

Riverfront Park

December, 2011



Prepared For:
Municipality of Norristown
 Montgomery County,
 Pennsylvania



Prepared by:
JMT
 JOHNSON, MERRIMAN & THOMPSON
Engineering A Brighter Future™

10-0388-001

In association with

 **Toole Recreation Planning**

Acknowledgements

The following individuals foresight, perseverance, and continued interest in the project during the planning process were vital in shaping the park master plan.

Norristown Planning Department

Jayne Musonye	Director of Planning, Municipality of Norristown
Henry Sekawungu	Assistant Planning Director, Municipality of Norristown
Mike Allen	Senior Grants Coordinator, Municipality of Norristown

Study Committee

Brian Wayne Bell	Danielle Breda	Mary Ellen DiGregorio
Joel Elgen	John Faker	Carla Faker
David Forrest	Anna Gellman	Mike Gellman
Stephen Graves	Kimberly Lane	Andrea Nash
Christine Perry	Paula Robinson	Debbie Ross
Robert Ross	Doris Smith Starks	Edward Turner
Jim Watters	Mary L. White	Mike Zanders



A handwritten signature in black ink, appearing to read "Andrew A. Mears".

Funding for this Master Plan provided by:

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

Table of Contents

Current Scenario	1
Recommendations	3
Implementation and Cost Analysis	9
Operations, Management and Security Plan	13
Appendices	25
Appendix A: Planning the Park	27
Appendix B: Park Goals and Needs Assessment	31
Appendix C: Site Inventory	39
Appendix D: Photo Inventory	67
Appendix E: Alternate Designs	87
Appendix F: Development Cost Estimates	97
Appendix G: Applying Sustainability	127
Appendix H: PECO Standards	149
Appendix I: Topographic Survey	167
Appendix J: Newspaper Articles	169

This page left intentionally blank

Introduction

Parks are the crown jewels of municipalities. If designed and managed effectively, they can serve as the central gathering places for the community much as “Main Street” did in years past. Parks are more than just ball fields and playgrounds that children use in the summer – they are year-round hubs for creating healthy family bonds, reducing the isolation of the elderly, contributing to youth development, experiencing nature, and building a sense of community. To that end, parks need to be clean, safe and inviting.

As we experience the current economic crisis, parks are more important than ever. Public parks and recreation systems across the state are reporting increases in park visitation, camp reservations, league sports, and summer programs for children. Norristown Borough’s establishment of its public park system could not have come at a better time. Planning for their management and operation will enable the Borough to invest wisely, create partnerships, formulate policies, and develop an array of management methods that will make the best use of the limited budget and staff available. Parks are an investment not a cost. They bring a return to the community through increased property values, deterrence of crime and juvenile delinquency, and by offering a host of fun things to do close to home for people of all ages and abilities. Parks and recreation puts years in your life and life in your years!

Current Situation

Riverfront Park serves as an important landmark in Norristown as well as for the Susquehanna Greenway and Heritage Area. The park could give the Municipality a strong sense of place serving as a community focal point that is unique to Norristown. Through its

revitalization and enhanced programming and operation, the park can help to increase property values, attract new businesses, stimulate the local economy, create a magnet for tourism, retain and attract citizens, increase the quality of life, decrease anti-social behavior, improve public health, and enhance the environment in the park and in the neighborhood.

As a beloved park treasured by the community for many generations, residents use the park year round. The Municipality recognizes the importance of parks and recreation to the quality of life here having undertaken major recent planning and park improvement projects.

This page left intentionally blank

The planning process revealed the enhancements and improvements desired by the residents of the Borough for the redevelopment of Riverfront Park. The Park Master Plan was developed in its final form after careful consideration of the site analysis, input from key person interviews and the study committee, review of the conceptual alternatives and pre-final master plan, and consideration of comments provided by the public.

Park Design Concept

The design concept for the redevelopment of Riverfront Park seeks to meet immediate needs for comfort and support facilities for the existing uses, while strategically planning for long-term sustainable improvements. The concept strives to enhance popular activities such as fishing and boating, introducing more passive recreational opportunities, and connecting with existing recreational activities.

The natural aspects of the site have been enhanced to provide environmental educational opportunities through interpretative signage, improved wildlife habitat, improved riparian buffers along the streams, and provide an attractive setting for leisure activities along the waterfront.

The design accomplishes the following:

- Provides increased opportunities for bank fishing.
- Reconnects the park to the surrounding neighborhood, adjacent Crawford Park and regional trail.
- Integrates the park into the regional framework of the Schuylkill River Trail.
- Provides enhancements to existing boat launches and introduces new launch areas for non-motorized boaters.
- Provides a continuous loop trail system that links to the existing established circulation routes while providing multiple

trail related recreation opportunities.

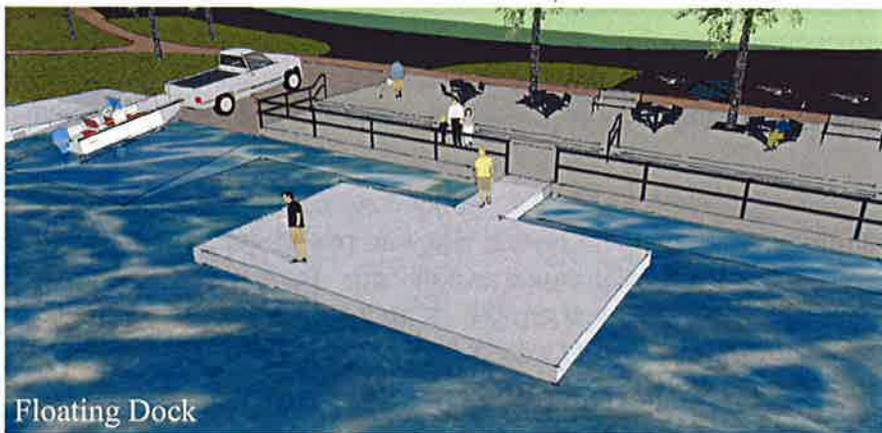
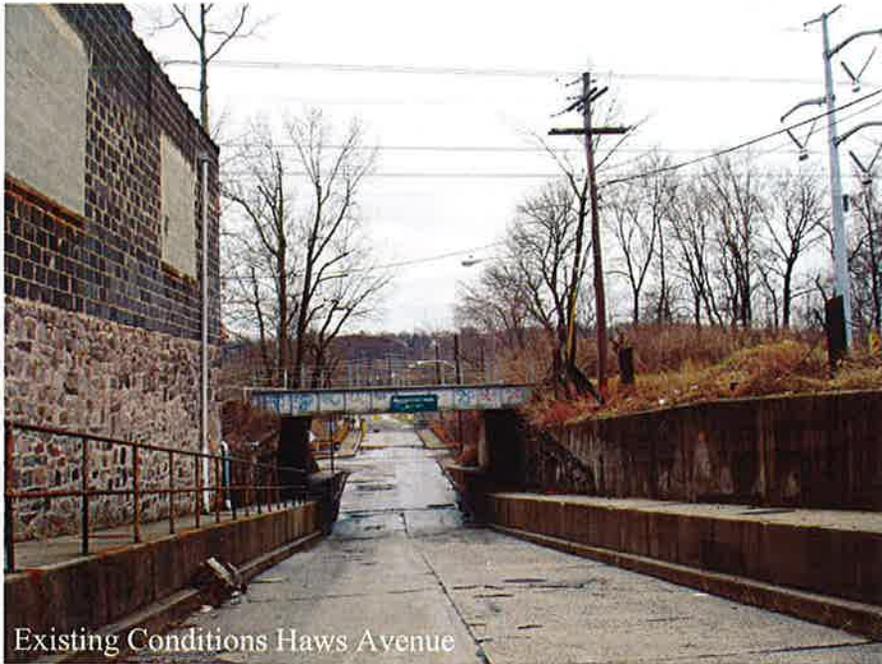
- Reduces stormwater runoff through better control and management if direct discharge to the river.
- Provides facilities for lifetime leisure activities, such as walking, hiking, and picnicking.
- Locates parking areas in convenient locations throughout the park.
- Respects previous planning and implementation for park facilities.

The culmination of the master planning process led to the development of a master plan that is reflective of the public and community's input regarding redevelopment of the park. The design is consistent with the goals and objectives established through the public participation process. In conclusion, the master plan accurately reflects the findings and current recommendations for implementation of a design that meets the community's needs.

The following sketches highlight various areas of the park redesign.



Recommendations



Recommendations



Recommendations

Riverfront Park MASTER PLAN



Legend

- 1 Canoe / Kayak Launch
- 2 Portable Toilet Facility & Bicycle Rack
- 3 Potential Partnership Opportunity
 - Restrooms
 - Parking
 - Related Trail / Park Business
- 4 Picnic Area
- 5 Overlook / Public Art Display
- 6 Open Lawn
- 7 Floating Dock
- 8 Trailer Parking 8/12
- 9 Parking 26/43
- 10 Stone Protection / Stone Seating / Bank Fishing
- 11 Boarding Dock
- 12 Entrance Signage / Information Kiosk
- 13 Park Entry One Way In
- 14 Crawford Park Connection
- 15 Schuylkill River Trail

Legend - Existing Conditions

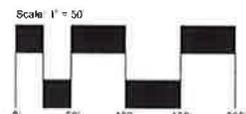
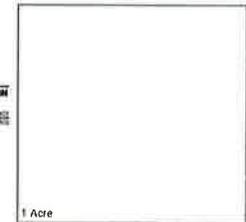
- Centerline
- Tract Boundary
- Property Line
- Legal H.O.W. Easements
- Existing Contour
- Existing Water Line
- Existing Sanitary Sewer Line
- Existing Sanitary Force Main
- Existing Telephone Line
- Existing Gas Line
- Existing Electric Line
- Existing Storm Sewer/Inlet
- Existing Manhole
- Existing Curbline
- Utility Pole
- Existing Valve, Vent, Co.
- Water Surface Elevation Line
- 100 Year Flood Plain

General Notes

1. The park area is owned by the Borough of Norristown and consists of approximately 3.6 acres.
2. The site plan base mapping was developed utilizing GIS information as provided by the Pennsylvania Spatial Data Access and topographic survey plan dated December 22, 2010 as prepared by Joseph M. Estock, PE, PLS.
3. Site boundary compiled from deed plots and as shown on topographic survey plan dated December 22, 2010 as prepared by Joseph M. Estock, PE, PLS.
4. A review of the National Wetlands Inventory Mapping indicates that there are no wetlands on site.
5. The site consists of U2 - Urban Land. According to the NRCS Soil Survey, there are no listed limiting factors for recreation development.

Prepared for:
Norristown Borough
Montgomery County, PA
December 2011

Prepared By:



Recommendations

Potential Future Building Site

The concept of providing a Multi-Use Structure that could provide comfort facilities and accommodate park related business and services was discussed by the Study Committee and also explored as part of the conceptual design process. Although there is a strong need for a permanent restroom facility at this location, there are severe site limitations that prohibit the development of a structure on most areas of the site.

Over 90 percent of the site lies within the floodplain and access is limited due to the severe grade changes. There is an area outside of the floodplain that can serve as a potential building site. However, this area has limited access, limited width, and would require access agreements across the adjacent PECO property. This location also does not have a direct relationship with the park, as it sits approximately 25 feet above the main park area and would require an extensive system of walkways, steps and ramps to provide access from the lower portion of the park.

Based on the site limitations presented, the Study Committee recommended that opportunities for the development of permanent restrooms, additional parking, and trail and park business opportunities should be explored as part of redevelopment efforts associated with the vacant buildings along Washington Street.



This page left intentionally blank

Implementation and Cost Analysis

The development of the park is anticipated to occur in several phases. Typically park development is phased based on community need, funding opportunities, logical sequences of construction, and considerations for how the park will function. As funding is available, needs change in the community, or opportunities present themselves, the sequence of development may change. During the period of time that the plan will be implemented, it is important for the Borough to remain flexible and adapt to these changes as they move forward with implementation of the Master Plan.

Cost Summary

Costs for the proposed improvements were compiled based on the development phases shown on the following page.

Costs are based on prevailing wages for year 2011 construction prices. A fifteen percent contingency and a fifteen percent professional design fee has been included in each estimate. An inflation factor has not been included in the phased costs.

A detailed opinion of probable development costs for each phase has been included in Appendix F.

Module A	\$263,931 Overlook / Public Art Display Area, Open Lawn and Trail Connections
Module B	\$38,695 Portable Restrooms and Trail Connections
Module C	\$184,098 Canoe / Kayak Launch, Parking and Bank Fishing Improvements

Module D	\$170,423 Picnic Area, Pavilion, and Parking
Module E	\$238,559 Main Parking Area Reconstruction
Module F	\$380,612 Shoreline Improvements
Module G	\$292,725 Secondary Vehicular Entrance

Total costs : \$1,569,043

Catalyst Projects:

It is important to identify and develop projects that can easily be implemented shortly after adoption of the master plan to maintain momentum and show commitment to the overall success of the master plan. Redevelopment of the park will engage interest from the private sector and spur redevelopment opportunities in the surrounding area.

The following catalyst projects were determined based upon the following criteria:

- a) Located within the park proper
- b) Meets immediate goals of the community
- c) Complements and parallels other planning initiatives
- d) Minimum financial investments

Implementation and Cost Analysis

We recommend that the Municipality move forward with the following planning, design, and engineering projects in 2012:

1. Provide temporary restroom facilities.
2. Clear invasive species, remove debris, and open selective views to the riverfront.
3. Begin coordination with jurisdictional agencies regarding the need for dredging of the dam pool.
4. Develop a maintenance plan for cleaning the boat launches following flooding events.
5. Contact PECO and begin coordination access and maintenance agreements regarding work and facilities within the right-of-way.
6. Develop design guidelines for private/public partnerships for riverfront improvements.



View to River

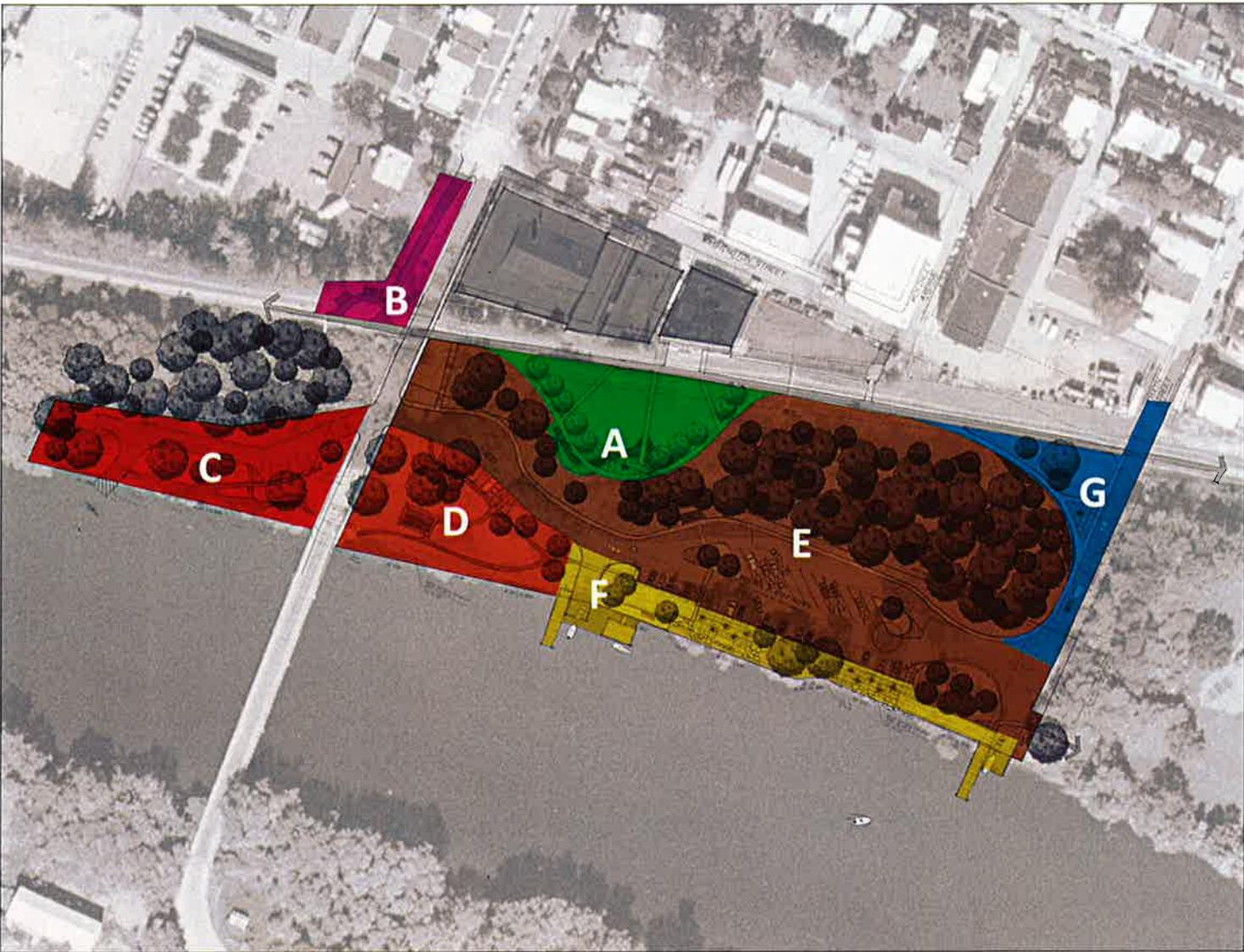


Sample Portable Restroom Enclosure



View to River

Implementation and Cost Analysis

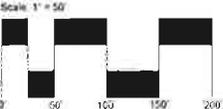


Riverfront Park PHASING MODULES

- Legend
- Module A
 - Module B
 - Module C
 - Module D
 - Module E
 - Module F
 - Module G

Prepared for:
Norristown Borough
Montgomery County, PA
December 2011

Prepared By:
JMT
JUNYON, BERKMAN & THOMPSON
Engineering, Planning & Architecture
100 S. 10th St., 4th Floor, Norristown, PA 19381
www.junyonberkman.com



Implementation and Cost Analysis

This page left intentionally blank

Operations, Management and Security Plan

As our country faces the harsh reality of today's economic downturn, the Municipality of Norristown's challenges in operating parks and recreation require innovation, partnerships and a mix of public and private support. This operations, management, and security plan offers the Municipality an opportunity to look at current ways of doing business along with future directions and practices that build upon its successful practices in public service, parks and recreation.

Plan Purpose

The purpose of the Operations and Management Plan is to establish the foundation, strategies and actions required to revitalize Riverfront Park and establish its successful operation in the future.

The Operations, Management, and Security Plan is the result of a lengthy process that involved considerable public participation, work sessions with municipal management and staff, discussions with community leaders, involvement of the Plan Study Committee, security planning with the Police Department, and research. The research into urban types of park systems shows that parks are vital to the quality of life and essential in attracting and retaining residents and businesses. Some of the strategies used in the successful revitalization of community parks include the following:

1. Parks must rank high on the political agenda to get funded.¹
2. The public is involved in the planning, design and operation of the park.
3. The design conveys a strong vision and purpose for the park.
4. The parks are programmed with many and varied activities for visitors of all ages.
5. The parks and each of its facilities is clean. Clean, attractive appearance is crucial to a park's success and positive perception by the public and the business community.

6. A mix of public and private funding sources support park improvements and operation.
7. Community parks are an organizing element for initiatives such as economic development, neighborhood improvement, increasing livability of the municipality, tourism and so on.
8. Parks & Recreation departments, boards, directors and staff must play a leadership role in insuring that parks are part of overall community and economic planning.²

Current Operations

Parks and recreation planning, management, maintenance and service delivery are functions of several municipal departments: Planning, Recreation and Public Works.

Policy and Planning

The Municipal Council sets policy and direction for Norristown's parks and recreation system. The Borough Manager implements policy, directs planning, and oversees daily operations. The Administration Department is responsible for overseeing all departments within the Municipality and works to provide the residents of Norristown a progressive, efficient, economical and responsive government. This department is responsible for preparing and setting of the Municipal Council's agenda and general correspondence. The Planning & Municipal Development Department managed the Riverfront Park Mater Plan in accordance with their departmental objectives:

¹Harnik, Peter. (2000) Inside City Parks. Washington, D.C.: Trust for Pubic Land. p xi.

²Garvin, Alexander and Berens, Gayle. (1997) Urban Parks and Open Space. (New York: Urban Land Institute) pp 36-40.

Operations, Management and Security Plan

Short Term Strategies/Objectives

- ◆ Rehabilitate and upgrade the housing stock and improve the quality of life in residential areas
- ◆ Promote economic development
- ◆ Eliminate conditions detrimental to the public's health, safety, and welfare
- ◆ Upgrade and replace antiquated community infrastructure
- ◆ Promote the preservation of historic structures and neighborhoods

Long Term Strategies/Objectives

- ◆ Improve the economic base of the community so that Norristown will become economically self-sufficient to an extent that will allow the local government to provide an adequate level of services to all its residents.
- ◆ Enhance neighborhood values by keeping them physically sound and visually attractive, and by providing recreational facilities and other amenities that will have a positive effect on the quality of life. And also eliminate conditions detrimental to the public's health safety and welfare.
- ◆ Preserve and enhance the unique historic, architectural, and cultural features that characterize Norristown.

For this park master plan project, Municipal Council appointed a study committee reflecting diverse interests in the community such as parks and recreation board members, long-time residents, newer residents, families, community development and the general citizenry.

Operations and Management

Organizationally, park operations and management fall under the purview of Public Works Department for park maintenance and the Recreation Department for programs and services. The Director of Public Works is responsible for planning, directing, and controlling park operations and maintenance. The Foreman carries out the supervision and direction of daily maintenance activities and special projects. The Public Works staff includes 20 workers who perform maintenance tasks.

Security

Municipal Police report that the park is used year-round. The officers patrol the park.

Recreation

The Recreation Director manages recreation programs and services. Norristown offers wonderful outdoor experiences - fishing and boating on the Schuylkill River, hiking, biking, and exploring nature on the Schuylkill River Trail, and playing and socializing in the public parks. The Municipality has an outstanding Police Athletic League and is well known for the active bocce and softball leagues.

Funding

Norristown Borough demonstrates its commitment to parks and recreation through its annual appropriation for public recreation. Table 1 presents Norristown's budget for parks and recreation.

Operations, Management and Security Plan

Table 1 Norristown Budget Parks, Recreation and Total Municipal Expenses 2011	
Expenditures	Budget \$
Parks	
Laborers	69,005
Temporary Help	15,000
Overtime	11,500
Heating fuel	2,000
General Operating supplies	5,000
Electricity	25,000
Water	20,000
Maintenance and repair supplies	15,000
Maintenance repairs	7,000
Total Parks	169,005
Recreation	
Salary: Supervisor	45,300
Temporary help	47,000
Seasonal Temporary help	11,000
Overtime	4,000
Office supplies	3,000
Uniforms	400
Dues/Memberships/Subscriptions	1,000
Buy back sick time	2,300
Recreation supplies	15,000
Recreation material	13,200
Rental of equipment	15,000
Capital Outlay	5,000
Fireworks	22,500
Total Recreation	184,700
Total Parks and Recreation	353,705
Total Operating Budget (without capital)	348,005
Total Municipal Budget	29,420,910

Table 2 presents the revenues generated through fees and charges. These total \$13,300.

Table 2 Norristown Parks and Recreation Non-Tax Revenues	
Revenues	2011
Gate receipts from fireworks	\$4,700
Recreation Department Receipts	5,800
Softball permit	1,000
Park Pavilion Permit	1,800
Total	\$13,300

Funding Comparisons

The Municipality spends \$10.14 per capita for parks and recreation annually. In comparison, the average per capita expenditure for parks and recreation in Municipalities statewide is about \$27. The national average is \$65. The Municipality allocates about 1.2 percent of the total budget to Parks and Recreation, about half of the national average of two percent. In cities in which the business sector views parks and recreation as an asset to the community, the municipalities are investing five per cent or more. Norristown is struggling with its budget overall. Departments including Police and Parks have less staff than in the past due to financial challenges.

The Municipality invests about \$169,500 in park maintenance for tasks to take care of the parks without any capital costs. This is about \$1,000 per acre in park maintenance annually. Typically municipalities spend about \$1,500 to 3,000 per acre with more urbanized communities spending over \$10,000 per acre for major park sites with high visitation.

Guiding Principles

The following guiding principles were developed as the foundation for the recommendations for the strategic revitalization, management and operation Riverfront Park. The Guiding Principles should serve as the foundation for all future actions and decision-making.

1. Riverfront Park is a community focal point and a regional asset.
2. The Municipality cannot undertake the rehabilitation and management of the park over time with its own municipal resources. A combination of public and private funds and support needs to be generated.
3. Stewardship for the park needs to be cultivated with many partners working collaboratively with the Municipality. Civic responsibility nurtured among the Municipality, the private sector and the community will be the key to revitalizing Riverfront Park. The fact that civic interest and support for Riverfront Park already exists is evident in the involvement of community leaders in this park master plan.
4. Strong leadership is needed.
5. The revitalization of Riverfront Park should be directly connected to the overall economic development planning for Norristown.
6. The park has to serve a broad base of park visitors including the neighbors, residents from throughout the community, program participants, trail users, and visitors from outside Norristown wanting to get to the river, and tourists who would visit as part of Pennsylvania's push to foster tourism as the state's second leading industry.
7. The park needs to be managed as both a civic space and as a business. Additional revenue sources should be pursued. This should be done as public private partnerships.
8. The Municipality needs a point person to act in a strong

leadership capacity to lead the way in creating the future of Riverfront. This includes the cultivation, support and recognition of partners.

What This Plan Does

Overall the Strategic Plan for Operations and Management of Riverfront Park is a tool to:

- ◆ Focus on the major issues and opportunities for the revitalization and future operation and management of the park.
- ◆ Guide the Municipality, community leaders, organizations and individuals in working towards a common vision and goals.
- ◆ Provide a general direction for future actions, policies, operating procedures and collaborative efforts regarding the park.
- ◆ Help decision-makers formulate the steps they will take to advance the revitalization of Riverfront Park.
- ◆ Build upon the successful management practices in effect now with an eye towards formalizing and institutionalizing those changes in order to create stability through personnel, management, and political changes.

What This Plan Does Not Do

- ◆ Does not make decisions about the park master plan, specific areas of the park or programs.
- ◆ Does not offer specific recommendations about staff, numbers of employees, maintenance or program procedures and policies. It is a strategic plan.
- ◆ Does not preclude future actions or recommendations based upon changing objectives and opportunities. The plan is meant to remain open and flexible as a living document.

Operations, Management and Security Plan

Maintenance Goals

The goal of park maintenance in Riverfront Park is to provide clean, safe, and attractive facilities for the healthful and enjoyable use by the community through implementation of an efficient and effective management program.

The following guidelines can formalize Norristown's approach to park maintenance operations, which is routinely conducted at a basic level of service. The guidelines would apply to both municipal employees and contractors and for volunteers who assume responsibility for park maintenance tasks. These guidelines formalize the staff's commitment to their current level of care for the parks.

1. All maintenance will be accomplished in a manner displaying respect and concern for the environment as well as public and private property. Maintenance practices that are rooted in a strong conservation ethic are to be instituted.
2. Maintenance tasks will be accomplished in a way that does not endanger the health or safety of the employees nor the public.
3. All maintenance tasks will be performed as quickly and economically as possible without any loss in efficiency.
4. All equipment and materials will be operated and maintained in such a way as to insure safe, effective use and long life.
5. Work will be scheduled in such a manner as to make the most use of the resources of other community organizations who are involved or who may become involved.
6. Preventive maintenance will be used in a continuing effort to avoid major problems and correct minor ones.
7. All maintenance work will be performed with a sense of pride.

Maintenance Standards

Maintenance standards set forth the level of care that park and recreation facilities receive.

Importance of Assigning Maintenance Standards

Assigning maintenance standards will enable the Municipality to maintain the parks in a defined manner with respect to needs and resources. Targeting the level of care will enable Norristown to direct resources to the most important tasks and services. The maintenance standards provide a common frame of reference for the community including elected and appointed officials, township employees, maintenance staff, park advisory committees, contractors, partners, sponsors, park visitors and the citizens. The common agreement will facilitate discussions and communications about the parks and their level of care. This will enable elected and appointed officials to establish and implement policies on use, fees and charges, volunteer requirements, staffing levels, contractual service requirements, and other issues that may emerge. It will also enable the Township to communicate with the public about the capacity of the municipality to undertake actions in response to citizen demands on the park, park maintenance tasks, natural resource protection actions, and requests for additional facilities and/or services.

National Recreation & Park Association Standards: An Approach

The National Recreation and Park Association advocates a system of maintenance modes for parks. Modes refer to the "way of maintenance" ranging from most intensive to least intensive. Most of the developed areas of the parks will be maintained at the Mode III level with some exceptions at the Mode II level. The natural

Operations, Management and Security Plan

areas would be maintained at a combination of the Mode V and VI levels with respect to visitation in different sections of the natural areas. The Township can use the modes as guidelines to direct resources towards where the need is greatest and the benefit the most. The modes range as follows:

Mode I - State of the Art Maintenance

Mode II - High Level Maintenance

Mode III - Moderate Level Maintenance

Mode IV - Moderately Low Level Maintenance

Mode V - High Visitation Natural Areas

Mode VI - Minimum Level Maintenance

Inspections - Mode I - The current practice of park inspection of the active areas is daily inspection. This should continue. Experience of this Park and discussion with Crawford Park staff found that having an on-site presence during peak use would be valuable in deterring vandalism and conveying strong public perception that the park is safe.

Turf Care - Turf care for the parks would include: ball fields and general park areas.

- ◆ Park areas - Mode II - Mowed every five working days but only receives annual aeration. Weed control is done through pre-emergent products and seeding done when bare spots are present.
- ◆ Natural Areas - Mode VI - Not mowed.

Disease and Insect Control - Modes would vary by facilities.

- ◆ General Park Areas - Mode III - When the health or survival of plant materials is threatened or there is an issue of comfort of park visitors control measures may be taken. Disease and insect

control is done usually on a complaint basis.

Forestry - A forestry management program should be developed. The forestry program would provide a short, medium, and long-range management program for this important asset. This could be part of an overall park forestry program. The township may be able to get assistance from the organizations listed previously.

Floral Planting - Mode V - Floral planting should only be introduced where there is a community group to maintain them in accordance with a written agreement.

Tree and Shrub Care - Mode III - When required for health or reasonable appearance. With most tree or shrub species this should not be more than once every two to three years.

Litter Control - Mode II - Litter is picked up twice a week during peak season, weekly during non-peak, and monthly in cold weather months.

Surfaces and Paths - Mode II - When appearance has noticeably deteriorated, the surfaces should be cleaned, repaired, or replaced.

Repairs - Mode III - When safety, appearance or function is an issue, repairs are made.

Restrooms - Mode I - Contracts with the Porta-Potty provider would spell out daily maintenance requirements.

Operations, Management and Security Plan

Maintenance Budget Estimate

The maintenance budget must reflect the desired condition of park facilities in accordance with the financial resources available. The maintenance budget to a large extent dictates the quality of the park in terms of maintenance, appearance, beauty and safety. Estimating what the park will cost to maintain helps in decision-making, staffing, setting of fees and charges, policy formulation, budget planning, resource allocation and securing non-traditional methods of supporting park operations such as partnerships.

Cost Basis

Wages comprise most of the cost of park maintenance. The hourly maintenance wage rates for park maintenance staff are averaged out at \$17 per hour by the Municipality. However, the Parks and Recreation budgets do not include benefits. Benefits are listed under the municipality's administrative budget. For purposes of this plan, 35 percent of the hourly rate is being added on to show the true employment costs at \$6 for a total hourly rate of \$23.

Two agencies provide useful cost standards for the use of equipment for maintenance in the public sector: PennDOT and FEMA (The Federal Emergency Management Administration). PennDOT publishes equipment rates in its publication 408. FEMA provides a schedule of equipment rates that can be used as the basis for projecting the cost of equipment needed to maintain the parks. The rates on this Schedule of Equipment Rates are for applicant-owned (such as municipalities) equipment, which is in good mechanical condition, complete with all required attachments. Each rate covers all costs eligible under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. § 5121, et seq., for ownership and operation of equipment, including depreciation, overhead, all maintenance, field repairs, fuel, lubricants, tires,

OSHA equipment and other costs incidental to operation. This can serve as a useful basis for cost projections until the borough has determined its own specific equipment rates for park maintenance. For the purposes of estimating the cost of park maintenance, this plan assumes a rate of \$35 per hour for large equipment such as mowers and trucks and \$15 per hour for small equipment such as trimmers.

Table 3 presents the estimated hourly labor and equipment costs by task for Riverfront Park.

Utility Costs and Efficiency

A goal of the Riverfront Park Advisory Committee is to use solar powered lighting, a recommendation included in the plan. Parks in the area such as Harriet Wetherill Park in Plymouth Township have utilities that are "off the grid" in terms of utility costs for electricity. The plan also recommends the use of solar-powered trash cans that will eventually reduce the cost of litter removal and pay the capital costs of the trash can purchase. Because of the fluctuation in energy prices, this plan recommends developing a cost projection for energy when a major capital item is being specified for construction. The equipment supplier could work collaboratively with the Municipality to determine the operating costs for park lighting.

Estimated Labor and Equipment Costs for Riverfront Park

The Municipality of Norristown is already investing in the maintenance of Riverfront Park. The costs projected are not new costs but do represent a greater investment in caring for the park through a mix of public and private resources. Since no costs are tracked for labor, materials and equipment of any of the municipal

Operations, Management and Security Plan

parcs, the costs projected are based upon the level of care to be provided upon the complete revitalization of the park in accordance with the master plan.

The Public Works Department mows the grass, picks up litter and removes trash, sweeps the paved parking areas, cleans the boat ramps, and restores the park after flood damage. The crews operate under a philosophy of taking care of the park as “if it were your own home.” Over the years as use and desirable park conditions declined, the once treasured park gained a negative public perception as an unsafe place that was not such a nice place to spend time. Memories of the once grand park complete with a ferry spur public interest in once again attaining the status of the park as a great public place.

Table 3 Riverfront Park Maintenance Task Budget: Labor and Equipment						
Maintenance Task	Units	Units/ Hour	Total Hours/ Task	Frequency x Hours	Hourly* Rate (\$)	Total Cost (\$)
General Park Areas						
Grass Cutting & Trimming – In the most visible, high use areas. Emphasis here is on naturalization						
Labor	Park	1/4hrs	1 X 4 = 4	4 X 30 = 120	23	2,760
Equipment		1/8hrs	“	4 X 30 = 120	35	4,200
<i>Total mowing</i>						6,960
Litter Control						
Pick-Up Labor	Focus Points	1 hr	1	150 X 1 = 150	23	3,450
Transfers - Labor	6 barrels	1 / ¼ hr	6	150 X 1.5 = 225	35	7,875
<i>Total Litter Control</i>		<i>Note: These costs are for traditional trashcans, not solar powered.</i>				

Maintenance Task	Units	Units/ Hour	Total Hours/ Task	Frequency x Hours	Hourly* Rate (\$)	Total Cost (\$)	
General Park Inspection							
Labor	Park	1 / 1 hr	1	150 x 1 = 150	23	2,760	
Equipment		“	“	“	35	5,250	
<i>Total Inspection</i>						8,010	
Pavilion							
Inspections	1 pavilion	1 / .25 hr	1 X .25 = .25	36 X .25 = 9	23	207	
Cleaning	“	1 / .5	1 X .5 = .5	36 X .5 = 18	23	414	
<i>Total Pavilion Cleaning</i>						621	
Docks – two boarding docks and one floating dock							
Cleaning – power wash	3	1 / 2 hr	3 X 2 = 6	2 X 6 = 12	23	276	
Equipment	“	“	“	“	35	420	
<i>Total Dock Cleaning</i>						696	
Porous Bituminous Trail							
Annual Prep - Labor	.59 mi	1/18 hr	.59 X 18 = 5.94	1 X 6 = 6	23	138	
Equipment	“	“	“	“	35	210	
Routine - Labor	.59 mi	1/ 5 hr	.59 X 5 = 2.95	4 X 3 = 12	23	276	
Equipment	“	“	“	“	35	420	
<i>Total Trail - Bituminous</i>						1,044	
Paved Surfaces Existing plus 112 sq. yd additional lot, based upon current maintenance practices							
Inspection, Sweeping, Cleaning - labor	Site parking	1 hour current plus additional hour for extended parking and enhanced maintenance.		2 X 1 = 2	60 X 2 = 120	23	2,760
Equipment	“	“	“	“	35	4,200	
<i>Total paved surfaces</i>						6,960	

Operations, Management and Security Plan

Maintenance Task	Units	Units/ Hour	Total Hours/ Task	Frequency x Hours	Hourly* Rate (\$)	Total Cost (\$)
Site Furnishings						
Bicycle Racks Annual Preparation	4	1/5 hr	4 X 5 = 20	1 X 20 = 20	23	460
Routine	4	1.25	4 X 1.25 = 5	4 X 5 = 20	23	460
Game Tables Annual Preparation	10	1/5 hr	10 X 5 = 50	1 X 50 = 50	23	1,150
Routine	10	1/1	10 X 1 = 10	6 X 10 = 60	23	1,380
Park Signage Routine & Repair	System	4 hrs.	1 X 4 = 4	4 X 4 = 16	23	368
Total Labor Hours and Cost				868	23	19,964
Total Equipment Hours and Cost				414	35	14,490
TOTAL COST Labor and Equipment				1,282		34,454
Emergency Park Clean Up						
Per flood event - Labor	Park	160 hours	1 X 160 = 160	1 X 160 = 160	23	3,680
Equipment	"	80	80	1 X 80 = 80	35	2,800
<i>Total per Flood Event</i>						5,480

Estimated Riverfront Park Budget

The Municipality of Norristown operates under a budget of strong fiscal conservatism. A declining tax base and escalating costs for operating municipal services has led to decreases in staff over the last decade. Therefore, it is more important than ever for parks and

recreation to have the leadership necessary to generate a mix of public and private support for park operations. With parks being a significant factor in economic development, investing in a high quality of facilities will help the Municipality to achieve its goals regarding community revitalization. Table 4 presents an estimated budget for Riverfront Park. Once again, it is important to note that these are not new costs since the Municipality is already maintaining the park.

Table 4 Riverfront Park Estimated Operating Budget	
Item	Amount \$
Personnel - Maintenance	19,964
Equipment	14,490
Employee Development (training)	3,500
Park Materials and Supplies	8,000
Equipment Repair	2,000
Utilities - goal is to be solar powered	To be determined
Security – Police Department	In Police budget
TOTAL	\$47,954
Contingency	\$4,800
TOTAL	\$52,754
CIP Reserve Budget – 2% of development costs <i>annually</i> in fund dedicated to cyclic repairs and park improvements.	To be determined based upon phases of construction
Additional Items	
Employee Development (training for the park maintenance system)	3,500
Development and management of Volunteer Program	Staff time
Emergency Repairs post flooding	7,500

Table 5 presents the projected revenues for Riverfront Park. Challenges in generating revenues in Norristown include the small park size and the ability of many residents to pay to participate in recreational activities and programs. However, this is a premier site along the Schuylkill River and riverfront parks in cities elsewhere have found programming to be a significant source of public support and funding. Creativity and consistency in events and programs here will increase non-tax support.

Table 5 Riverfront Park Potential Revenue Sources	
Item	Projection
	\$
Pavilions – rental at \$75 (average) per day for 50 days.	3,750
Park Friends	5,000
Programs	5,000
Sponsorships for events	3,000
TOTAL Projections	13,750

Recommendations

The following recommendations support the comprehensive strategy for undertaking the revitalization, operation and management of Riverfront Park.

Riverfront Park Vision

Riverfront Park is a treasured waterfront park with modern flair that attracts visitors year round to the Schuylkill River. The park is integral to Norristown's efforts in revitalizing the downtown as a thriving, active, attractive high quality place in which to live, work, own a business and enjoy life.

Mission

The mission of the Municipality of Norristown regarding parks is to provide safe, clean and ready-to-use facilities and provide exceptional visitor experiences in our parks through sustainable design and management practices as well as excellent public service.

The recommendations are based upon the proposed park master plan design, information obtained through the public participation process, work sessions with municipal staff, discussions with the Study Committee and lessons experienced by other municipalities in park revitalization efforts.

Action 1: Use the Parks' Master Plan to Guide Improvements

- ◆ Use the plan to forge consensus among all of the players in the revitalization: municipal elected and appointed officials and the private sector supporters.
- ◆ Establish the steps and timeframes for plan implementation as well as who will be responsible for action items.
- ◆ Based upon the proposed park phasing, select one project to be the first one to pursue. Complete the plans and specifications for identified projects in the parks in order to seize the opportunity for grant funding under the upcoming economic stimulus package expected in the next calendar year aimed at public works projects.

Action 2: Select Action Items and Communicate the Vision

- ◆ Use the park master plan as the foundation for communicating

Operations, Management and Security Plan

the vision to a wide audience. The importance of communicating the vision for the parks cannot be overstated.

- ◆ Arrange to make appointments for face-to-face meetings with state and federal elected representatives to inform them about projects ready for construction and to promote the park improvement/development projects for potential federal funding under potential economic stimulus or jobs program.
- ◆ Strive to make the vision for the park resonate with a wide audience, especially the public and potential private sector supporters. This will help to leverage municipal support.
- ◆ Determine who the speakers will be and what mechanisms can be put in to place to communicate the vision.

90 percent of the success of public spaces is due to management.

-Fred Kent, Project for Public Spaces

Action 3: Adopt and Continue to Use Business-Like Practices in Park Management

“If you can’t measure it, you can’t manage it” the saying goes.

The most significant cost of Riverfront Park lies in maintenance. Over the lifetime of the park, about 75 percent of the park cost is in maintenance. It is relatively easier to secure capital funding than it is to secure operational funding. Capturing this institutional memory and formalizing it in a written and documented system is vital to sustaining the successful operating system through potential organizational and personnel changes. The best risk management program is an effective formal documented maintenance management system. This would include:

- ◆ Recognize the fact that the Municipality of Norristown is

undertaking significant improvements in Poley Park as well. Consider using the recommendations of the Operations and Management Plan of Riverfront Park to take a look at the park maintenance management system as a whole. Riverfront Park will not operate in a vacuum but will in fact be one important park in Norristown’s parks and recreation system.

- ◆ Establish quality standards for the park facilities. These will guide maintenance practices and staffing levels. Maintenance standards set forth the level of care that park and recreation facilities receive. Assigning maintenance standards will enable the Municipality to maintain Riverfront Park with respect to needs and resources. The revitalization of Riverfront Park will be significant and will no doubt require re-thinking of how resources are allocated with increased demand and resources that may not be increased commensurately. Targeting the level of care will enable the Municipality to direct resources to ensuring that the capital investment in Riverfront Park is protected. The maintenance standards provide a common frame of reference for the community including elected and appointed officials, municipal employees, maintenance staff, administration, contractors, partners, sponsors, park visitors and the citizens. The common agreement will facilitate discussions and communications about the park. This will enable elected and appointed officials and municipal management to establish and implement policies on use, fees and charges, volunteer requirements, staffing levels, contractual service requirements, and other issues that may emerge. It will also enable the Municipality to communicate with the public about Norristown’s capacity to undertake actions in response to citizen demands on the park, park maintenance tasks, resource protection actions, and requests for additional facilities and/or services.

- ◆ Develop a formal written maintenance management system.

Operations, Management and Security Plan

- ◆ Institute a computerized workload/cost tracking system. The production of real time information regarding where labor, equipment and supplies are going is essential for budgeting, staff allocation, policy development, and the setting of fees and charges.
- ◆ Research computerized workload and cost tracking system for park maintenance such as TRIMS. Visit other departments that use such systems to explore the positive features, difficulties and applicability to Norristown.
- ◆ Use the Maintenance Impact Statement tool shown in Figure 1 in planning for park improvements and programs.
- ◆ Work towards increasing maintenance support.
- ◆ Consider applying for a Peer-to-Peer grant from PADCNR to fund a study to formalize the maintenance system and select computer software. This would require a match of \$1,000 towards the \$10,000 grant from PADCNR for a total one-year project cost of \$11,000.
- ◆ Plan for cyclic maintenance. In addition to daily, monthly, seasonal and annual repairs, the park requires cyclic maintenance repairs. Cyclic maintenance deals with the normal replacement of a capital item such as a roof. Cyclic repairs are a function of weather, use, and other circumstances such as natural events. Because the time frame is years away, projecting actual costs is not possible but should be considered. The American Public Works Association recommends budgeting two to four percent of the development or improvement costs annually to establish as a capital reserve account for cyclic repairs. Advances in technology will also impact the future costs based upon changes in design and materials.
- ◆ Design an Employee Development Program. Budget about 1-2 percent of the parks and recreation budget for training. This should be directed at increasing expertise in natural resource management and park sustainability.

Action 4: Work towards increasing park security as well as public perception of Riverfront Park as a safe place.

- ◆ Develop a park security program for Riverfront Park in collaboration with the Police Department. Use a variety of strategies including a park ambassadors program (see below), a Park Friends Group, a partnership with Crawford Park, park watch, security cameras, security lighting and generating a regular level of desirable park use and visitation. A Park Ambassadors Program would be a volunteer program to provide a regular official presence in the park. Capitalizing on the regular park visitors to Riverfront Park would be a way to begin the design and establishment of such a program for Riverfront Park.
- ◆ Consider establishing a Park Ambassadors program as a special initiative if staff or private sector volunteers could develop, launch and sustain such a program. The purpose of the Park Ambassadors Program would be to provide a presence in the park, preferably during peak use times and other times, as volunteers are available. The Ambassadors would offer customer service, provide information and the park and trails, do light maintenance, assist park visitors, and through their on-site presence deter negative activity. While volunteers would largely compose the park watch, they are not free. They require oversight, management and recognition. Consider starting with a core group of members composed of people that are already regular park visitors in Riverfront Park.

Operations, Management and Security Plan

Action 5: Plan for Sustainable Parks

- ◆ Plan and adopt maintenance practices that conserve natural resources and are environmentally friendly. This is vitally important given the park's location on the Schuylkill River.
- ◆ Consider pursuing the following:
 - ◆ Education and policies that support ecological protection such as working with leagues to discourage the use of plastic water bottles.
 - ◆ Reduced use of pesticides.
 - ◆ Use of native plant species.
 - ◆ Reduced mowing and more naturalization of the park.
 - ◆ Use products and materials that are eco-friendly.
 - ◆ Explore the use of hybrid or alternative fuel vehicles.
 - ◆ Recycling.
 - ◆ Adopt LEEDS construction for any buildings that might be developed on-site.

Action 6: Increase Programming and Events

Programming and events are powerful tools for revenue generation, increasing public awareness of the parks, gaining an inexpensive form of security, showcasing sponsors and partners, and creating community-gathering places that strengthen the community.

- ◆ Consider the addition of summer camps. Explore both general camps and specialty camps that focus on the river.
- ◆ Explore environmental education and nature based recreation

programs. Try to get partners for this effort such as the school district, Montgomery County Parks and Heritage Services, the Schuylkill River Greenway, scouts, and others.

- ◆ Develop a program management plan for the immediate time frame of one year as well as a three-year program plan.
- ◆ Advertise these programs heavily.
- ◆ Determine how to staff additional programming. Assess current staffing levels and methods of staffing to determine if restructuring the current method of seasonal staff could be leveraged for expanded programming.

Action 7: Be Creative in Generating Funding and a Positive High Visibility Image for the Parks.

- ◆ Use a mix of public/private partnerships.
- ◆ Create a park system logo through a professional graphics designer.
- ◆ Recognize that the Municipality's level of funding for parks & recreation is going to be stretched by the revitalization of Riverfront Park. The work underway at Poley Park also commands attention on how the municipality will support these major capital investments overtime through an appropriate level of maintenance.
- ◆ Consider establishing a park friends organization as a vehicle for park fundraising.
- ◆ Create a four part revenue source system:
 - ⇒ **Earned Income:** fees, charges, admissions, rentals, sales, special services. Licenses and permits.

⇒ **Compulsory Resources:** Taxes, mandatory dedication of park land/fees in lieu of dedication focused on redevelopment projects.

- **Contractual receipts:** facility leases, facility rentals, and concessions.
- **Financial Assistance:** grants, gifts, bequests, fund raising, park friends and Conservancy efforts.

⇒ Adopt policies for fees and charges, gifts, donations and sponsorships. The policies should be fair, equitable and have positive results for the park instead of further burdening park operations. Consider requiring a trust fund for donations of considerable size that require additional maintenance.

⇒ Develop a gift catalog for Riverfront Park. The proposed park friends group could create this as their pilot project.

Figure 1
MIS
Management Impact Statement

Purpose

- To assess the impact of a proposed project in terms of capital and operating costs including cost, human resources required and effect on other parks and recreation facilities and services.
- To use this information to make an informed decision about moving ahead with the proposed project.

Method

Determine:

1. **Capital cost of the proposed project.**

2. **Operating costs for the proposed project. Include:**

- Number of staff hours required
- Cost of the staff hours
- Cost of materials and supplies
- Miscellaneous costs

3. **Impact on other facilities and programs should the proposed project/service be implemented.**

- Will the project/service require funds needed for other facilities/programs?
- Will the project/service require staff time needed for other services/programs?
- How will the project impact the quality of service that Norristown Borough has set as a goal?

4. **Revenue Sources**

- Grants
- Donations
- Borough funds – additional appropriation
- Borough funds – within current budget
- Non-tax funds to be generated from the project/program

Decision-Making

Based upon the above information, does Norristown Borough have the resources to move ahead with this project?

Appendix A

Planning the Park

Planning the Park

In March 2010, the Municipality of Norristown, Montgomery County issued an RFP for the master planning services for Riverfront Park located at the corner of Haws Avenue and Washington Street. The park site is strategically located along the Schuylkill River and is linked to both Fairmont Park to the east and Valley Forge National Historic Park to the west by the Schuylkill River Trail and the Schuylkill River. Riverfront Park consists of approximately 4.3 acres and includes two boat ramps, a fishing pier, picnic area and parking areas. Immediately adjacent to the park is Crawford Park, a private park consisting of approximately five acres with basketball courts, playground and picnic areas. Neither park has a great relationship to each other or to the Schuylkill River Trail located just north of the park sites.

The master plan will provide a site-specific “blueprint” for the park site that will guide future development activities. Undertaking the planning projects will target future park, recreation and conservation initiatives to meet the needs and desires of the neighborhood and the community at large. Recommendations and conclusions of the planning process will provide enhancements that will meet the community needs and fit soundly into the surrounding neighborhood.

It is important to note that this is a redevelopment master plan which often becomes more complex due to the success or lack of success of the existing park’s uses, as well as the adjacent uses.

Study Purpose

The purpose of this study is to explore options for the redevelopment of the existing park. The process of developing the master plan considered the condition and use of the existing facilities and park users, the park site characteristics, adjacent land uses, community recreation needs and goals, recreation and leisure trends, and the desires of the community and surrounding neighborhood. A public participation process was undertaken to

gain input from the residents regarding appropriate park facilities. Public participation included working with a Project Study Committee, completing interviews with key persons in the community and holding public meetings. The process emphasized citizen input to develop a relevant master plan that targets the existing and future recreation and open space needs of the municipality. In addition, the master plan utilized relevant information regarding recreation and open space from the 1990 Riverfront Study, 2005 Norristown Open Space Plan, 2009 Norristown Economic Revitalization Strategy Update, “Schuylkill River Greenway – Projects and Activities along the Greenway 2010,” and the 2002 Building a Greenway Community Plan.

Community Profile

Norristown Borough is a urban community located along the Schuylkill River in south central Montgomery County. Norristown serves as the County seat encompassing 3.6 square miles and a population of approximately 34,324.

The following demographics were compiled from 2010 US Census data unless otherwise noted.

Population Statistics:

- 2000 Population: 31,282 (a 1.7% increase since 1990)
- 2010 Population: 34,324 (a 9.7% increase since 2000)
- Children and Youth (0 – 17 years) – 26.2 percent of the total population
- Adults (18 – 24 years) – 11.3 percent
- Adults (25 – 34 years) – 18.7 percent
- Adults (35 – 44 years) – 13.5 percent

- Adults (45 – 64 years) – 21.2 percent
- Adults (65 years and over) – 9.1 percent

Gender:

- Male 49.8 percent and Female 50.2 percent

Race / Ethnicity (2000):

The racial makeup of the Borough was 56.0% White, 35.9% African American, 0.2% Native American, 3.1% Asian, 0.0% Pacific Islander, 4.8% from other races, and 3.2% from two or more races. Hispanic or Latino of any race was 10.5% of the population.

Race / Ethnicity (2010):

The racial makeup of the Borough is now 40.9% White, 35.9% African American, 0.4% Native American, 2.1% Asian, 0.1% Pacific Islander, 16.0% from other races, and 4.6% from two or more races. Hispanic or Latino of any race was 28.3% of the population.

Median Age:

- 31.2, younger than Montgomery County's median age of 40.6

Households and Housing:

- Households with children under age 18: 4,362 or 36.5% of the total 11,963 households
- Persons per Household: 2.79
- Occupied Housing Units: 89.1 percent
- Total Housing Units: 13,420

Socio-Economic Characteristics (2000):

- 1999 Median Household Income: \$35,714, up from \$28,643 in 1989
- Families: 7,148
- In Poverty: 17.2 percent

Education (2000):

28.5 percent of those over the age of 25 do not have a high school diploma; 36.1 percent have a high school diploma; 16.4 percent have some college experience; 5.7 percent have an associate's degree; 9.1 percent have a bachelor's degree; and 4.2 percent have a master's degree or higher.

Demographic Profile Summary:

The Municipality of Norristown is a diverse community. The minority population has increased from 44 percent in 2000 to 59.1 percent in 2010. The largest increase being the Latino or

Planning the Park

Hispanic population which saw an increase of 17.8 percent from 2000 to 2010. The U.S. Census 2010 population of 34,324 includes 4,362 households with children under the age of 18. This group encompasses 36.5 percent of the municipalities' occupied households and these residents are high users of recreation facilities. Adults over 65 years old make up only 9.1 percent of the total municipal population. The median age of the municipality is 31.2 years old.

Master Planning Process

The planning process for the Master Site Plan was designed to create a vision for the park that harnessed the opportunities of the site while respecting the inherent site limitations. This process included five parts:

1. Initial Analyses
2. Community Involvement
3. Design Process
4. Operations and Management Plan
5. Final Master Plan



Appendix B

Park Goals and Needs Assessment

Park Goals and Needs Assessment

Public Participation

Public participation was a key component of the Riverfront Park master planning process. Public input was gathered by working with the Project Study Committee, completing key person interviews, and conducting public meetings to gather specific park interests and concerns regarding the development of the park. Public meetings were also conducted to solicit public feedback regarding the plan alternatives, implementation plan, and the final design alternative design.

The public participation process was a very important aspect of this project for the following reasons:

1. Traditionally, residents of the surrounding neighborhoods have voiced concerns that they have not been involved in the planning and development of the facilities in their neighborhood.
2. Neighbors of the park, Borough residents and officials, park users, and community leaders have useful information to contribute to the development of the park master plan.
3. The public participation provides a forum in which concerns and ideas can be identified, aired, and addressed.
4. Stewardship and trust are established through community interaction and involvement.

A project website was also developed to promote awareness of the master planning process and allow residents to provide feedback during the planning process.

<http://projects.jmt.com/riverfront-park-master-plan>

The website included a listing of the study committee members, meeting dates, and general information regarding development of the plan alternatives and final master plan.

Project Kickoff Meetings

The initial project kickoff meetings were conducted as public meetings. This was a strategic approach to ensure that residents felt involved from the onset of the project. Two meetings were scheduled on September 15, 2010. Both meetings were publically advertised and meeting announcements were distributed in the surrounding neighborhoods. The first meeting was conducted at the park site with traditional park users. Following the on-site meeting a formal public meeting was held at the Fairmont Fire Company just north of the project site.

At the request of the residents, a third project kickoff meeting was conducted on October 10, 2010. Based on the outcomes of the initial meetings, additional residents came forward and wanted the same opportunity to voice their opinions concerning the redevelopment of the park. The Park Project Study Committee was also expanded to include several residents from the public meetings who expressed interest in serving on the study committee.



Park Goals and Needs Assessment

Project Study Committee

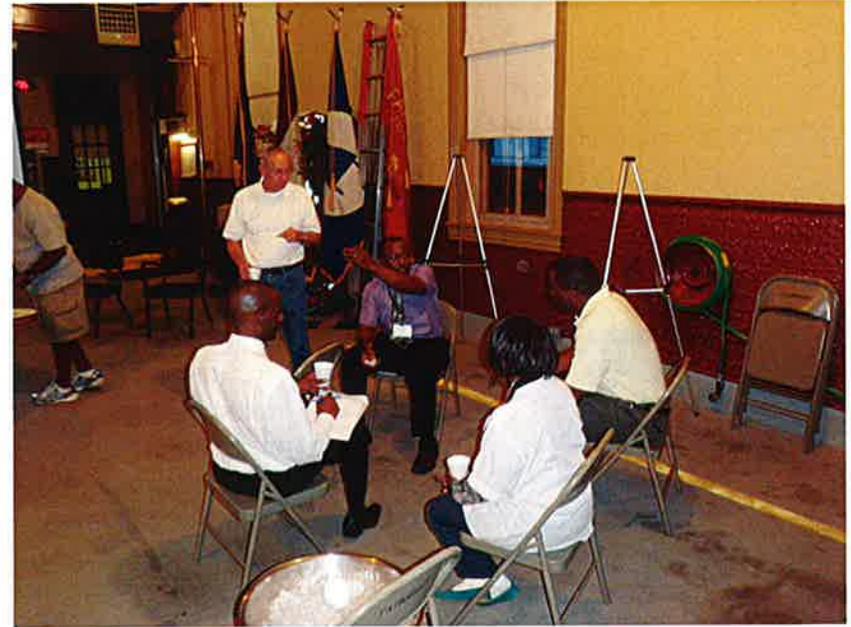
A Park Project Study Committee was formed to help guide the master planning process and to work with the project design team. On February 17, 2010 the Riverfront Park Master Site Plan Project Study Committee met to review the outcomes of the public meetings, site survey, and site analysis with the design team. Input provided to supplement the community's comments are summarized below:

a) What Do You Like About the Existing Park?

- Swans
- Boats
- Great area just to sit and relax
- Like the main public/sitting area
- Game tables for cards and checkers

b) What Don't You Like About the Existing Park?

- No bathrooms
- Policy issue of access to the park after dark
- Maintenance of boat ramp
- Graffiti
- Not enough trash cans
- Trees need to be maintained
- Lines for parking
- Access to trail/bike path
- Visibility
- Silting
- In a floodplain, excess rain floods area
- Is a dump place for snow from local streets
- Restricted boat use
- No portage



c) What Improvements Could be Made to the Existing Park?

- Provide recycling cans
- Bike rental options
- Offer duck boat tours
- Riparian zone improvements
- Provide connection from the Schuylkill River Trail to the park
- Grill stations
- More benches
- Trash cans
- Special events/vendors
- Pavilion
- Playground equipment
- Connection link to Crawford Park
- Exercise equipment
- Boat rental availability

Park Goals and Needs Assessment

- Meeting/community room
- Recycling
- Bike Rental option

d) Who Are the Primary Users of the Park?

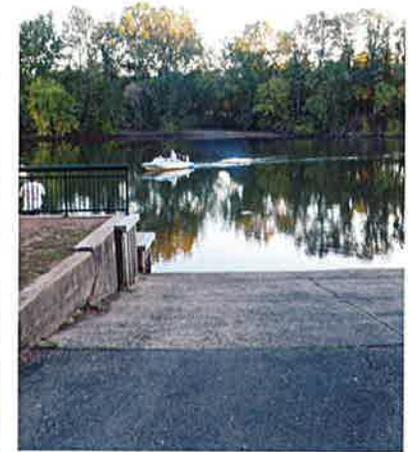
- Fishermen
- Children
- Boaters
- Picnickers
- Cyclists
- Locals/neighborhood groups
- Day trippers
- Fire company - drafting training
- Wildlife enthusiast
- After school programs

e) What Opportunities Exist for Expansion of the Park and What New Facilities Should be Developed?

- Better physical and visual connections to the Schuylkill River Trail
- Boat slip above the bridge would allow for sailboat use
- Events for the community
- Private/public partnerships to expand opportunities
- Expanding the fishing area
- Larger dock area
- A better relationship with Crawford Park
- A greenway/trail up to the zoo area

f) What are the Concerns for Park Expansion?

- Safety
- Maintenance
- Vandalism
- Security lighting
- Funding to maintain the park



- Flooding
- Drainage concerns

g) If You Came Back 10 Years From Now, What is the One Thing You Would Like to See Happen in the Park?

- No trash
- Cleaner environment
- Clean bathrooms
- Access point still open
- Residents take responsibility to keep are clean
- Year round activities
- Friendly environment
- Multi-use/function
- Involved residents
- Dredging completed
- More access to riverfront
- Music
- Address geese problems
- Restrooms

Park Goals and Needs Assessment

- Improved vehicular access
 - Striping of the existing parking area
 - Maintained park
- h) It's the year 2020 and all the master plan improvements for Riverfront Park have been implemented. The park is as good as it can be; it's a place where:
- It is a clean place, where children are playing, people are laughing, music is playing, people are fishing, boating, and water skiing.
 - Will serve as a catalyst for riverfront development and a center for special events. A place to relax, enjoy, be safe, and a place to meet neighbors.

Additional comments provided by the Study Committee included the following:

- There is a perception by some residents that the Borough has done a lot of planning over the years and has not followed through with implementation of planning efforts.
- Funding and available resources for implementation and the competition with other projects is a concern.
- Restrooms are the most desired facility for the park. Residents noted that without restrooms it does not make sense to plan for any other improvements.
- Fishing is one of the main activities at the park and should continue as a primary use.
- The park is used by area residents at all times of the year.
- A variety of people use the park including women and children.
- The public boat ramps are heavily utilized on the weekends.
- There is only one vehicular access into the park. A loop drive once connected Riverfront and Crawford Park and provided a two-way system in and out of the park.
- The park is visually unattractive and not well maintained.

- The boat ramp and dock is not cleaned after flooding events.
- This park does not get as much attention and is not maintained adequately in comparison to other Borough parks.
- There are not enough trash receptacles in the park.
- The parking area is used as a staging area for excess snow from surrounding neighborhoods. The trash from the snow collection gets dumped in the parking lot with the snow. The snow takes a long time to melt and the remaining debris litters the park.
- Geese are a problem along the shoreline.
- The park should have a water fountain.
- Graffiti on the bridge must be removed.
- Entrance to park needs cleaned up. Currently the main access to the park from Haws Avenue is unattractive and uninviting.
- Riding along the Schuylkill River Trail, you would never know that this park exists.
- Although some riders do venture into the park, some are threatened and feel unsafe.
- There are not enough benches in the park.
- River flow restrictions have led to increased siltation and are in need of dredging.
- The hill behind the parking area should be addressed to take advantage of opportunities with the trail and provide a more secure and inviting access into the park.
- The park should seek to offer more programming opportunities for neighborhood children.
- The park is seen as a sociable space for the neighborhood and a refuge for getting away from everyday stress.
- A direct, safe, and inviting connection to and from Schuylkill River Trail should be provided.

Park Goals and Needs Assessment

- Linkages to other parks via boats and greenways should be explored. Especially connections to Poley Park and Elmwood Park.
- The park has lighting, yet no one is allowed to use the park after dusk. Many fishermen would like the opportunity to fish after dusk. This policy must be addressed as it is randomly enforced.
- Residents need to be involved and take ownership of the park.

Key Person Interviews

The consulting team conducted a series of key person interviews to obtain input regarding the existing park property and the concept of formalizing a plan for proposed expansion and upgrades of the park. Information was gathered regarding management, park usage, concerns for development, historical and current information about the property, existing park uses and facilities, and additional facilities people would like to see at the park. Key person interviews were conducted with members of the community who have an interest and/or insight into the recreation needs of the area or particular interest regarding the Park as defined by the Park Study Committee. Key person interviews were conducted with Norristown public officials including police and emergency services, Crawford Park Trustees and park program director, representatives from Montgomery County Heritage Parks, DCNR, Pottstown Borough, PECO, Upper Merion, Stoney Creek Anglers Club, Montgomery County Planning Department, Schuylkill River Heritage Area and a representative from the Times Herald.

The interviewees were informed about the master plan project and the purpose of the key person interviews. Most interviewees were generally familiar with the park site. Interviewees were questioned about ideas they had for park opportunities and facility needs within the community or their affiliated organization. Any concerns they



might have had about the park development were also discussed and recorded.

Interviews were conducted and input was shared with the Park Study Committee and considered as the Master Plan was developed. Generally, interviewees were interested in enhancing and preserving the existing riverfront opportunities. Addressing the image and safety concerns were also seen as vital to opening the park to more users. The following thoughts summarize the outcomes of the key person interviews:

- The park is home to several homeless people and presents a perception that the area is not safe.
- The park is viewed as a place for mostly men. There are limited opportunities for families and children to play at the park.
- The only organized fishing or programming that occurs at the park is the annual catfish tournament. The park was previously a stop for the Schuylkill River Sojourn. Additional programming and events like the Sojourn should be encouraged and conducted more regularly at the park.
- The dam pool is one of the largest along the Schuylkill River and a great asset to the community.
- Currently there is not a relationship between the Schuylkill River Trail and the parks. Loop trails should be developed

Park Goals and Needs Assessment

to connect all the opportunities in the area.

- Restrooms and drinking fountains are two of the most desired facilities for users of the Schuylkill River Trail in the vicinity of the park.
- There have been some nefarious activities associated with the wooded areas between the park and the Schuylkill River Trail.
- There are partnership opportunities that may be available in conjunction with other regional planning initiatives regarding the development of a restroom.
- The issues at Riverfront Park in Reading, Norristown, and Pottstown are similar. Pottstown could be viewed as a model on how to redevelop the park by working to foster and develop public and private partnerships.
- The PECO right-of-way is an opportunity to link the park and adjacent regional trail. Any improvements within the right-of-way would need permission from PECO. The main areas of concerns that would limit use considerations are changes to the existing grades, effects on ground clearances under existing lines and access to the existing towers.
- Norristown is a community that is undergoing many changes. Improvements to Riverfront Park will show that the community is committed to revitalization.
- Program the park with activities that can attract families. Provide bike and canoe rentals.
- Silt deposits in the dam pool are becoming a problem and need to be addressed.
- Think trail and park safety in development of all aspects of the park.
- Despite how Riverfront Park, Crawford Park, and the Schuylkill River Trail function, there is a direct relationship between the three that cannot be ignored.

Park Goals

Specific goals for expansion of Riverfront Park were defined as outlined below. These goals were utilized in the preparation of the conceptual alternative designs for the park.

- Increase programming opportunities for the park that complement services currently being offered at Crawford Park.
- Provide amenities for park users – restrooms, picnic pavilions, and additional seating areas.
- Develop the park to serve as a trailhead.
- Redevelop the park to address perception of safety.
- Continue to involve the citizens in the planning and redevelopment of the park.
- Develop a master plan that completely integrates the existing park facilities, proposed new recreational uses, and adjacent facilities.
- Provide more opportunities for riverfront activities.
- Expand the park user base.
- Redevelop the park for immediate and long-term needs of the community.
- Allow for public private partnership opportunities in and adjacent to the park.



Park Goals and Needs Assessment

This page left intentionally blank

Appendix C

Site Inventory

Site Inventory

Data Collection/Base Mapping

Initial base-mapping information was compiled from the best available information. A majority of the base map was based on GIS data from Montgomery County GIS Datasets. This information was overlaid on orthographic aerial photography provided by Montgomery County. Base mapping data was supplemented with information gathered by the design team from several site visits over the course of the master planning process.

During the planning process a topographic survey of the property was completed. Subsequently, the base mapping was later updated to reflect topographic survey information and deed plots were incorporated to depict the project boundary.

The development of the Master Site Plan was guided by the analysis of the site's natural and man-made resources, existing facilities, consideration of the surrounding land uses, and the assessment of recreation needs in the community.

Site visits were conducted throughout the planning process to evaluate the site characteristics, observe the site's relationship to the surrounding properties, and identify site opportunities and constraints. The findings of the inventory and assessment phase of the planning process is documented below.

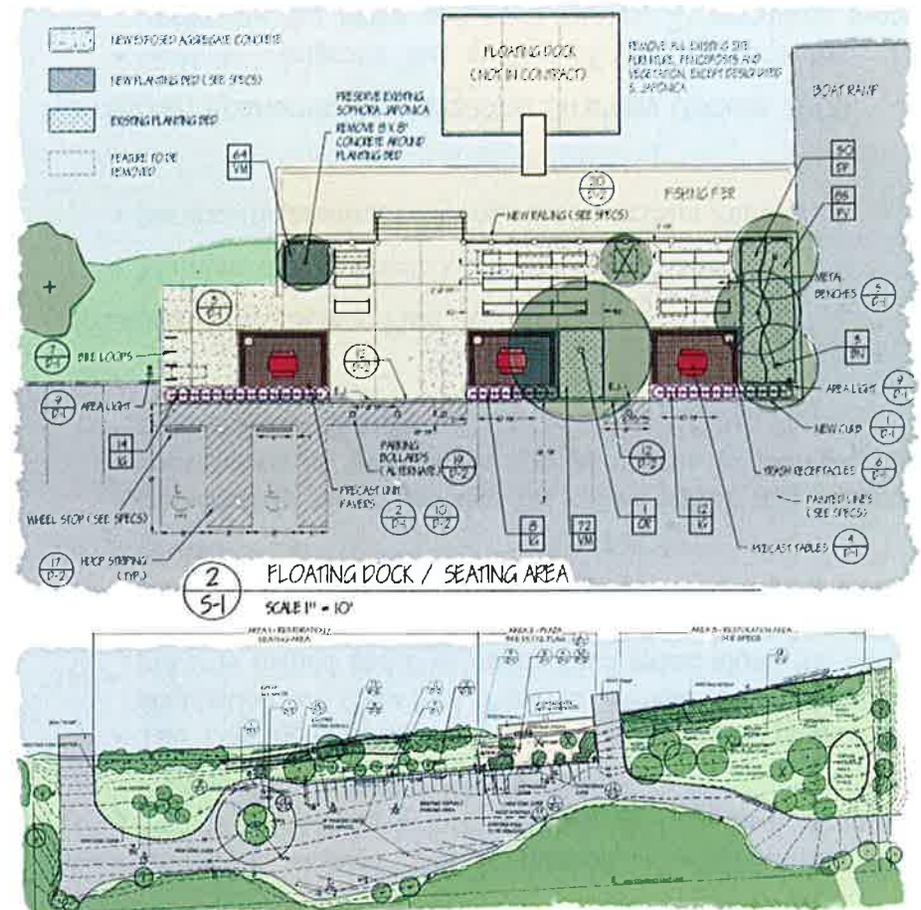
Site Analysis Conclusions/Recommendations

- The park consists of two parcels on either side of Haws Avenue. A 0.63-acre parcel is located on the west side of Haws Avenue while the main park area, consisting of 2.97 acres, is located on the east side of Haws Avenue.
- Parking areas, travel lanes and turn around areas are not defined. Define ADA parking facilities.

- Incorporate CPTED principles into design renovations.
- Provide ADA routes to all facilities. Currently there are no accessible routes to the existing facilities.
- New, permanent bathrooms or access to the existing bathrooms should be constructed or made available in some fashion to the general public.
- Preserve the existing natural resources within the site boundary.
- Provide park entrance sign.
- Site visits and key person interviews concluded that there is a perception that this park is plagued by undesirable activities and safety concerns.
- The park is disconnected from Main Street, the adjacent Schuylkill River Trail and the adjacent private park. Develop pedestrian linkages to Main Street and the commercial corridor.
- Develop a more formalized and inviting vehicular entranceway into the park.
- Develop safe and inviting pedestrian linkages into and across the site via the existing Schuylkill River Trail.
- Consider connectivity between the park areas and safe linkages for access beyond the site.
- Open views to the lower sections of the park for better visual access and surveillance.
- Development opportunities for a permanent structure are limited due to the existing floodplain.
- Existing utilizes including sewer and water are available to the site.

- The existing vegetation associated with the riparian buffer should be protected and preserved. Recently planted buffers should be relocated if disturbed by proposed development.
- Most of the improvements to the park as proposed in 1997 were completed with the exception of the floating dock. The master plan process should revisit this facility to determine if it is still appropriate and incorporate if there is a need.
- Provide pedestrian connections between Riverfront Park and Crawford Park.
- The existing boat launches are showing signs of wear and do not have enough traction to safely enable access to the river.
- The park contains over 1000 linear feet of shoreline of which two thirds are unprotected. If left unprotected the shoreline will continue to erode.
- Remnants of the existing structures along the shoreline are still visible and should be incorporated into shore protection strategies.
- Much of the park is accessible by automobile, however the park does not offer much for pedestrians.
- Stormwater runoff from the adjacent neighborhoods and parking areas flow directly in the river, taking any residual oil and chemicals with it.
- Incorporate measures for reducing stormwater runoff to improve water quality and enhance wildlife habitats along the river.
- Restore the existing circulation system by defining the parking areas, travel lanes, and turn around areas.
- Develop secondary pedestrian and vehicular entrances with direct access to the park.

- Incorporate existing view sheds into the redevelopment of the park.
- The 100-foot PECO easement serves as the park's northern boundary. Although there are many restrictions associated with the easement, this area could be an asset for the park and could be used for providing additional access to views and access to the riverfront.



Site Inventory

Previous Planning

The following key recommendations were developed as part of other community planning initiatives and were considered in the development of this master plan.

Norristown Riverfront Study 1990:

- New and upgraded recreational facilities on the 0.63-acre parcel west of Haws Avenue. Possible uses include land based boat storage, concession for refreshments, bait and tackle, restrooms, rental of canoes and/or rowboats, and canoe launch removed from motor boat activities.
- Clean up and improve visibility in the 2.28-acre PECO property between the River Trail and the park. Improve visibility and open vistas of the river through the development of a formal agreement or easement.
- Improve fisherman's trail along the water to connect at Button Street.

Revitalization Plan:

- Create a regional, county owned, "Riverfront Gateway Park" along the riverfront between the Dannehower Bridge and the DeKalb Pike Bridge.
- Selectively cut down trees and clear the underbrush on the embankments that separate the Schuylkill River Trail and Riverfront Park between Chain Street and Haws Avenue. Thinning out the wooded area would increase visibility of the River and Riverfront Park, which would make the area safer and more attractive to trail users.

- Once the wooded area is thinned, new pedestrian and bicycle paths to Riverfront Park should be added. Improve entrances and access to Riverfront Park.
- The County and Borough should continue to pursue the acquisition of Crawford Park to expand the amount of publicly owned and continuous open space along the water front. Acquiring Crawford Park and formally linking it to Riverfront Park would provide a major access park to the River.
- Immediately target the area for canoe, kayak and sculling concessions as well as for special events, to increase the prominence to the site.

Norristown Open Space Plan 2005:

- Maintain dialogue with Crawford Park Trustees.
- No specific recommendations for Riverfront Park.

Norristown Economic Revitalization Strategy Update 2009:

- Goal 4: Improve the quality of Norristonians by: 1) improving the parks and open spaces; 2) providing more landscaping throughout the Municipality; making a push for the existing assets of Norristown.
- Promote Norristown as a vibrant place to live, work, and visit with convenient access to public transit and a wealth of open space and recreation amenities.
- Riverfront Initiative: Pursue canoe, kayaking and sculling concessions/uses at the riverfront, as well as special events.

- Riverfront Initiative – various plans and planning studies have addressed this concept.
- Commence Crawford Park dialogue with the trustees of the park. Discussion items include:
 1. The connection between Crawford and Riverfront Parks.
 2. A more formalized connection with the Schuylkill River Trail.
 3. A formal entrance from the park via Main Street.
 4. Failing retaining wall that supports the houses located above the park at Chain Street.
 5. Legal avenues that would ensure the park remains as open space in perpetuity.

Schuylkill River Greenway – Projects and Activities along the Greenway 2010:

- Key listing of activities and enhancements being undertaken by various groups and/or governments to enhance the River’s recreation potential, usage, redevelop river towns and preserve the river corridor.
- No specific recommendations for Riverfront Park.

Building a Greenway Community 2002

- Chapter 2 The Greenway Vision – Renaissance, conservation and open space protection, recreation community revitalization, economic development, heritage preservation, cooperation among greenways partners, and spiritual renewal.



Site Inventory

Aerial— facing North





Site Inventory

Aerial—facing South



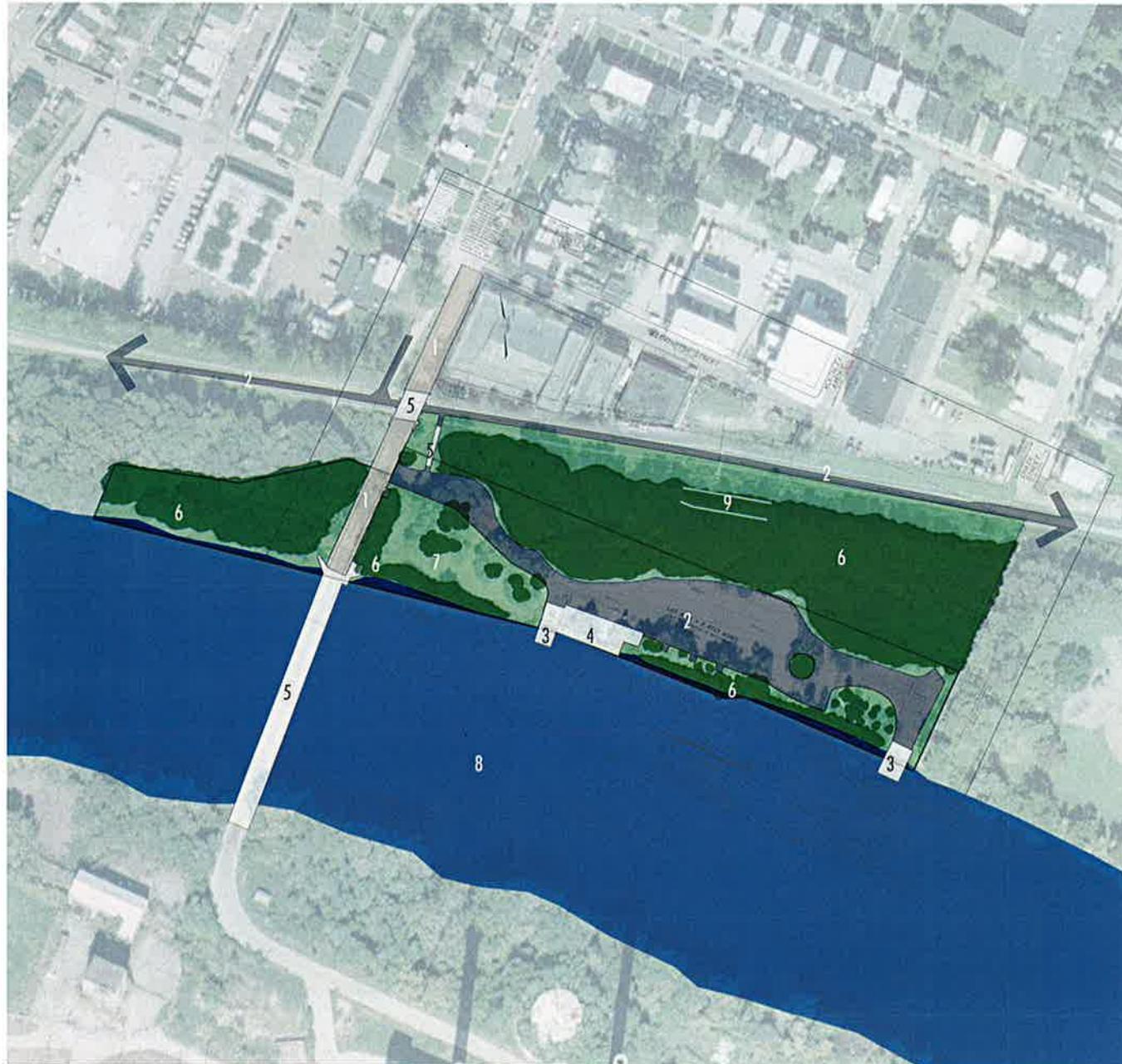
Site Inventory

Aerial—facing West



Site Inventory

Existing Conditions Map



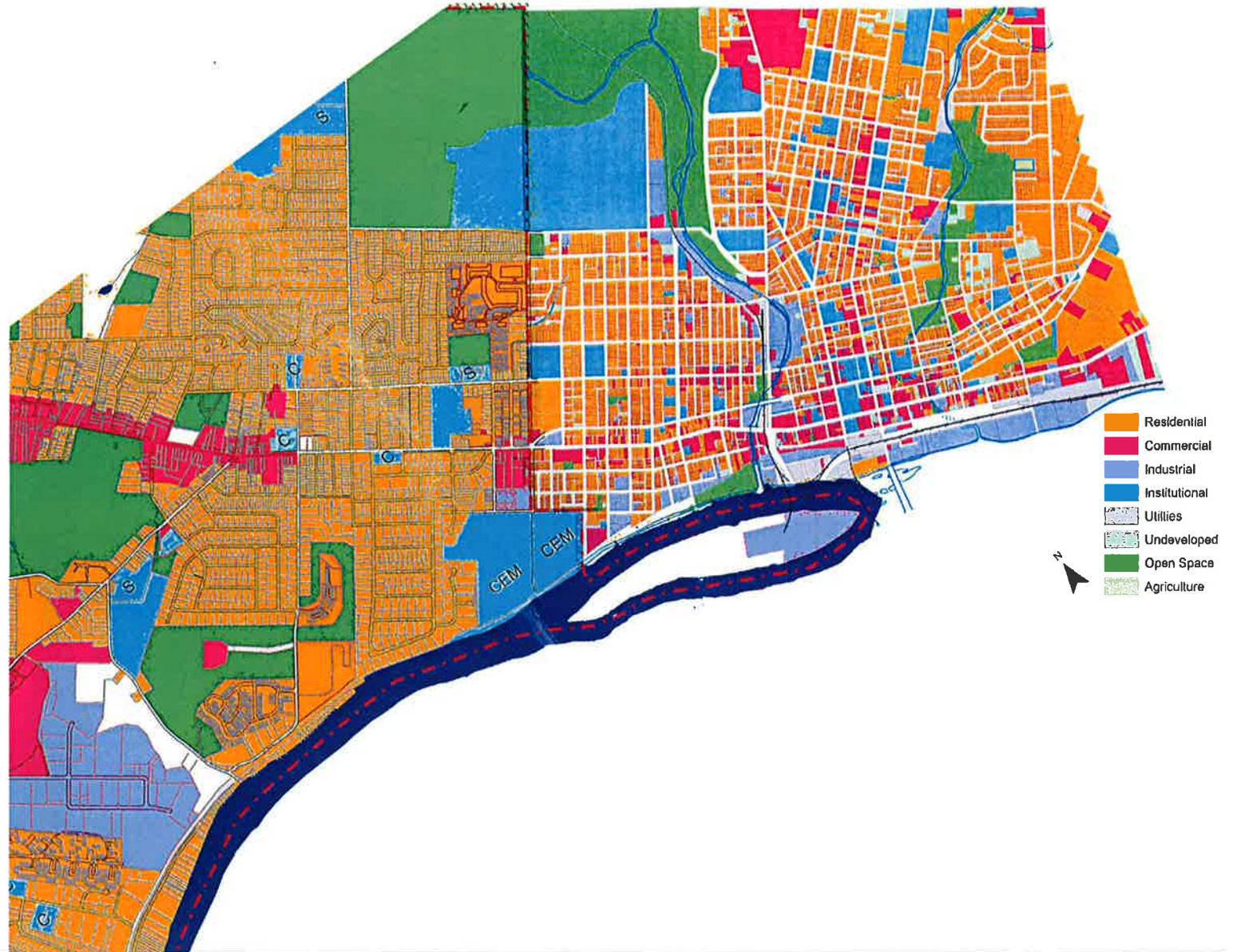
Legend

- 1 Concrete Surface
- 2 Paved Surface
- 3 Existing Boat Launch
- 4 Existing Fishing Pier
- 5 Existing Structures
- 6 Existing Woods
- 7 Lawn Area
- 8 Schuylkill River
- 9 Concrete Retaining Walls



Site Inventory

Surrounding Land Use

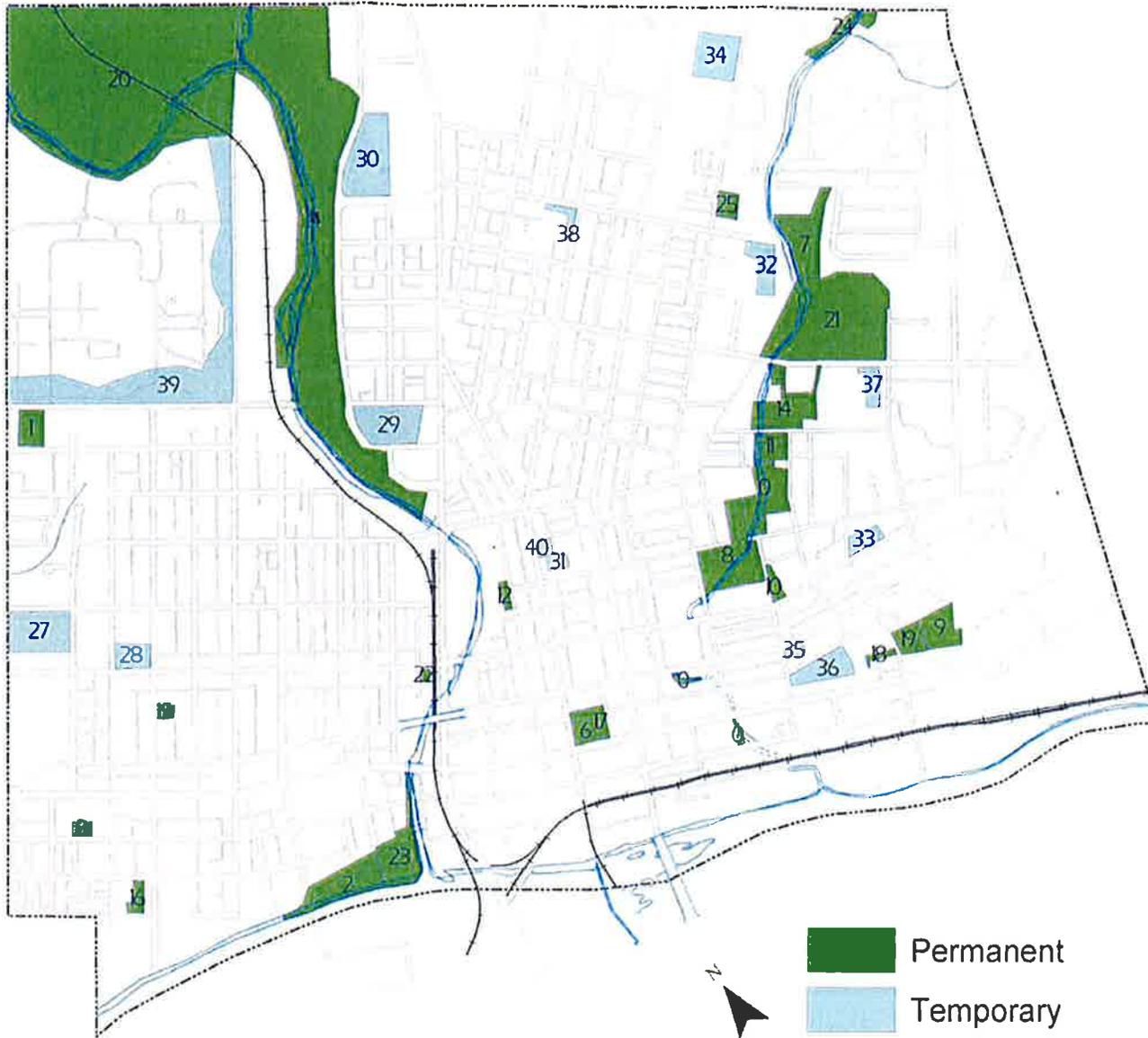


Source:
Norristown Open Space Plan
Montgomery County Planning Commission, 2005

West Norriton Township Comprehensive Plan
Update, 2010

Site Inventory

Existing Parks and Open Spaces

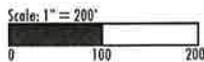


Map Key	Name
1	Atkinson Field
2	Riverfront Park
3	Guardino Park
4	Elmwood Park
5	War Memorial Square
6	Downtown Public Square
7	Bartasch Park
8	Simmons Park/ Martin Luther King Memorial Amphitheater
9	McCann Park
10	Walnut Street Playground
11	Scag Cottman Park
12	Albert P Parker Memorial Park
13	Haws Lane Median
14	Blue Mills Tract
15	Thomas Barone Park
16	Washington Street Park
17	Courthouse Square
18	Unit 25
19	Unit 26
20	Norristown Farm Park
21	Saw Mill Run Dam
22	Poley Park
23	Crawford Park
24	Kenrick Hills HOA
25	Saw Mill Run Condo HOA
26	Saw Mill Run Condo HOA
27	Stewart Field
28	St. Francis Church and School
29	Roosevelt Field
30	Logan Field
31	Gotwals School
32	Hancock School
33	Community Day Care
34	Kennedy Kenrick School & Field
35	Holy Savior School
36	Penna Associates (Sandy Hill Terrace)
37	Regina Nursing Home
38	Sacred Heart Cancer Center
39	Norristown State Hospital
40	Meetinghouse

Source:
Norristown Open Space Plan
Montgomery County Planning Commission, 2005

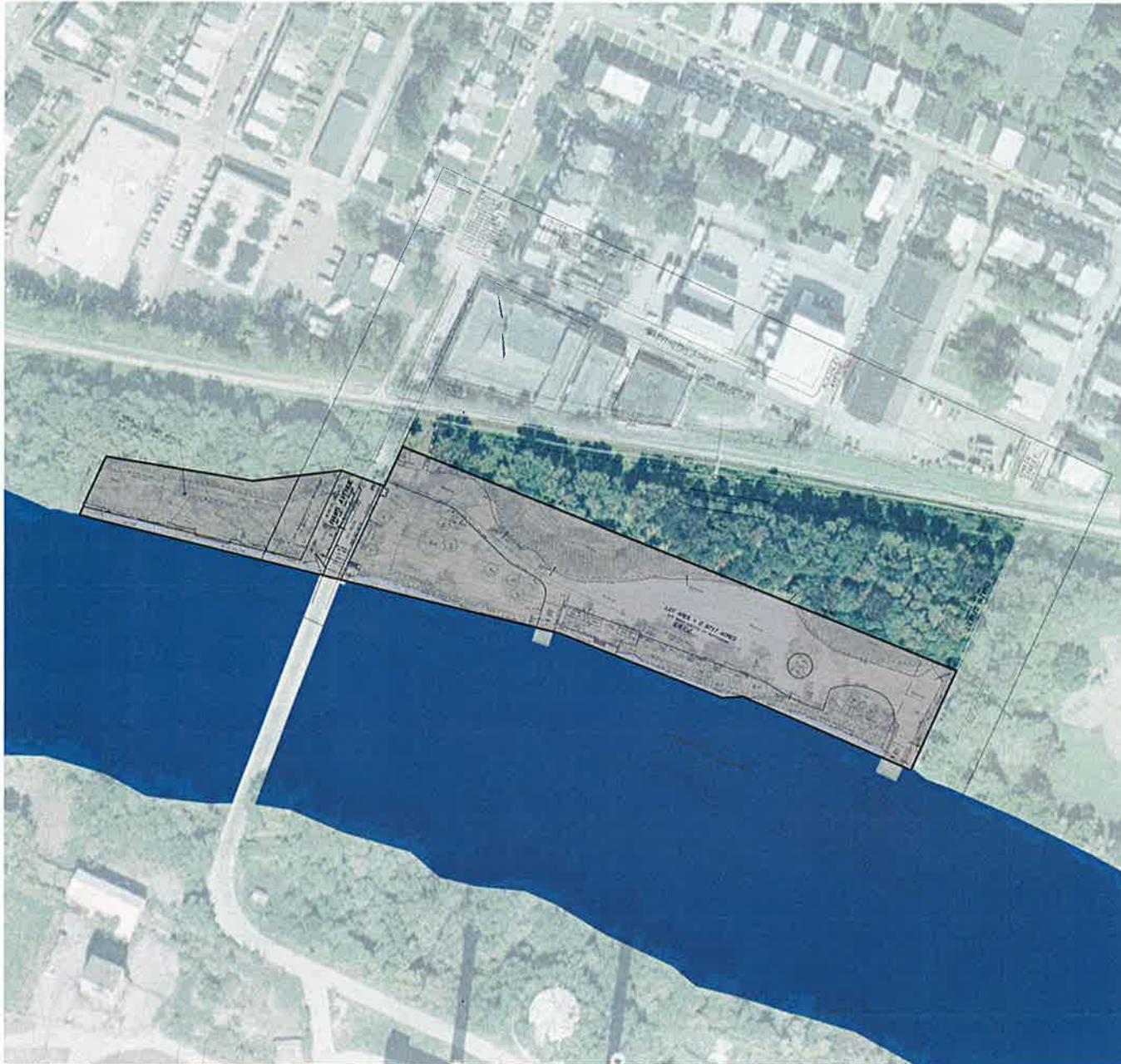
Legend

- Riverfront Park—Parcel 1 (2.97 Ac.) 
- Riverfront Park—Parcel 2 (0.63 Ac.) 
(1.30 Ac Impervious)
- PECO Right of Way (2.22 Ac.) 
- Crawford Park (5.00 Ac.) 
- Total Park Acreage—3.6 Ac.



Site Inventory

Soil Types



Legend

 Urban Land—Penn Complex



Scale: 1" = 200'
0 100 200

Legend

Vehicular Circulation 

Pedestrian Circulation 



Scale: 1" = 200'
0 100 200

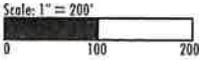
Site Inventory

Topography

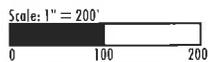
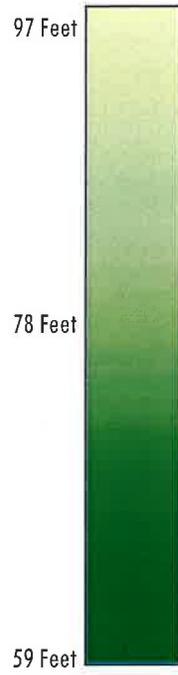


Legend

- Flat Slope (0% - 5%)
- Moderate Slope (5% - 15%)
- Steep Slope (15% - 25%)
- Severe Slope (25% - 40%)
- Prohibitive Slope (40% - 100%)
- Open Water



Legend



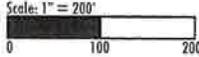
Site Inventory

100 Year Floodplain



Legend

 100 Year Flood Plain



Legend

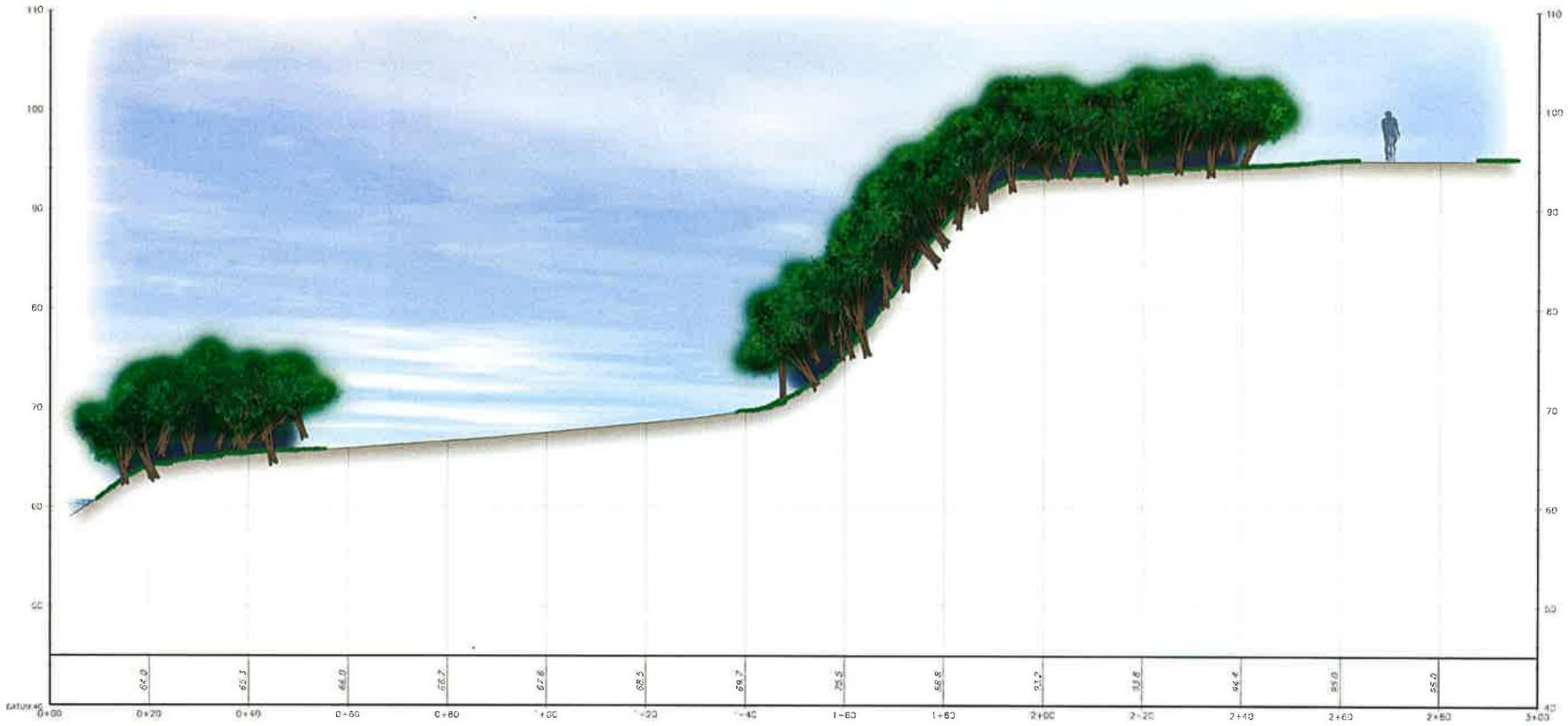
Section AA 



Scale: 1" = 200'
0 100 200

Site Inventory

Section A-A



ALIGNMENT - (1)
1" = 10' Horizontal
1" = 5' Vertical

Legend

Canopy Trees 

Young Hardwoods (Oak, Maple, Birch, Ash) 

Lawn 



Scale: 1" = 200'
0 100 200

Site Inventory

Site Hydrology



Legend



High Point (97 Feet)



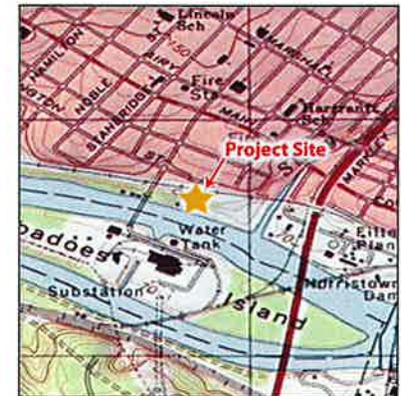
Sheet Flow



Channelized Flow - drains to Sutton Creek



Piped Flow



Stream Classification:
Cold Water Fishes (CWF)



Legend

- Active Recreation (Heavy Use) 
- Fishing, Boating, Socializing
- Passive Recreation (Moderate Use) 
- Walking, Sitting, Viewing
River, Socializing
- Passive Recreation (Light Use) 



Scale: 1" = 200'
0 100 200

Site Inventory

Photo Inventory

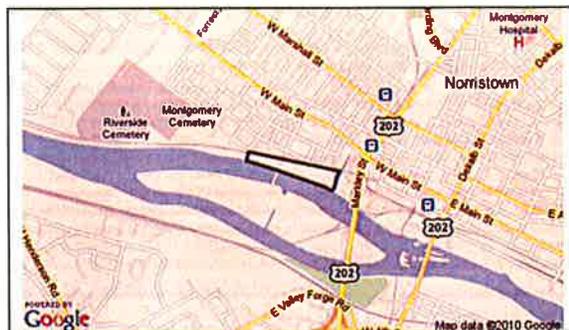


Riverfront Park

PNDI Project Environmental Review Receipt Project Search ID: 20101014266600

1. PROJECT INFORMATION

Project Name: Riverfront Park - Norristown
 Date of review: 10/14/2010 12:02:35 PM
 Project Category: Recreation, Boat docks/boat access areas
 Project Area: 14.3 acres
 County: Montgomery Township/Municipality: Norristown
 Quadrangle Name: NORRISTOWN ~ ZIP Code: 19401, 19406
 Declmal Degrees: 40.115101 N, -75.352435 W
 Degrees Minutes Seconds: 40° 6' 54.4" N, -75° 21' 8.8" W



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Conservation Measure	No Further Review Required, See Agency Comments
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.

PNDI Project Environmental Review Receipt Project Search ID: 20101014266600

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.

RESPONSE TO QUESTION(S) ASKED

Q1: "Will any and all on-land (non-aquatic) disturbance occur in or on an existing building, parking lot, driveway, road, road shoulder, street, runway, paved area, railroad bed, maintained (periodically mown) lawn, crop agriculture field or maintained orchard?"
 Your answer is: 1. Yes

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 jurisdictional 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: Conservation Measure: Please avoid the introduction of invasive species in order to protect the integrity of nearby plant species of special concern. Voluntary cleaning of equipment/vehicles, using clean fill and mulch, and avoiding planting invasive species (<http://www.dcnr.state.pa.us/forestry/invasiveltutorial/index.htm>) will help to conserve sensitive plant habitats.

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.)

Scientific Name: *Quercus falcata*
 Common Name: Southern Red Oak
 Current Status: Endangered
 Proposed Status: Endangered

PNDI Project Environmental Review Receipt Project Search ID: 20101014266600

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 jurisdictional 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(ies) 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

PNDI Project Environmental Review Receipt Project Search ID: 20101014266600

(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>.

PNDI Report

PNDI Project Environmental Review Receipt Project Search ID: 20101014266600

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, 17110-9787
Fax: (717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Sean Jain
Company/Business Name: Jain, Mirman & Thompson
Address: 210 St Charles Way, Suite 200
City, State, Zip: York, PA 17402
Phone: (717) 741-1100 Fax: (717) 741-9100
Email: sjain@jmt.com

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.

Sean Jain 2/16/11
applicant/project proponent signature date

This page left intentionally blank

Appendix D

Photo Inventory



Riverfront Park

Photo Inventory





Photo Inventory





Riverfront Park

Photo Inventory

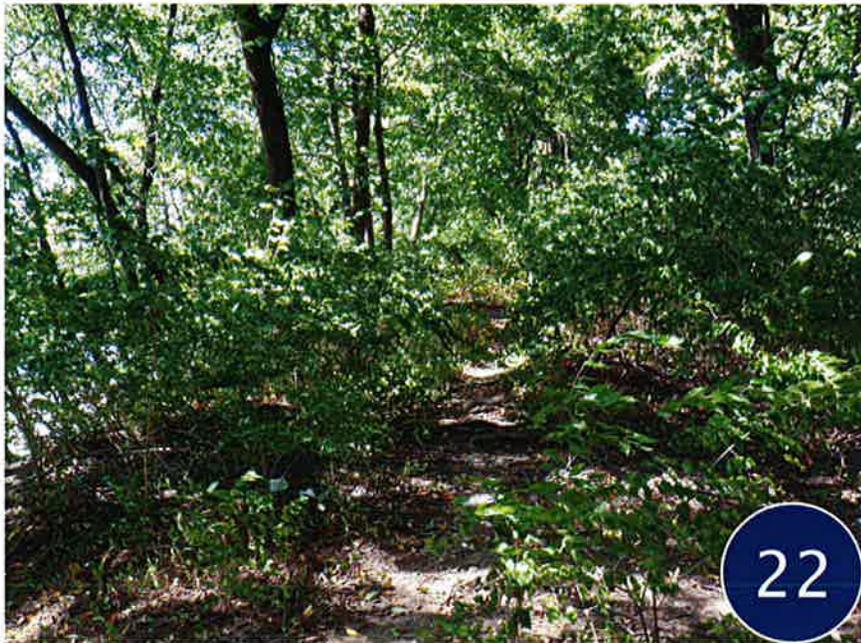




Photo Inventory





Riverfront Park

Photo Inventory





Photo Inventory





Photo Inventory





Photo Inventory



Winter at Riverfront Park





This page left intentionally blank

Appendix E

Alternate Designs

Alternate Designs

A design charette was conducted with the Project Study Committee at the February 17, 2011 meeting to develop the conceptual plan for redevelopment of the park. The concept plan was developed with consideration of the goals previously established by the Project Study Committee, the analysis of the site, the surrounding land uses, and input received from the key person interviews. This plan would eventually become the basis for development of the master plan. The plan primarily focused on defining the areas for redevelopment and outlining program uses.

Based on the concept plan, three alternative designs were developed and reviewed with the Study Committee. Based on input for the committee on each alternative, the pre-final design plan was developed. An illustration of the concept plan, each design alternative, and the pre-final design has been provided on the following pages, followed by a summary of the committees' comments.

Project Study Committee Review of Alternatives

The conceptual alternatives were presented to the Study Committee for review and comment on April 7, 2011. The presentation of the alternatives resulted in discussions of each of the design concepts and the development of the pre-final design.

Alternatives 1, 2 and 3 were derived from the conceptual plan diagram developed with the study committee. The main distinction between the alternatives is the proposed restroom and pavilion type, size and location. Each alternative includes the following:

- Canoe/kayak launch with drop off/turnaround, and parking.
- Six parking spaces for canoe/kayak launch and one ADA space.
- Designated picnic pavilion and parking area, five parking spaces which includes two ADA.
- Floating dock to be developed in conjunction with proposed aesthetic improvements to the fishing pier.

- Boarding dock for the easternmost boat launch.
- Enhanced fishing and stabilization improvements along the shoreline between the existing boat launches.
- Improved gathering areas for picnic and group socialization along the existing parking area.
- Restriping of parking area to provide a total of 43 parking spaces including the proposed parking spaces for the canoe/kayak launch and picnic area.
- The design provides a total of 17 additional parking spaces.
- Pedestrian connection to Crawford park.
- Designated trailer parking – 12 spaces, this is an increase of four spaces from the original design.
- Improved two-way parking area that facilitates safer vehicular movements.
- Open and inviting public lawn area adjacent to the Schuylkill River Trail with views to the riverfront.
- Public art display areas.
- Perimeter loop trails to link park facilities and provide pedestrian connections to the Schuylkill River Trail and Crawford Park.
- Improved park entry signage and area markers.
- One-way vehicular and pedestrian entrance via Chain Street.
- Potential economic development partnership opportunities with adjacent vacant structures between the park and the Schuylkill River Trail. Considerations could include trail or park related business that could also provide restroom facilities and parking.

Alternative 1 - included an overlook as the focal point of the open lawn area. Restroom facilities are envisioned to be developed in conjunction with potential developments that could occur as part of the vacant structures adjacent to the Schuylkill River Trail.

The Study Committee determined that this was not a viable alternative because restroom facilities were the number one requested improvement to the park. The overlook was well received and the committee felt it was important to open the views to the riverfront and the park activities below.

Alternative 2 - included a restroom building. Due to existing site constraints, there are only a few potential areas for the development of a traditional restroom building with public sewer and water. The proposed building is located on-site along the ridge top and offers a view over the existing park. The location is just outside of the designated 100-year floodplain and adjacent to the existing force main that traverses the site.

Due to the significant challenges associated with the proposed building location, the Committee determined that development of a structure on-site may not be the most cost-effective long-term solution. Both vehicular and pedestrian access to the building would be difficult and involve coordination with adjacent utilities. The grade change between the high activity areas of the park and the difficult access routes was not viewed as a favorable condition. A high priority goal was to provide restrooms in the immediate area of the park.

Alternative 3 - included a more formalized open lawn area with the development of three picnic units. In addition, the portable toilets with decorative enclosures were proposed within the lower area of the park.

The committee determined that this solution met the immediate needs of the park users. Long-term permanent restrooms should be considered in any potential development that may occur in the adjacent structures.

Pre-Final Design Development

In general, the overall plan elements and proposed improvements were well received. The Study Committee recommended that the pre-final design be developed with the portable toilet enclosures as shown in Alternative 3 and with the overlook as depicted in Alternative 1. In addition, the following comments and discussion items were noted:

- The park operations and maintenance plan must address flooding events and associated cleanup activities.
- The canoe/kayak area should be developed with consideration of the flooding that occurs in that area.
- An additional portable restroom station should be considered in close proximity to the Schuylkill River Trail. This would provide convenient restroom locations for both the upper and lower sections of the park.
- The overlook area and open lawn should include one picnic unit.
- The portable restroom location in Alternative 1 should be moved and incorporated into the hillside across from the fishing pier. This will provide a more convenient and visible location for the lower section of the park.
- Call boxes should be included in the design.
- A pedestrian promenade should connect all the facilities along the riverfront.
- Additional lighting must be incorporated into the design. Solar lighting should be considered. It was noted that the Borough has already been incorporating solar lights into its development projects.
- Additional vacant buildings were noted north of the existing Schuylkill River Trail.
- The secondary one-way entrance via Chain Street was discussed at length. The committee decided that since safety was an overriding concern of the plan, the secondary entrance would be shown if emergency and police personal

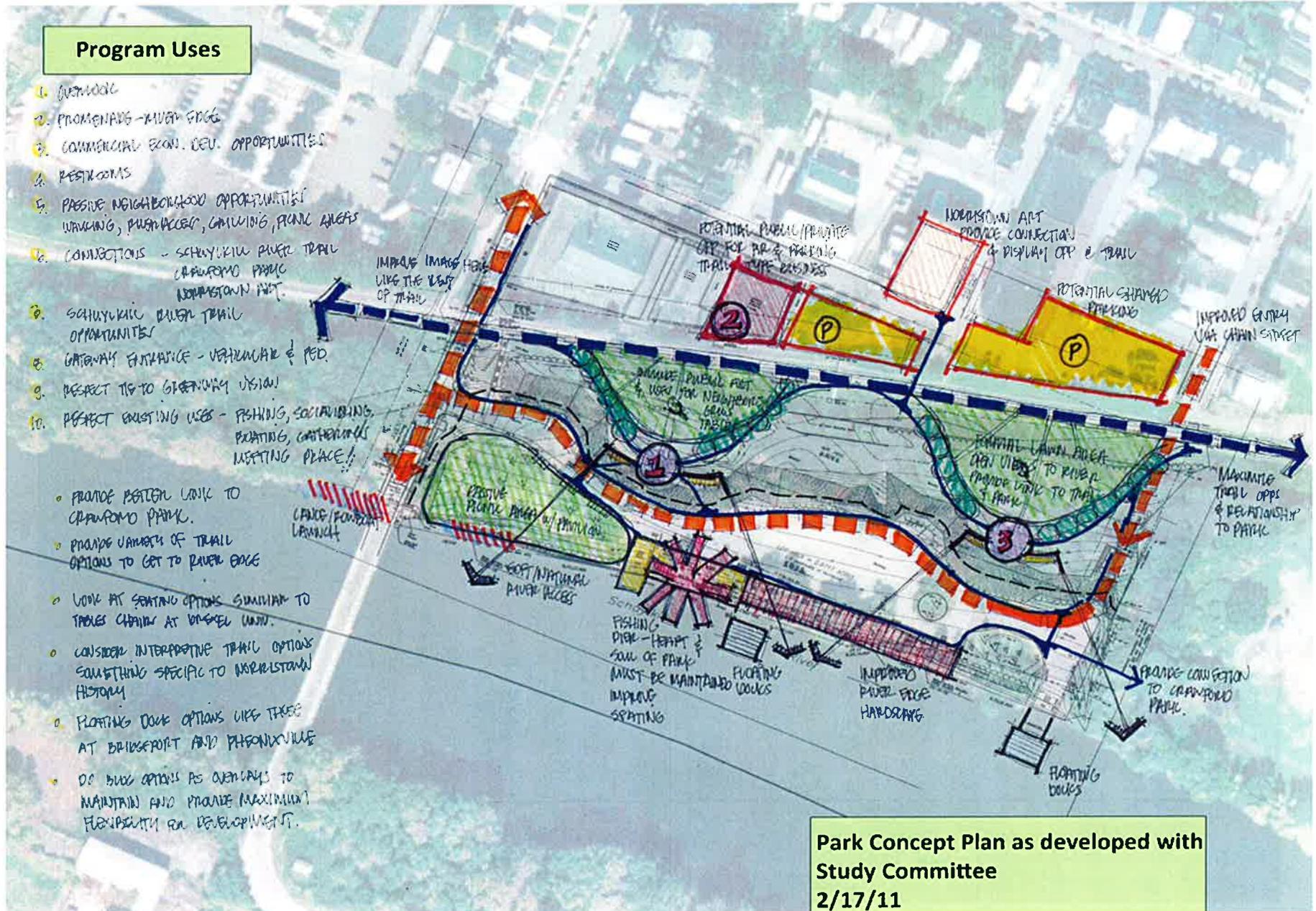
Alternate Designs

saw benefits to providing an additional access to the park. Norristown Police Department confirmed on April 8, 2011 that having a secondary entrance to the park would be beneficial to enhancing safety in the park. The additional entrance would allow for better visual surveillance and access to the site.

- The need for a playground area was raised, however, the Committee noted that playground apparatus was already located at Crawford Park and there was no need to duplicate facilities.
- The need for a small dog park was also discussed. The consultants discouraged the consideration for a dog park at this location. The size of the existing park and the existing uses within the park are incompatible with the development of a dog park.
- The view from the open lawn and overlook must be carefully addressed. The Committee felt that this would be the “money shot” for encouraging additional users to frequent the park, and by enhancing the appearance, that users would consider this is a safe park.

Sample building images and restrooms reviewed with Study Committee.





Alternate Designs

Alternative 1





Alternate Designs

Alternative 3



Riverfront Park



Legend

- 1 Canoe / Kayak Launch
- 2 Portable Toilet Facility & Bicycle Rack
- 3 Potential Partnership Opportunity
 - Restrooms
 - Parking
 - Related Trail / Park Business
- 4 Picnic Area
- 5 Overlook / Public Art Display
- 6 Open Lawn
- 7 Floating Dock
- 8 Traller Parking 8/12
- 9 Parking 26/43
- 10 Stone Protection / Stone Seating / Bank Fishing
- 11 Boarding Dock
- 12 Entrance Signage / Information Kiosk
- 13 Park Entry One Way In
- 14 Crawford Park Connellon

This page left intentionally blank

Appendix F

Development Cost Estimates

MODULE A ESTIMATE

Development Cost Estimates

ITEM	DESCRIPTION	EST. QTY.	UNITS	UNIT PRICE	TOTAL COST
A. Site Improvements					
A.1	General Requirements				\$4,100
A.1.1	Bond, Mobilization	1.0	LS	\$2,500	\$2,500
A.1.2	Survey/Construction Layout	1.0	DAY	\$1,000	\$1,000
A.1.3	Submittals/Shop Drawings	3.0	MONTH	\$200	\$600
A.2	Site Preparation and Demolition				\$24,875
A.2.1	Clearing and Grubbing	0.75	AC	\$2,700	\$2,025
A.2.2	Remove Individual Trees (>24" Caliper)	15.0	EA	\$500	\$7,500
A.2.3	Remove Individual Trees (6"-24" Caliper)	20.0	EA	\$250	\$5,000
A.2.4	Load and Haul Debris from Site	1.0	LS	\$6,500	\$6,500
A.2.5	Strip and Stockpile Topsoil (6" deep)	450.0	CY	\$5	\$2,250
A.2.6	Temporary Construction Fencing	400.0	LF	\$4	\$1,600
A.3	Erosion and Sedimentation / Stormwater Management				\$2,500
A.3.1	Soil Stabilization and Controls	1.0	LS	\$2,500	\$2,500
A.4	Earthwork				\$7,000
A.4.1	Bulk Excavation and Fill				
	A.4.1.1 Bulk Cut (Common Earth)	350.0	CY	\$20	\$7,000
	A.4.1.2 Bulk Fill (Common Earth)		CY	\$20	\$0
	<i>Balance:</i>	350.0	CY		
A.5	Site Concrete Construction				\$11,300
A.5.1	Concrete Paving	1700.0	SF	\$6	\$10,200
A.5.2	Concrete Stairs	3.0	Risers	\$200	\$600
A.5.3	Handrail	10.0	10	\$50	\$500

Development Cost Estimates

A.6	Porous Pavement						\$29,392
A.6.1	8' Wide Porous Bituminous Walkways						
	A.6.1.1	Bituminous Paving and Base	555.0	SY		\$25	\$13,875
	A.6.1.2	Fine Grade and Compact Shoulders	2500.0	SF		\$0.23	\$575
	A.6.1.3	Underdrain Pavement and Lawn	482.0	LF		\$31	\$14,942
A.7	Landscaping						\$21,125
A.7.1	Spread Topsoil, Fine Grade, Fertilize		2500.0	SY		\$2.2	\$5,500
A.7.2	Seeding						
	A.7.2.1	Lawn / General	20000.0	SF		\$0.15	\$3,000
A.7.3	Deciduous Trees		2.0			\$500	\$1,000
A.7.4	Evergreen Trees		3.0			\$475	\$1,425
A.7.5	Small Trees		12.0	EA		\$275	\$3,300
A.7.6	Shrubs		100.0			\$60	\$6,000
A.7.7	Grasses/Potted Plants		30.0			\$30	\$900
A.8	Site Amenities						\$2,900
A.8.1	Benches		2.0	EA		\$800	\$1,600
A.8.2	Trash Receptacle		1.0	EA		\$600	\$600
A.8.3	Bicycle Rack		1.0	EA		\$700	\$700
A.9	Miscellaneous Site Improvements						\$28,034
A.9.1	Security Lighting		1.0	LS		\$10,000.00	\$10,000
A.9.2	Flagpole		1.0	EA		\$5,120.00	\$5,120
A.9.3	Water Fountain		1.0	EA		\$3,355.00	\$3,355
A.9.4	4" PVC Water Line Lateral Extension		275.0	LF		\$25.00	\$6,875
A.9.5	Picnic Tables		4.0	EA		\$671.00	\$2,684
A.10	Seatwalls						\$10,000
A.10.1	Decorative Seatwalls		50.0	LF		\$200.00	\$10,000
A.11	Retaining Walls						\$14,000
A.11.1	Modular Retainaing Walls		400.0	SF		\$35.00	\$14,000

Development Cost Estimates

A.12	ADA Ramp				\$4,080
	A.12.1 Handrail	60.0	LF	\$50.00	\$3,000
	A.12.2 Ramp	180.0	SF	\$6.00	\$1,080
A.13	Storm Drainage - Misc	1.0	LS	\$10,000.00	\$10,000

	Subtotal Site Improvements (A):	\$169,306
--	--	------------------

	SUBTOTAL :	\$169,306
--	-------------------	------------------

	15% DESIGN CONTINGENCY:	\$25,396
--	--------------------------------	-----------------

	TOTAL PROBABLE COST	\$194,702
--	----------------------------	------------------

1	Professional Design Fees	15%	\$29,205
2	Construction Contingency Fund	15%	\$33,586
3	Miscellaneous Costs	3%	\$6,437

Includes but is not limited to:
 Site Surveying, Test Borings, Sink Hole Investigation,
 Builders Risk Insurance, Building Permit,
 Labor and Industry Fee, Document Printing,
 Construction Testing, Storm Water Permit

4	Total Soft Costs	33%	\$69,229
----------	-------------------------	-----	-----------------

	TOTAL PROJECT ESTIMATE	\$263,931
--	-------------------------------	------------------

MODULE B ESTIMATE

Development Cost Estimates

ITEM	DESCRIPTION	EST. QTY.	UNITS	UNIT PRICE	TOTAL COST
A.	Site Improvements				
A.1	General Requirements				\$3,700
A.1.1	Bond, Mobilization	1.0	LS	\$2,500	\$2,500
A.1.2	Survey/Construction Layout	1.0	DAY	\$1,000	\$1,000
A.1.3	Submittals/Shop Drawings	1.0	MONTH	\$200	\$200
A.2	Site Preparation and Demolition				\$5,840
A.2.1	Clearing and Grubbing	0.5	AC	\$2,700	\$1,350
A.2.2	Remove Individual Trees (>24" Caliper)	3.0	EA	\$500	\$1,500
A.2.3	Remove Individual Trees (6"-24" Caliper)	3.0	EA	\$250	\$750
A.2.4	Load and Haul Debris from Site	1.0	LS	\$1,000	\$1,000
A.2.5	Strip and Stockpile Topsoil (6" deep)	168.0	CY	\$5	\$840
A.2.6	Temporary Construction Fencing	100.0	LF	\$4	\$400
A.3	Erosion and Sedimentation / Stormwater Management				\$2,000
A.3.1	Soil Stabilization and Controls	1.0	LS	\$2,000	\$2,000
A.4	Earthwork				\$2,000
A.4.1	Bulk Excavation and Fill				
A.4.1.1	Bulk Cut (Common Earth)	50.0	CY	\$20	\$1,000
A.4.1.2	Bulk Fill (Common Earth)	50.0	CY	\$20	\$1,000
	<i>Balance:</i>	<i>0.0</i>	CY		
A.5	Porous Pavement				\$1,375
A.5.3	8' Wide Porous Bituminous Walkways				
A.5.3.1	Porous Paving and Base	55.0	SY	\$25	\$1,375
A.6	Landscaping				\$3,057
A.6.1	Spread Topsoil, Fine Grade, Fertilize	330.0	SY	\$2.2	\$726
A.6.2	Seeding				
A.6.2.1	Lawn / General	3539.0	SF	\$0.15	\$531

Development Cost Estimates

A.6.3	Ornamental Trees	4.0	EA	\$200	\$800
A.6.4	Perennials				
	A.6.4.1 Other Perennials	10.0	EA	\$15	\$150
A.6.5	Ornamental Shrubs				
	A.6.5.1 Other Ornamental Shrubs	10.0	EA	\$85	\$850
A.7	Site Amenities				\$2,850
A.7.1	Benches	1.0	EA	\$800	\$800
A.7.2	Picnic Benches	2.0	EA	\$675	\$1,350
A.7.3	Bicycle Rack	1.0	EA	\$700	\$700
A.8	Miscellaneous Site Improvements				\$4,000
A.8.1	Signage Allowance	1.0	EA	\$500	\$500
A.8.2	Portable Restroom Enclosure	1.0	EA	\$3,500.00	\$3,500
Subtotal Site Improvements (A):					\$24,822
SUBTOTAL:					\$24,822
15% DESIGN CONTINGENCY:					\$3,723
TOTAL PROBABLE COST:					\$28,545
1	Professional Design Fees			15%	\$4,282
2	Construction Contingency Fund			15%	\$4,924
3	Miscellaneous Costs			3%	\$944
	Includes but is not limited to:				
	Site Surveying, Test Borings, Sink Hole Investigation,				
	Builders Risk Insurance, Building Permit,				
	Labor and Industry Fee, Document Printing,				
	Construction Testing, Storm Water Permit				
4	Total Soft Costs			33%	\$10,150
TOTAL PROJECT ESTIMATE					\$38,695

MODULE C ESTIMATE

Development Cost Estimates

ITEM	DESCRIPTION	EST. QTY.	UNITS	UNIT PRICE	TOTAL COST
A.	Site Improvements				
A.1	General Requirements				\$7,400
A.1.1	Bond, Mobilization	1.0	LS	\$4,000	\$4,000
A.1.2	Survey/Construction Layout	2.0	DAY	\$1,000	\$2,000
A.1.3	Submittals/Shop Drawings	3.0	MONTH	\$200	\$600
A.1.4	Project Sign	1.0	EA	\$800	\$800
A.2	Site Preparation and Demolition				\$18,450
A.2.1	Clearing and Grubbing	0.75	AC	\$2,700	\$2,025
A.2.2	Remove Individual Trees (>24" Caliper)	10.0	EA	\$500	\$5,000
A.2.3	Remove Individual Trees (6"-24" Caliper)	10.0	EA	\$250	\$2,500
A.2.4	Load and Haul Debris from Site	1.0	LS	\$5,000	\$5,000
A.2.5	Strip and Stockpile Topsoil (6" deep)	545.0	CY	\$5	\$2,725
A.2.6	Temporary Construction Fencing	300.0	LF	\$4	\$1,200
A.3	Erosion and Sedimentation / Stormwater Management				\$5,000
A.3.1	Soil Stabilization and Controls	1.0	LS	\$2,000	\$5,000
A.4	Earthwork				\$2,000
A.4.1	Bulk Excavation and Fill				
	A.4.1.1 Bulk Cut (Common Earth)	50.0	CY	\$20	\$1,000
	A.4.1.2 Bulk Fill (Common Earth)	50.0	CY	\$20	\$1,000
	<i>Balance:</i>	0.0	CY		
A.5	Bank Fishing Improvements				\$10,000
A.5.1	Upgrade existing foundations	1.0	LS	\$10,000	\$10,000

Development Cost Estimates

A.6	Porous Pavement					\$33,900
	A.6.1	5' Wide Porous Bituminous Walkways (lin. ft.)				
		A.6.3.2 Porous Paving and Base	335.0	SY	\$25	\$8,375
	A.6.2	Parking & Access Drive				
		A.6.4.2 Porous Bituminous Paving and Base	1005.0	SY	\$25	\$25,125
	A.6.3	Handicap Space Marking and Signage	2.0	EA	\$200	\$400
A.7	Landscaping					\$10,495
	A.7.1	Spread Topsoil, Fine Grade, Fertilize	844.0	SY	\$2.2	\$1,857
	A.7.2	Seeding				
		A.7.2.1 Lawn / General	17257.0	SF	\$0.15	\$2,589
	A.7.3	Street/Parking Area Trees				
		A.7.3.1 Parking Area	5.0	EA	\$275	\$1,375
		A.7.3.2 Access Drive	5.0	EA	\$275	\$1,375
	A.7.4	Screen Planting				
		A.7.4.1 Adjacent Residents	0.0	EA	\$200	\$0
	A.7.5	Ornamental Trees	5.0	EA	\$200	\$1,000
	A.7.6	Perennials				
		A.7.6.1 Parking Area	20.0	EA	\$15	\$300
		A.7.6.2 Other Perennials	20.0	EA	\$15	\$300
	A.7.7	Ornamental Shrubs				
		A.7.7.1 Parking Area	10.0	EA	\$85	\$850
		A.7.7.2 Other Ornamental Shrubs	10.0	EA	\$85	\$850
A.8	Canoe / Kayak Launch					\$25,000
A.9	Site Amenities					\$600
	A.9.2	Trash Receptacle	1.0	EA	\$600	\$600

Development Cost Estimates

A.10	Miscellaneous Site Improvements				\$5,250
A.10.1	Signage allowance	1.0	EA	\$1,000	\$1,000
A.10.2	Parking Lot - Double Swing Security Gates	1.0	EA	\$2,500	\$2,500
A.10.3	Concrete Wheel Stops	7.0	EA	\$250	\$1,750
A.10.4	Pavement Marking, Epoxy Resin	100.0	LF	\$0.75	\$75
				Subtotal Site Improvements (A):	\$118,095
				SUBTOTAL :	\$118,095
				15% DESIGN CONTINGENCY:	\$17,714
				TOTAL PROBABLE COST	\$135,810
1	Professional Design Fees			15%	\$20,371
2	Construction Contingency Fund			15%	\$23,427
3	Miscellaneous Costs			3%	\$4,490
	Includes but is not limited to:				
	Site Surveying, Test Borings, Sink Hole Investigation,				
	Builders Risk Insurance, Building Permit,				
	Labor and Industry Fee, Document Printing,				
	Construction Testing, Storm Water Permit				
4	Total Soft Costs			33%	\$48,289
				TOTAL PROJECT ESTIMATE	\$184,098

MODULE D ESTIMATE

Development Cost Estimates

ITEM	DESCRIPTION	EST. QTY.	UNITS	UNIT PRICE	TOTAL COST
A.	Site Improvements				
A.1	General Requirements				\$4,100
A.1.1	Bond, Mobilization	1.0	LS	\$2,500	\$2,500
A.1.2	Survey/Construction Layout	1.0	DAY	\$1,000	\$1,000
A.1.3	Submittals/Shop Drawings	3.0	MONTH	\$200	\$600
A.2	Site Preparation and Demolition				\$7,875
A.2.1	Clearing and Grubbing	0.5	AC	\$2,700	\$1,350
A.2.2	Remove Individual Trees (>24" Caliper)	1.0	EA	\$500	\$500
A.2.3	Remove Individual Trees (6"-24" Caliper)	3.0	EA	\$250	\$750
A.2.4	Load and Haul Debris from Site	1.0	LS	\$3,500	\$3,500
A.2.5	Strip and Stockpile Topsoil (6" deep)	75.0	CY	\$5	\$375
A.2.6	Temporary Construction Fencing	350.0	LF	\$4	\$1,400
A.3	Erosion and Sedimentation / Stormwater Management				\$7,500
A.3.1	Soil Stabilization and Controls	1.0	LS	\$2,000	\$7,500
A.4	Earthwork				\$2,000
A.4.1	Bulk Excavation and Fill				
A.4.1.1	Bulk Cut (Common Earth)	50.0	CY	\$20	\$1,000
A.4.1.2	Bulk Fill (Common Earth)	50.0	CY	\$20	\$1,000
	<i>Balance:</i>	<i>0.0</i>	CY		
A.5	Site Concrete Construction				\$18,425
A.5.2	Pavilions	335.0	SY	\$55	\$18,425
A.6	Porous Pavement				\$12,225
A.6.1	5' Wide Porous Bituminous Walkways				
A.6.1.1	Porous Paving and Base	377.0	SY	\$25	\$9,425
A.6.2	Parking Area				
A.6.2.1	Porous Paving and Base	112.0	SY	\$25	\$2,800

Development Cost Estimates

A.7	Landscaping					\$11,354
A.7.1	Spread Topsoil, Fine Grade, Fertilize	1744.0	SY	\$2.2		\$3,837
A.7.2	Seeding					
A.7.2.1	Lawn / General	18781.0	SF	\$0.15		\$2,817
A.7.3	Street/Parking Area Trees					
A.7.3.1	Parking Area	2.0	EA	\$275		\$550
A.7.3.2	Access Drive	2.0	EA	\$275		\$550
A.7.4	Ornamental Trees	3.0	EA	\$200		\$600
A.7.5	Perennials					
A.7.5.1	Parking Area	15.0	EA	\$15		\$225
A.7.5.2	Other Perennials	15.0	EA	\$15		\$225
A.7.6	Ornamental Shrubs					
A.7.6.1	Parking Area	15.0	EA	\$85		\$1,275
A.7.6.2	Other Ornamental Shrubs	15.0	EA	\$85		\$1,275
A.8	Site Amenities					\$13,039
A.8.1	Benches	2.0	EA	\$800		\$1,600
A.8.3	Trash Receptacle	1.0	EA	\$600		\$600
A.8.4	Bicycle Rack	1.0	EA	\$700		\$700
A.8.5	Water Fountain	1.0	EA	\$3,355.00		\$3,355
A.8.6	4" PVC Water Line Lateral Extension	120.0	LF	\$25.00		\$3,000
A.8.7	Picnic Tables	4.0	EA	\$671.00		\$2,684
A.8.8	Grill	2.0	EA	\$550		\$1,100
A.9	Miscellaneous Site Improvements					\$2,805
A.9.1	Signage Allowance	1.0	LS	\$1,000		\$1,000
A.9.2	Parking Lot - Double Swing Security Gates	0.0	EA	\$2,500		\$0
A.9.3	Parking Lot Stone Base	0.0	CY	\$50.00		\$0
A.9.4	Concrete Wheel Stops	6.0	EA	\$250		\$1,500
A.9.5	6' Wide Stone Dust Walking Trail	0.0	SF	\$2.50		\$0
A.9.6	6' High Chainlink Fence	0.0	LF	\$20.00		\$0
A.9.7	Pavement Marking, Epoxy Resin	140.0	LF	\$0.75		\$105
A.9.8	Handicap Space Marking and Signage	1.0	EA	\$200		\$200

Development Cost Estimates

				Subtotal Site Improvements (A):	\$79,323	
B.	Structures					
B.1	Structures				\$30,000	
	B.1.1	Pavilion	1.0	EA	\$30,000	
					\$30,000	
				Subtotal Structure Improvements (B):	\$30,000	
				SUBTOTAL (A-B):	\$109,323	
				15% DESIGN CONTINGENCY:	\$16,398	
				TOTAL PROBABLE COST:	\$125,721	
1	Professional Design Fees				15%	\$18,858
2	Construction Contingency Fund				15%	\$21,687
3	Miscellaneous Costs				3%	\$4,157
	Includes but is not limited to:					
	Site Surveying, Test Borings, Sink Hole Investigation,					
	Builders Risk Insurance, Building Permit,					
	Labor and Industry Fee, Document Printing,					
	Construction Testing, Storm Water Permit					
4	Total Soft Costs				33%	\$44,702
TOTAL PROJECT ESTIMATE				\$170,423		

MODULE E ESTIMATE

Development Cost Estimates

ITEM	DESCRIPTION	EST. QTY.	UNITS	UNIT PRICE	TOTAL COST
A.	Site Improvements				
A.1	General Requirements				\$8,600
A.1.1	Bond, Mobilization	1.0	LS	\$5,000	\$5,000
A.1.2	Survey/Construction Layout	3.0	DAY	\$1,000	\$3,000
A.1.3	Submittals/Shop Drawings	3.0	MONTH	\$200	\$600
A.2	Site Preparation and Demolition				\$18,725
A.2.1	Clearing and Grubbing	0.5	AC	\$2,700	\$1,350
A.2.2	Remove Individual Trees (>24" Caliper)	2.0	EA	\$500	\$1,000
A.2.3	Remove Individual Trees (6"-24" Caliper)	4.0	EA	\$250	\$1,000
A.2.4	Load and Haul Debris from Site	1.0	LS	\$6,500	\$6,500
A.2.5	Strip and Stockpile Topsoil (6" deep)	125.0	CY	\$5	\$625
A.2.6	Temporary Construction Fencing	500.0	LF	\$4	\$2,000
A.2.7	Sawcut Existing Bituminous Pavement	1250.0	LF	\$5	\$6,250
A.3	Erosion and Sedimentation / Stormwater Management				\$5,000
A.3.1	Soil Stabilization and Controls	1.0	LS	\$5,000	\$5,000
A.4	Earthwork				\$10,000
A.4.1	Bulk Excavation and Fill				
A.4.1.1	Bulk Cut (Common Earth)	500.0	CY	\$20	\$10,000
A.4.1.2	Bulk Fill (Common Earth)	0.0	CY	\$20	\$0
	<i>Balance:</i>	500.0	CY		

Development Cost Estimates

A.5	Site Concrete Construction					\$49,875
	A.5.2	Concrete Curb	1425.0	LF	\$35	\$49,875
A.6	Bituminous Pavement					\$22,375
	A.6.1	8' Wide Porous Bituminous Walkways				
		A.6.1.1 Porous Paving and Base	895.0	SY	\$25	\$22,375
	A.6.2	Parking Area				
		A.6.2.1 Porous Paving and Base	268.0	SY	\$25	\$6,700
A.7	Porous Bituminous Pavement					
	A.7.1	Access Drive				
		A.6.7.1 Mill & Overlay Pavement	5100.0	SY	\$5	\$25,500
A.8	Landscaping					\$2,047
	A.8.1	Spread Topsoil, Fine Grade, Fertilize	210.0	SY	\$2.2	\$462
	A.8.2	Seeding				
		A.8.2.1 Lawn / General	2230.0	SF	\$0.15	\$335
	A.8.3	Street/Parking Area Trees				
		A.8.3.1 Parking Area	4.0	EA	\$275	\$1,100
	A.8.4	Perennials				
		A.8.4.1 Parking Area	5.0	EA	\$15	\$75
		A.8.4.2 Other Perennials	5.0	EA	\$15	\$75
A.9	Miscellaneous Site Improvements					\$10,909
	A.9.1	Parking Lot - Double Swing Security Gates	1.0	EA	\$2,500	\$2,500
	A.9.2	Pavement Marking, Epoxy Resin	1500.0	LF	\$0.75	\$1,125
	A.9.3	Portable Restroom Enclosure	1.0	EA	\$3,500.00	\$3,500
	A.9.4	Picnic Tables	4.0	EA	\$671.00	\$2,684
	A.9.5	Grill	2.0	EA	\$550	\$1,100
Subtotal Site Improvements (A):						\$153,031

Development Cost Estimates

SUBTOTAL: \$153,031

15% DESIGN CONTINGENCY: \$22,955

TOTAL PROBABLE COST: \$175,985

1	Professional Design Fees	15%	\$26,398
2	Construction Contingency Fund	15%	\$30,357
3	Miscellaneous Costs	3%	\$5,819
	Includes but is not limited to:		
	Site Surveying, Test Borings, Sink Hole Investigation,		
	Builders Risk Insurance, Building Permit,		
	Labor and Industry Fee, Document Printing,		
	Construction Testing, Storm Water Permit		
4	Total Soft Costs	33%	\$62,574

TOTAL PROJECT ESTIMATE \$238,559

MODULE F ESTIMATE

Development Cost Estimates

ITEM	DESCRIPTION	EST. QTY.	UNITS	UNIT PRICE	TOTAL COST
A.	Site Improvements				
A.1	General Requirements				\$5,700
A.1.1	Bond, Mobilization	1.0	LS	\$3,500	\$3,500
A.1.2	Survey/Construction Layout	2.0	DAY	\$1,000	\$2,000
A.1.6	Submittals/Shop Drawings	1.0	MONTH	\$200	\$200
A.2	Site Preparation and Demolition				\$3,620
A.2.1	Strip and Stockpile Topsoil (6" deep)	324.0	CY	\$5	\$1,620
A.2.2	Temporary Construction Fencing	500.0	LF	\$4	\$2,000
A.3	Erosion and Sedimentation / Stormwater Management				\$10,000
A.3.1	Soil Stabilization and Controls	1.0	LS	\$10,000	\$10,000
A.4	Earthwork				\$1,400
A.4.1	Bulk Excavation and Fill				
	A.4.1.1 Bulk Cut (Common Earth)	25.0	CY	\$20	\$500
	A.4.1.2 Bulk Fill (Common Earth)	25.0	CY	\$20	\$500
		<i>Balance:</i>	0.0	CY	
A.4.2	Compaction for Paved/Building Areas	500.0	SY	\$0.8	\$400
			pl		
A.5	Site Concrete Construction				\$23,760
A.5.2	Boardwalk	432.0	SY	\$55	\$23,760

Development Cost Estimates

A.6	Porous Pavement					\$62,300
A.6.1	Porous Pavers	4450.0	SF	\$14		\$62,300
A.7	Landscaping					\$3,275
A.7.1	Spread Topsoil, Fine Grade, Fertilize	375.0	SY	\$2.2		\$825
A.7.2	Seeding					
A.7.2.1	Lawn / General	3000.0	SF	\$0.15		\$450
A.7.3	Street/Parking Area Trees					
A.7.4	Perennials					
A.7.4.1	Perennials	20.0	EA	\$15		\$300
A.7.5	Ornamental Shrubs					
A.7.5.1	Ornamental Shrubs	20.0	EA	\$85		\$1,700
A.8	Site Amenities					\$38,600
A.8.1	Benches	2.0	EA	\$800		\$1,600
A.8.3	Trash Receptacle	2.0	EA	\$700		\$1,400
A.8.4	Game Tables	10.0	EA	\$3,500		\$35,000
A.8.5	Bicycle Rack	1.0	EA	\$600		\$600
A.9	Miscellaneous Site Improvements					\$95,500
A.9.1	Signage Allowance	1.0	LS	\$500		\$500
A.9.7	Floating Dock	1.0	LS	\$20,000.00		\$20,000
A.9.8	Boarding Dock	1.0	LS	\$25,000.00		\$25,000
A.9.9	Boardwalk	1.0	LS	\$25,000.00		\$25,000
A.9.10	Shoreline Protection / Stone Seating	1.0	LS	\$25,000.00		\$25,000
Subtotal Site Improvements (A):						\$244,155

Development Cost Estimates

SUBTOTAL **\$244,155**

15% DESIGN CONTINGENCY: **\$36,623**

TOTAL PROBABLE COST (BASE BID): **\$280,778**

1	Professional Design Fees	15%	\$42,117
2	Construction Contingency Fund	15%	\$48,434
3	Miscellaneous Costs	3%	\$9,283
	Includes but is not limited to:		
	Site Surveying, Test Borings, Sink Hole Investigation,		
	Builders Risk Insurance, Building Permit,		
	Labor and Industry Fee, Document Printing,		
	Construction Testing, Storm Water Permit		
4	Total Soft Costs	33%	\$99,834

TOTAL PROJECT ESTIMATE **\$380,612**

MODULE G ESTIMATE

Development Cost Estimates

ITEM	DESCRIPTION	EST. QTY.	UNITS	UNIT PRICE	TOTAL COST
A.	Site Improvements				
A.1	General Requirements				\$4,700
A.1.1	Bond, Mobilization	1.0	LS	\$3,500	\$3,500
A.1.2	Survey/Construction Layout	1.0	DAY	\$1,000	\$1,000
A.1.6	Submittals/Shop Drawings	1.0	MONTH	\$200	\$200
A.2	Site Preparation and Demolition				\$24,880
A.2.1	Clearing and Grubbing	0.5	AC	\$2,700	\$1,350
A.2.2	Remove Individual Trees (>24" Caliper)	15.0	EA	\$500	\$7,500
A.2.3	Remove Individual Trees (6"-24" Caliper)	15.0	EA	\$250	\$3,750
A.2.4	Load and Haul Debris from Site	1.0	LS	\$6,500	\$6,500
A.2.5	Strip and Stockpile Topsoil (6" deep)	356.0	CY	\$5	\$1,780
A.2.6	Temporary Construction Fencing	1000.0	LF	\$4	\$4,000
A.3	Erosion and Sedimentation / Stormwater Management				\$5,000
A.3.1	Soil Stabilization and Controls	1.0	LS	\$5,000	\$5,000
A.4	Earthwork				\$62,000
A.4.1	Bulk Excavation and Fill				
A.4.1.1	Bulk Cut (Common Earth)	3000.0	CY	\$20	\$60,000
A.4.1.2	Bulk Fill (Common Earth)	100.0	CY	\$20	\$2,000
	<i>Balance:</i>	2900.0	CY		

Development Cost Estimates

A.5	Porous Pavement						\$40,330
A.5.1	8' Wide Porous Bituminous Walkways						
	A.5.1.1 Porous Paving and Base	567.0	SY	\$25			\$14,175
A.5.2	Access Drive						
	A.5.2.1 Porous Paving and Base	671.0	SY	\$25			\$16,775
A.5.3	Porous Pavers	670.0	SF	\$14			\$9,380
A.6	Landscaping						\$6,967
A.6.1	Spread Topsoil, Fine Grade, Fertilize	1000.0	SY	\$2.2			\$2,200
A.6.2	Seeding						
	A.6.2.1 Lawn / General	10781.0	SF	\$0.15			\$1,617
A.6.5	Ornamental Trees	5.0	EA	\$200			\$1,000
A.6.6	Perennials						
	A.6.6.1 Perennials	30.0	EA	\$15			\$450
A.6.7	Ornamental Shrubs						
	A.6.7.1 Ornamental Shrubs	20.0	EA	\$85			\$1,700
A.7	Site Amenities						\$1,400
A.7.1	Benches	1.0	EA	\$800			\$800
A.7.3	Trash Receptacle	1.0	EA	\$600			\$600
A.8	Miscellaneous Site Improvements						\$42,500
A.8.1	Site Identification Sign	2.0	LS	\$2,500			\$5,000
A.8.2	Parking Lot - Double Swing Security Gates	1.0	EA	\$2,500			\$2,500
A.8.3	Trail Crossing	1.0	LS	\$3,000.00			\$3,000
A.8.4	Retaining Wall	600.0	SF	\$35			\$21,000
A.8.5	Guardrail	100.0	LF	\$85.00			\$8,500
A.8.6	Information Kiosk	1.0	EA	\$2,500.00			\$2,500
Subtotal Site Improvements (A):							\$187,777

Development Cost Estimates

SUBTOTAL : \$187,777

15% DESIGN CONTINGENCY: \$28,167

TOTAL PROBABLE COST (BASE BID): \$215,944

1	Professional Design Fees	15%	\$32,392
2	Construction Contingency Fund	15%	\$37,250
3	Miscellaneous Costs	3%	\$7,140
	Includes but is not limited to:		
	Site Surveying, Test Borings, Sink Hole Investigation,		
	Builders Risk Insurance, Building Permit,		
	Labor and Industry Fee, Document Printing,		
	Construction Testing, Storm Water Permit		
4	Total Soft Costs	33%	\$76,781

TOTAL PROJECT ESTIMATE \$292,725

Development Cost Estimates

Note: Probable cost for site work does not include the following:

1. Rerouting gas, CATV, or phone lines. Additional improvements as may be required by municipal or other reviewing agencies having jurisdiction.
2. Utility service and or connection fees.
3. Interpretive signage design.
4. Removal of unsuitable materials, sink hole remediation, or on lot disposal system designs.
5. Project financing costs.
6. Streetscape improvements.
7. Off Site improvements.

JMT, Inc. is not a construction contractor and therefore probable construction cost opinions are based solely upon our experience with construction. This requires JMT to make a number of assumptions as to actual conditions which will be encountered on the site; the specific decisions of other design professionals engaged; the means and methods of construction the contractor will employ; contractors' techniques in determining prices and market conditions at the time, and other factors over which JMT has no control. Given these assumptions which must be made, JMT states that the above probable construction cost opinion is a fair and reasonable estimate for construction costs.

This page left intentionally blank

Appendix G

Applying Sustainability

Applying Sustainability

Sustainability and green design considerations have become increasingly important, and applying these values to park design has become a standard. As defined by *Creating Sustainable Community Parks: A Guide to Improving Quality of Life by Protecting Natural Resources*, a sustainable community park is one where natural resources are protected, wildlife habitats are improved and human recreational uses and maintenance practices do not conflict with, but rather enhance, the surrounding environment. The recently published *Draft Guidelines and Performance Benchmarks for Sustainable Sites Initiative*, further defines sustainability as land practices “that meet the needs of the present without compromising the ability of future generations to meet their own needs.” The green initiative allows for the park to become and maintain self-sufficiency, while reducing the amount of time and cost that must be required to maintain certain areas in both the long and short-terms.

A sustainable park produces the following benefits to a community: economic benefits by attracting users to the park and the surrounding areas where the park resides; environmental benefits by reducing impacts to the environment and providing a safe area for wildlife; and health and safety benefits by giving the community a educational environment, allowing for active activities, and reducing crime, creating stronger/safer neighborhoods surrounding the park.

Do no harm

Make no changes to the site that will degrade the surrounding environment. Promote projects on sites where previous disturbance or development presents an opportunity to regenerate ecosystem services through sustainable design.

Precautionary principle

Be cautious in making decisions that could create risk to human and environmental health. Some actions can cause irreversible damage. Examine a full range of alternatives including no action and be open to contributions from all affected parties.

Design with nature and culture

Create and implement designs that are responsive to economic, environmental and cultural conditions with respect to the local, regional and global context.

Use a decision-making hierarchy of preservation, conservation and regeneration

Maximize and mimic the benefits of ecosystem services by preserving existing environmental features, conserving resources in a sustainable manner and regenerating lost or damaged ecosystem services.

Provide regenerative systems as intergenerational equity

Provide future generations with a sustainable environment supported by regenerative systems and endowed with regenerative resources.

Support a living process

Continuously re-evaluate assumptions and values and adapt to demographic and environmental change.

Use a systems thinking approach

Understand and value the relationships in an ecosystem and use an approach that reflects and sustains ecosystem services; re-establish the integral and essential relationship between natural processes and human activity.

Use a collaborative and ethical approach

Encourage direct and open communication among colleagues, clients, manufacturers and users to link long-term sustainability with ethical responsibility.

Maintain integrity in leadership and research

Implement transparent and participatory leadership, develop research with technical rigor and communicate new findings in a clear, consistent and timely manner.

Foster environmental stewardship

In all aspects of land development and management, foster an ethic of environmental stewardship - an understanding that responsible management of healthy ecosystems improves the quality of life for present and future generations.

Taken from *“The Sustainable Sites Initiative, Guidelines and Performance Benchmarks”* American Society of Landscape Architects.

Green Design

The redevelopment of the park provides an opportunity to incorporate green design techniques. Integration of green design principals and techniques for future construction/improvements is encouraged to minimize the impact of park development on the

natural resources. Please see Appendix A for the Bureau of Recreation and Conservation Green Principles for Park Development and Sustainability.



Applying Sustainability

Green Design Considerations		
Consideration	Intent	Application
Erosion and sedimentation control	Reduce negative impact on air and water quality	Provide erosion control measures and best management practices (BMPs) during new construction activities. Eliminate impact to steep slope areas.
Reduce site disturbance	Limit development to appropriate sites to reduce the impact on the landscape and habitat.	Construct improvements within existing clearings or developed areas.
Develop sustainable trails	Limit erosion attributed to inappropriate trail placement.	Develop trails that follow the contour of the land. Use switchbacks to navigate steep terrain where necessary. Eliminate highly erodible trails.
Stormwater management	Limit disruption and pollution of natural water courses, reduce increased runoff and promote infiltration.	Minimize crossings at water courses. Where crossings are necessary, provide measures for efficient passage of water. Utilize porous pavement to promote infiltration of stormwater runoff. Size parking areas to meet parking need and provide turf overflow parking for high use occurrences and special events.
Reduce heat islands	Minimize impact of microclimate.	Provide plantings in the large, expansive parking areas to break up the hard surface and promote infiltration. Dawn to dusk policy where appropriate.

Green Design Considerations		
Consideration	Intent	Application
Reduce light pollution	Improve night sky visibility and reduce impact on nocturnal environments.	Limit lighting within the park. Where night lighting is necessary for safety and security, provide shields or specify full cut-off fixtures and only specify the necessary lumens.
Innovative wastewater treatment	Reduce the generation of wastewater and potable water demand	Provide self mulching or other environmentally friendly treatment alternatives.
Recycled building materials	Limit the use of consumptive building materials	Utilize recycled plastic and building materials in new construction.
Local materials and suppliers	Support the local economy and reduce the environmental impact resulting from transportation	Purchase products locally produced.
Maximize solar orientation	Reduce electric needs through proper building orientation.	Orient buildings to take advantage of natural light and heat.
Energy consumption	Minimize use of fossil fuels.	<p>Install a ground source geothermal heat pump system for heating and cooling of buildings.</p> <p>Plant deciduous trees to cool buildings in the summer and allow solar access in winter.</p> <p>Layout and orient buildings and outdoor use areas to take advantage of cooling summer breezes.</p> <p>Connect park sites to regional trail systems so that non-motorized transportation modes can be used to access the site.</p> <p>Install solar powered amenities/features.</p>

Applying Sustainability

Green Design Considerations		
Consideration	Intent	Application
Promote water conservation	Reduce water use to lower burden on supply.	Select native and drought tolerant plants to reduce watering and maintenance demands. Mulch landscape areas to retain moisture and minimize the need to water plants.
Use water efficiently	Maximize water collection to reduce burden on supply.	Collect rainwater and runoff in rain barrels for watering landscaping and maintenance needs. Direct rainwater to rain gardens to promote groundwater recharge. Use high efficiency fixtures and composting toilets to reduce demand. Use re-circulating and water treatment systems for splash pads and spray features.
Emphasize and promote recycling	Reduce the amount of new materials required and lower the demand for new materials to be produced.	Reuse existing buildings, materials and infrastructure. Build with salvaged materials whenever available.
Participate in LEED system.	Employ the Leadership in Energy and Environmental Design (LEED) Green Building Rating System on site as the national standard for Green Design.	Use the LEED project checklist for all aspects of design from erosion & sedimentation control to green power and materials.

Best Management Practices

Development of the park as conceived in this master plan will involve earthwork and construction activities. Best Management Practices (BMPs) are encouraged throughout the construction process to protect the resources and stabilize them through creative design. Best Management Practices will promote a stable future for the site. Detailed Examples of Best Management Practices can be found in Pennsylvania Stormwater Best Management Practices Manual. Some basic examples are listed below for informational purposes and should be considered where applicable in the redevelopment of the park. Incorporation of these facilities will require site specific soils testing to determine infiltration rates and plan for incorporation of applicable BMPs.

Best Management Practices		
BMP	Purpose	Application
Constructed treatment wetlands	Remove a wide variety of pollutants such as suspended solids, nutrients, and organic pollutants.	Shallow water-filled basins planted with emergent plant vegetation. Place at stream/drainage-way outfall to water bodies.
Critical area planting	Stabilize slope, improve wildlife habitat, slow stormwater run-off.	Areas of erodible soils and/or steep slope and at the edge of the stream and perimeter of pond.
Filter strip	To trap sediment and convey run-off from paved surfaces to stormwater channels and reduce run-off velocity.	Adjacent to impervious surfaces and on gentle slopes with sheet flow. Adjacent to springs, streams and ponds to filter sediment.
Grass swales	Run-off conveyance, pollution, and sediment filtering device and increased ground water infiltration.	Where natural drainage ways can be incorporated into the stormwater design in lieu of piped conveyance.

Applying Sustainability

Best Management Practices		
BMP	Purpose	Application
Level spreader	To reduce the erosion effects of concentrated run-off and promote infiltration.	Adjacent to paved surfaces and at pipe and channel discharge points.
Stream bank stabilization	Protect critical sections of a stream bank where standard vegetative practices are not feasible or offer insufficient protection.	Banks of springs, streams or swales that need to be stabilized due to unstable soil and steep banks.
Minimize site clearing	Minimize disruption to the site's natural systems and preserve the natural stabilizing and filtering vegetation of the site.	Where development is proposed.
Reduce impervious infrastructure	Reduce stormwater run-off and promote infiltration.	Where development is proposed. Reduce driveway width, parking area dimensions, and paved areas to minimum dimensions. Utilize coarse aggregate porous surface in lieu of impervious pavement. Utilize stabilized turf for overflow parking.
Best management plan for construction activities	To prevent soil erosion, sediment, and other pollutants from entering springs, streams, ponds, etc.	Where development is proposed. Utilize during construction and post-construction period.

Bureau of Recreation and Conservation

Green Principles for Park Development and Sustainability

Principle #1: Maintain and Enhance Trees and Natural Landscaping

Natural landscapes provide vital undisturbed habitat for plant and animal species, some of which may be threatened or endangered. Projects of all types can preserve and enhance these habitats by incorporating natural landscaping which is the use of an aesthetic variety of primarily native plantings well adapted to the local climate and soil. Natural landscapes can provide a cost effective alternative to conventional turf lawns. Preserving existing natural vegetation including valuable natural areas such as wetlands, grasslands, and woodlands is a fundamental purpose of natural landscaping.²

Designing with a variety of native trees, shrubs, grasses and wildflowers can help eliminate large areas of unnecessary turf lawn. Minimizing the amount of turf lawn while maximizing the natural landscape increases water infiltration rates, reduces the maintenance requirement of expensive lawn equipment, reduces noise and emission pollution, minimizes the use of pesticides and fertilizers, and requires little to no watering. While not maintenance free, a well-established natural landscape requires less money for ongoing maintenance than conventional landscapes.

The following are some concepts to think about when designing natural landscapes:

Why Plant Native Vegetation?

Pennsylvania's native plants are those that were growing naturally in Pennsylvania prior to Europeans arriving. Pennsylvania has over 3,081 species of native trees, shrubs, flowers, and other forms of plants. Landscaping with native plants has several appealing factors. Native plants are:⁴

Adapted to Pennsylvania's soils and climate thus reducing the need for supplementary watering and other horticultural amendments.

Native plants are an integral part of the larger biological community involving beneficial and pollinating insects, wildlife and ultimately, all of us.

Offer food and shelter for many species all year long and are the foundation for a healthy, diverse habitat.

Require less care and watering when established.

Thrive with less fertilizer. (Most native plants will not need fertilizer once they are established. When fertilizers are used, they should be of the organic or "slow-release" varieties, should be used no more than once or twice a year, and should be used in as small a quantity as possible.¹)

Provide carefree beauty that enhance any garden or landscape and create a special sense of place.

Native plants growing in their home environment are naturally more resistant to diseases, pests, or physiological disorders.

When planted along waterways, native plants protect ponds and streams by filtering pollutants and preventing erosion.

Grass Maintenance:

Cool season turf grass, a staple of traditional parks, should be limited to human-use areas such as ball fields and picnic groves. Native cool season grasses, such as Canada and Virginia wildrye, should be used in place of non-native cool season grasses like Kentucky bluegrass and tall fescue. Warm season grasses can be used to establish a meadow to provide wildlife habitat or used as attractive landscaping. Native warm season grasses include big bluestem, little bluestem, and switchgrass.¹

Maintenance over a 20-year span for a non-native turf grass landscape can cost almost seven times more than the cumulative costs of maintenance for a native prairie or wetland.

~U.S. EPA, 2007

DCNR Green Principles

Even if you keep some area in lawn, much can be done to lessen environmental impacts:³

Reduce or eliminate the need for pesticides by practicing [Integrated Pest Management](#).

Use a mulching mower so that clippings can remain on the lawn and provide nutrients as they decompose.

Where the lawn is small, use a non-powered reel mower. (Modern models of the reel mower are much easier to use than the older models.)

Keep gas-powered mowers in efficient operating condition (well-tuned, sharp blades) and raise the cutting height to 3-3.5" during the hot summer months to keep the grass roots shaded and cooler, reducing weed growth, browning, and need for watering.

If you don't use a mulching mower, compost excess grass clippings in your yard and later use it as a soil amendment around trees and shrubs.

Learn to tolerate some weeds or a greater variety of plants in the lawn.

Don't over-fertilize. A slow-release organic fertilizer applied once, in the fall, is usually sufficient.

Enhancing and protecting meadows that contain native grasses and wildflowers is a great way to attract wildlife and save on lawn maintenance equipment costs. Common meadow wildflowers include black-eyed Susan, sunflower, aster, and goldenrod. Warm season grasses are prime habitat for grassland and ground-nesting birds; birds such as bobolink, Eastern meadowlark, and grasshopper sparrow require at least 25 acres of grassland for survival. However, other birds, such as goldfinch, field sparrow, Eastern bluebird, Eastern phoebe, and Eastern kingbird, do occupy smaller grasslands.⁷

Protect Existing Features:

Mature trees enhance air quality and reduce pollution, enhance water quality and reduce erosion, and can reduce energy costs when properly planted around a building. When appropriate, design the site to protect existing trees. During ex-

cavation of the project site be sure the trees' root zones are protected. Therefore it is recommended that any excavation occur outside the perimeter of the tree canopy.⁵

Topsoil is the most fertile portion of soil and the most valuable. "It requires 500 years under natural conditions to produce an inch of topsoil."⁶ The natural fertility of topsoil promotes healthier grass and reduces the amount of fertilizer required to establish landscape plantings. Therefore one of the most important steps during construction and planting projects is to retain as much existing topsoil as possible. The best option is to stockpile and reuse the topsoil instead of removing it from the site. Using the existing topsoil not only saves money, but also minimizes disturbance that could encourage the growth of invasive plants.

Local and regional greenways are excellent and appropriate locations for natural landscaping. Many greenways contain rivers, streams, or other waterways.² In these locations a variety of native trees, shrubs, grasses and wildflowers planted in *buffers* adjacent to the stream provide wildlife habitat, bank stabilization, filter pollutant and sediment runoff, and create a healthy stream ecosystem for fish and stream invertebrates. To provide the maximum benefits a buffer should be 100 feet or more on each side of the stream, although smaller buffers are better than nothing and will still provide some benefits.

Floodplains provide many important services and should be protected from development. Floodplains reduce flood velocities and flood peaks, reduce erosion potential and impacts, provide a broad area for streams to spread out and for temporary storage of floodwater, reduce sediment loads, filter nutrients, process organic and chemical wastes, and moderate water temperature. Maintaining native vegetation in floodplains helps absorb and slow flood waters reducing the impact a flood may have on downstream communities.⁸

*Undisturbed soil and vegetation provide important stormwater functions including: water infiltration; nutrient, sediment, and pollutant adsorption; sediment and pollutant biofiltration; water storage and transmission; and pollutant decomposition. These functions are largely lost when development strips away native soil and vegetation and replaces it with minimal topsoil and sod.*¹¹

Plant Trees:

Maintaining and planting trees have many benefits. Trees reduce CO₂ levels and increase oxygen, play an important role in stormwater management by reducing erosion and sediment runoff, improve water quality, help cool our planet by providing the service of carbon sequestration which happens when trees store carbon in their roots and trunks keeping it from entering the atmosphere, save energy when properly planted around a building, increase property values, and studies have shown that trees can significantly reduce stress levels and accelerate healing time.

Pennsylvania, through the Department of Conservation and Natural Resources (DCNR) the Bureau of Recreation and Conservation and the Bureau of Forestry has developed a public private partnership, through regional collaboration, to address the loss of tree cover in Pennsylvania. This program called *TreeVitalize* has established goals to plant 1 million shade trees, restore forests along streams and water protection areas, build capacity for long term urban forest management, establish strong urban forestry partnerships in all 14 metro areas in Pennsylvania, and train 10,000 citizens to plant and care for trees; over a 5 year period. To learn more about *TreeVitalize* and to find out how you can get involved visit <http://www.treevitalize.net/>.

Compost:

Leaves, grass clippings and other yard debris clog landfills, taking up 20-40% of landfill space. This so-called waste is actually a valuable natural resource that once decomposed offers a nutrient rich organic matter that can be a source of mulch or can be added to soil as a natural fertilizer. Compost can also help soil retain some of its moisture content. Compost can be made on-site, or can be brought in from a municipal composting facility.³ To learn more about composting visit <http://www.howtocompost.org/>.

Invasive Plant Removal

An invasive non-native plant is one that is not natural to the ecosystem under consideration, and when introduced cause or are likely to cause harm to the economy, to the environment, or to human health. Invasive plants can be trees,

shrubs, vines, grasses, or flowers, and they can reproduce rapidly by roots, seeds, shoots, or all three.

Why are Invasive plants so detrimental?

Natural predators and diseases can't compete when non-native plants are introduced. Most invasive plants are introduced from other continents, leaving behind in their native homeland natural controls like pests, diseases and predators, which serve to keep these species in check. Due to this absence of natural controls, invasive plants reproduce rapidly and can form stands that exclude nearly all other plants. In the process, they damage natural areas, altering ecosystem processes and displacing desirable native plant species.

Plants like kudzu, purple loosestrife, and garlic mustard are displacing native plants and degrading habitat for native insects, birds, and animals.

Invasive plants endanger some rare and threatened native species of plants and animals, which are especially vulnerable because they occur in such small populations.

Invasive non-native plants often do not provide as much food and other habitat value as native plants do.

Invasive plants, even when grown in a cultivated yard, can spread, escape, and cause landscape maintenance weeding problems for years to come.

Some invasive plants release toxic chemicals that kill other plants.

Land managers who are faced with the daunting task of managing or controlling invasive species on natural lands rely on resources like the "Invasive Exotic Plant (IEP) Management Tutorial for Natural Lands Managers" in order to implement effective management, control and education programs <http://www.dcnr.state.pa.us/forestry/invasivetutorial/index.htm>. This tutorial provides a "one-stop-shop" for natural resource managers who are interested in organizing on-the-ground efforts to prevent, manage and control IEPs.⁹

DCNR Green Principles

References:

- ¹DCNR. Creating Sustainable Community Parks. A Guide to Improving Quality of Life by Protecting Natural Resources. <http://www.dcnr.state.pa.us/brc/publications/>
- ²U.S. Environmental Protection Agency. A Source Book on Natural Landscaping for Public Officials. <http://www.epa.gov/greenacres/toolkit/chap1.html#PURPOSE>
- ³U.S. Environmental Protection Agency. Mid-Atlantic Region Green Landscaping. <http://www.epa.gov/reg3esd1/garden/what.htm>
- ⁴National Wildlife Federation. Native Plants. American Beauties- Why Use Native Plants?
<http://www.abnativeplants.com/index.cfm/fuseaction/home.why/index.htm>
- ⁵Santa Monica Green Building Program. Inventory, Mark and Protect Topsoil, Trees and Vegetation to be Retained. <http://greenbuildings.santa-monica.org/construction/topsoiltree.html>
- ⁶Franklin Soil and Water Conservation District Natural Resource Conservation Service and the U.S. Department of Agriculture, Natural Resource Conservation Service. Importance of Topsoil.
http://www.druby.net/joomla/images/pdf_docs/topsoil.pdf
- ⁷Natural Lands Trust. Meadows in Southeastern Pennsylvania. http://www.natlands.org/uploads/document_28200794705.pdf
- ⁸Ohio Department of Natural Resources. Division of Water Fact Sheet. Natural Benefits of Floodplains. <http://www.dnr.state.oh.us/Portals/7/pubs/pdfs/fctsht50.pdf>
- ⁹Department of Conservation and Natural Resources (DCNR) Invasive Exotic Plant Tutorial for Natural Lands Managers. <http://www.dcnr.state.pa.us/forestry/invasivetutorial/index.htm>
- ¹⁰Maryland Department of Natural Resources- Forestry. The Benefits of Urban Trees. Urban and Community Forestry: Improving Our Quality of Life. <http://www.dnr.state.md.us/Forests/Publications/urban.html>
- ¹¹Building Soil. Guidelines and Resources for Implementing Soil Quality and Depth BMP T5.13 2009 Edition. http://www.soilsforsalmon.org/pdf/Soil_BMP_Manual.pdf

Additional Resources:

Arbor Day Foundation. The Value of Trees to a Community. <http://www.arborday.org/trees/benefits.cfm>

Earnst Seed Company. http://www.ernstseed.com/seed_mixes.aspx

National Wildlife Federation. Create a Certified Wildlife Habitat. <http://www.nwf.org/backyard/>

The University of Tennessee. A Landowner's Guide to Native Warm-Season Grasses in the Mid-South. <http://www.utextension.utk.edu/publications/pbfiles/PB1746.pdf>

U.S. Environmental Protection Agency. GreenScapes Alliance. <http://www.epa.gov/greenscapes/> <http://www.epa.gov/reg3esd1/garden/>

Pennsylvania's Composting Home Page. Department of Environmental Protection. <http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp?a=1338&q=469423>

Pennsylvania Department of Conservation and Natural Resources. Landscaping with Native Plants in Pennsylvania. <http://www.dcnr.state.pa.us/forestry/wildplant/native.aspx>

iConserve Pennsylvania. Plant Natives. <http://www.iconservepa.org/plantnatives.html>

The Natural Lawn & Garden: Growing Healthy Soils.

http://www.seattle.gov/UTIL/stellent/groups/public/@spu/@csb/documents/webcontent/growinghe_200311261701557.pdf

Bureau of Recreation and Conservation

Green Principles for Park Development and Sustainability

Principle #2: Connect People to Nature

When designing a site for public use (whether a park, trail, greenway, playground, or community pool) there is a concept called “human well-being” that is addressed in the National “Sustainable Sites Initiative Standards and Guidelines Report”¹ and should be considered during development of the site plan. Listed below are several ideas taken directly from the Report¹. The Department of Conservation and Natural Resources (DCNR) *iConserve* program also provides for the connection of human well-being to outdoor recreation, conservation, and stewardship. Learn more about *iConservePA* at <http://iconservepa.org/>.

Provide opportunities for interaction with nature

Provide a diverse landscape to support a broad range of users and activities; including spaces for physical activity, nature/discovery trails, access paths to streams, way-finding features, and “cues to care”, which are design devices (such as mowed edges or low fences) that communicate that a naturalistic landscape welcomes users.

Design spaces that address children’s needs

Provide pedestrian-only areas so children and youth can play without concern for traffic. Provide parks and open spaces that serve several residential areas, which give children a sense of place and belonging. Provide interesting landscape places (designed and naturalistic) that enable exploratory play. For example boulders for climbing, streams for discovery, open meadows with trails, sensory gardens (where children can touch, smell, and even taste plants), and large trees and other natural features for hide-and-seek and unstructured games.

Provide opportunities for passive experiences with nature

Maintain all possible trees on-site. Optimize water views or provide fountains. Place and configure plantings that achieve other ecosystem services

(such as rain gardens for infiltration and stormwater management) to provide visual amenities. Establish nature trails, and wildlife viewing areas.

Educate site users

Create demonstration gardens that allow visitors to observe biodiversity and learn how they can establish the same type of garden at their home. Protect wetlands and other natural areas and provide interpretive materials to education about the benefits provided by these features. Facilitate wildlife viewing and learning, by establishing bird boxes and observation areas with educational exhibits about the types of wildlife visitors might see. Provide interpretive materials or stations that inform about local ecosystems and their functions. Incorporate signs that explain how “no mow zones” are beneficial for humans and wildlife.

Provide spaces for social interaction

Create small theme gardens (such as color, texture, smell, butterfly, etc.). Create “community greens” that can serve as outdoor meeting rooms, break or study spaces, and spaces for organizational events and celebrations. Ensure that user spaces are safe and secure using Crime Prevention through Environmental Design (CPTED) principles (see www.cpted-watch.com for more information).

Support on-site food production in healthy environments

Establish a Community Supported Agriculture (CSA) area for local residents to enjoy growing their own vegetables on a designated plot of land.

Consider local cultures/communities and their special needs

Identify local groups of potential users and provide amenities that address the needs or support the culture of local people.

Plant Trees

Trees are beneficial additions to any site. Planting trees should be considered during the planning and developing of all recreational sites. Trees have direct

DCNR Green Principles

human benefits such as creating effective sound barriers that can muffle urban noise almost as effectively as stone walls; producing oxygen, absorbing and locking away carbon dioxide, and cleaning the air by intercepting airborne particles, reducing heat, and absorbing such pollutants as carbon monoxide, sulfur dioxide, and nitrogen dioxide. Trees shade and cool reducing the need for air conditioning in the summer and break the force of winter winds, lowering heating costs in the winter. Trees fight soil erosion and reduce water runoff and sediment deposition after storms.

References:

¹Sustainable Sites Initiative. Standards and Guidelines: Preliminary Report. November 1, 2007. <http://www.sustainablesites.org/report.html>

Additional Resources:

Penn State University, College of Agricultural Sciences- Cooperative Extension. From the Woods. Community Forests. <http://pubs.cas.psu.edu/FreePubs/pdfs/uh173.pdf>

Arbor Day Foundation. Nature Explore. <http://www.arborday.org/explore/classroom/index.cfm>

Recreation Management. Nature and Nurture, Trends in Play Design. http://www.recmanagement.com/feature_print.php?fid=200907fe02

Local Harvest. Community Supported Agriculture. <http://www.localharvest.org/csa/>

Bureau of Recreation and Conservation

Green Principles for Park Development and Sustainability

Principle #3: Manage Stormwater Naturally

Stormwater runoff occurs when excess water from rainfall and snow events flows across paved streets, parking lots, rooftops and construction sites. This runoff can be a significant source of pollution and sedimentation ending up in our lakes, rivers, streams and other water bodies.

The following are stormwater impacts of conventional development (including parks and recreation areas):

- Increased flooding
- Increased runoff volume
- Decreased evapotranspiration and groundwater recharge
- Increased frequency of runoff events
- Erosion and stream channel changes
- Decreased stream baseflow
- Impacted aquatic life
- Pollutant and temperature impacts to streams

Goals of natural stormwater management:

Capture and detain stormwater runoff as close to the source as possible;

Reduce the volume of stormwater entering the combined sewer system;

Filter stormwater to remove pollutants before the runoff enters groundwater, streams, or wetlands;

Use and promote methods that provide multiple environmental benefits; and

Use techniques that are less costly than traditional piped solutions.

Consider the following on your site to prevent stormwater from becoming an

issue.

Create and Enhance Riparian Buffers

Riparian buffers and riparian forest buffers are areas of vegetation alongside streams and other bodies of water that mitigate floods, recharge groundwater, prevent erosion and sedimentation of the stream, trap pollutants within plant roots, improve aquatic and terrestrial species habitat, and provide optimum food for stream communities. In these locations native vegetation (ideally a variety of native trees, shrubs, grasses and wildflowers) provides wildlife habitat, bank stabilization, and water quality benefits.¹ Although smaller buffers will still provide some benefits, to provide the maximum benefits a buffer should be a minimum of 100 feet on each side of a perennial or intermittent stream, river, lake, pond, and reservoir. For those bodies of water designated as Exceptional Value or High Quality waters the minimum width should extend to 150 feet.⁴ Below is a list of tips for managing buffers:³

Provide some public access to the water, but keep vegetation clearance to a minimum.

Avoid work in streams, wetlands or waterways whenever possible.

Don't alter a stream bank or shoreline unless you're returning it to a natural state (banks should normally be sloping and covered with vegetation).

Soil disturbance should not take place within the buffer by grading, stripping of topsoil, plowing, cultivating, or other practices.

Motorized vehicles should not be stored or operated within the riparian forest buffer.

Remove/manage invasive exotic species to keep them from spreading.

Improve riparian buffers by planting native trees, shrubs and ground covers that are tolerant of wet or seasonally flooded sites.

Avoid or minimize the use of pesticides and fertilizers near water-bodies.

Protect Wetlands and Critical Recharge Areas

Wetland functions include water quality improvement, floodwater storage, fish and wildlife habitat, aesthetics, and biological productivity. Wetlands within and downstream of urban areas are particularly valuable, counteracting the greatly increased rate and volume of surface-water runoff from pavement and buildings. They also recharge groundwater and trap sediment, fertilizers, and pollutants. Construction and other forms of disturbance should be avoided in and near wetlands. A vegetated buffer should be maintained around wetlands wherever possible. Man-made wetlands cannot duplicate all the functions of a natural wetland, so it is critical that natural wetlands be protected whenever possible.¹

Critical recharge areas are typically large contiguous areas of land that allow precipitation and other surface waters to infiltrate through the soil to recharge the groundwater. Without constant recharge, periods of drought could leave streams and wells dry, thus affecting available drinking water and wildlife habitat. Practicing green and sustainable initiatives (such as those outlined in this series of fact sheets) when developing in or near a wetland or critical recharge area can ensure that these features are preserved and remain fully functional.¹

Design Natural Stormwater Management Systems

Natural stormwater management can be more cost-effective than traditional gray infrastructure of pipes and treatment facilities. There are many best management practices (BMPs) for natural stormwater management that minimize the impact of impermeable surfaces such as roads, rooftops, and parking lots. These BMPs can include designing narrower roads; permeable surfacing for roads, parking lots, trails, walkways, etc; rain gardens and vegetative swales; and rainwater catchment systems for rooftops. The remaining runoff can be directed to native grass swales or rain gardens. Even just planting more native trees near impermeable surfaces can reduce the need for large, expensive stormwater management systems.¹

Alternative Pavers

A technique for green parking utilizes alternative pavers that can range from medium to relatively high effectiveness in meeting stormwater quality goals. Alter-

DCNR Green Principles

native pavers are permeable or semi-permeable surfaces that can replace asphalt and concrete and can be used for driveways, parking lots and walkways. The different types of alternative pavers include gravel, cobbles, wood mulch, brick, grass pavers, turf blocks, natural stone, pervious concrete, and porous asphalt.²

Stormwater Wetlands

Stormwater wetlands (a.k.a. constructed wetlands) are structural practices similar to wet ponds that incorporate wetland plants in a shallow pool. As stormwater runoff flows through the wetland, pollutant removal is achieved by settling and biological uptake within the practice. Stormwater wetlands are fundamentally different from natural wetland systems. They are designed specifically for the purpose of treating stormwater runoff, and typically have less biodiversity than natural wetlands both in terms of plant and animal life.²

Common Stormwater BMPs

Rain/recharge gardens/bioretention
Vegetated filter strips
Vegetated swales
Porous pavement with infiltration beds
French drains/dry wells
Vegetated roofs
Cisterns/rain barrels/capture reuse
Constructed wetlands
Riparian corridor restoration
Revegetation/reforestation

Non-structural Stormwater BMPs

Protect sensitive/special value features
Protect/enhance riparian areas
Protect natural flow pathways
Cluster uses at each site; build on the smallest area possible
Minimize total disturbed area
Minimize soil compaction
Revegetate and reforest disturbed areas, using native species

References

¹DCNR. Creating Sustainable Community Parks. A Guide to Improving Quality of Life by Protecting Natural Resources. <http://www.dcnr.state.pa.us/brc/publications/>

²The Stormwater Manager's Resource Center. <http://www.stormwatercenter.net/>

³U.S. Environmental Protection Agency. Mid-Atlantic Region Green Landscaping- Stormwater Control and Managing Natural Areas.

<http://www.epa.gov/reg3esd1/garden/stormwater.htm>

<http://www.epa.gov/reg3esd1/garden/protect.htm>

Department of Environmental Protection. Bureau of Watershed Management. Riparian Forest Buffer Guidance. <http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-76604/394-5600-001.pdf>

Additional Resources

Dauphin County Conservation District. Stormwater Best Management Practices Tour. <http://www.dauphincd.org/swm/bmptour.html>

EPA. Functions and Values of Wetlands. http://www.epa.gov/owow/wetlands/pdf/fun_val.pdf

Final PA Stormwater Best Management Practices (BMP) Manual - (363-0300-002) <http://www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1437&q=529063&watershedmgmtNav=>

Office of Environmental Health Hazard Assessment & the California Water & Land Use Partnership. Low Impact Development. A Sensible Approach to Land Development and Stormwater Management. <http://www.scwrp.org/pdfs/CALWALUP-flier.pdf>

Pennsylvania Department of Environmental Protection. The Wellhead Protection Program In Pennsylvania: An Overview. <http://www.dep.state.pa.us/dep/subject/advoun/ag/Whppover.doc>

Shermans Creek Conservation Association. Up The Creek Newsletter. Riparian Buffers? What are Riparian Buffers? <http://www.shermanscreek.org/2007JanNewsletter.pdf>

The Stormwater Authority. Best Management Practices. <http://www.stormwaterauthority.org/bmp/default.aspx>

U.S. Environmental Protection Agency. Watersheds. "After the Storm". <http://www.epa.gov/weatherchannel/stormwater.html>

Water Environment Research Foundation. Using Rainwater to Grow Livable Communities. Sustainable Stormwater Best Management Practices. <http://www.werf.org/livablecommunities/>

U.S. Environmental Protection Agency. Storm Water Technology Fact Sheet-Porous Pavement. <http://www.landarch.uiuc.edu/resources/courses/coursewebsites/LA441Web/Readings2006/EPA-PorousPaving.pdf>

U.S. Environmental Protection Agency. Using Smart Growth Techniques as Stormwater Best Management Practices. http://www.epa.gov/dced/pdf/sg_stormwater_BMP.pdf

Bureau of Recreation and Conservation

Green Principles for Park Development and Sustainability

Principle #4: Conserve Energy

The best way to save energy is not to spend it.

Renewable energy and energy efficiency mean less air pollution (including mercury, nitrogen oxides and carbon dioxide), less water consumption and less waste. It means less dependence on foreign oil and more self-sufficiency. It means less ground level ozone, less acid rain and less particulate matter in the air. Ultimately, this means improved health. There are many opportunities to include renewable energy technology and energy efficiency techniques in site design. Please consider these different alternative energy sources and energy efficiency techniques to power your facilities as you move forward with your project planning and site design.

Accomplishing Energy Efficiency

The following are some techniques that can be incorporated in your site design to help save energy and money, and benefit the environment at the same time.⁸

- Include in your site planning a mandatory maintenance schedule for your building to:
 - Clean filters
 - Replace belts
 - Commission the building (give your building a "tune-up")
 - Achieve a certain % of energy consumption
- HVAC rehab
 - Use state-of-the art, high efficiency, heating, ventilation and air conditioning (HVAC) and plumbing equipment, chillers, boilers, and water heaters, etc. Use variable speed drives on fan and pump motors. Use heat recovery

DCNR Green Principles

ventilators and geothermal heat pump technology for up to 40% energy savings.

- Programmable system to turn on during the day and off at night
- Fan cyclers/censors to replace or attach to heat pump
- Waterless urinals
- Censored faucets
- On-demand controls in shower houses (faucets, toilets, lighting, fans)
- Instantaneous water heaters
- Sky lights
- Light level meter or dimming system
- Reduce outdoor night-time light pollution by avoiding over-illumination of the site and use low cut-off exterior lighting fixtures which direct light downward.
- Use energy efficient T-8 and T-5 bulbs, high efficiency electronic ballasts, and lighting controls. Consider using indirect ambient lighting with workstation based direct task lighting to improve light quality, reduce glare and improve overall energy performance in general office areas. Incorporate sensors and controls and design circuits so that lighting along perimeter zones and offices can be switched off independently from other interior lights when daylighting is sufficient in perimeter areas.
- Use Energy Star certified energy efficient appliances, office equipment, lighting and HVAC systems.

Solar

Solar technologies use the sun's energy to provide heat, light, hot water, electricity, and even cooling, for many different types of facilities. Solar power is probably the cleanest, most viable form of renewable energy available and it can be used in several forms to help power your facility. Many gardens use solar lights or solar garden water features.² A variety of technologies have been developed to

harness solar energy. In Pennsylvania, these technologies include: Photovoltaic systems (produces electricity), solar hot water heating, and passive solar heating and daylighting.⁶

Wind

Wind is a clean, inexhaustible, indigenous energy resource that can generate electricity. Wind energy is one of the fastest-growing forms of electricity generation in the world.^{1,3} Pennsylvania has good wind resources in portions of the state. Municipalities and non-profit organizations can use small wind turbines for on-site energy generation.⁷

Geothermal Heat Pump

The 10 feet of earth directly beneath the surface maintains a nearly constant temperature between 50° and 60°F (10°-16°C). Like a cave, this ground temperature is warmer than the air above it in the winter and cooler than the air in the summer. Pennsylvania has low to moderate temperature resources that can be tapped for direct heat or for geothermal heat pumps. Geothermal heat pumps take advantage of this resource to heat and cool buildings.¹

Biomass and Biofuels

Biomass and biofuels provide an excellent opportunity to heat and power buildings. Heating options may include the installation of a wood chip heating system, wood pellet furnace or boiler systems, corn furnace, or simply using a biodiesel blended heating oil commonly referred to as a bio-heat product. Biofuels can be used to power small-scale workshop machinery and electricity generators as well as vehicles.¹

Fuel Cells

Fuel Cells are an option that local governments can consider when exploring alternative energy choices and distributed energy technologies. A fuel cell is a device that converts the chemical energy of a fuel into electricity with heat and water as the major by-products. There are several types of fuel cells and different fuels used for electricity generation.¹

Using Plants to Reduce Heating and Cooling Needs

Plants can significantly reduce a building's energy needs; it's cooler in the shade of trees during the summer and warmer behind vegetation that block winter winds. The general rule is to plant deciduous trees (those that lose their leaves in winter) on the south and west sides of a building where the sun's rays are most direct and intense. These trees will provide shade during summer but permit the winter sun to provide warmth. Where there isn't room for trees, shrubs and vines can provide similar benefits. Extensive use of trees to shade buildings, streets, driveways and other large paved surfaces can even cool entire communities. To reduce winter heating costs, plant evergreen trees and shrubs as windbreaks. Most cold winds come from the north or west (though this can vary locally), so on those sides of the building plant a dense row of evergreens that maintain branches low to the ground. Where new construction is planned consider "greenroofing" where roofs are specially designed to accommodate plants. Such roofs provide insulating value that further reduces heating and cooling needs and can be very long-lasting when properly maintained.^{4, 5}

References

¹Department of Environmental Protection. Alternative Energy.

<http://www.depweb.state.pa.us/energy/cwp/view.asp?a=1379&q=485551>

²American Solar Energy Society. Go Solar: How to get started with solar energy.

http://www.ases.org/index.php?option=com_content&view=article&id=162&Itemid=7

³ U.S. Department of Energy. Energy Efficiency and Renewable Energy. State Energy Alternatives. Alternative Energy Resources in Pennsylvania. <http://www.eere.energy.gov/>

• Alternative Resources

i. http://www.eere.energy.gov/states/alternatives/resources_pa.cfm

Bureau of Recreation and Conservation

Green Principles for Park Development and Sustainability

Principle #5: Integrate Green Design and Construction

The ideal "green" project preserves and restores habitat that is vital for sustaining life. The site and all structures on the site become net producers and exporters of resources, materials, energy and water rather than being net consumers. In other words, a green building is one whose construction and lifetime of operation assure the healthiest possible environment while representing the most efficient and least disruptive use of land, water, energy and resources. The optimum design solution is one that effectively emulates all of the natural systems and conditions of the pre-developed site – after development is complete.¹

Green infrastructure means restoring floodplains to their naturally functioning system instead of building taller levees. It means planting trees, preserving open space and installing features like rain gardens, grass swales and green roofs, rather than enlarging sewers or building costly new treatment plants. It means retrofitting buildings and homes with water-efficient plumbing and rainwater capture systems instead of constructing an expensive water supply dam.

Green Design can Save Money

While many green materials and technologies do cost more, it has been demonstrated that many green strategies and technologies actually cost the same and some even cost less than traditional "not-so-green" technologies. Often the key to a cost effective green building and site design lies within the interrelationships and associated cost and performance trade-offs that exist between different building systems. For example, the use of high performance windows and window frames increases the initial building costs, however the resulting reduction in the size and cost of the buildings heating and cooling system more than offsets the added cost of the better glazing system. The result is a building that has a comparable or perhaps even a lower first cost, a higher comfort level, lower energy use, and lower energy bills and operating cost for the life of the building.¹

DCNR Green Principles

Leadership in Energy & Environmental Design (LEED) Green Building Rating System™:

A voluntary, consensus-based standard to support and certify successful green building design, construction and operations. LEED is transforming the marketplace by providing a nationally recognized certification system to promote integrated, whole-building design practices in the building industry.²

For a project to become LEED certified it is required that the project follows energy efficiency, environmentally conscious methods, as defined by the LEED Green Building Rating System, Version 3, 2009, in the following areas:

Sustainable Sites

Water Efficiency

Energy & Atmospheric

Materials & Resources

Indoor Environmental Quality

Innovation in Design

Regional Priority

By blending the right mix of green technologies that cost less with green technologies that cost the same or slightly more, it is possible to have a very green building project that costs the same as a conventional one.

A Few Techniques to Consider:³

Optimize building orientation, massing, shape, design, and interior colors and finishes. By maximizing the use of controlled natural day lighting artificial lighting energy use will be significantly reduced. Provide shades or daylight controls where needed.

Use high performance low-e glazing. Consider insulated double glazing, triple glazing or double pane glazing with a suspended low-e film. Selective coatings offer optimal light transmittance while providing minimal solar gain and minimal heat transmission. Window frames, sashes and curtain wall systems should also

be designed for optimum energy performance including the use of multiple thermal breaks to help reduce energy use.

Avoid the use of HCFC and Halon based refrigeration, cooling and fire suppression systems. Optimize the use of natural ventilation and where practical use evaporative cooling, waste heat and/or solar regenerated desiccant dehumidification or absorption cooling. Identify and use sources of waste energy.

Identify ways to use high-recycled content materials in the building structure and finishes. Consider everything from blended concrete using fly ash, slag, recycled concrete aggregate, or other admixtures to recycled content materials such as structural steel, ceiling and floor tiles, carpeting, carpet padding, sheathing, and gypsum wallboard. Consider remanufactured office furniture and office partition systems, chairs and furniture with recycled content or parts.

Explore the use of bio-based materials and finishes such as various types of agri-board (sheathing and or insulation board made from agricultural waste and by-products, including straw, wheat, barley, soy, sunflower shells, peanut shells, and other materials). Some structural insulated panels are now made from bio-based materials. Use lumber and wood products from certified forests where the forest is managed and lumber is harvested using sustainable practices. Use resource efficient engineered wood products in lieu of full dimension lumber which comes from older growth forests.

Evaluate all products and systems used for their ability to be recycled when they reach the end of their useful life. Preference should be given to products and systems that facilitate easy, non-energy intensive separation and recycling with minimal contamination by foreign debris.

Recognize that transportation becomes part of a product or building materials embodied energy. Where practical, specify and use locally harvested, mined and manufactured materials and products to support the regional economy and to reduce transportation, energy use and emissions.

Develop a strict waste-management practice to divert construction wastes from reaching the landfill.

Use materials and resources found on the site in the site design and construction.

Vegetative Green Roofs

A green roof, or rooftop garden, is a vegetative layer grown on a rooftop. Green roofs have a layer of living plants on top of the structure and the waterproofing elements.

Why are vegetative green roofs such a good idea? ⁴

They reduce roof stormwater runoff. In some cases this can help reduce the size of stormwater pipes, and the amount of stormwater that needs to be treated by municipal water treatment. They also filter pollutants from rainfall.

Green roofs also protect the roof membrane from sunlight, which breaks down the roofing material. Having even a couple inches of soil helps to greatly extend the life of the roof, and a longer lifespan means less material ends up in landfills from reroofing buildings after the membranes have failed.

They reduce energy use: Green roofs absorb heat and act as insulators for buildings, reducing energy needed to provide cooling and heating.

A green roof is also a source of oxygen and provides a habitat for some birds and insects.

They reduce air pollution and greenhouse gas emissions: by lowering air conditioning demand, green roofs can decrease the production of associated air pollution and greenhouse gas emissions. Vegetation can also remove air pollutants and greenhouse gas emissions through dry deposition and carbon sequestration and storage.

References

¹Governor's Green Government Council. Green Buildings.

<http://www.gggc.state.pa.us/gggc/cwp/view.asp?a=515&q=156866>

²United States Green Building Council- LEED. <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

³Governor's Green Government Council. What is a Green Building? <http://www.gggc.state.pa.us/gggc/lib/gggc/documents/whatis041202.pdf>

⁴EcoGeek.ORG. Green Roofs: An Introduction with Pretty Pictures. <http://www.ecogeek.org/content/view/902/>

Additional Resources

Governor's Green Government Council. Guidelines for Creating High Performance Green Buildings. <http://www.gggc.state.pa.us/gggc/cwp/view.asp?a=515&q=156978>

United States Green Building Council. <http://www.usgbc.org/>

Department of Environmental Protection. Pennsylvania's Recycling Page. <http://www.dep.state.pa.us/dep/deputate/airwaste/wm/RECYCLE/Recycle.htm>

Green Center of Central Pennsylvania. <http://www.greencentralpa.com/>

2009 LEED New Construction and Major Renovations. <http://www.usgbc.org/ShowFile.aspx?DocumentID=5546>

Chicago Center for Green Technology. <http://egov.cityofchicago.org/city/webportal/portalEntityHomeAction.do?entityName=Chicago+Center+for+Green+Technology&entityNameEnumValue=161>

This page left intentionally blank

Appendix H

PECO Standards

**INFORMATION REQUIRED TO EVALUATE PROPOSED
TRANSMISSION LINE RIGHTS-OF-WAY SECONDARY USES
PECO ENERGY COMPANY AND ITS SUBSIDIARIES**

PECO Energy Company (PECO Energy) considers proposed secondary uses of transmission line rights-of-way in accordance with its electric construction standards S-7072, "Secondary Uses for Rights-of-Way Along Electric Transmission Lines" and S-7074, "General Conditions Regulating Approved Secondary Uses for Transmission Line Rights-of-Way of PECO Energy Company and its Subsidiaries" respectively. In order to properly evaluate these proposed secondary uses, PECO Energy requires that certain information be submitted to its Real Estate Department as follows:

1.0 PRELIMINARY PLANS

PECO Energy will accept for review and comment a preliminary sketch or concept plan prepared in advance of formal drawings for the purpose of determining the feasibility of a particular right-of-way use. This plan shall indicate the proposed use and general location in relation to PECO Energy's facilities. Six (6) copies of this preliminary report shall be submitted to PECO Energy Real Estate Department, 2301 Market Street, Philadelphia, PA 19101.

2.0 FINAL DRAWINGS - Submission of the final drawings shall be required before PECO Energy will consider granting final approval of the project and before any work may begin on PECO Energy property. Six (6) copies of the final drawings containing the following information shall be submitted for approval to the PECO Energy Real Estate Department:

- 2.1** Location of all PECO Energy transmission and distribution structures, including identification numbers, poles, guys manholes, and all underground facilities.
- 2.2** Grade elevations at the base of all PECO Energy facilities.
- 2.3** Proposed road and parking lot details including location, type of construction, grade elevations, drainage plans, and the location of any curbs, sidewalks or protective barriers.
- 2.4** The location and height of all proposed street lights.
- 2.5** Where regrading is necessary, include both existing and final grades on the plans.
- 2.6** Where plantings are proposed, the location, number and species shall be specified.
- 2.7** The location, size, and depth of all proposed underground facilities such as water and sewer lines shall be specified.
- 2.8** All plans shall be drawn to a suitable scale and elevations shall be referenced to U.S. Coast & Geodetic datum or other datum acceptable to PECO Energy.



PECO ENERGY

**INFORMATION REQUIRED TO EVALUATE PROPOSED
TRANSMISSION LINE RIGHTS-OF-WAY SECONDARY USES
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS**

(12/82) Page 1 of 2 Rev. 6/95

S-7073

3.0 SAFETY - All plans and drawings, preliminary and final, involving work in the vicinity of PECO Energy electric lines must include the following:

CONTACT WITH POWER LINES CAN RESULT IN DEATH OR SERIOUS BURNS. TREAT ALL OVERHEAD POWER LINES AS ENERGIZED AND POTENTIALLY DANGEROUS. All contractors and subcontractors must obtain copies of PECO Energy Electric Construction Standard S-7070, "Conditions for Working In the Vicinity of Electric Transmission Lines of PECO Energy and its Subsidiaries" and comply with its provisions.

4.0 REFERENCES

4.1 PECO Energy Company Construction Standards

4.1.1 S-7070: "Conditions for Working in the Vicinity of Electric Transmission Lines of PECO Energy and its Subsidiaries"

4.1.2 S-7072: "Secondary Uses for Rights-of-Way Along Electric Transmission Lines"

4.1.3 S-7074: "General Conditions Regulating Approved Secondary Uses for Transmission Line Rights-of-Way of PECO Energy Company and its Subsidiaries"

**INFORMATION REQUIRED TO EVALUATE PROPOSED
TRANSMISSION LINE RIGHTS-OF-WAY SECONDARY USES
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS**

(12/82) Page 2 of 2 Rev. 6/95

S-7073



PECO ENERGY

CONDITIONS FOR WORKING IN THE VICINITY OF
ELECTRIC TRANSMISSION LINES OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES

CONTACT WITH POWER LINES CAN RESULT IN DEATH OR SERIOUS BURNS
CALL PECO ENERGY AT 610-648-7920 OR 7921 BEFORE WORKING IN THE
VICINITY OF PECO ENERGY ELECTRIC TRANSMISSION LINES

1.0 DEFINITIONS: As used in this Standard:

1.1 PECO Energy means PECO Energy Company and its subsidiaries, including but not limited to Susquehanna Power Company and Susquehanna Electric Company.

1.2 Contractor means natural person, firm, business association, company, partnership, corporation, tenant, lessee, grantee or licensee who or which is controlling or performing the job or activity that necessitates the approval and notification required by this standard.

1.3 In the vicinity of PECO Energy electric transmission lines means construction or other work activities on or adjacent to rights-of-way or easements that contain PECO Energy electric transmission lines, including but not limited to any use of cranes, booms, hoists, ladders or other equipment or items that might come within the clearance distances set forth in Table I, below.

TABLE I

<u>Clearance Distance to Transmission Lines</u>	
<u>Nominal Operating Voltage</u> <u>(Volts)</u>	<u>Distance</u> <u>(feet)</u> <u>(meters)</u>
500,000	35 10.7
230,000	25 7.7
138,000	20 6.1
69,000	15 4.6
34,000 and below	12 3.7

2.0 APPROVAL: All contractors engaged in construction or other work activities on PECO Energy rights-of-way must obtain the specific advance written approval of PECO Energy Real Estate Department, 2301 Market Street, Philadelphia, Pa. 19101, Telephone (215) 841-5395.

3.0 CONTRACTOR'S DUTY AND RESPONSIBILITY: It is the contractor's duty and responsibility to ensure that all construction or other work activities in the vicinity of PECO Energy electric transmission lines shall be performed in accordance with the latest applicable federal, state and local statutes and regulations governing the safe operation of cranes, booms, hoists, ladders or other equipment and safe work practices of personnel in the vicinity of electric transmission lines.

CONDITIONS FOR WORKING IN THE VICINITY OF
ELECTRIC TRANSMISSION LINES OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS



PECO ENERGY

4.0 RESPONSIBILITY FOR SUB-CONTRACTORS: The prime contractor shall be responsible for supplying copies of the S-7070 to all sub-contractors and determining that the sub-contractors are familiar with the information contained therein.

5.0 NOTIFICATION: In addition to the advance approval required in paragraph 2, the contractor shall contact PECO Energy in accordance with the following schedule:

5.1 As soon as possible, but no less than thirty (30) calendar days before construction or other work activities are to start, if at any time any construction or work activities may or could take place in the vicinity of PECO Energy electric transmission lines, the contractor shall contact the PECO Energy Consumer Energy Services Group, Transmission and Substations (T&S) Expediter, Overhead Transmission Center, 1040 Swedesford Road, Berwyn, Pa. 19312, Telephone 610-648-7920 or 610-648-7921. After this notification, PECO Energy will review the project and coordinate with the contractor on what precautionary safety measures, if any, are appropriate. If transmission line outages are required, the contractor and representatives of the T&S will work together to develop a tentative schedule.

5.2 The contractor shall also contact the T&S Expediter at 610-648-7920 or 7921 at least ten (10) working days before construction or other work activity is to begin to confirm scheduling and arrangements.

5.3 If at any time during construction or other work activities, a previously unanticipated need for equipment or personnel in the vicinity of PECO Energy electric transmission lines occurs, the contractor shall immediately contact the CMTT Expediter at 610-648-7920 or 7921. Construction or other work activities in the vicinity of PECO Energy transmission lines without prior notice to PECO Energy in accordance with paragraphs 5.a. and 5.b. is potentially dangerous and is absolutely forbidden.

5.4 In addition to electric transmission lines, PECO Energy rights-of-way and easements may also contain distribution lines. Contractor shall treat all overhead power lines as energized and potentially dangerous. Contractor shall notify PECO Energy at 610-648-7920 or 7921 if at any time any construction or other work activities may or could take place in the vicinity of any overhead power lines.

5.5 In the event of any contact with PECO Energy facilities, the contractor shall call the PECO Energy System Operations at 215-841-5141 as soon as possible.

6.0. OUTAGES:

6.1 PECO Energy shall determine the available time periods for line outages in the event de-energizing conductors is necessary. If the contractor insists on a specific day or time for an outage which results in the use of inefficient generation, the contractor shall reimburse PECO Energy for the additional generating costs, as determined by PECO Energy System Operations Division.

**CONDITIONS FOR WORKING IN THE VICINITY OF
ELECTRIC TRANSMISSION LINES OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS**

(6/87) Page 2 of 3 Revised 6/95

S-7070



6.2 If an emergency occurs on the PECO Energy system during a scheduled line outage period and that line is required to maintain system integrity, the contractor shall, within one hour, make the transmission line available for PECO Energy's use and shall cease work within the vicinity of the line.

7.0 REIMBURSEMENT BY CONTRACTOR: PECO Energy shall be reimbursed by the contractor for all costs and expenses incurred in implementing any precautionary safety measures.

8.0 BLASTING: No blasting shall be permitted in the vicinity of transmission line facilities without specific advance written approval by PECO Energy. Notification of intent to blast shall be made in accordance with paragraph 5.b.

9.0 EXCAVATIONS:

9.1 No one shall excavate closer than 25 feet to PECO Energy transmission structures or anchors without specific advance written approval by PECO Energy. Notification of intent to excavate shall be made in accordance with paragraphs 5.a. and 5.b.

9.2 Contractors shall comply with the provisions of the Pennsylvania or Maryland One-Call Systems. In Pennsylvania, call 1-800-242-1776. In Maryland, call 1-800-257-7777.

10.0 GROUNDING SYSTEM: The contractor shall notify CMTT Division in the event he or any sub-contractor uncovers or destroys any transmission line grounding leads. The repairs to this equipment shall be made by PECO Energy personnel at the contractor's expense. Contractors and their personnel shall not touch, handle or attempt to repair any exposed or severed grounding leads.

11.0 STORAGE: No buildings, storage sheds, trailers, combustible or hazardous materials shall be placed or stored under a transmission line conductor or within 25 feet of a structure.

12.0 CLEAN-UP OPERATIONS: After completing construction, the contractor shall remove all unused material and debris, re-establish all roads and trails and return the right-of-way to its original condition within thirty (30) calendar days of work completion. The contractor shall notify PECO Energy at the address described in paragraph 5.a. upon completion of the clean-up operations so that PECO Energy may arrange an inspection to assure compliance with these requirements.

CONDITIONS FOR WORKING IN THE VICINITY OF
ELECTRIC TRANSMISSION LINES OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS

(6/87) Page 3 of 3 Revised 6/95

S-7070



PECO ENERGY

**GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES
FOR TRANSMISSION LINE RIGHTS-OF-WAY OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES**

CONTACT WITH POWER LINES CAN RESULT IN DEATH OR SERIOUS BURNS

**CALL PECO ENERGY AT 610-648-7920 OR 610-648-7921 BEFORE WORKING IN THE
VICINITY OF PECO ENERGY ELECTRIC TRANSMISSION LINES**

The following **GENERAL CONDITIONS** regulate approved secondary uses of PECO Energy transmission line rights-of-way, whether owned in fee or controlled by easement. The acceptable non-transmission line uses are summarized in PECO Energy Electric Construction Standard S-7072, "Secondary Uses for Rights-of-Way Along Electric Transmission Lines."

1.0 UNDERSTANDING

1.1 User understands that PECO Energy's business includes construction, installation, maintenance, operation and use of structures, fixtures, facilities and instrumentation, with appurtenances, which now exist or which may hereafter be placed on the right-of-way, which are used or useful for the generation, conversion, transmission or distribution of electricity, or gas or telecommunications services.

1.2 User agrees to comply with all requirements of any of the constituted public authorities, and with the terms of any federal or state statute or local ordinance or regulation applicable to the use of the right-of-way, and agrees to indemnify and hold PECO Energy harmless from penalties, fines, costs or damages resulting from User's failure to do so.

1.3 User understands that PECO Energy, its successors and assigns, shall have the right to continue to use its rights-of-way for the purposes listed in paragraph 1.1 hereof. PECO Energy reserves the right to require User to relocate or remove any installations, improvements, or plantings. Any relocation or removal shall be accomplished in accordance with the terms and conditions of User's written lease agreement, if applicable, or in accordance with terms and conditions specified by PECO Energy.

2.0 APPROVAL

All proposed secondary uses of PECO Energy rights-of-way shall be subject to the prior written approval of the PECO Energy Real Estate Department, 2301 Market Street, Philadelphia, PA 19101, Telephone (215) 841-5395. All related notifications, submissions and requests for approval, unless otherwise specified, shall be directed to the PECO Energy Real Estate Department.

**GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES
FOR TRANSMISSION LINE RIGHTS-OF-WAY OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS**

12/83 Page 1 of 7 Rev 695

S-7074



PECO ENERGY

3.0 SAFETY AND CLEARANCES

CONTACT WITH POWER LINES CAN RESULT IN DEATH OR SERIOUS BURNS.
 User shall treat all overhead power lines as energized and potentially dangerous. If at any time, construction or other work activities in the vicinity of PECO Energy transmission lines may occur, User and all contractors and subcontractors must obtain from the PECO Energy Real Estate Department the current version of PECO Energy Electric Construction Standard S-7070, "Conditions for Working in the Vicinity of Electric Transmission Lines of PECO Energy Company and its Subsidiaries" and must comply with its provisions. Construction or other work activities in the vicinity of PECO Energy transmission lines without prior notice to PECO Energy in accordance with the S-7070 is potentially dangerous and is absolutely forbidden.

4.0 DRAWINGS

Prior to the start of any construction on the right-of-way, User shall submit to PECO Energy, for its approval, plans prepared in accordance with Electric Construction Standard S-7073, "Evaluation of Proposed Transmission Line Rights-of-Way Secondary Uses."

5.0 RELOCATION

User must obtain the prior written approval of PECO Energy Real Estate Department for any relocation of PECO Energy facilities. Approved relocations shall be performed only by PECO Energy or its agents at User's sole cost and expense.

6.0 INSTALLATION

6.1 User agrees that all construction work performed by User or its agents within the right-of-way shall be performed in accordance with accepted engineering practices. User understands that PECO Energy may require the bonding and/or grounding of improvements to eliminate the effects of induced voltage.

6.2 User agrees that no charge or assessment for the installation of any underground facility shall be made or imposed upon any part of PECO Energy's right-of-way through which any underground facility passes and User shall save PECO Energy harmless from any such charge or assessment at User's sole cost and expense. PECO Energy shall be permitted to connect to User's facilities without a connection charge.

**GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES
 FOR TRANSMISSION LINE RIGHTS-OF-WAY OF
 PECO ENERGY COMPANY AND ITS SUBSIDIARIES
 ELECTRIC CONSTRUCTION STANDARDS**

S-7074

12/83 Page 2 of 7 Rev 8/95



PECO ENERGY

7.0 EXCAVATIONS

7.1 There shall be no construction or excavation within 25 feet of any tower, steel pole structure, wood pole structure or guy anchor without the prior specific written approval of PECO Energy. No construction or excavation shall be permitted in the area between a pole or structure and its associated guy wire anchor. User shall exercise care to prevent cave-ins which could disturb PECO Energy facilities.

7.2 User shall comply with the provisions of the Pennsylvania or Maryland One-Call Systems. In Pennsylvania, call 1-800-242-1776. In Maryland, call 1-800-257-7777.

7.3 To prevent injuries, User is required to cover all open ditches at night or whenever otherwise unattended.

7.4 User agrees that any trenches dug during the installation or subsequent repair of underground facilities shall be properly planked to insure PECO Energy's access across its right-of-way at all times.

8.0 IMPROVEMENTS

User, at User's sole cost and expense, shall install and maintain any public improvements required or necessary for the proposed use, such as sewer or water main extensions, curbs, sidewalks or roadway paving. User also agrees that no charge or assessment shall be made or imposed upon any part of PECO Energy's right-of-way arising or resulting from User's improvements.

9.0 ACCESS

9.1 At all times, User shall provide an access route at least 16 feet wide for ingress and egress of PECO Energy vehicles as necessary for the construction and maintenance of its structures and facilities within the right-of-way and adjacent premises, unless this provision is waived in writing by PECO Energy.

9.2 When permission is granted by PECO Energy for a highway, road or driveway to cross its right-of-way at an elevation different from the existing elevation of the right-of-way, the construction shall include a ramp from each side of the road to meet the existing right-of-way elevation. Access ramps shall be at least 16 feet wide with a maximum grade of 15%.

10.0 GATES

All fencing within the right-of-way shall include a 16 foot wide gate(s) or wire barricade(s) as described in PECO Energy Electric Construction Standard S-7071, "Right-of-Way Fences, Gates and Barricades."

11.0 LOCKS

PECO Energy shall have the right to install its own lock on any gates within the right-of-way. User shall provide, at its sole cost and expense, a dual/multiple locking system for this purpose.

GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES FOR TRANSMISSION LINE RIGHTS-OF-WAY OF PECO ENERGY COMPANY AND ITS SUBSIDIARIES ELECTRIC CONSTRUCTION STANDARDS

12/83 Page 3 of 7 Rev 6/95

S-7074



PECO ENERGY

12.0 **EXPLOSIVES**

User shall not use or store explosives or flammable materials in any form within the right-of-way.

13.0 **DRAINAGE**

In order to prevent erosion or other drainage problems and to prevent dirt from being placed above any concrete tower foundations, User shall not alter the grade of the right-of-way except as approved under paragraph four hereof.

14.0 **PARKING LOTS AND DRIVEWAYS**

PECO Energy shall have the right to use any driveway or parking lot located within the right-of-way without being responsible for any damage caused thereto. User shall construct driveways and parking lots to withstand the weight of vehicles which distribute 38,000 pounds per axle.

15.0 **LIMITATION OF DAMAGES FOR PLANTINGS**

If required by PECO Energy, User shall remove or relocate plantings blocking access to PECO facilities within 30 days after receiving notice. If prior notice cannot be given or if such removal or relocation is not timely completed, PECO Energy shall gain access to its facilities and compensation for damage to User, if any, shall not exceed pro rata rental for the portion of the right-of-way used by PECO Energy for its corporate purposes.

16.0 **UNDERGROUND FACILITIES**

16.1 The installation of any underground facilities required by User shall be completed at User's expense, in accordance with the Erosion and Sedimentation Control Regulations of the Pennsylvania Department of Environmental Resources (PA-DEP) or any other environmental regulatory agency or governmental agency, and with the minimum possible damage to the ground within the PECO Energy right-of-way.

16.2 Any underground installation shall meet applicable standards for minimum cover unless otherwise specified by PECO Energy. PECO Energy reserves the right to require greater than minimum cover. User is aware PECO Energy intends to cross over underground facilities with vehicles generally weighing 38,000 pounds per axle, and the pipeline(s) shall be installed accordingly. PECO Energy does not warrant that any approved or specified cover will protect the pipeline(s).

16.3 User shall furnish engineering plans of pipeline cathodic protection systems for PECO Energy review and approval prior to installation. Cathodic protection interference tests shall be performed on the completed facility at the expense of User. User shall furnish any other information required by PECO Energy.

**GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES
FOR TRANSMISSION LINE RIGHTS-OF-WAY OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS**



16.4 User shall take special care to avoid leakage at pipe joints or seepage into open ditches during the construction, installation, use, maintenance, repair, renewal, removal or replacement of the pipeline(s).

16.4.1 In the event of a leak or a spill involving gasoline, oil or other toxic or hazardous materials or pollutants, User agrees to satisfy all requirements specified by, PECO Energy, the PA DER, the Environmental Protection Agency (EPA), or any environmental regulatory agency or other governmental agency for the cleanup of said leak or spill. User further agrees to assume full responsibility for the cost of the cleanup and any future liability resulting from the leak or spill.

16.5 All proposed pipeline or metallic communication line installations which will longitudinally occupy any transmission line right-of-way for a distance greater than 200 feet must have an inductive interference study completed at User's sole cost and expense and reviewed by PECO Energy prior to construction of the proposed facility.

16.5.1 At a minimum, inductive interference study shall include the following:

16.5.1.1 Induced voltage on the proposed facility at emergency rating of each transmission line (individually) on the right-of-way.

16.5.1.2 Induced voltage on the proposed facility at emergency rating of each distribution line (individually) on the right-of-way.

16.5.1.3 Induced voltage on the proposed facility at emergency rating of all electric lines on the right-of-way.

16.5.1.4 Induced voltage on the proposed facility during a fault (both phase to ground and three phase) on each transmission line on the right-of-way. Faults on the electric transmission lines shall be located at either end of the proposed facility to be installed on the right-of-way and at the middle of the occupation. Fault studies shall also be conducted at any additional locations specified by the PECO Energy engineer.

16.5.1.5 If the proposed facility to be installed on the right-of-way is a bare metal structure (i.e. metal pipe), User shall supply to PECO Energy voltage gradient plots of the area around any transmission structure within 50 feet of the facility. If the voltage gradients around any electric structure increase, User, at its sole cost and expense, must install mitigation prior to the proposed pipeline installation.

GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES
FOR TRANSMISSION LINE RIGHTS-OF-WAY OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS



PECO ENERGY

16.5.2 Electric transmission and distribution facilities will be added or removed from the right-of-way from time to time. Before PECO Energy adds or removes facilities, the owners of any pipeline or metallic communication line on the PECO Energy right-of-way shall be responsible for completing an initial or revised Inductive Interference study, submitting it to PECO Energy for review and installing required mitigation, including on PECO Energy's facilities, and at User's sole cost and expense, in a timely manner.

16.5.3 User shall maintain all inductive interference mitigation systems in good operating condition and check for proper operation once each year.

17.0 **MARKINGS FOR UNDERGROUND FACILITIES**

In order to minimize the number of future dig-ins, User shall be required, as part of any underground installation, to install and maintain at User's expense, permanent markers to identify the location of the underground facility. Pipelines and other similar installations shall be marked where the line enters and exits the right-of-way, at intermediate points along straight runs of pipe and at all angle points where the line changes direction.

18.0 **BARRIERS**

User shall take precautions to protect PECO Energy structures and facilities, including but not limited to protective barriers. The location of any protective barriers shall be delineated on plans prepared by User and approved by PECO Energy.

19.0 **DAMAGE TO PECO ENERGY FACILITIES**

User shall be responsible for any damage caused to PECO Energy facilities and shall be required to reimburse PECO Energy for the cost of repairing the damage. All such damage shall be promptly reported to PECO Energy System Operations, (215) 841-5141.

20.0 **OUTDOOR ADVERTISING**

User shall furnish plans for PECO Energy's prior approval. Plans must show both horizontal and vertical views of User's proposed structure(s) in relationship to PECO Energy facilities.

21.0 **INSPECTIONS**

User understands and agrees that PECO Energy or its authorized agents have the right to enter the right-of-way at any time for any corporate purpose.

**GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES
FOR TRANSMISSION LINE RIGHTS-OF-WAY OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS**



22.0 RESTORATION OF PROPERTY

User agrees upon completion of any work done to: (1) restore the ground to a condition at least equal to that existing prior to such installation, including but not limited to back filling, property tamping and reseeding the surface of the ground above the facilities and, if necessary, refilling and reseeding following any subsequent settlement of the ground in order to maintain the drainage pattern existing prior to such installation; and (2) repair and put into good condition to the satisfaction of PECO Energy, any and all fences and other improvements injured thereby, and landscaping damaged during the course of users work.

23.0 REFERENCES23.1 PECO Energy Company Electric Construction Standards

23.1.1 S-7070 - "Conditions For Working In the Vicinity of Electric Transmission Lines of PECO Energy Company and Its Subsidiaries"

23.1.2 S-7071 - "Rights-of-Way Fences, Gates and Wire Barricades"

23.1.3 S-7072 - "Secondary Uses For Rights-of-Way Along Electric Transmission Lines"

23.1.4 S-7073 - "Information Required to Evaluate Proposed Transmission Line Rights-of-Way Secondary Uses"

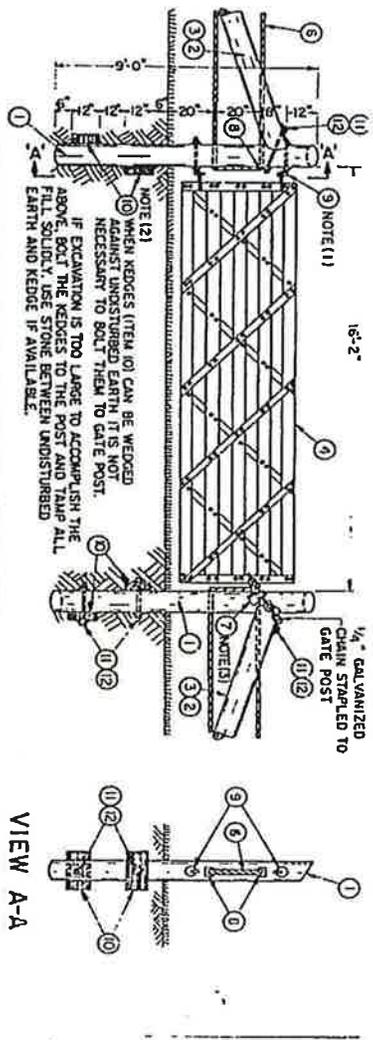
GENERAL CONDITIONS REGULATING APPROVED SECONDARY USES
FOR TRANSMISSION LINE RIGHTS-OF-WAY OF
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS

12/83 Page 7 of 7 Rev 5/95



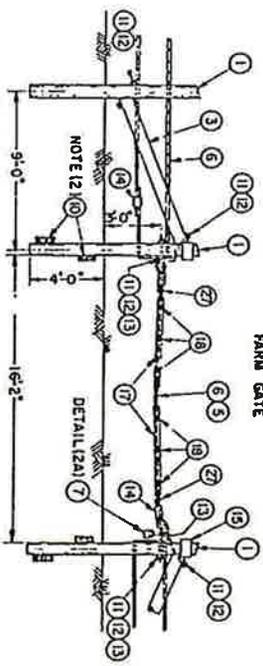
PECO ENERGY

S-7074



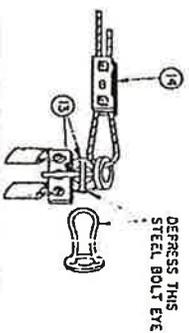
- (1) GATE HINGES TO BE SET AS SHOWN TO PREVENT THE REMOVAL OF THE GATE.
 (2) WOOD KEDGES REQUIRED ON ALL GATE POSTS.
 (3) TO INSTALL A SECOND LOCK ON A CHAIN, CUT THE CHAIN AT A CONVENIENT NUMBER OF LINKS FROM THE FIRST LOCK AND REPLACE THE LINK WITH A SECOND LOCK.

VIEW A-A

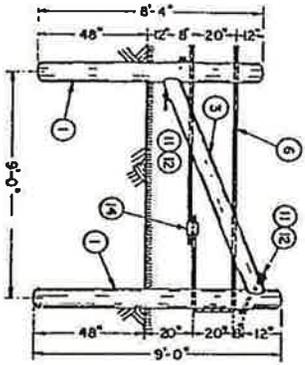


- (1) 3" PVC PIPE IS STOCKED IN 40'-0" LENGTHS. INSTALL 2'-5"-0" PIECES ON EACH BARRICADE. MARK EACH PIECE OF PIPE WITH 3 BANDS OF REFLECTING TAPE.
 (2) WOOD KEDGES REQUIRED ON ALL BARRICADE POSTS.
 (3) NO TRESPASSING SIGNS TO BE INSTALLED AT THE TOP OF BOTH POSTS.
 (4) WAP 2 YELLOW GUY GUARDS ON EACH BARRICADE. INSTALL ONE AT EACH END OF BARRICADE AS CLOSE TO THE 3-BOLT CLAMP AS POSSIBLE.

DETAIL 2
WIRE BARRICADE

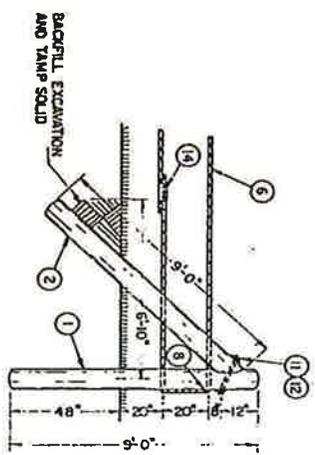


DETAIL 2A



- (1) CUT GAIN IN POST TO RECEIVE STRUT.
 (2) CUT PROPER SLANT IN STRUT BY PLACING STRUT IN POSITION ADJACENT TO POST.
 (3) DRILL 1 1/8" HOLES IN POSTS AND STRUT FOR THREADING 7/16" GUY WIRE.
 (4) THREAD 7/16" GUY WIRE THROUGH PROPER HOLES IN POSTS, PULL WIRE TO DESIRED TENSION AND JOIN WITH A 3-BOLT CLAMP.

DETAIL 3
STRUT

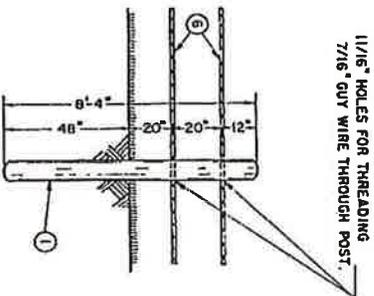


- (1) CUT GAIN IN POST TO RECEIVE PUSH BRACE.
 (2) CUT PROPER SLANT IN PUSH BRACE BY PLACING BRACE IN POSITION ADJACENT TO POST.
 (3) DRILL 1 1/8" HOLES IN POSTS AND BRACE FOR THREADING 7/16" GUY WIRE.
 (4) THREAD 7/16" GUY WIRE THROUGH PROPER HOLES IN POSTS, PULL TO DESIRED TENSION AND JOIN WITH A 3-BOLT CLAMP.

DETAIL 4
PUSH BRACE

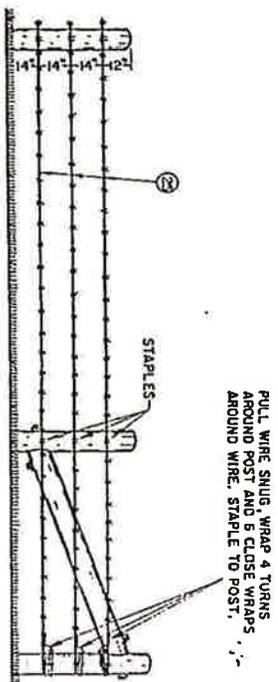
RIGHT-OF-WAY FENCES
 GATES AND WIRE BARRICADES
 TRANSMISSION LINES

PHILADELPHIA ELECTRIC CO. ELEC. CONST. STDS. S-7071



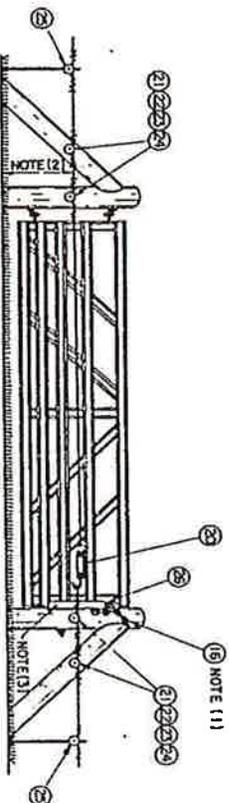
- (1) RECOMMENDED SPACING FOR WIRE STRANDS IS AS SHOWN.
- (2) EXISTING WIRE STRANDS OR PROPERTY OWNERS REQUIREMENTS MAY DICTATE OTHER SPACING.

DETAIL 5
FENCE POST



- (1) FOR USE IN MAINTAINING EXISTING WIRE FENCES.
- (2) NUMBER OF WIRE STRANDS AND SPACING IS DETERMINED BY THE EXISTING FENCE INSTALLATION.
- (3) RECOMMENDED POST SPACING IS 15 FEET.

DETAIL 6
WIRE FENCES



- (1) SECURE CHAIN TO POST WITH STAPLES SO THAT IT WILL NOT CONTACT THE ELECTRIC FENCE WHEN THE CHAIN IS HANGING OPEN.
- (2) HEIGHT DETERMINED BY EXISTING FENCE INSTALLATION.
- (3) SECURE WOOD BLOCK TO POST WITH 3/8" BOLTS TO PREVENT THE METAL GATE FROM MAKING CONTACT WITH THE ELECTRIC FENCE.

DETAIL 7
ELECTRIC FENCES

**RIGHT-OF-WAY FENCES
GATES AND WIRE BARRICADES
TRANSMISSION LINES**

PHILADELPHIA ELECTRIC CO. ELEC. CONST. STD'S. S-7071
PAGE 3 OF 3

**SECONDARY USES FOR RIGHTS-OF-WAY ALONG
ELECTRIC TRANSMISSION LINES
PECO ENERGY COMPANY AND ITS SUBSIDIARIES**

1.0 POLICY AND CONFORMANCE

Proposed secondary uses for the right-of-way shall be submitted through the PECO Energy Real Estate Department and must conform with Electric Construction Standard S-7074, "General Conditions Regulating Approved Secondary Uses for Transmission Line Rights-of-Way Of PECO Energy Company and its Subsidiaries." This policy and general conditions provides for a pleasing right-of-way and encourages compatible usage based on the location of the right-of-way, its zoning, and adjoining uses. All such uses require PECO Energy Engineering and Design Division approval of both preliminary and final drawings and must comply with public safety standards. Preliminary and final drawings must comply with PECO Energy Electric Construction Standard S-7073, "Information Required to Evaluate Proposed Transmission Line Rights-of-Way Secondary Uses."

2.0 CLASSIFICATION OF RIGHT-OF-WAY USES

2.1 Transmission line rights-of-way secondary uses are classified for general guidance as follows:

2.2 Acceptable Uses

2.2.1 Agricultural pursuits including:

- (a) Pastureland
- (b) Gardens
- (c) Farming
- (d) Vineyards

2.2.2 Wildlife Preserves

2.2.3 Park lands and approved recreational use

2.2.4 Highway crossings

2.2.5 Driveways and parking lots

2.2.6 Underground and aerial utilities

2.2.7 Hiking, biking and rollerblading trails

2.2.8 Material Storage (Non-Combustible)

2.2.9 Outdoor advertising in industrial or commercial environments (Subject to review of PECO Energy)

**SECONDARY USES FOR RIGHTS-OF-WAY ALONG
ELECTRIC TRANSMISSION LINES
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS**

(12/82) Page 1 of 2 Rev. 595



PECO ENERGY

S-7072

2.3 Unacceptable Uses

2.3.1. All motor powered recreational vehicles including:

- (a) Mini-bikes
- (b) Dunebuggies
- (c) Motorcycles
- (d) Go-carts
- (e) Drag Racing
- (f) Snowmobiles
- (g) All terrain vehicles

2.3.2 Swimming pools

2.3.3 Hunting or target shooting

2.3.4 Kennels

2.3.5 Storage or use of explosives, hazardous materials, or combustible materials

2.3.6 Junk yards

2.3.7 Gasoline pumps and/or storage tanks

2.3.8 Retention Basins

3.0 REFERENCES

3.1 PECO Energy Company Electric Construction Standards

3.1.1 S-7073, "Information Required to Evaluate Proposed Transmission Line Rights-of-Way Secondary Uses"

3.1.2 S-7074, "General Conditions Regulating Approved Secondary Uses for Transmission Line Rights-of-Way of PECO Energy Company and its Subsidiaries"

SECONDARY USES FOR RIGHTS-OF-WAY ALONG
ELECTRIC TRANSMISSION LINES
PECO ENERGY COMPANY AND ITS SUBSIDIARIES
ELECTRIC CONSTRUCTION STANDARDS

(12/82) Page 2 of 2 Rev. 8/95

S-7072



Appendix I

Topographic Survey

Appendix J
Newspaper Articles

Council Hears Proposed Riverfront Park Master Plan

If approved, the plan would be used by the municipality to seek funding through federal state and county grants for the \$1.6 million project.

By [James Myers](#) December 7, 2011

Norristown Municipal Council heard a proposal for the new Riverfront Park Master Plan at Tuesday night's meeting. Andrew Mears, a landscape architect for engineering firm Johnson, Mirmiran & Thompson, ran through the plan for the park along the Schuylkill between Haws and Chain streets on the West End.

The plan, paid for with a state grant, breaks the proposed improvements into seven segments to give the municipality and opportunity to proceed funding for the construction in stages. The total cost of the new and improved park is estimated at \$1.6 million. According to Planning Director Jayne Musonye, the municipality would seek funding for the project through federal, state and county grants.

The proposed plan includes a picnic and pavilion area, restrooms and a seating area on the hill overlooking the riverfront and boating docks. The three-acre plot, used primarily for boating and recreational fishing, would also include a new floating dock and an additional entrance/exit from Chain Street.

Mears praised Norristown for its commitment to its parks and noted that the municipality manages to do a lot with the \$10 per capita it spends on its parks. The state average for per capita spending on

parks is \$27, while the national level is around \$65.

Mears suggested municipalities like Norristown would benefit from a change in perspective when it comes to parks - envisioning them as revenue generators rather than just amenities for residents. Municipalities can raise revenue through rec league and park usage fees.

"Look at the park and the parks department as a business," he suggested.

Council members praised the new design for the park and for the great pains the designers took to include the surrounding community in the process.

"Tying the bike trail into one of the prettiest parks in town is going to be huge," said Councilman Bill Caldwell.

Caldwell also acknowledged the municipality's lack of funding for the project, but suggested that there was a benefit for planning ahead for better times. When the federal government last made stimulus funds available to local governments, they looked for shovel ready projects that could benefit from the funds right away.

"These are the times they are, but they won't be that way forever," said Caldwell. "We'll have a shovel-ready project with this [plan]."

Council will vote on the plan at the Dec. 20 Municipal Council Meeting on

[Norristown Municipal Hall](#).

Norristown's Riverfront Park construction plan would cost \$1.6 million

By CARL ROTENBERG

NORRISTOWN - A proposed master plan for improving Riverfront Park was presented to council Tuesday night.

The plan has seven segments that can be built separately but would total \$1.6 million if built at the same time.

Andrew Mears, a senior landscape architect for Johnson, Mirmiran & Thompson of Philadelphia, described the proposed improvements with photos of the park and conceptual drawings.

"We started this process a little less than a year ago. We did a site inventory and we had lots of public meetings for input," Mears said. "We believe that we have to provide for ongoing maintenance for any community project."

A design 20 years ago was "mostly implemented at the park," Mears said. The 3-acre park is mostly used for fishing and is located in the floodplain of the river adjacent to the privately-owned Crawford Park. Suggested improvements included adding restrooms, picnic pavilions and additional seating areas. The three alternative designs all included restrooms with different costs and a variety of designs.

A debate over opening up Chain Street to enter the park was settled

in favor of adding a street connection to Chain Street into the park, Mears said.

Floating docks connected to the park would allow residents to get closer to the water. An overlook sitting area would be built near the water.

Seven different modules of the proposed plan would cost a total of \$1.6 million. Each module could be implemented as grants become available since the municipality does not have any extra money to pay for construction.

Norristown spends about \$10 per person for parks while the state average is \$27 per person and the national average is \$65. Councilman William Caldwell praised the "volunteer committee for their hard work. Tying the bike trail into one of the prettiest parks in town is a great idea." Council President Linda Christian said the information was valuable and praised the master plan.

"It is a high priority for Norristown to attract business," Christian said.

"What we liked about different plans from this firm was that they fit into their communities," said Council Vice President Gary Simpson, "where they were located."

"This is a thoughtfully made master plan," Simpson said. "The biggest problem will be finding the money to finance it."

Norristown Director of Planning Jayne Musonye said that council would have to decide how to implement it in phases.

Report prepared by:



JOHNSON, MIRMAN & THOMPSON
Engineering A Brighter Future®

220 St. Charles Way, Suite 200
York, PA 17402
T. 717.741.1600
F. 717.741.9100
www.jmt.com