Kent County Park 4

Chapter 4: Kent County Park

INTRODUCTION

SURROUNDING LAND USE

One of the first parcels of land designated for Delaware County Park use, Kent County Park was acquired in 1938 and historically has been used mainly for hiking and fishing along the Darby Creek for the first 45 years of its existence.

In the early 1980's, active recreation elements were introduced to Kent County Park in the forms of a small playing field and basketball court. In the late 2000's, the County made the decision to eliminate the playing field and basketball court due to under use and security issues, and move in the direction of a more passive use for the park. Kent County Park now features a renovated multi-recreational area with a playground, pavilion, and fenced-in dog park.

CONTEXT WITHIN THE DELAWARE COUNTY PARKS SYSTEM

With just under 10 acres along Darby Creek, Kent County Park offers mainly a passive recreation experience. Featured facilities within the park include a tot-lot/playground, a split dog park and pavilion, and an open lawn area for passive recreation activities (Frisbee, sunbathing, etc.). Kent County Park is flanked on two sides of the park by mixed deciduous woodlands (with hiking paths) and the third by the Darby Creek riparian buffer (wooded and undergrowth buffer).
In the context of the overall Delaware County Park System, Kent County Park is one of the smallest county parks, but contains one of the greatest assets to the system, the dog park.

CURRENT SERVICE AREA

Kent County Park is mainly a regional park. Most daily users access the park by vehicle (with their furry friends) from the immediately surrounding area. Some park users who live in the adjacent neighborhoods arrive on foot from Bridge Street.

The current service area of Kent County Park supports the municipalities of Clifton Heights Borough, Upper Darby Township, Lansdowne Borough, East Lansdowne Borough, Yeadon Borough, Darby Borough and Township, Colwyn Borough, Folcroft Borough, Norwood Borough, Glenholden Borough, Ridley Township, Rutledge Borough, Morton Borough, Collingdale Borough, Sharon Hill Borough and Springfield Township.

Kent County Park's current service area also includes many other similar open space resources and user constituencies that benefit the park and will continue to make Kent County Park a necessary piece of the Delaware County Park System. These resources include:

Glendale Road Park, Naylors Run / Drexel Park, Rolling Green Park, Springfield Memorial Park, Jane Lownes Park, Walsh Park, Indian Rock Park, Ellson Glen Park, Marlyn Park, Shrigley Park (also a County Park), Crowell Park, Collingdale Park, the Darby Creek Stream Valley Park Trail and the East Coast Greenway.

On the outer edge of Kent County Park's service area is the City of Philadelphia, Cobbs Creek Park and the Cobbs Creek Trail.

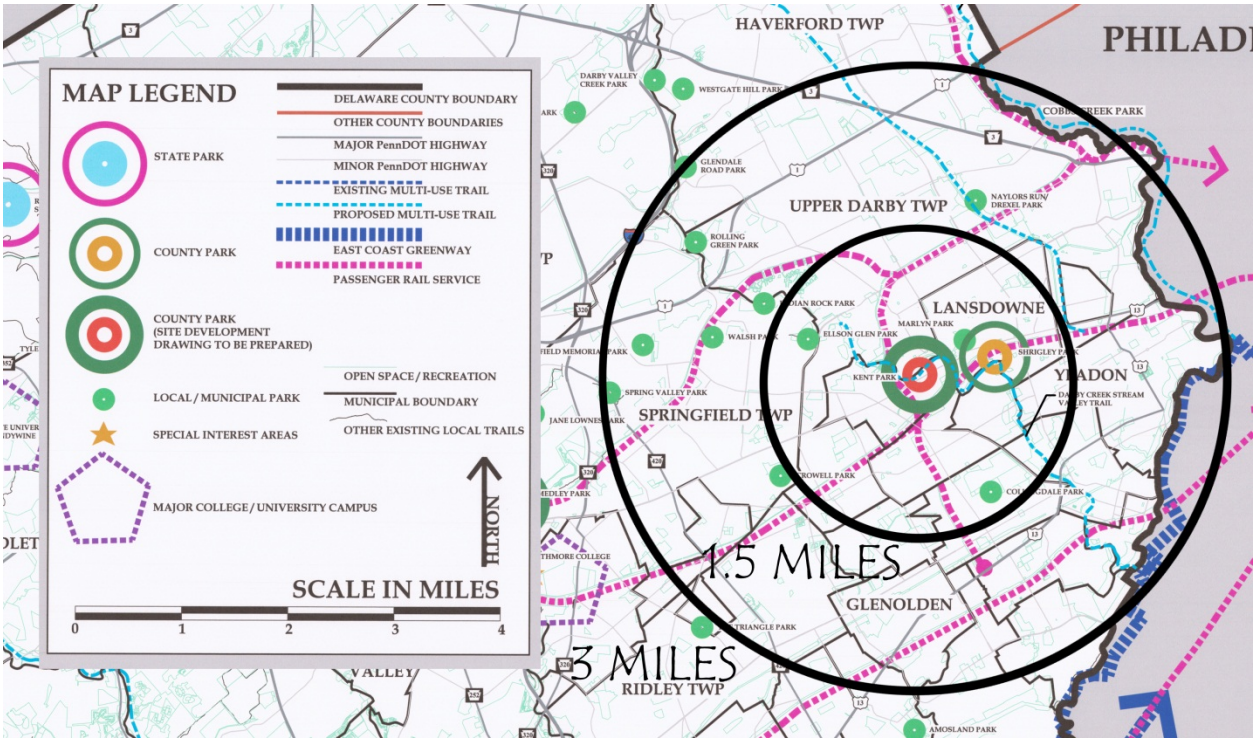


Figure 4-1: Kent County Park Service Area

EXISTING CONDITIONS AND INVENTORY

SURROUNDING LAND USE

Kent County Park straddles the border of Clifton Heights Borough and Upper Darby Township and is in a high density urbanized area of Delaware County within the suburbs of Philadelphia and along the Route 1 corridor. The Park is surrounded mostly by high density residential neighborhoods, commercial/industrial use and the Darby Creek corridor and Greenway. See the Existing Conditions Drawing on the previous page.

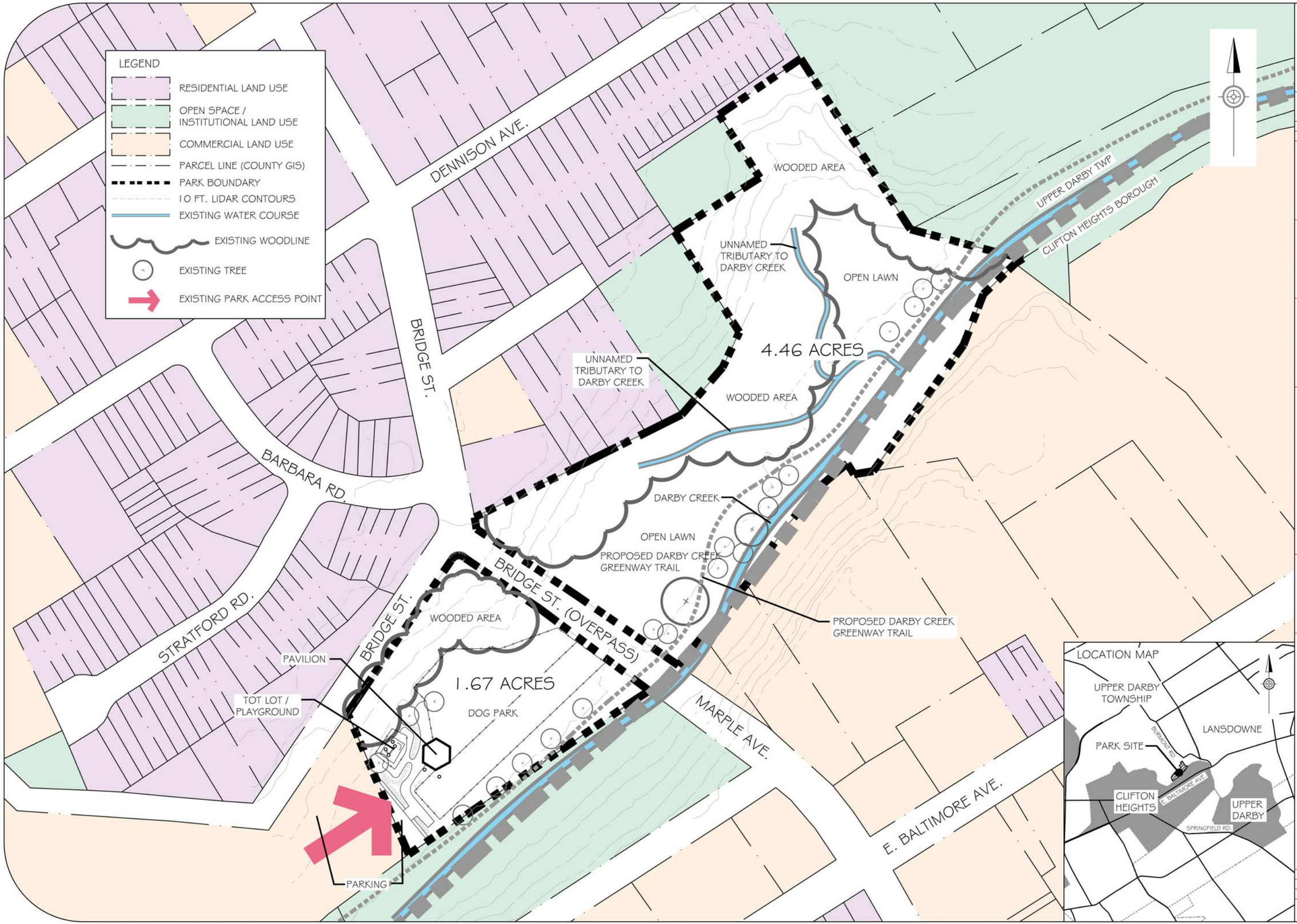
NATURAL RESOURCES

Vegetation

Kent County Park is located down in the creek valley and riparian area of Darby Creek. The park is within a pocket of woodlands and riparian buffer and is comprised mostly of mixed deciduous species of Willows, Sycamore, Beech, Oak, Maple and Ash. The wooded areas in and around Kent County Park have an abundant under story of young trees, groundcover, shrubs and vines, while the edge of Darby Creek is sparsely vegetated.

Evergreens found were Pines, Yew, and Eastern Red Cedar. These evergreens are few and far between, but can be found sporadically throughout the wooded area of Kent County Park.

Darby Creek has little riparian vegetation to prevent erosion. Riparian areas offer cover and habitat to aquatic life and provide shade to reduce stream temperature. The herbaceous vegetation layer along



REVISION

NO. BY DATE

SEAL

CLIENT
DELAWARE COUNTY
PLANNING DEPARTMENT
TOHL BUILDING, 2ND & ORANGE STREETS
MEDIA, PA. 19063
PH: (610) 891-5200 FAX: (610) 891-5303

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

SCALE IN FEET 0 25 50 100 150

PROJECT TITLE
SITE DEVELOPMENT DRAWINGS
KENT PARK
UPPER DARBY TOWNSHIP DELAWARE COUNTY, PA.

SHEET TITLE
EXISTING CONDITIONS DRAWING

SUB-CONSULTANTS
CT &C
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STUDIO PHONE: 717-843-1897
WWW.TPWDESIGNSTUDIOS.COM

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

SHEET NO.: 1 OF 1

the banks is primarily grasses. However Japanese knotweed (Polygonum cuspidatum) was found throughout the creek bank corridor. Knotweed is classified by the PA Department of Conservation and Natural Resources (DCNR) as an invasive plant. This plant spreads through seeds and rhizomes and has the ability to out compete most other species. This creates a monoculture that has little value to wildlife.

Figure 4-2: Existing vegetation at Kent County Park

Wildlife and Pennsylvania Natural Diversity Inventory

Wildlife

The main wildlife corridor is the Darby Creek corridor and greenway the runs beside Kent County Park on the eastern end of the park. This creek "greenway" corridor contains fauna such as deer that are able to access the park woodlands and open space. Also, various birds were spotted nesting and using the tree canopy around Kent County Park. Some of these birds included robins, cardinals, a red-tailed hawk and one great blue herron was witnessed fishing in Darby Creek. Several trout species were also observed in Darby Creek.

The Darby Creek corridor and Kent County Park are extremely important to wildlife because it is one of the only greenways that makes its way through this densely developed area of Delaware County.

Preliminary Environmental Review

The Pennsylvania Natural Diversity Inventory (PNDI) records for Kent County Park indicate no known impacts to threatened and endangered species and/or special concern species and resources within the Park boundary. Therefore, no further coordination (at this time) is required with the jurisdictional agencies (See Appendix C-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.

Figure 4-3: Wetland area possibly created by a spring

Soils and Topography

Soils

According to the United States Department of Agriculture (USDA) soils survey, the soils present within Kent County Park are as follows:

Ch – Chewacla silt loam (Hydric Soil)
Me – Made land, schist and gneiss material (Hydric Soil)
MkF – Manor soils, 35 to 60 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 Kent County Park are conducive to the presence of wetlands. The park resides in the floodplain of Darby Creek and there is a low-lying wet area on the north end of the park that seems to contain a spring / water source that flows to Darby

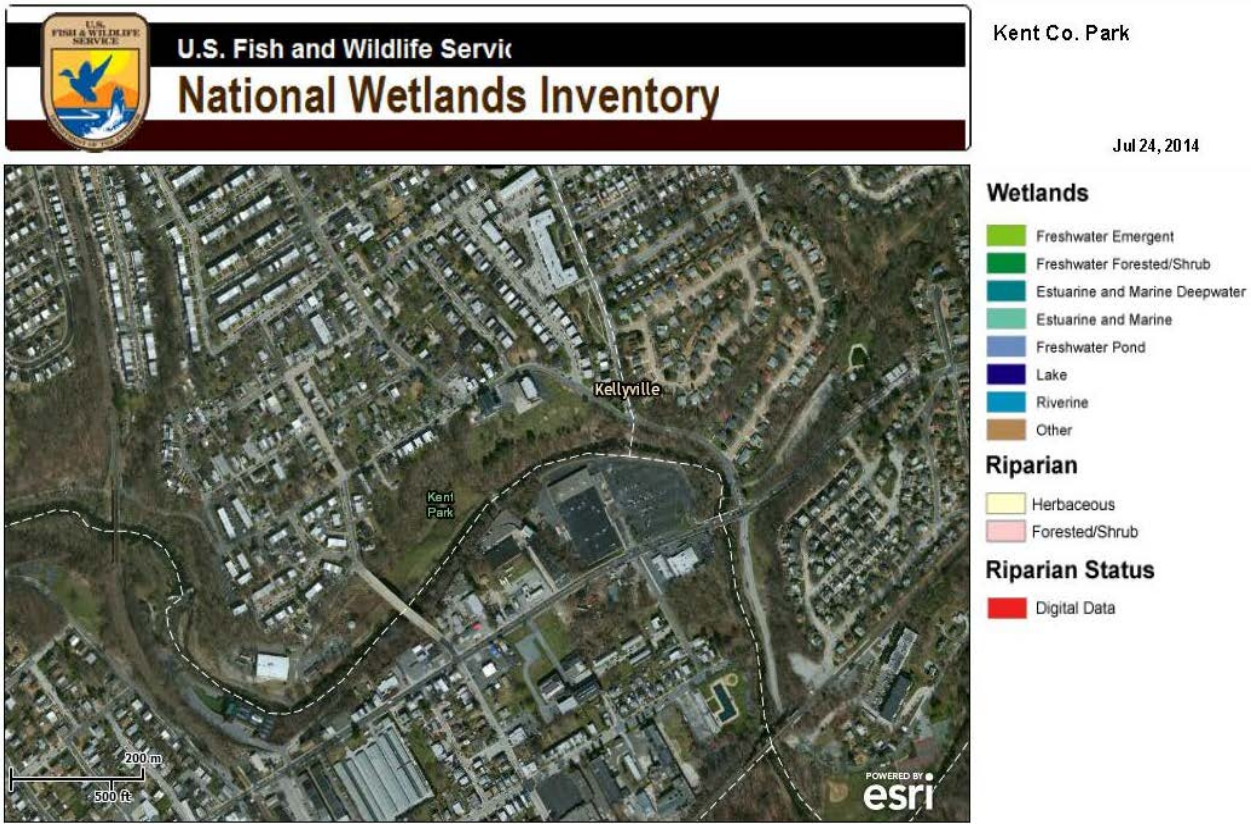


Figure 4-4: National Wetlands Inventory of Kent County Park

Creek. There is also the presence of some grasses and plant material (cattails) to suggest Palustrine Emergent wetlands are present.

This conclusion is likely not supported by the national wetland inventory mapping from the U.S. Fish and Wildlife Service due to size of wetlands mapped. The soils identified above are detailed further in Appendix C-1.

Topography

Kent County Park is mostly within the floodplain of Darby Creek and this is reflected in the relief of the park site. A majority of the park is flat along the creek and then dramatically slopes up to Bridge Street (as well as on the south side of the creek) creating the valley for Darby Creek.

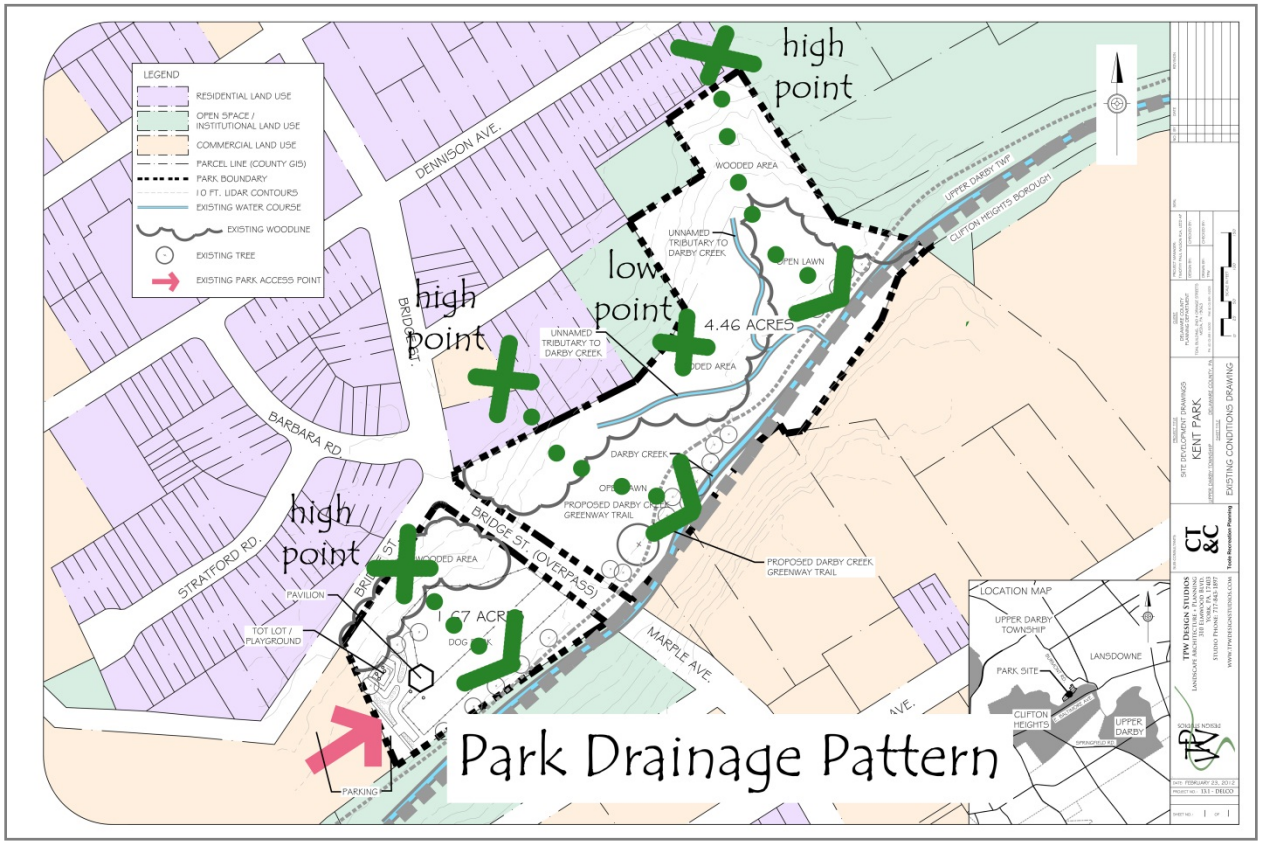


Figure 4-5: Existing drainage pattern at Kent County Park

Hydrology

The major hydrological feature of Kent County Park is Darby Creek. Darby Creek is a prominent resource that runs the entire length of the park and is a valuable resource for outdoor recreation.

Most of the site soils are poorly draining, contributing to some ponding when flooded, as well as erosion issues. What stormwater is left generally sheet flows across the park in a northwest to southeast direction.

There are no stormwater management facilities on the Kent County Park site. There are some small channelized swales that flow during significant rain events and a channel that carries the spring / water source across the site from the wetland area.

There are what seem to be stormwater outfalls along the bank of Darby Creek. These outfalls are most likely drainage from the roads and neighborhoods north of the park and exhibit oxidation in its discharge.

Figure 4-6: Stormwater outlet along Darby Creek

Darby Creek and Chapter 93 Designation

As one of the larger watersheds in Delaware County, Darby Creek drains approximately 36 square miles and is joined by its tributary Cobbs Creek about 2.75 miles southeast of Kent County Park. It then flows south to and through Heinz Refuge and on down to the Delaware River.

Figure 4-7: Darby Creek

Darby Creek extends into Delaware County approximately 10.5 miles and originates in the northern end of Delaware County in Radnor and Newtown Townships.

The Chapter 93 Protected Use Designation for the Chester Creek in the area of Kent County Park are:

TSF – Trout Stocked Fishery
MF – Migratory Fishes

Designated use of a TSF is defined as “Maintenance of stocked trout from February 15 to July 31 and 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 Darby Creek in this area are not “HQ” High Quality or “EV” Exceptional Values waters.

EXISTING PARK FACILITIES

Figure 4-8: Paved parking area

Figure 4-9: Tot-lot / playground and pavilion

Figure 4-10: Darby Creek

Figure 4-11: Dog park

Figure 4-12: Open lawn area

Figure 4-13: Earthen trail along Darby Creek

Figure 4-14: Lindbergh Bridge

HISTORICAL AND CULTURAL RESOURCES

There are two elements to Kent County Park that could be considered historical and cultural resources, the overhead Lindbergh Bridge (Delaware County has jurisdiction over the bridge) and the remains of a structure on either side of Darby Creek that look to possibly be seats to a mill that once resided in Darby Creek. Research and studying aerial photographs from the 1930's still did not shed light on the use or function of these "mill seats."

STRUCTURES

Pavilion

This is a relatively new structure and there appear to be no issues.

Figure 4-15: "Mill-Seat" on the far side of Darby Creek

Maintenance Shed

This is a relatively new structure and there appear to be no issues. It appears to be residential grade construction.

Figure 4-16: Pavilion

PARK ACCESS

Pedestrian

Currently, there are few ways to access Kent County Park on foot. There is a concrete staircase that enters the park from Bridge Street and its sidewalk network, and there is the parking area at the end of Bridge Street.

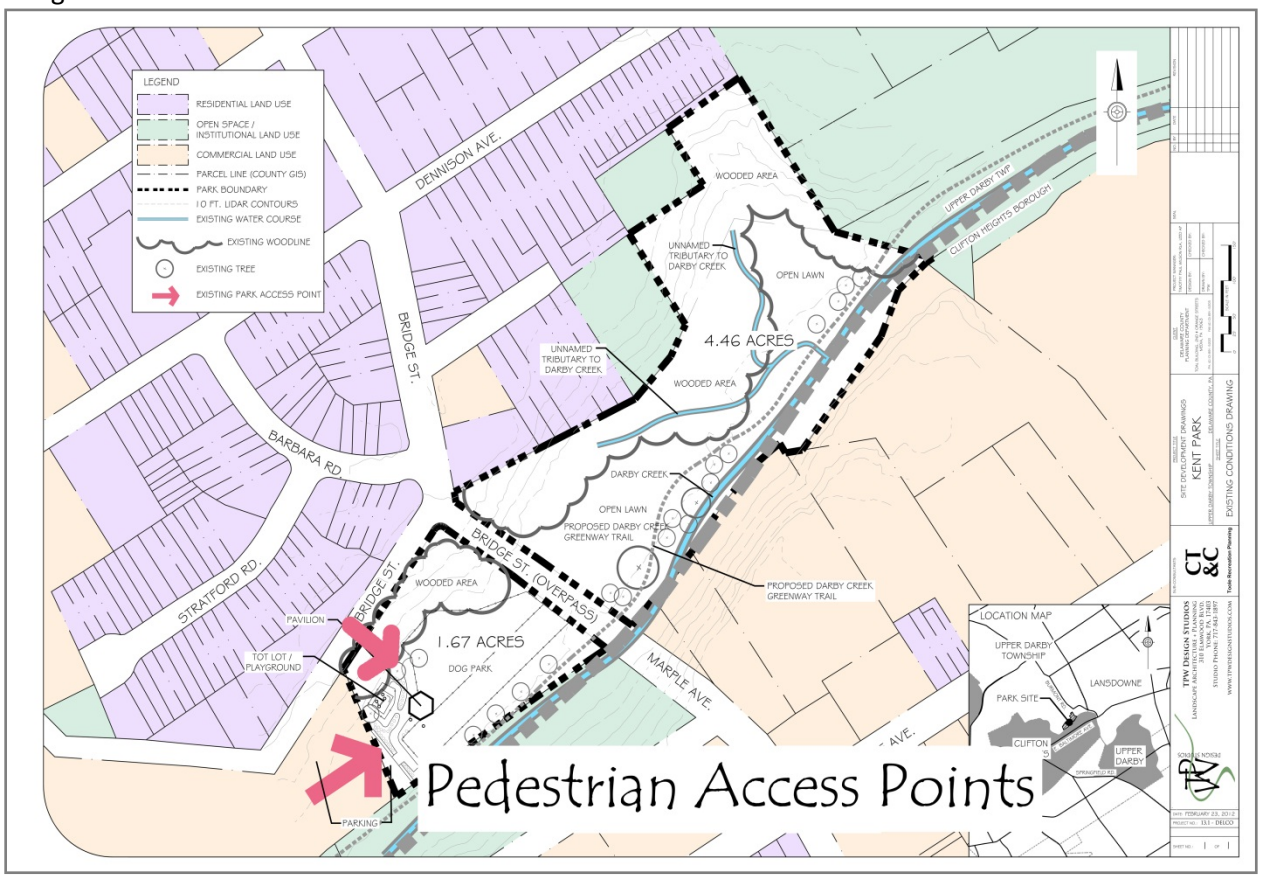


Figure 4-17: Existing pedestrian access points at Kent County Park

Trails and Greenways

Currently, the only existing trails or greenways even remotely close to Kent County Park are the East Coast Greenway that runs along the Cobbs Creek corridor on the Delaware County and City of Philadelphia line, and the Darby Creek Stream Valley Park Trail.

The East Coast Greenway, conceived in 1991, is the nation's most ambitious long-distance urban trail. By connecting existing and planned shared-use trails, a continuous, traffic-free route is being formed, serving self-powered users of all abilities and ages. At 2,900 miles long, the Greenway links Calais, Maine, at the Canadian border, with Key West, Florida.

The Darby Creek Stream Valley Park Trail is a planned trail that has some existing trail sections along the Darby Creek corridor between Haverford Township and its confluence with Cobbs Creek. This trail is proposed through Kent County Park.

Public Transit

Delaware County has an extensive public transit system, and Kent County Park is very close to Bus Routes 107 – 69th St. Terminal to Clifton Heights and 109 – 69th St. Terminal to Chester. The bus service frequency during peak park use times of the day are every half hour Monday – Saturday, and every hour on Sundays. The Media/Elwyn Trolley also has stops in the vicinity of Kent County Park at Baltimore Pike. This station is a very short walk or bike ride to Kent County Park.

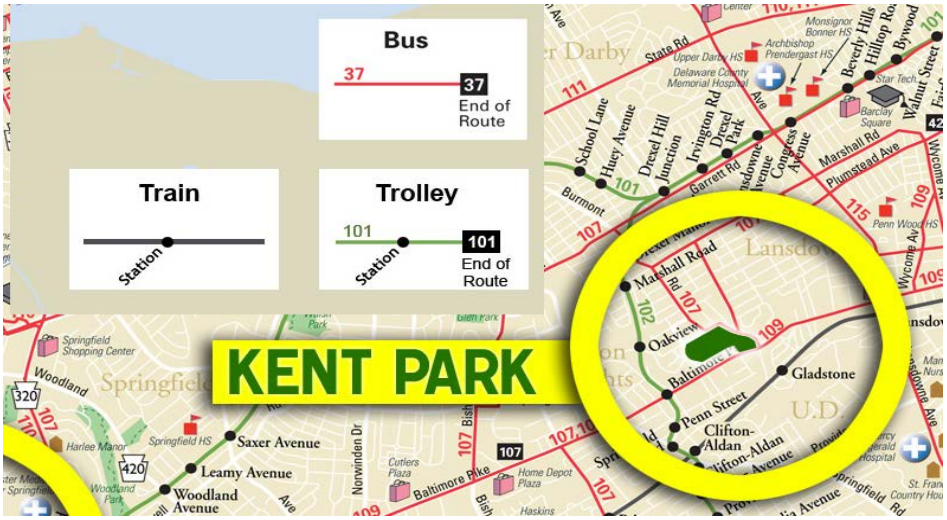


Figure 4-18: Transit connections to Kent County Park

Vehicular

There is only one vehicular access to Kent County Park. Ingress and egress to the parking area for the park takes place off of Bridge Street. This is the only feasible vehicular access to the park.

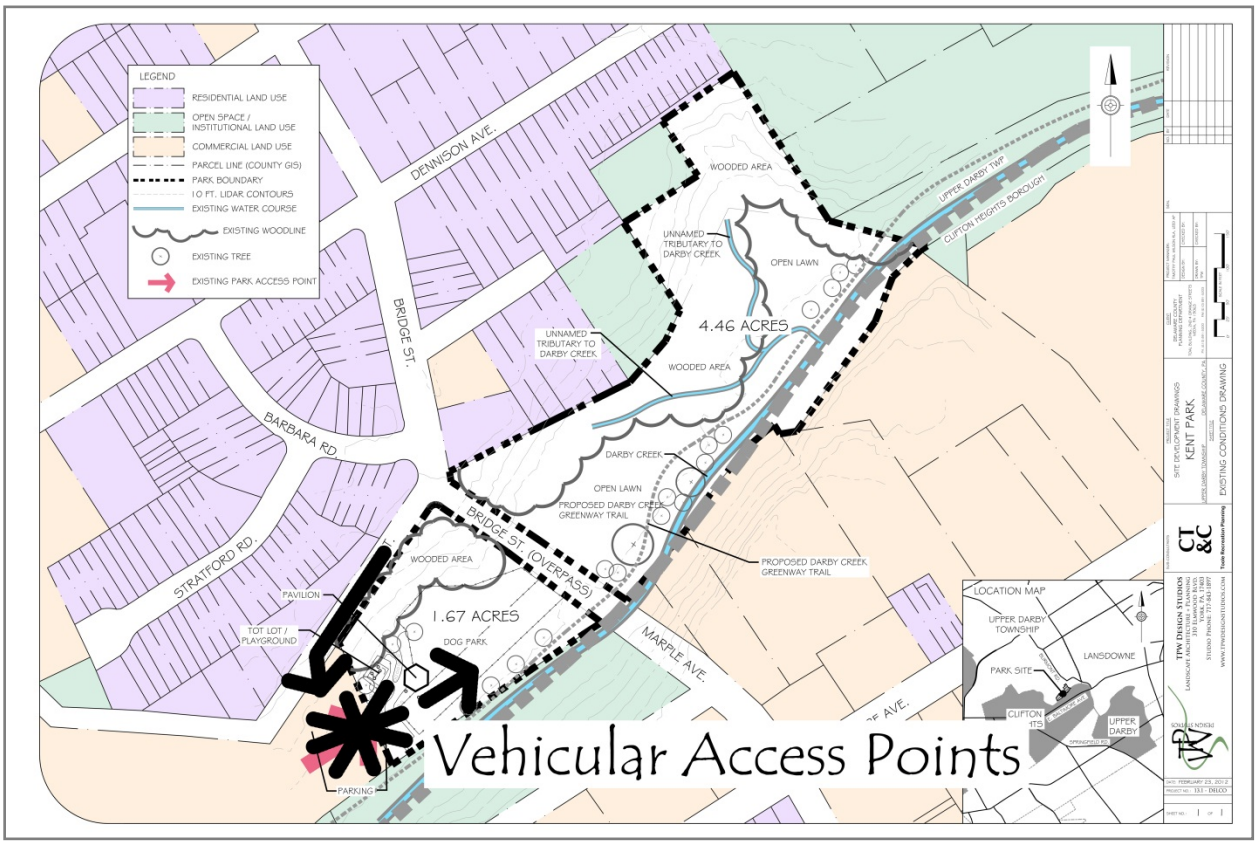


Figure 4-19: Existing vehicular access to Kent County Park

PARK NEEDS ANALYSIS

PARK USE, PROGRAMS, AND VISITATION IN 2015

The only current existing visitation data for Kent County Park is a member keycard login for users of the dog park. This data was not made available for analysis, nor would the findings have had an impact on the planning and future development of the park. 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) Kent County Park is a destination park with a very desirable commodity in the dog park and direct access to Darby Creek. A majority of everyday use comes from regional motoring residents and the adjacent residential neighborhoods. These park users are typically making special trips to visit the park to take part in passive recreation (Frisbee, sunbathing, hiking), or using the tot-lot / playground area and dog park.

   This use will inherently continue and increase based on development, signage and promotion of Kent County Park.

Figure 4-20: Dog park

2) There are no active recreation facilities at Kent County Park.

3) Programs:
   Use of the dog park is for Delaware County residents only and is a revenue generator for Delaware County. Annual membership is $20 per household; $10 for senior citizens. Renewal is $10 for residents, and $5 for seniors.

   Members of the dog park may let their dogs go unleashed in the fenced-in facility, which contains covered pavilion, benches, water, and, of course, dog-litter bags. The Dog Park is divided into two fenced-in areas: one for dogs 25 pounds and larger, and one for smaller dogs. Both enclosures are double-gated to prevent dogs from getting loose, and an electronic key fob is required for entrance. Hours are dawn to dusk daily.

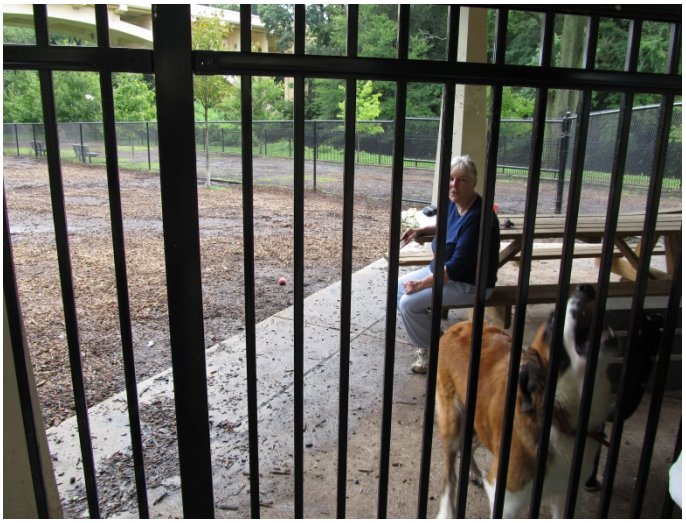


Figure 4-21: Dog Park Members taking advantage of such a wonderful Delaware County Park facility

PARK NEEDS

The needs of Kent 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 Kent County Park can be found in Volume IV of the comprehensive Delaware County Open Space Recreation Plan.

The Kent County Park needs are as follows:

1) Improved signage and wayfinding
2) Pedestrian network and trails
3) Build upon existing resources
4) Restrooms and a maintenance facility more in character with the park
5) Connections to regional resources
6) Better defined open space
7) Promotion of park facilities
8) A more efficient and cost effective maintenance program
9) Improved parking facility
10) Enhanced user experience / make continuously interesting
11) Gathering areas
12) Emphasize and promote SEPTA Transit System as it relates to park access
13) Preservation and stewardship of site woodlands and Darby Creek riparian buffer
14) Improved site stormwater management
15) The development of relationships between Delaware County and local community oriented and business organizations in the area of Kent County Park

PARK DEVELOPMENT OPPORTUNITIES

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

1) The Darby Creek Stream Valley Park Trail Development
2) Darby Creek riparian buffer
3) On-site wetland areas
4) Lindbergh Bridge (park backdrop)
5) A highly used and desirable dog park
6) Tying into the surrounding pedestrian network (sidewalks, crossings, etc.)
7) Delaware County maintenance resources

MANAGEMENT, MAINTENANCE, AND OPERATIONS

Management

Kent County Park is managed remotely from the Delaware County Parks and Recreation Department in Rose Tree County Park. The Dog Park is jointly operated by The Delaware County Department of Parks and Recreation and Upper Darby Township. This method of park management is sufficient for the size and use of Kent County Park.

No future improvement or development would necessitate offices or the everyday presence of Delaware County Parks and Recreation staff.

Maintenance & Operations

Delaware County crews currently perform weekly maintenance duties that include trash pick-up, mowing, preventative maintenance, and incident maintenance. As Kent County Park is developed, 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. Kent County Park is patrolled jointly by County Park Police and Upper Darby Police.

PARK SITE DEVELOPMENT PLAN AND RECOMMENDATIONS

THE SITE DEVELOPMENT PLAN "CONCEPT"

The concept of the Kent County Park Site Development Plan is to preserve and enhance the Darby Creek floodplain and riparian buffer while accentuating the dog park facility, supporting the Darby Creek Stream Valley Park Trail and creating a forum for passive recreation activities.

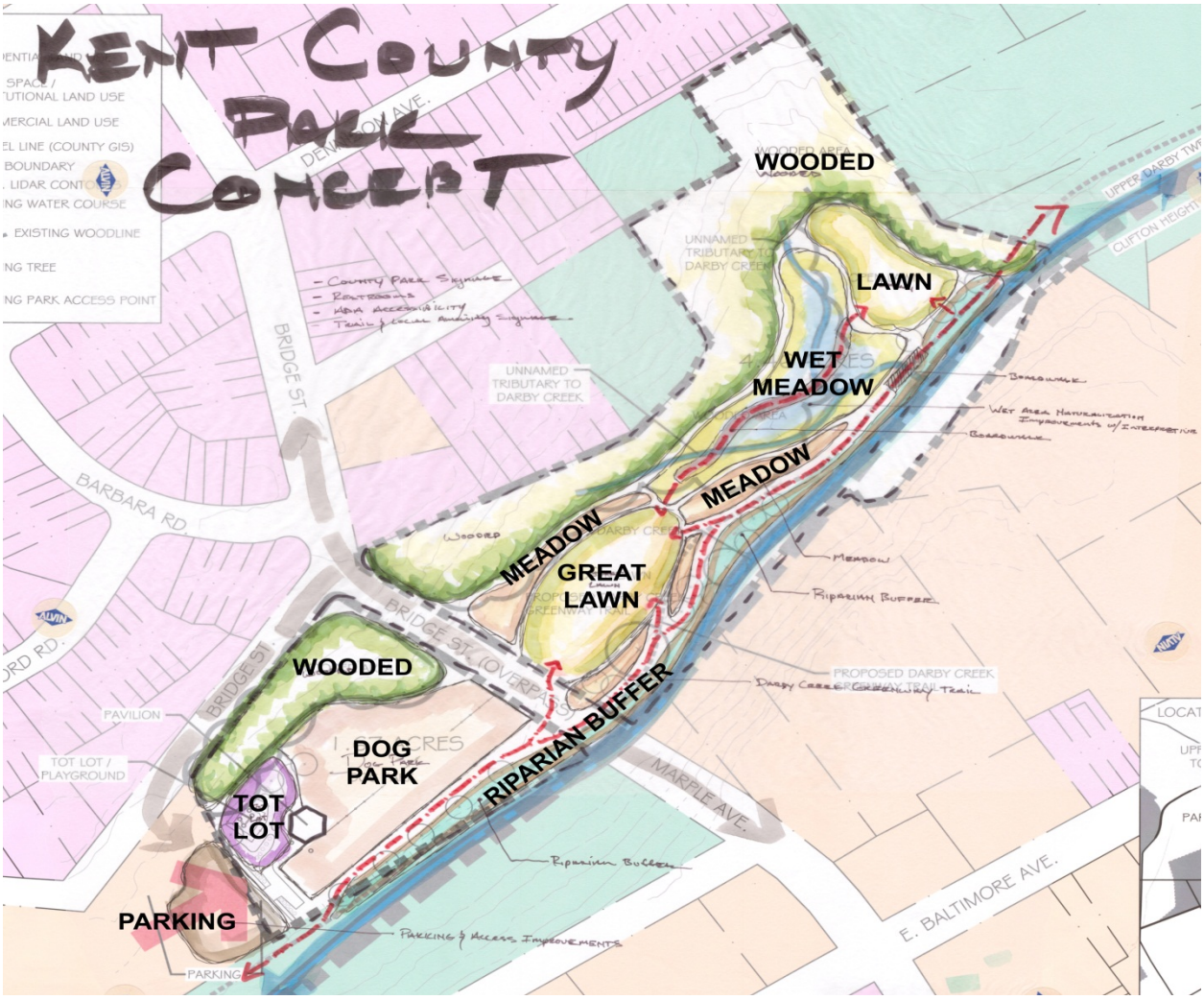


Figure 4-22: Kent County Park Concept Sketch

Kent County Park is limited in its potential for development due mainly to its location and smaller size. This fact does not take away from the importance and relevance of the park within the Delaware County Park System.

RECOMMENDATIONS

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

Facilities & Park Site Development

The following Kent 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 Kent County Park improvements are as follows:

1) Improve Kent County Park (and overall County Park) Signage to a standardized system that is identifiable and recognizable as such. Including interpretive signage
2) Improve and develop the park pedestrian circulation network including the development of the Darby Creek Stream Valley Park Trail and better access to adjoining neighborhoods
3) Implement a new maintenance building with built-in restrooms
4) Installation of park / County park system kiosks (signage), benches and seating areas
5) Two new pavilion areas
6) Define open spaces and lawn areas with native plant material and meadows. This will provide the opportunity to naturalize previously regularly maintained areas and reduce maintenance expenditures
7) 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
8) Redesign / improvement of existing parking facility with plaza
9) An on-site compost and recycling area
10) Implement a boardwalk over the wetland area connecting open space on either side
11) Establish a 50’ Riparian Buffer and floodplain restoration along Darby Creek

The Site Development Plan

The site development plan is an illustrative rendering of Kent 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 Kent County Park development has been laid out further along in this section of the park narrative.

Trail & Greenway Connections

Kent County Park has the luxury of directly connecting to a major proposed trail corridor in the Darby Creek Stream Valley Park Trail. The trail does not currently exist through Kent County Park, it is being engineered and developed after funding was recently secured by the County. The trail is slated to

STRATFORD ROAD
BARBARA ROAD
BRIDGE STREET
COUNTY PARK SIGN
RECYCLING & SITE COMPOST AREA
BRIDGE STREET
STAIRS
TOT LOT
RESTROOMS & MAINTENANCE SHED
CONCRETE WALL
COUNTY PARK SIGN
SIDEWALK
DOG PARK
PAVILION
FENCING
PLAZA
BRIDGE STREET (OVERPASS)
MARPLE AVENUE
TO BALTIMORE PIKE COMMERCIAL CORRIDOR
UPPER DARBY TOWNSHIP
WOODED AREA
PAVILION
GREAT LAWN
ELEVATED BOARDWALK
PAVILION
POTENTIAL CONNECTION OUT TO DENNISON AVE.
CEMETERY
DARBY CREEK
DARBY CREEK TRAIL
CLIFTON HEIGHTS BOROUGH

1. PARKING LOT IMPROVEMENTS - 16 SPACES INCLUDING 2 ADA ACCESSIBLE SPACES, PLAZA, SEATING WALL, PARK KIOSK, & SIDEWALKS
2. NATURALIZE MARSH / WET AREA - FEATURES AN ELEVATED BOARDWALK AND INTERPRETIVE SIGNAGE
3. GREAT LAWN AREA WITH ACCESS TO A PAVILION WITH PICNIC TABLES AND BOARDWALK
4. OPEN LAWN WITH ADA ACCESS VIA CONCRETE SIDEWALK TO A PAVILION WITH GRILLS AND PICNIC TABLES
5. EXISTING DOG PARK WITH TOT LOT. FEATURES - EMERGENCY CALL STATION, WATER FOUNTAIN, PET STATION, LARGE/SMALL DOG DIVIDED DOG PARK, & PAVILION

ADDITIONAL PLAN INFORMATION

PARK ACREAGE - 5.20 ACRES
IN UPPER DARBY TOWNSHIP AND CLIFTON HEIGHTS BOROUGH
(DARBY CREEK IS ESSENTIALLY THE MUNICIPAL BOUNDARY)

- PARK BOUNDARY
- EXISTING 10 FOOT CONTOUR
- 100 YEAR FLOODPLAIN
- MUNICIPAL BOUNDARY

VEGETATION

- LAWN
- RIPARIAN CONSERVATION
- NATIVE MEADOW
- NATIVE MARSH / WET AREA
- FOREST / WOODED AREA

FEATURES & AMENITIES

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

KENT COUNTY PARK

SITE DEVELOPMENT PLAN

JANUARY 2015

NOTE: ITALIC LABELS REPRESENT EXISTING SITE INFORMATION

SCALE IN FEET
0' 20' 40' 80' 120'

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

TOOLE RECREATION PLANNING

eventually follow Darby Creek and down to the Cobbs Creek Trail where it will connect into the East Coast Greenway.

Implementing the section of the Darby Creek Steam Valley Park Trail through Kent County Park and beyond will provide another way for people to access the park from the east and west. It will also generate additional park usage by directly connecting major population bases in and around the City of Philadelphia and the thousands of users of the East Coast Greenway.

Figure 4-23: Darby Creek Stream Valley Park Trail western alignment through Kent County Park
Source: Delaware County Planning Department, 2010

Park Programming

Kent County Park already has an established identity within the Delaware County Park System and programming that fits the passive recreation nature of the park. Based on the recommended park improvements and park character, there is little room for additional programming elements.

Some general park programming elements as it relates to the Kent County Park Site Development Plan are as follows:

1) Dog park
2) Pavilion events
3) Using the natural resources associated with Kent County park as learning tools / education
4) Hosting events associated with the Darby Creek Stream Valley Park Trail

Management

It is recommended that Kent County Park, even at full build out, continue to be managed remotely from the Delaware County Park and Recreation offices at Rose Tree County Park.

Maintenance and Operations

The mission of an operation and maintenance program for Kent 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.

Maintenance and Operations Tasks

Kent County Park maintenance tasks and schedule typically involves mowing, keeping the grounds free of trash and debris, removal of downed limbs or dead trees, streambank repairs, 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 4-1: 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 Boardwalks						
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 4-1: 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
Riparian Repair & Rehabilitation						x

Tree Care

Tree care is important to sustaining and guiding responsible tree growth within Kent 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 Glen Providence 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 4-2: Native Plant Material for Kent 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 Kent 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 Kent County Park (and overall County Park) signage & kiosks
2) Begin improvement and development of the park pedestrian circulation network
3) Begin installation of park amenities, benches and seating areas
4) Define open spaces and lawn areas with native plant material and naturalized meadows
5) Implement on-site compost and recycling area
6 Implement Darby Creek Stream Valley Park Trail
7) Riparian buffer and floodplain restoration along Darby Creek
8) Advocate for park "friends" groups and foster partnerships with local business and recreation organizations

Table 4-3: Kent County Park - Phase I: Short Term (0-5 Years) Cost Estimate

Description	Cost Basis	Quantity	Unit Price	Total Cost
1) Kent County Park Signage				
Kiosks	LS	1	$4,800.00	**$4,800.00**
Roadway	LS	1	$1,000.00	**$1,000.00**
Interpretive	LS	1	$7,600.00	**$7,600.00**
Directional, Informational & General Park	LS	1	$4,200.00	**$4,200.00**
2) Begin Park Pedestrian Circulation Network				
Concrete Sidewalk	SY	430	$63.00	**$27,090.00**
Road Crossings	Each	2	$1,200.00	**$2,400.00**
Earthen Path	SY	380	$19.00	**$7,220.00**
3) Begin Implementing Park Amenities				
Benches	Each	6	$725.00	**$4,350.00**
Trash Cans	Each	3	$560.00	**$1,680.00**
4) Begin Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$38,000.00	**$38,000.00**
5) On-site Compost and Recycling Area				
Building On-site Compost and Recycling Area	LS	1	$3,800.00	**$3,800.00**
6) Implement Darby Creek Stream Valley Park Trail				
Paved Multi-use Path	SY	1600	$52.00	**$83,200.00**
7) Riparian Buffer & Floodplain Restoration				
Darby Creek Restoration	LS	1	$16,500.00	**$16,500.00**
8) Develop Local Partnerships				
Delaware County Staff Time	LS	1	$8,200.00	**$8,200.00**
Phase I Total				**$211,640.00**

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) Implement a boardwalk over the wetland
4) Parking area improvements
5) Continue developing open spaces and lawn areas with native plant material and naturalized meadows

Table 4-4: Kent 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				
Concrete Sidewalk	SY	200	$63.00	**$12,600.00**
Earthen Path	SY	175	$19.00	**$3,325.00**
2) Continue Implementing Park Amenities				
Benches	Each	2	$725.00	**$1,450.00**
Trash Cans	Each	1	$560.00	**$560.00**
3) Boardwalk Over Wetland				
Boardwalk Implementation	LS	1	$85,000.00	**$85,000.00**
4) Parking Improvements				
Rework & Pave Parking Area	SY	1100	$93.00	**$102,300.00**
5) Continue Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$16,000.00	**$16,000.00**
Phase II Total				**$221,235.00**

Phase III – Long Term (15-30 Years)

1) Continue improvement and development of the park pedestrian circulation network
2) New pavilion areas
3) Implement a new maintenance building with built in restrooms

Table 4-5: Kent 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				
Concrete Sidewalk	SY	120	$63.00	**$12,600.00**
2) New Pavilion areas				
Implement Pavilions	Each	2	$32,000.00	**$64,000.00**
3) New restrooms and Maintenance Building				
Implement new Building	LS	1	$110,000.00	**$110,000.00**
Phase III Total				**$181,560.00**

APPENDIX K-1: KENT COUNTY PARK SOILS

Hydrologic Soil Group—Delaware County, Pennsylvania
(Kent County Park)

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**
Ch	Chewacla silt loam	C	5.3	42.0%
Me	Made land, schist and gneiss materials	B	4.6	36.1%
MkF	Manor soils, 35 to 60 percent slopes	B	2.8	21.8%
Totals for Area of Interest			**12.6**	**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*					
Ch—Chewacla silt loam														
Chewacla	0-9	-27-	-54-	15-20- 25	1.20-1.40	4.23-14.11	0.14-0.20	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	9-60	-19-	-54-	18-27- 35	1.20-1.50	4.23-14.11	0.14-0.18	0.0-2.9	0.0-0.5	.37	.37			
	60-64	—	—	5- 9- 12	1.20-1.50	14.11-141.14	0.04-0.08	0.0-2.9	0.0-0.5	.24	.24			
Me—Made land, schist and gneiss materials														
Udorthents, schist and gneiss	0-3	-27-	-54-	15-20- 25	1.00-1.45	0.42-4.23	0.14-0.18	0.0-2.9	1.0-2.0	.37	.43	4	5	56
	3-40	-20-	-54-	25-26- 35	1.30-1.60	0.42-1.41	0.14-0.20	3.0-5.9	1.0-2.0	.37	.37			
	40-60	-20-	-54-	25-26- 35	1.30-1.60	0.42-1.41	0.14-0.20	3.0-5.9	1.0-2.0	.37	.37			
MkF—Manor soils, 35 to 60 percent slopes														
Manor	0-3	-43-	-40-	10-18- 25	1.20-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	3-22	-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			
	22-60	-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*	
Ch—Chewacla silt loam														
Chewacla	85	C	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	80-100	70-100	65-100	55-95	22-35	2-12
			9-60	Silt loam, loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	80-100	75-100	65-100	55-85	22-35	2-12
			60-64	Stratified sand to silt	GM, ML, SM	A-1, A-2, A-4	0	0	25-100	20-100	20-85	15-65	15-35	NP-7
Me—Made land, schist and gneiss materials														
Udorthents, schist and gneiss	95	B	0-3	Silt loam	CL, CL-ML, ML	A-4	0	0-5	85-100	80-100	70-95	50-75	25-35	5-10
			3-40	Loam, gravelly silt loam, clay loam	ML	A-6, A-7-6	0	0-5	90-100	80-100	70-100	55-95	35-45	10-15
			40-60	Loam, gravelly silt loam, clay loam	ML	A-6, A-7-6	0	0-5	90-100	80-100	70-100	55-95	35-45	10-15

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*	
MkF—Manor soils, 35 to 60 percent slopes														
Manor	100	B	0-3	Channery loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	65-100	50-75	40-75	30-70	32-40	6-12
			3-22	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
			22-60	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 K-2: KENT COUNTY PARK ENVIRONMENTAL SURVEY

Delaware County Park Study
Kent Park
Environmental Resource Survey

Kent Park

Kent Park is located under the Lindburgh (Marple Street) Bridge along Darby Creek on an approximate 5.2-acre parcel. The park consists primarily of a 1.7 acre dog park and adjacent open maintained turf grass. The surrounding land uses consists of mixed urban land use such as commercial and high density residential. Steep slopes are located on the east and west boundaries of the park. Darby Creek flows northeast along the eastern edge of the park. This section of Darby Creek is designated as a Trout Stocked Fishery (TSF) by the Pennsylvania Department of Environmental Protection (PADEP). Designated use of a TSF is defined as "Maintenance of stocked trout from February 15 to July 31 and 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. Various trout species were observed during the site visit. Despite the TSF designation, the aquatic life is listed as impaired by PADEP because of urban influence from urban runoff causing flow variation, siltation, thermal modifications and flow alterations.

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 resources within the park consist of Darby Creek, the open grass meadow area, and a Palustrine Emergent Wetland.

Edit Note: In the Fall of 2012, the dam on the north side of the park was removed to settle the creek back into its original flow channel and a streambank restoration was undertaken to improve the bank and the vegetated riparian buffer.

The adjacent creek is a dominant feature and therefore a valuable resource for outdoor recreation. Several water dependent activities were observed in or along the stream by the public. People of all ages often feel the draw to the water. Because of this, the health of this stream is in the best interest of everyone. The urban influence has not only affected the aquatic life, but also the morphology of the stream. The channel is over widened through the park. This geometry results in a lack of aquatic habitat, stream form and function, and a decrease in dissolved oxygen due to higher temperatures. The west bank of the stream is slightly eroding with areas of acute erosion. The east bank is a steep wooded slope with rock along the toe of slope and appears stable. The stream has little riparian vegetation to prevent erosion. Riparian areas offer cover and habitat to aquatic life and provide shade to reduce stream temperature. There are a few willow trees near the edge of water and larger specimen trees along the top of bank. The herbaceous

vegetation layer along the banks is primarily grasses. However Japanese knotweed (*Polygonum cuspidatum)* was found throughout the creek bank corridor. Knotweed is classified by the PA Department of Conservation and Natural Resources (DCNR) as an invasive plant. This plant spreads through seeds and rhizomes and has the ability to out compete most other species. This creates a monoculture that has little value to wildlife. A riffle grade structure is located within the stream channel towards the northern boundary of the park. This was likely installed as a result of exposed or threatened sewer pipe(s) within the stream and to protect adjacent manholes.

The large grass meadows consist primarily of mowed turf grass. These meadows provide some recreational benefits but little habitat or environmental benefits. There is a small wooded strip located on a steep slope to the northwest of the meadows.

Springs were found along the floodplain. A spring and stormwater fed drainage feature is located along the toe of the wooded slope and drains towards the northeast and eventually meets the confluence of Darby Creek. There are significant pockets of emergent wetland that contain mostly cattails and wetland grasses. These areas are mostly undisturbed likely due to the inability for mowers to access these wet areas. Most of the soils found contain well drained alluvial sandy loam. The emergent wetland areas contain poorly draining soils with a higher clay content.

Recommendations: Typically, it is recommended that a 50 foot portion of area along the top of bank be preserved as a forested riparian buffer. However, because of site constraint and access demands, it is recommended that a planting plant that accommodates the narrow corridor and access demands of the creek. Riparian vegetation has many benefits including a reduction of erosion, runoff, natural aesthetics, habitat and increased water quality. The existing tree plantings are an initial step in that direction.

It is recommended that areas of severe erosion be stabilized to reduce further environmental degradation. The stream dimensions can be corrected while increasing fish habitat by utilizing PA Fish & Boat Commission's "Habitat Improvements for Trout Streams". Furthermore the PA Fish & Boat Commission can provide technical assistance and some material and modest financial support to increase fish habitat particularly in trout streams. Many of these structures also function as bank stabilization and increase the function of the channel. Variations of rock and log deflectors can produce vast improvements without expending much effort or funds. Also adding woody debris would provide much needed in stream habitat and cover for trout. Work conducted within the channel and floodplain typically require permits from PA Department of Environmental Protection and the U.S. Army Corps of Engineers.

It is recommended that future riparian efforts include a no mow area and native plant seeding. Establishing native meadow areas has many benefits including creating wildlife habitat, increasing aesthetics and reducing maintenance by eliminating mowed areas. Meadows also present a unique opportunity for education and provide critical wildlife habitat that is rare in urban areas.

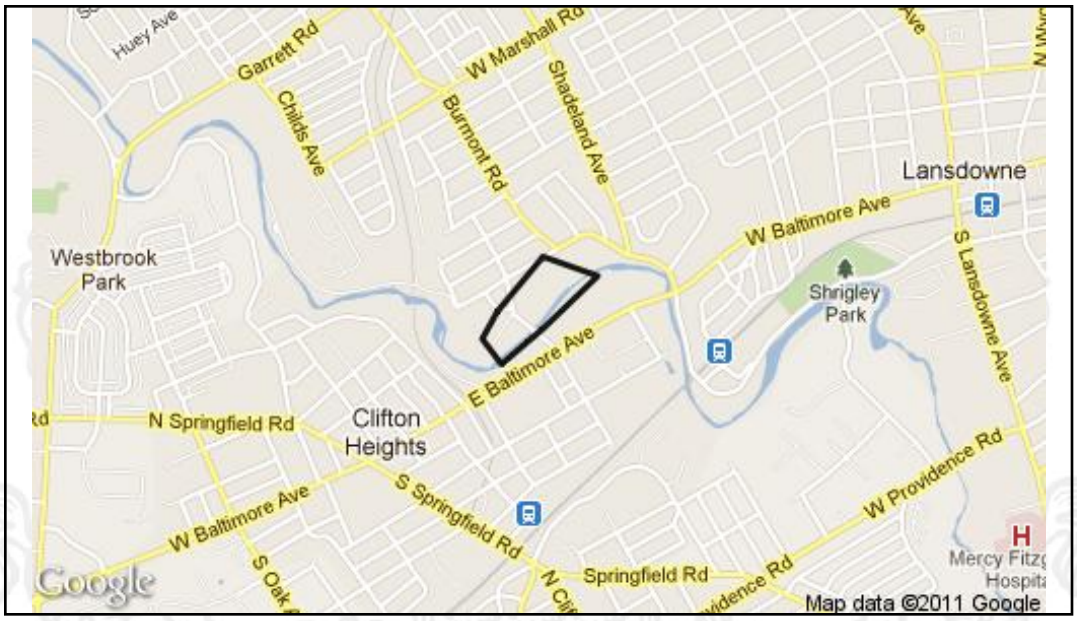
Delaware County Park Study
Kent Park
Environmental Resource Survey

It is recommended that the wetlands be delineated and protected/conserved. A planting plan with an interpretive trail has great potential in this area. Wetlands contain a unique ecology and provide specific wildlife habitat and provide valuable benefits such as flood storage and stormwater infiltration/filtration. These wetlands provide a rare opportunity to educate and connect the public to wetland science in an urban setting. It is also recommended that, if necessary, wetland impacted within the watershed could expand these wetlands for wetland mitigation.

No wetlands were found 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: **Kent Park**
Date of review: **8/16/2011 11:44:08 AM**
Project Category: **Recreation,Other**
Project Area: **16.9** acres
County: **Delaware** Township/Municipality: **Clifton Heights,Upper Darby**
Quadrangle Name: **LANSDOWNE** ~ ZIP Code: **19018,19026**
Decimal Degrees: **39.935407 N, -75.291109 W**
Degrees Minutes Seconds: **39° 56' 7.5" N, -75° 17' 28" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

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

PA Fish and Boat Commission

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

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.

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