The Spring Creek Canyon Conservation Strategy

Restoration ● Education ● Appreciation

A Master Plan and Management Plan for the Spring Creek Canyon

Township & DCNR
Final Review Copy

Benner Township, Pennsylvania

Spring 2009

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This project was financed in part by a grant from the Community Conservation Partnerships Program, Keystone Recreation, Park and Conservation Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation.

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John Elnitski	Benner Township
Dan Sieminski	Pennsylvania State University
Frank Tennis	Rockview State Correctional Institution

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Jennifer Shuey	ClearWater Conservancy

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Bob Eberhart	Halfmoon Township
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Acknowledgements

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We especially thank Ms. Jennifer Shuey, of the ClearWater Conservancy, for her vital work as the Project's Communication Liaison, throughout the planning process in supporting on-going communication among Committee members / stakeholders, Benner Township and the Planning Team. Ms. Shuey also served as a liaison in organizing public outreach, meeting opportunities and logistics.

The Planning Team

Environmental Planning and Design, LLC (EPD)
Andrew JG Schwartz, AICP, RLA Principal-in-Charge

EPD is a nationally acclaimed planning and landscape architecture firm supporting clients for seventy years from its home office in Pittsburgh, PA. EPD's technical, fact-based approach to natural resource and community planning projects is recognized by communities and multi-county regions throughout the Commonwealth as a practical tool for balancing realistic recommendations, policies and implementation needs. As prime consultant, EPD was responsible for conducting environmental resource capacity analysis, preparing policy recommendations, developing the Conservation Strategy document, leading the study's general public participation process and managing the day-to-day project activities and overall planning effort.

Toole Recreation Planning
Toole Recreation Planning of Doylestown, Pennsylvania is led by Ann Toole, a Certified Parks and Recreation Professional recognized through national and regional professional awards for her parks and recreation planning. Ms. Toole worked with the Planning Team and project stakeholders to outline an innovative and practical operations and management structure as well as implementation strategies for the Spring Creek Canyon Conservation Strategy.

Johnson, Mirmiran & Thompson Engineering (JMT)
JMT is multi-disciplinary engineering firm with offices located throughout the Eastern United States. From design to implementation, JMT understands the inter-relationships of practical and innovative engineering solutions. Professionals in JMT's York, Pennsylvania office provided primary environmental engineering assessment and cost estimating services for the project.

Maille Consulting Services
Maille Consulting Services located in Harborcreek, Pennsylvania is led by David Maille, CPCC-I, CCA, BSPC, and offers services in agronomics of soil and a variety of food crops, trees, turf and forages. Mr. Maille contributed to the general analysis regarding soil conditions and capacities.

Acknowledgements

More than 1,800 acres of the Nittany Valley region, commonly known as Spring Creek Canyon (also referred herein to as the Site), is recognized for its natural resource richness and cultural significance. This Site is special in many ways. At the core of this is the Creek itself, a high quality stream. Surrounding the Creek are notable environmentally sensitive areas as well as known and unknown historic and cultural resources. The Site also possesses its share of challenges from the presence of invasive species to impacts from off-site sources. The Site has garnered attention from dozens of interested groups – some focusing on ecology, others on recreation, some on agriculture, some on history, and others on safety. Needless to say, opinion regarding the Site's long-term care is diverse.

A team of professional consultants was given the charge to work with Benner Township, three project Committees and the public to develop the Site's Conservation Strategy (herein referred to as the Strategy). This strategy is borne from the intent statements outlined in the project's Request for Proposal:

> *"Nittany Valley today is at a point of decision analogous to that of a century ago in Boston. Our region is swiftly being transformed from the small towns of the post-war years, to the larger towns of today and beyond to tomorrow's information and service based metropolitan area. Spring Creek and its associate natural and cultural landscapes are a vital part of the quality of life in this region and special to this community and the Commonwealth of Pennsylvania." - Spring Creek Canyon Corridor Study presented by ClearWater Conservancy*

1. Provide a public process to determine the desired uses of the Spring Creek Canyon and buffer lands (Site) compatible with the goal of protecting the landscape's unique natural resources.

2. Provide a public process to determine opportunities for the public to access and enjoy the study area with a goal of protecting the landscape's natural resources.

3. Develop a clear understanding of how this unique regional resource will be managed - special effort will focus on building partnership opportunities and capacity building to ensure quality long term stewardship of the lands.

Consequently, the Strategy presents a recommended long-term planning concept and related implementation and management structure based on objective analyses. This Strategy does not identify recommendations related to future Site ownership. The Strategy presents an approach to balance the Site's ecological and cultural significance with its potential capacity for human interaction and, foremost, to balance these so that resources can be realistically managed in the future. This Strategy also acknowledges that the Spring Creek Site is a system of natural and cultural resources which are potentially impacted by activities well beyond the Site's boundary lines; that is, conservation and development patterns occurring within the greater region are equally influential to the Site's health and vitality.

Based upon these factors, the Site presents the opportunity to create an ecologically and culturally focused master plan and management plan. The concept seeks to achieve a symbiotic relationship between the desires and needs for:

- Ecological protection and restoration;
- Cultural preservation and celebration; and
- Public access, passive recreation and education.

Through the balance of these elements, the Spring Creek Canyon Site presents the opportunity to be a contemporary model for resource management. The actions outlined as part of this Strategy are structured to provide opportunity for other more specific actions in the future. Ultimately, the way in which the Site's resources are managed is tied to conservation easements and periodic performance monitoring of the Site's land and riparian resources.

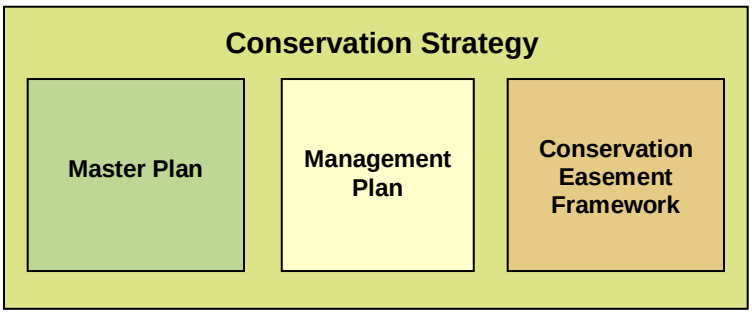
Part 1:
Introduction

There can be no greater issue than that of conservation in this country.

Theodore Roosevelt

Strategy Components

Benner Township, in cooperation with other local supporters, initiated this planning effort to define a comprehensive strategy for the 1,800-acre Spring Creek Canyon Site. The Spring Creek Canyon Conservation Strategy is comprised of three components: the Master Plan, the Management Plan and the Conservation Easement Framework.



- The *Master Plan* is a graphic representation and accompanying series of recommendations as related to the ways to balance Spring Creek Canyon future conservation and activities.
- The *Management Plan* identifies completed assessments and a recommended structure for implementing the Master Plan.
- The *Conservation Easement Framework* presents an outline of potential policy topics for PA DCNR's, ClearWater Conservancy's and property future owners' consideration as they prepare Conservation Easements for the Site.

With the project's site analyses beginning in late June 2008 and final publication of the Conservation Strategy summary report in April 2009, the 10-month process encapsulates the primary building blocks for promoting future restoration, education and site appreciation.

Planning Process Overview

The planning process for the Spring Creek Canyon Conservation Strategy seeks to develop a responsive, coordinated and multi-disciplinary action plan for the conservation of this Site. To achieve the above mentioned components, various work tasks were completed alongside an extensive series of public participation opportunities. Based upon the Scope of Work defined in the Township's Request for Proposal, the project's primary work tasks included:

- Developing a foundation of background information in the form of mapping and analyses based upon available site data
- Conceptualizing suitable activities associated with potential conservation, restoration, agriculture research/education for conservation as well as recreation/public access
- Preparing preliminary alternative concept plans for presentation and refining the concepts based upon Committee and Public comment into an integrated Master Plan
- Drafting a range of potential future const considerations
- Identifying potential phasing or horizons for implementation
- Creating a management plan based on partnership, stewardship, collaboration, and a mix of traditional and non-traditional approaches to the Site's future management
- Outlining potential components of the Site's Conservation Easement Framework. The Site's specific conservation easement(s) will be initiated and prepared by others in the future.

Public Participation Summary

In preparing the Spring Creek Canyon Conservation Strategy, an important aspect of the project was conducting a series of public participation opportunities. Throughout the process, there was on-going coordination between the Planning Team, the Project's Communication Liaison and the project's three Advisory Committees (a Steering Committee, a Technical Advisory Committee and a Public Advisory Committee).

The Steering Committee was comprised of a representative from Benner Township, Rockview State Correctional Institution (SCI), PA Fish and Boat Commission (FBC) and Pennsylvania State University. The Pennsylvania Department of Conservation and Natural Resources (DCNR) along with ClearWater Conservancy served as ex-officio members of the Steering Committee. The Steering Committee was charged with providing feedback on master planning and management planning concepts as well as overseeing the general planning process. The Technical Advisory Committee (TAC) served to provide input and feedback on the Site's ecological and other scientific/technical issues relevant to the Site's future management and protection; the TAC also reviewed planning recommendations and alternatives. The Public Advisory Committee (PAC) served as a liaison between the general public and the Planning Team to discuss planning progress as well as review master planning and management planning recommendations and alternatives. A summary of discussion topics that Committee members explored is found in Appendix A.

Dozens of Key Person Interviews were conducted as part of this planning process. Input received was evaluated and incorporated into the Conservation Strategy's various recommendations. A summary of topics which emerged from these Interviews is found in Appendix B.

Two (2) Public Meetings were hosted to review project analysis findings as well as to obtain feedback on draft master plan and management plan concepts and draft report documentation. A majority of verbal and written feedback received from the general public during the project timeframe focused on concerns about potential property ownership – a topic which the Scope of Work defined for this Master Planning and Management Planning project does not address. A summary of feedback/input received related to these public meetings is found in Appendix C.

Committee meetings that occurred as part of the Conservation Strategy process include the following. All Committee meetings were open to the general public.

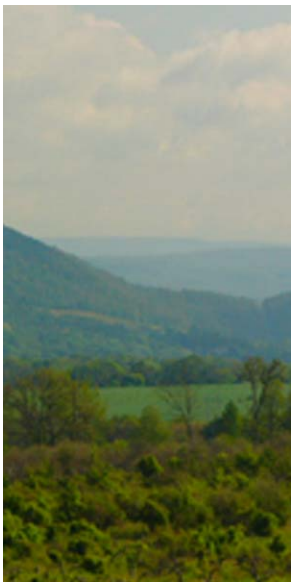
7/9/08	Steering Committee Kick-off Meeting	Benner Township Municipal Building
7/29/08	Technical Advisory Committee Meeting	Benner Township Municipal Building
7/29/08	Public Advisory Committee Meeting	Central Pennsylvania Institute of Science and Technology (CPI)
8/22/08	Technical Advisory Committee Meeting	Benner Township Municipal Building
8/27/08	Public Advisory Committee Meeting	Central Pennsylvania Institute of Science and Technology (CPI)
9/17/08	Steering Committee Meeting	Benner Township Municipal Building

9/26/08	Technical Advisory Committee Meeting	Benner Township Municipal Building
9/28/08	Spring Creek Days	Millbrook Marsh Nature Center
9/30/08	Public Advisory Committee Meeting	Central Pennsylvania Institute of Science and Technology (CPI)
11/13/08	Steering Committee Meeting	Benner Township Municipal Building
11/13/08	DCNR-TAC Coordination Meeting	Benner Township Municipal Building
11/13/08	Public Advisory Committee Meeting	Central Pennsylvania Institute of Science and Technology (CPI)
11/20/08	Technical Advisory Committee Meeting	Benner Township Municipal Building
11/20/08	Public Meeting #1	Christ Community Church
2/5/09	Steering Committee Meeting	Benner Township Municipal Building
2/10/09	Technical Advisory Committee Meeting	Benner Township Municipal Building
2/10/09	Public Advisory Committee Meeting	Central Pennsylvania Institute of Science and Technology (CPI)
3/20/09	Steering Committee Meeting	Benner Township Municipal Building
3/20/09	Technical Advisory Committee Meeting	Benner Township Municipal Building
3/20/09	Public Advisory Committee Meeting	Benner Township Municipal Building
3/31/09	Public Meeting #2	Central Pennsylvania Institute of Science and Technology (CPI)

Part 2:
Site Atlas

Science is knowledge arranged and classified according to truth, facts and the general laws of nature.

Luthar Burbank



Introduction

Part 2: Site Atlas presents an overview of existing resources and a series of general observations. As part of the project's Scope of Work, the Planning Team prepared Site mapping based upon readily available digital mapping sources, related report documentation produced by others (See Appendix D) and conducted brief site visits to gain additional understanding about the Site's general resource patterns. Based upon the project's Scope of Work, detailed environmental and/or cultural-related studies were not completed as part of this Conservation Strategy effort. (See Part 5 for an initial listing of recommended additional related studies for future completion).

This Site Atlas compiles information and analyses relevant to various resources: regional context, slope, landform, geology, general soil classifications, Class I and II soils, soil permeability, soil erodibility, run-off, woodlands, rock ledges/cliffs, natural communities, environmentally sensitive areas, invasive plant species, utilities as well as past and present landscape types (generalized patterns). An overview of known cultural resource information also follows the natural resource mapping analyses (See also Appendix E).

Map Data Collection & Methodology

Project base mapping information was compiled from many different known and previously documented sources, including previous site/regions planning initiatives, field reconnaissance, and TAC data and data available through Benner Township. Geographic Information System (GIS) base map information was also obtained from the Centre County GIS Office. Additional GIS information was gathered from the Pennsylvania Spatial Data Access (PASDA) GIS information website and the Western Pennsylvania Conservancy.

Base mapping information was supplemented with general observations gleaned from a 2-day Site Reconnaissance visit (June 2008) to obtain an overview of existing resources. General mapping analyses were conducted to further assess and highlight the relationship, sensitivity, opportunities and challenges of the Site's features. A key component of these general desktop analyses was determining characteristics of conditions suitable and/or unsuitable to support human use/interaction.

Summary of Site Reconnaissance Observations

The Site is comprised of two primary zones – commonly referred to as the Canyon and the Uplands. Since SCI has had ownership of the Site, these lands have remained largely inaccessible to the public; resource management has generally focused on the Uplands. The Uplands overlook the Canyon and generally include both existing and former agricultural lands as well as historical and cultural sites. The Canyon, generally defined by its surrounding limestone cliffs and steep forested hillsides, includes Spring Creek and its floodplain. Spring Creek itself is a quality stream (listed by PA DEP as a High Quality Cold Water Fishery) known for world class trout fishing. A significant amount of water is supplied from the large springhead named "Benner Springs" which provides a constant flow of mineral rich water, sustaining a variety of aquatic organisms within this stream system. An active forested floodplain of varying width and species composition was observed within the valley. A network of roads and trails from SCI's management activities has connected much of the Canyon's access. The roads and trails have allowed for various invasive species to encroach and out-compete native species found within the Canyon. Mature second growth forests are abundant, composed of eastern

hemlock, sugar maple, sycamore, etc. Sections of the forest have been severely damaged by the gypsy moth.

Each end of the Canyon hosts a PA Fish and Boat Commission fish hatchery (west end fully operational; east end seasonal use). Impacted by a chemical spill occurring in the region several decades ago, clean up efforts have occurred but here is still a "no take" rule of the Creek's fish. Large stumps and old logging roads were found throughout the Canyon. While the forest has largely regenerated, no old growth was found. Much of the Canyon's forests offer good habitat to forest interior species of flora and fauna. Old logging/access roads provide opportunity to reach various reclaimed access points and trails. Although a majority of the Site is "off-limits" to the general public, portions of the Creek-side trail appeared to be heavily used.

The land above the Canyon floor is a mix of mature fragmented and early successional forests with even-aged stands of trees. The early succession areas were heavily vegetated with invasive species, including Japanese honeysuckle, Chinese privet, multiflora rose, etc. Today, the majority of human visitors come largely from that of avid trout fisherman who are likely to traverse the Canyon via the old trails.

Above the Canyon's surrounding steep hillsides, agricultural fields and open meadows are more dominant. This transition between forest, fields and meadows provides "edge habitat" or ecotones. Many wildlife species benefit from edge habitat as it allows for diversity and varying habitats. Currently, old field, open meadows and an abandoned apple orchard provide habitat for a variety of wildlife species as well. A diversity of bird species which rely on early successional habitats was observed. Several man-made pine plantations were found in areas along the upland ridge. These pine plantations are not known for their diversity and basically provide a monoculture within a larger heterogeneous ecosystem. These plantations could be harvested and replanted with native tree species to establish new forested regions above the Canyon.

The Site offers an impressive variety of valuable forest cover types, topography, soil, vegetation and wildlife habitats which are exceptional within the county and state. The Site's mixture of habitats and topographic relief allows for a high diversity of species composition and ecosystems and provides recreation opportunities which have the ability to integrate enjoyable outdoor experiences with an appreciation of the Site's unique resources.

Site Inventory

Regional Context – Overall Spring Creek Watershed Map

The 1,800-acre Site is part of the larger Spring Creek watershed. A general illustration of how water from various creeks, streams and land flows into Spring Creek is depicted on the Overall Spring Creek Watershed map.

Slope

Slope analysis is important in identifying constraints and evaluating potential environmental impacts related to landform alteration. Major constraints can be tied to grades/inclinations that are either too steep or too gentle. Alterations on steep slopes can significantly alter the existing landscape, affects the existing ecosystem, requires additional construction measures, increases construction costs and ultimately

changes character of the area. Development within relatively flat areas creates additional challenges for stormwater management including surface drainage for collection and conveyance systems. Major impacts related to inclination include erosion/loss of soil/non-point source pollution and slope failure. Slope maps are excellent tools to look for potential erosion areas, drainage patterns, landform and soil patterns, land use suitability, etc. Slopes have been categorized into five gradients of steepness and are calculated based on a 10-foot contour interval. The project's slope characteristics have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website and the Western Pennsylvania Conservancy databases.

Table 1: Slopes

Percent Slope	Percentage (%)	Acres within Site
0-3%	24%	440
3-8%	41%	744
8-15%	22%	402
15-25%	11%	210
Greater than 25%	2%	40

Landform

Landform maps display the basic topographic form of the Spring Creek Canyon Site. Each color on the map represents a different elevation layer illustrating a hierarchy of elevations, at increments of 100 feet, from the lowest to the highest elevations on the site. Topographic contours based on a ten (10) foot interval are also depicted. The project's landform characteristics have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website and the Western Pennsylvania Conservancy databases.

Table 2: Landform

	Low Point (feet)	High Point (feet)
Site Elevations	<900	>1,200

Geology

Geology is the rock formations situated at and below the earth's surface. These formations are generally classified under three geologic origins: sedimentary, igneous and metamorphic rock, each of which occurs as a result of geologic processes often referred to as the rock cycle. Bedrock geology is important in identifying anticipated subsurface features including those that may pose constraints to development and present risk to natural resources if disturbed or altered directly or indirectly. Site constraints can be tied to poor rock quality, susceptibility to weathering, cut slope stability as well as the presence of karst conditions. Major impacts related to carbonate rock formations as a result of overlying land use and development activities include the direct and indirect impacts on

groundwater recharge, water quality and the sustainability of the groundwater including supplying stream base flows and public and private wells. The geology is identified by four (4) specific geologic formations that underlie the project area. The project's geological components have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website and the Western Pennsylvania Conservancy databases.

Table 3: Geology

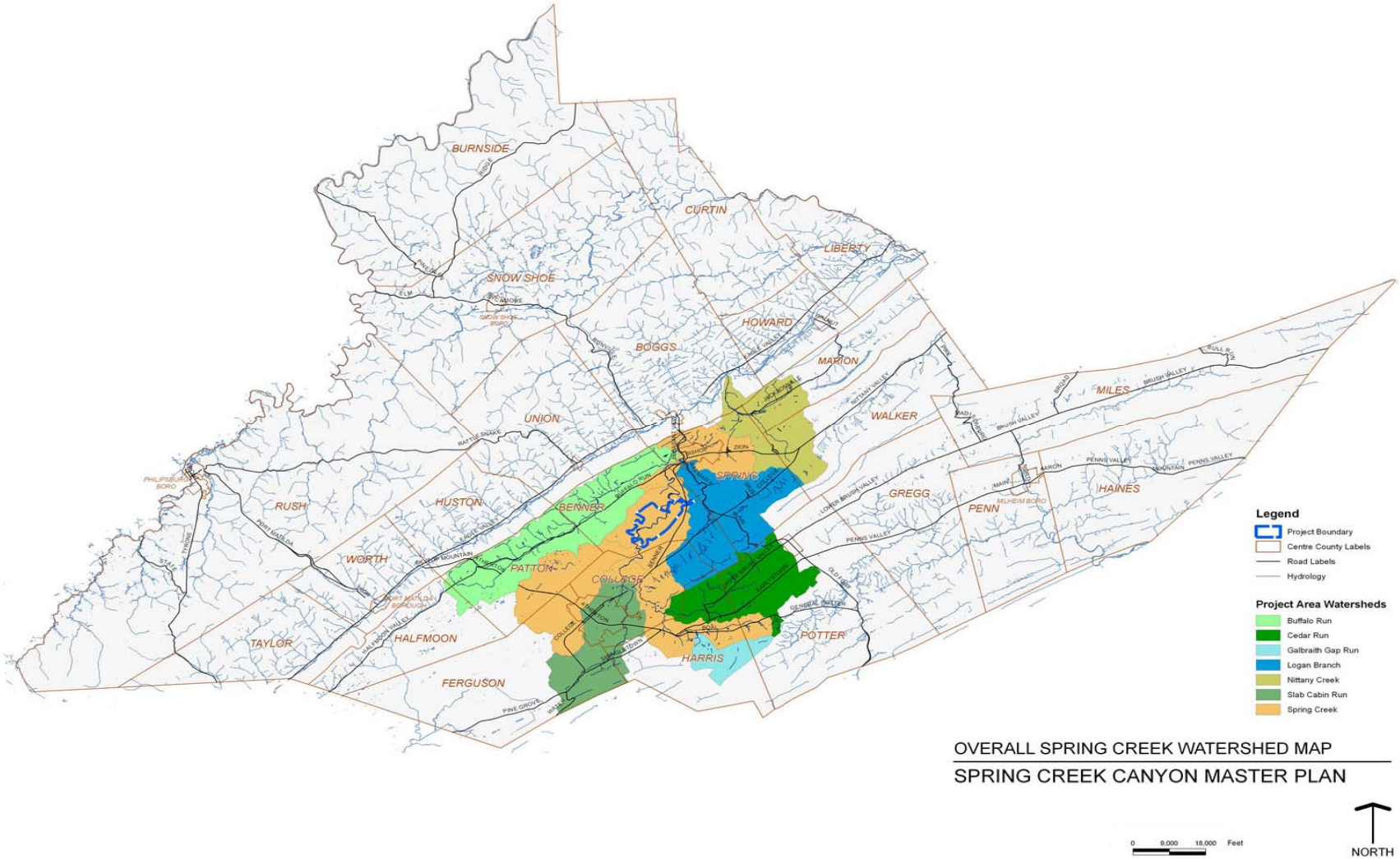
Geology	Percentage (%)	Acres within Site
Lower Member of Gatesburg Formation	39%	718
Mines Member of Gatesburg Formation	24%	433
Nittany Formation	7%	139
Stonehenge Formation and Larke Formation (Undivided)	30%	546

Rock Ledges/Cliffs

Rock Ledges/Cliffs maps display areas that have vertical or near vertical rock exposure. Rock Ledges/Cliffs are landforms formed by the process of erosion and weathering. The rock that is exposed by the weathering process is often more resistant to erosion than the layers which have weathered away. Rock Ledges/Cliffs are often found along coasts, mountains, escarpments and along rivers and streams. Approximately 0.01% of the total project area is composed of Rock Ledges/Cliffs. This is a small, but significant portion of the Site because the Rock Ledges/Cliffs are considered environmentally sensitive areas within the region providing habitat for several rare and threatened plant and animal species. The project's Rock Ledges/Cliffs characteristics have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website and the Western Pennsylvania Conservancy databases.

Table 4: Rock Ledges/Cliffs

	Percentage (%)	Acres within Site
Rock Ledges/Cliffs	<<1%	1.8 acres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Slab Cabin Run
Spring Creek
OVERALL SPRING CREEK WATERSHED MAP
SPRING CREEK CANYON MASTER PLAN
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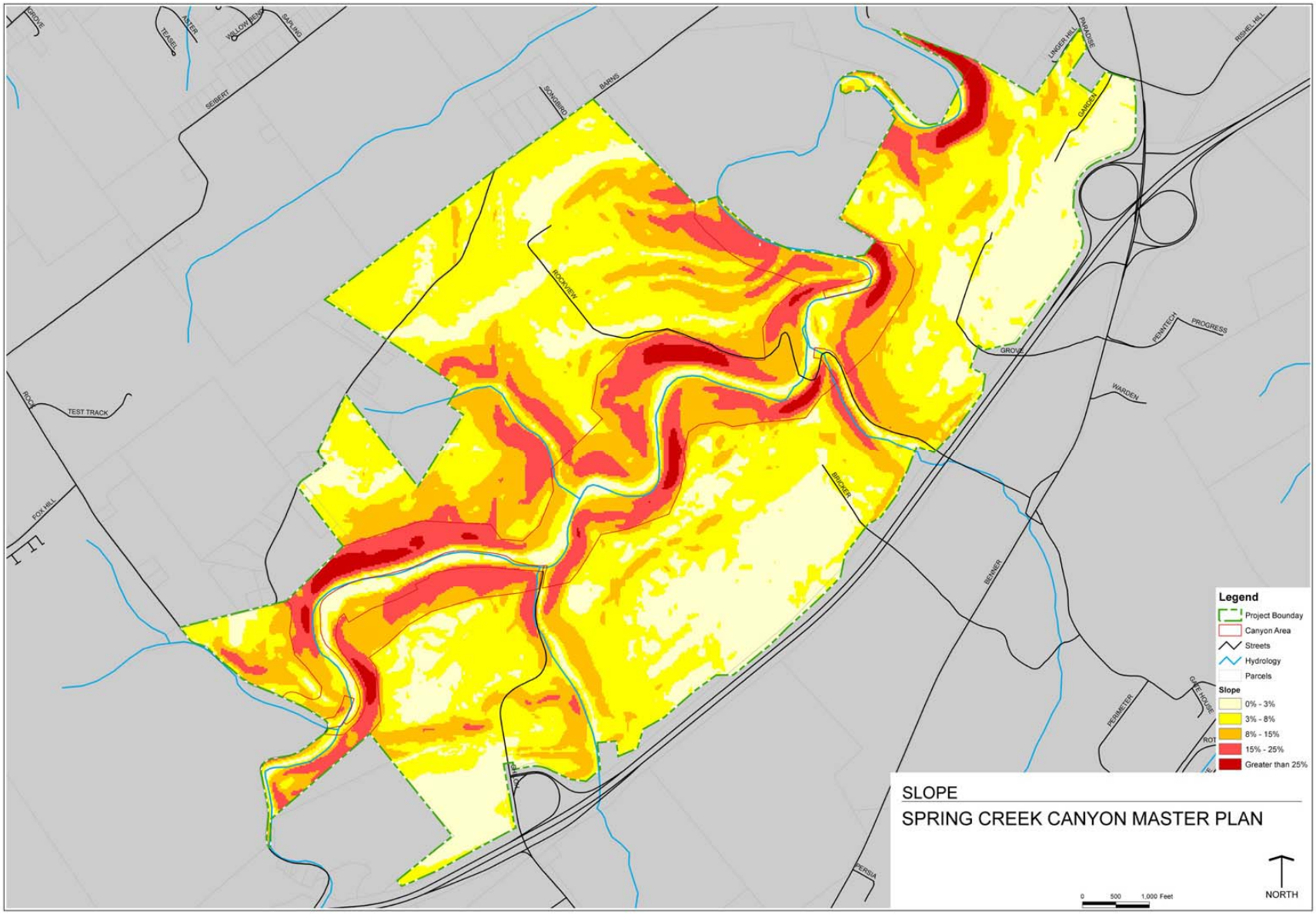
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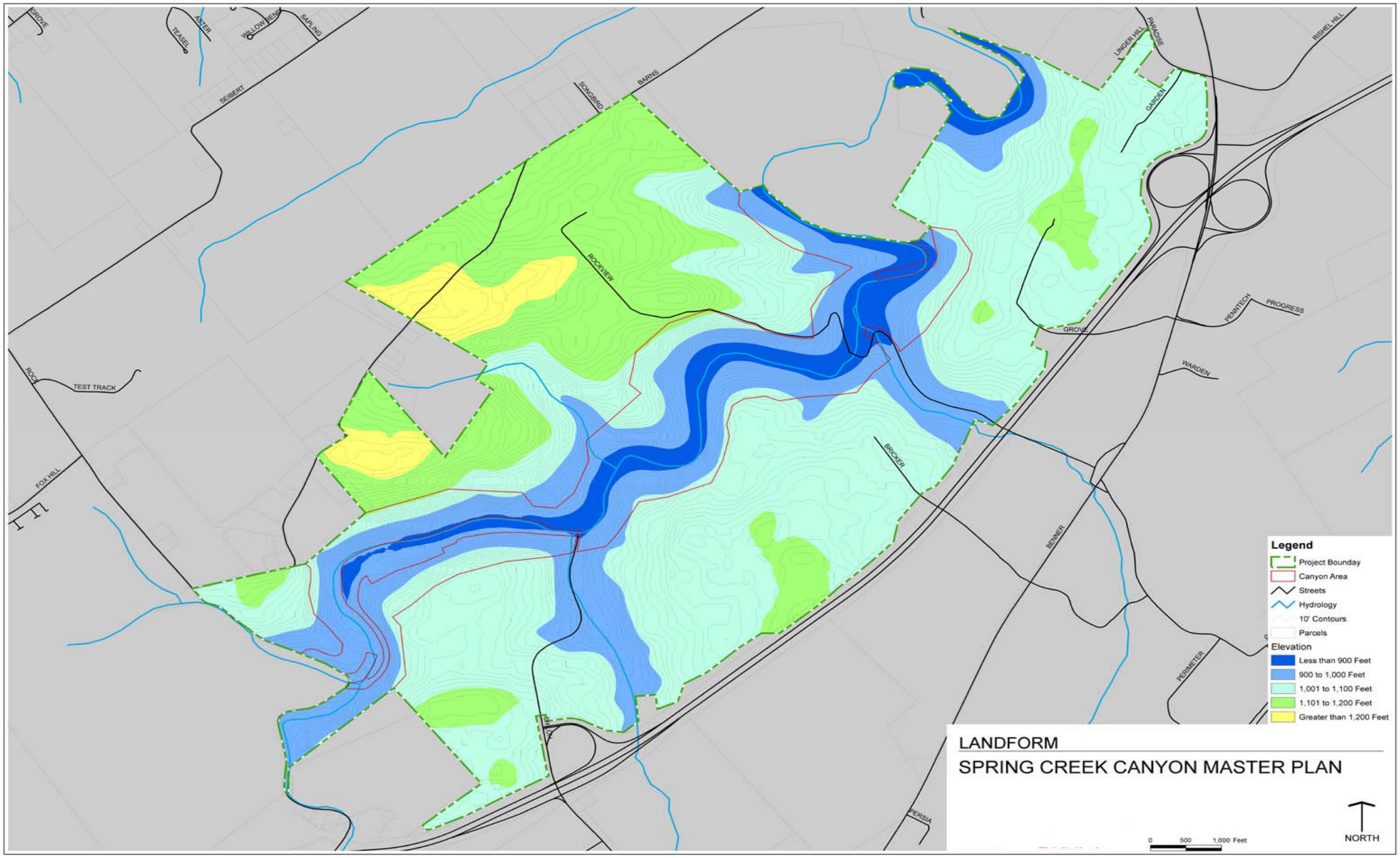
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Parcels
Elevation
Less than 900 Feet
900 to 1,000 Feet
1,001 to 1,100 Feet
1,101 to 1,200 Feet
Greater than 1,200 Feet
0 500 1,000 Feet
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BENNER
GROVE
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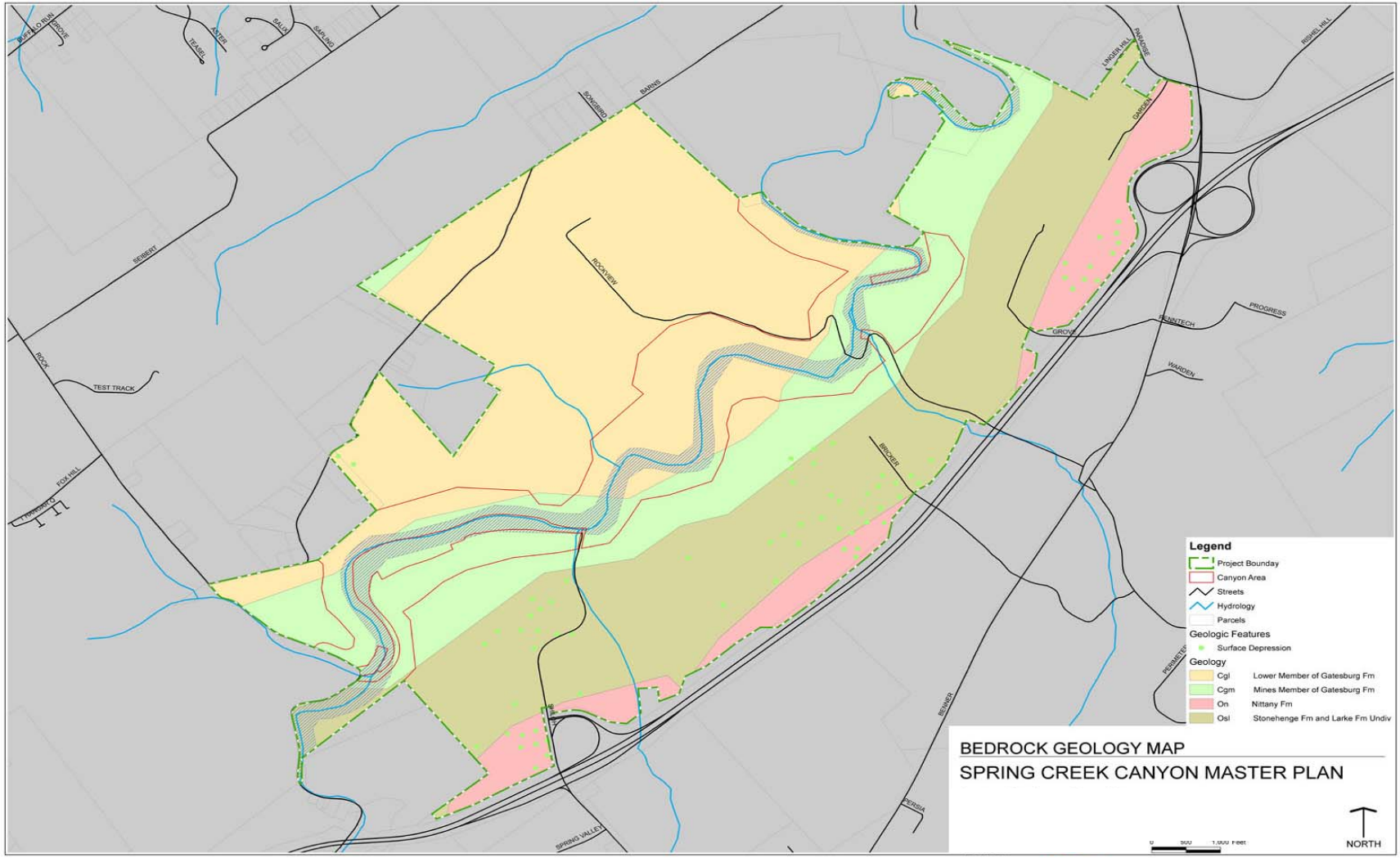
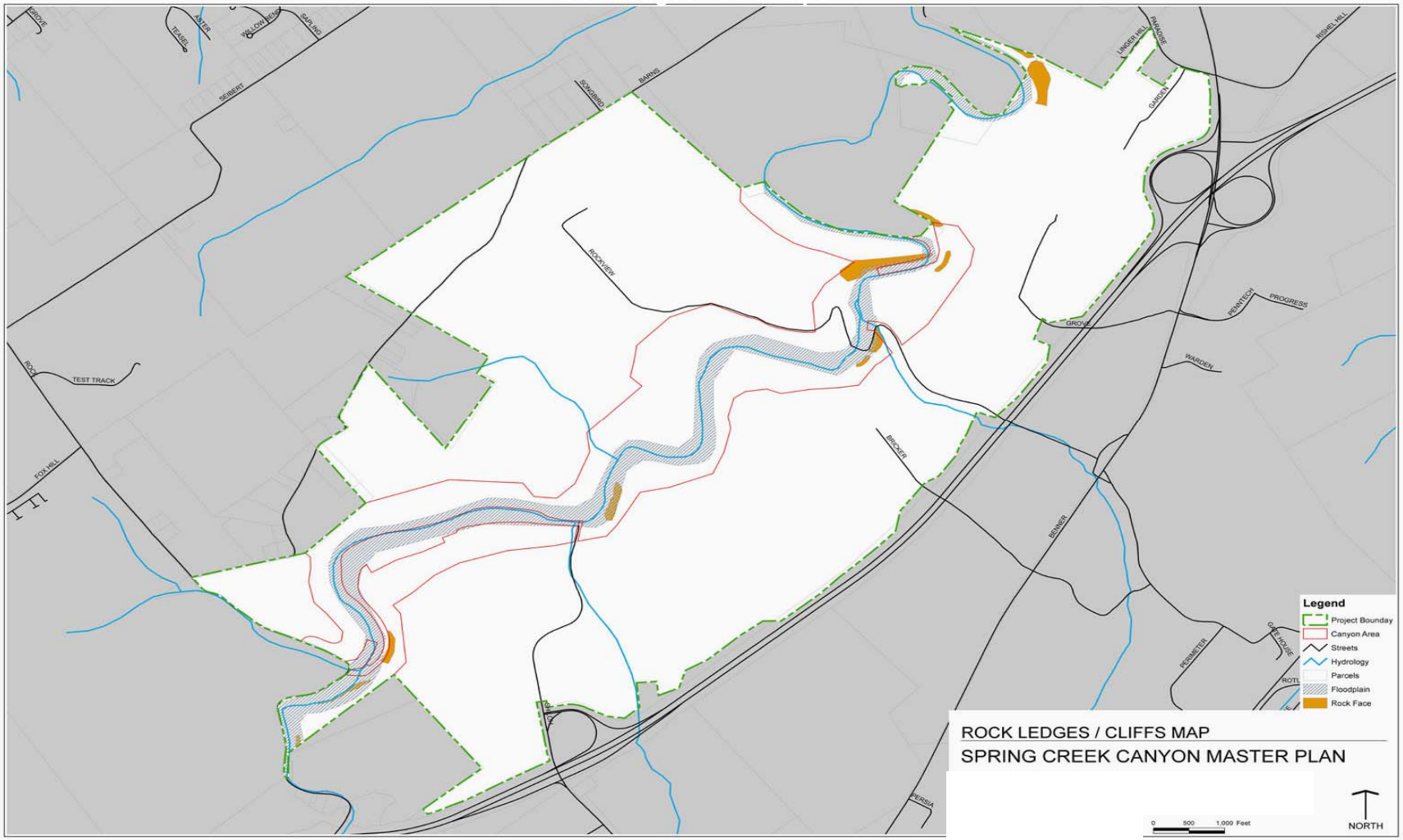


Bedrock Geology Map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ROCKVIEW
BARNES
SIEBERT
GROVE
WARDEN
PROGRESS
PERIMETER
BENNER
BROOKER

General Soil Classifications (Soil)
Soil is the naturally occurring, unconsolidated or loose covering on the Earth's surface. Soil is composed of particles of broken rock that have been altered by chemical and environmental processes including weathering and erosion. Soil series are a group of soils that developed from a common type of parent material and share similar engineering, chemical, and fertility characteristics. Identifying and mapping soil types helps strengthen soil interpretation and the associated interpretations involving hydrology and landscapes. The soils are identified by their soil series that compose the land within the study area. The project's soil information has been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

Table 5: Soils

Soils	Percentage (%)	Acres of Site
Brinkerton Series	<1%	3
Chagrin Series	2%	39
Dunning Series	<1%	6
Hagerstown Series	28%	514
Hublersburg Series	2%	40
Lindside Series	1%	20
Melvin Series	<1%	2
Morrison Series	38%	688
Nolin Series	1%	24
Opequon Series	6%	100
Opequon-Hagerstown Series	20%	361
Urban Land Series	2%	39

Class I and II Soils
Class I and II Soils are classifications of soil types that have few to moderate limitations that restrict their use for most kinds of field crops. Capability classes, in general, are designated by Roman numerals I through VIII. The larger the numeral indicates progressively greater limitations and narrower choices for practical use. The corresponding map illustrates the Class I and II Soils locations throughout the project study area. The project's Class I and II soil information has been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

Table 6: Class I and II Soils

Class I and II Soils	Percentage (%)	Acres within Site
Class I	15%	265
Class II	23%	418

Soil Permeability

Soil Permeability is defined as the rate at which water is able to flow through the soil. Permeability is often expressed as a rate that is expressed as the amount of water that flows through the soil in a given period of time (e.g. centimeters/hour, millimeters/hour, etc.). Soil permeability is important in determining placement of agriculture activities, building and structures, placement of pumping wells, etc. On the adjacent map, soil permeability has been categorized into 5 classifications that range from very poorly drained to well drained types. The project's soil permeability characteristics have been approximated using the State Survey Geographic (SSURGO) Datasets for Pennsylvania.

Table 7: Soil Permeability

Soil Permeability Classification	Percentage (%)	Acres within Site
Very Poorly Drained	<1%	6
Poorly Drained	<1%	6
Moderately Well Drained	1%	21
Well Drained	96%	1765
Not Classified	2 %	38

Soil Erodibility

Erosion is the wearing away of the land surface by means of running water, waves, moving ice, and wind. Soil erodibility is measured by the soil's K factor, which indicates the susceptibility of the soil to sheet and rill erosion by water. Values of K range from 0.02 to 0.69 and the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Soil erodibility analysis is important for identifying areas with high erosive properties and helps assist in planning potential land uses. Soil erodibility has been categorized into 4 classifications that range from slight to severe erodibility. The project's soil erodibility characteristics have been approximated using the State Survey Geographic (SSURGO) Datasets for Pennsylvania.

Table 8: Soil Erodibility

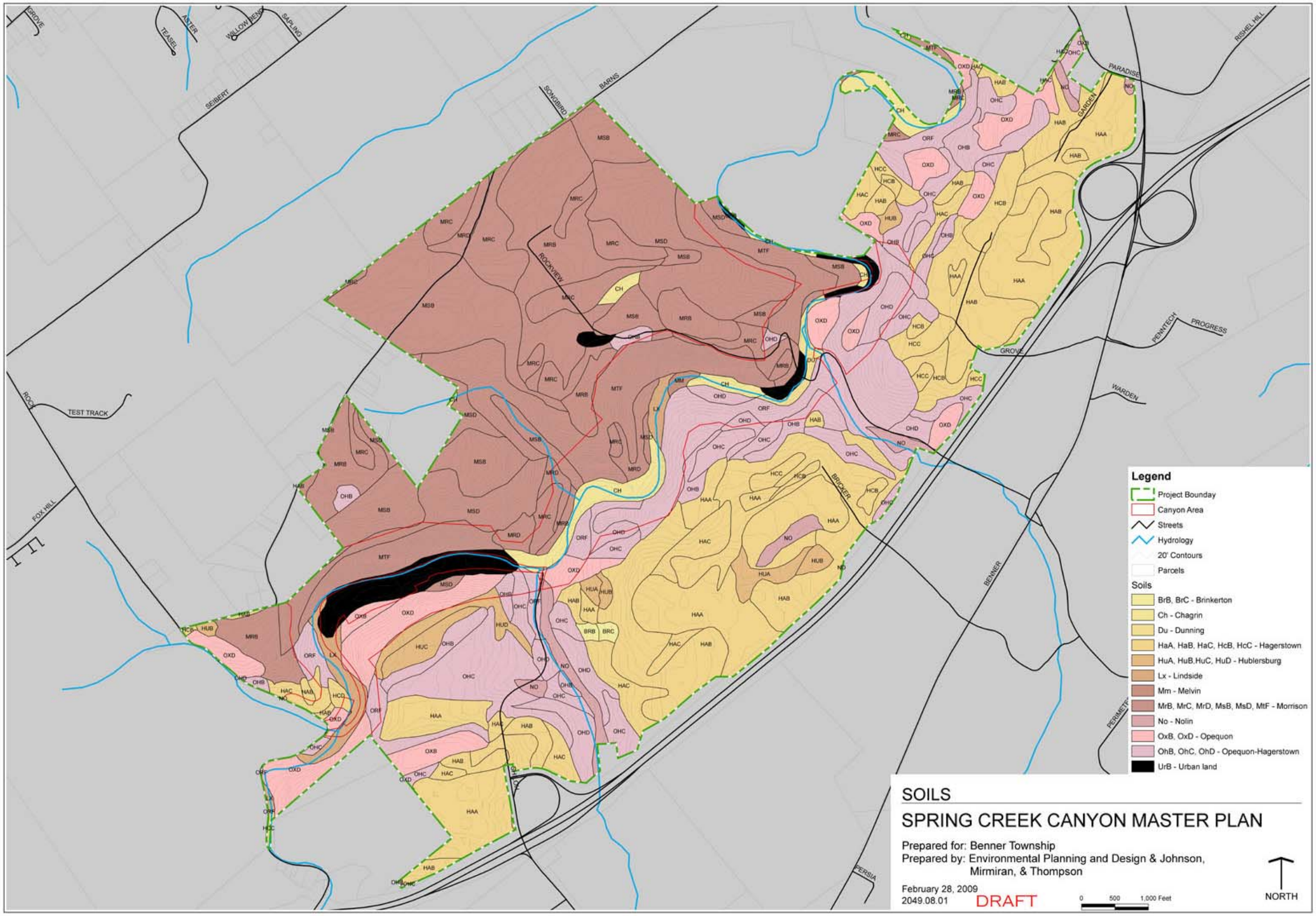
Soil Erodibility Classification	Percentage (%)	Acres within SIte
Slight	25%	457
Moderate	30%	552
Severe	43%	790
Not Classified	2%	37

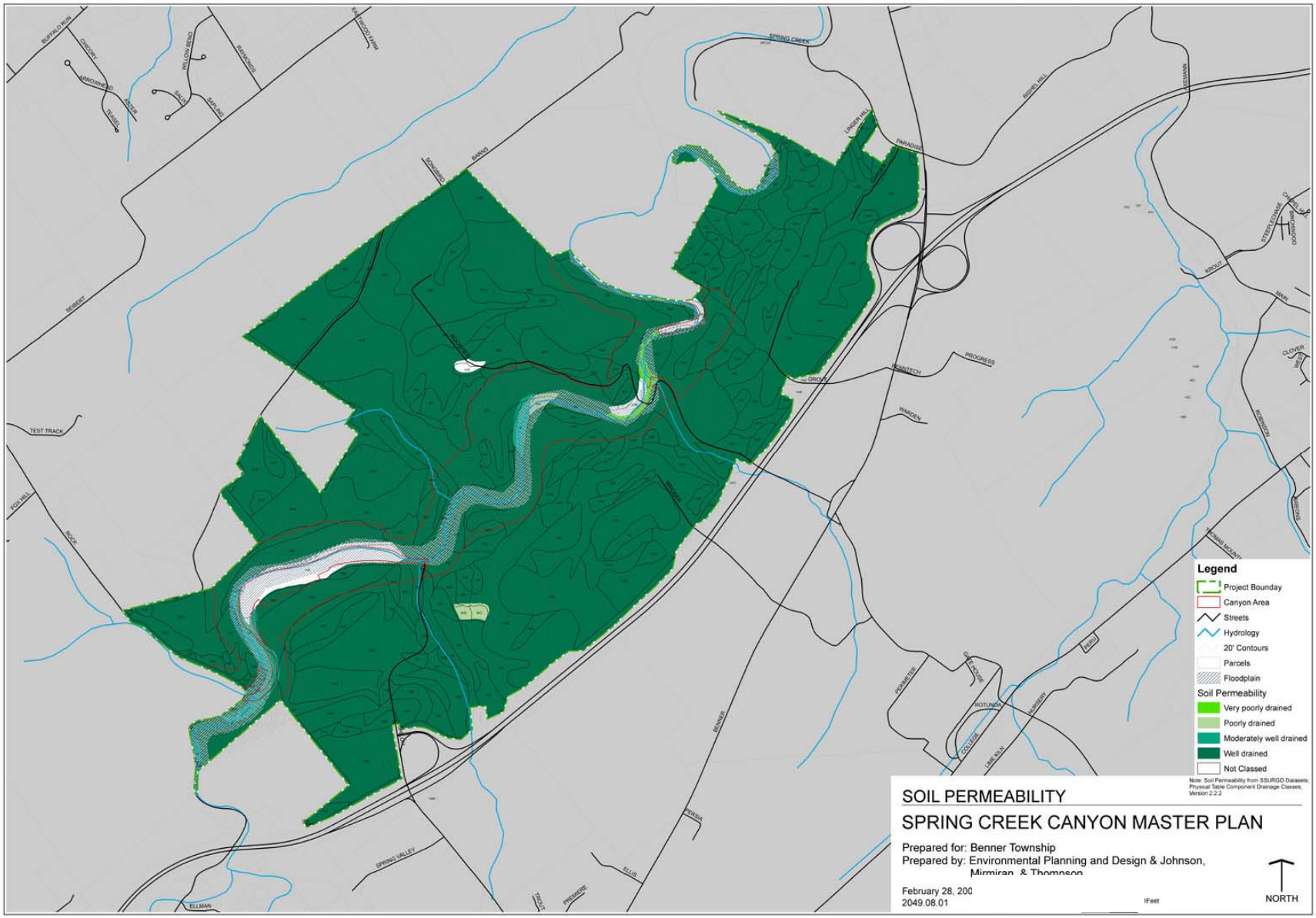
Runoff

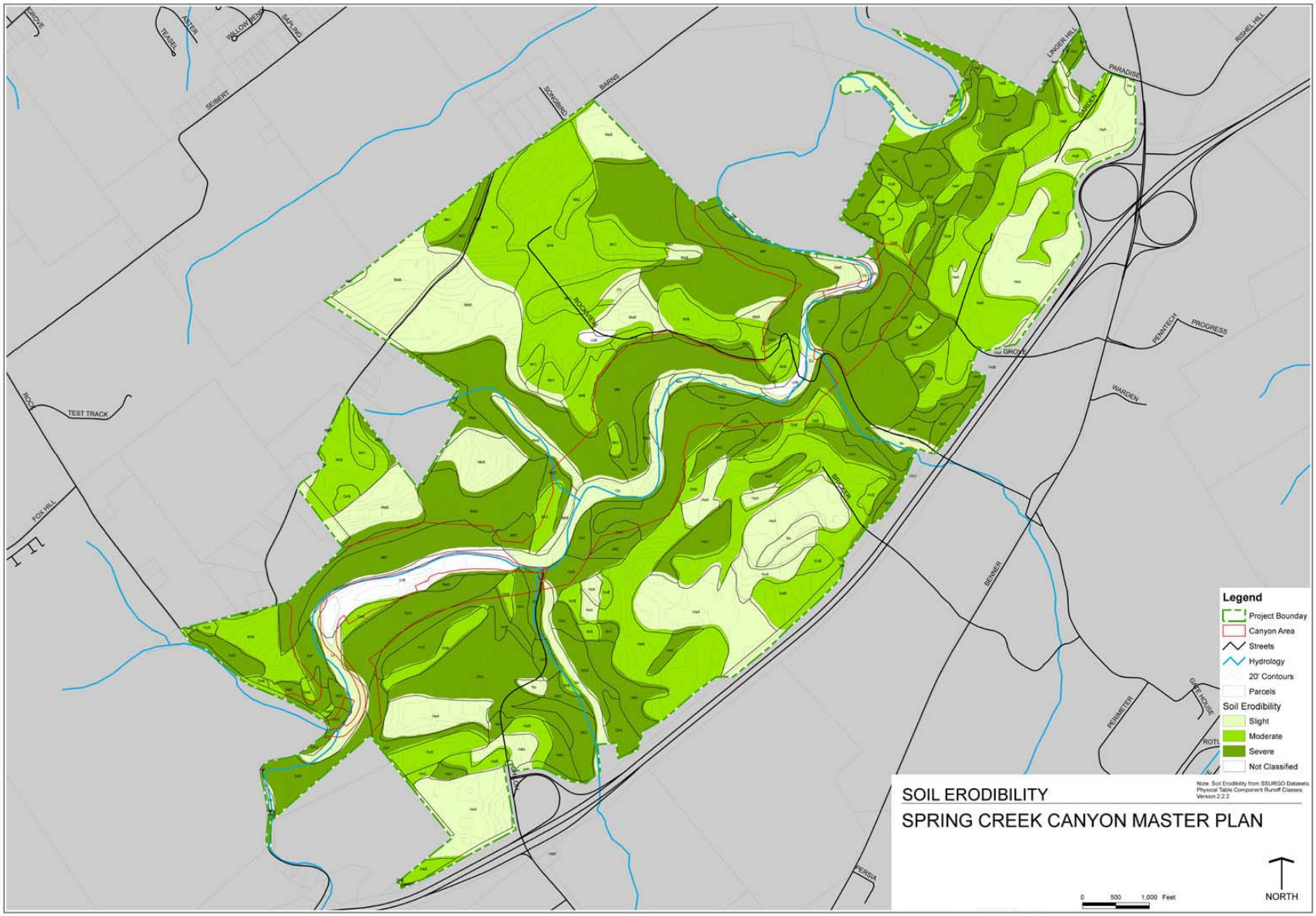
Surface runoff is the flow of water which occurs when the soil is saturated and excess water from rain, snow melt, or other sources flows across the land. Surface runoff eventually flows toward creeks and streams, entering these systems as nonpoint source discharges. Runoff potential has been categorized into 6 classifications that range from very high to negligible potential. The project's runoff characteristics have been approximated using the State Survey Geographic (SSURGO) Datasets for Pennsylvania.

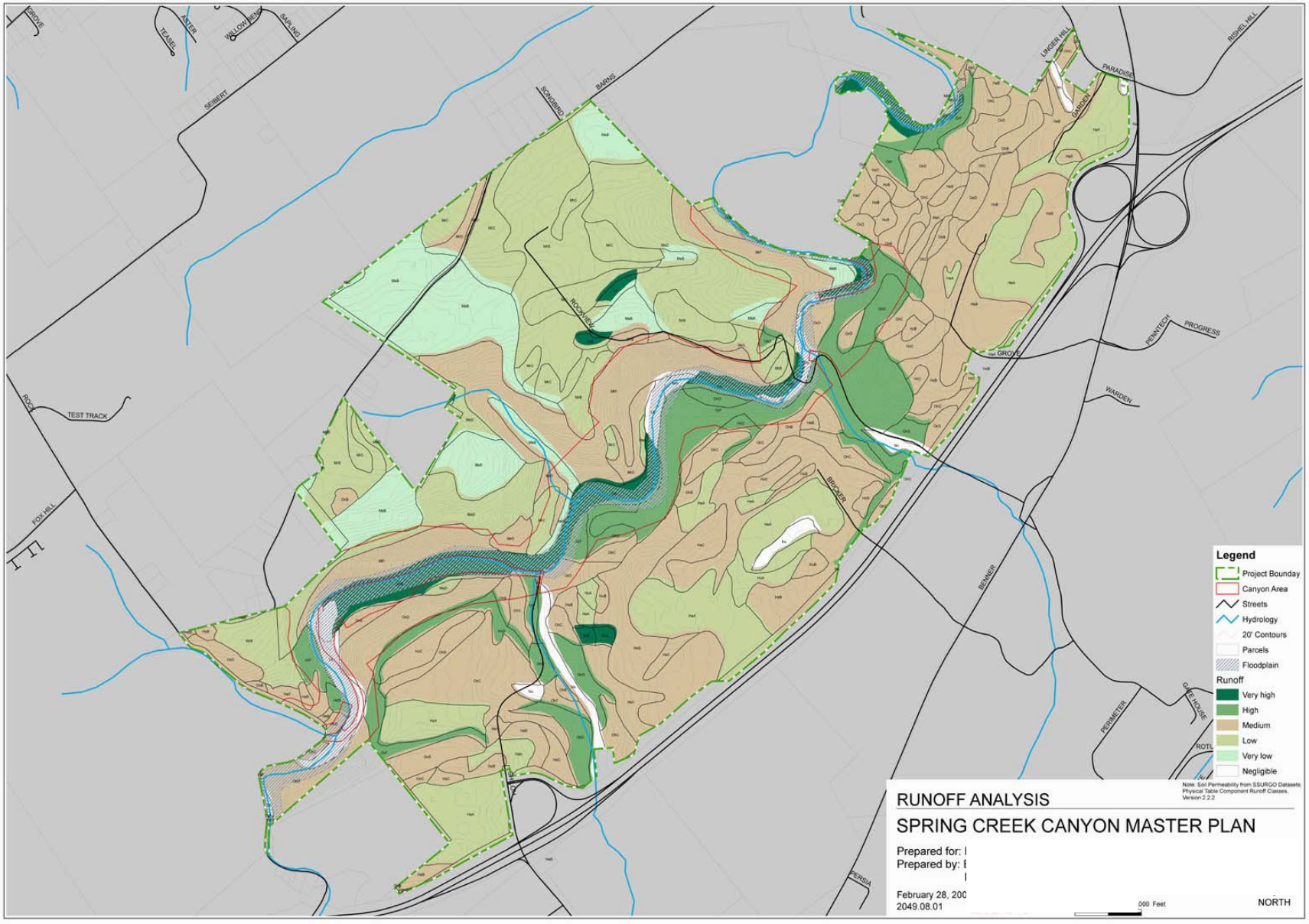
Table 9: Runoff

Potential Runoff Classifications	Percentage (%)	Acres within Site
Very High	4%	76
High	11%	200
Medium	43%	781
Low	30%	555
Very Low	9%	168
Negligible	3%	56


Legend
Project Bounday
Canyon Area
Streets
Hydrology
20' Contours
Parcels
Soils
BrB, BrC - Brinkerton
Ch - Chagrin
Du - Dunning
HaA, HaB, HaC, HcB, HcC - Hagerstown
HuA, HuB,HuC, HuD - Hublersburg
Lx - Lindside
Mm - Melvin
MrB, MrC, MrD, MsB, MsD, MtF - Morrison
No - Nolin
OxB, OxD - Opequon
OhB, OhC, OhD - Opequon-Hagerstown
UrB - Urban land
SOILS
SPRING CREEK CANYON MASTER PLAN
Prepared for: Benner Township
Prepared by: Environmental Planning and Design & Johnson,
Mirmiran, & Thompson
February 28, 2009
2049.08.01
DRAFT
0 500 1,000 Feet
NORTH


Legend
Project Bounday
Canyon Area
Streets
Hydrology
20' Contours
Parcels
Floodplain
Soil Permeability
Very poorly drained
Poorly drained
Moderately well drained
Well drained
Not Classed
SOIL PERMEABILITY
SPRING CREEK CANYON MASTER PLAN
Prepared for: Benner Township
Prepared by: Environmental Planning and Design & Johnson,
February 28, 200
2049.08.01
NORTH


SEIBERT
BARNS
ROCKVIEW
TEST TRACK
FOX HILL
BENNER
PERSIA
PARADISE
PENNTECH
PROGRESS
WARDEN
PERIMETER
Legend
Project Boundary
Canyon Area
Streets
Hydrology
20' Contours
Parcels
Soil Erodibility
Slight
Moderate
Severe
Not Classified
SOIL ERODIBILITY
SPRING CREEK CANYON MASTER PLAN
NORTH
0 500 1,000 Feet



Runoff Analysis

Woodlands

Woodlands are areas covered in a lower density of trees that allows sunlight to penetrate between the trees, limiting shade and allowing growth of an herbaceous understory. The Woodlands map depicts the extent and distribution of three general categories of woodlands: Historic Woodlands, Successional Woodlands, and Other Woodlands. Historic Woodlands are those composed of mature trees and exhibit old growth characteristics (e.g. snags, coarse woody debris, species diversity, etc.) and that have had little human disturbance in the past. Successional Woodlands are those composed of young and mature trees that have regenerated after past human disturbance (e.g. logging, farming, etc.). Other Woodlands are composed of monoculture plots of coniferous trees for harvesting along with other second growth woodland plots that fall between Successional and Historic Woodlands in terms of age. The project's woodland characteristics have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

Table 10: Woodlands

Woodland Type	Percentage (%)	Acres within Site
Other Woodlands	22%	400
Successional Woodlands	34%	624
Historic Woodlands	15%	275

Natural Communities

Natural communities are described by the assemblage of plant populations that share a common environment and interact with each other, with animal populations, and with the physical environment. No two natural communities are exactly the same in terms of their species composition or their physical environment. The natural communities within the study area are composed of agricultural land, cleared land with pioneer species, developed land, forest (both disturbed and more pristine), plantations, rock ledges, and vegetated floodplains. The project's natural community characteristics have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

Table 11: Natural Communities

Natural Communities	Percentage (%)	Acres within Site
Agricultural	28%	510
Cleared Land w/ Pioneer Species	5%	96
Forest	27%	488
Disturbed Forest	5%	89
Plantation (Disturbed)	4%	76
Rock Ledge	1%	15
Vegetated Flood Plain	1%	22
Developed	1%	1

Environmentally Sensitive Areas

Environmentally sensitive areas include sites that are known to support populations of sensitive species and natural communities, high quality examples of particular ecosystems, and areas of high native diversity. These areas also include sensitive landforms, such as steep slopes and cliffs, which are subject to degradation due to natural and man-made disturbances. The environmentally sensitive areas within the study area are composed of lands containing wetlands, floodplains, riparian buffer systems, and areas that harbor habitats high in biological diversity. Also included in these areas are locations that have severe (15 to 24%) and hazardous (25% and greater) slopes. The project's environmentally sensitive area characteristics have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

Table 12: Environmentally Sensitive Areas

Environmentally Sensitive Areas	Percentage (%)	Acres within Site
Wetland	2%	38
Floodplain	7%	132
Riparian Buffer	4%	81
Biological Diversity Habitat	68%	1245
Severe Slopes (15 to 24%)	15%	271
Hazardous Slopes (25% or greater)	10%	188

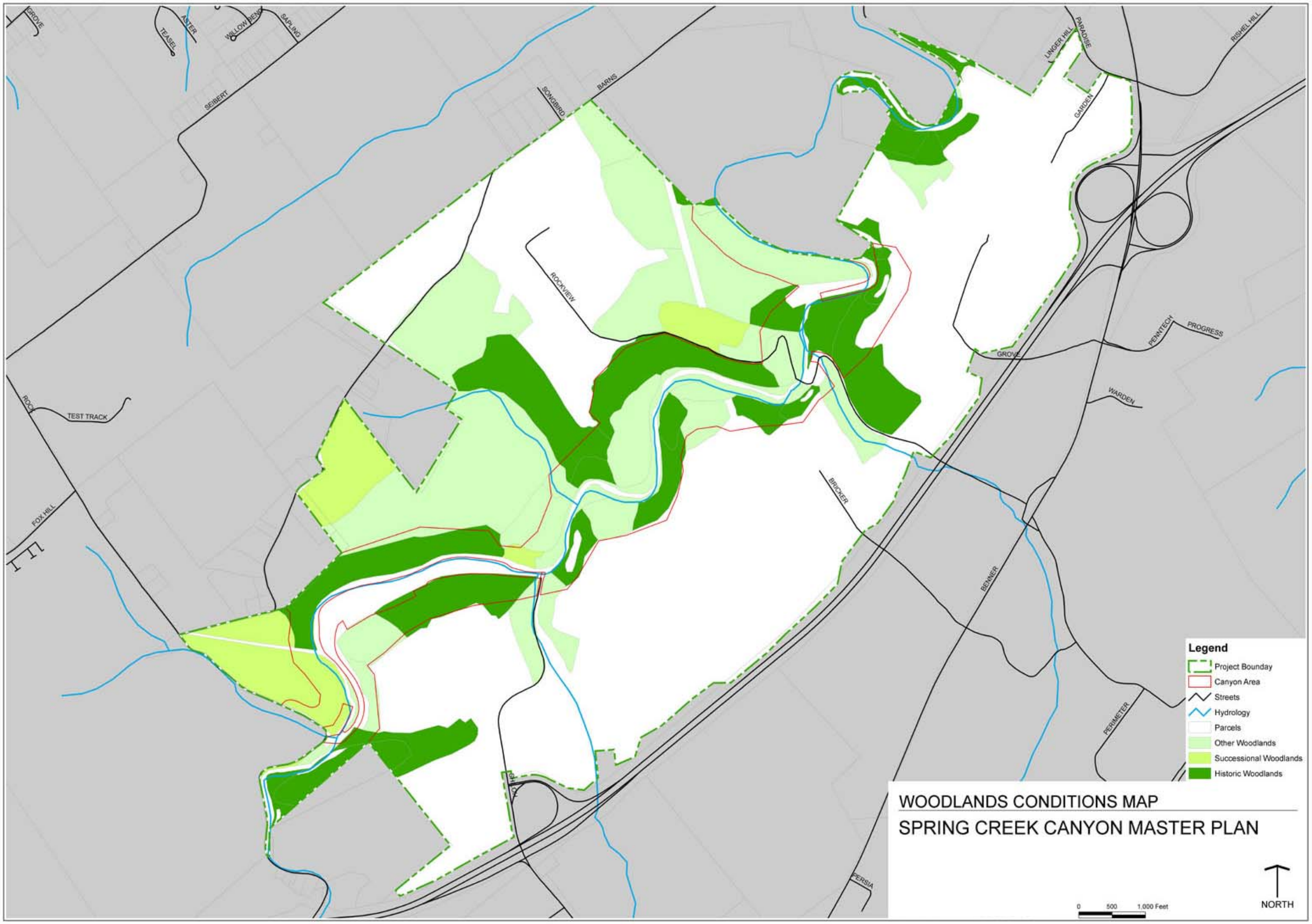
Invasive Plant Species Analysis

An Invasive Plant Species is a non-native plant species whose introduction does or is likely to cause economic or environmental harm or harm to human, animal, or plant health. The invasive plant species layer is mapped based on density of all invasive plant species recorded within the project study area. The project's invasive plant species information have been approximated using Geographic Information System (GIS)

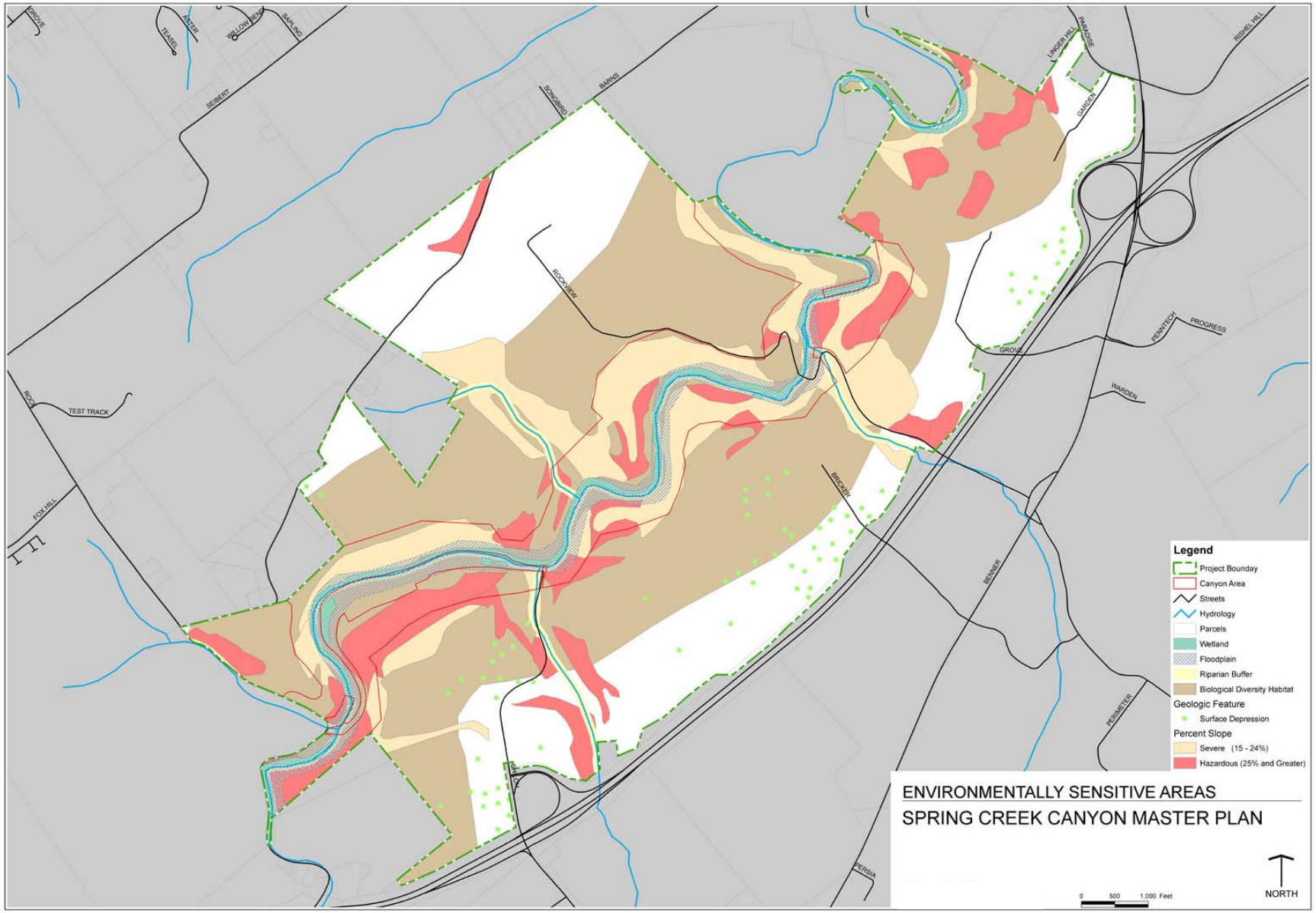
base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

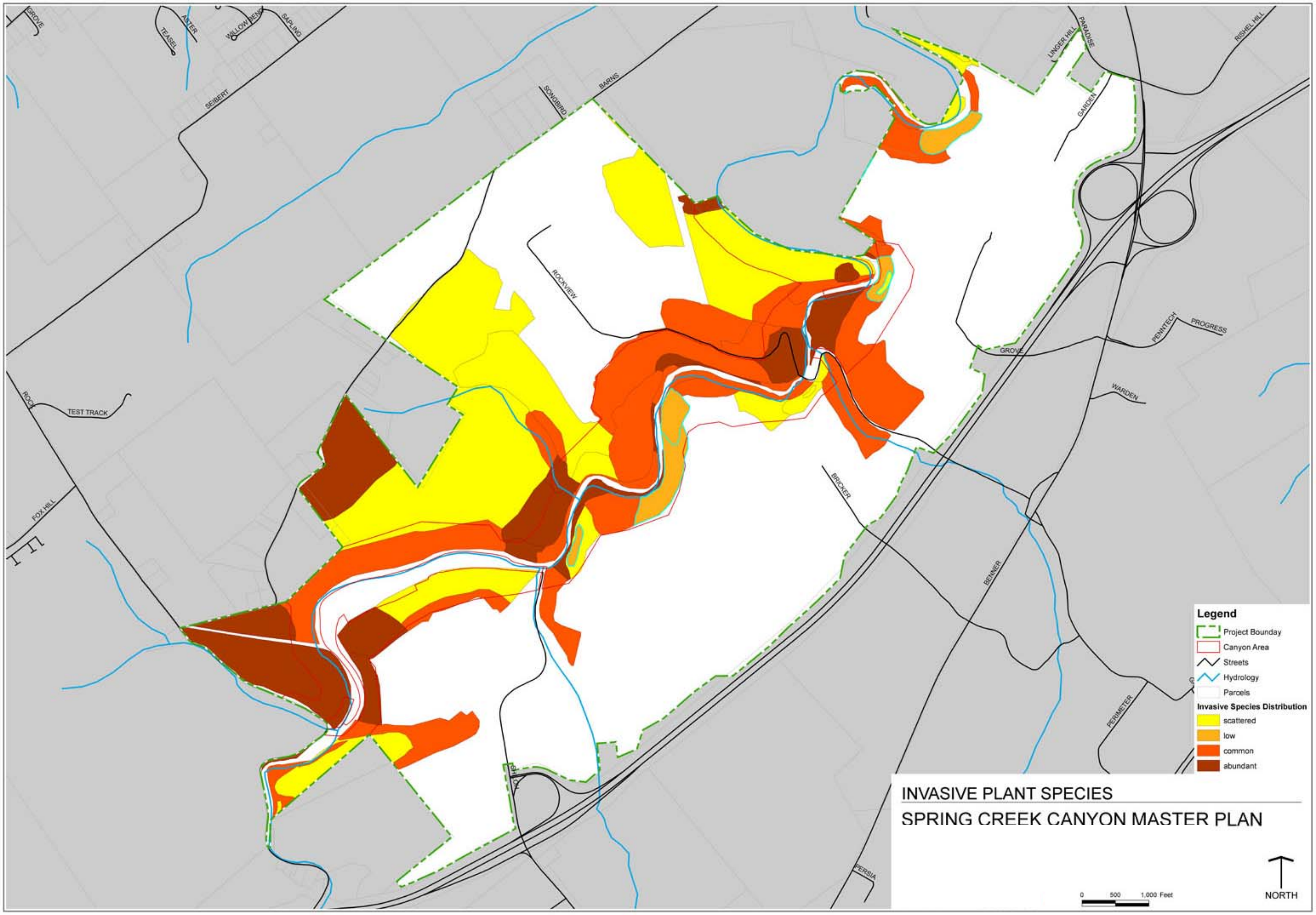
Table 13: Invasive Plant Species

Invasive Plant Species	Percentage (%)	Acres within Site
Scattered	16%	301
Low	2%	26
Common	13%	244
Abundant	8%	152


Legend
Project Bounday
Canyon Area
Streets
Hydrology
Parcels
Other Woodlands
Successional Woodlands
Historic Woodlands
WOODLANDS CONDITIONS MAP
SPRING CREEK CANYON MASTER PLAN
0
500
1,000 Feet
NORTH
GROVE
TEASEL
ASTER
WILLOW
SAPLING
SEIBERT
SONGBIRD
BARNS
LINGER HILL
PARADISE
BISHEL HILL
GARDEN
ROCKVIEW
PENNTECH
PROGRESS
WARDEN
TEST TRACK
FOX HILL
BRICKER
BENNER
PERIMETER
PERSIA


GROVE
TEASEL
ASTER
WILLOW BEND
SAPLING
SEIBERT
SONGBIRD
BARNS
ROCKVIEW
LINGER HILL
PARADISE
RISHEL HILL
GARDEN
PENNTECH
PROGRESS
GROVE
WARDEN
TEST TRACK
FOX HILL
BRICKER
BENNER
PERIMETER
PERSIA
Legend
Project Bounday
Canyon Area
Streets
Hydrology
Parcels
Natural Communities
Agricultural
Cleared Land with Pioneer Species
Forest
Disturbed Forest
Plantation (disturbed)
Rock Ledge
Vegetated Flood Plain
Developed
NATURAL COMMUNITIES
SPRING CREEK CANYON MASTER PLAN
0 500 1,000 Feet
NORTH


GROVE
ASTER
TEASEL
YELLOW BIRCH
SAPLING
SEIBERT
SONGBIRD
BARNS
ROCKVIEW
LINGER HILL
PARADISE
RISHEL HILL
CARSON
PENNTECH
PROGRESS
GRONE
WARDEN
TEST TRACK
FOX HILL
BROVER
BENNER
PERIMETER
PERSIA
Legend
Project Boundary
Canyon Area
Streets
Hydrology
Parcels
Wetland
Floodplain
Riparian Buffer
Biological Diversity Habitat
Geologic Feature
Surface Depression
Percent Slope
Severe (15 - 24%)
Hazardous (25% and Greater)
ENVIRONMENTALLY SENSITIVE AREAS
SPRING CREEK CANYON MASTER PLAN
0 500 1,000 Feet
NORTH


SEIBERT
BARNS
SONGBIRD
ROCKVIEW
BRICKER
BENNER
GROVE
GARDEN
WARDEN
PROGRESS
PERIMETER
PERSIA
TEST TRACK
FOX HILL
RISHEL HILL
PARADISE
SAPLING
TEASEL
Legend
Project Bounday
Canyon Area
Streets
Hydrology
Parcels
Invasive Species Distribution
scattered
low
common
abundant
INVASIVE PLANT SPECIES
SPRING CREEK CANYON MASTER PLAN
0 500 1,000 Feet
NORTH

Utilities

Utility analysis is important in identifying the potential for placement of structures and areas of active recreation related to the current utility locations within the proposed project area. Utility maps are excellent identifiers of the possibilities and constraints for providing the key utilities (i.e. water, sewer, electric, etc.) for the site to allow areas that can provide modern facilities required by various activity uses. On the adjacent map, utilities have been divided into their individual company and the amount of linear feet, in miles, they occupy within the project area. The project's utility companies and locations have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and information gathered from the PA One Call system.

Table 14: Utilities

Utility	Length within Site (miles)
Powerline	1
Utility Line	10
Public Water Line	2

Past Landscape Types Analysis

Landscapes are spatially heterogeneous geographic areas characterized by diverse interacting patches or ecosystems, ranging from relatively natural terrestrial and aquatic systems such as forests, floodplains, and grasslands to human-dominated environments including agricultural and urban settings. The corresponding map illustrates the extent and distribution of the various landscape types that previously occurred within the project study area. The project's past landscape types have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

Table 15: Past Landscape Types

Past Landscape Types	Percentage (%)	Acres within Site
Forest and Low Density Development	1%	1
Parking Lot	1%	1
Rock Ledge	1%	10
Floodplain	1%	6
Pasture/Row Crops	20%	361
Cleared	16%	294
Cleared and Graded	4%	76
Cleared and Forest	2%	36
Forest	27%	512

Present Landscape Types Analysis

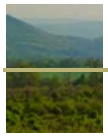
Landscapes are spatially heterogeneous geographic areas characterized by diverse interacting patches or ecosystems, ranging from relatively natural terrestrial and aquatic systems such as forests, floodplains, and grasslands to human-dominated environments including agricultural and urban settings. The corresponding map illustrates the extent and distribution of the various landscape types presently found within the project study area. The project's present landscape types have been approximated using Geographic Information System (GIS) base map information provided by Centre County, PASDA GIS website, and the Western Pennsylvania Conservancy databases.

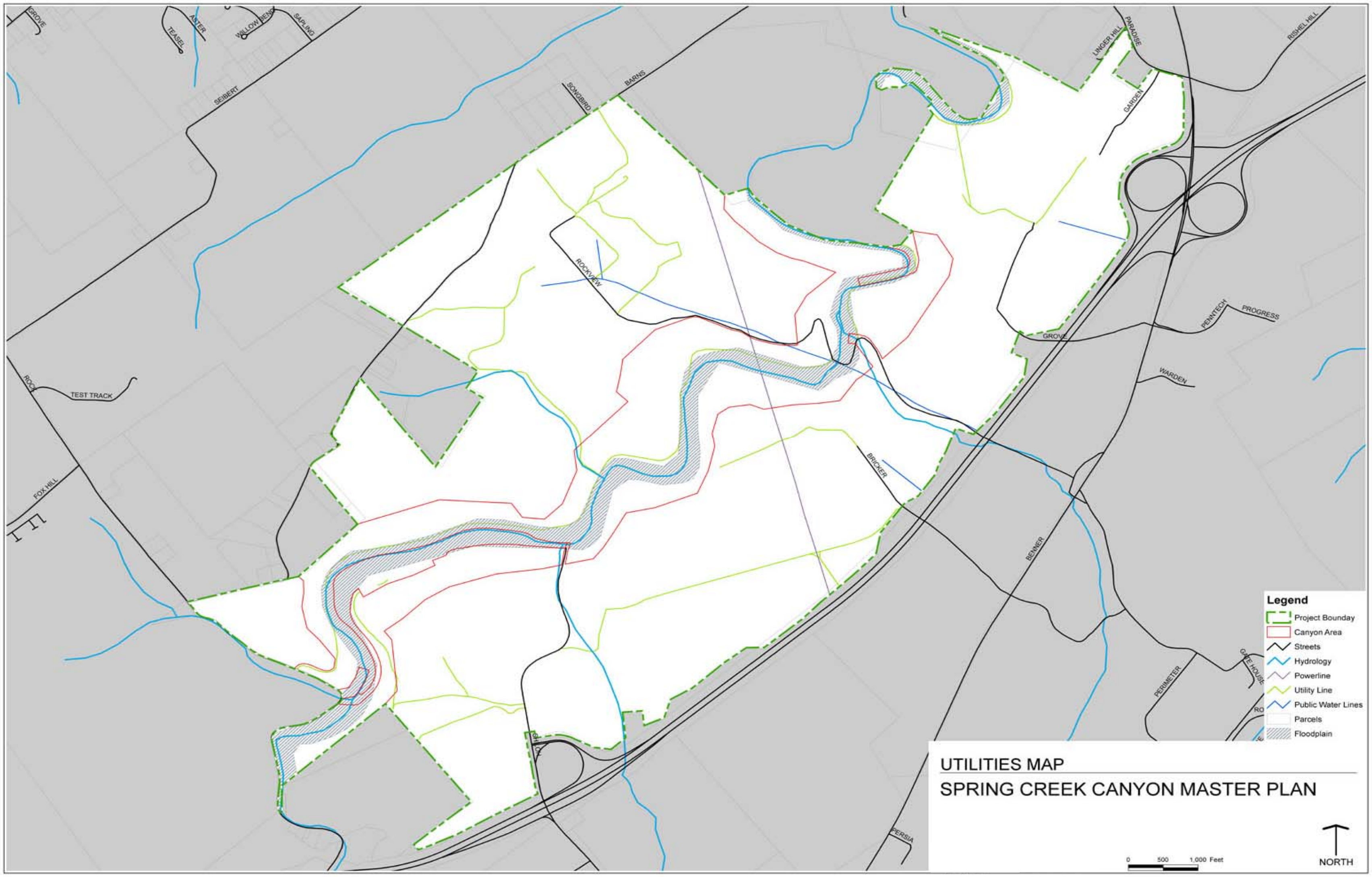
Table 16: Present Landscape Types

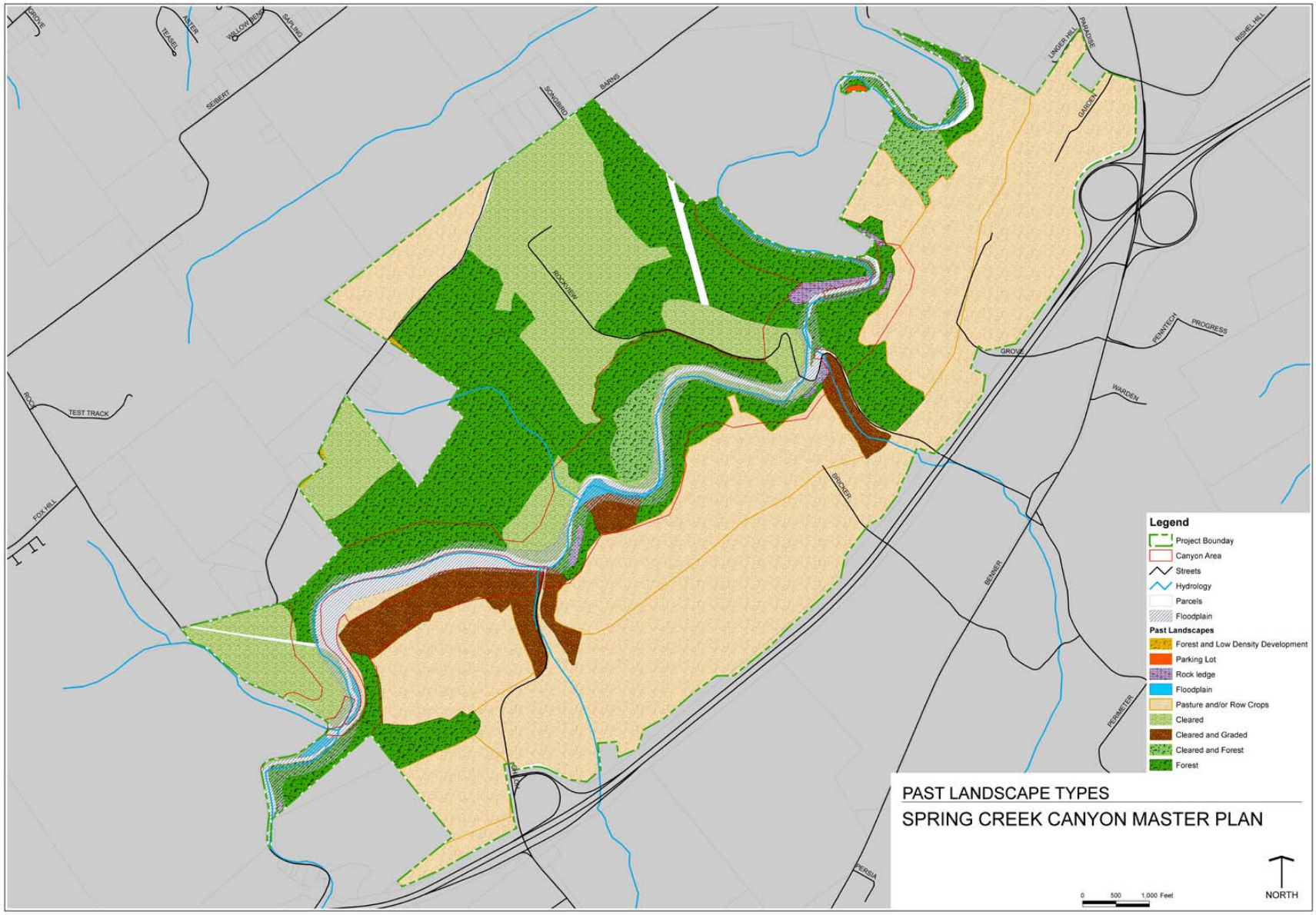
Present Landscape Type	Percentage (%)	Acres within Site
Low Density Development	1%	1
Parking Lot	1%	1
Rock Ledge	1%	15
Cemetery	2%	36
Agricultural	18%	325
Orchard	8%	149
Vegetated Flood Plain	1%	22
Plantation (Disturbed Forest)	4%	77
Cleared Land w/ Pioneer Species	5%	96
Disturbed Forest	2%	31
Forest	30%	544

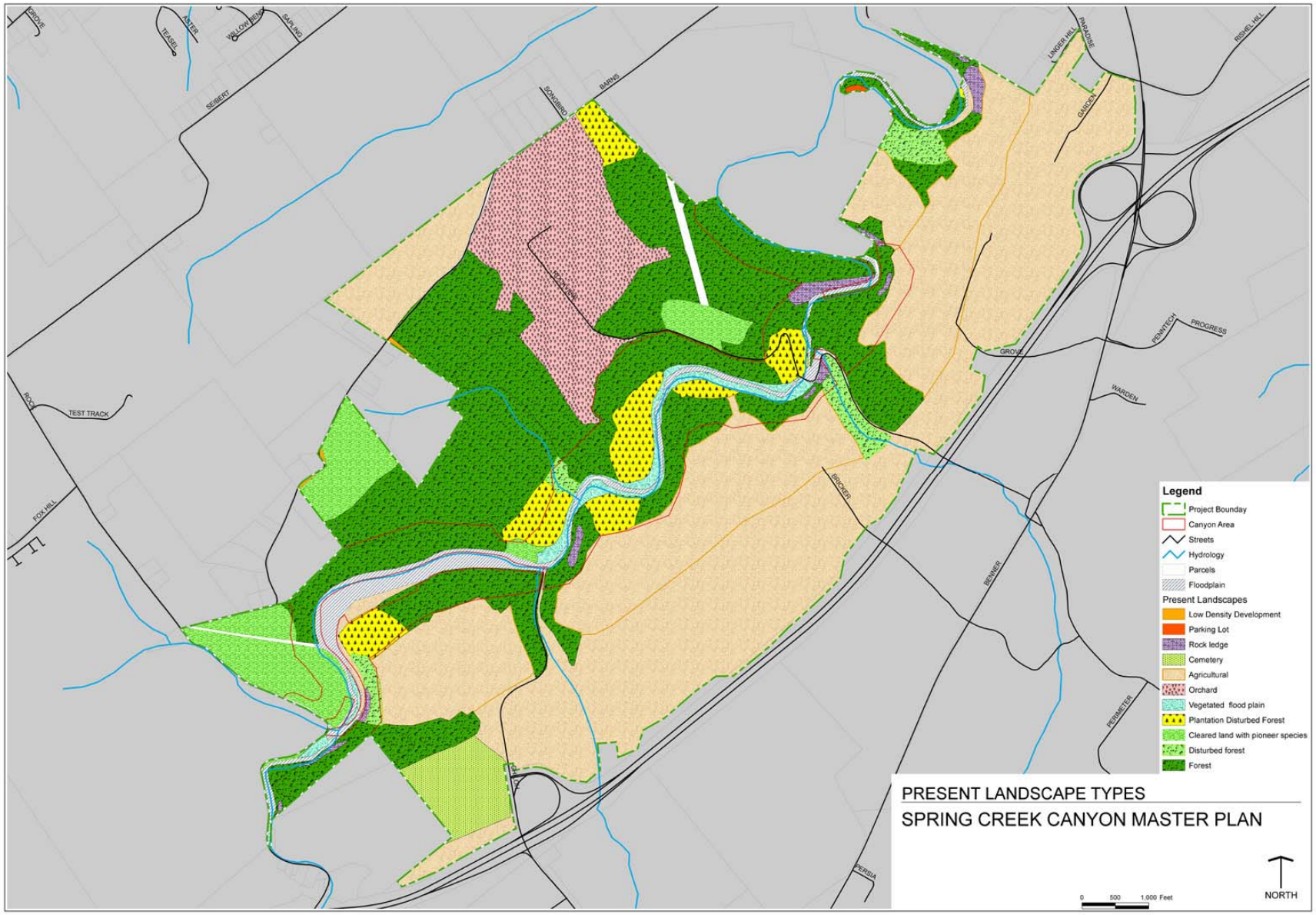
Existing Land Ownership

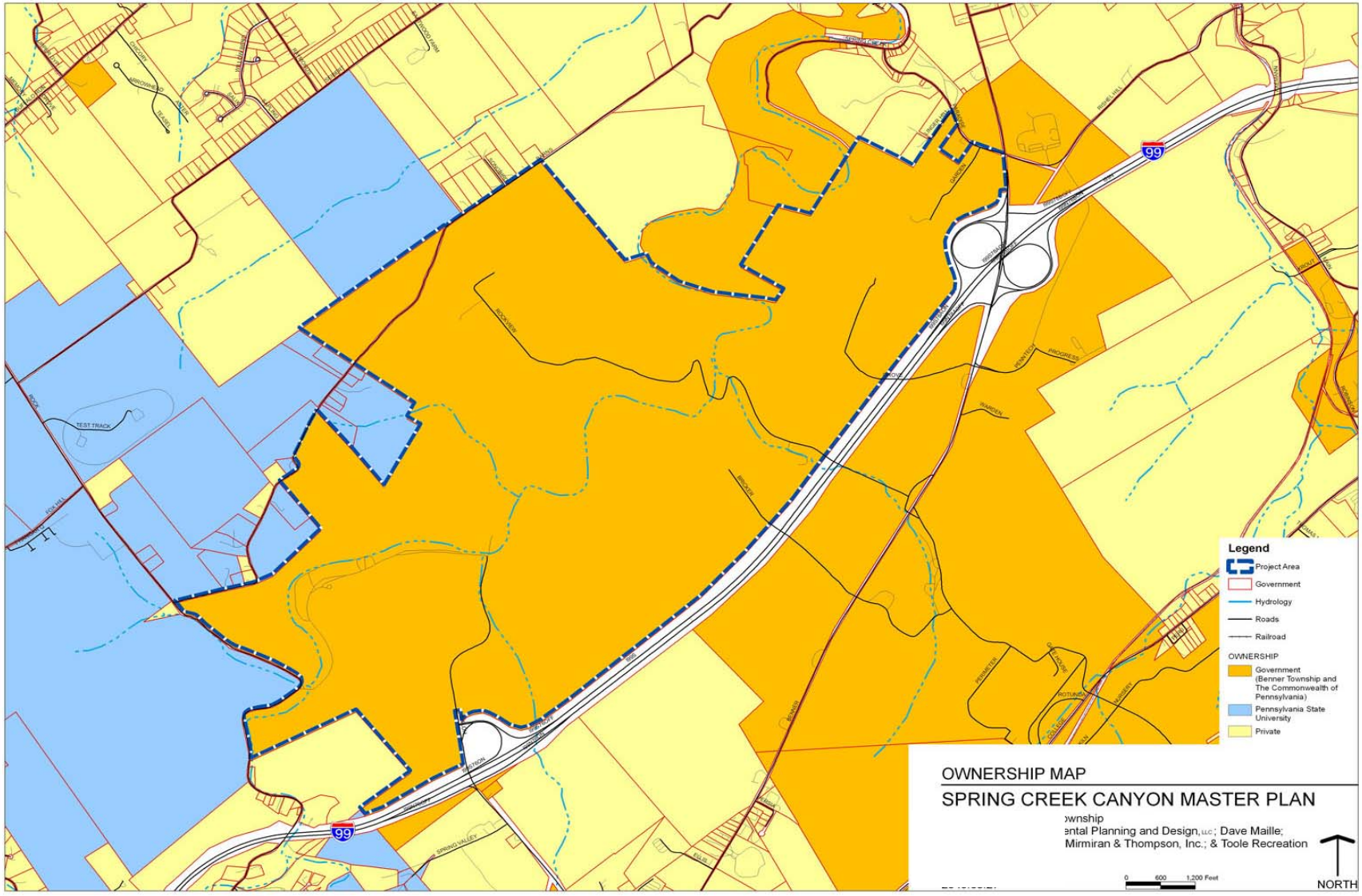
The Spring Creek Canyon Site is currently owned by the Rockview State Correctional Institution. An image depicting this ownership, as well as other existing owners surrounding the Site is illustrated on the Existing Land Ownership map.




Legend
Project Bounday
Canyon Area
Streets
Hydrology
Powerline
Utility Line
Public Water Lines
Parcels
Floodplain
UTILITIES MAP
SPRING CREEK CANYON MASTER PLAN
0
500
1,000 Feet
NORTH
GROVE
TEASEL
ASTER
WILLOW BEND
SAPLING
SEIBERT
SONGBIRD
BARNS
ROCKVIEW
TEST TRACK
FOX HILL
BRICKER
BENNER
GROVE
PENNTECH
PROGRESS
WARDEN
GARDEN
LINGER HILL
PARADISE
RISHEL HILL
PERIMETER
GATE HOUSE
PERSIA


Legend
Project Bounday
Canyon Area
Streets
Hydrology
Parcels
Floodplain
Past Landscapes
Forest and Low Density Development
Parking Lot
Rock ledge
Floodplain
Pasture and/or Row Crops
Cleared
Cleared and Graded
Cleared and Forest
Forest
PAST LANDSCAPE TYPES
SPRING CREEK CANYON MASTER PLAN
0 500 1,000 Feet
NORTH
SEIBERT
BARNS
ROCKVIEW
GROVE
PROGRESS
WARDEN
TEST TRACK
FOX HILL
BUCKER
BENNER
PERIMETER
PARADISE
GARDEN


Legend
Project Bounday
Canyon Area
Streets
Hydrology
Parcels
Floodplain
Present Landscapes
Low Density Development
Parking Lot
Rock ledge
Cemetery
Agricultural
Orchard
Vegetated flood plain
Plantation Disturbed Forest
Cleared land with pioneer species
Disturbed forest
Forest
PRESENT LANDSCAPE TYPES
SPRING CREEK CANYON MASTER PLAN
NORTH
0 500 1,000 Feet
SEIBERT
SONGBIRD
BARNS
LINGER HILL
PARADISE
RISHEL HILL
GARDEN
GROVE
PENNTECH
PROGRESS
WARDEN
TEST TRACK
FOX HILL
BENNER
PERIMETER
PERSIA


Legend
Project Area
Government
Hydrology
Roads
Railroad
OWNERSHIP
Government (Benner Township and The Commonwealth of Pennsylvania)
Pennsylvania State University
Private
OWNERSHIP MAP
SPRING CREEK CANYON MASTER PLAN
ownship
ental Planning and Design, LLC; Dave Maille;
Mirmiran & Thompson, Inc.; & Toole Recreation
0 600 1,200 Feet
NORTH
99
TEST TRACK

Resource Analysis

Building upon the series of available mapping information, a range of additional analysis was conducted as related to the Site's resources. All of the resources (natural and cultural) were then overlain with one another lie layers of a cake in order to determine areas which possessed different concentrations of these resource characteristics. The comprehensive assessment of the characteristics' locations, concentrations, opportunities and challenges, consequently served as the basis for preparing a Site's initial Master Plan concept alternatives. In addition to information shared by the Technical Advisory Committee throughout the planning process, highlights of some of the Site's characteristics are as follows:

Slopes

There is a moderate amount of relief within the Site, from the floodplain valley of Spring Creek to the vertical limestone cliffs that overlook the stream corridor. This relief is created by landforms with varying degrees of slope that occur in and around the Spring Creek Canyon corridor. Lands with moderate slopes (0-8%) are located within the floodplain of Spring Creek and the agriculture lands located around the rim of the valley and to a greater extent around the perimeter of the Site. The steeper slopes (9-25%) occur along the side slopes of Spring Creek and other smaller drainage channels that feed Spring Creek. The steepest slopes (greater than 25%) are found within the valley and consist of vertical limestone cliffs above Spring Creek.

The lands containing minimal to moderate slopes (0-8%) located around the Site's perimeter are generally suitable for maintaining the existing agricultural practices performed onsite as well as placement of permanent structures, recreation, and points of public access. Trail development and points of public access can be placed on lands with steeper slopes (9-25%) and still protect the landforms. Placement of permanent structures should be avoided in these areas of steeper slopes. Areas with the steepest slopes (greater than 25%) are only suited for limited or no active disturbance due to safety issues and the sensitivity of the habitat to disturbance. These areas are primarily forested with several locations consisting of exposed limestone outcrops.

Landform Analysis

Spring Creek Canyon lies entirely within the Appalachian Mountain Physiographic Province of Pennsylvania. The landscape of this Ridge and Valley Province is characterized by the long and narrow ridges and the broad to narrow valleys which often include karst topography. The Canyon area is typical of the Ridge and Valley Province. The northern and southern upland areas of the Site are respectively 340 and 230 feet above the Creek bed on the Canyon floor. The Creek flows in a northeasterly direction dropping in elevation about fifty feet from one end of the Canyon to the other.

The existing landform has contributed to the diversity of natural communities that exist within the Spring Creek Canyon Site. The landform will also contribute to the opportunities for future recreational and

educational uses of the Site. The Creek and its floodplains which run the length of the Canyon will provide for gentle walking / nature study trails between the Creek waters and the steep vegetated slopes of the Canyon, while the riffles and ledges of the Creek will continue to serve the regions fishermen. The more gentle slopes of the upland areas located furthest from the Canyon will offer opportunities for Site entrance points, parking, interpretive signage, and more active recreation activities. The rolling portions of the Site adjacent to the Canyon edges will be ideal for walking trails through the woodland restoration areas implemented to buffer the sensitive ecological features of the Canyon.

Geology Analysis

The Spring Creek Canyon Site is located within the western edge of the Ridge and Valley Physiographic Province. Bedrock geology within the Site consists of four carbonate rock formations. These formations are sedimentary in origin and formed in shallow seas from sediments generated either by secretions or accumulations of marine organisms. The Lower and Mines Members of the Gatesburg Formation are situated in the northern area of the Site and along Spring Creek. These rock formations consist of moderately fractured, faulted and folded carbonate rock formations of dolomite formed over 500 million years ago. To the southeast of the Spring Creek corridor and the noted Gatesburg Formations, the Site is underlain by the Stonehenge / Larke Formation and the Nittany Formation. Formed approximately 435 million years ago this bedrock is predominantly limestone and dolomite respectively. The Stonehenge Formation also includes interbeds of sandstone, breccias and shaly limestone.

The depth to bedrock is anticipated to vary across the Site from approximately one foot to well over eight feet. Carbonate rock formations are typically associated with karst landforms, as is the case within this Site. The presence of carbonate rock formations is confirmed by observed outcrops, surface indication of karst formations and verification against geologic mapping and documentation of the area rock formations. The underlying geology is generally characterized to consist of thick to massive well bedded formations, moderately fractured and steeply dipping. The subject rock formations are moderately resistant to weathering and the surficial geology, or interface with residual soils, is very likely to contain bedrock pinnacles. These rock formations also exhibit good subsurface drainage and an overall moderate to high permeability as a result of joint and solution channel openings. Finally, surface depression, sinkholes and solution cavities can be expected locally throughout the Site.

Major impacts to consider in regards to the overlying land use and Site activities include the direct and indirect impacts on groundwater recharge, water quality and the sustainability of the groundwater, including supplying stream base flows and public and private wells. The permeable nature of the Spring Creek carbonate rock formations can be characterized as natural conduits. These natural conduits, be it bedrock

joints and fractures, solution cavities or sinkholes at the surface, result in a more or less direct connection to groundwater and as a result play a significant role in groundwater recharge as well as groundwater quality. Measures to mitigate the concentration of agricultural byproducts and application of nutrients and pesticides are recommended to safeguard the groundwater quality, particularly in areas of shallow and well drained soils, closed depressions and sinkholes. Additionally, any introduction of impervious surfaces, development or land uses to these areas should be avoided, including the concentration of stormwater runoff. Existing sinkholes and closed depressions should be identified and adequately buffered to enhance water quality and disperse concentrated runoff.

Rock Ledges/Cliffs Analysis

The Rock Ledges/Cliffs within the Spring Creek Canyon Site have been formed by a combination of erosion and weathering forces. The Creek slowly eroded away the more soluble rock leaving behind the more resistant limestone rock outcrops. These outcrops are now subject to weathering forces that continue to cause erosion over time. The natural communities established on these rock faces and rock outcrops very specialized in their adaptation to the open, dry cliffs of the south-facing slopes or the shaded, moist cliffs of the north facing slopes.

The Rock Ledges/Cliffs are found in approximately five separate locations throughout the Spring Creek Canyon. The Rock Ledges/Cliffs are unique environments within the Site and are rare throughout the regional landscape. These environments harbor sensitive plant and animal species that occur only in limestone cliff environments. Active and passive recreation should be established away from the cliffs and openings, and overall access should be very limited to these sites. Rock climbing should be prohibited within the Spring Creek Canyon Site to protect the rare plant species and communities. Forested buffers should be established around these sensitive communities to safeguard them from both human and natural disturbance

Soils Analysis

There are twelve different soil series within the Spring Creek Canyon Site. Three of the twelve soil series make up approximately 85% of the total Site. The Chagrin and Lindside soil series are found along the floodplain of Spring Creek and are well drained soils with low erosion hazards and high available water capacity. The Opequon-Hagerstown complex is located around the hills and steep slopes of the eastern rim of the canyon and is composed of well drained, shallow soils with a restrictive layer within one to two feet of the surface. The Hagerstown soil series is located on the rolling hills and uplands that extend to the eastern border of the Site. This soil series is well drained with a high available water capacity and has a land capability classification ranging from I to III. The Hagerstown soil series is well suitable for cultivation of crops. The Morrison soil series is located on the hillsides and ridges found to the west of the canyon within the Site. This soil series is a well drained, sandy soil with a moderate available water capacity while depth to a

restrictive layer is over five feet. The land capability of the Morrison soil series ranges from II to VI and is not well suited for agricultural practices and better suited for woodlands.

Site soils provide opportunities and constraints for establishing Site access points as well as active and passive recreation locations. Many of the soils within Site are suitable for hiking and biking trails but are not suitable for active recreation and/vehicular access and parking, due to erosive soils and steep slopes. Many areas within the Canyon have very shallow soils on highly erodible steep slopes and therefore need to be conserved / restored / avoided whereas the majority of the soils outside of the Canyon have deeper, more fertile soils suitable to support woodlands, agriculture and more diverse recreation activities. The Morrison soil series is a sandy soil found in the northern portions of the Site that is well drained making it a potential Site for encouraging groundwater recharge. The lands adjacent to the Canyon should be restored and / or maintained as protective woodland buffers. Re-forestation of areas that have been cleared is suggested as a means to protect the soils both inside and outside of the Canyon and to prevent erosion on the steep Canyon slopes thereby protecting the sensitive species and numerous natural communities within the Canyon.

Class I and II Soils Analysis

Class I and II Soils are classifications of soil types with few to moderate limitations making them ideal for numerous types of cultivation. The majority of the Class I and II Soils within the Spring Creek Canyon Site are perimeter areas under cultivation with crops. Strips of land found on the Canyon floor are Class I Soils, although no current agricultural activity exists in these areas. Small fragments of soils found to the west of the Canyon are listed as Class I and II Soils. Portions of these soils are a former apple orchard previously maintained by Rockview State Correctional Institution.

The classification of the soils within the Site based on their land capability helps to determine the areas that are best suited for the various activities proposed for the Spring Creek Canyon Site. Because of their limited constraints for construction and agriculture, suitable uses for Class I and II soils include field crop production, and passive and active recreation. The low erodibility and moderate slopes of these areas support these uses as well. Placement of agricultural activities within Class I and II Soils located within the canyon is not suggested since these areas are considered floodplain and would not be suitable due to the frequency of flooding. Also, the sensitive nature of the habitats found within the Canyon would be easily disrupted by agricultural activities and potential for increased sedimentation from cultivation of the soils.

Soil Permeability Analysis

The majority of the soils within the Site are known to be well drained soils with high permeability. Some of the soils within the Spring Creek floodplain zone are moderately to poorly drained soils with low

permeability. Well drained soils do not pose restrictions to recreation activities and habitat restoration/development. However, existing vegetation / habitat slope, and adjacency to sensitive site features may limit site activities regardless of characteristics of soil permeability.

Soil permeability of the lands within the Site provide few constraints in terms of accessing portions of the property with roadways, trails, etc. However, unnecessary disturbance of the existing Site should be minimized regardless of soil permeability due to the desire to maintain the integrity of existing site habitat to the greatest degree possible. Areas with Existing site access and circulation (e.g. road, grass-lined trails near Spring Creek) should be utilized wherever possible thus eliminating the need disturb undeveloped soils. Vehicular entry points and active recreation areas must be located in areas where existing site conditions will not limit the suitability for a more intense use. More concentrated use of the upland perimeter portions of the Site will have the least amount of impact on the more sensitive features adjacent to and within the Canyon.

Soil Erodibility Analysis

The soils within the Site range from slight to severe in their erodibility potential. K factors for the soils range from a low of 0.15 to a high of 0.43. The soils found within the Spring Creek floodplain have a relatively low erodibility potential while the soils that line the slopes of the valley have a moderate to severe erodibility potential. The soils on slopes adjacent to the tributaries of Spring Creek have severe erodibility potential as well. While the soils around the perimeter of the Site have slight to moderate erodibility potential, they may experience erosion due to the current agricultural cultivation.

The soil erodibility of the lands within Site present some constraints for accessing portions of the property with roadways, trails, etc. The soils with the highest potential for erosion are found along the steep slopes of the Canyon where the greatest density of sensitive species and natural communities are located. Disturbance of these soils should be avoided to prevent erosion and the subsequent transportation of sediment into the valley. Current circulation in these areas (roads, grass-lined trails) should be upgraded to correct any erosive conditions with the potential to affect the valley.

The majority of areas with slight to moderate erodibility potential are located in the upland areas outside of the Canyon. Where erodibility potential is decreased, the development of trails, entrance roads and parking areas is more viable. However, in the case of any disturbance to the existing Site, care must be taken to protect the vulnerable habitats adjacent to the Creek and its tributaries. Moreover, current human disturbance (cultivated fields, structures, roads, etc.) in the uplands should be examined for any existing erosion issues that may be adversely impacting the habitats within the Spring Creek Canyon and the overall Site.

Runoff Analysis

Runoff is the flow of water which occurs when the soil is saturated and excess water from rain, snow melt or other sources flows across the land. Surface runoff eventually flows toward creeks and streams, entering these systems as nonpoint source discharges. Runoff can be associated with erosion depending on the slope and soils present on a site. The potential for surface run-off on the Spring Creek Canyon Site varies from negligible to severe depending on site location. Runoff potential is greatest on approximately 15% of the site which is comprised of the steep slopes along the Canyon and its and along the tributaries to the south. Runoff potential is negligible low or very low on the upland areas which cover approximately 42% of the site. The intermediate slope areas occurring on the approximately 43% of the site between the uplands and the Canyon edges are characterized as having a moderate potential for runoff.

The steep slopes of the Canyon and its northern tributaries are areas to be protected by forested buffers and where necessary restored to deter erosion and deposition of sediment into the Canyon. All active and passive recreation, along with access roads, should be established on grounds that have low to moderate runoff potential. Access roads should be stabilized after construction to limit any additional runoff and erosion potential. Disturbance of any site area should be undertaken with great care and attention view to minimize runoff and erosion on the Site.

Woodlands Analysis

The Site woodlands are composed of deciduous and coniferous species, young and mature trees, natural woodlands and planted woodlands, woodlands with common species and woodlands with rare, sensitive species and ecological communities. Throughout the Site the woodlands have been fragmented by human disturbances including utility lines, roads, and cultivated fields resulting in small woodlands patches that have a high ratio of edge to interior area. The reduction of the interior woodland area has resulted in a loss of habitat potential. In addition, the fragmentation of the woodlands has provided conditions favorable to the spread of non-native, invasive plant species throughout a majority of the woodland plots. Invasive plant species characteristically crowd out the native plant species and threaten the overall woodland ecosystem if their spread is unchecked.

Re-forestation of portions of the Spring Creek Canyon Site will be critical to the protection of the sensitive environment of the Canyon and to the expansion of wildlife habitat on the overall Site. Increasing the forest buffer along the top of the Canyon will create a protection zone for the Rock Ledges/Cliffs, the steep Canyon slopes and the waters of the Creek. Expanding the existing forest patches to create contiguous forest areas will increase the interior forest area resulting in the opportunity for more and better plant and animal habitats on the Site. Restoring the cultivated forest plantations to native mixed species and enhancing marginal forest areas with new plantings will support the conservation of

the forested lands on the Site. These conservation measures are compatible with education, research and recreation oriented activities on the Site, and do not preclude maintaining a variety of landscape types including open meadows and barrens areas on the site uplands.

Natural Communities Analysis

The natural communities within the Site are composed of mature forests and successional communities, undisturbed lands and developed / planted / cultivated areas, and rare and unique ecological communities that support sensitive plant and animal species. The forests with mature trees are found scattered throughout the Spring Creek Canyon and northern side slopes. Many of the natural communities throughout the Site have been fragmented by human disturbance such as utility lines, roads and cultivated fields creating small forest patches with a high ratio of edge to interior area. This fragmentation has allowed the spread of non-native, invasive plant species throughout a majority of the Site. Existing cultivated fields are found primarily around the southern perimeter of the Site. Several unique natural communities are found on the limestone cliffs that overlook the Spring Creek canyon.

The majority of the natural community types considered communities of special concern (e.g. forests, vegetated floodplain and limestone cliffs) are located within and adjacent to the Spring Creek Canyon. These areas are relatively intact due to limited human disturbance. Recreation in and adjacent to the Canyon should be limited to foot traffic directed along specified trails and to fishing and non-motorized boating on the Creek itself. Removal of the monoculture communities (e.g. pine plantations) and the enhancement of existing woodland areas should be undertaken to protect the intact forests, increase their size, and limit the opportunities for invasive species. Restoration of native forest communities in the upland portions of the Site has the potential to increase overall forest diversity and the forest's long term ecological viability, and to create a protective band of vegetation adjacent to the top of the Canyon.

Environmentally Sensitive Areas Analysis

The environmentally sensitive areas within the Site are primarily located within and adjacent to the Spring Creek Canyon and include the floodplain, wetlands, riparian buffer zones along Spring Creek and its tributaries, biologically diverse habitats, steep slopes (15 to 25% slopes and greater) and surface depressions. The vegetated floodplain of Spring Creek is largely continuous throughout the length of Canyon, while wetlands are located sporadically within the floodplain. Riparian buffers consist of vegetated and wooded tracts of land that surround and protect the Creek waters from degradation by runoff and nonpoint source pollution. Several unique and sensitive biologically diverse habitats are found on the limestone cliffs and calcareous openings that overlook the Canyon. Surface depressions occurring in the upland areas are result of the limestone and dolomite bedrock that underlies the Site and the dissolution and subsidence of the overlying rock and soil.

Disturbance to the Site's environmentally sensitive areas must be avoided. Restricting pedestrian access to the existing trails along the Creek will help to prevent damage to existing adjacent vegetation and wetland areas. Habitat restoration within riparian buffer zones will increase the protective capacity of these areas and increase protection of the Site water resources. The steep slopes areas surrounding the Canyon should be reforested and protected from any activity that threatens the limestone cliffs and their adjacent areas. Existing steep slopes should be stabilized if necessary to protect against further erosion. Trail and Creek users must be educated as to the value of Site habitats and must be well informed regarding proper use of the Site lands. The karst topography within the project area, indicated by the surface depressions located in the uplands, is subject to dissolution by water over time and should be avoided when considering placement of structures and potential areas for stormwater management.

Invasive Plant Species Analysis

The Western Pennsylvania Conservancy identified approximately fourteen invasive plant species that are found within the Spring Creek Canyon study area. The invasive plant species within the study area are composed of four types of growth forms, from herbaceous plants (Garlic mustard, Dame's rocket, Purple loosestrife, Reed canarygrass, and Japanese knotweed) to shrubs (Japanese barberry, Privet, Amur honeysuckle, Morrow's honeysuckle, and Multiflora rose) to trees (Tree-of-Heaven and Black alder) to woody vines (Oriental bittersweet). The highest concentration of invasive plant species occurs within the canyon containing Spring Creek. The concentration of invasive plant species decreases outside of the canyon and onto the surrounding uplands.

The invasive plant species concentrations within the study area provide problems for native plant species and plant and animal species of special concern. The Western Pennsylvania Conservancy (WPC) identified several options for controlling the expansion of invasive plant species. One general recommendation is to increase forest contiguity and canopy cover. Many invasive plant species thrive in higher light conditions along the edge of forested and cleared areas. Increasing the contiguous forests within the study area will limit the spread of certain invasive plant species (i.e. Oriental bittersweet, Japanese honeysuckle, etc.) by limiting the available open areas for these species to thrive. Other options for control involve using mechanical means (hand pulling, cutting, etc.) to physically remove the plant species. The WPC identified specific native plants that harbor the larval forms of rare and threatened butterflies within the project area that are at risk from invasive plant species. The use of some herbicides to remove invasive plant species is not recommended since some substances have the potential to affect the native plants that harbor the caterpillars of the previously mentioned butterflies. Specific control for the Tree-of-Heaven, Oriental bittersweet, and Garlic mustard have been identified by WPC to control these rapid spreading species from overtaking the native plants found throughout the Spring Creek Canyon study area.

Utility Analysis
Coordination with local utility companies was performed through the use of PA One Call. This coordination determined that there are several utility types that currently exist within the Spring Creek Canyon Site. Communication utilities (i.e. telephone, television, etc.) are not located within the Site boundaries but are located nearby. Rockview SCI has existing water lines fed by a water tower that traverse the Site and provide water for the penitentiary. Discussions with SCI have determined that the existing water line will be relocated in the near future as part of upgrades to SCI. Large, areal electrical transmission lines run north and south bisecting the Site. These lines do not supply electricity within the Site, but do occupy ground and aerial easements within the Spring Creek Canyon Site. Gas utilities have transmission lines within the vicinity of the Site.

If constructed on the Site, structures or more intense recreation areas are best suited for the Site's perimeter where they can access existing utilities which follow the state and township roads. This would limit disturbance within the Site for utility easements needed for more intense site development. Existing utilities (i.e. aerial transmission line, water lines) and their easements within the Site provide opportunities for invasive species to become established on the Site, threatening the quality existing plant and animal communities. Utility easements/right-of-ways should be monitored and managed closely to prevent the spread of invasive species to the more sensitive areas of the Site.

Past Landscape Types Analysis
Past landscape types within the Site vary from forested lands to pasture/row crop lands to areas that have been cleared and graded for roads, trails and parking. Forested lands dominate the Site the majority being located within the Canyon and on the surrounding uplands to the west of the Canyon. These forests are composed of historic and successional woodlands. The areas to the east of the Canyon are composed of existing cultivated fields with small patches of forest intermixed disturbed lands.

The past landscapes types within the Site indicate substantial disturbance by human encroachments. The areas surrounding the Canyon show the highest degree of disturbance resulting from the clearing of native forests to accommodate past agricultural activities. Gentle slopes along the unnamed tributaries that drain into the Canyon were cleared and graded as well and are covered with even aged stands of trees and shrubs. Areas of past grading and clearing may be more suitable areas to allow various passive recreation activities since previous disturbances have altered the landscape. Lands within the Canyon exhibit the fewest signs of disturbance based on past and present landscape descriptions and also contain the greatest numbers of sensitive species and natural communities. These are the areas that should remain protected over time. Limiting use to walking trails and water activities will help to reduce

future the impacts to these areas of minimum disturbance.

Present Landscape Types Analysis
The Present Landscape Types within the Site range from forested lands to low density development to existing agricultural lands. The Site is dominated by forested lands; the majority of which are located within the Canyon and the surrounding uplands to the west of the Canyon. These forests are composed of historic, successional and plantation woodlands. The areas to the east of the canyon are composed of existing agricultural lands with small patches of forest and disturbed forest lands intermixed.

The Present Landscapes Types within the Site display that a large portion has been altered by human encroachments. The areas surrounding the Canyon exhibit the most disturbances from the cutting of the native forests to create lands for agricultural activities. Lands within the Canyon have experienced the least disturbance based on present landscape descriptions and subsequently contain the greatest density of sensitive species and natural communities. Limiting use with the Canyon area to passive recreation and educational activities will reduce the impacts to these areas of limited disturbance.

Cultural Highlights of the Site (See also Appendix E)

Rockview Lands - Historical Context in Centre County's Development
Excellent quality iron ore — central Pennsylvania's "gold" — was the enticement to General Philip Benner and to other ironmasters and entrepreneurs who, in the late 18th and early 19th centuries settled the area and established nearly twenty iron furnace operations in what would become Centre County's foremost industry. Huge landholdings provided the natural resources to operate the furnace: high quality iron ore, limestone for flux (to collect impurities), and hardwood (approximately an acre a day) for charcoal. These were combined with an abundant supply of waterpower provided by Spring Creek and its tributaries in order to operate bellows and forges. Put into blast in the spring, iron furnaces and forges remained in continuous operation until cold weather froze or slowed their waterpower sources. These early self-sufficient iron plantations brought settlement, wealth, and political clout, initiated exploration, and set the pattern for the industrial and commercial development of the area, they significantly influenced the location of Penn State and its resulting impact on Centre County.

It is rare for a historic and cultural property as potentially rich as the Rockview lands to have been publicly "off limits" for so many years. This transfer of land offers a unique opportunity to provide new information about this area's early history through evaluation and subsequent preservation and interpretation, in order to more closely link its historic and natural resources to the community's history.

Rock Iron Works

The fast-moving, power-producing waters of Spring Creek, and the nearby natural resources of iron ore, limestone, and hardwoods for making charcoal, set the stage for the industrial history of the Rockview lands. Despite the barriers of the wilderness and mountains of central Pennsylvania to early westward settlement, General Philip Benner came in 1793 from Chester County with 100 workers associated with ironmaking to launch one of the area's most significant charcoal iron making operations. The Rock, the rocky precipice on the south shore of Spring Creek provided the name and the location for the Rock Iron Works. General Benner, in turn, gave his name to the abundant spring located there, as well as to the township in which it is located.

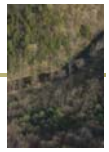
Benner began building forges, furnaces, a rolling and slitting mill, nail factory, and grist and sawmills along Spring Creek. He also built housing for his workers, a school, church, store and post office, and established a community called Rock.

Benner, who was known as one of the richest and most influential of Pennsylvania's early ironmasters, shipped his high quality iron made at Rock to Pittsburgh, Baltimore, and New Orleans; in 1815 inventor Eli Whitney described it as "some of the best in the world."

Part 3:
Goals, Objectives and Principles

We shall never achieve harmony with land, any more than we shall achieve absolute justice or liberty for people. In these higher aspirations, the important thing is not to achieve but to strive.

Aldo Leopold



In addition to the Site's known natural and cultural resources, the Conservation Strategy's components build upon a series of goals, objectives and principles. All three components were evaluated and shaped throughout the planning process by Committee comment.

Goals

Goals describe future expected outcomes or desires. They provide programmatic direction and focus upon "the ends" rather than "the means." Two goals, laying the groundwork for initiating the Township's planning effort, were defined in former proposed legislation applicable to the Site (Senate Bill No. 740) and as part of the project's original Request for Proposal. These two goals are:

- To preserve the property's unique natural resources, including the biological resources, native species and their supporting habitats which include native species that are uncommon in Pennsylvania; and

- To preserve the integrity of Spring Creek, currently designated as a high-quality cold water fishery which requires the protection of the property's groundwater recharge value and its springs, wetlands and floodplains, consistent with the master plan to be developed for the property by Benner Township and the Department of Conservation and Natural Resources.

However, as the planning process progressed, members of the project's Committees as well as the general public have identified it would be logical and appropriate for these goals to ultimately be expanded to

- recognize the Site's equally significant cultural resources; as well as

- to provide opportunities for research, education and recreation.

Objectives

Stemming from the project's goals and input received throughout the project public participation process, *objectives* were identified by the project's Committees as clear, realistic, measurable statements of action which when completed will achieve a goal. Objectives describe the general nature of activities to be accomplished as part of a particular initiative. The Conservation Strategy's objectives include:

1. Enhance the Site's ecological values and natural diversity.

2. Define a range of activities or uses that conserve the Site's unique ecological and cultural value, offer educational and interpretive experiences, accommodate limited public access and promote healthy habitats.

3. Identify appropriate buffers and transitions between uses or activities to protect sensitive landscapes and natural resources both within and adjacent to the Site.

4. Recognize and interpret the Site's past uses and past human activities.

5. Advance the knowledge and science of resource management within the context of natural and cultural resource conservation.

6. Utilize sustainable natural resource, recreation and land management protocols and

strategies to maintain the Site's long-term ecological balance and optimize connections to the Site's adjacent lands.

7. Incorporate design features and principles that ensure security of the Site and maximize personal safety.

8. Nurture a cooperative dialogue between the communities within the Spring Creek watershed to achieve the Strategy's objectives.

9. Establish a responsive and realistic management structure through which the Strategy's recommendations can be implemented

Principles

Reflecting on the goals and objectives, a set of principles unique to the Spring Creek Canyon, the *Principles* provide a foundation for exploring the Site's Conservation Values (See Part 4) and those items in the Conservation Easement Framework (See Part 7). Principles are specific to this project and establish definitions as well as general performance standards or metrics. As outlined below, a few principles serve to "guide" overall planning initiatives while others intended to identify specific "active" aspects of the conservation strategy's implementation.

"Guiding" Principals

1. Protect the Site's natural and cultural resources by minimizing human impacts on the Site's conservation and restoration areas

2. Balance recreation opportunities with the site's capacity and sensitive environs

3. Coordinate public and private access needs and desires

4. Develop a responsive strategy for protecting on-site cultural resources

"Active" Principles

5. Expand core forest areas and eliminate fragmented forest edge

6. Promote suitable buffers in proximity to critical habitat areas

7. Restore riparian buffers

8. Maximize groundwater infiltration

9. Reduce existing invasive species and the potential for future expansion

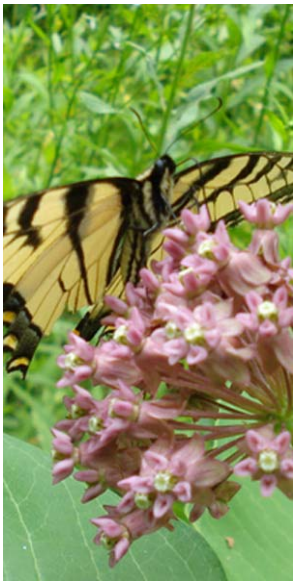
10. Identify compatible transitions between on-site activities and surrounding land uses

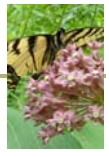
11. Utilize existing infrastructure corridors and disturbed areas for future infrastructure needs and/or access

Part 4:
Conservation Values

Show me a healthy community with a healthy economy and I will show you a community that has its green infrastructure in order and understands the relationship between the built and unbuilt environment.

Will Rogers, Trust for Public Land

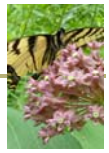




Natural and Cultural Resources

In order to achieve the goals, objectives, and principles set forth in the Conservation Strategy, it is important to first document the Site's conservation values. In determining the Spring Creek Canyon Site's Conservation Values, base mapping concepts were expanded to identify the condition and function of existing and potential natural and cultural resources were evaluated. As identified by the project's Technical Advisory Committee, "some of the property's conservation values are well known and understood, such as the Spring Creek fishery. Other values are less publicly known, such as the rare terrestrial plants and animals." The presence of some resources has resulted in a portion of the Site being designated as a Biological Diversity Area of "exceptional significance." (*Centre County Natural Heritage Inventory*, Western Pennsylvania Conservancy, 2002). The presence of some known and registered cultural resources also presents distinguishable values of the Site.

A copy of the Draft Conservation Values Document, as compiled by Technical Advisory Committee members and other technical volunteers, identifies the Site's conservation values considered as part of the project using existing data and expert opinion. The details within the Draft Conservation Values Document should be further evaluated and considered as the detailed Conservation Easement is developed. The Draft Conservation Values Document can be found in Appendix E.



Part 5:
Master Plan Recommendations

The power of imagination makes us infinite.

John Muir

What is the Spring Creek Canyon Master Plan?

The first component of this Strategy is the Master Plan. The Master Plan includes a map and series of recommendations which should occur within a geographic area. Recommendations are specific, concise and discrete actions. Some recommendations are physical in nature; others relate to various policies. This Master Plan does not identify any recommendations related to the Site's future ownership.

The Spring Creek Canyon's overall Master Plan concept is that this 1,800-acre site serves as a world-class landscape for resource management. Such a landscape presents the opportunity to establish a contemporary model for how public and private partners can practically and responsibly restore environs rich in sensitive natural resources as well as to educate the public about conservation-oriented agriculture and the landscape's cultural significance. The Master Plan builds upon the many conservation values identified as part of this project's Planning Process.

The Master Plan concentrates on outlining potential activities and policies related directly to resources within the Site's defined boundary. However, the fact is that, it is imperative to recognize that an equally important aspect of Spring Creek Canyon's health is the activity that occurs on lands surrounding the Site and in the greater region and Spring Creek Watershed.

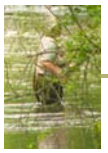
The Life of the Spring Creek Canyon Master Plan

At a minimum, it is advised that a review of the Master Plan be completed every seven to ten years following the implementation of initial projects. Over time, these reviews will progressively enable the Site' stakeholders to re-examine past recommendations, identify short-comings and appropriately fine-tune management strategies. In completing the periodic re-examination of the Site, opportunities for learning and improving the effectiveness of conservation emerge.

The Master Plan Elements

The Master Pan is composed of four elements: site activities, capital projects; policies; and additional needed assessments. Site activities are recommended future uses. Capital projects are the primary physical improvements recommended for the Site. Policies are courses of action. Additional needed assessments are studies which, when completed, can enable stakeholders to understand the Site's resource capacity in greater detail.

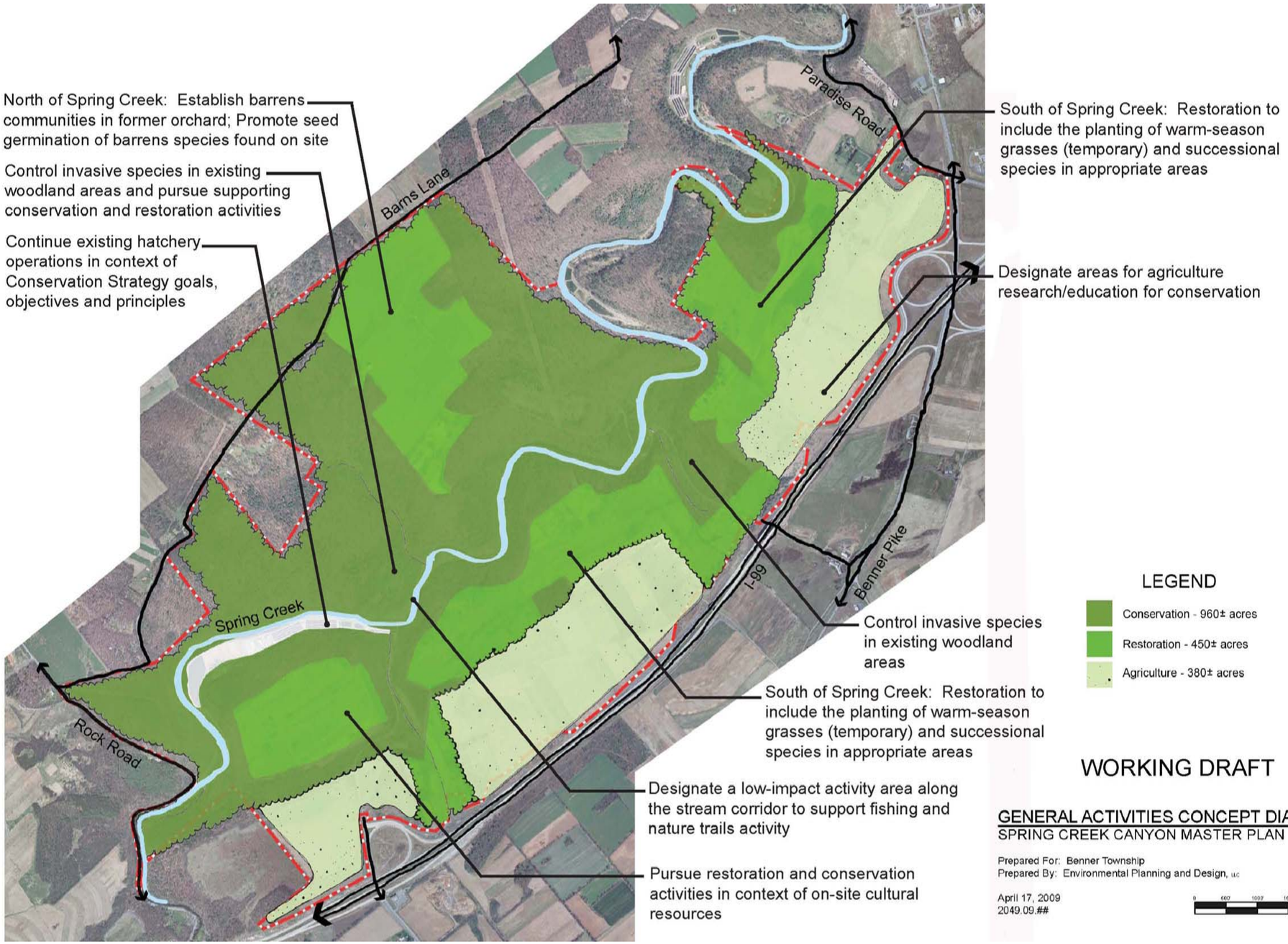
The overall relationship between recommended Master Plan elements is depicted on the following graphics. The first graphic, the Activities Concept Diagram, identifies the basic components of recommended Site activities. The second graphic, the Circulation Concept Diagram, delineates recommended types and alignments for vehicular and pedestrian access. The third graphic, the Illustrative Master Plan, integrates both Diagrams with identified Capital Projects to present a comprehensive depiction or view of ways to promote future restoration, education and appreciation on the Site. Accompanying recommendations are outlined and organized based upon their relationship to each of the four Master Plan elements (site activities, capital projects;

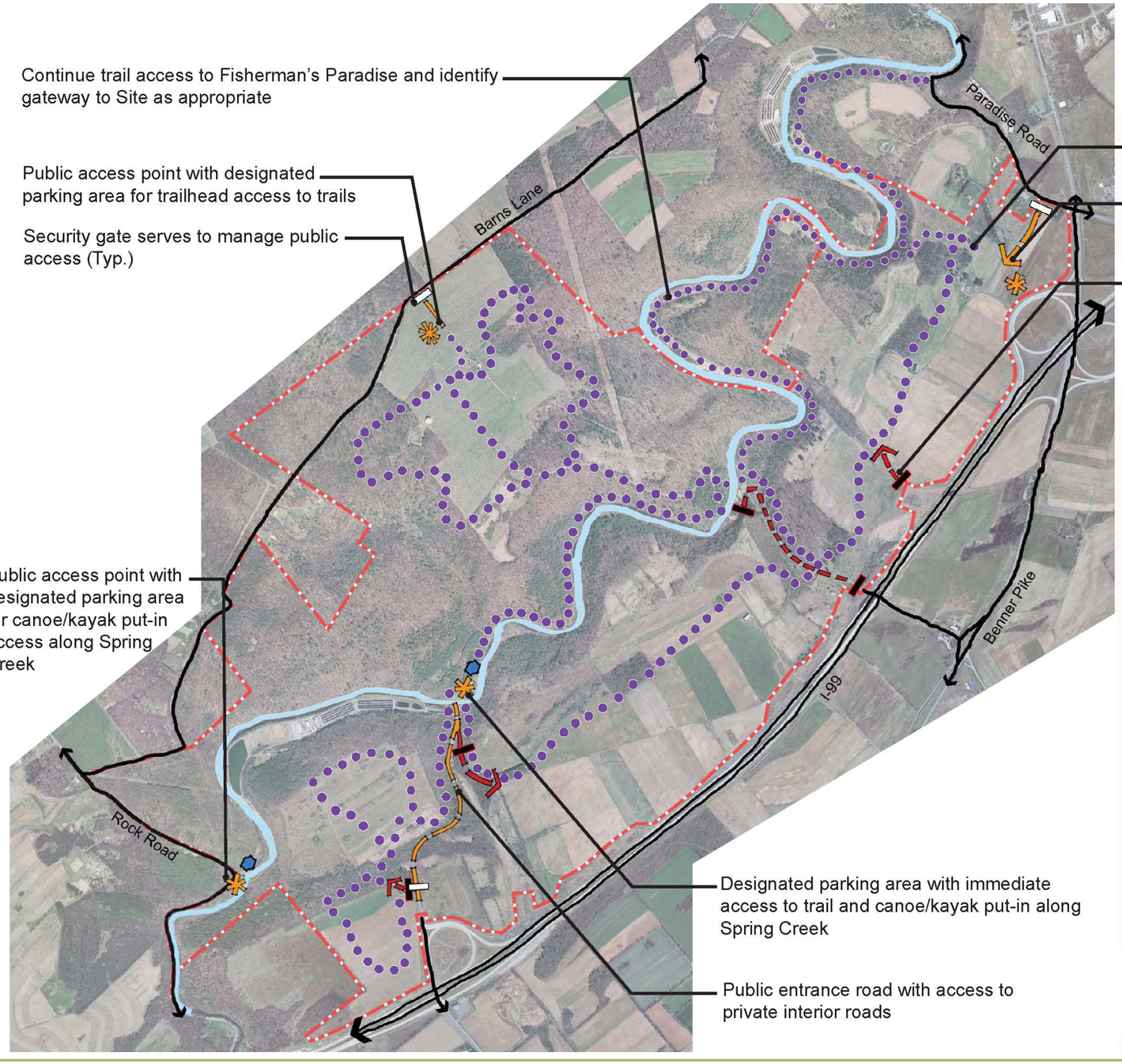


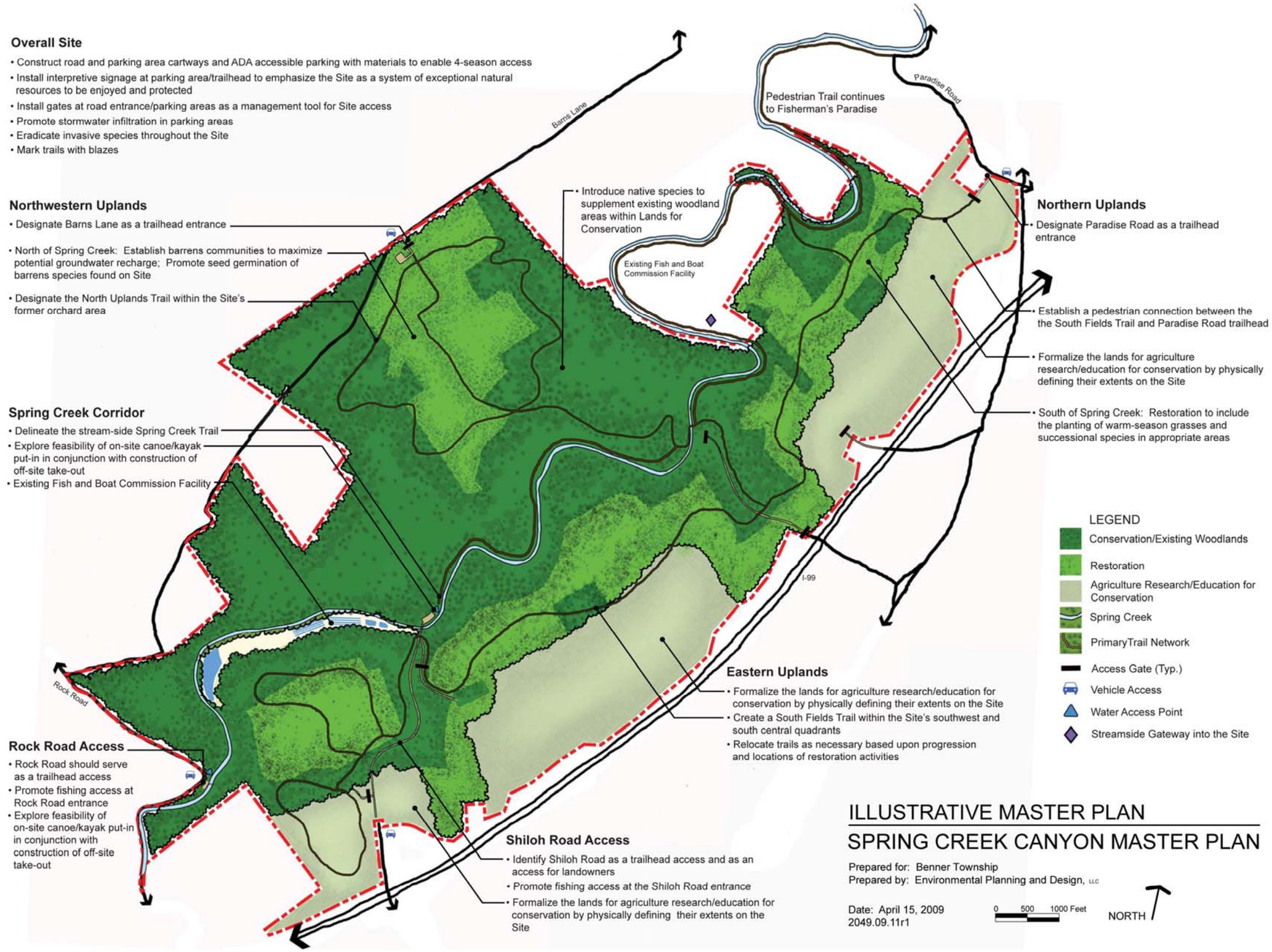
policies; and additional needed assessments). Information related to the potential management of these recommendations is further expanded upon in Part 6.

As part of the four Master Plan elements, recommendations are grouped and referenced based upon related topics. If more than one related recommendation exists per topic, a series of sub-recommendations exists. Recommendations are grouped as follows:

Site Activities:	Recommendation #1 inclusive of 20+ related sub-recommendations
Capital Projects:	Recommendations #2 through #10 inclusive of additional sub-recommendations
Policies:	Recommendations #11 through #21 inclusive of additional sub-recommendations
Additional Related Studies:	Recommendations #22 through #27 inclusive of additional sub-recommendations


North of Spring Creek: Establish barrens communities in former orchard; Promote seed germination of barrens species found on site
Control invasive species in existing woodland areas and pursue supporting conservation and restoration activities
Continue existing hatchery operations in context of Conservation Strategy goals, objectives and principles
South of Spring Creek: Restoration to include the planting of warm-season grasses (temporary) and successional species in appropriate areas
Designate areas for agriculture research/education for conservation
Control invasive species in existing woodland areas
South of Spring Creek: Restoration to include the planting of warm-season grasses (temporary) and successional species in appropriate areas
Designate a low-impact activity area along the stream corridor to support fishing and nature trails activity
Pursue restoration and conservation activities in context of on-site cultural resources
Barns Lane
Paradise Road
Spring Creek
Rock Road
I-99
Benner Pike
LEGEND
Conservation - 960± acres
Restoration - 450± acres
Agriculture - 380± acres
WORKING DRAFT
GENERAL ACTIVITIES CONCEPT DIAGRAM
SPRING CREEK CANYON MASTER PLAN
Prepared For: Benner Township
Prepared By: Environmental Planning and Design, LLC
April 17, 2009
2049.09.##
North


Continue trail access to Fisherman's Paradise and identify gateway to Site as appropriate
Public access point with designated parking area for trailhead access to trails
Security gate serves to manage public access (Typ.)
Barns Lane
Paradise Road
Trail (Typ.)
Public vehicular access with designated parking and trailhead
Private gate controls access to private interior roads (Typ.)
Public access point with designated parking area for canoe/kayak put-in access along Spring Creek
Rock Road
Benner Pike
I-99
Designated parking area with immediate access to trail and canoe/kayak put-in along Spring Creek
Public entrance road with access to private interior roads
LEGEND
Public Parking Area
Public Access Route (Vehicular)
Public Access Gate (Closed at Night)
Owner Access Route (Vehicular)
Owner Access Gate
Water Access
Public Trail
GENERAL CIRCULATION CONCEPT DIAGRAM
SPRING CREEK CANYON MASTER PLAN
North


Overall Site
• Construct road and parking area cartways and ADA accessible parking with materials to enable 4-season access
• Install interpretive signage at parking area/trailhead to emphasize the Site as a system of exceptional natural resources to be enjoyed and protected
• Install gates at road entrance/parking areas as a management tool for Site access
• Promote stormwater infiltration in parking areas
• Eradicate invasive species throughout the Site
• Mark trails with blazes
Northwestern Uplands
• Designate Barns Lane as a trailhead entrance
• North of Spring Creek: Establish barrens communities to maximize potential groundwater recharge; Promote seed germination of barrens species found on Site
• Designate the North Uplands Trail within the Site's former orchard area
Spring Creek Corridor
• Delineate the stream-side Spring Creek Trail
• Explore feasibility of on-site canoe/kayak put-in in conjunction with construction of off-site take-out
• Existing Fish and Boat Commission Facility
Rock Road Access
• Rock Road should serve as a trailhead access
• Promote fishing access at Rock Road entrance
• Explore feasibility of on-site canoe/kayak put-in in conjunction with construction of off-site take-out
Barns Lane
Rock Road
Pedestrian Trail continues to Fisherman's Paradise
Paradise Road
• Introduce native species to supplement existing woodland areas within Lands for Conservation
Existing Fish and Boat Commission Facility
I-99
Northern Uplands
• Designate Paradise Road as a trailhead entrance
• Establish a pedestrian connection between the the South Fields Trail and Paradise Road trailhead
• Formalize the lands for agriculture research/education for conservation by physically defining their extents on the Site
• South of Spring Creek: Restoration to include the planting of warm-season grasses and successional species in appropriate areas
Eastern Uplands
• Formalize the lands for agriculture research/education for conservation by physically defining their extents on the Site
• Create a South Fields Trail within the Site's southwest and south central quadrants
• Relocate trails as necessary based upon progression and locations of restoration activities
Shiloh Road Access
• Identify Shiloh Road as a trailhead access and as an access for landowners
• Promote fishing access at the Shiloh Road entrance
• Formalize the lands for agriculture research/education for conservation by physically defining their extents on the Site
LEGEND
Conservation/Existing Woodlands
Restoration
Agriculture Research/Education for Conservation
Spring Creek
PrimaryTrail Network
Access Gate (Typ.)
Vehicle Access
Water Access Point
Streamside Gateway into the Site
ILLUSTRATIVE MASTER PLAN
SPRING CREEK CANYON MASTER PLAN
Prepared for: Benner Township
Prepared by: Environmental Planning and Design, LLC
Date: April 15, 2009
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0 500 1000 Feet
NORTH

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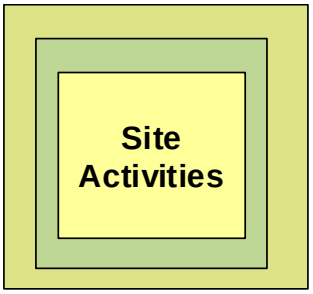
The Master Plan Components - Identified Master Plan Recommendations

Recommendations, outlined on the following pages, are organized based upon their relationship to each of the four Master Plan elements: site activities, capital projects; policies; and additional needed assessments. In some cases, as part of a broad-reaching recommendation, a series of more detailed related recommendations are provided.



For each Site Activity, a definition was created. Given the Site's unique nature and the complexity, definitions are specific to the Spring Creek Canyon Site - that is, the definition of restoration on this Site will be different than a definition for restoration in another part of Pennsylvania or another region in the United States.

Recommendation #1 – Accommodate and balance four types of activities on the Site

In context of this Strategy's goals, objectives and principles, suitable Site activities include:

- Conservation;
- Restoration;
- Agriculture research/education for conservation purposes; and
- Recreation.

Conservation

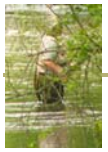
Conservation is the careful management of existing habitats to improve and sustain native biodiversity and to address threatened resources. Areas for conservation generally follow the Site's existing woodlands. Ways in which conservation can be implemented on the Site include:

Recommendation #1A *Identify and map specific locations of existing native plant species and invasive species within the Lands for Conservation*

Existing woodlands of the Spring Creek Canyon site cover approximately half of the Site. The on-going management of existing woodlands will include both the re-introduction of native species and the control of non-native species. The locations, relationships and extents of desirable and undesirable vegetation species should be identified and mapped to determine 1) the extent of Conservation area in need of attention, 2) priority areas for Conservation and 3) the appropriate methods suitable for addressing conservation needs.

Recommendation #1B *Formalize the Master Plan's Lands for Conservation by physically defining area boundaries on the Site*

The boundaries of the Lands for Conservation on the Master Plan generally represent the extent of the Site's existing woodlands. The character of edge vegetation should be recorded and mapped in order to determine the suitability of the various edge and interior plant communities to be re-planted as woodlands. In some cases, the edge conditions will



indicate that the forests should be expanded to strengthen the viability of existing interior forest conditions. In other cases, edge conditions will indicate habitat in need of a high degree of remediation more suitable to the establishment of woody successional species.

Recommendation #1C *Prioritize lands most suitable for the expansion of appropriate forest communities*

The existing patterns of plant materials as mapped within the Lands for Conservation and the identified edge configuration aids in determining where and how the forest species should be re-established. Plant selection, including trees, shrubs, and herbaceous species should be based on current or historically existing native communities. Density of planting patterns, relationship of understory and canopy, and location and size of restoration areas should be determined by the fabric of the existing woodlands and their potential for offering a variety of plant and animal habitats. Woodland edge restoration should be undertaken in a way that will enhance the continuity of woodland habitat and expand the quality of the woodland's interior.

Recommendation #1D *Provide for appropriate recreation opportunities including hiking, fishing, canoeing/kayaking, birdwatching and cross-country skiing within the Lands for Conservation*

A limited extent of passive recreation opportunities should be permitted within the Lands for Conservation. While passive recreation activities should generally be considered compatible with Lands for Conservation, the impact of human presence should be carefully considered in relationship to on-going woodland care and to the future composition of the woodland's plant communities. Conversely, the methods, locations, and sequencing of conservation efforts should be considered in relationship to woodland locations deemed most desirable and suitable for human activity as well as the circulation routes which will be implemented to access those locations.

Restoration

Restoration is the establishment and enhancement of natural communities and associated physical attributes where these characteristics are absent.

Recommendation #1E *Identify and map specific locations of existing native plant species and existing invasive species within the Lands for Restoration*

The 450± acres of the Site's Lands for Restoration are generally comprised of previously disturbed areas including areas once or currently used for agriculture (pasture, orchards, and open fields) in proximity to identified Lands for Conservation, known sensitive natural resources and/or known or potential culturally significant areas. High quality native

habitat communities are either scantily represented or are absent in these areas. The soils, vegetation communities, geology, and topography vary greatly among the Lands for Restoration. Existing native plant species and non-native invasive plant species should be identified and mapped in order to determine priorities for habitat restoration as well as the restoration methods suitable for these varying landscapes.

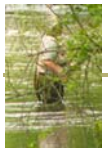
Recommendation #1F *Formalize the Master Plan's Lands for Restoration by physically defining area boundaries on the Site*

The boundaries of Lands for Restoration generally represent an expansion or improvement (core forest to forest edge ratio) of existing woodland edge conditions. The specific distinction between the Lands for Conservation versus those for Restoration will be dependent on the detailed analysis and mapping of the woodland edge vegetation as described under Recommendation #1B above. The refinements of the edge delineation, based on existing vegetation communities and other site characteristics, will support restoration efforts by indicating the extent and appropriate methods necessary for the varied situations which exist along and or which may be encompassed by existing woodlands.

Recommendation #1G *Provide for appropriate areas designated for passive recreation uses including hiking, canoeing/kayaking, birdwatching and cross-country skiing.*

The extent of passive recreation activities within Lands for Restoration is recommended based the sensitivity of the Site's natural and cultural resources as well as the configuration of slope, aspect, soil and drainage characteristics. Potential conformance to ADA accessibility requirements in combination with the intensity of potential restoration will be an important consideration for designating the specific locations of recreation. No pedestrian routes are suitable for drainage ways, wet areas, or erodible slopes. Hiking and cross-country skiing could occur in a wider range of habitats due to the activity's more passive nature and requiring a route which responds to the lay of the land and offers a variety of stimulating sensory experiences. ADA accessible paths will be confined to locations where grades do not exceed 5%.

Based on site conditions, a further evaluation of potential and suitable biking opportunities should be conducted to determine specific portions of the Site most suitable for 1) tolerating the intensity of visitation which various types of biking could attract to the Site and 2) offering a variety of alignments to provide an interesting biking experience for those of a range of riding levels/capabilities. At this point in the Master Planning process, it is recommended that no specific biking trail alignments be designated until future analysis is completed,



which identifies the threshold of potential biking traffic suitable for the site, the type of biking that may be appropriate and where such activity could impact site resources.

Recommendation #1H *Designate lands for grassland restoration (temporary)*
and
Recommendation #1I *Establish opportunities for forest restoration*

Volunteer woody species typically appear on disturbed open sites after herbaceous species are established. These shrubs and trees are an important step in the process of forest regeneration. Pioneering native shrub and tree species should be introduced to the Site grassland restoration areas to encourage the natural progression from open lands to forest. They will provide a desirable habitat for birds, small mammals, and other wildlife species, and as they grow they will help to create necessary soil, moisture and light conditions which forest require. In time, the species composition of the adjacent woodlands can be introduced into the various grassland communities. The stages of habitat succession should be monitored to ultimately encourage the development of the mature forest canopy

Recommendation #1J *Re-establish a barrens community*

The open uplands to the north of Spring Creek (commonly referred to as the Orchard) are characterized by thin, dry nutrient poor (calcareous) soils which have been identified as those soils which provide excellent opportunities for the re-establishment of native grassland and shrub communities – or barrens communities. These types of landscapes in the past appeared as small prairie like openings in the Pennsylvania woodlands but are now rare. Re-establishing a barrens community on this portion of the Site where more intense woodland communities may not thrive will help increase water infiltration, protect the Creek's hydrology and groundwater resources, offer habitats for a diverse range of rare non-woodland species as well as passive recreation opportunities which are different from those to be found within Spring Creek Canyon's woodlands or other open areas.

Based upon recognition during cursory field reconnaissance (completed by Technical Advisory Committee members during this Planning Process), it was noted that remnants of barrens community species do exist in vicinity to the Site's orchard. To promote re-generation and spreading of these species via seed, it is recommended that controlled burning in the Orchard area be completed. Policies related to such burning should be addressed by Benner Township and Conservation Easement holders.

Conservation/Restoration of Culturally Significant Areas

Recommendation #1K *Encourage public awareness of the site's cultural resources*

In addition to the Site's unique ecology, information regarding the Site's cultural significance should be highlighted at kiosks at each of the Site's public access points. Based upon the overall recommended master plan concept, these points should include The Rock, Paradise Road, Barns Lane Entrance and Shiloh Road (Spring Creek). It is likely that visitors may be interested in the particular aspects of the Site's cultural significance and/or locations where culturally significant components exist. However, information highlighted at each Entrance's kiosk structure should only provide an overview of the Site's pre-history and history. Particular locations of potential cultural/historical interest should not be identified within the interior of the Site in order to minimize disturbance and/or destruction to either known or un-known cultural resources.

Recommendation #1L *Complete a Cultural Resource Assessment*

[See also Policies: Recommendation #27]

The Site represents a critical and unique opportunity to study and engage the region-wide community in an exploration of its cultural history. Before the Site's detailed physical planning is undertaken, Stakeholders should engage in a Phase I Cultural Resource Assessment as outlined in the Pennsylvania Historic Museum Commission (PHMC) Guidelines for Archeological Investigations in Pennsylvania. A portion of the Assessment will focus on the known and documented historic and prehistoric sites within property boundaries including*:*

- Three prehistoric sites have been documented in the accessible portion of the property. Two are *rock shelters* that may have significance for the earliest periods of prehistoric occupation regionally.

- Nine historic properties have been registered within the property boundaries. These properties largely date to the 18th and 19th century and are evenly distributed throughout the Site.

- Two historic bridges are located on the Site.

Recommendation #1M *Protect the existing Benner Cemetery*

Agriculture Research/Education for Conservation

As part of the Spring Creek Canyon Site, Agriculture Research/Education for Conservation is the science, art, or occupation concerned with the cultivation of crops (i.e., food, fiber, biofuels) for the purposes of research and education using sustainable, organic, or permaculture methods with minimal impact to surrounding natural resource areas. As part of the Master Plan, three (3) areas totaling approximately 380 acres are located generally situated adjacent to I-99. Ways in

which agriculture research/education for conservation can be implemented on the Site is founded on the following core recommendations:

Recommendation #1N *Identify and map specific locations of existing invasive species within the lands for agriculture research/education for conservation*
The Site's Lands for agriculture research/education for conservation are generally comprised of agricultural land that is currently working farm land or is lying fallow. Soils of some of these lands are designated by the USDA Natural Resource Conservation Service as Class I or Class II – those ideal for farmland/agriculture use. To minimize the spreading of unwanted invasive plant species, these species should be identified and mapped. Invasive species removal and management should be integrated into the Site's overall restoration methods.

Recommendation #1O *Formalize the Master Plan's Lands for Agriculture Research/Education for Conservation by physically defining area boundaries on the Site*
The boundaries of Lands for Agriculture Research/Education for Conservation generally represent a reduction of existing agriculture activity on the Site. As part of the overall implementation and management strategy, Lands for Agriculture Research/Education should be delineated from those intended for Restoration.

Recommendation #1P *Engage in research, education and outreach opportunities which uphold the Site's environmental quality*
In concert with the overall vision for the Site to be a model for conservation and outreach, agriculture research/education should be permitted to occur on Site so long as such activities are align with the provisions of the Site's conservation easements. An example listing of these types of activities, include but are not limited to, natural resource protection, organic research and education, biomass feedstock production, invasive species research/education and applied ecology. If structures to support such agriculture research/education activities (e.g. maintenance equipment storage) are to be constructed on the Site, they should only be permitted within proximity of the Master Plan's designated area for active recreation and/or where historic farm buildings are currently located on the Site.

<u>Recreation</u>
Opportunity exists for two scales of recreation to occur on the Site. The intensity of human impact on the land largely distinguishes the two types (passive recreation and active recreation).

Passive recreation is an activity that creates opportunity for independence, closeness to nature, and a high degree of interaction with the natural environment and which

typically requires no organization, rules of play, facilities, or the installation of equipment, other than those which may be necessary to protect the natural environment. The types of passive recreation appropriate for the Site include pedestrian-oriented trails, fishing, canoeing/kayaking, bird watching, cross-country skiing and hunting.

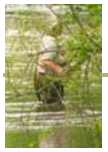
Active recreation is typically involving the manipulation of land and/or water resources for the construction of recreation facilities or more intensive development than passive recreation and where such activity may or may not feature cooperative/organized participation.

➢Passive Recreation

Recommendation #1Q *Proactively address potential conflicts among Spring Creek's fishing and canoeing/kayaking user groups*
Recognizably because of the Creek's narrow width, varying flow levels and seasons of interest, there is the potential for conflicts to arise among the Creek's different user groups (i.e. between fishermen and canoeists/kayakers). Consequently, if put-ins are constructed, this should only be completed in conjunction with coordination and construction of a take-out point off-site downstream. Analysis should also examine and address a series of use/management regulations (e.g. seasonal timing, etc) be created as part of the Site's overall management plan. These policies can assist in proactively addressing instances when potential conflicts could arise.

Recommendation #1R *Promote fishing access at Shiloh and Rock Road entrances.*
The Shiloh and Rock Road entrances should be Site access points geared for fishermen. Both entrances have some space available for parking and offer direct access to the Creek waters. Rock Road does not connect to a formalized foot path; Creek-side access management, especially from the Rock Road entrance, should be further evaluated and planned in order to minimize disturbances to floodplain areas. From the Shiloh Road access area, visitors can utilize designated points along the stream-side trail to access to and/or from the Creek bed.

Recommendation #1S *Construct walking trails throughout the Site*
The Master Plan presents recommendations for various trails. Comprising more than 10 miles of foot paths on the Site, these trails provide access to both the Site's Uplands and the banks of Spring Creek. The Upland trails are situated in somewhat rolling terrain and must descend steep slopes to reach the Creek.



While the Upland's trails include some relatively level areas, it is unlikely that all portions of them will conform to ADA accessibility standards. In contrast, the pedestrian trails which border a considerable length of Spring Creek are consistently less than five percent slopes conforming to ADA regulations for suitability to all ages and abilities.

Recommendation #1T *Offer defined hunting timeframes and coordinate public access for other passive recreation uses accordingly.* Hunting is a passive recreational activity which should be considered generally compatible the conservation / restoration objectives of the Master Plan. However, come view hunting as an activity which may not be well matched with all other proposed Site activities. Consequently, controlled seasons should be designated for hunters' use of the Site; these seasons should also be coordinated with other public use activities and access. Parameters for hunter access should be defined as part of the Site's overall rules and management structure.

➢Active Recreation

Recommendation #1U *Determine the suitability and impacts of potential environmental education structures and/or organized outdoor recreation activities*

There is the potential for the Spring Creek Site to demonstrate how resource management can be effectively undertaken with human activity being part of Conservation successes. The potential of the Spring Creek Canyon Site to offer opportunities for more intense recreation programs such as structures to house environmental education activities or organized outdoor recreation activity should be considered in relationship to regional recreation needs and to goals for activities and management of the Site. The ability to integrate a variety of active and passive activities in a mutually supportive way on the Site should determine the feasibility of including some high intensity uses on limited Site areas. Specific Site standards should be defined to ensure that the built environment does not negatively impact the Site's conservation values or the Conservation Easement(s).

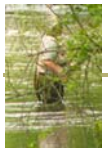
The following options could be considered:

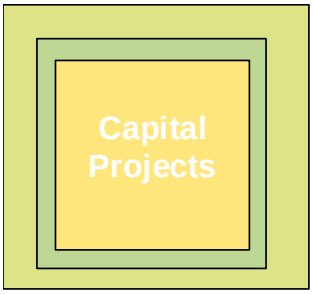
1. Township Community Park – Develop and operate this site as a community park. The cost of development could be from $4 million upwards. Annual operating costs could be about $75,000 -

$100,000 depending upon the facilities and programs included.

2. Partnership – Issue a Request for Proposals for the development , operation and management of the site or portions of it for public recreation. Private non-profit organizations could submit proposals for how they would develop and operate the site for the public good.

3. Living Laboratory for Community Recreation and Conservation – The Community Park could serve as a living laboratory for community recreation, landscape design, agronomy, hospitality, tourism through a cooperative partnership. The park could set the bar for what community parks in Pennsylvania could be. From that perspective it would be attractive to recreation industry related businesses for sponsorship, partnerships, and donations. This would offer a revenue source not available to typical community parks. Theory from recreation in context of world-class conservation initiatives to the psychology of outdoor play could get real life application here in a way not possible anywhere else.





The Master Plan's second component includes a series of recommended capital, or physical, improvements associated with the Site Activities. In some cases, improvements apply to the overall Site. In other cases, improvements apply to a distinguishable Activity area.

Recommendation #2 – Develop a comprehensive plan to address and prioritize invasive species control

Controlling invasive species on the Site is of vital importance in order to improve the Site's present and future natural habitat quality. Priorities for implementing a plan, methods for controlling and funding opportunities to eradicate invasive species should be guided by the Site's existing conditions including 1) the level of threat posed to species of special concern and existing natural habitats and 2) the location of threatened areas within designated Master Plan phasing areas.

As part of developing this approach, invasive species types, severity and locations (e.g. adjacency/or inclusion within natural habitat type such as riparian buffer, vegetated floodplain, hardwood forest, evergreen plantation, open areas of herbaceous and woody successional species etc.) should be identified and mapped. Recommended eradication methods, as appropriate based on parameters of the Conservation Easement(s), should then be defined. Eradication efforts in relationship to conservation and restoration activities should then be prioritized to minimize invasive plant re-growth and to maximize their long-term control on the Site.

Recommendation #3 – Introduce appropriate native species to supplement existing woodland areas within Lands for Conservation and Lands for Restoration

Within identified Lands for conservation and as part of the Site's overall concept for restoration, customized planting palettes should be defined which include species most appropriate to supplement each of the Site's existing forest communities. Coordination between the planting of species and the eradication of invasive plants is a key component of this effort's success. Also, areas for prioritized planting should be identified recognizing that the species' contribute to the Site's overall habitat quality in relationship to:

- Protection of drainage ways and critical groundwater recharge areas;
- Expansion of core forests; and
- Closure of forest gaps and increased habitat connectivity.

Refined techniques for plantings should be made as necessary based upon specific Site Forest Management and Restoration Plan updates as they are completed (See Additional Related Studies).

Recommendation #4 - Establish native warm-season grasses in appropriate areas for within Lands for Conservation and Lands for Restoration

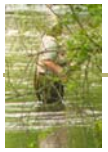
As part of the Site's overall conservation and restoration efforts, a detailed inventory of existing conditions (vegetation, soils, aspect, slope, hydrology etc.) should also be completed for the designated Conservation and Restoration areas. The determination of suitable native warm season grasses species, extent and locations should be identified in concert with overall Site

management activities and phasing to establish suitable temporary cover, encourage appropriate wildlife habitats, prevent erosion and promote soil enrichment.

Recommendation #5 - Initiate forest succession through woody species cultivation
In conjunction with Recommendations #3 and #4, the introduction of native pioneer woody species, in concert with warm-season grass planting efforts, is recommended. The specific method(s) to promote diverse habitat areas will need to be determined in context of Site management strategies and the existing conditions of the particular area in which restoration will occur.

A sample concept for site restoration sequence as related to recommendations #3, #4 and #5 is as follows:

1) Conduct site assessment and write plan (Year 0): existing cover, invasive plants at and adjacent to site, soil conditions (soil test, tile drains, gully problems, etc.)
    a. Assess present landcover: old hayfield, corn stubble, pastureland, etc..
    b. Determine soil characteristics and preparation needs: subsoil tilling, drainage issues, nutrient application - consider advice from NRCS
    c. Determine any obstacles/challenges
    d. Design project using phased site mapping
2) Establish warm-season grasses (Year 1)
    a. Determine approach to invasive species and if herbicides can be avoided
        i. Note: Non-herbicide approaches are of course preferred, but no successful ones are known, i.e. buckwheat cover crop (personal communication: T. Stickle); additional experimentation is encouraged. The issue is that warm-season grasses require low competition during Year 1, and often some invasive control in Year 2 (and possibly Year 3).
    b. Determine seed mix (panic-grass, mixed grasses, grasses and forbs, etc.) and density (lbs/ac/species)
        i. If patches of hydric soils are present, additional palustrine species might be established, e.g. *Scripus* sp.
    c. Herbicide application, or experimental cover crop application
3) Woody plants
    a. Collect local seed and grow in nursery in Year 0 or Year 1
    b. Begin to install in late in Year 2, or beginning in Year 3
        i. Timing depends upon invasive plant control issues, etc.
4) Biomass – coarse woody debris and other structure
    a. Placement of logs on site in piles and linear avenues from adjacent forest
    b. Wood chip or leaf mulch piles, etc., after review of potential to introduce/encourage invasive plants
    c. Install wooden posts as perches
    d. Install artificial wooden shelters and nesting sites: boxes, cover-boards, etc.
5) Year 2 invasive plant treatment
    a. Spot treatment – manual and /or herbicide application
6) Year 3 – continue to establish woody species (optional)
    a. Species native to area typically operating as invaders and soil builders: black locust, aspen, sumacs, native alders, dogwood (shrubs), willow (wet spots)
        i. Stock grown in local project nursery
        ii. Seeding via local sources, e.g. collection of aspen seeds and applied directly to small areas of prepared soil



   b. Evergreen planting using native white pine and Virginia pine
   c. Establish American chestnut (if appropriate) – first resistant seed from American Chestnut Foundation potentially available beginning approximately 2012
   d. Option: Where forest restoration site is bordered by existing forest, fell occasional forest edge trees perpendicularly into field. Note: This option might make it harder to control certain invasive species, e.g. via mowing or spraying via unit mounted on vehicle.
7) Beginning monitoring in Year 1
   a. Invasive plants
   b. Soil erosion
   c. Assess success of establishment of planted species
   d. Optional tracking of species naturally utilizing site
8) Conduct management actions in response to information provided by monitoring

Recommendation #6 - Construct the Site's network of trails

The circulation system for recreational use should consist of a trail hierarchy - defining trails by intended user groups and by accessibility. Trails should be specifically designed and clearly marked to suit their intended user group. The Master Plan's trail locations and types have been selected to 1) facilitate access to the major geographical areas and 2) minimize disturbance to the Site's natural habitats.

Recommendation #6A *Delineate a stream-side Spring Creek Trail*

The Spring Creek edge zones include some of the most sensitive natural features on the Site. Pedestrian circulation within this riparian buffer/flood zone should be limited to the existing trail on the Creek's northern bank at the Shiloh Road access to the Rockview Pump House, crossing to the Creek's south bank to ultimately extend to Fisherman's Paradise. Based upon cursory filed reconnaissance, existing Creek-side trail grades appear to have the potential for use by pedestrians of all ages and abilities. Surfacing or any minor alignments should be amended with suitable surface stabilization techniques as needed to insure conformance with accessibility standards and to minimize unwanted erosion. With the exception of designated Creek access areas, pedestrian activities should be confined, as per Site rules, to the trail itself.

Recommendation #6B *Designate trails within the Site's former Orchard area*

A series of trails in the Site's northern Uplands should take the form of a circuit beginning and ending at the Barns Lane trailhead. The interlaced loop system can provide users rolling terrain and a variety of natural habitats. To minimize potential conflicts between the Uplands' recreation, conservation and restoration activities, the alignment and opening/closure of trails will need to be coordinated with habitat re-establishment/enhancement and invasive species eradication efforts. To emphasize both safety and environmental standards, site design standards should be created to identify preferred surfacing, width and alignments.

The North-South trail should connect the northern Uplands/Barns Lane Access entrance to the stream side trail. A large majority of this trail will not be universally accessible (conforming to ADA accessibility standards) as it approaches Spring Creek and traverses a steep existing graded access road slopes. Trail blazes should mark universally accessible portions of the trail. In addition, great care must be taken in the grading and maintenance of this trail/road access to insure the conservation of wooded slopes bordering the Creek's northern edge.

Recommendation #6C *Create a South Fields Trail for hiking within the Site's southwest and southcentral Uplands*

The South Fields Trail is a pedestrian only route over rolling terrain. The Trail's alignment, among Lands for Restoration and some agricultural research/education lands, covers portions of the Site which range from gently to more steeply sloping. As the Trail courses from one end of the Site to the other, it offers a variety of habitat experiences and views including agriculture research/education areas, Uplands of warm weather grasses and pioneer woody species, and a few shady areas of steeper wooded slopes. The South Fields Trail connects to the Creek at both bridge crossings.

Recommendation #6D *Connect pedestrians trails between the South Fields and a Paradise Road trailhead*

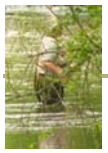
The trail head at the Paradise Road provides access to the South Fields Trail making a connection to the entire southern area of the Site as well as to the Spring Creek walking trail via the two bridge crossings.

Recommendation #6E *Relocate trails as necessary based upon progression and locations of restoration activities*

All of the trails will pass through portions of conservation and restoration areas. To optimize master planning success, all trail construction phases and layouts must be coordinated with the timing and locations of Site restoration activities. Trails should provide practical and safe access to visitor use areas; however, erosion, drainage, and habitat protection issues are to be the primary factors for determining the final trail configurations.

Recommendation #6F *Mark trails with blazes*

Trail blazes should be strategically placed to indicate trail use and change of direction where necessary. Blazes should indicate to shared use where it may exist, and hence to be alert/sensitive to the different use requirements. Blazes at trail intersections should indicate appropriate orientation/directional information and safety issues as they may exist.



Recommendation #7 – Accommodate Canoe/Kayak Access along Spring Creek
Recognizing the Canyon's historic popularity among fishermen, the Creek also provides opportunities for leisure canoeing and flatwater kayaking. Based upon topography and access, there are two potential canoe/kayak put-ins within the Site: in the vicinity of Rock Road/Benner Spring and at the Shiloh Road-Spring Creek Hatchery. This recommendation should only be pursued and completed in conjunction with coordination and construction of a take out downstream. Each put-In should be marked with a pedestrian-scale marker visible both from the land side and from the Creek. The put-in at Rock Road should be just north/east of the limited access bridge between Rock Road and the Hatchery access. The put-in could also be located to avoid conflicts with nearby Benner Spring.

A second put-In could be located on the north side of Spring Creek in the vicinity of the Shiloh Road-Spring Creek Hatchery entrance. This put-in provides a central point for canoeists/ kayakers to access the site and to travel further north/east toward Fishermen's Paradise.

Recommendation #8 Regional Access System
Based upon potential local, national and international attention, this Site has the opportunity to attract many visitors; accessibility is a key planning consideration in context of the Site's conservation values.

Recommendation #8A *Designate Paradise Road and Barns Lane as public entrances*
Interstate Highway 99 (I-99) borders the Site's southern boundary and is the primary route for regional traffic. I-99 interchanges exist at both the Site's east (Route 150) and the west (Shiloh Road) boundaries.

The I-99/Route 150 interchange provides easy access to the southeast corner of the site via Paradise Road and to northern portion of the Site via Barns Lane (from Paradise Road). Barns Lane can also be reached by a more local route via Rock Road running along the western boundary of the site. Paradise Road and Barns Lane access points have the opportunity to host visitor parking and connect with a variety of the Site's potential passive recreational activity areas.

Recommendation #8B *Identify Shiloh Road as access for both publicly and non-publically accessible lands*
The I-99/Shiloh Road interchange along the Site's southwestern boundary allows for limited access to the PA Fish and Boat Commission hatchery on Spring Creek and the proposed central Canyon trailhead and put-in.

Recommendation #8C *Rock Road should serve as a trail head for water oriented activities.*
Because of the more local nature of its connection, proximity to privately-owned lands, and presence of sensitive natural resources, the Rock Road entrance should be limited to fishing and canoe/kayak enthusiasts. Site standards for improvements at this trailhead should be carefully designed so

that disturbance to sensitive natural features (e.g. Benner Spring, riparian buffer areas, native plant communities, floodplain, and the Spring Creek itself) is minimized.

Recommendation #8D *Site the Rock Road put-in to avoid interaction /access with Benner Spring*
The paramount design goal for this trailhead and circulation should be the provision of safe access to the water and minimal disturbance to sensitive natural resources. Signage should also be erected identifying the sensitive nature and associated "rules" for this portion of the Site.

Recommendation #8E *Identify the Canyon's entrance from Fisherman's Paradise*
Another gateway to the Canyon is along Spring Creek when traveling west from Fisherman's Paradise. Similar to the Site's put-in locations, signage along the Creek-side trail should also be erected identifying the sensitive nature and associated "rules" for this portion of the Site.

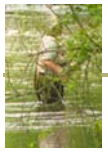
Recommendation #9 - Parking on the Site

Recommendation #9A *Promote stormwater infiltration in parking areas*
General standards for parking lot and road design should be maintained throughout the site to include the following:

Optimal use of pervious surfacing.
Elimination of unnecessary impermeable surfaces to enhance stormwater absorption and groundwater recharge;
Avoidance of proximity to sensitive site features to conserve the waters of Spring Creek and other valuable resources;
Design of access and circulation routes to conform with existing and proposed wildlife habitat patterns and prevent the fragmentation of habitat areas; and
Use of natural drainage systems to capture and clean stormwater to protect the waters of Spring Creek and the underlying aquifers.

Recommendation #9B *Construct vehicular access areas with materials to enable 4-season access.*
In combination with the Site's overall stormwater infiltration plan, it is recommended that main access roads, parking area cartways (center aisles) and ADA accessible parking spaces be constructed of materials which enable 4-season access. It is anticipated that the public will come to the site throughout the year, so safety and design precautions to minimize disturbances to soils, plantings, etc. are important considerations.

Recommendation #9C Tailor design and maintenance standards for roads, parking areas and walkways to the specific intensity and purpose of each circulation feature



Circulation routes should be categorized as to purpose, accessibility and use. Criteria/standard categories defined are:
Trail width;
Shoulder width;
Surface type;
Trail grade (longitudinal slope);
Trail surface grade (cross-slope);
Vertical clearance, horizontal clearance (edge of trail vegetation clearance);
Design speed (mph);
View shed [linear feet (line of site within a corridor)]; and
Signage (type, size).

Standards for width, maximum slope, surfacing, design speed, and grading will vary from category to category. Routes for motorized vehicles will be wider than those for bicycles. Pedestrian only routes will be narrower than multi-use trails (pedestrians and bicycles). Designated accessible pedestrian routes should be constructed according to ADA requirements. Vertical clearance requirements will be higher for bicycle ways than for pedestrian only ways. Surfacing too will vary depending upon the type of use and the slope of the pathway. For example, while it is desirable for pedestrian paths on the site to be composed of existing natural surfaces to diminish site disturbance, pathways in areas of required accessibility or of steeply sloping land, may require some type of paving material.

Recommendation #9D *Install gates at road entrances/parking areas as a management tool for site access*

The need for gating portions of the Site is two-fold. At each of the main entrances, gates should be erected to control the general public's accessibility to the site. Gates also should be placed along access roads internal to the Site where potential erosion is minimized, ground surfaces remain stable and vehicular access of public versus non-public areas can be controlled.

Recommendation #10 - Install interpretative signage at all parking areas/trailheads to emphasize the site as a system of exceptional natural resources to be enjoyed and protected.

The primary goal of the signage program for the Spring Creek Canyon site should be to re-enforce the overall Plan objectives for the 1) conservation of the site's natural resources and 2) the responsible enjoyment of the exceptional recreational opportunities provided by these resources. Signage should provide directional, regulatory and educational information about site use in a manner that is easily accessible to park visitors. At the same time, the signage program should be designed and constructed with minimal visual and physical impacts to the site.

Recommendation #10A Create a Spring Creek Canyon Logo/Symbol

A Logo/Symbol representing the character and importance of the Spring Creek Canyon site should be developed as the central idea of the signage program. The symbol/logo should signify the multi-faceted themes of restoration, education and appreciation. The symbol/logo is important in that it can provide an overall identity. To reinforce the Site's continuity, the symbol/logo should be represented on all of the signs within the site. Logo ideas could be generated from a variety of sources including contests among local school children and/or members of the public.

Recommendation #10B Utilize Sustainable Materials for the Signage program

The materials and form of signs should be determined according to their durability, sustainability, and visual suitability to the Spring Creek Canyon site. Standards for materials, form and installation should be defined and applied to all of the signs placed on the site.

Recommendation #10C Formulate Signage Types based upon Locations

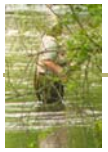
A signage palette should be developed which defines the purpose and informational content of each sign type that will be required. Locations for each sign type should be selected according to sign content/purpose and the design of each sign type should be an appropriate "fit' to its location within the site. Clear communication and suitable sign placement should be carefully considered in order to minimize the number and types of signs needed on the site. Potential sign types might include the following:

Identification

Identification signs should be used to announce the name of the site, schedule of operation and other general information needed upon entry to the site. Identification signs should be located at all four (4) site entrance gates. All Identification signs should be of uniform design; however, one of two (2) sizes will be used to indicate the hierarchy of entrance types (regional public, local public etc.) and the informational content will vary according to the character of the site access points.

Regulatory

Regulatory signs should inform visitors of site rules and policies and should address responsible and safe use of site lands and facilities. Regulatory signs should be located at all four (4) site entrances and should be identical in design and informational content. Information presented should be based local, state and federal regulations as well as on policies specifically designed to conserve and protect the site's sensitive features. Topics addressed might include policies concerning:



Kayaking and Fishing;
Controlled substances;
Environmental issues;
Fire;
Firearms;
Hunting;
Motorized and non-motorized vehicular use;
Permissible site activities;
Pets;
Preparedness and safety; and
Restricted use zones;
Sanitary waste disposal; and
Trash/litter.

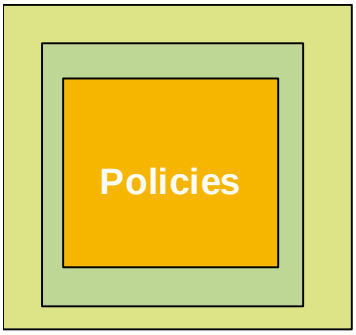
Rules and regulations should be carefully molded to promote the use of the Spring Creek Canyon site as a system of valuable natural resources to be protected and improved under the umbrella of the “tread lightly” recreation ethic of stewardship and responsible use.

Interpretive
Interpretive signage should provide information related to the cultural, historic and environmental character of the Spring Creek Canyon site. Interpretive signs should be located for maximum educational impact and minimum environmental impact in areas which have been planned to accommodate groups use such as access points, trail heads or recreational nodes.

While the design of interpretive signs should be uniform, information content should vary to focus on different aspects of the site. Signs should draw on opportunities offered by specific locales within the Spring Creek Canyon site to expand and complement the signage themes with “on-the-spot” references.

Interpretative signage content should support the idea of the site as an important resource to be appreciated for the processes which have created it and for the benefits which it continues to offer to both human and natural systems.

Trail Entrances
Trail Entrance signage should provide directional information, brief site specific descriptions and trail use guidelines. Trail Entrance signage should be uniform in design throughout the site and should be placed at all trail entrances. The signs should offer clear but concise information and be designed for minimum visual impact on the surroundings. The design of Trail Entrance signs should reflect their purpose which is to mark the transition from the human oriented space of the entrance node areas to the wild-life oriented space of the site interior.



Based upon the range of potential future Site Activities and Capital Projects, a range of policy actions are recommended to occur. While there is a range of entities charged with developing policies, the policies as a whole will be applicable to the entire Spring Creek Canyon Site.

Recommendation #11 - Safeguard against the additional spreading of invasive species on the Site

Visitors should be educated on the threats and seriousness of invasive species to the Site's overall health. Based upon the proposed relationship of Site access and opportunities for activities, one of the most effective and unobtrusive ways to share this information is through signage. Related messages should be erected both at trailheads and at key points along designated trails.

Recommendation #12 – Consider findings from future regional studies

The relationship and complexity of the Site's known natural and cultural resources was identified as part of the project's analysis phase. Based on the analysis findings as well as feedback gained from project Committee members and the public, no one location on the Site could be determined as suitable for supporting potential active recreation activities inclusive of structures that could host environmental education opportunities.

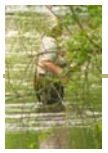
If any related regional/County-wide assessments are completed (e.g. regional recreation demand analysis) which produce recommendations that could bring opportunities to the Site, future property owners and conservation easement holders should consider the type of physical and/or policy impacts that the opportunities could bring to the Site. If and/or how the opportunities could impact any internal activity boundaries should also be considered in terms of both access and relationships to sensitive natural and cultural resources.

Recommendation #13 – Identify that the conservation easement(s) applicable to this Site is tied to geographic boundaries of sensitive resources rather than ownership

Because of the type and extent of natural and cultural resources occupying the Site, it is recommended that the conservation easement(s) be tied to the sensitivity of resources rather than to particular landowner(s) as defined as in the original parameters of the Master Planning process. In examining the emerging resource patterns based upon background information provided by various members of the project's committees (Steering, Technical Advisory and Public Advisory), it should be recognized that there few portions of the site that don't contain at least one significant natural and/or cultural resources; building on the overall goals and objectives of this planning process, the conservation and/or restoration of such existing resources should be managed to the greatest extent possible and practical.

Recommendation #14 – Revise Township Zoning Provisions for Parking

The Spring Creek Canyon Master Plan presents activities which area largely passive in nature. To help maximize ways in which existing sensitive resources can be protected, current parking provisions in the Benner Township Zoning Ordinance should be evaluated and updated. New provisions, specifically related to the establishment of maximum parking ratios, could be considered in one of the following ways:



a) An overlay is a common zoning tool that allows the existing zoning designations to remain in place but provides either more strict or more lenient regulations as related to visual and use compatibility issues.
b) Amend parking standards to include specific uses of the Site – Currently the parking requirements of the Zoning Ordinance do not list most of the uses envisioned as part of the Site and a clear correlation between Activities and the Ordinance's requirements is not readily available. The Off-Street Parking Section of the Ordinance can be amended to specifically address maximum parking requirements (versus traditional minimum controls/ratios).

Recommendation #15 – Develop Township Design Guidelines related to Site Improvements

Design Guidelines are a set of identified patterns and policies beyond basic Ordinances that shape continuity of improvements and identify a desired level of quality for the physical environment. As part of providing a cohesive and integrated Site, Design Guidelines should be created to address standards for public access areas, pathway/trail construction and signage.

Recommendation #15A *Define Standards for Public Access Areas*

Parking areas within the Site should be more than just areas used for vehicle parking. Parking areas, after access roads, are the second piece of the overall experience associated with the Spring Creek Canyon Site. Parking area design should convey to visitors that conserving the natural environment is the priority of the entire Site. Because visitors leave, but nature does not, parking areas should be designed so that parking clearly appears secondary to conservation/restoration. This can be accomplished by addressing landscaping, parking islands, and paving material standards.

Roads will be utilized to provide access into the Site as well as connect amenities together. Although essential to site design, roads are inherently unnatural and, if improperly designed, can at times act as a barrier to nature. In order to limit the impact that these roads may have on the Site, design guidelines should focus on governing minimum and maximum roadway and related right-of-way width, berms, shoulders, center islands, drainage and landscaping.

Recommendation #15B *Develop Sustainable Pathway/Trail Construction Standards*

The Site's pathways/trails should be designed with specific intentions and in context with their proximity to sensitive habitats. Consequently, a formal set of standards should be developed which address:

- Permitted Users
- Grading
- Materials
- Dimensions
- Evaluation of trail in proximity to sensitive habitats

Recommendation #15C *Adopt Signage Guidelines*

Adopting design guidelines for signage will help to create a unified Site, provide clear and easily recognized way-finding points and will convey how sustainable policies are at the core of the Site's mission. Design guidelines should address permitted sign types (such as monument or directional sign), sign size and sign materials. Associated materials should only be those types that fit within the context of the natural environment and are composed of sustainable materials.

Recommendation #16 – Prepare management and maintenance protocols for individual activities

As part of establishing a modern model for conservation, activities on the Site will require some specialized management and maintenance protocols. Recognizing that activities will all fall under the guise of a Conservation Easement(s), a sampling of these protocols includes the following (see also Part 6):

- Distinguishing specific mowing practices based upon the sensitivity of the Site's habitats
- Identify fertilizing and/or manure management applications
- Defining acceptable spraying standards to address invasive species and other maintenance needs
- Prepare standards related to snow removal in public access areas

Recommendation #17 – Utilize materials which are sustainable and obtained regionally

As part of enhancing the Site to one that exemplifies a balanced approach to restoration, education and appreciation, materials used on site should those that can be categorized as sustainable and/or obtained directly from the region. Examples of applicable materials are those used for:

- Road/Access construction
- Trail construction
- Bridge construction
- Active Recreation construction
- Signage

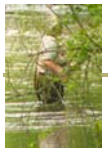
Recommendation #18 – Require special improvements that incorporate best management practices

As Site improvements are made, best management practices, as promoted by both PA DEP and PA DCNR, should be utilized to protect the existing Site resources and conservation values.

Recommendation #19 –Protection of historic/culturally significant places/attributes

The Site's cultural resources are equally significant to the Site's ecological resources. To protect the sanctity of irreplaceable cultural components, it is recommended that all signage, mapping and/or other promotional items, whether placed on- or off-Site, make no reference to particular locations of currently known and/or potential cultural/historic resources. This policy goes in tandem with capital project efforts identified as part of Recommendation 1.

Recommendation #20 – Coordinate restoration activities in context with the Site's cultural landscapes



Recommendation 20A *Establish policies to minimize disturbances to cultural resources*

Based upon the findings of the Phase I Cultural Resource Assessment, Stakeholders should coordinate the timing, locations and intensity of Site activities. In locations where cultural resources exist, appropriate buffers between points of public access/interaction and said resources should be defined.

Recommendation 20B *Consider preliminary National Register district nomination*

A preliminary National Register archaeological district nomination should be considered for the Rock Iron Works, along with a separate nomination for the Benner Cemetery. Both nominations are in keeping with two National Register Bulletins: (1) Guidelines for Evaluating and Registering Historical Archaeological Sites and Districts. The Rock Iron Works offers a contiguous grouping of sites, buildings, and structures linked historically by function, theme, and physical development; and (2) Guidelines for Evaluating and Registering Cemeteries and Burial Places. The Rock Iron Works Archaeological District, and the Benner Cemetery, all limited in public access for such an extended period of time, are eligible in the requirements of National Register Criterion A: they are associated with events that have made a significant contribution to the broad patterns of Centre County's industrial and settlement history.

<u>Recommendation #21 – Develop a formal dialogue among communities throughout the Spring Creek Canyon region</u>

Success of the Canyon's conservation and restoration is equally dependent on surrounding communities' actions.

Recommendation #21A *Stormwater Run-off/Watershed Management*

It is important to recognize that the Creek and the Site's health are ultimately impacted by stormwater run-off from a broader context than the Site itself; Spring Creek carries waters from surrounding land. Regional watershed planning efforts completed to date have generally focused on impacts of Stream flooding and stormwater management. A new dimension to this focus is now equally important with implementation of the Master Plan: heath as it relates to public access.

Recognizing potential negative impacts from off-Site stormwater run-off/watershed management could arise within Spring Creek, there should be mechanisms within the Conservation Easement(s) and/or potential Memoranda of Understanding to identify and manage how cooperation of all of the Watershed's communities can be used to address potential stormwater management situations relevant to both upstream and downstream.

It is recommended that Site's stakeholders work with Water Resources Monitoring Program to assist in collecting data on water quality including samplings for impacts such as nitrates, orthophosphates, total suspended solids and a variety of other contaminants.

There should be a formal meeting once a year among the communities of the Spring Creek Watershed to present/discuss information on the current status of the Stream's health. A representative of Benner Township should also continue actively participating in the Spring Creek Watershed Commission through the year to share available information about the Creek as it runs through the Site.

Recommendation #21B *Areas/Intensity of Residential and Non-residential Development*

Whether resulting from comprehensive planning strategies, zoning regulations or site specific development patterns in the overall Spring Creek watershed, development has the potential to impact the quality and health of Spring Creek as well as communities downstream (eg. Bellefonte and Milesburg).

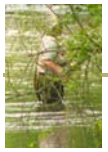
While some development is pursued responsibly, some is not. Additional mechanisms should be placed in the Conservation Easement(s) so that those charged with managing the Site are able to evaluate what/if potential impacts on the Stream are a result of on-Site versus off-Site activity.

Recommendation #21C *Surrounding Communities' Conservation Strategies*

The extent to which conservation-oriented strategies are formally established in each of the Spring Creek Watershed communities varies. It should be identified as part of Memoranda of Understanding with each community in the Spring Creek watershed that each community is to submit an annual report of their respective status in preparing, improving and/or enforcing their respective conservation-oriented strategies. If needed, this information can then be reviewed by either the Conservation Easement(s') monitors or those bound by the Conservation Easement(s) to determine any opportunities or challenges that may arise within the Site based upon the greater watershed patterns.

Recommendation #21D *Regional/County Greenway Planning Strategies*

The Spring Creek Canyon Site has been recognized in several other previous planning studies throughout the years as one of the region's most significant open spaces. Those



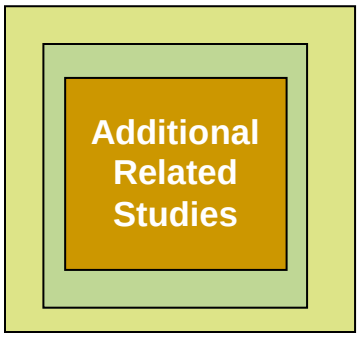
bound by the Site's Conservation Easement(s) and representatives from each of the surrounding communities should meet annually to discuss the status and opportunities for strengthening greenway connections with this Site as a keystone of that system.

Recommendation #21E *Recreation Needs/Desires*

Those managing the Site's potential active recreation activities should meet with surrounding community representatives, County planners, Penn State University and local school districts to identify what opportunities and/or challenges exist for site specific recreation master planning on the Site. Determination of particular recreation opportunities should then be evaluated to determine if the inclusion of such activities would promote or harm the Conservation Easement(s') provisions. Activities that may be needed or desired but could jeopardize the Conservation Easement(s) should not be pursued at the Site.

Recommendation #21F *Pursue feasibility of other Conservation Easements*

To identify potential additional opportunities in promoting resource conservation, expanding the Site's core forests, encouraging groundwater infiltration and improving water quality within Spring Creek itself, the Site's future managers are encouraged to identify the feasibility of pursuing additional relationships with surrounding property owners. As part of these pursuits, stakeholders on site and off site could work toward identifying the opportunities and challenges of developing additional conservation easements on surrounding lands.



Prior to this Conservation Strategy being created, stakeholders in the region had completed a range of assessments and position papers related to the Site and/or surrounding environs. Some of these works are broad in nature while others are specific. The fourth and final Master Plan Element outlines a series of additional related studies which are recommended for completion. These studies are intended to assess specific components of the Site in order to expand the availability and/or currency of the site ecological and cultural characteristics and conditions. Where suitable, a reasonable "guess-timate" of potential costs to complete the studies is also provided as part of the Initial Improvement and Additional Study Costs discussion.

Recommendation #22 – Assess deer impacts

With assistance from the Pennsylvania game Commission, PA DCNR and USGS, the Site's Stakeholders should assess the impacts of deer on current and potential habitat and Site Activities. The study, completed using the most recent methods recommended, can highlight which native plant species on the site are susceptible to deer impacts/browsing as well as which native species are more resilient. Information gathered from the assessment can be used in planning for the recovery and rehabilitation of existing areas that have previously been damaged by deer and in managing future deer activity which could occur on the site.

Recommendation #23 – Coordinate Hatchery activities and improvements with other Site activities

As part of on-going site monitoring and habitat improvement initiatives, the Site's Stakeholders should cooperatively work with the Pennsylvania Fish and Boat Commission to identify how hatchery operations and/or facility capital improvements could impact site restoration and/or conservation activities.

Recommendation #24 – Monitor water withdrawal and water quality

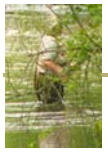
Recommendation 24A — *Work with Pennsylvania Fish and Boat Commission, Rockview, PA DEP and PA DCNR complete an impact analysis of water withdrawal*

Analyzing water withdrawal from all known withdrawal points on the Site will provide more information regarding the impact that the extraction has on local streams, springs, and wetlands. Parameters for future withdrawals can also be studied to determine the extent to which future withdrawals could or could not negatively impacts the Site's conservation values.

Recommendation 24B — *Work with Pennsylvania Fish and Boat Commission, Rockview, PA DEP, PA DCNR and community organizations complete Water Quality analyses*.

Recommendation #25 –Identify opportunities and challenges of Site springs and vernal pools

Benner Spring is the only known spring to occur on the Site; however, it is possible that other springs of smaller magnitude exist on the property. It is important to identify and inventory other springs and vernal pools within the Site given their importance to the stream segments below them as well as the sensitive species that rely on the riparian habitats created by them. Also,



identification of springs will influence the guidelines for protective buffers along Spring Creek. These protective aquatic habitat buffers should include inner and outer management zones surrounding the aquatic habitats and should be based on established guidelines such as PA DCNR Bureau of Forestry's Aquatic Habitat Buffer Guidelines.

Recommendation #26 – Assess current condition of forest and develop a forest management plan that includes practices to increase core forests/old growth forest characteristics where appropriate

Forest size, ratio of interior versus edge forest, and connectivity are three primary characteristics that shape forest health and viability. Beginning with these characteristics, a detailed assessment of current conditions of the forest should be completed to determine appropriate future forest management actions.

Recommendation #26A — *Update the forest management plan, as appropriate*
As the Site's conditions evolve and resource monitoring occurs, it may be appropriate that the forest management plan is updated. Practices and policies which emerge from the updated plan should be instituted as needed to ensure the Site's long-term health.

Recommendation #26B — *Develop an invasive species management plan which aims to increase interior forest and canopy cover*
An invasive species management plan is vital to control future spread of invasive species. By identifying existing invasive species on the site and planning for future invasive species to occupy the site, the management system can improve the quality of all habitat types located within the site.

Recommendation #26C — *Update the invasive species management plan, as appropriate*
Similar to potential forest management plan updates, as the Site's conditions evolve and resource monitoring occurs, it may be appropriate that the invasive species management plan is updated. Practices and policies which emerge from the updated plan should be instituted as needed to ensure the Site's long-term health.

Recommendation #27 – Complete a comprehensive Cultural Resource Assessment of the Site

A Cultural Resource Assessment will enable existing locations and conditions of historical or cultural assets to be confirmed as well as unknown assets to be identified. The presence of these assets will be influential to future management strategies. Also, based upon the existing and potential resources, master planning analysis recommends that future Site uses should procedurally fall under review of the Pennsylvania Historic Museum Commission guidelines for permit review.

Initial Improvement and Additional Study Costs

The range of potential costs for implementing capital projects associated with Conservation, Restoration and Public Access have been evaluated as part of this planning process. A listing of the Master Plan's primary capital projects is outlined to serve as a guide for future discussions as more detailed estimates should be developed as part of pursuing and securing funding for specific implementation activities. It is also recognized that the manner in which projects are implemented (e.g. volunteer versus professional installation) could cause costs to vary significantly. The range of potential hard (materials and related installation) costs are included for identified Improvement items. Soft costs such as, but not limited to, design, engineering, mobilization and contingencies, are not presented as part of this information.

Following the table, a range of potential costs related to the series of Master Plan recommended additional studies is provided. The range of these costs could recognizably be greater than or less than the identified range based upon the type of personnel expertise (volunteer versus professional) and/or the depth of study which is ultimately pursued.

Summary of Recommendations and Priority Considerations

Following the Initial Improvement and Additional Study Costs information, a summary of the recommendations associated with the Master Plan components are identified. Another consideration of the Master Plan's recommendations is the potential phasing of projects and areas which should be addressed. Initial phasing considerations are outlined respective to each recommendation. A series of potential timeframes (short-term, intermediate, long-term and undefined) are designated based upon their ***relative*** implementation in relationship to the Site's recommended activities. Given the anticipated multi-generational implementation needs of this plan, no specific spans or increments of time (e.g. 5-year increments) have been assigned to the recommendations.

In addition to phasing, the general relationship between Master Plan recommendations and concepts outlined in the following Operations and Management Plan section (Part 6) are noted on the Summary Table.

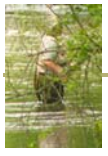


Table 17: Initial Improvement and Additional Study Costs[1]

	Unit Price[4]			Spring Creek Canyon		
	Low	High	Unit	Approx. Total	Low	High
Periodic Invasive Plant Maintenance (Conservation Area)[2]	$750		Acre	880	$660,000	$660,000
Riparian Forest Buffer Establishment (Conservation Area)[2]	$1,000		Acre	880	$880,000	$880,000
Reforestation[3] (Restoration Area)	$2,000	$9,000	Acre	525	$1,050,000	$4,725,000
Periodic Invasive Plant Maintenance (Restoration Area)[2]	$750		Acre	525	$393,750	$393,750
Pedestrian Trail[5]	$18		LF	48,500	$873,000	$873,000
Additional Uplands Trail	$10		LF	12,500	$125,000	$125,000
Parking	$5,000		Space	75	$375,000	$375,000
Bridge Reconstruction	$250,000		Bridge	3	$750,000	$750,000
Canoe/Kayak Launch	$10,000		Launch	2	$20,000	$20,000
Internal Roadway Improvements (Barns Lane to Pump House)	$22		LF	6,600	$145,200	$145,200
Other Miscellaneous Amenities for Pedestrian Use/Public Access (e.g. signage, gates)	$500		Restored Acre	525	$262,500	$262,500
Hard Costs (Rounded to nearest $10,000)					*$5,530,000*	*$9,210,000*

Notes/Assumptions

LF = Linear Foot

1. Hard costs only; neither Concept includes potential improvements for active recreation area or potential on-going agriculture education/reseach for conservation activities

2. Models the average pattern of DCNR-WPC Erie Bluff project implementation (30 acres dune restoration per year) and Wissahickon (Fairmount Park: Philadelphia) Reforestation efforts (10 acres restoration and invasive species maintenance per year)

3. $1,000 - based upon typical watershed planning cost figures; $2,000 - based upon reforestation from crop land with primarily volunteer manpower and young tree plant materials; $9,000 - based upon reforestation from crop land with primarily contracted manpower and mixture of shrub and tree plant materials

4. Other costs prepared based upon typical 2008 construction costs

5. Assumes compacted aggregate and/or porous pavement within Canyon and mulch/blazed trails in Uplands; No trail connecections outside of Site boundaries are included in the calculation

Potential Costs of Additional Studies

Assess deer impacts	$50,000
Coordinate Hatchery activities and improvements with other Site activities	$125,000
Impact analysis of water withdrawal	$75,000
Impact analysis of water quality	$75,000
Identify opportunities and challenges of Site springs and vernal pools	$50,000
Develop and update the Site's forest management plan	$150,000
Develop an invasive species management plan	$100,000
Complete a comprehensive cultural resource assessment	$200,000

Table 18: Summary of Master Plan Recommendations

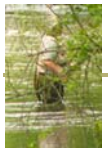
	RECOMMENDATION	OPERATIONS AND MANAGEMENT FRAMEWORK ACTIONS REFERENCE	INITIAL PRIORITY HORIZONS
Recommendation #1A	Identify and map specific locations of existing native plant species and invasive species within the Lands for Conservation	#7; #13; #23	Short
Recommendation #1B	Formalize the Master Plan's Lands for Conservation by physically defining area boundaries on the Site	#7; #13;#23	Short
Recommendation #1C	Prioritize lands most suitable for the expansion of appropraite forest communities	#7; #13;#23	Intermediate
Recommendation #1D	Provide for appropriate recreation opportunities including hiking, fishing, canoeing/kayaking, bird watching, cross country skiing and biking within the Lands for Conservation	#7; #17	Intermediate
Recommendation #1E	Identify and map specific locations of existing native plant species and existing invasive species within the Lands for Restoration	#7; #13; #23	Intermediate
Recommendation #1F	Formalize the Master Plan's Lands for Restoration by physically defining area boundaries on the Site	#7; #13; #23; #24	Short
Recommendation #1G	Provide for appropriate areas designated for passive recreation uses including hiking, canoeing/kayaking, birdwatching, cross country skiing and biking	#7; #13; #17; #24; #35; #40	Intermediate
Recommendation #1H	Designate lands for temporary grassland restoration	#7; #13; #23	Intermediate
Recommendation #1 I	Establish opportunities for forest restoration	#7; #13; #23	Intermediate
Recommendation #1J	Re-establish a barrens community	#7; #13; #23	Intermediate
Recommendation #1K	Encourage public awareness of the site's cultural resources	#7; #13; #15; #17; #23; #24; #28; #32	Long
Recommendation #1L	Complete a Cultural Resource Assessment	#7; #13; #23	Short
Recommendation #1M	Protect the existing Benner Cemetery	#7; #13; #23	Short
Recommendation #1N	Identify and map specific locations of existing invasive species within the lands for agriculture research/education for conservation	#7; #13; #23; #24	Intermediate
Recommendation #1O	Formalize the Master Plan's Lands for Agriculture Research/Education for Conservation by physically defining area boundaries on the Site	#7; #13; #23; #24	Short
Recommendation #1P	Engage in research, education and outreach opportunities which uphold the Site's environmental quality	#7; #13; #18; #23; #24	Intermediate
Recommendation #1Q	Proactively address potential conflicts among Spring Creek's fishing and canoeing/kayaking user groups		Intermediate
Recommendation #1R	Promote fishing access at Shiloh and Rock Road entrances	#7; #17; #41	Short
Recommendation #1S	Construct walking trails throughout the Site	#7; #41	Short
Recommendation #1T	Offer defined hunting timeframes and coordinate public access for other passive recreation uses accordingly	#7; #17; #41	Intermediate
Recommendation #1U	Determine the suitability and impacts of potential environmental education structures and/or organized outdoor recreation activities	#7; #17	Intermediate

Table 18: Summary of Master Plan Recommendations – Continued

	RECOMMENDATION	OPERATIONS AND MANAGEMENT FRAMEWORK ACTIONS REFERENCE	INITIAL PRIORITY HORIZONS
Recommendation #2	Develop a comprehensive plan to address and prioritize invasive species control	#13; #23; #25; #26; #33	Intermediate
Recommendation #3	Introduce appropriate native species to supplement existing woodland areas within Lands for Conservation and Lands for Restoration	#30	Short
Recommendation #4	Establish native warm-season grasses in appropriate areas within Lands for Conservation and Lands for Restoration	#25; #26; #30; #33; #37	Intermediate
Recommendation #5	Initiate forest succession through woody species cultivation within Lands for Restoration	#25; #26; #30; #33; #37	Intermediate
Recommendation #6A	Delineate a stream-side Spring Creek Trail	#30; #41	Short
Recommendation #6B	Designate trails within the Site's former Orchard area	#30; #41	Intermediate
Recommendation #6C	Create a South Fields Trail for hiking within the Site's southwest and southcentral Uplands	#30; #41	Intermediate
Recommendation #6D	Connect pedestrian trails between the South Fields and a Paradise Road trailhead	#30; #41	Intermediate
Recommendation #6E	Relocate trails as necessary based upon progression and locations of restoration activities	#32; #41	Long
Recommendation #6F	Mark trails with blazes	#15; #28; #32; #35; #41	Intermediate
Recommendation #7	Accommodate Canoe/Kayak Access along Spring Creek	#35; #41	Short
Recommendation #8A	Designate Paradise Road and Barns Lane as public entrances	#35; #41	Short
Recommendation #8B	Identify Shiloh Road as access for both publicly and non-publically accessible lands	#35; #41	Short
Recommendation #8C	Rock Road should serve as a trail head for water oriented activities	#35; #41	Short
Recommendation #8D	Site the Rock Road put-in to avoid interaction/ access with Benner Spring	#35; #41	Short
Recommendation #8E	Identify the Canyon's entrance from Fisherman's Paradise		Short
Recommendation #9A	Promote stormwater infiltration in parking areas	#41	Short
Recommendation #9B	Construct vehicular access areas with materials to enable 4-season access	#35; #41	Short
Recommendation #9C	Tailor design and maintenance standards for roads, parking areas and walkways to the specific intensity and purpose of each circulation feature	#15; #28; #32; #33; #41	Short
Recommendation #9D	Install gates at road entrances/parking areas as a management tool for site	#6; #41	Short
Recommendation #10A	Create a Spring Creek Canyon Logo/Symbol	#18; #29	Short
Recommendation #10B	Utilize Sustainable Materials for the Signage program	#25; #26; #29; #33	Intermediate
Recommendation #10C	Formulate Signage Types based upon Locations	#15; #28; #29; #32; #41	Intermediate
Recommendation #11	Safeguard against the additional spreading of invasive species on the Site	#24; #25; #26; #33	Intermediate

Table 18: Summary of Master Plan Recommendations - Continued

	RECOMMENDATION	OPERATIONS AND MANAGEMENT FRAMEWORK ACTIONS REFERENCE	INITIAL PRIORITY HORIZONS
Recommendation #12	Consider applicability of divestment boundary amendments		Long
Recommendation #13	Identify that the conservation easements applicable to this Site is tied to geographic boundaries of sensitive resources rather than ownership	#1	Short
Recommendation #14	Revise Township Zoning Provisions for Parking	#11; #29	Intermediate
Recommendation #15A	Define Standards for Public Access Areas	#14; #18; #25; #26; #33; #41	Intermediate
Recommendation #15B	Develop Sustainable Pathway/Trail Construction Standards	#14; #25; #26; #33; #41	Short
Recommendation #15C	Adopt Signage Guidelines	#17; #41	Intermediate
Recommendation #16	Prepare management and maintenance protocols for individual activities	#12; #14; #25; #26; #33	Intermediate
Recommendation #17	Utilize materials which are sustainable and obtained regionally	#25; #26; #33	Intermediate
Recommendation #18	Require special improvements that incorporate best management practices	#12; #25; #26; #33	Intermediate
Recommendation #19	Protection of historic/culturally significant places/attributes	#12; #15; #25; #26; #28; #32; #33	Short
Recommendation 20A	Establish policies to minimize disturbances to cultural resources	#15; #28; #32	Short
Recommendation 20B	Consider preliminary National Register district nomination		Intermediate
Recommendation #21A	Stormwater Run-off/Watershed Management	#18; #25; #26; #29; #33	Short
Recommendation #21B	Areas/Intensity of Residential and Non-residential Development	#13; #23; #29	Long
Recommendation #21C	Surrounding Communities' Conservation Strategies	#13; #23; #29	Long
Recommendation #21D	Regional/County Greenway Planning Strategies	#13; #23; #29	Long
Recommendation #21E	Recreation Needs/Desires	#12; #17	Intermediate
Recommendation #21F	Pursue feasibility of other Conservation Easements		
Recommendation #22	Assess deer impacts	#18; #39	Intermediate
Recommendation #23	Coordinate Hatchery activities and improvements with other Site activities	#29; #39	Long
Recommendation #24A	Work with Pennsylvania Fish and Boat Commission, Rockview, PA DEP and PA DCNR to complete an impact analysis water withdrawal	#29; #39	Long
Recommendation #24B	Water quality		
Recommendation #25	Identify opportunities and challenges of Site springs and vernal pools	#39	Short
Recommendation #26A	Update the forest management plan, as appropriate	#13; #23	Intermediate
Recommendation #26B	Develop an invasive species management plan which aims to increase interior forest and canopy cover	#13; #23	Intermediate
Recommendation #26C	Update the invasive species management plan, as appropriate	#13; #23	Long
Recommendation #27	Complete a comprehensive Cultural Resource Assessment of the Site	#13; #23	Short

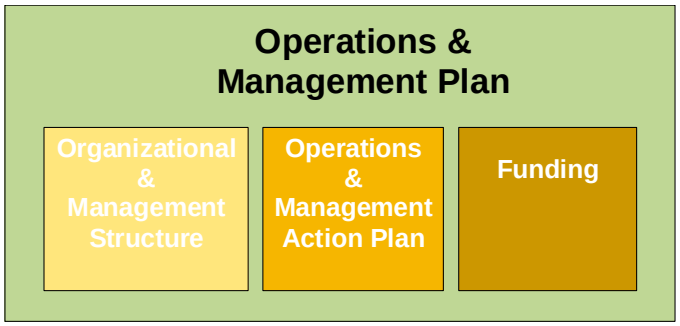


Part 6:
Operations & Management Plan

The man who really counts in the world is the doer, not the mere critic – the man who actually does the work, even if roughly and imperfectly, not the man who only talks or writes about how it ought to be done.

Theodore Roosevelt

The long term cost of operating and managing a conservation-oriented site exceeds its acquisition, design, and development costs. Therefore, establishing an effective management plan framework will help conserve the site, maximize limited human and financial resources, and generate public and private support.



For this Site, no organization or management plan has ever been in place to provide a strategic approach for the conservation of this important resource. A host of key stakeholders, along with the general public, has emerged with a unified view on the fundamental importance of conserving this unique area; however, their unified view on conservation is not without an array of diverse opinions on how the site should be conserved and/or under whose responsibility the Site should exist.

Overview

The purpose of the Operations and Management Plan is to provide the framework for organizing how the Spring Creek Canyon Site will be taken care of in order to achieve the goals of the Master Plan. It offers guidelines to plan and program work elements, allocate resources, implement projects, and evaluate accomplishments. Proactive in nature, the plan is designed to help achieve the conservation and passive recreational use of the project area. It broadly maps the elements that the future organization responsible for the Site should pursue in implementing the Master Plan. The management plan does not provide a detailed list of tasks with their chronology, as that information should be provided in an operational plan developed as an annual program of work. A management plan outlines an on-going continuous process in which key stakeholders assess changing conditions, emerging opportunities and evolving needs to keep moving ahead in achieving the goals for the Site. The Operations and Management Plan is organized around three components:

- The **Organizational & Management Structure** is depicted in Figure 1. The organizational chart identifies the recommended basic organizational structure for how the Spring Creek Canyon Site should be managed. Recognizably, depending upon the timing and type of the implementation of the recommendations of the Master Plan, there will be a variety of ways in which the organizations within this structure interact. The recommended structure is based on a Capacity Analysis of key stakeholders evaluated as part of the Conservation Strategy planning process. The Capacity Analysis presents a summary assessment of the missions and resources of key stakeholder organizations related to the Spring Creek Canyon Site's (or portions thereof) operation and management.
- **Operations & Management Action Plan** sets forth the actions needed to plan, direct, implement and evaluate actions required for the conservation and public use of the Spring Creek Canyon Site.
- The **Funding** section outlines potential concepts for financing Site operations and management tasks along with potential funding sources.

The operation and management of this site is complex and expensive, requiring funding, staffing, and expertise that is not presently available. It calls for innovation, expertise, and financial and human resources for conservation, research and recreation. Based on completed

analyses, no one organization has emerged as ready, willing, and/or able to assume the responsibility for the entire site and manage it in accordance with the recommendations of this Master Plan. The Spring Creek Canyon Site Operations and Management Plan recommends the creation of an entirely new partnership-based entity comprised of key stakeholders who should operate and manage this Site. The recommended organization is based upon the capacity analysis of the stakeholder organizations with respect to their mission, human and financial resources available or potentially available, and their ability to undertake specified operations and management functions successfully for this unique site.

- The stakeholder organizations have different expertise and resources to manage specific resources featuring unique characteristics, opportunities, issues and uses. By directing the management and organizational structure to care for the Site's resources based on the expertise and resources of the organizations, the entire Site can be managed as a collaboration of more than one organization. If only one organization operates and manages this site, the focus and opportunities, especially with respect to funding and grants, would be constricted. With a partnership of multiple stakeholders, the potential for support and funding for the Site increases exponentially. Shared management opens the door to educational funding, research, student support, faculty expertise, community recreation funding opportunities, conservation research and funding, grants from many diverse sources and private sector interest and support in all aspects of conservation, research, recreation, community service, and education.

The commitment of numerous stakeholders in the Spring Creek Canyon Site organization to the operations and management plan is crucial. Without this commitment, the plan could not be implemented to its full potential.

Stakeholder Interest in Operation and Management of the Site

The Planning Team pursued the identification of all of the potential organizations that might have an interest in managing the Spring Creek Canyon Site. The important factors for consideration of potential site managers included their mission, interest in the Spring Creek Canyon site, current human and financial resources, potential to capture additional resources, proximity to the Site in terms of their ability to provide management services, and their expressed will to become involved with the Spring Creek Canyon Site over the long term. These organizations were identified through interviews, review of planning documents, fieldwork, public meetings and input from the three advisory committees. Eleven key stakeholders emerged: Benner Township, Penn State University, Rockview State Correctional Institution, Pennsylvania Fish & Boat Commission, Pennsylvania Game Commission, ClearWater Conservancy, Western Pennsylvania Conservancy, Nature Conservancy, Pennsylvania Department of Conservation and Natural Resources, Centre County government, and the Centre County Historical Society. No other major organization emerged during the planning process for consideration as a potential site manager.

Table 19 presents the Key Stakeholders' Potential to Perform Major Management Functions of the Spring Creek Site. The chart ratings of how likely the particular organization is to perform the respective task are based on interviews, current or potential level of resources and the respective area of SCC and/or role the stakeholder expressed interest in undertaking the particular function or care of the Site. The public recognizes that certain state agencies regularly perform these functions at various venues throughout the state; however, these agencies may not have the level of resources to devote to the Spring Creek Canyon Site in its entirety.

Another 48 potential stakeholders that have related interests in the Site were identified. While they could have an interest in participating in certain projects or aspects of the site, it is unlikely that they have the capacity or will to operate the Site (or substantial portions of the Site) as a whole. The 48 organizations have the potential to manage certain aspects of the management functions at certain times, but their assistance would likely be variable over the long term.

Table 19 Key Stakeholders Potential to Perform Major Management Functions of the Spring Creek Site

Rating guidelines: Ratings are based on interviews, current or portential level of resources and the respective area of SCC and/or role the stakeholder expressed interest in undertaking.													
● Likely ○ Not likely		Benner Twp	PSU	F&BC	RSCI	CWC	PA DCNR	Cen. Co. Hist. Soc	PGC	WPC	TNC	Centre County*	Other Groups
Conservation Easement													
Monitoring		○	○	○	○	●	●	○	○	○	○	○	○
Canyon Management of:													
Riparian Buffers		○	○	●	○	○	○	○	○	○	○	○	●
Floodplains		●	○	●	○	○	○	○	○	○	○	○	●
Reforestation		○	○	○	○	○	○	○	○	●	○	○	●
Invasive Species		●	○	○	○	○	○	○	○	○	○	○	●
Habitat		○	○	●	○	○	○	○	●	●	○	○	●
Cultural Resources		○	○	○	○	○	○	●	○	○	○	○	●
Fisheries		○	○	●	○	○	○	○	○	○	○	○	●
Hatcheries		○	○	●	○	○	○	○	○	○	○	○	●
Steep Slopes		●	○	○	○	○	○	○	○	○	○	○	●
Public Safety		○	●	●	○	○	○	○	○	○	○	○	●
Public Safety Emergencies		○	○	○	○	○	○	○	○	○	○	●	●
Security		○	●	●	○	○	○	○	○	○	○	○	●
Visitors		○	○	●	○	○	○	○	○	○	○	○	●
Environmental Education		○	●	●	○	○	○	○	●	○	○	○	●
School Groups		○	●	●	○	○	○	○	○	○	○	○	●
Fishing		○	○	●	○	○	○	○	○	○	○	○	●
Trail Maintenance		●	○	●	○	○	○	○	○	○	○	○	●
Trail Use		●	○	●	○	○	○	○	●	○	○	○	●
Research and Studies		○	●	●	○	●	●	●	●	●	○	●	●
Carrying out special projects or tasks		●	●	●	●	●	●	●	●	●	○	●	●
Uplands Management of:													
Agriculture, Research, & Education for Conservation													
Food, Fuels and Fiber		○	●	○	○	○	○	○	○	○	○	○	●
Invasive species management		○	●	○	○	○	○	○	○	○	○	○	●
Recreation		○	●	○	○	○	○	●	●	○	○	○	●
Trails Network		○	●	○	○	○	○	○	○	○	○	○	●
Research and Studies		○	●	○	○	○	○	○	○	●	○	○	●
Security		○	●	●	○	○	○	○	○	○	○	○	●
North Side													
Conservation													
Existing woodlands conservation		○	●	○	○	○	○	○	○	●	○	○	●
Maintenance of existing woodlands		●	●	○	●	○	○	○	○	○	○	○	●
Invasive species management		○	●	○	○	○	○	○	○	●	○	○	●

Key Stakeholders Potential to Perform Major Management Functions of the Spring Creek Site (continued)												
Rating guidelines: Ratings are based on interviews, current or potential level of resources and the respective area of SCC and/or role the stakeholder expressed interest in undertaking.												
● Likely ○ Not likely		Benner Twp	PSU	F&BC	RSCI	CWC	PA DCNR	Cen. Co. Hist. Soc	PGC	WPC	TNC	Centre County*	Other Groups
Restoration													
Establishment of Barrens Community		○	●	○	○	○	○	○	○	●	○	○	●
Trails		○	●	○	○	○	○	○	○	○	○	○	●
Invasive Species		○	●	○	○	○	○	○	○	●	○	○	●
Cultural Resources		○	●	○	○	○	○	●	○	○	○	○	●
South Side													
Conservation													
Existing woodlands conservation		○	●	○	○	○	○	○	○	●	○	○	●
Restoration													
Conversion of open fields as restored areas		○	●	○	○	○	○	○	○	●	○	○	●
▪ Warm season grasses		○	●	○	○	○	○	○	○	○	○	○	●
▪ Expansion of appropriate forest communities		○	●	○	○	○	○	○	○	○	○	○	●
Cultural Resources		○	●	○	○	○	○	○	○	●	○	○	●
Carrying out special projects or tasks		●	●	●	●	○	○	●	●	●	○	○	●

To date, no single organization exhibiting the mission, capacity and will to manage the Site in accordance with the requirements of the Master Plan has stepped forward to take responsibility for the Site as a whole. Based upon the completed capacity analyses, organizations such as Benner Township, Penn State University, and the Fish & Boat Commission collectively have the most potential and willingness, but not all of the resources or capacity, to independently manage the Site. However, by working in collaboration, their potential capacity to manage the Site's resources is greatly enhanced. Other organizations expressed an interest in participating in certain limited aspects of the Site related to projects, specific resources, or activities. The common denominator of all of these organizations was their expressed desire to work in collaboration with other groups in the operation and management of the Spring Creek Canyon Site.

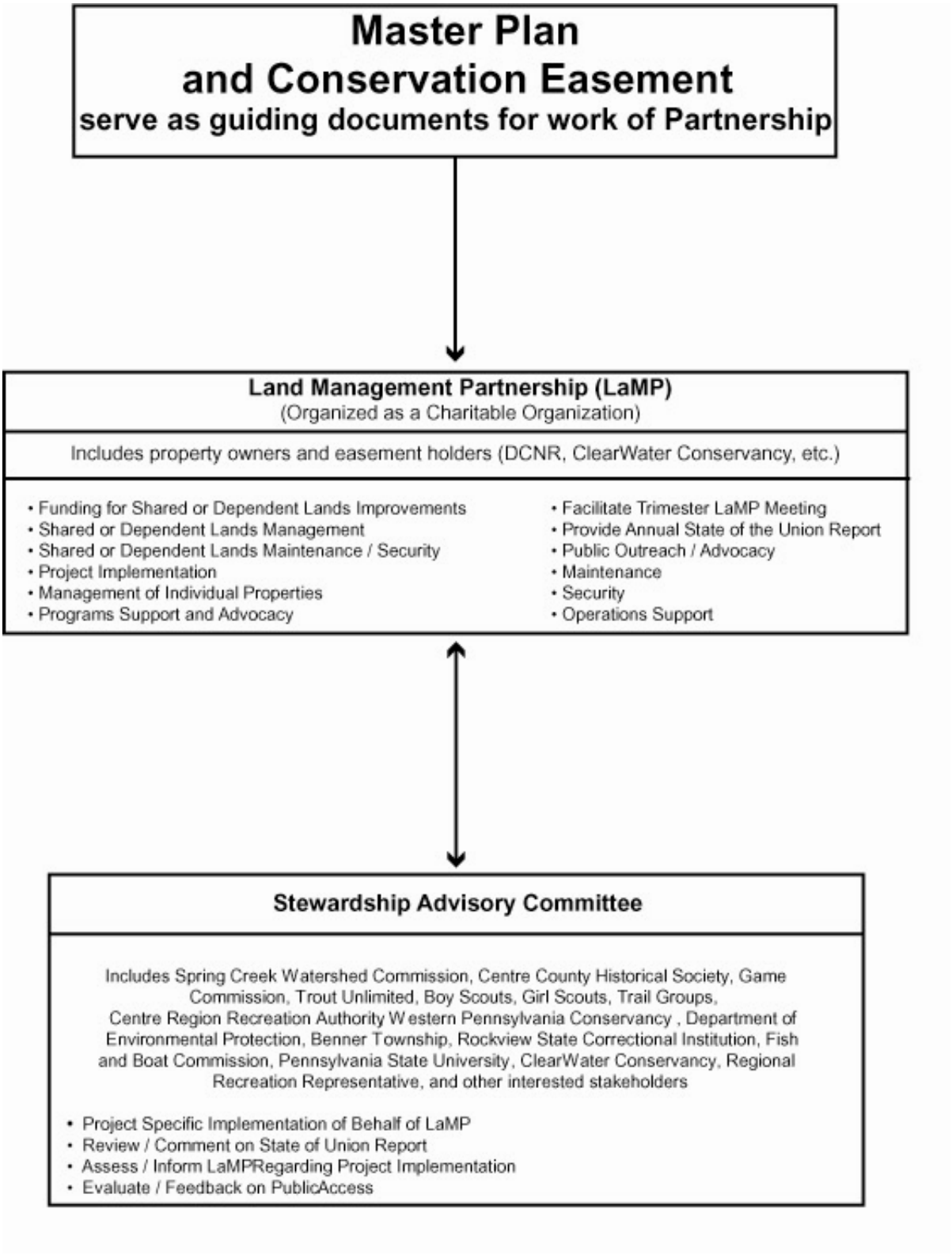
The following organizational chart identifies the general structure for future management activities. Recognizably, based upon the various implementation activities, the level of each organization's involvement will vary. Central to the success of communication is the Land Management Partnership (LaMP).

LaMP: Unifying Organization for the Spring Creek Canyon Site

To ensure quality long-term stewardship of the Spring Creek Canyon Site, a partnership of key stakeholders should operate and manage it. Only parties with a Conservation Easement could become members of the Land Management Partnership (LaMP), and all parties with a Conservation Easement must be members of LaMP.

Just as the natural resources of the Spring Creek Canyon Site are complex, exhibiting highly diverse and highly interactive compositions, structures, and functions, the stakeholders who comprise the LaMP also reflect a similar complexity. LaMP should develop and pursue the systemic management of the Spring Creek Canyon Site under the parameters of the Conservation Easement through collaborative consensus-building dialogues. The Conservation Easement will provide the unifying purpose for LaMP. LaMP members should be independent in their management of their respective areas; however, they should work collaboratively to advance the vision for the Site, the goals of the Master Plan, care of lands held in common interest as well as the Conservation Easement.

LaMP should serve as the integrated system to maximize communication and mutual influence in the spirit of collaboration. LaMP should bring the stakeholders together to resolve multivariate management objectives. It becomes an institutional analogue for the natural and cultural resources of the Spring Creek Canyon Site that they should be charged with managing. LaMP should employ a Coordinator to oversee/direct the ongoing functions for site operation and management. A Citizens' Advisory Committee will provide the forum for ongoing public input and involvement.


Master Plan
and Conservation Easement
serve as guiding documents for work of Partnership
Land Management Partnership (LaMP)
(Organized as a Charitable Organization)
Includes property owners and easement holders (DCNR, ClearWater Conservancy, etc.)
• Funding for Shared or Dependent Lands Improvements
• Shared or Dependent Lands Management
• Shared or Dependent Lands Maintenance / Security
• Project Implementation
• Management of Individual Properties
• Programs Support and Advocacy
• Facilitate Trimester LaMP Meeting
• Provide Annual State of the Union Report
• Public Outreach / Advocacy
• Maintenance
• Security
• Operations Support
Stewardship Advisory Committee
Includes Spring Creek Watershed Commission, Centre County Historical Society, Game Commission, Trout Unlimited, Boy Scouts, Girl Scouts, Trail Groups, Centre Region Recreation Authority Western Pennsylvania Conservancy , Department of Environmental Protection, Benner Township, Rockview State Correctional Institution, Fish and Boat Commission, Pennsylvania State University, ClearWater Conservancy, Regional Recreation Representative, and other interested stakeholders
• Project Specific Implementation of Behalf of LaMP
• Review / Comment on State of Union Report
• Assess / Inform LaMPRegarding Project Implementation
• Evaluate / Feedback on PublicAccess

Organizational Structure

Structure Components

The following elements address the components of the organizational structure:

Conservation Easement

As shown in this organizational chart, the Conservation Easement is the foundation of the structure and guides all decision-making and actions. Both the Clearwater Conservancy and PADCNR serve as monitors for the Conservation Easement.

Potential Site Managers

Potential Site Managers would be responsible for the operation and management of respective resources of the Site. The potential site managers should be mindful of functions/activities, including but not limited to the following, as they apply to the particular portions of the Site:

- Maintenance
- Advocacy and public outreach
- Financing
- Visitor management
- Security
- Public access, programs and services
- Conservation easement compliance and support
- Providing an annual report of accomplishments, issues and opportunities
- Project implementation

Three Memoranda of Understanding already exist for the Site. These include MOU's between Benner Township and the Pennsylvania Fish & Boat Commission, Penn State University and the Pennsylvania Game Commission and Rockview State Correctional Institution and the Pennsylvania Game Commission.

Land Management Partnership (LaMP)

The LaMP is recommended to be a partnership of the site managers with PADCNR serving as an *ex officio* member. The Partnership should provide the forum in which these organizations can come together for the purpose of achieving the goals of the Spring Creek Canyon Master Plan. The organizations will be responsible for the formation and operation of the Partnership, security, maintenance and management of lands that function as part of their common interests, provide funding for these "common" lands; collaboration on projects of mutual interest; provision of information about their endeavors in the canyon area and providing support for advancing the Partnership for the overall conservation and recreational use of the Site. The LaMP should also retain a professional project coordinator to carry out the policies and program established by the Partnership.

Citizens Advisory Committee (CAC)

The CAC should serve in an advisory role to the LaMP. As representatives of the community, the CAC can provide comments and feedback to the LaMP, review and comment on the LaMP annual report, and evaluate public access to the Spring Creek Canyon Site.

PADCNR
PADCNR will participate in the writing of the Conservation Easement and will monitor the Conservation Easement in tandem with the Clearwater Conservancy. Local ownership will enable more direct involvement by the citizens of the area than would be possible under state ownership of the Site.

Spring Creek Watershed Commission
In its leadership role within the watershed, the Spring Creek Watershed Commission will work with the LaMP to advance and coordinate projects and programs that are consistent with the long-range vision of the Spring Creek Watershed.

Clearwater Conservancy
The Clearwater Conservancy will be responsible for writing the Conservation Easement as well as monitoring it. They will also assist with advocacy and public outreach.

Administrative Staff
The volume of work and its complexity require a staff. There is a great deal of work to do in the planning, operation and management of this Site, and without staff, the implementation of the master plan as well as the successful conservation and use of the Site will be unlikely. The staff can grow over time in response to workload and opportunities with the ideal configuration consisting of a Spring Creek Canyon Site Coordinator, Development Director, and Field Operations Coordinator. For project launch, the Spring Creek Canyon Coordinator is needed while the other two positions could be added within next two to five years. An investment in staff time should generate value to help offset the salary costs from production of volunteer work hours, tasks accomplished, funding raised, programs offered, and so on.

Spring Creek Canyon Site Coordinator
The Coordinator should be responsible for carrying out the policies and programs established by the LaMP. Responsibilities should include management of the routine aspects of area management, project management, public outreach, volunteer coordination, oversight of project implementation, revenue generation through public and private sources, and visitor services. The coordinator should also strive to foster a collaborative relationship among the Partnership to generate a positive and productive organization. The Coordinator should be located on-site or as close as possible. Consideration could be given to housing the position with another existing agency/organization.

Development Director
The Development Director position should be responsible for the Spring Creek Canyon Site's fundraising efforts. The Development Director will provide administrative and strategic oversight for the fundraising program including fund development, information management, financial administration and fiscal reporting while implementing fundraising activities for the site's projects, research, conservation, restoration, programs, and activities. The Development Director should report directly to and work closely to the Spring Creek Canyon Site Coordinator and communicate regularly with LaMP and CAC.

Field Operations Manager
The Field Operation Manager position should be responsible for recruiting, supervising, training, management and recognition of organizations and individuals who would volunteer or provide services in the physical aspects of the site operation, restoration, conservation and use. Since most of the support for this Site is anticipated to be generated through partnerships, sponsorships, grants and so on, this position will be instrumental in marshalling the public and private sector work force.

Spring Creek Canyon Coordinator

Functions
The Spring Creek Canyon Coordinator would work under the purview of the LaMP. The coordinator would serve as the chief operating professional for LaMP and be responsible for advancing the policies the group sets forth. The focus of this position would be on planning, directing and implementing a plan of action designed to advance the Master Plan. The Coordinator would be the Site's official ambassador-of-goodwill and advocate for its conservation, support and use.

Example of Duties
With LaMP, create and implement an annual work plan to implement the recommendation of the Master Plan for the conservation and responsible public use of the Site for passive recreation. Coordinate work plan with the LaMP. Create, submit and manage an annual budget. Write grants for projects and operations. Facilitate volunteer projects. Coordinate programs, activities and events. Advocate for the Spring Creek Canyon Site within the community, the region and the state. Arrange meetings, tours, and interactions of individuals and groups visiting the Site with the intention of securing resources and support for park improvements

Qualifications
Experience and Education: Experience in volunteer work management or development on non-profit groups or supervision of conservation related projects and post-high school education in a natural resources field. Prefer a bachelor's degree in resource management, environmental studies, or a related field.
Knowledge and Abilities: Genuine appreciation of the importance of natural resources for conservation as well as for personal and public well being. Ability to organize and coordinate people and projects. Knowledge of basic principles of conservation, historic restoration, resource management, and outdoor recreation. Expertise in group dynamics and organization. Comfort in approaching and soliciting support from a variety of audiences, including the general public, educational institutions, businesses, community organizations, governmental agencies, concerned individuals, and non-profits. Experience in fundraising is essential.

<u>The Stewards</u>
There are about 48 organizations in the area that have expressed goals and interests related to one or more aspects of Spring Creek Canyon Master Plan/Operations and Management Plan recommendations. Since staff and funding are limited, it is envisioned that these stewards be tapped for special projects, purposes or initiatives in the Spring Creek Canyon Site. Many have already expressed an interest in being involved, and their involvement will need to be coordinated for maximum benefit and to cultivate ongoing support. This should be a function of the Canyon Coordinator initially and then supported by the Field Operation Director when on staff.

Organizational Resource Capacity Analysis

The basis for the Management Structure recommendations is the Capacity Analysis. Since no one organization is already in place to manage the Site, the project Planning Team conducted a capacity analysis of organizations with interest and/or potential to manage the Spring Creek Canyon Site or portions of it. The eleven organizations included in the capacity analysis included: Benner Township, Penn State University, Rockview State Correctional Institution, the Clearwater Conservancy, Pennsylvania Department of Conservation and Natural Resources, the Fish & Boat Commission, the Pennsylvania Game Commission, Centre County, the Nature Conservancy, Western Pennsylvania Conservancy, and the Centre County Historical Society. Another 48 conservation-related organizations exist in the region that could serve as partners for smaller scale efforts but were too small to be considered as key stakeholders in major management functions.

Organizational Assessments
The capacity analysis included two assessments of the stakeholder organizations: one, an assessment of the factors of each organization as related to the Spring Creek Canyon Site and two, an assessment of their capacity or potential capacity to carry out the operations and management functions required for this Site.

Assessment by Mission and Resources

The first assessment addressed the following five factors regarding each organization's current operational parameters and resources related to the Spring Creek Canyon Site. The **Capacity Analysis Report 1** regarding these five factors is in Appendix F.

- **Mission** – determination regarding the compatibility of the organization's mission with that of the Spring Creek Canyon Site.
- **Operational Funding** – the annual operating budget and staffing of the organization.
- **Staffing and Equipment** – existing staff with time, expertise, and the equipment to perform related functions at the Site or its potential to increase staffing or obtain the equipment necessary for site operations.
- **Relationship to Spring Creek Canyon** – existing operational functions were reviewed to determine if they had related functions to projections for what Spring Creek Canyon Site might need for implementation of the Master Plan.
- **Potential to manage Spring Creek Canyon in concert with their mission and resources, either existing or potential** – exploration of the potential of each organization to raise more funding or add staff for Spring Creek Canyon operation and management in light of the mission of the organization and that of the Site.

Assessment by Functional Capacity

The second part of the Capacity Analysis further evaluated these organizations in terms of their potential to carry out the *specific functions* that will be necessary to operate and manage the Spring Creek Canyon Site in the future. The **Capacity Analysis Report 2** is in Appendix G. The major functional areas of management include the following:

Leadership
Capacity to promote, advocate and build stewardship for Spring Creek Canyon as a world class site for conservation, bio-diversity, outdoor recreation, and agriculture for conservation research.

Planning
Undertaking plans for master plan implementation, research, annual work program, short and long-range strategies, capital development, conservation, natural and cultural resources, polices procedures, marketing education, fundraising, employee development and information technology.

Directing
Putting plans and strategies into action to implement the master plan in the areas of research, conservation, annual work programs, site maintenance, services, environmental education, outreach, marketing, fundraising, employee development, and information management.

Implementing
Undertaking work tasks in the areas of maintenance, security, conservation projects, visitor's services, environmental education, communication and financial management.

Evaluating and Monitoring
Assessing accomplishments to determine the progress underway, opportunities that are emerging and needs that may be arising. Making recommendations for future actions based upon effective analysis.

These five functions are the broad areas of management and operations under which all tasks and work elements will fall. They represent a way of thinking about what needs to be accomplished. The definitions of each of the five broad management elements listed above contain a range of tasks. As shown in the **Capacity Analysis Report 2**, there are over 40 wide-ranging tasks under these five functional elements of management. As is apparent, the complexity, size and scope of the tasks required to conserve, operate, maintain, fund, and program the Spring Creek Canyon Site is extensive.

Findings of the Organizational Resource Capacity Analysis

While the prospect of conserving 1,800 acres of land is daunting, many significant opportunities are available within Centre County. Where apathy may be common in other areas of Pennsylvania, in Centre County a vibrant sense of civic interest and engagement is evident.

Intellectual Capacity and Involvement of the Centre County Community
Centre County has more than double the national average of citizens holding bachelors and postgraduate degrees. In the key person interviews, individuals and organizations described the benefit of the region's intellectual capacity largely due the presence of the university and the quality of life here. The community is interested and active in coming out to meetings, engaging in the study process for this master plan and vocal in their diverse opinions. The knowledge base and civic involvement in this community is remarkable with many willing to "fight city hall" for the conservation of the area.

Institutional Support
Penn State University consistently ranks among the best colleges and universities in the United States, and the university has indicated its commitment to strategic funding, staff, research, technical assistance and public access to advance the conservation of the Spring Creek Canyon through its proposed program of agricultural research for conservation. The university's participation will vary in accordance with projects and programs. Depending on the nature of the project, over time, the level of commitment for identified projects will change with respect to the projects underway – sometimes it will be a high level while at others a lower level.

Conservancy Partners
Three conservancies have stated that the conservation of Spring Creek Canyon is a priority. While they may not have the resources to manage the whole Site, they have expressed their commitment to continued participation in projects of a manageable scale. The Clearwater Conservancy will be the Conservation Easement Monitor.

Local Commitment
Throughout the evolution of the Spring Creek Canyon Site planning process, Benner Township has consistently demonstrated its leadership and political will. Elected officials have taken pride in securing Spring Creek Canyon for conservation and public use, and the Township has contributed funding and time for the process of securing the Site and the development of the master plan.

Host of Partners in the Wings
Forty-eight (48) other organizations have been identified as potential support on Spring Creek Canyon Site initiatives and projects.

Power Base of Support
PADCNR is committed to the enforcement of the Conservation Easement and supporting the importance and effectiveness of having this Site retained in local control. If contentious issues emerge, PADCNR should weigh in.

State Resource Potential
The Commonwealth of Pennsylvania is committed to the long-term conservation and public use for passive recreation of the Spring Creek Canyon Site. However, the assessment of state agencies that provide related conservation and recreation services yielded findings showing no single state agency has the funds, staff, mission, and expertise to manage the Spring Creek Canyon Site on its own with current level of resources. There is potential to generate support to assist with some level of operation and management from the Commonwealth but clearly not for the whole Site.

While the 11 key stakeholder organizations are committed and interested in the Spring Creek Canyon Site, their resources are tight. While organizations such as PADCNR and Penn State University have budgets well into the millions, the reality is that these multi-million dollar budgets are already dedicated to specific purposes other than Spring Creek Canyon Site. The following section presents a summary of the situation under which each stakeholder operates:

Benner Township
The Township has the political will to manage the 400-acre canyon area. They have demonstrated strong leadership in getting this project as far as it has in terms of securing it

for public use and conservation. They are capable of and plan to continue in a leadership capacity. Fifty-five percent (55%) of the land in Benner Township is tax exempt. With the authority to tax only 45 percent of the municipal area, the Township is somewhat limited in its capacity to generate local tax revenues from the property tax. The Township's operating budget for 2009 is $971,000. The Township has a small roads department, limited expertise in conservation and visitors' services, and no parks and recreation staff. With cooperation from others, the Township has potential to generate the support necessary to hire the staff and obtain the partners required to undertake the management of the canyon on the scale proposed by the master plan. The Township can provide basic maintenance services such as roadwork, some grounds and tree work, and special capital projects requiring labor and equipment.

Penn State University

As a world-class university, Penn State has a substantial budget, renowned expertise, knowledge and ability to pursue projects of various scales. They have identified the will to undertake the management of the 1400 uplands area for the purpose of agriculture for conservation research/education, cultural education enhancements, reforestation techniques and other natural resource oriented education opportunities. The University also has the desire to provide public access in a controlled fashion for the purpose of education, recreation and increasing positive community relations. As part of this planning process, the University's commitment to a strategic scope of services they intend to undertake on this land has been identified; they have not expressed interest in managing the Canyon. The University has faced public skepticism regarding some of its past practices in conservation despite a long history of projects in which conservation has been the main purpose and has been successfully implemented.

Fish & Boat Commission

The Commission already operates facilities in the Spring Creek area. With staffing and resources available, as well as an on-site law-enforcement training facility with a constant on-site presence, the Commission is able to maintain its current operational level. Expanding this role into the entire 400-acre canyon area would be possible but only with the addition of resources and an expansion of its charge beyond the hatcheries and regulation enforcement into the area of land management and conservation of land and water. If pursued as an owner, the Conservation Easement for the Site should require the Fish & Boat Commission to operate within the parameters defined in the easement to insure maximum protection of the conservation values of the Spring Creek Canyon Site.

Pennsylvania Department of Conservation & Natural Resources

PADCNR has identified, as part of this planning process that locally oriented ownership is critical to the Site's master plan success; the agency is fully committed to assisting in monitoring the Site's conservation progress. PADCNR has expressed its willingness to also serve as an ex-officio member of LaMP dedicated to advancing the Master Plan.

Rockview State Correctional Institution (SCI)/DGS

The SCI/DGS is divesting the land. Historically, the mission of SCI/DGS has limited focus with that of landscape conservation and public access.

Clearwater Conservancy, Nature Conservancy, and Western Pennsylvania Conservancy
While these organizations have the will and expertise in conservation and the functions of a non-profit organization, the current personnel resources needed to implement the master plan and management the Spring Creek Canyon Site are beyond the financial capacity of any one of the conservancies. The organizations explored the potential to join forces regarding the management of Spring Creek Canyon Site and determined that even together the financial and human resources necessary outweigh their capacity.

Pennsylvania Game Commission
PGC has formally expressed interest in purchasing and operating this Site. The mission of PGC is not fully consistent with the full range of uses proposed for the Spring Creek Canyon Site as a site for conservation and passive recreation. While PGC appears to have funding and staffing, their management structure is centered on extensive service areas encompassing many counties, typically not small individual sites. PGC staff works across a wide service area – they are not housed at a single site anywhere. The Spring Creek Canyon Site requires an **on-site** organization and management structure that simultaneously undertakes conservation, facilitates public use, and develops stewardship through a multi-faceted partnership program.

Centre County
Although greenway, open space and trail plans in recent years have all recommended that the county explore the establishment of a parks and recreation department, Center County government remains limited by its financial resources. The county's budget is largely directed towards mandated functions such as nursing homes and correction, and without a parks department, the county has no organizational capacity to manage the Spring Creek Canyon Site.

Centre County Historical Society
With its focus on historical and cultural resources, the requirement of Spring Creek Canyon in terms of natural resource conservation and visitor management extends beyond the purview of the county historical society. The organization also has a small staff and limited operations funds.

Capacity Summary
Based upon the analysis completed as part of this planning process, no one organization is ready, willing, and/or able to assume the responsibility for the entire Site and manage it in accordance with the recommendations of this Master Plan. Due to the value and complexity of the site, the scattered available resources and the will of the various key stakeholders, it is recommended that an organization and management structure composed of several partners all operating under the parameters of the Conservation Easement with a effective monitoring system be created. The future Spring Creek Canyon Site organizational structure must be one that is effective and efficient in carrying out the goals set forth in the master plan. The recommended organizational structure shown in Figure 1 was formed on this basis.

Operations and Management Action Plan

There is a lot of work to do in the operation and management of the Spring Creek Canyon Site. Rather than an overwhelming list of ongoing tasks, addressing the systematic organization of functional areas on which to base future operations would be the most productive. Achieving the goals for the Spring Creek Canyon Site mandates a carefully crafted framework for planning,

directing, implementing and evaluating all site operations. Figure 2 presents selected major management systems with their associated tasks, such as gate opening and closing under the security system. Once systems are in place, tasks can be scheduled, directed, tracked, and evaluated. The operation and management framework calls for setting up the organizational systems by which the Site be managed. The host of tasks should be then organized within the management systems by functions such as maintenance, security, visitors' services, financing, conservation and so on.

Based upon planning process discussion to date, it is envisioned that the primary management mechanism for the Site's Uplands will be Conservation Easement(s). Consequently, many of the Operations and Management Plan recommendations focus on the Spring Creek Canyon - the area that historically has been the center of public use. The Canyon and its immediate environs, rich in natural and cultural features, present both the need and opportunity for the most significant partnerships, pooling of human and financial resources, and passive outdoor recreation usage. It is also anticipated that the Canyon area will require the most support from numerous sources for continued operation and management.

Table 20 presents the recommendations for the Management Plan portion of the Spring Creek Canyon Site Master Plan. The table is organized around similar elements in which the Capacity Analysis was structured including:

- Project Launch
- Leadership
- Planning
- Directing
- Implementing
- Evaluating and Monitoring

Figure 3
Operational Tasks for the Spring Creek Canyon Site

Management systems need to be developed for the operation and management of the Spring Creek Canyon Site. Each property manager would develop their own procedures and methods while collaborating on joint facilities or functions. The following are examples of such systems along with the numerous tasks that they would encompass. The following management systems and tasks are illustrative of tasks that will be required over the lifetime operation of the Spring Creek Canyon Site. This list is not all-inclusive and others tasks will be added to this list as operations proceed over time.

Maintenance Management: workload cost tracking, financing, procurement, policies, site quality standards, work productivity standards and procedures, employee development, inspections, monitoring site conditions, certifications, task performance for tasks that may or may not include: mowing, trimming, turf care, tree care, reforestation, facility care, paved surface care, snow removal, leaf removal, road and parking lot maintenance, trail heads maintenance, litter control and removal, equipment maintenance, building maintenance, emergency repairs, repairing, trail maintenance, fishing facility maintenance, signage care, project improvements, custodial services for restrooms, controlling access through site design features.

Visitors Services: public outreach and response, communications, planning visitors services, planning and controlling activities and events, outdoor education, coordination with outside groups such as schools, budgeting, revenue generation, sponsorships, scheduling, evaluation and monitoring, visitor safety.

Security: development of philosophy statement about Spring Creek management security and safety; needs assessment; goals & objectives; supervision; gate access opening an closing; establishment of rules, regulations and procedures; safety inspections and investigations; accident reporting and analysis; emergency procedures; releases and waivers; development of methods to insure risk; in-service training; volunteer training; outreach and communication with public about security; hazard mitigation and warning; written form development and legal review/approval; signage language development and legal review and approval.

Financial: rationale for financing; authorization, appropriate and allocation of funds; revenue philosophy development; citizen input; classify program areas for the Site for funding purposes; capital development and operating funds; budget preparation; creating benefits statements resulting from investment; determining costs; establish policies on fees and charges; sponsorships, partnerships; program cost accounting; policy goals and guidelines for funding, financial cost tracking, expenditures; grants; gifts; donations; contractual receipts; fundraising; volunteerism; coordination with grant opportunities for research via Penn State University.

Each of these tasks has further steps that need to be planned, directed and controlled. An example is fees and charges which require policy development, a system for collection, payment methods & procedures, (credit card, cash, check, Internet, mail in, telephone, on-site, office), deposit procedures, tracking procedures, refund policy and procedures, accounting, software for financial management, analysis, reporting.

The management elements are further organized into actions according to the responsible party, costs, priority, and relationship to the Master Plan section of this report. While the organization will be established and evolve over time, an organizational structure or a basic transitional organization needs to be in place when the land transfer is made. The Site, beyond the Fish & Boat Commission already used by the public, should not be open for public access until basic controls and services are in place. These would include security, transitional rules and regulations, response to public inquiry, insurance coverage, control of public access

through operation of the gates, and coordination with security and emergency services. An emergency services management plan should be developed in collaboration with the Centre County Office of Emergency Services. The Centre County Office of Emergency Services plans for the prevention of, mitigation of, preparation for, response to, and recovery from emergency situations.

From there, organizational systems must be developed over time. It is important to recognize that this action plan is generational in nature: it will take many generations to carry out all of the recommendations to achieve the vision for the Spring Creek Canyon Site. While substantial recommendations in this table extend from the short-term into the long-term time frame, focusing on the actions within the short term will be the most advantageous. Getting organized and undertaking a series of actions that demonstrate success and foster collaboration will empower the partners to move ahead together and instill confidence in the public that the management system works.

Getting Started

The Transition from planning to implementation is a challenge, and in order to sustain the momentum of the master planning process, quick action needs to be taken in getting the Spring Creek Canyon Site organization up and running. Since the operation and management system is rooted in the LaMP partnership, developing the actual organization is critical. A designated responsible party with the authority, time and expertise to develop the LaMP organization needs to be in place. Consideration should be given to applying for a Peer grant from PADCNR to support a professional who will work with the partners to create the rules, regulations, procedures, communication system and other critical aspects of the foundation of the LaMP. Since the Citizens Advisory Committee is a key aspect of the organizational structure, the formation of this committee along with its operating rules and regulations should also be a part of the Peer project. PADNCR provides a grant of $10,000 with a match requirement of $1,000 by the grantee to retain a Peer consultant. The grantee can provide additional funds if desired to cover the scope of work. The Peer works collaboratively with the clients over the course of a year on a defined project. In this case, the project would be identifying Coordinator roles and responsibilities and the establishment of the LaMP and the CAC organizations with their mission, goals, objective, guiding principles, rules, regulations, procedures, communications system, scope of work, and first year plan of action. Retaining a Peer consultant has urgency. In order for the organization to be ready to operate and manage an area the caliber of the Spring Creek Canyon Site, the foundation for an effective and efficient organization rooted in the consensus of its members needs to be in place.

Table 20: Operations & Management Framework Recommendations

PROJECT LAUNCH						
ACTION	**RESPONSIBILITY**	**Cost**			**Master Plan Reference**	**Horizons**
		Item	**Source**	**Type**		
Conservation Easement						
1. **Easement Development** - Write the Conservation Easement. • Create the conservation easement document. • Achieve consensus of the partners on its contents	Clearwater Conservancy (CC), PADCNR, property owners	Staff & volunteer time	CC, DCNR, Property Owners	One Time	#13	Short
2. **Easement Monitoring** - Develop the monitoring system for the conservation easement. a. Establish roles and responsibilities. b. Create procedures to ensure proactive monitoring procedures.	Clearwater Conservancy, PADCNR, property owners	Staff & Volunteer Time	CC, DCNR, Property Owners	One Time		Short
Property Ownership						
3. **Ownership** - Determine the landowners and move ahead with the Site divestment.	Commonwealth of Pennsylvania	Staff time		One Time		Short
Organizational Structure						
4. **LaMP** - Form the Land Management Partnership (LaMP).	LaMP partners	LaMP partner time	LaMP partners	One Time		Short
a. **Operating Parameters** - Establish the mission, operating guidelines, decision-making processes and communication system.	LaMP partners	LaMP partner time	LaMP partners	One Time		Short
b. **Non-Profit Status** - Secure private non-profit status as a 501 (C) 3 organization.	LaMP with Attorney	$3,000-5,000	Volunteer attorney time	One Time		Intermediate

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
c. **Peer Grant** - Consider obtaining a Peer grant from PADCNR to retain a professional to help negotiate the operating framework and procedures of the LaMP over the course of six months. Set a schedule to insure that progress is made.	Use first nine months of Peer services to form the LaMP	Peer Grant	$10,000 DCNR grant with $1,000 local match shared by LaMP partners.	One Time		Short
d. **Citizen Involvement** - Form a Citizens Advisory Committee (CAC).	Use the last three months of the Peer time for CAC	"	"	"		Short
Property Management						
5. **MOU's** - Implement the MOU's among the partners • Review existing MOU's • Revise to be consistent with Master Plan and agreed upon changes.	LaMP partners with MOU's	LaMP partner time	Partner budget	One time and monitoring		Short
6. Security – Secure the site for post-divestment by establishing short-term security measures. • Install gates. • Determine operating procedures for opening and closing gates.	LaMP Partners	To be determined. PSU & Fish & Boat Commission security	LaMP partner staff, State Police, potential contract		#9D	Short
7. **Operating Plan** - Develop immediate operating plan for project launch. a. PSU with LaMP (Uplands) b. Benner Township with Fish & Boat Commission (Canyon) c. Fish & Boat Commission (Canyon) d. Benner Township with LAMP	LaMP Partners for each respective zone.	LaMP partners with assistance from Coordinator if on board	Additional funding needed from public and private sources. Strive for a budget of $500 per acre for conservation areas and $1500 per acre for public access areas.		#1	Short
8. **Rules** - Develop Rules and to guide use and serve as foundation for enforcement.	LaMP Partners	Partner staff time	LaMP partner staff	One time		Short
Management Staff						
9. **Coordinator** - Hire A Spring Creek Canyon Coordinator • Negotiate the funding to support a Spring Creek Canyon Coordinator from among the partners • Create a job description • Recruit and interview candidates	Shared cost of the partners.	$35,000 - 40,000 plus benefits of 30%	Partners	Annual		Short

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
PLANNING						
10. **Work Program –** Develop a one-year annual work program.		Coordinator time	LaMP budget	Annually		Short
11. **Capital Improvement Program** – Develop a five to seven year CIP for the Spring Creek Canyon Site.	LaMP partners for their respective zone.	Partner time, Coordinator assistance	LaMP budget	One time with annual updating	#14	Intermediate
12. **Policies** - Establish policies and procedures to guide decision-making, use, actions and resource allocation for the Site. Recognize that this will be on going and take many years as polices evolve. Policies can deal with: • Conservation. • Fees & Charges. • Revenue Policy. • Employee Policy. • Gifts policy. • Volunteer Policy and many others to be determined over time.	LaMP	Coordinator time	LaMP budget	On-going	#19, #18.#16, #21E	Varies by policy
13. **Conservation/Restoration** - Undertake studies for effective conservation of the Site and its natural & cultural resources. • Develop a natural & cultural resource management plan for the Site. • Establish policies regarding how natural & cultural resources will be conserved.	LaMP	Study costs vary by project	Grants, partnerships, sponsorships, student projects	Ongoing	#1A, #1B, #1C, #1E. #1F, #1H, #1I, #1J, #1K, #1L, #1M, #1N, #1O, #1P, #2, #21B, #21C, #21D, $26, #27	Short
14. **Maintenance Management Plan –** Formalize the maintenance management plan to care for the Site. a. Identify the zones that require a formal maintenance management system. b. Develop a formal maintenance management plan for the Canyon c. Include a work load/cost tracking system to provide information for resource allocation.	LaMP partners for their respective zone. For publicly managed areas, consider obtaining a Peer grant to develop a maintenance plan.	Partner Time, Coordinator assistance, outside consultants Potential Peer grant	Experts in partner organizations or outside consultants. PADCNR grant $10,000 with local match of $1,000	One time with annual updating	#15A, #15B, #16	Intermediate

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
15. **Security** - Develop a security plan for the Site. • Plan for visitor safety. • Plan for protection of the natural and cultural resources. • Determine the organizational structure, roles and responsibilities for security implementation. • Consult with the insurance carriers to obtain guidance on reducing exposure to risk. • Have solicitors review and approve all site signage, accident reporting forms and procedures for emergency care. • Coordinate emergency management program with the local Emergency Response Team.	LaMP partners for their respective zones with coordination for the Site as a whole	LaMP partner and Coordinator time.	Partners and Coordinator, Assistance from State Police, Emergency Response System staff. Solicitors review time.	One time with ongoing evaluation	#1, #1K,#6F, #9C, #10C, #19,#20A	Intermediate
16. **Revenue** – Develop a revenue management plan. • Include both public and private support. • Include sources for funding, workforce and expertise. • Strive for a budget of $1500 per acre for acres with visitation and use and $500 for acreage in resource conservation with minimal use. • Develop a seven-year capital improvement program. • Develop a three-year operating budget with the first year selected as the operating budget.	LaMP partners with Coordinator as lead	SCC budget with expenditures and revenue sources.	LaMP partners. Public and private sources	One time with monitoring		Intermediate
17. **Visitors Plan** - Develop a Visitors Services & Management Plan. a. Establish a policy on visitors' services, programs and events. b. Determine how to manage visitors so that fragile areas are protected. c. Create a plan to manage visitors on-site. Address safety and controlling access. d. Focus on creating positive experiences in the outdoors that will cultivate a culture of land stewardship.	LaMP with support from Coordinator	LaMP partner and Coordinator time. Partners in environmental education.	Partners and Coordinator. Address in planning studies.	One time with updating	#1D, 1G, 1K, #1Q, #1R, #1T,#1U, #15C, #21E	Intermediate

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
18. **Marketing Plan** –Develop a Marketing Plan: a. Create three-year plan & one-year action plan. b. Establish an organized public awareness and involvement program. c. Recognize that the marketing plan is not publicity – it is about meeting community needs within the realm of the conservation of the Site. d. Continue the public involvement process. Manage the Citizens Advisory Committee in a dedicated and positive fashion to keep the citizens engaged and interested. e. Create a promotional program that will brand Spring Creek Canyon Site as a world-class conservation area for resource protection, outstanding passive recreational experiences, and agricultural research for conservation.	LaMP with Coordinator as lead.	Coordinator time	Coordinator, potential volunteers time	One time with annual updating	#10A, #1P, #15A, #21A, #22	Intermediate
19. **Employee Development** – Create a five-year employee development program. Invest in ongoing training to increase knowledge, skills and ability of Coordinator and future staff.	LaMP, Coordinator, future staff	Training, Conferences, memberships, publications	1-2 percent of the operating budget	Ongoing		Intermediate
20. **Information Management & Technology** – a. Conduct a needs assessment for the types of information and reports needed for planning, implementing, controlling operations and informed decision-making.	Coordinator	Coordinator time with assistance from LaMP	Coordinator time	One time with annual updating		Short
b. Research software systems and visit other users of software possibilities	Coordinator	"	"	One time		Short
c. Procure software and the technical support and training needed for ongoing use.	LaMP	TBD for computer(s), software, technical support	Partner funding	Initial purchase, updating and technical support		Short

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
21. **Volunteerism** - Develop a volunteer management program. Recognize that volunteers are not free. • Recruit, train, recognize and sustain volunteers as a primary management resource.	Property owners, LaMP partners and the Canyon Coordinator	Staff Time	Coordinator with Partner input	One time with annual updating		Intermediate
DIRECTING						
22. **Direct the functions of LaMP operation** • Implement recommendations from the operating plans. • Hold regularly scheduled meetings for the purpose of communication, implementation and partnership building. • Strive to create a positive atmosphere of collaboration and unity toward advancing the Spring Creek Vision.	LaMP partners, Coordinator	LaMP and Coordinator time	Partners and Coordinator	Ongoing		Short, Intermediate and Long Range
23. **Identify and direct conservation and cultural resource studies.**	Partners and Coordinator	Study costs TBD	TBD	Ongoing	#1A, #1B, #1C, #1E. #1F, #1H, #1I, #1J, #1K, #1L, #1M, #1N, #1O, #1P, #2, #21B, #21C, #21D, $26, #27	Intermediate and Long Range
24. **Direct efforts for managing the natural and cultural resources.**	Partners and Coordinator	Study costs TBD	TBD	Ongoing	#11, #1F, #1G, #1K, #1N, #1O, #1, #1P	Intermediate & Long Range
25. **Put maintenance systems into place.**	Partners and Coordinator	Maintenance staff requirements TBD	TBD based upon maintenance management system. Part of the per acre target cost.	Ongoing	#2, #4, #5, #10B, #11, #15, A, #15B, #16, #17, #18, #19, #21A	Intermediate and Long Range

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
26. **Direct maintenance work program set forth for the year.**	Partners and Coordinator	Maintenance staff requirements TBD	TBD based upon maintenance management system. Part of the per acre target cost.	Ongoing	#2, #4, #5, #10B, #11, #15, A, #15B, #16, #17, #18, #19, #21A	Short, Intermediate & Long Range
27. **Determine the volunteerism annual program and manage the overall volunteer program.**	Coordinator	Recruiting, training, supervising and recognizing volunteers	Portion of Coordinator salary and potential future additional staff. Benefit would be labor and expertise from volunteers.	Ongoing		Intermediate and Long Range
28. **Direct the security operations.**	Coordinator	Security staff.	LaMP budget and state police assistance. Volunteer corps.	Ongoing	#1, #1K,#6F, #9C, #10C, #19,#20A	Short, Intermediate and Long Range
29. **Implement the communication system** • Insure that communication among the LAMP participants is effectively managed. • Insure that the CAC communications are timely, inclusive and responsive. • Implement the advertising and promotional program for SCC.	Coordinator and LAMP	Coordinator Time	LaMP budget	Ongoing	#21A, #21B, #21C. #21D, #23,#24, #10, #14	Short, Intermediate and Long Range
30. **Project Implementation** - As studies are completed, schedule recommendations for implementation of conservation of natural and cultural resources. Schedule actions in the annual work programs.	Partners, Coordinator	TBD	TBD. Grants, partnerships, sponsorships, student projects	Ongoing	#3, #4, #5, #6A, #6B, #6C, #6D	Intermediate & Long Run

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
IMPLEMENTING						
31. **Financing** *a.* Establish the Spring Creek Canyon Site budget. For areas that are under public entities, the operating budget would be public. For areas under private or quasi-public ownership, the budgets would stay within the respective organization. *The following apply to the public areas:* b. Strive to create a performance-based budget tied to outcomes and benefits. c. Operate with policies developed for purchasing. d. Operate within a real-time financial budget as close as possible. e. Do monthly budget reports. f. Work on fundraising, grant writing, as time allows as with recognition that alternative funding is a Potential Phasing. g. Prepare the annual operating budget. h. Prepare the annual capital budget, which is the first year of the seven-year CIP.	LaMP partners with Coordinator performing administrative budget management functions.	Annual budget	PSU, Benner Township, PA Fish & Boat Commission and other private sources through grants, gifts, donations, fees & charges.	Ongoing		Intermediate and Long Range
32. **Security** **a.** Oversee the program of an onsite presence from law enforcement. **b.** Develop a Spring Creek Canyon Site ambassadors program. **c.** Document and file reports on all incidents. Seek review by solicitor on procedures and forms.	LaMP Partners	Staff	Partner funding	Ongoing	#1, #1K,#6F, #9C, #10C, #19,#20A	Short, Intermediate, & Long Range
33. **Maintenance Management** • Make as many tasks as routine as possible. • Conduct routine maintenance tasks such as inspections, trash removal, repairs, etc. • Respond to emergency situations to remove hazards and make repairs. • Implement "Pack-it-in/Pack-it-out" trash policy. • Track workload and costs.	LaMP Partners	Staff	Partner funding	Ongoing	#2, #4, #5, #9C, #17, #18, #10B, #11, #15, A, #15B, #16, #17, #18, #19, #21A	Short, Intermediate, & Long Range

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
34. **Volunteer Coordination** a. Seek expertise from an area hospital or similar organization that deals with volunteers to provide technical support for the volunteer program. b. Focus volunteerism on group volunteers for identified projects in the beginning years. **c.** As capacity for volunteer management increase, expand the volunteerism to include individual volunteers. **d.** Limit volunteerism to projects and the number of volunteers that can successfully be managed, trained and thanked.	Coordinator, LaMP partners	Coordinator, LaMP partners, community organizations	Coordinator and LaMP partner time; community organization time	Ongoing		Intermediate, & Long Rang
35. **Visitors' Services** • Manage the visitors' use including visitors' services, communication, response to requests for information and assistance. • Conduct regular visitor evaluations.	Coordinator, LaMP partners	Staff and partner time	Partner funding	Ongoing	#1G, #6F, #7, #8, #9B	Short, Intermediate, & Long Range
36. **Offer environmental education opportunities** a. Strive to create partnerships in environmental education such as with school groups, scouts, and others. b. Focus on self- directed opportunities. c. Implement environmental education programs as staff time permits. d. Use volunteers in environmental education programs as staff time permits for recruiting, training and recognition.	LaMP Partners with support from Coordinator	Coordinator and LaMP Partner Time	Partner Funding, fees, charges, grants	Ongoing		Intermediate and Long Range
EVALUATING AND MONITORING						
37. **Conservation Easement**	Clearwater Conservancy, PADCNR with support from LaMP Partners	Staff time	Clearwater Conservancy and PADCR budgets	Ongoing	#4, #5	Short, Intermediate and Long Range

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
38. **Overall Progress in Achieving Vision for SCC** **a.** Evaluate the progress on the work programs, master plan accomplishment and operations with the LaMP, owners, Coordinator and CAC annually prior to budget season. **b.** Use the findings to set forth the next fiscal year's work program, revise goals and objectives and allocate resources for the next year.	LaMP with support from Coordinator and CAC	Staff and volunteer time	Partner budgets	Ongoing	#6E	Short, Intermediate and Long Range
39. **Conservation/Restoration** a. Conduct inspections to determine impacts of use and take action prior to damage or overuse. b. Implement programs recommended in the conservation related studies such as removal of invasive species, planting etc.	Coordinator, LaMP Partners, Clearwater Conservancy as part of CE monitoring	Staff and volunteer time	Partner budgets	Ongoing	#22, #23, #24, #25	Short, Intermediate and Long Range
40. **Visitor Impact -** Based upon inspections and analysis, determine where adjustments in visitor use are needed.	LaMP Partners with support form Coordinator	Staff time	Partner budgets	Ongoing	#1G	
41. **Visitor Experiences -** Analyze visitor evaluations, complaints and other input to improve service and eliminate issues.	LaMP Partners and Coordinator	Staff and volunteer time	Partner budgets	Ongoing	#1Q, #1R, #1S, #1T, #1U , #6A, #6B, #6C, #6D, #6E, #6F, #7, #8, #9, #10C, #15	Short, intermediate and Long Range
42. **Project Progress** • Determine is projects are being completed on time. • Assess to determine if any opportunities are being lost due to staff or budget levels.	LaMP with support from Coordinator and CAC	Staff and volunteer time	Partner Budgets	Ongoing		Short, intermediate and Long Range

ACTION	RESPONSIBILITY	Cost			Master Plan Reference	Horizons
		Item	Source	Type		
43. **Staffing** • Assess how the staffing level is meeting goals and objectives. • Determine where adjustments need to be made in terms of adding or decreasing workload to produce quality results. • Monitor the workload cost tracking data to assess performance and productivity.	LaMP with support from Coordinator	TBD	Public and Private sources	Ongoing		Intermediate and Long Range
44. **Financial Management** a. Evaluate the operating budget in terms of performance in meeting objectives. b. Evaluate capital budget to determine if projects are being completed as scheduled and funded. c. Assess the revenue sources to determine if additional sources could be tapped.	LaMP with support from Coordinator	TBD	Public and Private sources	Ongoing		Short, Intermediate and Long Range

Funding

Achieving the vision that is defined within this Plan will require an innovative approach to funding. Since the Spring Creek Canyon Site should be managed in zones and through a partnership based upon the capacity of the organizations as well as the reality of the capacity of organizations ready, willing and able to support the Site in accordance with this plan, stable and recurring sources of funding for each of these zones are needed. Multiple funding sources will be needed to achieve the goals of this Master Plan, as no single source of funding will meet the goals and objectives defined for the conservation and passive recreational use of the Spring Creek Canyon Site. Instead, the partners through LaMP will need to work cooperatively with each other and with many other governmental, public and private partners to generate funds sufficient to implement the program. Appendix H contains a list of selected funding sources that could be pursued for Spring Creek Canyon Site projects and programs.

Stable Funding for Organization: Essential

The start up and ongoing operation of the Spring Creek Canyon Site organization will require a dedicated stable funding source. Table 21 presents a proposed budget sequence for the Spring Creek Canyon Site in today's dollars. Each of the site managers will be expected to commit dedicated funds to operate the Spring Creek Canyon Site organization. The organization is designed to be minimal but strategic in terms of the number of staff members. .

The Coordinator is the essential position for launching the implementation plan. Other staff would only be brought on as needed and as resources are available. It is important to note that each position would be designed to leverage additional outside resource support in the form of funding, labor and expertise

Along with the costs of administration and staff, the partners will incur additional costs of time and funding for their participation in the partnership. Participation in the partnership meetings, initiatives, communication, coordination and so on will require an investment of time on the part of the designated representatives.

Revenue Sources for Site Activities

- **Compulsory Resources** – Taxes, mandatory dedication ordinance
- **Financial Assistance** – Grants, gifts, bequests, donations, fund raising, friends group
- **Contractual receipts** – Land leases, facility rentals, concessions
- **Earned Income** – Fees, charges, admissions, rentals, sales, special services, permits

Table 21: Spring Creek Canyon Site Organizational Budget Sequence

Table 21: Spring Creek Canyon Site Organizational Budget Sequence			
Item	**Price**	**Source**	**Comment**
Implementation Start Up			
Peer Grant	$10,000	PADCNR grant	Urgent for start up
	$1,000 or additional	Total Partners' match required	
Total	$11,000		
Short Term Annual Operations			
Coordinator	$60,000 salary	Partners	Hiring as soon as practical
	$20,000 benefits	Partners	
Office Space	Donated Office Space		
Computer hardware, copier, and software	$10,000	Partners	
Telephone	$3,600	Partners	
Mileage	$2,000	Partners	
Materials and Supplies	$5,000	Partners	
Total	$100,600	Partners	
Intermediate Annual Operations			
Site Coordinator	$61,800 salary	Partners; Program fees, Grants	Grant generator
	$20,900 benefits		
Development Director	$50,000 salary $16,000 benefits	Partners, Program fees, Grants, Gifts, Donations, Fundraising	Revenue generator
Field Operations Director	$45,000 salary $15,000 benefits	Partners, value of volunteer work products	Work force generator
Office Space	Donated Office Space	TBD	
Computer hardware, and software	$10,000	Partners	
Telephone	$5,000	Partners	
Mileage	$5,000	Partners	
Materials and Supplies	$7,000	Partners	
Memberships, training	$4,000		
Total	$238,000	Partners	
Long Term Annual Operations			
Site Coordinator	$63,654 salary $21,220 benefits	Partners; Program fees, Grants	Grant generator
Development Director	$51,500 salary $17,000 benefits	Partners, Program fees, Grants, Gifts, Donations, Fundraising	Revenue generator
Field operations Director	$46,350 salary $15,450 benefits	Partners, value of volunteer work products	Work force generator
Office Space	On-site location	TBD	
Computer hardware, and software	$3,000	Partners	
Telephone	$5,000	Partners	
Mileage	$5,000	Partners	
Materials and Supplies	$7,000	Partners	
Memberships, training	$4,000	Partners	
Total	$239,174	Partners	

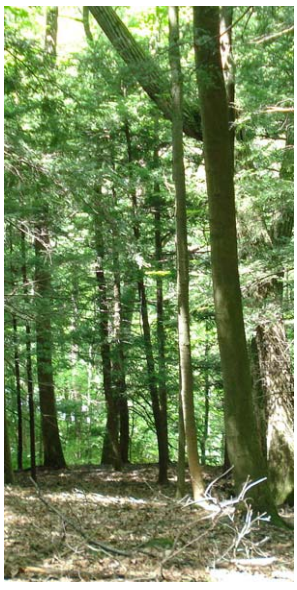
Site Operations Funding

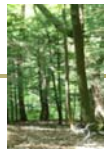
In addition to the organizational operations budget, funding for operating and managing the site will be needed. The benefit of managing the site as the LaMP is that the collaboration of different partners opens the door to more funding sources than would be available for one single entity dedicated to a single purpose such as government, recreation, education, conservation or agriculture. The various site managers will be able to pursue grants, gifts, donations and fundraising in addition to their own operating budgets for many diverse purposes. It is essential to recognize that each site manager will assume a major new responsibility that will require additional human and financial resources.

Part 7:
Conservation Easement Framework

Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul

John Muir





Introduction

Developed between a landowner and a holding entity, a conservation easement is a legal agreement that restricts a landowner's use and/or development of its land while simultaneously preserving a landowner's right to complete defined activities on the land. By accepting the conservation easement, a holding entity agrees that it will be responsible for enforcing the easement's stipulations.

It is customary for a conservation easement to be executed with the transfer of land. Consequently, it is recommended that any conservation easement for the Spring Creek Canyon site be executed when the land is transferred and accompanying deed(s) be recorded simultaneously as best possible and practical. It is also recommended that PADCNR and ClearWater Conservancy begin conceptualizing the issues and parameters of the conservation easement as soon as possible.

As part of this Conservation Strategy and considerations for the following conservation easements framework, there are several phases which are important to identify in preparing the Conservation Easement(s) for the site. If more than one land owner is part of any future site divestment, each land owner will need to sign their respective conservation easement. The first phase is drafting a series of specific provisions based upon the Conservation Easement Framework (see below). The resulting draft Conservation Easement(s) (Easement) document will need to be reviewed and refined based upon feedback from the Easement's landowners. Once the final document(s) has been prepared, the Site's landowner(s) and the Easement(s) holders will need to sign the document(s) in order for it to take effect.

Several entities are anticipated to be involved in the Spring Creek Canyon Conservation Easement process. Proposed holding entities are The Pennsylvania Department of Conservation and Natural Resources (DCNR) and the ClearWater Conservancy. At the time of this Master Planning process, the Easement's landowners have yet to be determined.

Article I. Background

1.01 Property

1.02 Conservation Strategy

The Spring Creek Canyon Conservation Strategy is comprised of the Master Plan and the Management Plan.

(a) The *Master Plan* is a graphic representation and accompanying series of recommendations as related to the ways to balance both future conservation and activities of the Spring Creek Canyon.

(b) The *Management Plan* identifies completed assessments and a recommended structure for implementing the Master Plan.

1.03 Conservation Goals, Objectives and Principles.

(a) Goals. Unless otherwise identified, the Conservation Goals, Objectives and Principles are based upon those iterated in the Spring Creek Canyon Conservation Strategy.

(b) Resource Protection Objectives

(i) Enhance the Site's ecological values and natural diversity.

(ii) Define a range of activities or uses that conserve the Site's unique ecological and cultural value, offer educational and interpretive experiences, accommodate limited public access and promote healthy habitats.
(iii) Identify appropriate buffers and transitions between uses or activities to protect sensitive landscapes and natural resources both within and adjacent to the Site.
(iv) Recognize and interpreting the Site's past uses and past human activities.
(v) Advance the knowledge and science of sustainable practices within the context of natural and cultural resource conservation.
(vi) Utilize sustainable natural resource, recreation and land management protocols and strategies to maintain the Site's long-term ecological balance and optimize connections to the Site's adjacent lands.
(vii) Incorporate design features and principles that ensure security of the Site and maximize personal safety.
(viii) Nurture a cooperative dialogue between the communities within the Spring Creek watershed to achieve the Strategy's objectives.
(ix) Establish a responsive and realistic management structure through which the Strategy's recommendations can be implemented

1.04 Conservation Strategy
As of the Easement Date, the undersigned Owner or Owners and Holder have signed for identification purposes the report (the Spring Creek Canyon Conservation Strategy: A Master Plan and Management Plan), to be kept on file at the principal office of Holder, that contains an original, full-size version of the Conservation Plan and other information sufficient to identify on the ground areas identified in this Article; that describes Existing Improvements; that identifies the conservation resources of the Property described in the Conservation Objectives; and that includes, among other information, photographs depicting existing the conditions of the Property as of the Easement Date.

1.05 Structure of Conservation Easement
(a) Document Organization

(b) Membership in the Spring Creek Canyon Land Management Partnership

1.06 Federal Tax Items
(a) Qualified Conservation Contribution

(b) Public Benefit

(c) Mineral Interests

(d) Notice Required under Regulations

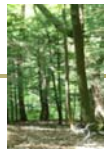
(e) Property Right

(f) Qualifications

(g) Acknowledgment of Donation

(h) No Representation of Tax Benefits

1.07 Beneficiaries



1.08 Consideration

Article II. Subdivision

2.01 Prohibition

2.02 Permitted Subdivision
(a) Lot Line Change

(b) Transfer to Qualified Organization

(c) Lease

2.03 Subdivision Requirements
(a) Establishment of Lots; Allocations.

(b) Amendment

Article III. Resources.

3.01 Natural Resources

(a) Natural resources known to exist on the Site at the time of this Agreement.

(b) Natural resources to be confirmed to exist on the Site.

3.02 Cultural Resources

(a) Cultural resources known to exist on the Site at the time of this Agreement.

(b) Cultural resources to be confirmed to exist on the Site.

3.03 Man-made Resources
(a) Man-made resources known to exist on the Site at the time of this Agreement.

(i) Pennsylvania Fish and Boat Commission Hatchery
(ii) Rockview SCI Watertower
(iii) Agriculture Support Structures

Article IV. Property Activities.

4.01 Prohibition.

Activities are limited to those permitted below in this Article and provided in any case that the intensity or frequency of the activity or use does not materially and adversely affect maintenance or attainment of Conservation Objectives and Principles.

4.02 Permitted Activities within Conservation Areas
The following activities are permitted within Conservation Areas.

(a) Disturbance of Resources
  (i) Cutting trees and understory species
  (ii) Removal of invasive species
  (iii) Planting native species
  (iv) Removal and disturbance of soil, rock and vegetative resources
  (v) Vehicular use
  (vi) Vehicular access and parking
  (vii) Water removal
  (viii) Archeological/cultural resource research
  (ix) Other resource management activities

(b) Release and Disposal
  (i) Application of substances
  (ii) Piling of brush and other vegetation

(c) Fish and Boat Commission hatchery operations

(d) Rockview State Correctional Institution infrastructure operations

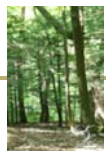
(e) Other Activities
  (i) Activities that do not require Improvements other than trails and do not materially and adversely affect maintenance or attainment of the Conservation Strategy such as walking, cross-country skiing, bird watching, nature study, fishing and hunting;
  (ii) Educational or scientific activities consistent with and in furtherance of the Conservation Strategy
  (iii) Maintenance, security and emergency access operations

(f) Restoration and Forest Management Plan activities

4.03 Permitted Activities within Restoration Areas
The following activities are permitted within Restoration Areas.

(a) Disturbance of Resources
  (i) Cutting trees and understory species
  (ii) Removal of invasive species
  (iii) Planting native species
  (iv) Removal and disturbance of soil, rock and vegetative resources
  (v) Vehicular use
  (vi) Vehicular access and parking
  (vii) Water removal
  (viii) Archeological/cultural resource research
  (ix) Other resource management activities

(b) Release and Disposal
  (i) Application of substances
  (ii) Piling of brush and other vegetation



(c) Other Activities

(i) Activities that do not require Improvements other than trails and do not materially and adversely affect maintenance or attainment of the Conservation Strategy such as walking, cross-country skiing, bird watching, nature study, fishing and hunting;
(ii) Educational or scientific activities consistent with and in furtherance of the Conservation Strategy
(iii) Maintenance, security and emergency access operations

(d) Rockview State Correctional Institution infrastructure operations

4.04 Permitted Activities within Agriculture Research/Education for Conservation

(a) Disturbance of Resources
(b) Release and Disposal
(c) Other Activities

4.05 Permitted Activities within Active Recreation

(a) Disturbance of Resources
(b) Release and Disposal
(c) Other Activities
(d) US Green Building Leadership in Environmental and Energy Design
(e) Sustainability Guidelines

Article V. Improvements

(a) Prohibition
Improvements within the Property are prohibited except as permitted below in this Article

(b) Existing Improvements
Any Existing Improvement may be maintained, repaired and replaced in its existing location. Existing Improvements may be expanded or relocated if the expanded or relocated Improvement complies with requirements applicable to Additional Improvements of the same type.

(c) Additional Improvements

(i) Roads
(ii) Trails/Steps
(iii) Parking Areas
(iv) Signage
(v) Buildings and sheds
(vi) Bridges
(vii) Earth disturbance
(viii) Lighting
(ix) Utilities
(x) Canoe/kayak put-ins
(xi) Swales

(xii) Fences
(xiii) Stormwater management

Article VI. Off-site Considerations

(a) Adjacent Properties
(b) Spring Creek Watershed Communities

Article VII. Periodic Master Plan Updates

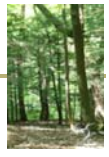
(a) Plan Updates
(b) Conservation Easement Revisions

Article VIII. Rights and Duties of Holder and Beneficiaries

(a) Grant to Holder
(i) Grant in Perpetuity
(ii) Superior to all Liens
(b) Rights and Duties of Holder
(i) Enforcement
(ii) Inspection
(iii) Review
(iv) Interpretation
(c) Other Rights of Holder
(i) Amendment
(ii) Signs
(d) Review
(i) Notice to Holder
(ii) Notice to Owners
(iii) Failure to Notify
(iv) Standard of Review
(e) Reimbursement

Article IX: Violation; Remedies

(a) Breach of Duty
(i) Failure to Enforce
(ii) Transferee
(b) Violation of Conservation Easement
(i) Notice
(ii) Opportunity to Cure
(iii) Imminent Harm
(c) Remedies
(i) Injunctive Relief
(ii) Civil Action
(iii) Self-Help
(d) Modification or Termination
(i) Compensatory Damages
(ii) Restitution
(e) Remedies Cumulative
(f) No Waiver



(g) No Fault of Owners
(h) Multiple Owners; Multiple Lots
(i) Multiple Owners; Single Lot
(j) Continuing Liability

Article X: Miscellaneous

(a) Notices
  (i) Requirements
  (ii) Address for Notices
(b) Governing Law
(c) Assignment and Transfer
  (i) By Holder
  (ii) By Owners
(d) Binding Agreement
(e) No Other Beneficiaries
(f) Amendments; Waivers
(g) Severability
(h) Counterparts
(i) Indemnity
(j) Guides to Interpretation
  (i) Captions
  (ii) Glossary
  (iii) Other Terms
  (iv) Conservation and Preservation Easements Act
  (v) Restatement of Servitudes
(k) Entire Agreement
(l) Incorporation by Reference