailed manner. This draft study and accompanying photographic inventory provides background information necessary to assess existing conditions and give decision makers an overview of the permits and timing.

The exact extent and scope of permitting may not be determined until after a design consultant is retained and proper analysis of preliminary design is complete.

Table 2 - Probable Cost Opinion

Proposed Phase	Trail Surface (asphalt)	Trail Surface (crusher)	Trail Corridor Prep.	Drainage Improv.	Trail Heads	Special Structures	Design	Signage	**Cost**
I	$42,000	$63,000	$70,000	$50,000	$215,000	$0	$88,000	$7,750	**$535,750**
II	$0	$54,000	$56,000	$37,500	$60,000	$0	$41,500	$7,000	**$256,000**
III	$0	$66,000	$0	$37,500	$60,000	$175,000	$67,700	$5,000	**$411,200**
IV	$0	$2,400	$0	$0	$0	$1,000,000	$175,000	$500	**$1,177,900**
V	$0	$63,000	$98,000	$25,000	$195,000	$122,000	$100,600	$4,000	**$607,600**
VI	$0	$51,000	$0	$25,000	$195,000	$147,000	$83,600	$3,500	**$505,100**
VII	$0	$22,200	$51,800	$12,500	$20,000	$0	$21,300	$2,000	**$129,800**

Appendices

Appendix A

Information pertaining to bicycle facilities and regulations and/or requirements:

Bicycle

The following is from Highways and Streets 2001 – 4th Edition AASHTO

Where pedestrians or bicyclists are to be accommodated along a roadway shoulder, a minimum of 1.2 meters (4 ft.) should be used.
When on-street bicycle lanes and/or off-street bicycle paths enter an intersection, the design of the intersection should be modified accordingly. These modifications may include special sight distance considerations, wider roadways to accommodate on-street lanes, special lane markings to channelize and separate bicycles from right-turning vehicles, provisions for left-turn bicycle movements, or special traffic signal designs (such as conveniently located push buttons at actuated signals or even separate signal indications for bicyclists.) Further guidance in providing for bicycles at intersections can be found in the AASHTO Guide for the Development of Bicycle Facilities (5)

Pedestrian actions are less predictable than those of motorists. Many pedestrians consider themselves outside the law in traffic matters, and in many cases , pedestrian regulations are not fully enforced. This makes it difficult to design a facility for safe and orderly pedestrian movements.
Pedestrians tend to walk in a path representing the shortest distance between two points. Therefore, crossings in addition to those at corners and signalized intersections may be appropriate at particular locations.
Pedestrians also have a basic resistance to changes in grade or elevation when crossing roadways and tend to avoid using special underpass or overpass pedestrian facilities. Also, pedestrian underpasses may be potential crime areas, lessening their usage.
A pedestrian's age is an important factor that may explain behavior that leads to collisions between motor vehicles and pedestrians. Very young pedestrians are often careless in traffic from either ignorance or exuberance, whereas older pedestrians may be affected by limitations in sensory, perceptual, cognitive, or motor skills. Pedestrian collisions can also be related to the lack of sidewalks, which may force pedestrians to share the traveled way with motorists. Therefore, sidewalk construction should be considered as part of any urban/suburban street improvement.

The following is from AASHTO guide for development of bicycle facilities

To varying extent, bicycles will be used on all highways where they are permitted. Bicycle-safe design practices, as described in this guide should be followed during initial roadway design to avoid costly subsequent improvements. Because most existing highways have not been designed with bicycle travel in mind, roadways can often be

improved to more safely accommodate bicycle traffic. Design features that can make roadways more compatible to bicycle travel include
bicycle-safe drainage grates and bridge expansion joints, improved railroad crossings, smooth pavements, adequate sight distances, and signal timing and detector systems that respond to bicycles. In addition, more costly shoulder improvements and wide curb lanes can be considered.
Width is the most critical variable affecting the ability of a roadway to accommodate bicycle traffic. In order for bicycles and motor vehicles to share the use of a roadway without compromising the level of service and safety for either, the facility should provide sufficient paved width to accommodate both modes. This width can be achieved by providing wide outside lanes or paved shoulders.

Paved shoulders
Adding or improving paved shoulders often can be the best way to accommodate bicyclists in rural areas and benefit motor vehicle traffic. Paved shoulders can extend the service life of the road surface since edge deterioration will be significantly reduced. Paved shoulders also provide a break-down area for motor vehicles. Where funding is limited, adding or improving shoulders on uphill sections will give slow-moving bicyclists needed maneuvering space and will decrease conflicts with faster moving motor vehicle traffic.
½ meters wide. From a guardrail or curb or other roadside barrier, 1.5 meters (5 ft) is recommended. It is desirable to increase the width of shoulders where higher bicycle usage is expected. Add'l width is also desirable if motor vehicle speeds exceed 80km/50mph or the percentage of trucks, buses and recreational vehicles is high, or if static obstructions exist at the right side of the roadway.

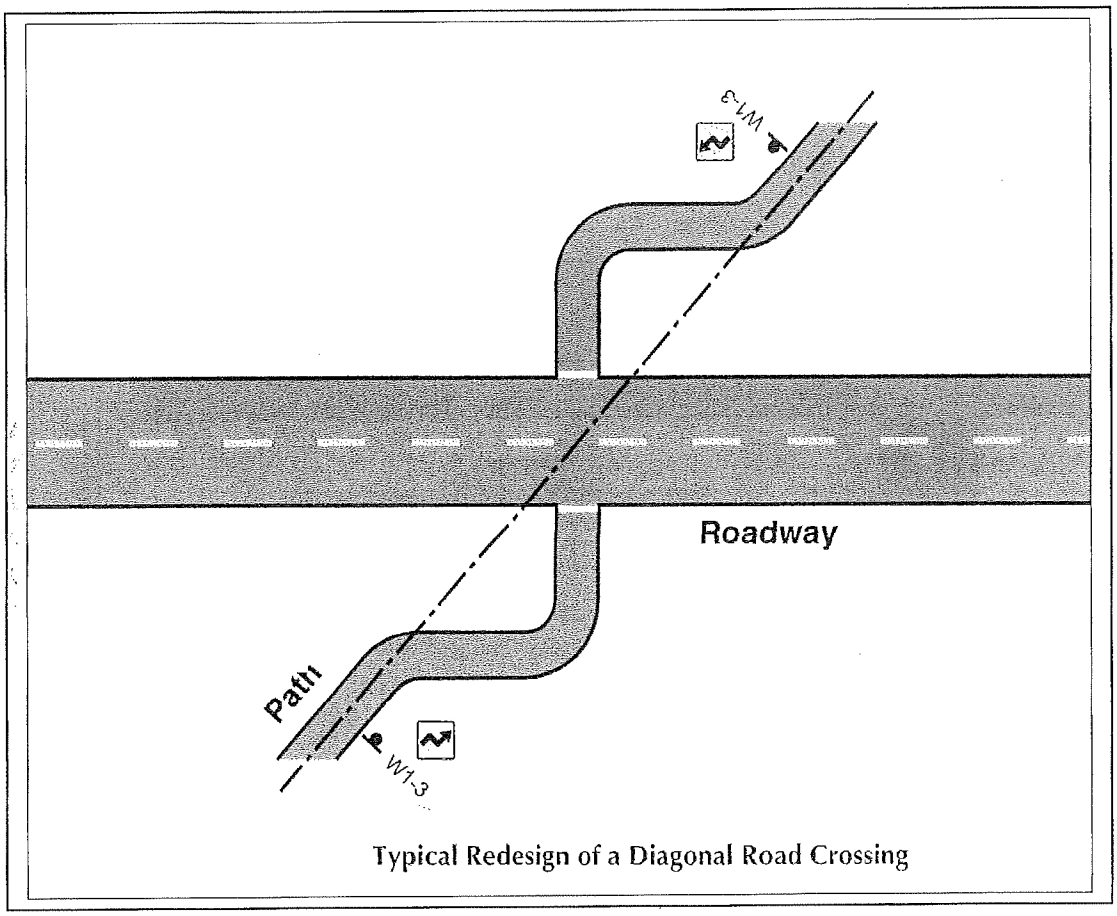

Figure E: Road and Trail/Path Intersection
Source: AASHTO Guide for the Development of Bicycle Facilities, 1999

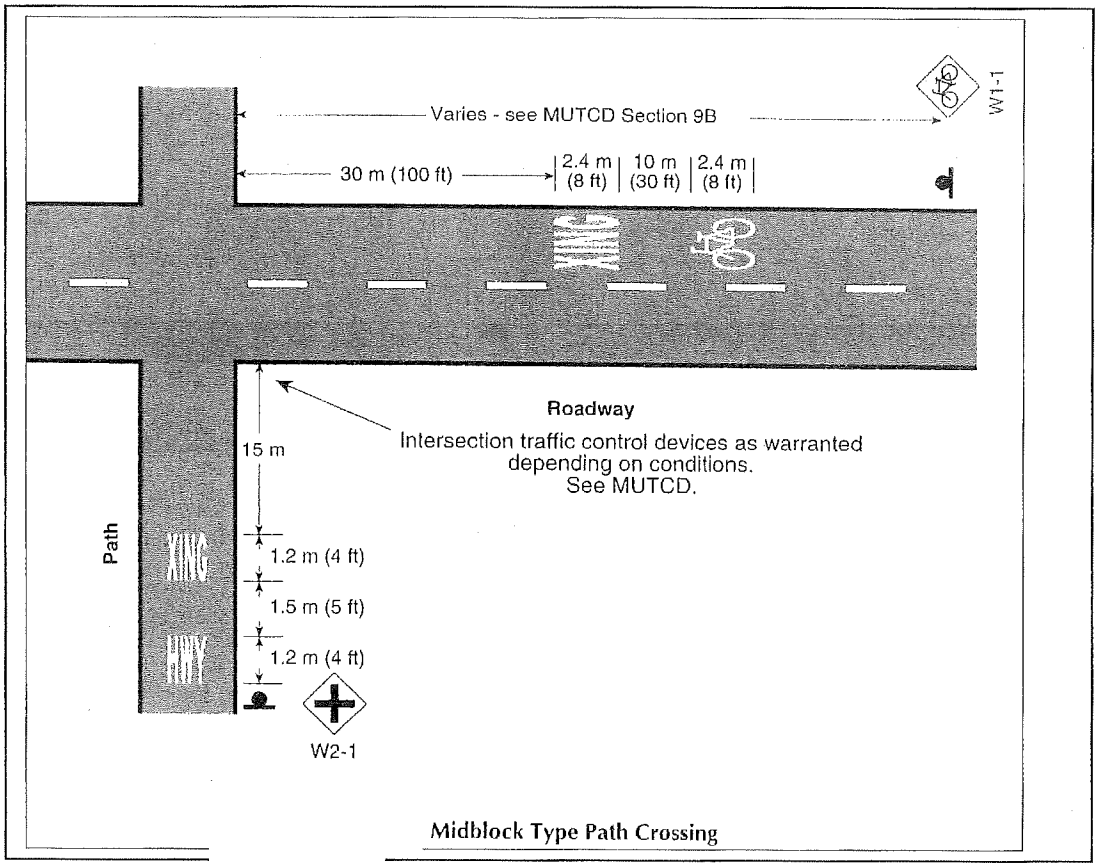

Figure F: Roadway and Trail/Path Intersection
Source: AASHTO Guide for the Development of Bicycle Facilities, 1999

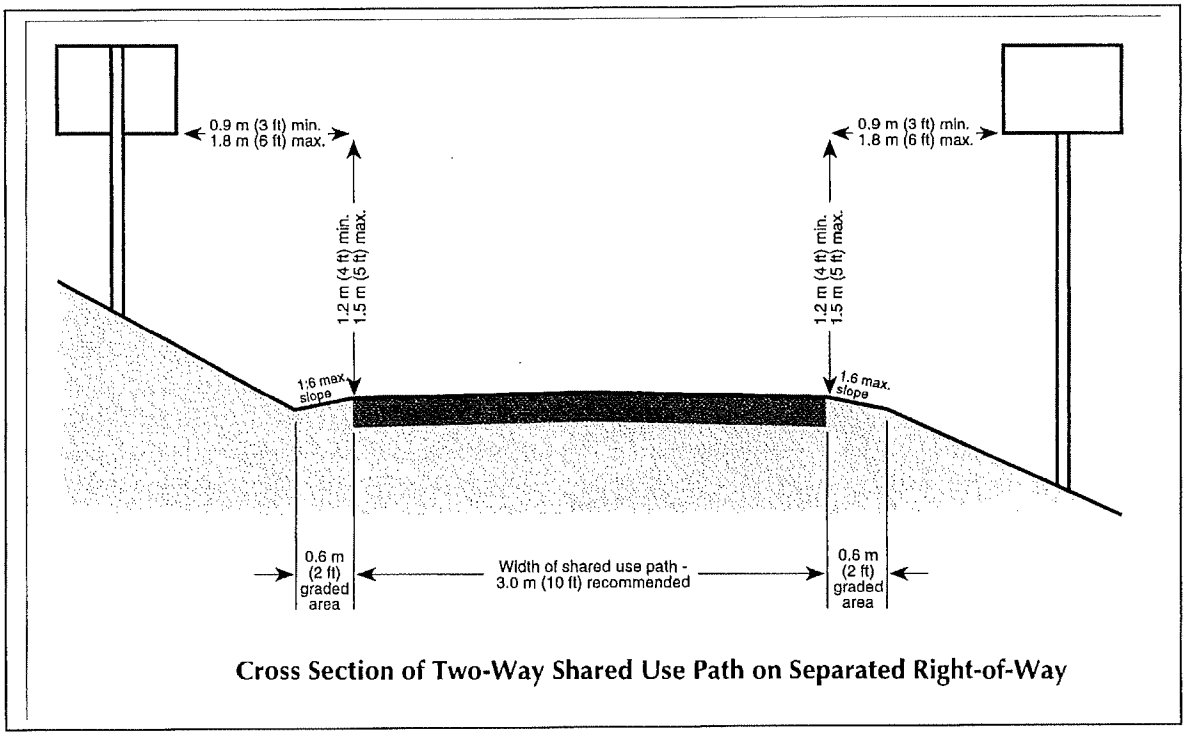

Figure G: Shared Path Dimensions
Source: AASHTO Guide for the Development of Bicycle Facilities, 1999

Appendix B

Equestrian

Information pertaining to equestrian trail uses and considerations:

Equestrian use bridges info
http://www.aiusa.com/anneodel/bridges.htm

source: Ride New York

I don't have any problem going over a bridge that is crossing a small creek, where nothing disasterous is going to happen if we go over it. However, a good 100' drop will get my heart going. I always get off if there
is anything hazardous. As an example, there is a bridge really for vehicles that I have to cross, where the bushes have overgrown the sides of the bridge. No railings. If the horse balks, it will think that it can back into the bushes with no consequences.....wrong.

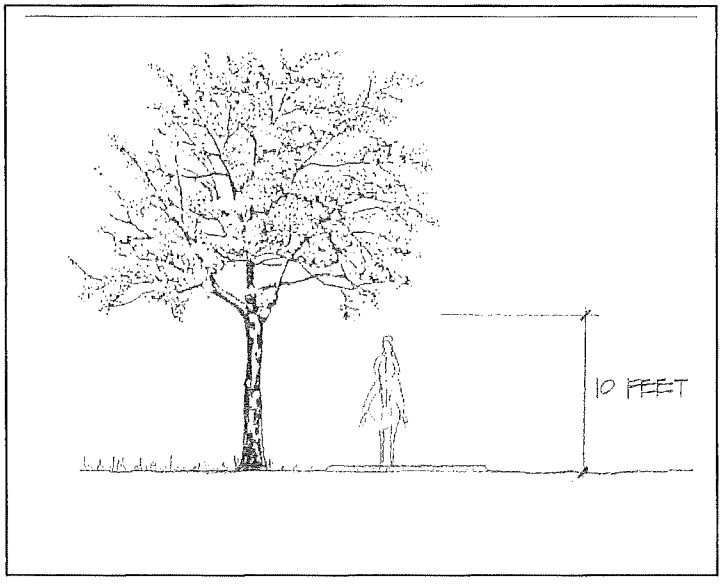

Figure B: Vertical Clearance for Equestrians
Source: Rails to Trails Conservancy, Trails for the 21st Century

For me the higher the better, but I suspect 3 feet would be about average. I like the
comfort of knowing that my horse isn't going to think about going over the railing. I also like bridges I have seen where there is some fencing on either side
of the opening to the bridge. Sometimes you will get a horse that is dancing around, balking at an object and they may not notice drop offs, places where they can get their feet stuck,
etc. I also would like a board running along the bottom of the fencing along the bridge, so that if they were to slip, they would hit the board, and not slide under the fencing breaking a leg. Laurie Sweeney.

www.trailsource.com

Permission to reproduce: Anne M. O'Dell ridenewyork@aiusa.com

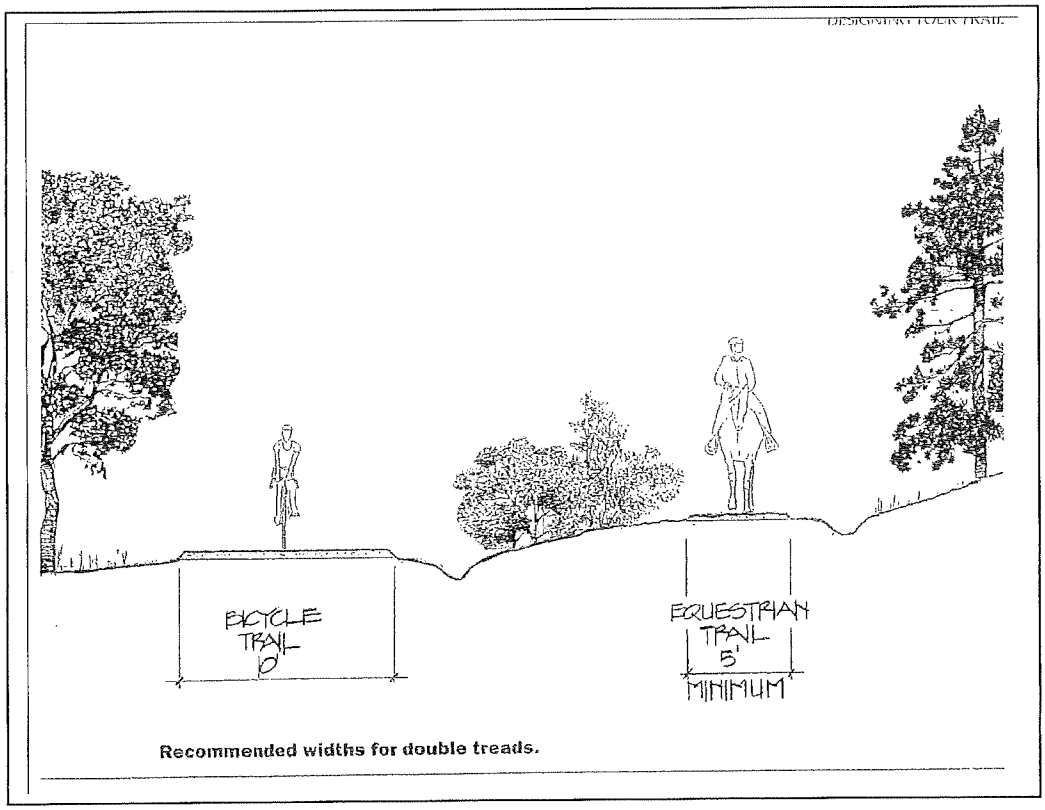

Figure C: Multi Use Trail Section
Source: Rails to Trails Conservancy, Trails for the 21st Century

Appendix C

Trail Surface Synopsis		
SURFACE MATERIAL	ADVANTAGES	DISADVANTAGES
Soil cement	Uses natural materials, more durable than native soils, smoother surface, low cost.	Surface wears unevenly, not a stable all-weather surface, erodes, difficult to achieve correct mix.
Granular stone	Soft but firm surface, natural material, moderate cost, smooth surface, accomodates multiple use.	Surface can rut or erode with heavy rainfall, regular maintenance to keep consistent surface, replenishing stones may be a long-term expense, not for steep slopes.
Asphalt	Hard surface, supports most types of use, all weather, does not erode, accomodates most users simultaneously, low maintenance.	High installation cost, costly to repair, not a natural surface, freeze/thaw can crack surface, heavy construction vehicles need access.
Concrete	Hardest surface, easy to form to site conditions, supports multiple use, lowest maintenance, resists freeze/thaw, best cold weather surface.	High installation cost, costly to repair, not a natural looking surface, construction vehicles will need access to the trail corridor.
Native soil	Natural material, lowest cost, low maintenance, can be altered for future improvements, easiest for volunteers to build and maintain.	Dusty, ruts when wet, not an all-weather surface, can be uneven and bumpy, limited use, not accessible.
Wood chips	Soft, spongy surface – good for walking, moderate cost, natural material.	Decomposes under high temperature and moisture, requires constant replenishement, not typically accessible, limited availability.
Recycled materials	Good use of recyclable materials, surface can vary depending on materials.	High purchase and installation cost, life expectancy unknown.

Figure D: Surface Options & Analysis
Source: Rails to Trails Conservancy, Trails for the 21st Century

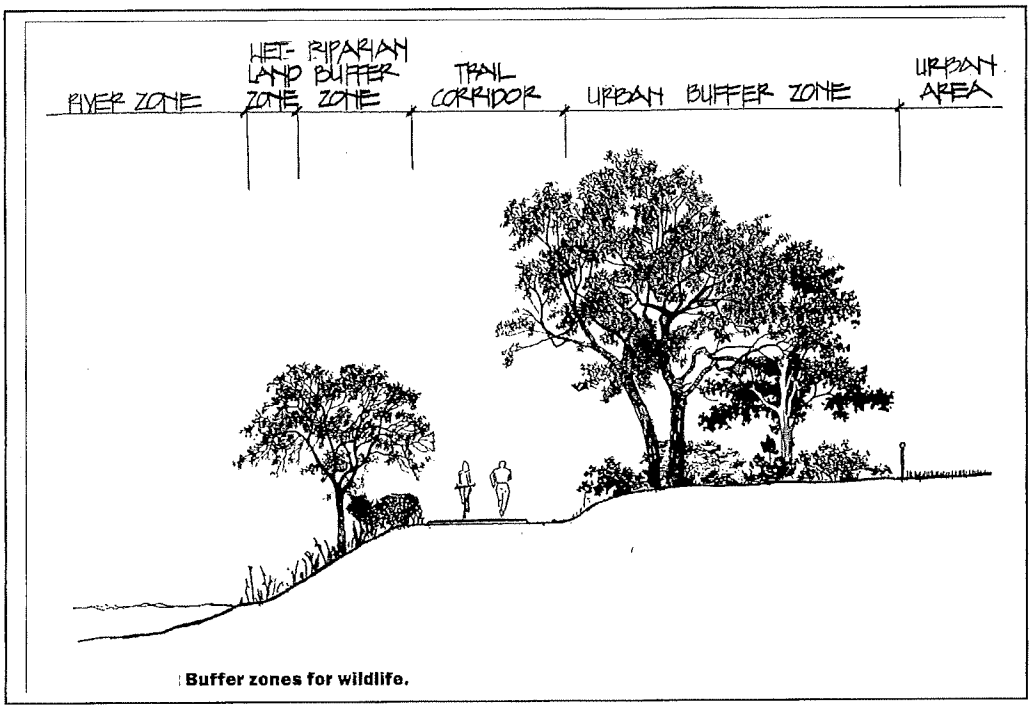

Figure H: Typical Trail section
Source: Rails to Trails Conservancy, Trails for the 21st Century

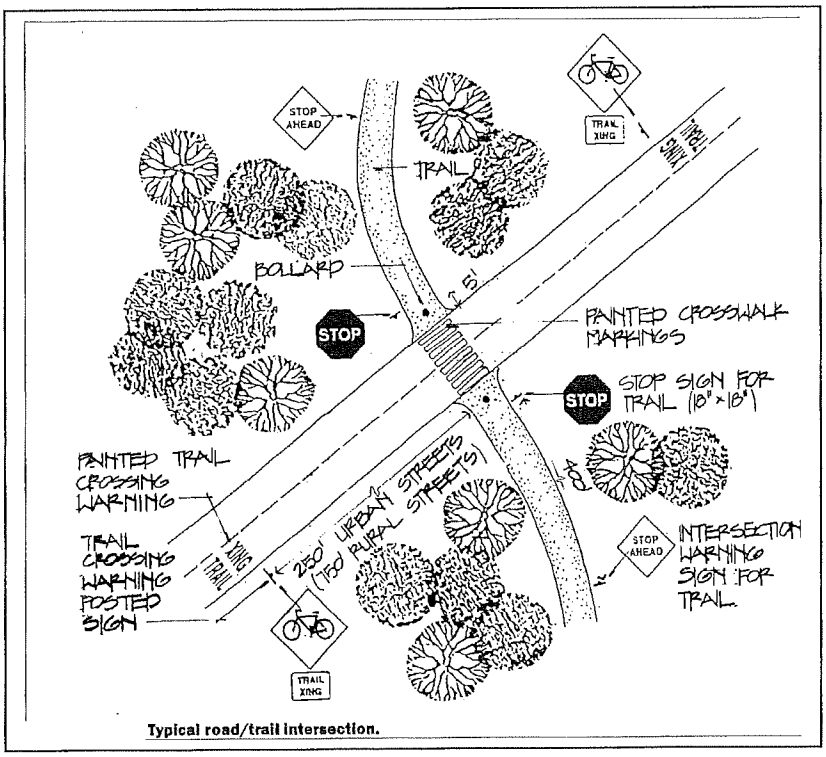

Figure K: Typical Road/Trail Intersection
Source: Rails to Trails Conservancy, Trails for the 21st Century

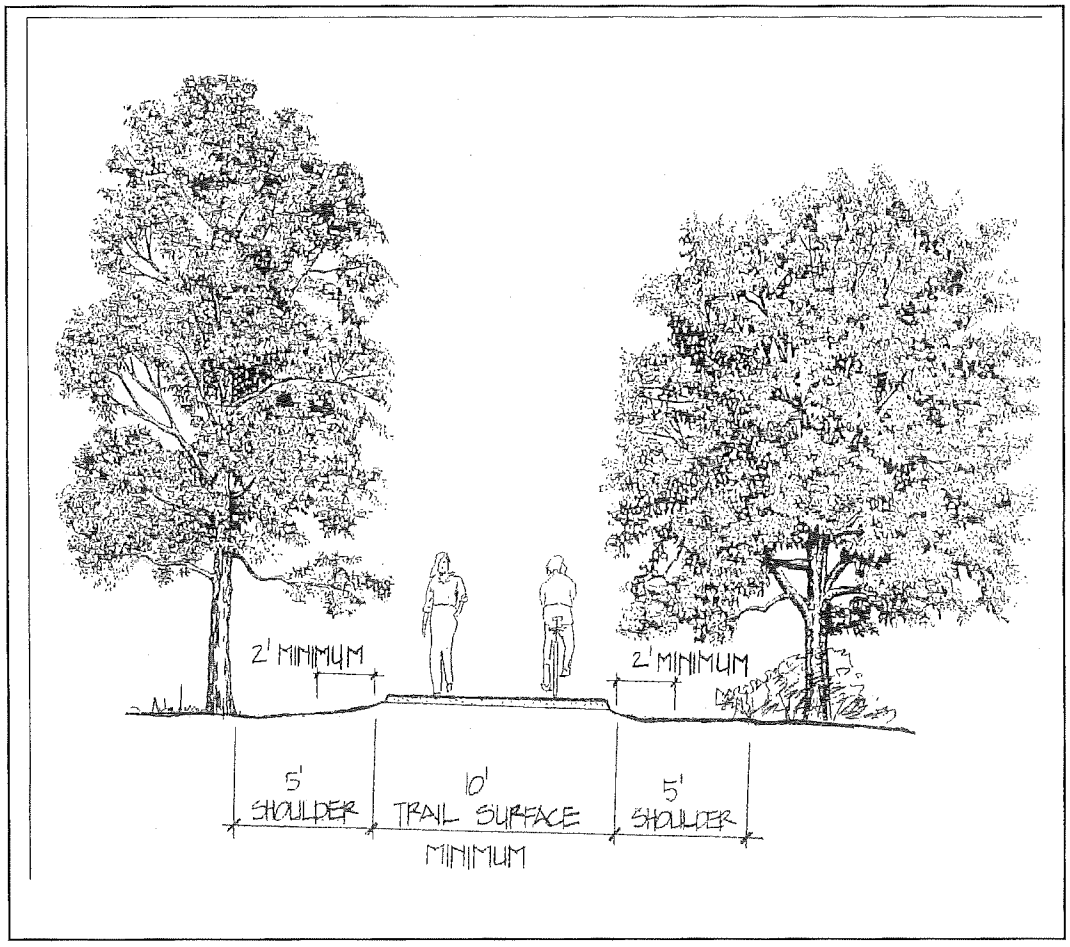

Figure J: Single Tread Trail section dimensions
Source: Rails to Trails Conservancy, Trails for the 21st Century

Trail Information on the web

FREE trail information is available on the Web. The TrailLink database offers detailed information on surface types, access points, locations, distances, services, reviews, photographs and local links for America's 1,225 rail-trails, plus many other canal towpaths, greenways and non-rail-trails.

TrailLink is a service provided by Rails-to-Trails Conservancy (RTC),
Source: www.millenniumtrails.org

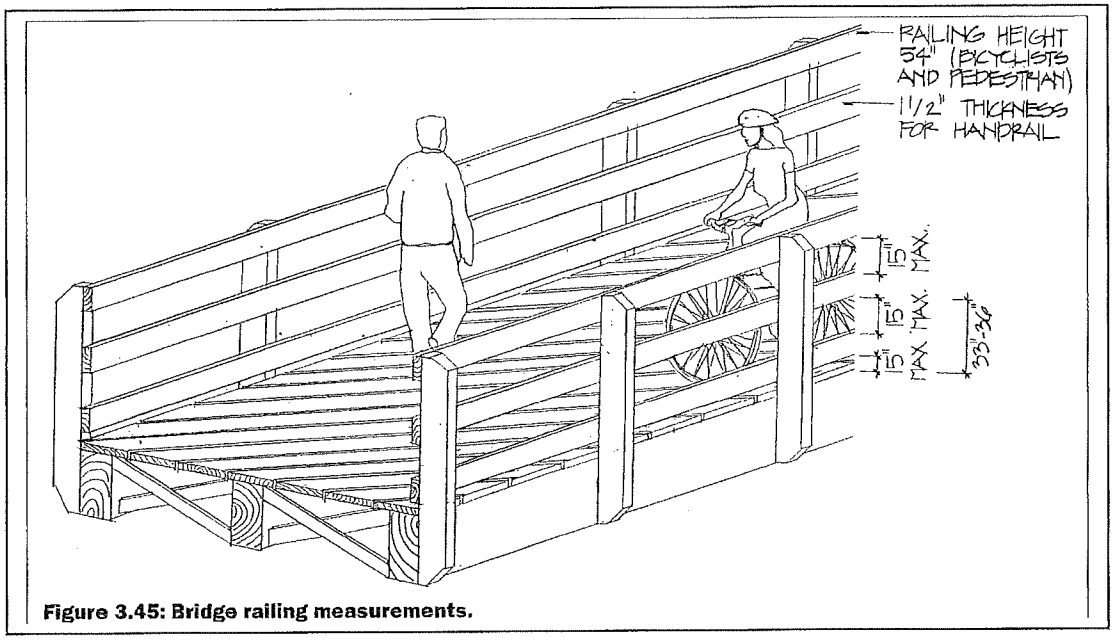

Figure 3.45: Bridge railing measurements.

Figure L: Recommended bridge alignment and dimensions
Source: Rails to Trails Conservancy, Trails for the 21st Century

Rails-to-Trails Support

Pennsylvania is America's leader in the rails-to-trails nationwide movement, with over 120 rail-trails throughout the state, and dozens more in the planning process. Pennsylvania also boasts the largest portion of RTC's nationwide membership, with over 8,300 members statewide. To celebrate their role as a leader, the RTC Pennsylvania Office has partnered with the Pennsylvania Department of Transportation(PennDOT) to offer Pennsylvanians the Rails-to-Trails Conservancy license plate.

Currently over 1,000 plates have been requested and issued throughout the state. You don't have to be a member of RTC to get one, just a supporter of RTC and the rails-to-trails movement! Show your support for RTC and be proud that Pennsylvania leads the way!

For more information about ordering a Rails-to-Trails Conservancy Pennsylvania license plate, contact the RTC PA Office in Harrisburg at (717) 238-1717 or email rtcofpa@transact.org.

The following are letters assembled from the novascotiatrails.com website, about multi-use trails

From Karen Smith, Jackson County "We are taking the position that only people-powered vehicles are allowed on the trail with the sole exception being motorized wheel chairs.
Overall safety is the issue. We already have walkers, joggers, roller bladers, skate boarders, kids on tricycles, people on bicycles, moms pushing strollers, and wheelchairs (and not all of them are seniors) using the trai. In addition, school groups use the trail as access for nature study, senior walking groups and a runners club regularly use the trail. In one section an equestrian trail runs parallel to the blacktopped trail. Adding more approved activity to our 10' wide surfaced path would create too many hazards.

We are building a greenway here in our very Urban town. We have many people in electric wheelchairs that most likely will be using the greenway, so I would vote to allow low-speed (under 25mph) electric motor-assisted bikes and scooters, as well - especially for elderly users. A key factor for me is that the noise and pollution levels of electric motors are consistent with a greenway. Any kind of noisy or polluting motor should be disallowed (except I probably will have to allow for
our maintenance crews' machines!) In terms of safety human powered bikes can be just as unsafe as an electric... It all depends on the user..."

Peter Schultze-Allen
Environmental Analyst
City of Emeryville
1333 Park Ave 94608
Ron Steffey
"We are having a problem where some elderly individuals are using bikes that have a Small booster electrical motor to assist their pedaling when needed. Do we flat out ban these bikes? Do we ban them if they are without handicap documentation? Do we make decisions on individual basis? One of the individuals with one of the bikes claims that the the Transportation Department of the Commonwealth does not classify the bikes as motorized and neither should we."

Multi use trail website
http://www.novascotiatrails.com/

Appendix D

ATV and other motorized vehicles

The Pennsylvania Off-Highway Vehicle Association (PAOHV) has been incorporated and fighting for the rights of Off-Highway users for several years.

The DCNR officially recognizes PAOHV as the sole/official voice of ATV/Trail bike community, and they have representation on the Snowmobile/ATV advisory Committee (SAAC).

PAOHV goals:

. Promote legislation with the purpose of developing and maintaining trails.
. Become instrumental and influential in interactions with land managers.
. Defend the OHV community against discriminating legislation and regulation.
. Provide assistance for legislation favorable to trail and open space recreation.
. Foster camaraderie among motorized OHV and all recreational trail user groups.
. Provide a medium for the dissemination of information relating to the OHV industry.
. Provide educational opportunities related to OHV use.
. Promote research pertaining to compatibility of OHV and environmental resources.

Source: www.paohv.org
www.paatving.com

Appendix E

PennDOT Strike-Off-Letters(SOL)

Strike-off-letters that update the Pennsylvania Department of Transportation's Design Manual are included as follows:

SOL 430-03-01 January 17, 2003	Instructions for Highway Occupancy Agreements for Recreation/Transportation Trails Intersecting State Highways
SOL 431-02-09 – December 30, 2002	Enhancement & Rails to Trails Pedestrian Structures & Bridges on Shared Use Trails Signature Authority & Review Responsibility

December 30, 2002 431-02-09

Enhancement & Rails to Trails
Pedestrian Structures and Bridges on Shared Use Trails
Signature Authority & Review Responsibility

District Engineers/Administrator

/s/ Michael M. Ryan, P.E. /s/ Richard J. Peltz

Michael M. Ryan, P.E. Richard J. Peltz
Deputy Secretary for Deputy Secretary for
Highway Administration Local and Area Transportation

The Department's Design Manual Part 4 Structures (DM-4) supplements the AASHTO Bridge Design Specifications with the intent of providing further design guidance based on research and experience in Pennsylvania. In some cases the specifications are more conservative than the AASHTO Bridge Specifications. Local municipalities have expressed the desire to follow AASHTO specifications and retain approval authority on projects where the Department's only involvement in the project is funding.

The following provides the policy for the design and review and approval of enhancement and rails to trails pedestrian structures, involving both new construction and rehabilitation. Strike-Off-Letter 431-95-16 is superceded by this letter. Reviewers are still reminded to closely review critical areas such as the applicable material specifications, deflections, design loads, member dimensions, fabrication details, connections, and special provisions for erection and construction. If a proprietary product does not meet the criteria, it must be submitted and evaluated through the Department's Product Evaluation Process. Pedestrian and shared use trail structures may be produced only by Bulletin 15 approved fabricators meeting the requirements listed herein. The Department will provide full time in-plant quality assurance inspection during fabrication.

All pedestrian and shared use trail structures may be categorized in one of three groups as follows:
Group I - Structures located on or over Department right-of-way
Group II - Structures not located on or over Department right-of-way but crossing a public roadway (roadway owned by another local or state agency)
Group III - Structures not on or crossing any public roadway (i.e.: structures in parks or crossing railroads)

GROUP I - Structures located on or over Department right-of-way
All pedestrian and shared use trail structures located on or over Department final right-of-way shall conform to the DM-4 policies, procedures, and specifications, including appropriate design submissions. Certification acceptance (Stewardship and Oversight Agreement) procedures shall be followed. In all cases the designer shall stamp and seal

the structure plans as per DM-4 PP1.6.3.1, and the Bridge Engineer shall review and approve the plans "For Structural Adequacy Only". Publication 408 specifications shall be used for construction and materials.

In every case, the structure must be competitively bid and allow multiple manufacturer's bridge types. These structures may be bid as-designed with alternates or they may be bid as a Modified Turnkey (design-build) project. Highlights and exceptions to the specifications for these bridges are as follows:

1. Department criteria must be followed. Note the following requirements for:
    a. Redundancy (DM-4 D1.3.4) – A redundancy analysis will be required for non-redundant structures
    b. Deflection (DM-4 D2.5.2.6.2) – L/1000 for metal bridges
    c. Live Load (DM-4 D3.6.1.6 and AASHTO LRFD A3.6.1.6) – Pedestrian load of 85 psf to be applied
    d. Inspection requirements (Pub 238) – Comprehensive inspection at 2-year maximum intervals
    e. Fatigue detail categories restrictions (DM-4 D6.6.1.2.4) - Category C or better detail must be provided
    f. Bearings and Joints (DM-4 D14) – Method A used for laminated neoprene bearings.
    g. Fracture Critical Members (DM-4 PP1.7.7(13))
    h. Construction and Fabrication (Publication 408) – Bridge fabricator must have current AISC certification to the Major Steel Bridge category with Fracture Critical endorsement.
2. ASTM A500 and A847 materials may be used.
3. ANSI/AWS/D1.1 is applicable for welding structural shapes to tubular members. (Also note Item 1.e above.)
4. 100% of welds on main load carrying tubular members shall be non destructively tested as follows:
    a. Full penetration groove welds in butt joints shall be radiographically tested.
    b. Full penetration groove welds in T and corner joints shall be ultrasonically tested (UT). For material less than 5/16" thick (8 mm), UT procedures shall be submitted to the Chief Structural Materials Engineer for approval prior to use.
    c. Partial penetration groove welds and fillet welds shall be magnetic particle tested.
5. Main load carrying member components of A709 steel subject to tensile stress shall meet the supplementary notch toughness requirements for the longitudinal Charpy V-notch test specified for Zone 2 in Table S1.2 (non-fracture critical) or S1.3 (fracture critical) of the applicable ASTM material specifications. A500 and A847 tubular members shall meet the requirements stipulated in the Tables for A709, Grade 50 material. Tubular members shall be tested at "P" piece frequency (sampled at one end of each length of tubing supplied) for fracture critical members, and at "H" (heat lot) frequency for non-fracture critical members, all in accordance with ASTM A673/A673M.

6. SMAW, SAW, FCAW, and GMAW are approved welding processes, except that FCAW-S (self-shielding) and GMAW-S (short circuit arc transfer) will not be accepted for any welding.
7. All Weld Procedure Specifications (WPS's) shall be submitted to, and approved by, the Chief Structural Materials Engineer prior to production welding, including tack welding. Prequalification of weld procedure specifications for welds on tubular members will be determined in strict compliance with Chapter 3 and Annex H of the latest edition of ANSI/AWS/D1.1. For welded non-tubular structures, welding and weld procedure qualification test should conform to ANSI/AWS/D1.5.

GROUP II - Structures not located on or over Department right-of-way but crossing a public roadway

Review, approval and bidding requirements are the same as Group I.

Highlights and exceptions to design criteria for these structures not on or over Department right-of-way but crossing a public roadway are as follows:

1. A comprehensive structure inspection is completed as per Publication 238M every 2 years.
2. ASTM A500 and A847 materials may be used.
3. ANSI/AWS/D1.1 is applicable for welding structural shapes to tubular members.
4. 100% of welds on main load carrying tubular members shall be non destructively tested as follows:
   a. Full penetration groove welds in butt joints shall be radiographically tested.
   b. Full penetration groove welds in T and corner joints shall be ultrasonically tested (UT). For material less than 5/16" thick (8 mm), UT procedures shall be submitted to the Chief Structural Materials Engineer for approval prior to use.
   c. Partial penetration groove welds and fillet welds shall be magnetic particle tested.
5. Main load carrying member components of A709 steel subject to tensile stress shall meet the supplementary notch toughness requirements for the longitudinal Charpy V-notch test specified for Zone 2 in Table S1.2 (non-fracture critical) or S1.3 (fracture critical) of the applicable ASTM material specifications. A500 and A847 tubular members shall meet the requirements stipulated in the Tables for A709, Grade 50 material. Tubular members shall be tested at "P" piece frequency (sampled at one end of each length of tubing supplied) for fracture critical members, and at "H" (heat lot) frequency for non-fracture critical members, all in accordance with ASTM A673/A673M.
6. SMAW, SAW, FCAW, and GMAW are approved welding processes, except that FCAW-S (self-shielding) and GMAW-S (short circuit arc transfer) will not be accepted for any welding.
7. All Weld Procedure Specifications (WPS's) shall be submitted to, and approved by, the Chief Structural Materials Engineer prior to production welding, including tack welding. Prequalification of weld procedure specifications for welds on tubular members will be determined in strict compliance with Chapter

3 and Annex H of the latest edition of ANSI/AWS D1.1. For welded non-tubular structures, welding and weld procedure qualification test should conform to ANSI/AWS/D1.5.

8. The redundancy requirement (DM-4 D1.3.4) may be waived
9. PennDOT specifications for neoprene bearings and expansion joints shall be used.
10. Bridge fabricator must have current AISC certification to either the Simple Steel Bridge Structure category or the Major Steel Bridges Category.
11. All fatigue details must be designed in accordance with AASHTO. (The Category C requirement may be waived.)
12. Deflection must meet the criteria contained in the AASHTO Guide Specifications (L/500). DM-4 deflection criteria may be waived.

Group III - Structures not on or crossing any public roadway (ie: structures in parks or crossing railroads)

For locally sponsored and owned pedestrian structures involving state and/or federal funding which are located off of the Department final right-of-way and which do not cross a public road, the local owner may accept review responsibility. Examples of this would be a pedestrian trail bridge in a state or local park over a small creek or a pedestrian bridge over a railroad. In these cases, the AASHTO minimum criteria for design (see AASHTO Guide Specifications for Design of Pedestrian Bridges) may be used provided an independent check of the plans and computations for conformance to design criteria and structural adequacy is completed by a licensed Professional Engineer provided by the local owner. The designer shall stamp and seal the structure plans, and the review engineer shall sign and seal the plans using the following format:

Design reviewed by: PE Seal

_____

Review Consultant's Name,
Signature and Date

The design review is for general conformance with AASHTO design and construction criteria and is not intended to relieve the designer of full responsibility for the accuracy and completeness of the plans.

If the local owner does not accept review responsibility, the Department may be asked to provide a review. In this case, Group II criteria for pedestrian structures must be followed, and the District Bridge Engineer will approve the plans "For Structural Adequacy Only". In these cases, inspection will be required from the local owner on a 2-year cycle.

Designers and reviewers should be aware that the PENNDOT Publication 408 is very specific in its specifications for construction, and may require prequalification for fabricators and/or specific fabrication practices. If a local project is designed using

AASHTO only, the designer must provide special provisions to allow construction practices which deviate from Publication 408. In addition, if the structure crosses over a private entity such as a Railroad, all supplemental design requirements of that entity must be met.

For those pedestrian bridges with fracture critical members (FCM), FCM provisions (See DM-4, PP1.7.7, Note 13) will continue to be required for structures over public roadways and significant water crossings (waterway not able to be traversed by foot during normal flow.) Please note that special provisions will need to be developed by the designer to allow any construction and material exceptions selected by the local municipality.

Recycled (used) bridges may be acceptable provided that the structure meets the following conditions:

- A complete inspection has been performed
- The material certifications are acceptable, or physical testing has been completed
- New connection material is utilized if the bridge is reconstructed or reassembled (new bolts, etc.), and
- The bridge is accepted by the District Bridge Engineer.

Any questions on this policy should be directed to the District Bridge Engineer, or the Central Office Bridge QA Engineer assigned to the District where the project is located.

4310/RSB/rsb
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District Liaison Engineer, District
District Structural Control Engineer, District
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Department of Streets, Rm. 920, Municipal Building
Philadelphia, PA 19107
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Luzerne County Engineer's Office, Luzerne County
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Mr. Arthur A. Prado, Executive Director
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Consulting Engineers Council of PA
2040 Linglestown Road, Suite 200
Harrisburg, PA 17110 - 9568
Attn: John Van Natta

January 17, 2003 430-03-01

Instructions for Highway Occupancy
Agreements for Recreation/Transportation
Trails Intersecting State Highways
All District Engineers/Administrator

Gary L. Hoffman, P.E. /s/ Gary L. Hoffman
Chief Engineer
Highway Administration

I. Background [1]

Whenever a non-Department of Transportation facility intersects or crosses a State highway, a Highway Occupancy Agreement (HOA) or an agreement between the Department of Transportation (DEPARTMENT) and the facility owner is needed to establish the responsibilities of each party for this joint use of public right-of-way. In the past we have issued HOPs for trail intersections with State highways. For the intersection of privately or publicly held recreation/transportation trails and a State highway, the legal document to establish the duties of the parties is called a Highway Occupancy Agreement.

The purpose of a HOA is to allow a portion of the State highway right-of-way to be used for trail purposes. At the same time, a HOA ensures that the public safety and interests are preserved by detailing the responsibilities of the Trail Owner.

The purpose of this Strike-off Letter (SOL) is to establish the policies and procedures to develop and implement the process by which the **DEPARTMENT** and **Trail Owner** (local government or trail group) will execute a HOA for trail facilities such as bridges, at-grade crossings, or tunnels that intersect State highway right-of-way.

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[1] This SOL is not intended to supersede the Decision Tree process for Rail-Trail Structures as outlined in SOL 430-97-06. The HOA is the legally binding agreement that represents the **Trail Owner's** commitment in Step 7 of the Decision Tree. For trails with an at-grade intersection of a State highway, the Decision Tree can provide guidance for overall development of the HOA. This SOL applies to all State highway/trail intersections and is not limited to those intersections that were part of a Decision Tree process.

II. District Responsibility for Establishing HOA

1. The **District** is responsible to ensure that proper legal agreements are established and in-place to govern the occupancy of State highway right-of-way for new or converted trails and their ancillary facilities.

   A. A HOA is required for State highway/trail at-grade intersections and trail structures over or under the State highway. For the purposes of this SOL, they will be referred to as HOA Crossings.

   B. Each HOA may encompass several HOA Intersections. However, a separate HOA will be required for each trail, each county and each trail owner[2].

   C. If limited motor vehicle access is requested for HOA Intersections at-grade, the HOA governs the entire intersection. A separate Highway Occupancy Permit[3] (HOP) is not needed for that driveway.

   D. For any other driveways from the trail or parking facility (trail head) onto State highways, a separate HOP for driveways is required.

   E. The HOA/HOP pertains only to facilities located along State highways. Separate agreements for trail facilities along local roads or streets may be required by the municipality.

   F. If a HOP was previously granted for a State highway/trail intersection, a HOA must be established to replace the HOP.

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[2]If one **Trail Owner** has a trail that spans two counties, then a separate HOA is required for the HOA crossings in each county. If there is one trail owned by two **Trail Owners** in one county, then a separate HOA is required for each **Trail Owner**.

[3]See 67 PA Code §§ 441 et. seq., 457 et. seq.

G. A HOA is also required where a highway and trail are parallel and the trail is within highway right-of-way.

2. The **District Highway/Trail Coordinator** and the **District Enhancement Coordinator** must coordinate with each other so that all highway/trail intersections have a HOA and the HOA process and the Enhancement process are adequately addressed. It is not the intent of this SOL to require Trail Owner to duplicate efforts with the Department.

3. The **District** will verify that DEPARTMENT and Department of Conservation and Natural Resources (DCNR) have reviewed the background documentation relating to the **Trail Owner's** financial responsibilities, if applicable. (See SOL 430-97-06, Pages 1 and 7 for more information on financial responsibilities.)

III. **Trail Owner Responsibilities**

1. Must provide satisfactory evidence to the DEPARTMENT of the **Trail Owner's** ability to completely discharge construction, maintenance, safety inspection and financial responsibilities as set forth by the terms of the HOA.

2. Must provide accurate and complete information in submissions to the DEPARTMENT, including plans, reports and correspondence. **Trail Owner** must certify the accuracy of its submissions.

3. Must be responsible for design and construction inspection of trail facilities that impact the State highway or right-of-way.

4. Must provide for the inventory and safety inspection of trail bridges over State highways and for trail-owned tunnels and other structures carrying public highway traffic. The requirements for the safety inspections and reporting are outlined in the Department's Bridge

Safety Inspection Manual, Publication 238 October 2002 Edition). The scope of the safety inspection for the individual structures shall be determined by the District Bridge Engineer. The bridge owner is responsible for the cost of the bridge inspection less any Federal reimbursement under the National Bridge Inspection Standards (NBIS) Program (see Publication 238 for funding eligibility).

5. Must reimburse the Department for the costs incurred by the Department to perform the safety inspections required by the HOA when the **Trail Owner** fails to perform the inspections.

6. Must provide the appropriate District with the name, address and telephone number of **Trail Owner's** contact person responsible for maintenance.

IV. DEPARTMENT Personnel Responsible for HOAs

The owner of the HOA process is the Chief Engineer of Highway Administration.

The Administrator of HOA process is the Grade Crossing Unit of the Utilities and Right-of-Way Section in the Bureau of Design.

Each District will have a Highway/Trail Coordinator.

The names, addresses and phone numbers for the statewide HOA team are listed in ATTACHMENT "A" and ATTACHMENT "B".

V. Agreement Format for HOA

The agreement format from which the **District**, with guidance from OCC, will develop the customized HOA for the subject project is included as ATTACHMENT "C". (ATTACHMENT "C" is a master sample to be modified for every situation.)

VI. Step By Step Process for Establishing HOAs

The step-by-step process for establishing an HOA for a State highway/trail intersection is:

1. Upon notice of intent to create a State highway/trail intersection, **District** sends to the Trail Owner three items:

   A. A copy of agreement format for the HOA (ATTACHMENT "C"). The **District** should call the attention of **Trail Owners** not involved in the Decision Tree Process to the financial responsibility section of the HOA. (See ATTACHMENT "D" for Transmittal Letter.)

   B. A copy of the Requirements for Trail Project Description (ATTACHMENT "E").

   C. HOA Process Checklist (ATTACHMENT "F").

2. **Trail Owner** prepares the project description in accordance with the information shown on ATTACHMENT "E" for all HOA Intersections. **Trail Owner** submits the completed project description and HOA Process Checklist to the appropriate District Highway/Trail Coordinator (See ATTACHMENT "B").

3. **District** forwards copy of the completed project description to HOA Administrator.

4. **Trail Owner** shall submit four (4) copies of all Design/Construction Plans, Construction Schedules, proposed Traffic Control Plans, and any other required information for pertinent HOA Intersections to be covered by the HOA to the appropriate District Highway/Trail Coordinator. (See Section VII entitled "Trail Plan Submission Requirements for HOAs".) If plans have been submitted to the Department for the Enhancement Process and the plans satisfy the HOA requirements for plan submission(s), there is no need to resubmit the plans.

If a HOP is needed for a trail driveway in addition to a HOA(s) for other intersections, the **Trail Owner** should also submit the HOP application at this time.

5. **District** reviews plans for acceptance. This review process may require the **Trail Owner** to modify the plans. Plans may be stamped "Accepted" or "Accepted-As-Noted". (See Section VIII entitled "District Review/Acceptance of Trail Plans".) If an HOP application is included, it should be reviewed by the **Highway/ Trail Coordinator** for consistency with the remainder of trail and then forwarded to District Permit Manager for processing.

6. Once Trail plans are accepted, or accepted-as-noted, **District** forwards a copy of the stamped plans to the Trail Owner by transmittal letter. (See ATTACHMENT "G".) **District** provides copies of this letter to the following:
   - HOA Administrator
   - Legal
   - District files (Maintain copy of "Accepted" or "Accepted-As-Noted" Plans)

7. **District** develops HOA using Master Draft, with reference to accepted plans and project description provided by Trail Owner. Central Office Grade Crossing Unit, Central Office Enhancements Section, District Enhancements Coordinator, and OCC shall be available as necessary to assist District in the preparation of the HOA. Upon completion of the final draft agreement, **District** requests the **HOA Administrator** to assign a HOA number for the Agreement.

8. **District** forwards original HOA to Trail Owner using form letter outlined in ATTACHMENT "H". **District** sends copy of transmittal letter to HOA Administrator.

9. **Trail Owner** signs HOA and returns it to the appropriate District Highway/Trail Coordinator.

If the original HOA is not acceptable to the Trail Owner, provide written comments and return to District.

10. **District** submits HOA signed by Trail Owner to HOA Administrator for execution by the Commonwealth. Use current cover page as per ATTACHMENT "I".

11. **HOA Administrator** coordinates HOA execution by COMMONWEALTH. After execution, **HOA Administrator** retains original signed/executed HOA and forwards a copy to District Highway/Trail Coordinator.

12. **District** sends copy of executed HOA to Trail Owner with a "Certification Letter for HOA" as outlined in ATTACHMENT "J". **District** provides copies of this letter to the following:
    - HOA Administrator
    - Legal
    - Comptroller (Include copy of HOA)
    - District files (Maintain copy of HOA)

13. **District** is to enter the data for the executed HOA(s) into the Bridge Management System and the Roadway Management System. Follow instructions provided by that system.

14. The receipt of the executed HOA certifies that the **Trail Owner** is permitted to occupy the DEPARTMENT's right-of-way and do work as per the executed HOA and accepted plans for a new or existing facility. (The newly executed HOA supersedes any previous agreement(s) or permit(s) for a HOA crossing.)

15. If the **Trail Owner** fails to meet the obligations set forth in the HOA, the **District** can revoke the HOA or rescind portions of it.

16. Time extensions for HOA specified work may be granted by the **District**, if requested by the Trail Owner and appropriate reasons are provided. The **District** should issue a new Certification Letter.

17. If subsequent modifications are required to the executed HOA and its previously accepted plans, the **Trail Owner** must have the amended plans accepted by the Department and a new Certification Letter is to be issued for Amendment. Modifications could include, but not be limited to, change in ownership, name of trail, alteration(s) to facilities, etc.

VII. **Trail Plan Submission Requirements for HOAs:**

1. General Requirements

   A. If the HOA-related trail features are to be constructed as part of a State highway project, the Plans and Specifications must meet PennDOT standards and design requirements. If the crossing is existing, submit as-built plans or plans developed from data taken in the field.

   B. Four copies of the plans are to be submitted to the District Highway/Trail Coordinator.

   C. All plans must be of quality sufficient for microfilming. Free hand drawings of highway crossing or utility facilities are unacceptable.

   D. The plans shall include, but are not limited to, detailing the location and pertinent horizontal and vertical dimensions, if applicable, and related highway features, including specific highway location, centerline, edge of pavement, outside edge of shoulders, curbing, guiderail, highway drainage structures and right-of-way lines.

   E. For HOA Crossings of a more complex nature and/or where site conditions warrant, additional detail may be required.

2. Bridge or Structural Plans

   A. Separate bridge plans are not required where the work is limited to painting or other minor repairs, as determined by the DEPARTMENT's District Bridge Engineer.

   B. Where possible, separate plans are to be developed for each bridge/structure. If a HOA Crossing is an existing structure, include as-built plans, if available.

   C. Where pedestrian and/or vehicle traffic is over the State highway, a load rating analysis of the bridge is to be included with other bridge design computations.

   D. Bridge or structural plans must be signed and sealed by a Professional Engineer licensed in the Commonwealth of Pennsylvania.

   E. A Foundation Report is to be submitted for acceptance on new bridges/structures or substructures.

   F. DEPARTMENT Design Manual, AASHTO Specifications, and AASHTO Manual for Condition Evaluation of Bridges govern the rating and design of bridges.

3. Highway Plans

   A. Must include pavement markings, DEPARTMENT signage and safety features.

   B. Cross sections with horizontal and vertical clearances are to be provided for overhead structures.

   C. If a HOA Crossing is an existing at-grade, include plans developed from data taken in the field.

   D. Highway Plans must be signed and sealed by a Professional Engineer licensed in the Commonwealth of Pennsylvania.

4. Traffic Control Plans

   A. Similar to HOPs, a traffic control plan shall be submitted when:

      1) Work is performed on a limited access highway.

      2) It is necessary to close a portion of a travel lane during darkness when work is not in active progress.

      3) Work will require closing a highway.

      4) Other special circumstances identified by the District.

   B. Traffic control plans and work are to comply with Publication 203 Work Zone Traffic Control.[4]

   C. Traffic Control Plans must be signed and sealed by a Professional Engineer licensed in the Commonwealth of Pennsylvania.

5. Design Exceptions

   When the HOA Crossing creates, modifies, or perpetuates a substandard highway component, that
   deficiency must be addressed in the design submission and the mitigation accepted by the DEPARTMENT.

VIII. **District Review/Acceptance of Trail Plans**

1. The District Highway/Trail Coordinator is responsible to ensure that appropriate staff review the Trail plans in a timely fashion.
2. The various sections of the Plans are to be stamped "Accepted" or "Accepted-As-Noted" before they can be included in the HOA.

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[4] 67 PA Code, Chapter 203

3. Bridge/Structure Plan Review

- For construction of new pedestrian bridges on or over DEPARTMENT right-of-way, the bridge plans and specifications must be done in accordance with Design Manual Part 4.

- For conversion of existing bridges on or over DEPARTMENT right-of-way and not involving a superstructure replacement, the bridge plans and specification will be reviewed by the District Bridge Engineer for "Structural Adequacy Only".

4. Highway Plan Review

- To be reviewed for conformance to the Department's design manuals and standards.

5. Traffic Control Plan Review

- To be reviewed for conformance to the Department's design manuals and standards.

IX. This Strike-off Letter rescinds Strike-off Letter 430-99-04 dated January 26, 1999.

If there are any questions, please contact the HOA Administrator Harvey I. Cassell, P.E., at (717) 787-6935 or Fax (717) 705-2380 or e-mail at hcassell@state.pa.us

4350/HIC/HCR/bjg

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