Rose Tree County Park 5

Chapter 5: Rose Tree County Park

INTRODUCTION

BRIEF HISTORY

The land now known as Rose Tree County Park was once site of the oldest fox hunting club in the United States. In 1853, J. Howard Lewis and George E. Darlington kept their fox hounds at the Rose Tree Tavern building and in 1872 it became an organized club.

Rose Tree has been in the recreational realms for over 130 years dating back to the hunt club. What is now the Rose Tree County Park was once made up of four parcels: the Leedom Residence parcel; the Rose Tree Hunt Club Parcel; the Rose Tree Inn parcel; and the 3rd Leedom Parcel. The parcels were acquired by Delaware County in the late 1960's and have been in the County Park system ever since.

CONTEXT WITHIN THE DELAWARE COUNTY PARKS SYSTEM

At 117.9 scenic acres, Rose Tree County Park offers the park user a wealth of different entertainment and passive recreation opportunities. The park features a first class amphitheater that hosts numerous events and concerts throughout the year, various memorials, well maintained open space for passive recreating, landscape features from the previous hunt club use (ring of trees as seen in the aerial to the right), community gardening plots, a plaza (mall) and ample parking. Three main structures still remain from the hunt club and residential days of the site: The Hunt Club Building, the Leedom House and the Rose Tree Tavern (which is on the National Register of Historic Places).

In the context of the overall Delaware County Park System, Rose Tree County Park is the second largest County Park and is the crown jewel of the system due to its picturesque setting, programming, general awareness of the park, visibility in the community, and the fact that the Delaware County Parks and Recreation offices reside here.

CURRENT SERVICE AREA

Rose Tree County Park is a large regional park that attracts users from all over Delaware County and users from out of the County as well. Rose Tree County Park is most certainly a destination park that almost all users access by vehicle. There are two main reasons for this, users are typically coming from an un-walkable distance and there are really no pedestrian links or sidewalk network in the area of the park for pedestrian use.

The current service area of Rose Tree County Park supports the municipalities of Media Borough, Upper Providence Township, Marple Township, Springfield Township, Nether Providence Township, Rose Valley Borough, Edgmont Township, Newtown Township and Middletown Township.

Rose Tree County Park's current service area also includes many other similar open space resources and user constituencies that benefit the park. These resources include: Ridley Creek State Park, Tyler Arboretum, Springton Lake Reservoir, Smedley County Park, Glen Providence County Park, Martin County Park, Saul Wildlife Sanctuary, Scott Arboretum, Swarthmore College, Hildacy Farms, Springfield Memorial Park, Spring Valley Park, Kent Park, and Jane Lownes Park.

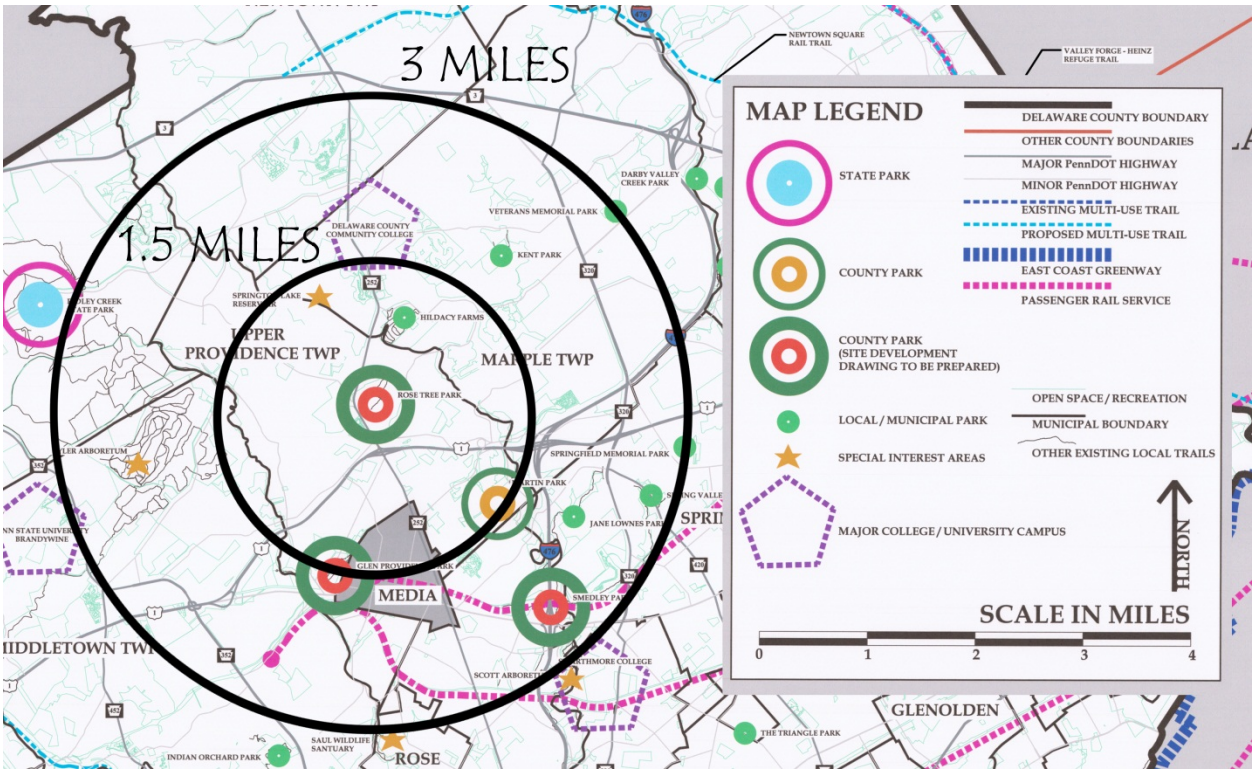


Figure 5-1: Rose Tree County Park service area

EXISTING CONDITIONS AND INVENTORY

SURROUNDING LAND USE

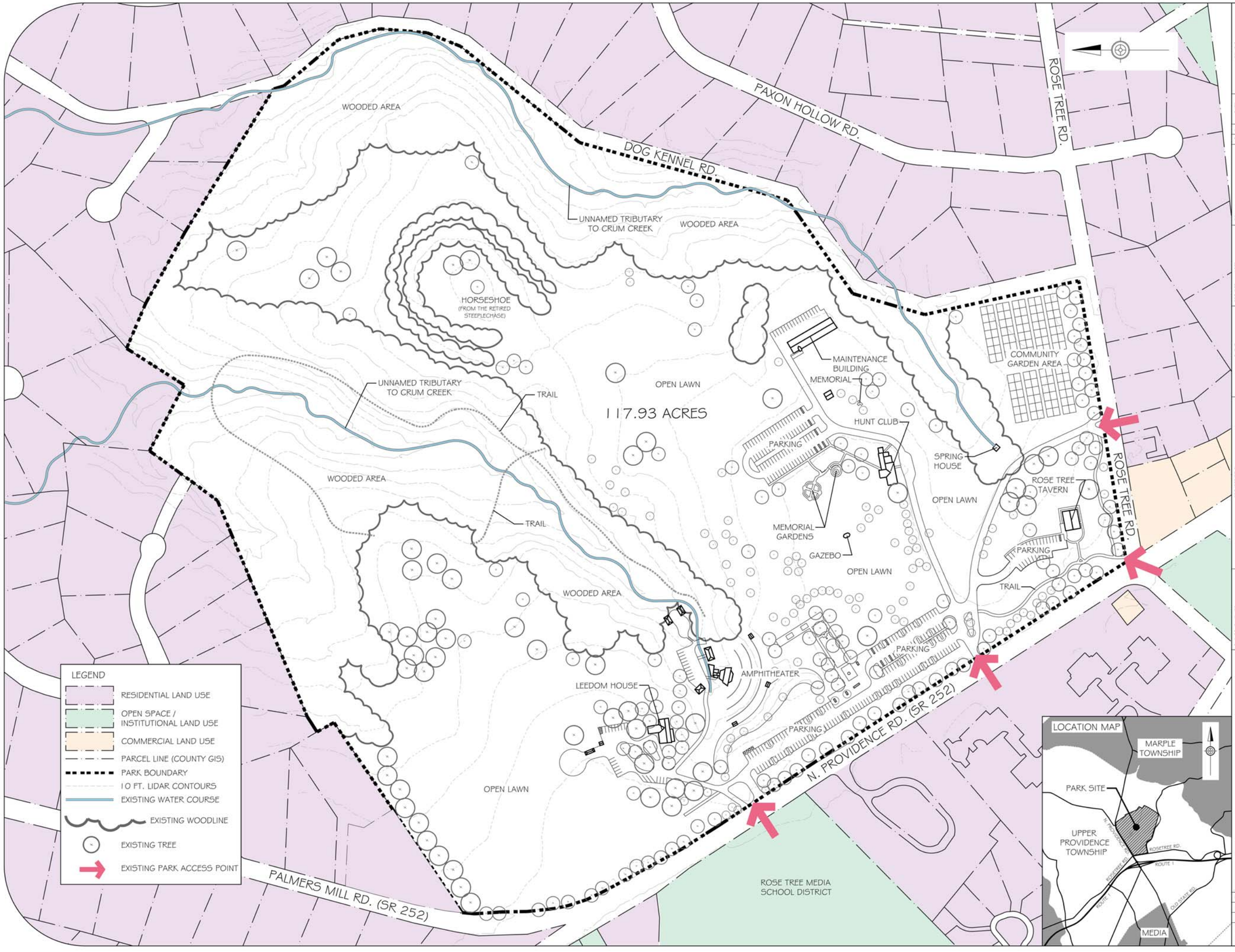
Rose Tree County Park is located in Upper Providence Township and is surrounded by a residentially developed area along the busy North Providence Road (Rt. 252) with a very small amount of commercial use south of the park on Route 252. Adjacent to the park on the west side of Route 252 resides Springton Lake Middle School, part of the Rose Tree Media School District. See the Existing Conditions Drawing on the previous page.

NATURAL RESOURCES

Vegetation

Nearly 35 acres of the overall 120 acres of Rose Tree County Park are mixed deciduous wooded areas. Most of the remaining acreage is maintained open lawn. The wooded acreage is mainly located on the north and east edges of the park. The predominant species of specimen trees on site consist of Oak, Black Walnut, Hickory, Beech, Ash and Tulip Poplar. Along the edge of the woods in the open field are species of Cherry, Dogwood, Sour gum and Pines.

Ornamental plant material consisting mainly of Maples, Sycamores, various fruit trees and evergreens can be found around the buildings on site.



NO. | BY | DATE | REVISION

SEAL

CLIENT
DELAWARE COUNTY PLANNING DEPARTMENT
TOAL BUILDING, 2ND & ORANGE STREETS
MEDIA, PA. 19063
PH: 610-891-5200 FAX: 610-891-5203

PROJECT MANAGER: TIMOTHY PAUL WILSON RLA, LEED AP
DESIGN BY: | CHECKED BY:
DRAWN BY: TPW | CHECKED BY:

SCALE IN FEET
0 50 100 200 400'

PROJECT TITLE
SITE DEVELOPMENT DRAWINGS
ROSE TREE PARK
UPPER PROVIDENCE TOWNSHIP DELAWARE COUNTY, PA

SHEET TITLE
EXISTING CONDITIONS DRAWING

SUB-CONSULTANTS
CT &C
Toole Recreation Planning

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310 ELMWOOD BLVD.
YORK, PA. 17403
STUDIO PHONE: 717-843-1897
WWW.TPWDESIGNSTUDIOS.COM

DESIGN STUDIOS

DATE: FEBRUARY 23, 2012
PROJECT NO.: 13.1 - DELCO
SHEET NO.: 1 OF 1

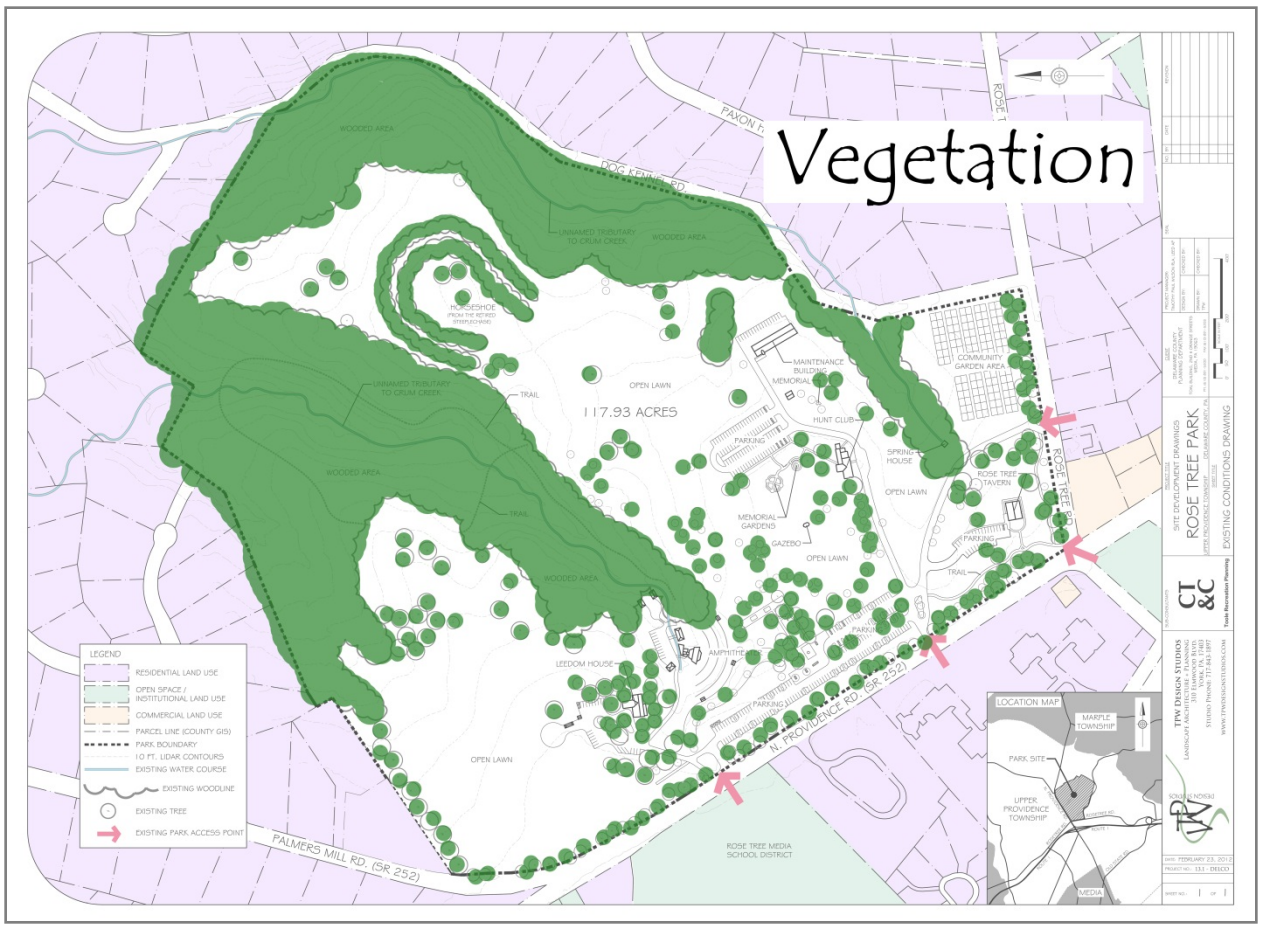


Figure 5-2: Existing vegetation at Rose Tree County Park

Wildlife and Pennsylvania Natural Diversity Inventory

Wildlife

The main wildlife resource of Rose Tree County Park is its dense wooded areas. These wooded areas contain fauna such as deer that access the park and open space on their migration routes. Also, various birds were spotted nesting and using the tree canopy of Rose Tree Park for layover in flight. Some of these birds spotted were robins, blue jays, cardinals, a red crested woodpecker, and various finches.

The abundant amount of snags (dead or dying tree or woody debris) in the wooded areas provide critical habitat for many small animals, insects and birds. It is recommended that the snags be evaluated to determine if any pose a threat from falling onto hiking trails by an arborist. Snags that are deemed safe should be allowed to remain to maintain this critical habitat.

Other species that were evident in the park were chipmunks, squirrels, skunks and rabbits. Groundhogs and many burrows were seen along the woodline.

Preliminary Environmental Review

The Pennsylvania Natural Diversity Inventory (PNDI) records for Rose Tree County Park indicate that there are potential impacts to threatened and endangered species and/or special concern species and resources within the Park boundary.

Further coordination with PA Department of Conservation and Natural Resources and PA Fish and Boat Commission would be necessary at the time of construction and plan implementation. (See Appendix R-2 for details of the review and limits).

The agencies typically needing coordination in regards to a PNDI are: PA Game Commission; PA Department of Conservation and Natural Resources; PA Fish and Boat Commission; and the U.S. Fish and Wildlife Service.

Soils and Topography

Soils

According to the United States Department of Agriculture (USDA) Soils Survey, the soils present within Rose Tree County Park are as follows:

GeA - Glenelg channery silt loam, 0 to 3 percent slopes
GeB - Glenelg channery silt loam, 3 to 8 percent slopes
GeB2 – Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded
GeC – Glenelg channery silt loam, 8 to 15 percent slopes
GeC2 - Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded
GeC3 - Glenelg channery silt loam, 8 to 15 percent slopes, severely eroded
GeD – Glenelg channery silt loam, 15 to 25 percent slopes
GeE – Glenelg channery silt loam, 25 to 35 percent slopes
GnB2 – Glenville silt loam, 3 to 8 percent slopes, moderately eroded (Hydric Soil)
MgB2 - Manor loam, 3 to 8 percent slopes, moderately eroded (Hydric Soil)
MgC2 – Manor loam, 8 to 15 percent slopes, moderately eroded
MgD – Manor loam, 15 to 25 percent slopes

Hydric soils are those soils that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season. Hydric Soils are generally associated with wetland conditions but do not necessarily mean there are wetlands present within an area of hydric soil.

Based on our field investigation, the terrain and drainage patterns of Rose Tree County Park are not conducive to the presence of wetlands. There is also an absence of the necessary plant material to suggest wetlands are present. This conclusion has been supported by the national wetland inventory mapping from the U.S. Fish and Wildlife Service which indicates an absence of wetlands in Rose Tree County Park.

The soils identified above are detailed further in Appendix R-1.

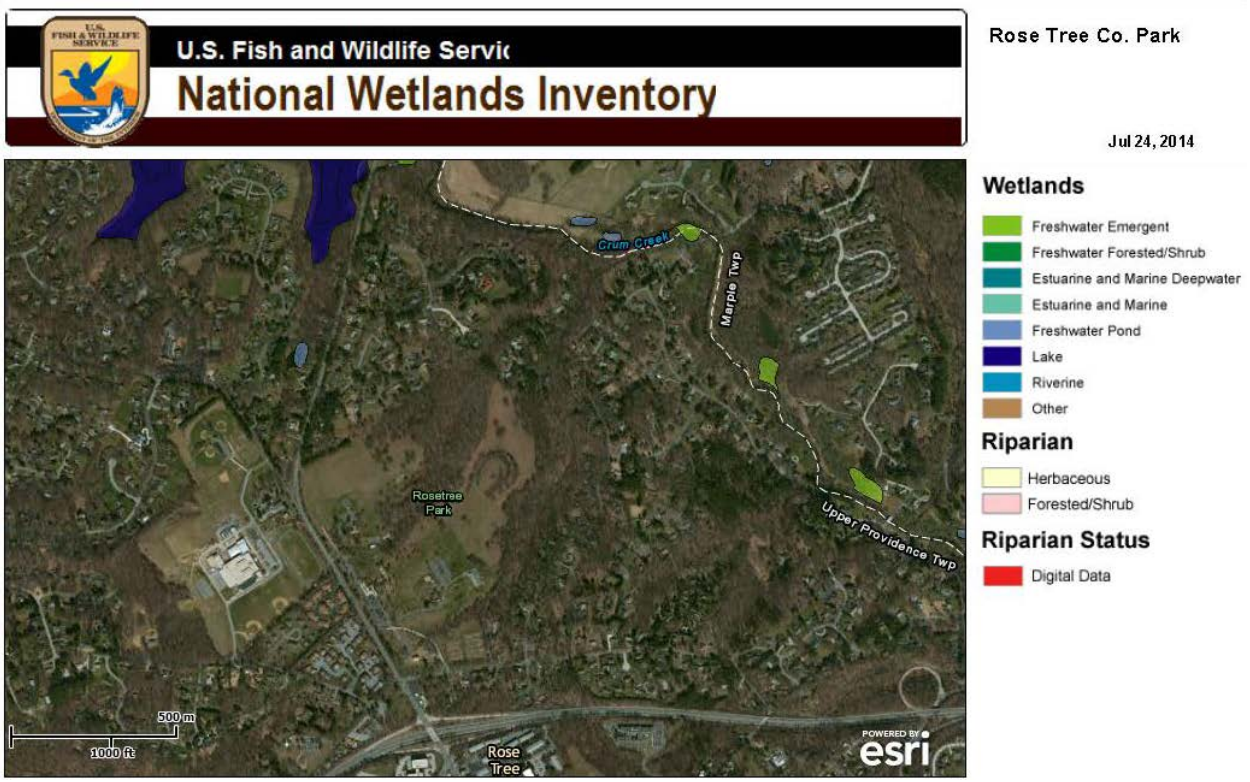


Figure 5-3: National Wetlands Inventory of Rose Tree County Park

Topography

Rose Tree County Park's rolling topographic relief has high points on the western side of the park along North Providence Road. From these high points, the grade gently falls off toward Dog Kennel Road on the east side of the park into two stream valleys that are unnamed tributaries to Crum Creek. The wooded areas of the park have the most significant elevation change and also contain the unnamed tributaries. The open maintained portions of Rose Tree County Park tend to be the flatter rolling landscape.

Hydrology

There are two hydrological features within Rose Tree County Park. They are both headwater or first order unnamed tributaries to Crum Creek and both originate within the park. One is the result of a concrete swale that collects stormwater runoff from the eastern portion of the site near the amphitheater. The other is fed by a historic springhouse constructed in 1775 near the community garden area on the southern end of the park. The two tributaries discharge into Crum Creek only about a quarter of a mile north of the park.

The riparian buffers of the unnamed tributaries are well established but invasive vegetation dominates in some areas. There are some areas of serious erosion at the discharge point of the concrete channel, likely due to high velocities created.

Figure 5-4: Concrete drainage channel

Most of the site soils are well draining soils and cause very few flooding and erosion issues. What stormwater is not infiltrated generally sheet flows in the general direction of the two unnamed tributaries to Crum Creek.

Unnamed Tributaries to Crum Creek and Chapter 93 Designation

The Chapter 93 Protected Use Designation for the Crum Creek in the area of Rose Tree County Park are:

WWF – Warm Water Fishes
MF – Migratory Fishes

This portion of the Crum Creek Watershed is designated as a Warm Water Fishery (WWF) by the Pennsylvania Department of Environmental Protection (PADEP). Designated use of a WWF is defined as "Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat" according to PADEP's Chapter 93 guidelines.

There are no Exceptions to Specific Criteria and the waters of Crum Creek in this area are not "HQ" High Quality or "EV" Exceptional Values waters.

Figure 5-5: Historic Springhouse

Figure 5-6: Unnamed tributary to Crum Creek

EXISTING PARK FACILITIES

Figure 5-7: Plaza

Figure 5-8: Pedestrian Mall

Figure 5-9: Amphitheater

Figure 5-10: Paved Multi-Use Trail

Figure 5-11: Restroom Facilities (a)

Figure 5-12: Restroom Facilities (b)

Figure 5-13: Hiking Trail

Figure 5-14: Community Garden Plots

EXISTING PARK FACILITIES (CONT.)

Figure 5-15: Memorials

Figure 5-16: Gazebo

Figure 5-17: Open Space / Lawn

Figure 5-18: Maintenance Building

Figure 5-19: Leedom House

Figure 5-20: Rose Tree Tavern

Figure 5-21: Hunt Club

Figure 5-22: Four paved parking areas
Aerial Image Source: Google Maps

HISTORICAL AND CULTURAL RESOURCES

There are five historical and culturally related resources associated with the past use of the Rose Tree County Park grounds. Three were part of the hunt club that immediately preceded the County Park and two are from the late 1700's and early 1800's.

Hunt Club resources: The Leedom House, The Hunt Club and the Steeple Chase "Horseshoe."

The earliest use historical resources are the Springhouse and the Rose Tree Tavern Building. The Tavern has been added to the National Register of Historic Places.

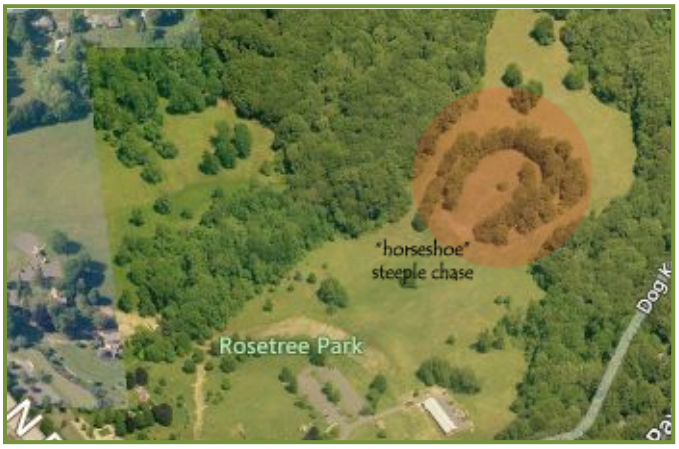


Figure 5-23: "Horseshoe" steeple chase at the park
Aerial Image Source: Bing Maps

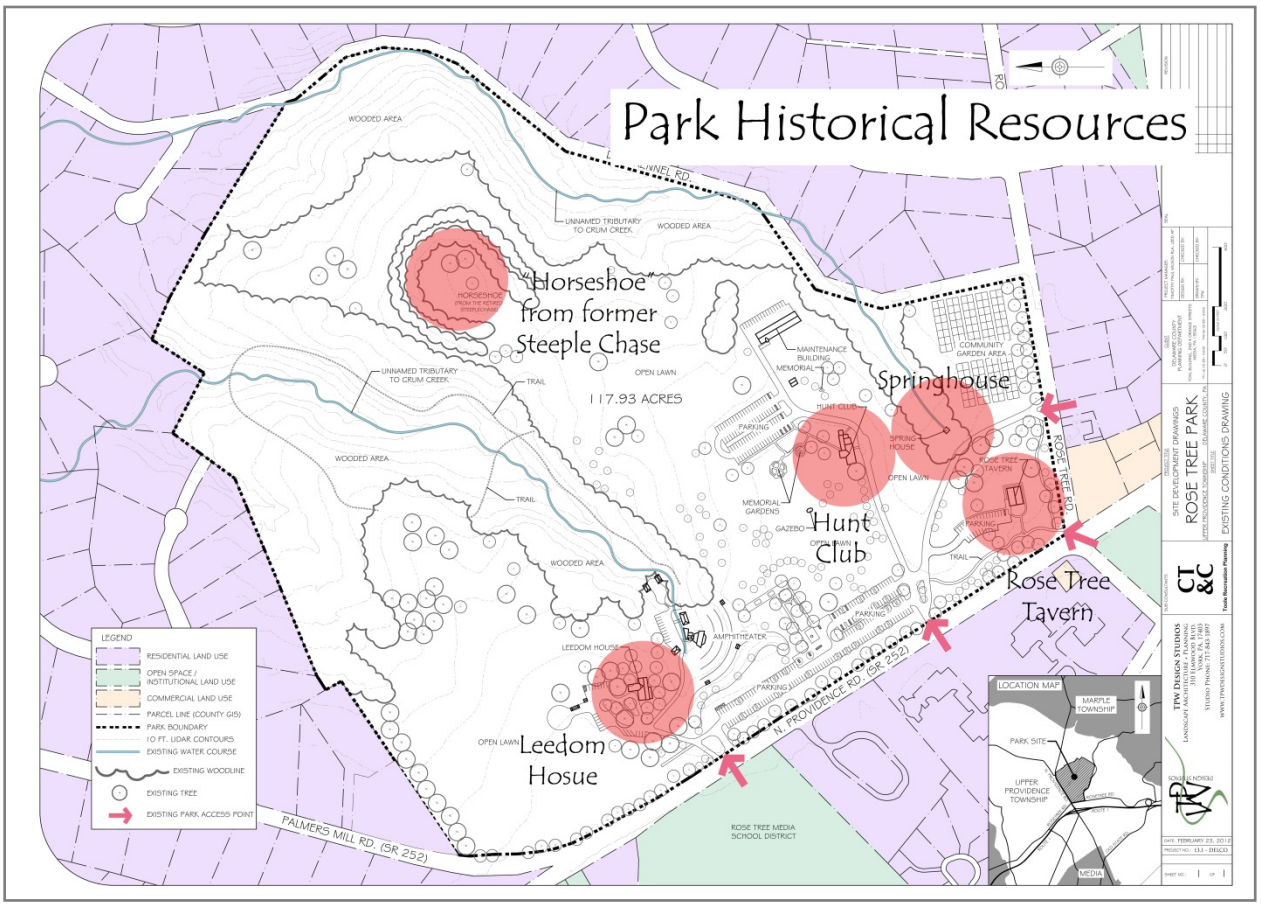


Figure 5-24: Existing historical resources at Rose Tree County Park

STRUCTURES

Rose Tree Tavern

Stone Masonry and timber construction circa 1800 – The building has been recently and beautifully restored. It is presently used by Delaware County's Brandywine Conference and Visitors Bureau. The structure "Old Rose Tree Tavern – (1 acre, 1 building)" was added to the National Register of Historic Places (ref. #71000705) in 1971. Prior to any park work in the area of the tavern, the boundaries of the one acre included in the listing should be verified to identify the impact (if any) other park work will have on the tavern grounds.

Figure 5-25: Rose Tree Tavern

Springhouse

Stone Masonry and Timber construction circa 1775, a plaque notes that it was rebuilt by the Rotary Club of Media in 1993. Due to its age and proximity to the Tavern, it was likely part of the tavern operations, and it should be verified if the structure is included as part of the National Register listing. The interior was inaccessible at the time of the site review but based on the condition of the roof construction, it can be safely assumed there may be some issues with the basic timber structure. There are a number of issues with the masonry that should be addressed. There are some unstable areas in the stone construction that appear to be related to the land form and overgrowth around the structure. All of the brush and trees within 10 feet of the structure should be completely removed. It is all relatively recent growth and the root structures and growth are already doing significant damage. There are large areas of cement mortar repairs that range from surface pointing to parging throughout the exterior stonewalls of the structure. It appears the stone was "white washed" at one time. Based on the nature of the stone, it is likely the structure was once finished with a lime and sand stucco coat at one time. All of the wood elements of the construction are unprotected (unpainted) and in various stages of deterioration. There appears to be a slight sag in the roof which may or may not indicate more serious roof structural issues on the interior. Of particular concern is the condition of the shake roofing. A number of shakes are missing and certainly need replacement, but of more concern is the heavy build up of moss on the shakes which accelerates their deterioration. Roof restoration may require that the roof construction be disassembled and rebuilt salvaging and reusing existing material where possible. It's unclear if the roof construction is stable enough to allow for an attempt at cleaning the shakes in place.

Figure 5-26: Springhouse

Hunt Club Building

Masonry and timber or wood frame construction. The building was clearly built in several stages and is reasonably maintained. Some of the addition and repair work that were done over the years are a little insensitive to the original character of the building. It is presently used by the County.

Toilet Building
Stone masonry and wood frame construction of relatively contemporary construction. While the building is closed and not being used as toilet facilities, it looks to be in good condition and have relatively new roofing. Portable toilets are located right next to the building, so we assume there is some issue with the plumbing infrastructure in the building. It should be determined if it is feasible to make the needed repairs to reopen the building for use.

Figure 5-27: Toilet Building

Maintenance Building
Wood timber/frame construction. The building is in use and appears to be generally well maintained.

Figure 5-28: Maintenance Building

Amphitheater and Accessory Structures
Various construction types. These facilities are in use and appear to be relatively well maintained.

Leedom House
Stone masonry and timber construction – Clearly a structure that has seen some changes over the years, it is used as County offices and relatively well maintained. Some of the changes that have been made are a little insensitive to the character of the building. The vestibule that was added on the north elevation should be reconsidered.

Figure 5-29: Amphitheater

Figure 5-30: Leedom House

PARK ACCESS

Pedestrian

Most Rose Tree County Park users drive to the park. The facts are that there is not an existing trail connection to the park, the surrounding pedestrian and sidewalk network is fractured and inconsistent with gaps, and crossing Rose Tree Road or Route 252 (North Providence Road) is discouraging and sometimes unsafe. It is tough for pedestrians to access the park unless their property adjoins the park directly. Even the students at the school across the road have a tough time accessing the park. Students were observed darting across Route 252 when they saw a break in the steady line of cars.

Trails and Greenways

Rose Tree County Park is on an island as far as connecting trails and greenways are concerned. The closest resource would be Ridley Creek State Park and the trail network within that park and Tyler Arboretum. It is recommended that within future improvements to Route 252 and surrounding roadways, that pedestrian links, sidewalks and facilities for bicycle use be considered. This will begin to connect Rose Tree County Park to the regional network and population bases like Media.

Public Transit

Delaware County has an extensive public transit system and Rose Tree County Park is directly on Bus Routes 111 – 69th Street Station to Penn State / Chadds Ford and 118 – Chester to Newtown Square. The bus service frequency during peak park use times of the day are every hour Monday – Saturday, and every hour on Sundays. Route 118 offers no service on Sundays.

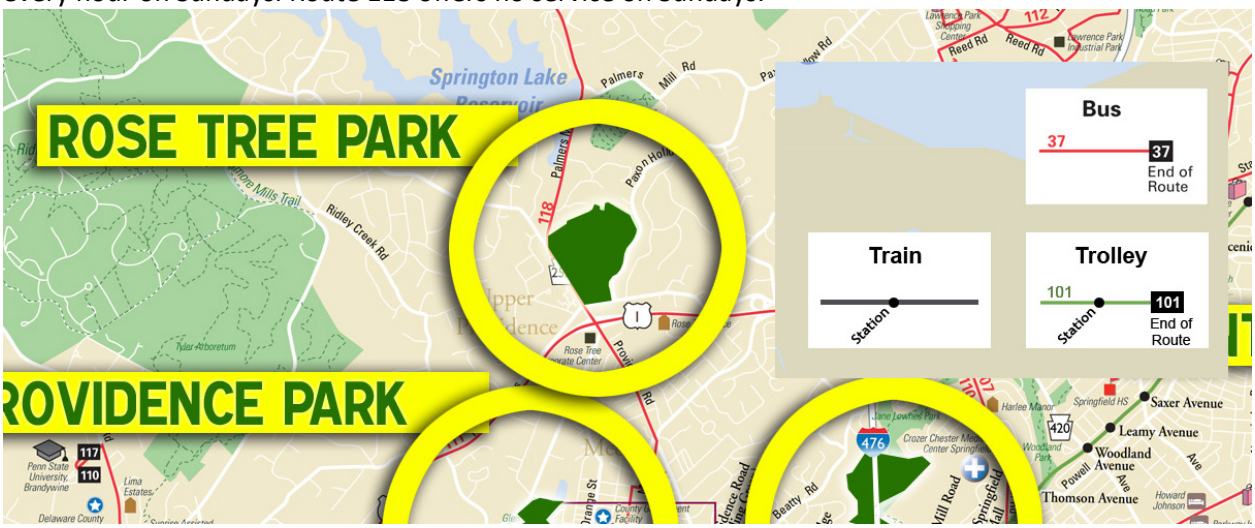


Figure 5-31: Transit connections to Rose Tree County Park
Base Map Source: DCPD 2013

Vehicular

There are three points of vehicular access to Rose Tree County Park. There are two off of Route 252 and one off of Rose Tree Road. All park entrances are relatively narrow (20' to 24' wide) and provide direct access to parking areas.

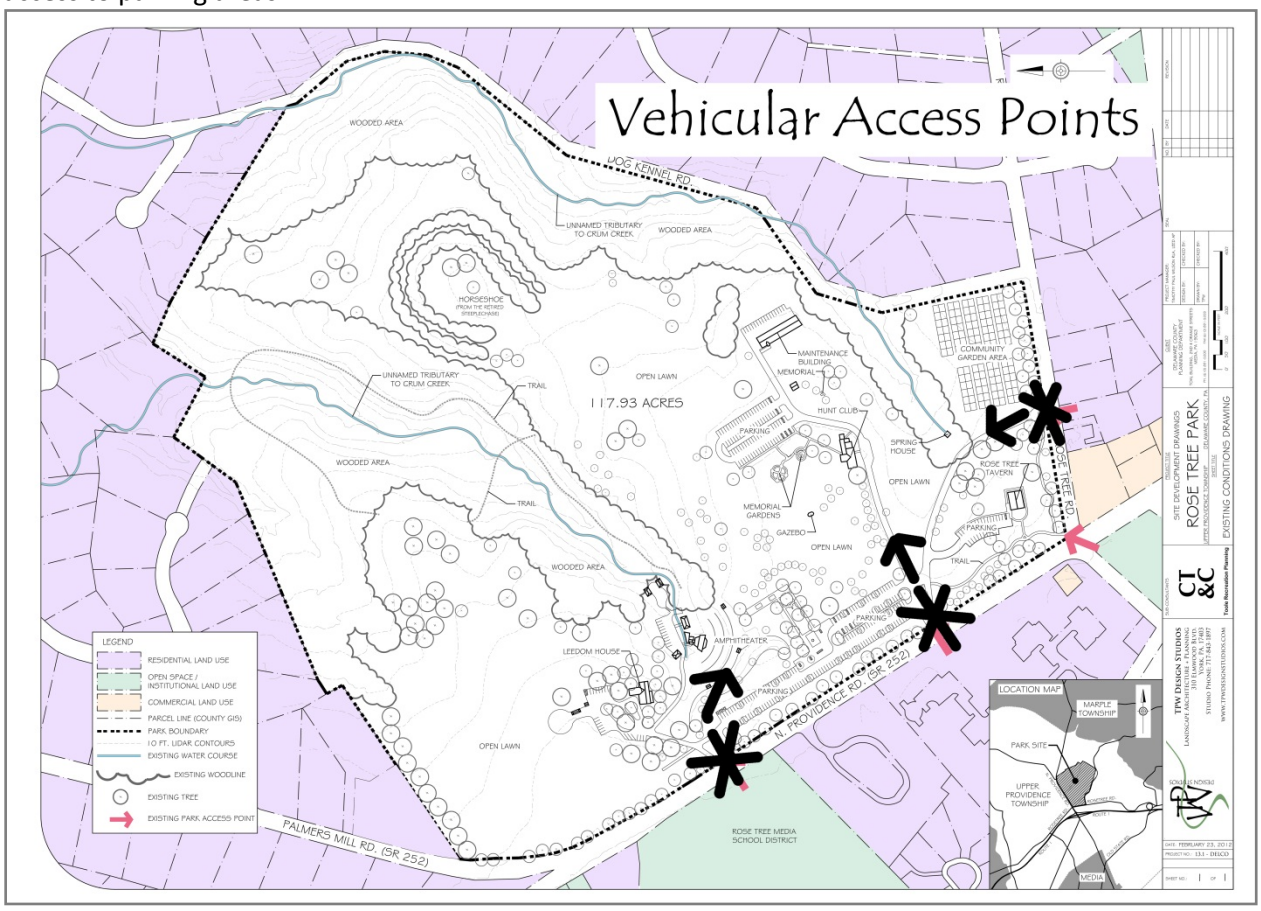


Figure 5-32: Existing vehicular access points to Rose Tree County Park

PARK NEEDS ANALYSIS

PARK USE, PROGRAMS, AND VISITATION IN 2015

As far as what is known, there is currently no documented visitation data for Rose Tree County Park, so no visitation data was acquired or analyzed. What is known is that the Delaware County Summer Festival at Rose Tree County Park brings in approximately 75,000 people per season.

Based on information from Delaware County and what has been visually attained from numerous park visits, the following are points and analysis regarding park use, programs and visitation in 2015.

1) A majority of everyday use comes from regional park users that drive to the park to take part in passive recreation activities such as walking, dog walking, sunbathing, frisbee, picnicking, bird watching, kite flying or just to take in the sites of such a beautiful County Park. A hawk watching club uses the park periodically throughout the year.

This use will continue and increase based on development and facility improvements in Rose Tree County Park.

2) The amphitheater presents the opportunity to capitalize with increased programming and events associated with attracting so many people to the crown jewel of Delaware County Park system. There are parking capacity issues that need to be addressed with this use.

3) A use that we see as extremely important, and the fact that a Rose Tree / Media school is across the street from the park, is the cross country course that students use for practice and meets. This use should be enhanced by park trail system development. A major Cross Country meet called the Bulldog Run is hosted at Rose Tree County Park. The event is well attended and hosts over 100 different schools.

4) Programs:

   Programming in Rose Tree County Park is centered around the most prominent entertainment feature of the park, the Amphitheater. The County hosts a summer concert series that consists of 45 professional shows and concerts. The extremely successful series attracts thousands of people almost every weekend in the summer months.

   Another very popular program put on by the County is the Festival of Lights for Peace. It begins the first Sunday in December with a ceremony and the lighting of many decorated Christmas Trees. The program has been an annual event since the late 1970's. Rose Tree County Park also offers (for a nominal fee) garden plots. In all, there are 121 plots for rent. This program is very successful and a wonderful asset to the County. People who garden in the park take special pride in maintaining their own piece of County Park land and bring a very tangible need and use to the park. This community garden plot area is special!

PARK NEEDS

The needs of Rose Tree County Park have been compiled objectively and have been identified based on many variables including numerous consultant site visits and visual observations, public participation and input, Delaware County Planning and Parks and Recreation needs, and user demographic. Public survey information relating to Rose Tree County Park can be found in Volume IV of the comprehensive Delaware County Open Space Recreation Plan.

The Rose Tree County Park needs are as follows:

1) Access improvements
2) Pedestrian network and trails
3) Signage
4) Build upon existing resources
5) Connections to regional resources
6) Better defined open space and playing fields
7) Build upon existing park programming
8) Promotion of park facilities and programs
9) A more efficient and cost effective maintenance program
10) Additional parking

11) Enhance the heritage landscape (Rose Tree Tavern, Leedom House, Hunt Club)
12) Enhance the user experience / make continuously interesting
13) Emphasize and promote the SEPTA public transit system as it relates to park use
14) Preserve and steward site woodlands
15) Addition of active recreation facilities
16) Site stormwater management facilities
17) The development of relationships between Delaware County and local community oriented and business organizations in the area of Rose Tree County Park
18) Gathering area / pavilion
19) Pedestrian bridges in the woodlands for trails
20) Safely getting pedestrians across Route 252 (North Providence Road)
21) Play areas / tot-lots for children

PARK DEVELOPMENT OPPORTUNITIES

Based on all information gathered and input attained, the following opportunities have been identified as Rose Tree County Park existing features, facilities or connections that should be built upon within the Site Development Plan:

1) The mall / plaza area and programming
2) Trail network and space for pedestrian circulation improvements
3) The amphitheater and programming
4) Ample open space
5) Memorials
6) The “Horseshoe”
7) Existing events and programming
8) Availability to be flexible and have options for park entrances
9) Tying into the surrounding pedestrian network (sidewalks, crossings, etc.)
10) Delaware County maintenance resources

MANAGEMENT, MAINTENANCE, AND OPERATIONS

Management

Rose Tree County Park is managed on-site by the Delaware County Parks and Recreation Department. The Department has offices in the Leedom House and has a tangible presence within the park. With the future long range development of the park and the anticipated increased use, this method of park management will prove to be valuable and most efficient as the park develops new facilities and programming.

Maintenance & Operations

Delaware County crews have a maintenance facility on site in Rose Tree County Park and currently perform weekly maintenance duties that include trash pick-up, mowing, preventative maintenance, and incident maintenance.

As Rose Tree County Park is improved and programming increases, use will increase but not to levels that the current maintenance and operations will be insufficient. A detailed maintenance and operation

task schedule and frequencies should be implemented in order to effectively manage park upkeep tasks and coordinate with other County Park facility schedules.

PARK SITE DEVELOPMENT PLAN AND RECOMMENDATIONS

THE SITE DEVELOPMENT PLAN "CONCEPT"

The concept of the Rose Tree County Park Site Development Plan is to build upon and tie together the existing park features and deliver a premiere County Park facility that showcases user entertainment, passive and active recreation and a balance between park use spaces and open space. The idea is to develop the park in a manner that does not disturb or compromise the existing uses and characteristics of the park while diversifying its uses.

The concept places emphasis on internal pedestrian movement and creating a park experience that is consistently interesting and pleasing to the senses.

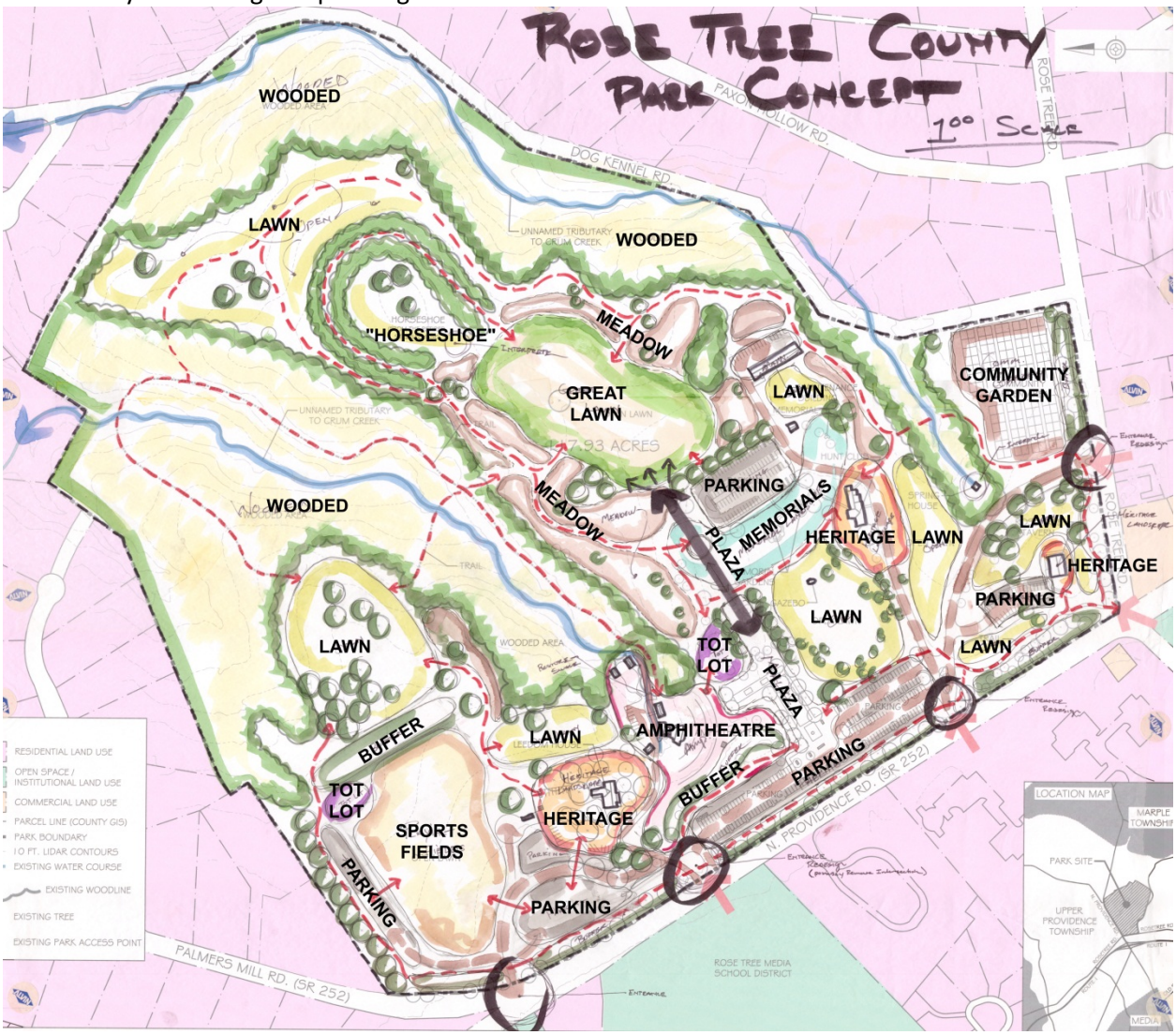


Figure 5-33: Rose Tree County Park Concept Sketch

VEGETATION

- LAWN
- BIO-RETENTION / RAIN GARDEN
- NATIVE MEADOW
- FOREST / WOODED AREA

FEATURES & AMENITIES

- POTENTIAL TRAIL / PED. CONNECTION
- BENCHES
- INTERPRETIVE SIGNAGE
- PARK KIOSK
- SMALL PARK KIOSK
- PARKING
- NEW PEDESTRIAN CROSSING

SCALE IN FEET
0' 50' 100' 200' 300'

NOTE: ITALIC LABELS REPRESENT EXISTING SITE INFORMATION

1. REDESIGN AND ENHANCEMENT OF THE LEEDOM HOUSE AND HUNT CLUB HERITAGE LANDSCAPE
2. MALL CORRIDOR EXTENSION TO GREAT LAWN WITH PARKING ACCESS AND CONNECTION OF OTHER PARK AMENITIES
3. RESERVE FOR FUTURE USE
4. EVENT OVERFLOW FIELD PARKING
5. EROSION CONTROL AND STREAMBANK RESTORATION WORK
6. REDESIGN AND REVEGETATE AMPHITHEATER BERM
7. INTERACTIVE FITNESS ZONES THAT ARE ABLE TO BE MODIFIED AND CHANGED

ADDITIONAL PLAN INFORMATION

PARK ACREAGE - 117.90 ACRES
IN UPPER PROVIDENCE TOWNSHIP

- PARK BOUNDARY
- EXISTING 10 FOOT CONTOUR

DOG KENNEL ROAD
QUIET HOLLOW LN.
ROSE TREE ROAD
N. PROVIDENCE ROAD
PARK PLACE
LEEDOM DRIVE
MANSION DRIVE
PALMERS MILL RD.

WOODED AREA
UNNAMED TRIBUTARY TO CRUM CREEK
8' MULTI-USE PATH
HORSESHOE (from former steeple chase)
GREAT LAWN
RECYCLING & SITE COMPOST AREA
MAINTENANCE BUILDING
COMMUNITY GARDEN
BRIDGE
RESTROOM
MEMORIAL
SPRING HOUSE
LAWN
REDESIGNED PARK ENTRANCE
COUNTY PARK SIGN
ROSE TREE TAVERN BUILDING
TO / DOWNTOWN MEDIA
HUNT CLUB BUILDING
MEMORIALS
GREAT PAVILION
TOT-LOT
NEW EARTHEN PATH CONNECTION
IMPROVE EXISTING EARTHEN PATH
RESTROOM BUILDINGS
AMPHITHEATER
LEEDOM HOUSE
GAS PUMPS
GROVE
NEW PARK ENTRANCE
PARK ENTRANCE ONE WAY IN ONE WAY OUT (EXISTING)
ROSE TREE MEDIA SCHOOL DISTRICT CAMPUS

ROSE TREE COUNTY PARK
SITE DEVELOPMENT PLAN

JANUARY 2015

TPW DESIGN STUDIOS
LANDSCAPE ARCHITECTURE & PLANNING
310 ELMWOOD BOULEVARD YORK, PA.
STUDIO PHONE: 717.843.1897

TOOLE RECREATION PLANNING
CT&C

RECOMMENDATIONS

All recommendations suggested in this narrative are the result of an extensive analysis of existing park and Delaware County resources, public involvement (and surveys), and potential park user demand.

Facilities & Park Site Development

The following Rose Tree County Park Recommendations are in no particular order based on needs or priority. Phasing and implementation priority will be discussed further along in this park narrative.

Recommended Rose Tree County Park improvements are as follows:

1) Improve Rose Tree County Park (and overall County Park) signage to a standardized system that is identifiable and recognizable as such. Including interpretive signage.
2) Develop the "Heritage Landscapes" around the Leedom House, Hunt Club building and Rose Tree Tavern.
3) Improve and develop the park pedestrian circulation network including multi-use paths, sidewalk improvements and crosswalk improvements to better access adjacent neighborhoods and the Rose Tree Media schools.
4) Implement Playground / Tot-Lot Areas.
5) Installation of park / County park system kiosks (Signage), benches and seating areas (including picnic groves).
6) Construct a great pavilion area.
7) Define open spaces and lawn areas with native plant material and meadows. Create "Great Lawn" space near "Horseshoe". This will provide the opportunity to naturalize previously regularly maintained areas and reduce maintenance expenditures.
8) Re-grade and allocate northern lawn area as reserved for future athletic fields.
9) Extend mall area and connect to Hunt Club parking and memorials.
10) Advocate for park "friends" groups and foster partnerships with local business and recreation organizations that could be park stewards and potentially work with Delaware County on park upkeep, maintenance and/or security.
11) A redesign / improvement of existing parking facilities and the addition of three new parking areas for the expanded use and programming of Rose Tree County Park.
12) An on-site compost and recycling area is recommended for Rose Tree County Park.
13) Install outdoor fitness areas / zones.
14) New pedestrian bridges /culverts along earthen paths in the wooded areas.
15) Implement stormwater management and erosion control facilities (naturalized swales).
16) Redesign / remove / relocate park entrances with a new entrance at Palmers Mill Road.
17) Renovate existing restroom buildings.
18) Re-landscape Amphitheater "berm" with native plant material and canopy trees that can be limbed up high to prevent viewing obstructions.
19) Implement Cross Country Course.

The Site Development Plan

The site development plan is an illustrative rendering of Rose Tree County Park that reflects the recommended improvements at full park "build out." The plan incorporates all phases of development including "long-range" concepts.

Many factors play a role in the development and timeframe of park improvements: available funds and funding sources, county needs, park use demands and the like. It is recognized that priorities change over time. That being said, a recommended phasing plan for the Rose Tree County Park development has been laid out further along in this section of the park narrative.

Trail & Greenway Connections

There are very few trail and greenway connection resources connected with Rose Tree County Park. The area surrounding the park has a fractured sidewalk system and very dangerous roads for pedestrians to cross.

It is recommended that within future improvements to Route 252 and surrounding roadways, that pedestrian links, sidewalks and facilities for bicycle use be considered. This will begin to connect Rose Tree County Park to the regional network and population bases like Media.

Park Programming

With the long range Rose Tree County Park site development plan and the idea of the park transforming its identity into more of a balanced active and passive recreation destination in Delaware County, there are many opportunities to increase park programming and potentially capitalize on revenues associated with certain programs.

Park programming can take on so many different meanings and programming can change from season to season and year to year. Some general park programming elements as it relates to the Rose Tree County Park Site Development Plan are as follows:

1) Amphitheater - Concerts, performances, and the Summer Festival concert series
2) Organized active recreation leagues, field rentals and Cross Country
3) Community gardening
4) Concessions
5) Outdoor fitness classes
6) Pavilion use and rental
7) Mall – festivals (festival of lights), farmers markets, exhibits (car shows, etc.)

Management

Delaware County Parks and Recreation Department is based in Rose Tree County Park and has offices in the Leedom House. With the future long range development of the park and the anticipated increased use, this method of park management will prove to be valuable and most efficient as the park develops new facilities and programming.

Additional staff will be needed in the future to effectively manage Rose Tree and the rest of the Delaware County Park system once developed further.

Maintenance and Operations

The mission of an operation and maintenance program for Rose Tree County Park is to create a regularly scheduled routine, reactive and preventative maintenance system that guides the stewardship of the park in a way that provides a safe, sustainable, and aesthetically pleasing County and community asset that is operational for public use.

Rose Tree County Park is and will continue to be the shining example of the Delaware County Park system. This fact points to the park garnering high use and visitation rates as it is further developed. With improved park access, amenities and increased awareness, the usage rates of the park shall steadily increase over time. Keeping the park well maintained will prove to be an important task in the sustainable success of the park.

Maintenance and Operations Tasks

Rose Tree County Park maintenance tasks and schedule typically involves mowing, keeping the grounds free of trash and debris, removal of downed limbs or dead trees, snow removal, inspection and repair of permanent structures, fencing, park amenities and parking areas on a per year basis.

Grass & Turf Care

Cut once every 10 working days. A grass clipping deposit area should be designated on site for composting located away from park waterbodies. Aeration of grass area is not necessary unless grass quality indicates a need or an application of fertilizer is anticipated. Reseed and sod only when major bare spots are present. Weeding shall ensue when grass is 50% weed infested or grass quality is low in 15% or more of the surface.

Fertilizer

Apply only when grass vigor seems low. Low level applications can be administered on a once per year basis.

Irrigation

No irrigation should be anticipated.

Planting Beds

Landscape bed areas should be kept in a weed, leaf and debris-free condition. Plants should be trimmed to maintain desired shape and to maintain natural growth habit of plant species.

Litter Control

Litter service is needed two times a week or as necessary. In times of warmer weather and increased use, litter control may be more frequent.

Disease and Insect Control

Done only on epidemic or serious complaint basis. Pest, weed and rodent control measures may be put into effect when the health or survival of the plant material is threatened or where public's comfort is concerned.

Snow Removal

Snow removal shall only be necessary after all snowfall events. Snow removal shall be accomplished by the day following the snowfall.

Lighting

Replacement or repair of fixtures when a report is filed or when a malfunction is detected by inspection staff.

Amenity and Permanent Structure Repairs

Should be accomplished immediately when safety or function is at question.

General Inspection
Once per week.

The following routine preventative maintenance program and schedule has been fashioned to reflect the projected amount of park use at full park build out.

Table 5-1: General Maintenance and Operation Frequencies

Operation	Frequency					
	Daily	Weekly	Monthly	Quarterly	Annually	As Needed
Parking Areas						
Inspection		x				
Repair						x
Remove Litter						x
Remove Snow						x
Permanent Structures						
New & Rehabilitated Bridges						
Inspection				x		
Repair						x
Stormwater Management Facilities						
Inspection / Clear Obstructions				x		
Repair						x
Landscape Maintenance						
Mowing			2x			
Trimming						x
Leaf Removal					x	
Tree Pruning					x	x
Tree Replacement						x
Seasonal Plantings				x		
Weeding				x		
Mulching					x	
Fertilizing / Treatment					x	x
Watering / Irrigation						x
Cleaning						
Empty Trash Cans		2x				
Restroom Facilities		x				x
Remove Litter		2x				x

Table 5-1: General Maintenance and Operation Frequencies (cont.)

Operation	Frequency					
	Daily	Weekly	Monthly	Quarterly	Annually	As Needed
Amenity Maintenance						
Lighting						
Inspection			x			
Repair / Replace						x
Signage						
Inspection			x			
Cleaning					x	
Repair / Replace						x
Furnishings						
Inspection			x			
Repair / Replace						x
Bollards / Gates						
Inspection			x			
Repair / Replace						x
Other Services						
Update Park Kiosk Information						x
Security Patrol	x					
Graffiti Removal						x

Tree Care

Tree care is important to sustaining and guiding responsible tree growth within Rose Tree County Park. Trees and other woody plant material respond biologically to pruning in specific and predictable ways. Careful study of these responses has led to pruning practices that can best develop, preserve, and enhance the structural integrity, beauty and functional value of trees. Through pruning, one can: maintain or direct plant form; enhance health and appearance; influence flowering, fruiting, and vigor; regulate growth; control plant size; and invigorate declining plants. Tree pruning should occur annually but may be needed in emergency situations. The following are high and medium to low priorities for emergency pruning:

High Priority

1) Trees or limbs that have fallen and caused accidents or personal injury.
2) Trees or limbs that have fallen and caused damage to the trail, vehicles, or structures.
3) Trees or limbs which are in immediate danger of falling or breaking.
4) Broken hanging limbs adjacent to the trail, structures, roads, or picnic or play areas.
5) Trees or limbs that block roads or access points.

Medium to Low Priority:

1) Trees or limbs that have fallen and are not an immediate hazard.
2) Trees or limbs that have fallen and are not blocking the trail, roads or access points.
3) Hanging tree limbs that may not be in immediate danger of falling.
4) Dead or severely declining trees without a target present.

Timing of tree pruning can vary. Trees deemed as hazardous should be pruned immediately and during any season. Generally, light pruning can be done at any time during the year on most species if the trees are in good health. Most deciduous plants can be pruned during the dormant period between leaf fall and the end of winter. This can minimize the risk of pest problems. Avoid pruning broadleaf trees in early to late spring. Evergreens will be set back the least if they are pruned in the late winter. It is recommended to evaluate each tree before pruning and avoid large scale pruning efforts during the bird nesting season. There are many types of tree pruning practices to achieve certain desired results. Pruning can be performed for structure, general cleaning, thinning, raising, reducing, and/or restorations.

Pruning for Structure

Structural pruning is the removal of live branches and stems to influence structural integrity. It usually follows four procedures: 1) Canopy cleaning by removing dead, broken, diseased and dying branches, 2) development or re-establishment of a dominant leader, 3) establishment of the lowest permanent scaffold limb and 4) establishment of scaffold limbs by removing competing stems or branches.

Pruning to Clean

Cleaning is the selective removal of dead, diseased, detached, rubbing and broken branches. This type of pruning is done to reduce the risk of branch failure and the transmission of decay, insects and diseases.

Pruning to Thin

Thinning is the selective removal of small live branches to reduce crown density. Branches are 0.25 to 1.00 inches in diameter. 10-15 percent of live foliage can be removed at one time. If more pruning is desired, it should not exceed 25 percent in a single year. Excessive removal of small branches on the lower two-thirds of a branch or stem is called lion tailing and may have an adverse effect on the tree – it is not an accepted practice.

Pruning to Raise

Raising is the selective removal of branches to provide vertical clearance. Caution must be taken to not remove too many lower branches. This can cause slow development of trunk taper, cause cracks or decay in the trunk, or transfer too much weight to the top of the tree.

Pruning to Reduce (Drop Crotch)

Reduction is the selective removal of branches and stems to decrease the height and/or spread of a tree. This type of pruning is done to minimize the risk of failure, to reduce height or spread, for utility clearance, to clear vegetation from buildings or other structures, or to improve tree appearance. Crown reduction shall be accomplished with reduction cuts rather than heading cuts.

Pruning to Restore

Restoration is the selective removal of branches, sprouts, and stubs from trees that have been topped, severely headed, vandalized, lion –tailed, broken during a storm, or otherwise damaged. Full restoration usually requires several pruning events over a number of years.

Pruning Conifers

Conifers are primarily pruned to control the density of branching, the shape of young trees, and the size of older ones. They are intolerant of topping or heading. Conifers typically have an ex-current growth habit, which is usually maintained throughout the lifespan of the tree. Thinning, by the selective removal of small branches, is the most appropriate method when pruning conifers.

Tree Removal and Replacement

Trees should be removed in Glen Providence County Park for the following reasons: the tree is dead or dying; it is diseased; it is damaged or injured to the extent that is likely to die and become a hazard; or is constituted as a hazard. Nuisance trees should be removed when the tree causes or is about to cause impairment to the park.

It is most desirable to replace a tree of the same (native) species in the same place it was removed, but sometimes crowding and other physical constraints make it impossible to replace the tree in the same spot. In this case, finding an alternate location is the best option. Undesirable species (non-native) are not to be replaced. It is a responsible and environmentally friendly idea to plant desirable, sustainable trees within the park.

Recommended Native Plant Material

It is a sustainable practice to design with and use native plant material within Rose Tree County Park whenever possible. Native plant material is hardy and requires less watering and general care because it is naturally acclimated to the seasons and weather cycles of the region. The following is a list of plant material native to Pennsylvania:

Table 5-2: Native Plant Material for Rose Tree County Park

Medium to Large Trees

Common Name	Scientific Name	Bloom Period	Height	Notes
Red Maple	*Acer rubrum*	Mar-Apr	40-60 ft.	Red flowers; adaptable; fall color
Sugar Maple	*acer saccharum*	Apr-May	60-75 ft.	Yellow flowers in spring; fall color; maple syrup
Yellow Birch	*Betula alleghaniensis*	Apr-May	60-80 ft.	Catkins in winter
Black Birch	*Betula lenta*	Apr-May	45-55 ft.	Catkins in winter
River Birch	*Betula nigra*	Apr-May	60-80 ft.	Catkins; striking bark
Eastern White Pine	*Pinus strobus*	N/A	50-80 ft.	N/A
White Oak	*Quercus alba*	Mar-Jun	50-100 ft.	Edible nuts
Chestnut Oak	*Quercus montana*	May-Jun	40-75 ft.	Fall color; nuts attractive to wildlife

Small Trees and Shrubs

Common Name	Scientific Name	Bloom Period	Height	Notes
Smooth Alder	*Alnus serrulata*	Mar-Apr	6-10 ft.	Yellow catkins; multi-stemmed; needs wet soil
Serviceberry	*Amelanchier arborea*	Mar-May	15-25 ft.	White flowers in spring; edible berries; fall color
Alternate-leaved Dogwood	*Cornus alternifolia*	May-Jun	15-25 ft.	White flowers in early summer; blue berries
Flowering Dogwood	*Cornus florida*	Apr-Jun	10-30 ft.	White branchts in spring; red berries
Winterberry	*Ilex verticillata*	May-Jun	6-10 ft.	Showy berries in winter; multi-stemmed
Mountain Laurel	*Kalmia latifolia*	May-Jul	7-15 ft.	White flowers; evergreen; multi-stemmed; PA state flower
Spicebush	*Lindera benzoin*	Mar-May	6-12 ft.	Berries and foliage in fall; multi-stemmed; ferbal uses
Wild Plum	*Prunus americana*	Apr-May	15-25 ft.	White flowers; edible fruit; nulti-stemmed
Elderberry	*Sambucus canadensis*	Jun-Jul	5-15 ft.	White flowers; multi-stemmed; edible berries & flowers
Highbush Blueberry	*Vaccinium corymbosum*	May-Jun	6-12 ft.	White flowers; multi-stemmed; edible berries; fall colors
Arrow-wood	*Viburmun recognitum*	May-Jun	3-15 ft.	White flowers in late spring; multi-stemmed
Virginia Creeper	*Parthenocissus quinquefolia*	July	10-40 ft.	Fall color; berries improtant for wildlife; considered a vine

Grasses (Perennial)

Common Name	Scientific Name	Bloom Period	Height	Notes
Lurid Sedge	*Carex lurida*	Jun-Oct	1-2 ft.	Wetland plant; interseting seeds
Bottlebrush Grass	*Elymus hystix*	Jun-Aug	2-4 ft.	Grass that grows in shade
Virginia Wild-rye	*Elymus virginicus*	Jul-Sep	2-4 ft.	Grass that tolerates a wide range of conditions

Ferns (Perennial)

Common Name	Scientific Name	Bloom Period	Height	Notes
Maidenhair Fern	*Adiantum pedatum*	N/A	1-2 ft.	Grows in clumps; delicate texture; herbal uses
Evergreen Shield Fern	*Dryopteris marginalis*	N/A	1-3 ft.	Evergreen; clump-forming; attractive
Interrupted Fern	*Osmunda claytoniana*	N/A	2-4 ft.	Grows in clumps; distinctive fronds
Christmas Fern	*Polystichum achrostichoides*	N/A	1-2 ft.	Evergreen; grows in clumps

Showy Flowers (Perennial)

Common Name	Scientific Name	Bloom Period	Height	Bloom Color & Notes
Wild Columbine	*Aquilegia canadensis*	Apr-Jun	1-3 ft.	Red & Yellow - Commonly cultivated; spreads by seeds; hummingbirds
Jack-in-the-pulpit	*Arisaema triphyllum*	Apr-Jun	1-3 ft.	Green-purple - Unusual flower; bright red berries
Wild Ginger	*Asarum canadense*	Apr-May	< 1 ft.	Maroon - Edible and herbal uses
Butterfly-weed	*Asclepias tuberosa*	May-Sep	1-3 ft.	Orange - Butterfly plant; tolerates dry conditions; taproot
Turtlehead	*Chelone glabra*	Jul-Sep	1-3 ft.	Whitish - Tolerates wet areas; strong grower; herbal uses; hummingbirds
White snakeroot	*Eupatorium rugosum*	Jul-Oct	2-3 ft.	White - Tough plant; can grow in dry shade; cultivars availible
Wood Geranium	*Geranium maculatum*	Apr-Jul	1-2 ft.	Rose - Adaptable plant; long bloom time spreader; herbal uses
Common Sneezeweed	*Helenium autumnale*	Aug-Oct	2-6 ft.	Yellow - Tolerates wet areas; showy flowers; herbal uses
Sunflowers	*Helianthus sp.*	Jul-Sep	4-6 ft.	Yellow - Perennials; often aggressive; showy flowers; good for birds
Oxeye Sunflower	*Heliopsis helianthoides*	Jul-Sep	1-5 ft.	Yellow - long bloom time; butterfly plant
Alum-root	*Heuchera americana*	May-Aug	1-2 ft.	Greenish - Long bloom time; many culitvars and hybrids
Cardinal Flower	*Lobelia cardinalis*	Jul-Sep	2-5 ft.	Scarlet - Long bloom time; butterfly and hummingbird plant
Great Blue Lobelia	*Lobelia siphilitica*	Jul-Oct	1-3 ft.	Blue - Long bloom time; white cultivars; hummingbirds
Partridge-berry	*Mitchella repens*	Jun-Jul	< 1 ft.	White - Evergreen; ground cover; berry edible and showy
Bee-balm	*Monarda didyma*	Jul-Aug	2-5 ft.	Red - Showy flowers; aromatic; butterfly plant; herbal uses
Phlox	*Phlox divaricata*	May-jun	1-2 ft.	Lilac - Aromatic; butterfly plant
Phlox	*Phlox maculata*	Jul-Sep	1-3 ft.	Purple - Aromatic; showy flowers; butterfly plant
Phlox	*Phlox paniculata*	Jul-Oct	2-5 ft.	Pink - Aromatic; showy flowers; butterly plant
May-apple	*Podophyllum petatum*	May	1-2 ft.	White - Ground cover, edible fruit; mottled foliage
Jacob's Ladder	*Polemonium reptans*	Apr-Jun	1-2 ft.	Blue - Attractive flowers; slow spreader; herbal uses
Solomon's Seal	*Polygonatum pubescens*	Apr-Jun	1-3 ft.	Yellow - Not fussy; blue berries; herbal and edible uses
Black-eyes Susan	*Rudbeckia hirta*	May-Sep	2-3 ft.	Orange - Bright daisy-like flowers; long bloom time; many cultivars
Bloodroot	*Sanguinaria canadensis*	Mar-May	< 1 ft.	White - Red juice; herbal uses
Golden Ragwort	*Senecio aureus*	May-Jul	1-2 ft.	Yellow - Wetland plant; long bloom time; early daisy-like flowers
False Solomon's Seal	*Smilacina racemosa*	May-Jul	1-2 ft.	White - Plume like flower; re berries; herbal uses
Wrinkle-leaf Goldenrod	*Solidago rugosa*	Jul-Nov	2-6 ft.	Yellow - Aggressive; tough plant; butterfly plant
Tall Meadow-rue	*Thalictrum pubescens*	May-Jun	2-8 ft.	White - Wet to moist soil; tall plant; delicate flowers
Foamflower	*Tiarella cordifolia*	Apr-Jun	< 1 ft.	White - Attractive, long-blooming flower; many cultivars
Trillium	*Trillium grandiflorum*	Apr-Jun	1-2 ft.	White - Showy flowers
American Dog Violet	*Viola conspersa*	Apr-May	< 1 ft.	Violet - Delicate plant and flower; edible
Common Blue Violet	*Viola sororia*	Apr-May	< 1 ft.	Violet - Delicate plant and flower; edible
Golden-alexanders	*Zizia aurea*	Apr-Jun	1-2 ft.	Gold - Not fussy; attracts good insects

RECOMMENDED PHASING & COST PROJECTIONS (ESTIMATES)

The following are recommended phasing and estimated cost projections for each phase of development for Rose Tree County Park. The Phases have been broken down into three different phases: Phase I – Short Term (0-5 years); Phase II – Medium Term (5-15 Years); and Phase III – Long Term (15-30 Years).

The following phasing recommendations and estimated costs are based on 2014 dollars, the current park condition, outlook of capital expenditure and funding, and proposed development. Recommendations are fluid and always susceptible to change for any number of reasons: cost increases in materials, priorities change, use and demographic changes, and unexpected funding sources (or lack thereof). Phasing recommendation are always a best guess of how the park will most likely develop over the next 30 or 40 years and the phases will most likely overlap somewhat. All estimated costs assume furnish and install prices.

Phase I – Short Term (0-5 Years)

1) Improve Rose Tree County Park (and overall County Park) Signage
2) Redesign / remove / relocate park entrances with a new entrance at Palmers Mill Road.
3) Begin improvement and development of the park pedestrian circulation network
4) Begin installation of park amenities, benches and seating areas (including picnic groves)
5) Define open spaces and lawn areas with native plant material and naturalized meadows; create "Great Lawn" space near "Horseshoe"
6 Implement on-site compost and recycling area
7) Advocate for park "friends" groups and foster partnerships with local business and recreation organizations
8) Re-landscape amphitheater "berm"
9) Implement stormwater management and erosion control facilities (naturalize swales)
10) Develop the "Heritage Landscapes" around the Leedom House, Hunt Club building and Rose Tree Tavern

Table 5-3: Rose Tree County Park - Phase I: Short Term (0-5 Years) Cost Estimate

Description	Cost Basis	Quantity	Unit Price	Total Cost
1) Rose Tree County Park Signage				
Kiosks	LS	1	$8,500.00	**$8,500.00**
Roadway	LS	1	$5,200.00	**$5,200.00**
Interpretive	LS	1	$6,300.00	**$6,300.00**
Directional, Informational & General Park	LS	1	$6,800.00	**$6,800.00**
2) Park Entrance Work				
Rose Tree Road Entrance Redesign	LS	1	$90,000.00	**$90,000.00**
Remove Leedom House Entrance	LS	1	$48,000.00	**$48,000.00**
Route 252 Entrance Redesign	LS	1	$120,000.00	**$120,000.00**
New Entrance at Palmers Mill Road	LS	1	$185,000.00	**$185,000.00**
3) Begin Park Pedestrian Circulation Network				
Paved Multi-use Path	SY	3500	$52.00	**$182,000.00**
Concrete Sidewalk	SY	900	$63.00	**$56,700.00**
Road Crossings	Each	4	$1,200.00	**$4,800.00**
Earthen Path	SY	450	$19.00	**$8,550.00**
4) Begin Implementing Park Amenities				
Benches	Each	24	$725.00	**$17,400.00**
Trash Cans	Each	12	$560.00	**$6,720.00**
Picnic Grove & Tables	Each	1	$6,800.00	**$6,800.00**
5) Begin Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$115,000.00	**$115,000.00**
6) On-site Compost and Recycling Area				
Building On-site Compost and Recycling Area	LS	1	$3,800.00	**$3,800.00**
7) Develop Local Partnerships				
Delaware County Staff Time	LS	1	$14,000.00	**$14,000.00**
8) Re-landscape Amphitheater Berm				
Berm Improvement	LS	1	$24,500.00	**$24,500.00**
9) Stormwater Management and Erosion Control				
Stormwater	LS	1	$23,500.00	**$23,500.00**
Erosion	LS	1	$12,000.00	**$12,000.00**
10) Heritage Landscapes				
Leedom House	LS	1	$16,500.00	**$16,500.00**
Hunt Club Building	LS	1	$9,000.00	**$9,000.00**
Rose Tree Tavern Building	LS	1	$12,000.00	**$12,000.00**
Phase I Total				**$983,070.00**

Note: Costs associated with Design and Maintenance have not been built into the costs per phase. Design work needed for any park improvement items would carry a cost of approximately 15% of the estimated construction/installation cost of the improvement.

Phase II – Medium Term (5-15 Years)

1) Continue improvement and development of the park pedestrian circulation network
2) Continue installation of park amenities, benches and seating areas
3) A redesign / improvement of existing parking facilities and the addition of three new parking areas
4) Install outdoor fitness areas / zones
5) New pedestrian bridges /culverts along earthen paths in the wooded areas
6) Great pavilion area
7) Implement playground / tot-lot areas
8) Renovate existing restroom buildings
9) Continue developing open spaces and lawn areas with native plant material and naturalized meadows

Table 5-4: Rose Tree County Park - Phase II: Medium Term (5-15 Years) Cost Estimate

Description	Cost Basis	Quantity	Unit Price	Total Cost
1) Continue Park Pedestrian Circulation Network				
Paved Multi-use Path	SY	1800	$52.00	**$93,600.00**
Concrete Sidewalk	SY	700	$63.00	**$44,100.00**
Road Crossings	Each	3	$1,200.00	**$3,600.00**
Earthen Path	SY	550	$19.00	**$10,450.00**
2) Continue Implementing Park Amenities				
Benches	Each	14	$725.00	**$10,150.00**
Trash Cans	Each	7	$560.00	**$3,920.00**
Picnic Grove & Tables	Each	1	$6,800.00	**$6,800.00**
3) Improve Ex. Parking Areas/Construct 3 New Parking Areas				
Improve Existing Parking Areas	LS	1	$280,000.00	**$280,000.00**
Implementation of 3 New Paved Parking Areas	SY	7500	$93.00	**$697,500.00**
4) Install Outdoor Fitness Areas				
Construct	LS	1	$28,000.00	**$28,000.00**
5) New Pedestrian Bridges or Culverts				
Install	LS	3	$35,000.00	**$105,000.00**
6) Great Pavilion				
Pavilion	LS	1	$65,000.00	**$65,000.00**
7) Playground / Tot Lots				
Implement	LS	2	$45,000.00	**$90,000.00**
8) Renovate Existing Restroom Buildings				
Amphitheater - attached	LS	1	$32,000.00	**$32,000.00**
Amphitheater - Detached	LS	1	$38,000.00	**$38,000.00**
Near Memorials	LS	1	$26,000.00	**$26,000.00**
9) Continue Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$27,000.00	**$27,000.00**
Phase II Total				**$1,561,210.00**

Phase III – Long Term (15-30 Years)

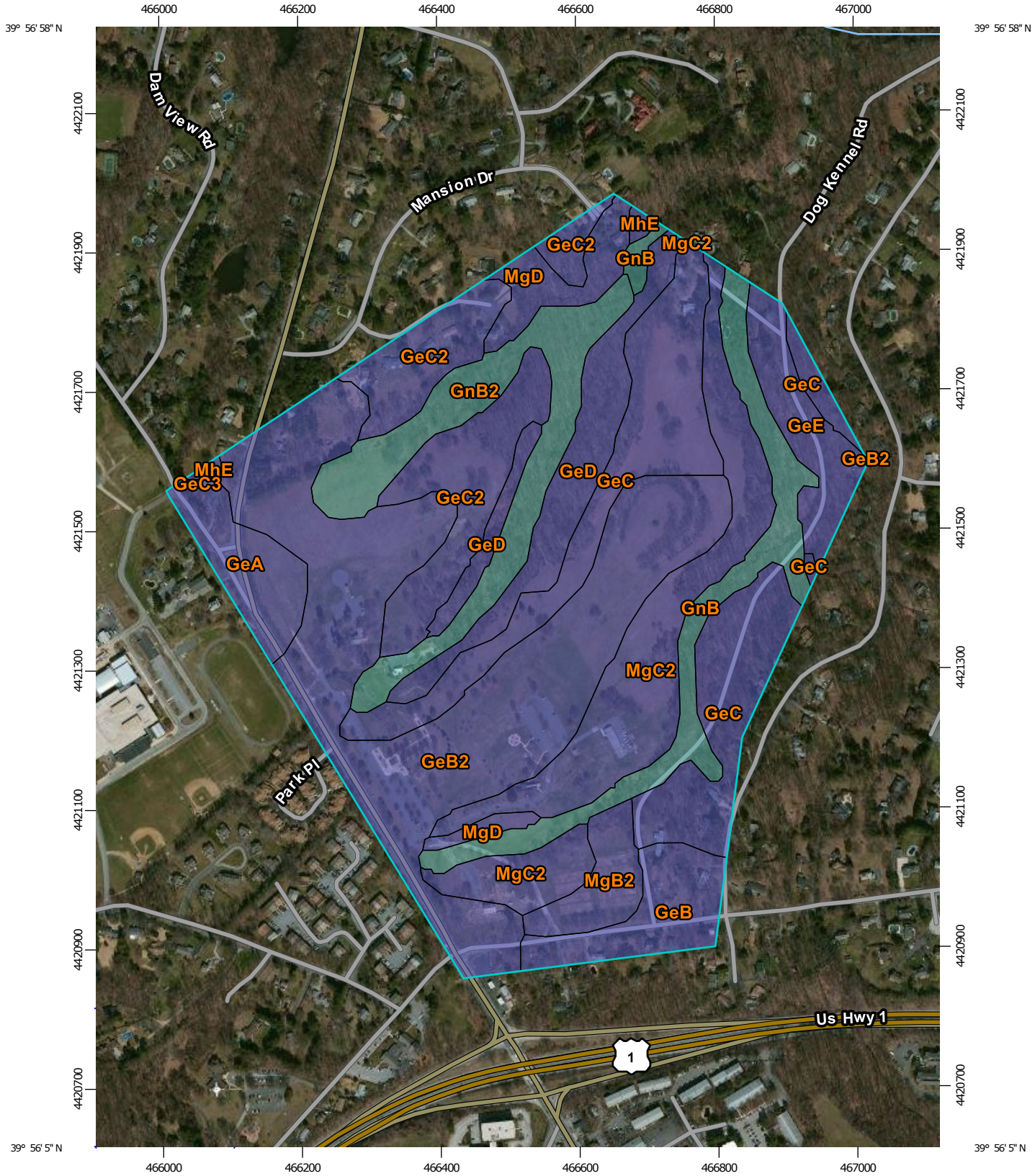
1) Continue improvement and development of the park pedestrian circulation network
2) Continue Installation of park amenities, benches and seating areas
3) Re-grade and allocate northern lawn area as reserved for future athletic fields
4) Extend Mall area and connect to Hunt Club parking and memorials
5) Continue developing open spaces and lawn areas with native plant material and naturalized meadows

Table 5-5: Rose Tree County Park - Phase III: Long Term (15-30 Years) Cost Estimate

Description	Cost Basis	Quantity	Unit Price	Total Cost
1) Continue Park Pedestrian Circulation Network				
Paved Multi-use Path	SY	600	$52.00	**$31,200.00**
Concrete Sidewalk	SY	250	$63.00	**$15,750.00**
2) Continue Implementing Park Amenities				
Benches	Each	8	$725.00	**$5,800.00**
Trash Cans	Each	4	$560.00	**$2,240.00**
3) Re-grade Northern Lawn Area (future athletic fields)				
Re-grading	LS	1	$70,000.00	**$70,000.00**
4) Extend Mall Corridor				
Implementation	LS	1	$145,000.00	**$145,000.00**
5) Continue Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$23,000.00	**$23,000.00**
Phase III Total				**292,990.00**

APPENDIX R-1: ROSE TREE COUNTY PARK SOILS

Hydrologic Soil Group—Delaware County, Pennsylvania
(Rose Tree County Park)



Map Scale: 1:7,830 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Delaware County, Pennsylvania
Survey Area Data: Version 7, Dec 14, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 17, 2010—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Delaware County, Pennsylvania (PA045)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
GeA	Glenelg channery silt loam, 0 to 3 percent slopes	B	5.8	3.4%
GeB	Glenelg channery silt loam, 3 to 8 percent slopes	B	6.3	3.7%
GeB2	Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded	B	44.8	26.4%
GeC	Glenelg channery silt loam, 8 to 15 percent slopes	B	25.2	14.8%
GeC2	Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded	B	16.2	9.6%
GeC3	Glenelg channery silt loam, 8 to 15 percent slopes, severely eroded	B	0.1	0.0%
GeD	Glenelg channery silt loam, 15 to 25 percent slopes	B	10.5	6.2%
GeE	Glenelg channery silt loam, 25 to 35 percent slopes	B	6.1	3.6%
GnB	Glenville silt loam, 3 to 8 percent slopes	C	11.2	6.6%
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C	14.2	8.4%
MgB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B	4.0	2.4%
MgC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B	19.8	11.7%
MgD	Manor loam, 15 to 25 percent slopes	B	4.9	2.9%
MhE	Manor loam and channery loam, 25 to 35 percent slopes	B	0.5	0.3%
Totals for Area of Interest			**169.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
GeA—Glenelg channery silt loam, 0 to 3 percent slopes														
Glenelg	0-9	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	9-29	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.49			
	29-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			
	60-64	—	—	—	—	1.41-14.00	—	—	—					
GeB—Glenelg channery silt loam, 3 to 8 percent slopes														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-29	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.49			
	29-50	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			
GeB2—Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	5	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
GeC—Glenelg channery silt loam, 8 to 15 percent slopes														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-29	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.49			
	29-50	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			
GeC2—Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	5	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			
GeC3—Glenelg channery silt loam, 8 to 15 percent slopes, severely eroded														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	4	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
GeD—Glenelg channery silt loam, 15 to 25 percent slopes														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-29	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.49			
	29-50	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			
GeE—Glenelg channery silt loam, 25 to 35 percent slopes														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	5	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			
GnB—Glenville silt loam, 3 to 8 percent slopes														
Glenville	0-9	-30-	-55-	10-15- 20	1.20-1.40	4.23-14.11	0.16-0.20	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	9-19	-22-	-55-	20-23- 35	1.40-1.60	4.23-14.11	0.12-0.16	0.0-2.9	0.0-0.5	.24	.28			
	19-39	-27-	-54-	15-19- 35	1.60-1.80	0.42-4.23	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	39-82	-43-	-39-	5-18- 25	1.40-1.60	1.41-4.23	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
GnB2—Glenville silt loam, 3 to 8 percent slopes, moderately eroded														
Glenville	0-10	-30-	-55-	10-15- 20	1.20-1.40	4.23-14.11	0.16-0.20	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	10-16	-19-	-54-	20-27- 35	1.40-1.60	4.23-14.11	0.12-0.16	0.0-2.9	0.0-0.5	.24	.32			
	16-50	-20-	-54-	20-26- 35	1.60-1.80	0.42-4.23	0.08-0.12	0.0-2.9	0.0-0.5	.24	.32			
	50-70	-44-	-41-	5-15- 25	1.40-1.60	1.41-4.23	0.06-0.12	0.0-2.9	0.0-0.5	.24	.64			
MgB2—Manor loam, 3 to 8 percent slopes, moderately eroded														
Manor	0-8	-43-	-40-	10-18- 25	1.10-1.40	4.23-14.11	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	8-23	-43-	-40-	10-18- 25	1.20-1.50	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.32	.37			
	23-60	-64-	-24-	5-13- 20	1.25-1.50	4.23-42.34	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			
MgC2—Manor loam, 8 to 15 percent slopes, moderately eroded														
Manor	0-7	-43-	-40-	10-18- 25	1.10-1.40	4.23-14.11	0.17-0.21	0.0-2.9	1.0-3.0	.37	.43	4	6	48
	7-21	-43-	-40-	10-18- 25	1.20-1.50	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.32	.49			
	21-60	-64-	-24-	5-13- 20	1.25-1.50	4.23-42.34	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
MgD—Manor loam, 15 to 25 percent slopes														
Manor	0-7	-43-	-40-	10-18- 25	1.10-1.40	4.23-14.11	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	7-20	-43-	-40-	10-18- 25	1.20-1.50	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.32	.37			
	20-60	-64-	-24-	5-13- 20	1.25-1.50	4.23-42.34	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			
MhE—Manor loam and channery loam, 25 to 35 percent slopes														
Manor	0-4	-43-	-40-	10-18- 25	1.10-1.40	4.23-14.11	0.17-0.21	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	4-19	-43-	-40-	10-18- 25	1.20-1.50	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.32	.37			
	19-60	-64-	-24-	5-13- 20	1.25-1.50	4.23-42.34	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			

Data Source Information

Soil Survey Area: Delaware County, Pennsylvania
Survey Area Data: Version 7, Dec 14, 2013

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic group is a group of soils having similar runoff potential under similar storm and cover conditions. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GeA—Glenelg channery silt loam, 0 to 3 percent slopes														
Glenelg	100	B	0-9	Silt loam	ML	A-4, A-6	0	0	85-100	80-100	70-100	50-75	32-40	7-12
			9-29	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-7, A-4, A-6	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			29-60	Loam, sandy loam, channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	0-40	NP-6
			60-64	Bedrock	—	—	—	—	—	—	—	—	—	—
GeB—Glenelg channery silt loam, 3 to 8 percent slopes														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-29	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			29-50	Loam, sandy loam, very channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	0-40	NP-6

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GeB2—Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6
GeC—Glenelg channery silt loam, 8 to 15 percent slopes														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-4, A-6, A-2-4, A-2-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-29	Channery silt loam, silty clay loam, loam	ML, SM, GM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			29-50	Loam, sandy loam, very channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	0-40	NP-6

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GeC2—Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	ML, SM, GM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6
GeC3—Glenelg channery silt loam, 8 to 15 percent slopes, severely eroded														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GeD—Glenelg channery silt loam, 15 to 25 percent slopes														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-29	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			29-50	Loam, sandy loam, very channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	0-40	NP-6
GeE—Glenelg channery silt loam, 25 to 35 percent slopes														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GnB—Glenville silt loam, 3 to 8 percent slopes														
Glenville	90	C	0-9	Silt loam	ML, SM	A-4	0	0	85-100	85-100	70-95	45-80	25-35	3-10
			9-19	Silt loam, channery loam, channery silty clay loam	ML, CL, CL-ML, GM, SC	A-4, A-6	0	0-10	70-100	60-100	60-95	45-80	25-40	5-13
			19-39	Silt loam, channery loam, silty clay loam	ML, CL, CL-ML, GM, SC	A-4, A-6	0	0-10	65-100	60-100	55-95	45-80	25-40	5-13
			39-82	Channery loam, very channery sandy loam	CL-ML, GM, ML, SM, GC, SC	A-1, A-2, A-4, A-2-4	0	0-20	45-90	20-75	10-75	5-65	25-35	5-10
GnB2—Glenville silt loam, 3 to 8 percent slopes, moderately eroded														
Glenville	85	C	0-10	Silt loam	ML, SM	A-4	0	0	85-100	85-100	70-95	45-80	25-35	3-10
			10-16	Silt loam, channery loam, channery silty clay loam	ML, CL, CL-ML, GM, SC	A-4, A-6	0	0-10	70-100	60-100	60-95	45-80	25-40	5-13
			16-50	Silt loam, channery loam, silty clay loam	ML, CL, CL-ML, GM, SC	A-4, A-6	0	0-10	65-100	60-100	55-95	45-80	25-40	5-13
			50-70	Channery fine sandy loam, channery loam, very channery sandy loam	CL-ML, GM, ML, SM, GC, SC	A-1, A-2, A-4	0	0-20	45-90	20-75	10-75	5-65	25-35	5-10

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
MgB2—Manor loam, 3 to 8 percent slopes, moderately eroded														
Manor	95	B	0-8	Loam	ML	A-4, A-6	0	0	85-100	80-100	70-100	50-90	32-40	6-12
			8-23	Loam, silt loam, channery loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	65-100	50-100	40-100	30-90	26-40	4-12
			23-60	Loam, very fine sandy loam, channery sandy loam	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4, A-6	0	0-5	65-100	50-100	30-95	15-75	20-40	2-12
MgC2—Manor loam, 8 to 15 percent slopes, moderately eroded														
Manor	90	B	0-7	Loam	ML	A-4, A-6	0	0	85-100	80-100	70-100	50-90	32-40	6-12
			7-21	Loam, silt loam, channery loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	65-100	50-100	40-100	30-90	26-40	4-12
			21-60	Loam, sandy loam, channery sandy loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4, A-6	0	0-5	65-100	50-100	30-95	15-75	20-40	2-12
MgD—Manor loam, 15 to 25 percent slopes														
Manor	97	B	0-7	Loam	ML	A-4, A-6	0	0	85-100	80-100	70-100	50-90	32-40	6-12
			7-20	Loam, silt loam, channery loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	65-100	50-100	40-100	30-90	26-40	4-12
			20-60	Loam, very fine sandy loam, channery sandy loam	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4, A-6	0	0-5	65-100	50-100	30-95	15-75	20-40	2-12

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
MhE—Manor loam and channery loam, 25 to 35 percent slopes														
Manor	98	B	0-4	Loam	ML	A-4, A-6	0	0	85-100	80-100	70-100	50-90	32-40	6-12
			4-19	Loam, silt loam, channery loam	SM, GM, ML	A-2-4, A-2-6, A-4, A-6	0	0-10	65-100	50-100	40-100	30-90	26-40	4-12
			19-60	Loam, very fine sandy loam, channery sandy loam	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4, A-6	0	0-5	65-100	50-100	30-95	15-75	20-40	2-12

Data Source Information

Soil Survey Area: Delaware County, Pennsylvania
Survey Area Data: Version 7, Dec 14, 2013

APPENDIX R-2: ROSE TREE COUNTY PARK ENVIRONMENTAL SURVEY

Delaware County Park Study
Rose Tree Park
Environmental Resource Survey

Rose Tree Park

Rose Tree Park is located in Upper Providence Township on approximately 117.9 acres. The park consists primarily of undulating hills of open meadow with scattered landscaped trees. The surrounding land use consists of medium density development and institutional with a school to west. There is a modest wooded area with a trail located in the center and extending towards the west of the park. There is one other significant wooded area along the eastern edge of the park. Both of these wooded areas are riparian corridors to two small but significant unnamed tributaries (UNTs) to Crum Creek located on the property. Both are headwater or first order streams and drain to the north. This portion of the Crum Creek Watershed is designated as a Warm Water Fishery (WWF) by the Pennsylvania Department of Environmental Protection (PADEP). Designated use of a WWF is defined as "Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat" according to PADEP's Chapter 93 guidelines. There are diverse recreational offerings in this park including a community garden, amphitheater, memorial gardens, and a historic steeple chase that is no longer in use.

An environmental survey was conducted to provide a preliminary inventory and assessment of the existing environmental features within the park to assist future planning decisions. The largest environmental resource features within the park consisted of the two tributaries and the adjacent riparian areas. There were also large of rolling hills of open grass meadow area and occasional landscaped trees.

The headwaters of the first UNT (UNT#1) begins at the southern end of the park at a historic springhouse constructed in 1775. This tributary is mapped as an intermittent stream or as having non-tidal flow for part of the year. This stream has a high potential for herptile habitat. The riparian area is somewhat in tact but is overgrown with multifloral rose and honeysuckle. Park of the stream flows off the property for a small portion before returning and flows along the property boundary towards the north east.

The headwaters of the second UNT (UNT#2) begin behind the amphitheater towards the west. The channel is confined to a concrete channel for approximately 200 feet. Because of this, this section of stream is primarily ephemeral or only flowing during rain events. However the channel carries more regular flows downstream from the concrete channel. This stream runs through a wooded area towards the north of the amphitheater. The wooded area contains many snags or dead trees. Strangling vines were observed on some of the trees. Furthermore There are some areas dominated by invasive underbrush such as multifloral rose and honeysuckle. Recent work to sewer infrastructure was observed within the park

Delaware County Park Study
Rose Tree Park
Environmental Resource Survey

Recommendations:

UNT#1 is currently an under utilized resource. Both the springhouse and stream contain a high potential for historic and environmental education. It is recommended that an interpretive trail be developed along the springhouse and stream channel. This could include a “bird trail” with shrubs and birdhouses. Educational signage or QR coding can be offered that allow smartphones to scan and bring up facts/quizzes that combine historical and environmental topics. The trail can be developed with some effort to control the invasive. This could largely be a volunteer effort with assistance and equipment/operators form the parks department.

The headwaters of UNT#2 consists of a concrete stormwater channel. This is neither ecologically beneficial nor is it aesthetically pleasing. It is recommended that a step pool or regenerative step pool conveyance system be installed. This will allow the runoff to not only be carried off site but to be infiltrated reducing erosion that was observed downstream in the wooded portion. This will also increase water quality to the channel. Headwaters are a valuable resource. According to Stroud Water Research Center, headwaters maintain water quality by processing nutrients and pollutants; attenuate flooding by slowing and storing flood volumes; trap and retain sediment; process organic matter for aquatic life; maintain biodiversity by offering habitat for a variety of species; and provide nurseries for young fish and refuge from predators.

The snags in this area provide critical habitat for many animals and insects. It is recommended that the snags be evaluated to determine if any pose a threat from falling onto hiking trails by an arborist. Snags that are deemed safe should be allowed to remain to maintain this critical habitat. The riparian buffer in this area is well established but invasive vegetation dominates in some areas. There are some areas of erosion along some of the channel, likely due to high velocities created by the concrete channel, that are out of the view of the public. This would be a little return on resources if these areas are restored and therefore this is recommended to be a low priority to stabilize these areas.

The open mowed meadow areas provide an opportunity for maintained native meadows that not mowed. Also there is an opportunity to plant a orchard. An orchard would be in line with the existing use of the community gardens.

No wetlands were located on National Wetland Inventory (NWI) mapping of the park. No wetlands were delineated or identified by the three parameter approach outlined in the 1987 United States Army Corps of Engineer Wetland Manual and corresponding regional supplement. A detailed wetland investigation was not practical for the level of detail for this survey report and NWI mapping often

does not show smaller wetland pockets. Preliminary wetland investigation criteria used for the sake of this report consisted of visual identification and rapid test of hydrophytic vegetation, landform and visible signs of hydrology. It is recommended that prior to any park improvements including land disturbance that a wetland investigation and updated Pennsylvania Natural Diversity Inventory (PNDI) inquiry be conducted to the presence of or potential habitat belonging to rare, threatened, and/or endangered species. A wetland investigation and, if necessary, wetland delineation may be required to be submitted with PADEP and NPDES permits for disturbances in wetlands and streams.

1. PROJECT INFORMATION

Project Name: **Rose Tree Park**
Date of review: **8/16/2011 11:31:37 AM**
Project Category: **Recreation,Other**
Project Area: **132.5** acres
County: **Delaware** Township/Municipality: **Upper Providence**
Quadrangle Name: **MEDIA** ~ ZIP Code: **19063**
Decimal Degrees: **39.941955 N, -75.392603 W**
Degrees Minutes Seconds: **39° 56' 31" N, -75° 23' 33.4" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Fish and Boat Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

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

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

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

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

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Dryopteris celsa
Common Name: Log Fern
Current Status: Special Concern Species*
Proposed Status: Endangered

Scientific Name: Woodwardia areolata
Common Name: Netted Chainfern
Current Status: Special Concern Species*
Proposed Status: Threatened

PA Fish and Boat Commission

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

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)
Scientific Name: Sensitive Species**
Common Name:
Current Status: Threatened
Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictinal agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____Project location information (name of USGS Quadrangle, Township/Municipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

____The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

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

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

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA. 16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

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

8. CERTIFICATION

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

_____ _____
applicant/project proponent signature date