RIVERS CONSERVATION PLAN
EXECUTIVE SUMMARY

INTRODUCTION

To date, Rivers Conservation Plans have been completed for all of the watersheds in Delaware County with the exception of the Delaware River Watershed. With the completion of this Rivers Conservation Plan (RCP), Delaware County will have comprehensive management strategies for the water, land, cultural, historic, and recreational resources of all of its watersheds. This RCP draws from previously completed plans that address the adjacent Chester, Ridley, Crum, and Darby watersheds, respectively. Efforts have been made to ensure that all recommendations in this Plan are in agreement with those existing RCPs to help promote a cohesive strategy for protecting the Study Area's resources. Since the Naamans Creek portion of the NMS watersheds extends into New Castle County, Delaware, sections of the plan also explore how to coordinate activities affecting the health of resources across the state boundary.

BACKGROUND

The Pennsylvania Rivers Conservation Program was established to "conserve and enhance river resources through preparation and accomplishment of locally initiated plans." The focus of the program is on providing technical and financial assistance to local municipalities and river support groups (i.e., watershed organizations) to carry out planning, implementation, acquisition, and development activities. The program is funded, in part, by the Pennsylvania Department of Conservation and Natural Resources (DCNR), through the Keystone Recreation, Park and Conservation Fund Act of 1993, a component of the Community Conservation Partnership Program (C2P2). The first step in the program is the development of a Rivers Conservation Plan, which identifies significant natural, recreational, and cultural resources. As part of the local planning process, issues, concerns, and threats to river resources and values are identified and recommendations are provided to address these concerns. The recommendations focus on conserving, enhancing, and restoring the rivers that are the subject of the RCP.

STUDY AREAS

With the exception of the Delaware River watershed, which includes direct drainage areas and the Naamans, Marcus Hook, and Stony Creek watersheds, every watershed in Delaware County currently has an RCP. This plan serves as an RCP for the Delaware River watershed areas, addressing, as appropriate, adjacent land areas and stream corridors. The two overlapping sub-Study Areas, Delaware River Corridor (DRC) and Naamans, Marcus Hook, and Stoney Creek (NMS) watersheds, cross municipal and watershed boundaries, providing a unique challenge to developing a single RCP. While the resources (both natural and cultural) vary greatly between the sub-Study Areas, the geographic location and physical infrastructure of the areas reveal intimately related river corridors.

Delaware River Corridor

The Delaware River Corridor (DRC) is demarcated by the Delaware River to the south, and on the north by Interstate-95. The DRC Study Area includes the direct drainage area, and the "pockets" of the other watersheds that originate upstream and drain to the Delaware River. This corridor represents the linear area along the River comprised of similar land uses, resources, and concerns. The Study Area municipalities include: Marcus Hook, Trainer, and Eddystone Boroughs; Chester City; and Lower Chichester, Chester, Ridley and Tinicum Townships. Land use in the DRC is dominated by the area's industrial heritage, with industries and associated worker housing and related land uses.

Naamans, Marcus Hook, and Stoney Creek Watersheds

The Naamans, Marcus Hook, and Stoney Creek watersheds (referred to as the NMS Study Area in this plan) are defined more traditionally than the DRC Study Area. The NMS Study Area includes three small watersheds. These watersheds are located in the southwest corner of Delaware County and contain portions of Aston, Bethel, Chester, Lower Chichester, and Upper Chichester Townships; Marcus Hook and Trainer Boroughs; and Chester City. The unique thing about these watersheds is that, although geographically small, land use is significantly different between the upper and lower portions of the watersheds. The upper portion of the watershed is generally suburban, with single-family, detached homes comprising most of the land use. The lower portion of the watersheds, closest to the DRC, overlaps with the DRC and is much more similar in resources and land use patterns to the DRC sub-Study Area than the NMS sub-Study Area.

RELATIONSHIP TO OTHER STUDIES

Although there have been a number of coastal zone and stormwater studies prepared for the DRC area, the NMS area has gone largely unstudied.

Delaware River Corridor

The DRC communities have benefited from many planning efforts over the years. The issues faced by the municipalities along the riverfront are unique and well known. Considerable work has already been undertaken to restore and maintain the distinct character of these communities. The DRC area lies within a federally designated Coastal Zone Management Program (CZM) area, which allows municipalities to apply to Pennsylvania Department of Environmental Protection (PADEP) for CZM-funded studies. Several of the CZM-funded studies prepared to date include:

- *Delaware County Waterfront Resources Management Plan* (1992) – discusses the coastal zone's many cultural, historic, and natural resources, in relation to the area's land uses
- *Delaware County Coastal Zone Compendium of Waterfront Provisions* (1998) – serves as a tool to help provide direction for planning in the coastal zone corridor

- *Delaware County Industrial Heritage Parkway: Route 291/13 Beautification and Greenway Plan* (2002) – calls for a unified thematic approach to beautification and landscaping in the Route 291/13 Corridor and inclusion of the East Coast East Coast Greenway, a path for bicyclists and pedestrians that will stretch from Maine to Florida
- *Delaware County Route 291/13 Industrial Heritage Parkway and Greenway Landscape and Signage Guidelines* (2005) – provides graphic standards for signage, streetscape, landscaping, and bikeway elements to be installed in the Route 291/13 Corridor
- *Delaware County Industrial Heritage Parkway Interpretive Signage Guidelines* (2013) – provides specific guidelines for interpretive signs in the Route 291/13 Corridor, as well as actual fabrication-ready signage artwork

Other previously completed plans for the Delaware River corridor were developed as part of the County of Delaware's Renaissance Program. The *Delaware County Renaissance Program Planning Area 1 Action Plan – Marcus Hook, Trainer, and Lower Chichester* (2003) identified the need for stream corridor protection activities, East Coast Greenway implementation, planning for a possible Marcus Hook Creek Greenway, and streetscape improvements. The *Delaware County Renaissance Program Planning Area 2 Action Plan* (2003), prepared for Chester City, Chester Township, and Upland and Parkside Boroughs, identified flood abatement projects for Chester Creek, streetscape improvements along Edgmont Avenue, rehabilitation efforts for the historic Triangle One buildings, and adaptive reuse of the Franklin Building in Chester City.

The *Delaware County Renaissance Program Planning Area 3 Action Plan* (2003) listed several projects that addressed waterfront access, recreation, and historic preservation in Tinicum, Ridley Township, and Eddystone. The *Action Plan* also recommended that an Industrial Heritage Corridor Planning Task Force be formed to coordinate development and redevelopment activities for the Route 291 corridor. A separate project for rehabilitation of existing stormwater collection and management systems was identified.

Naamans, Marcus Hook, and Stoney Creek Watersheds

In contrast to the DRC area, the NMS watersheds have a comparable lack of studies and resource inventories. The joint *Aston, Lower Chichester, and Upper Chichester Multi-municipal Comprehensive Plan* (2005) addressed the need for making improvements to reduce flooding and to conduct planning activities for trails. However, there has not been any follow-up to bring the municipalities together to look at stormwater issues or to conduct a feasibility study for linear greenways. This RCP will serve as a basis for multi-municipal collaboration among the DRC and NMS communities.

RIVERS CONSERVATION PLAN

PURPOSE

The primary purpose of this RCP is to address concerns and threats to the river resources by identifying recommendations to guide future efforts for watershed conservation, restoration, and enhancements. Upon adoption of this plan, it will be placed on the Pennsylvania Rivers Registry. Listing on the Rivers Registry opens up the municipality to additional grants and other funding sources for projects that relate to the recommendations described in the plan.

Implementation grants are intended to assist communities in conducting resource studies, such as water quality surveys and monitoring, usage and accessibility studies, and trail feasibility and greenway studies, among others. Development grants are intended for use in carrying out specific construction projects for features like trails and trailheads, playgrounds, parks, and stream bank fencing. Acquisition grants are also available and are intended to aid municipalities in procuring lands for recreation and/or conservation purposes. This can be done via fee simple purchase or through the use of conservation easements. It should also be noted that recommendations in an RCP can help to leverage funding under other DCNR or PA Department of Environmental Protection (PADEP) programs.

One of the major outcomes of this document is to tie the land area from other watershed RCPs to the small pockets of Delaware River direct drainage located in the DRC Study Area. This allows the County to close the gaps between the existing watershed plans to focus on a single linear corridor along the Delaware River. Additionally, the NMS portion of the Study Area comprises a portion of Delaware County that has no prior studies or plans related to stormwater management or watershed conservation. Through the identification of stormwater and water quality issues, recreational needs, historic and cultural resources, and by creating a vision for the watersheds, this RCP can guide Study Area municipalities' conservation and development efforts into the future.

PUBLIC PARTICIPATION

The Delaware County Planning Department (DCPD) undertook an extensive public participation process which included reaching out to citizens and watershed stakeholders. Dual planning teams, comprised of community members from the respective sub-Study Areas, were formed to help assist with data collection, identification of major issues, and development of plan recommendations. In conjunction with the Delaware County Coastal Zone Task Force, the planning team worked with local DRC municipal officials and organizations to gain critical insight into the Study Areas. A separate group was formed for the NMS Study Area, comprised of municipal staff, engineers, Pennsylvania and Delaware environmental organizations, and citizens. The planning teams met on several occasions to address water, natural, cultural, and historic resources, as well as other watershed needs and concerns.

ISSUES & RESOURCES

Cultural Resources

Due to its long history of human settlement, the Study Area contains diverse cultural resources, including historic and archeological sites. Relics of Native American tribes and early European settlers are scattered throughout the landscape. Archaeological artifacts remain intact beneath many of the streets and open spaces of the Study Area. Early settlement by Europeans and prior inhabitance by Native American tribes in Aston and Bethel Townships and Chester City resulted in moderate to high potential for the discovery of archeological resources. Several of the most notable historic sites include the Chester Courthouse, which was built in 1724 and is the oldest public building in continual use in the United States, and the Chichester Friends Meetinghouse, one of the earliest Friends meeting places in Pennsylvania. Preserving and enhancing such important historic resources is an important step in protecting the rich cultural background so intertwined with the Study Area's communities.

The Chester Courthouse, constructed in 1724, is the oldest public building in continual use in the U.S.

Natural Resources

The natural resources of the DRC and NMS were major contributing factors in the settlement and subsequent development of the Study Area. These resources influenced how and where people settled in the Study Area. Much of the natural landscape has changed since the area was first developed.

The areas closest to the Delaware River lie almost entirely within the Atlantic Coastal Plain. These areas are generally comprised of low, flat, poorly drained land extending the length of the Delaware River shoreline. The middle and upper reaches of the NMS, however, lie within the Piedmont formation, defined by rolling hills with steep slopes and deep valleys. Both the DRC and NMS were once heavily wooded with old-growth forests. However, with European settlement in the 1600s, many of the forested areas were cut for timber and the land cleared for productive agricultural use.

The landscape of the DRC has been greatly influenced by the industrial development along the river edge. Most of the remaining woodlands in the DRC lie along stream valleys and in residential areas. Significant woodlands remain Upper Chichester and Trainer, as well as along Chester Creek in Chester City. There are considerably more woodlands in the upper NMS, than in the DRC. The *Natural Heritage Inventory of*

Delaware County, Pennsylvania (NHI), prepared by the Western Pennsylvania Conservancy in 2011, highlights three major woodlands in the NMS watersheds for their relative ecologic value and importance to overall watershed health. Many of the wetlands within the DRC can be found in Tinicum near Plum Hook Creek and the John Heinz National Wildlife Refuge, which is home to roughly 200 acres of tidal wetlands. Wetland habitats in the NMS are found in isolated pockets, and are much smaller in size than those found in the DRC.

Biological Resources

The NHI highlights the rich biological resources of Delaware County and provides documentation of unique plant and animal species. The report also provides a wealth of information regarding important habitat areas, and makes recommendations concerning how to manage and protect them. The NHI identifies limited habitat in the DRC due to its dense industrial development; the exception is the area near the John Heinz National Wildlife Refuge at Tinicum (Heinz Refuge). The tidal wetlands comprising the Heinz Refuge contain some of the rarest landscapes in Pennsylvania, hosting numerous important plant and animal species. In the NMS area, the NHI cites numerous unique ecosystems. Many of the notable natural communities in the NMS are located in old growth wooded areas.

Much of the original upland forest habitat of the Study Area was comprised of a mix of oaks and hickories, depending on the microclimate. Over time, however, that has changed significantly due to timber harvesting and development. Today, many of the remaining forested areas primarily contain red oaks, red maples, and tulip trees. These trees have established themselves, in part, due to their acclimation to the microclimate and through forest succession after clearing and harvesting. Most of these stands of woodland can be found along stream corridors. The Coastal Plain forest, which previously occupied the southern portion of the Pennsylvania border of the Delaware River, thrived on the wet, sandy soils of the DRC. Coastal Plain forests are marked by sweetgum, oaks, and American beech trees, with an understory of small broadleaved evergreen trees and shrubs. There is very limited Coastal Plain forest remaining in the DRC, most of which lies within the Heinz Refuge and Tinicum woods.

Intertidal mudflat on the north side of Little Tinicum Island. Image Source: Andrew Strassman (PNHP)

Prior to development, the NMS Area also contained pockets of grassland, meadow, and open field, scattered throughout the upland forest. The grasslands and meadows

supported various grasses, wildflowers, and animals. Today, only a few meadow sites remain throughout the NMS Study Area, primarily along utility rights-of-way and on homeowners' association open space.

The NHI details several natural areas of statewide significance, in particular, Little Tinicum Island, located in the Delaware River, offshore from Tinicum Township. It is surrounded by a freshwater intertidal mudflat community that supports numerous plant and animal species of concern. Another site of statewide significance is the Heinz Refuge, which contains the largest remaining area of freshwater tidal marsh in the state. The Inventory also details specific areas of high significance across the DRC and NMS. Sites of exceptional significance, as identified in the NHI, include the Darby Creek Mouth Mudflat in Ridley and Tinicum Townships, Little Tinicum Island in the Delaware River, and the John Heinz National Wildlife Refuge at Tinicum.

Open Space and Recreation Resources

Open spaces and recreation resources are distributed throughout both the NMS and DRC. However, due to the differing development patterns, the types and sizes of open space and recreations resources vary. There are many different types of open space resources in the Study Area, including both passive and active parkland, pocket parks, urban gardens, and homeowners' association lands.

The DRC contains several major riverfront parks and numerous smaller community parks farther inland. Riverfront parks include Market Square Memorial Park in Marcus Hook, Barry Bridge Park in Chester, and Governor Printz Boulevard in Tinicum. Other significant open space resources include Little Tinicum Island, located in the Delaware River, offshore from Tinicum Township (part of William Penn State Forest); and the John Heinz National Wildlife Refuge at Tinicum, located along Darby Creek and I-95.

Market Square Memorial Park in Marcus Hook is a popular riverfront destination.

There are also a number of smaller parks with active recreation facilities in the DRC. They generally include ball fields, basketball courts, and playgrounds, all of which experience heavy use.

In the NMS, the open space is primarily focused around active recreation. School district and municipally-owned athletic fields are a great resource for local residents, and are generally open for public use. In addition, a great deal of open space has been preserved as part of new developments. These lands, which are generally controlled by a homeowners' association (HOA), often contain floodplains and steep slopes that are not suitable for development.

Special Issues and Topics

While the Study Area has not traditionally been thought of as a major tourism destination, a number of efforts in recent years have focused on enhancing the area's appeal to people from other parts of Delaware County, as well as from the Philadelphia area and beyond. Much of this focus has been on locations in the DRC where there are many marketable assets, including the area's industrial heritage, parks, marinas, and cultural resources. However, there are also resources in the NMS area worth considering as part of a tourism program. Additional assets for tourism in both sub-Study Areas include historic homes, natural areas, scenic landscapes, and more.

There have been many substantial efforts to revitalize the DRC riverfront, particularly in Chester City. One of the mostly widely publicized is PPL Park in Chester City. The stadium, which opened in 2010 at the cost of $120 million, is home to the Philadelphia Union professional soccer team. The stadium serves as a rich cultural and recreational resource, as it also hosts concerts and regional and national sporting tournaments. Additionally, municipalities within the DRC are working to implement a section of the East Coast Greenway (ECG), an urban trail that will span over 3,000 miles from Maine to Florida. The proposed route for the trail passes directly through the DRC, along the Route 291/13 corridor. The implementation of the trail represents a significant opportunity for municipalities along the corridor to promote its heritage and enhance amenities along the trail for users.

RECOMMENDATIONS AND IMPLEMENTATION

Recommendations

This Rivers Conservation Plan makes recommendations to address the issues, needs, and opportunities discussed in the plan. Many of them were made as a result of information supplied through the public participation process, which included key person interviews with municipalities and other stakeholders, such as watershed organizations and businesses.

The plan contains a number of recommendations common to both the DRC and the NMS. An example is the recommendation for establishment of municipal environmental advisory councils (EACs) to advise the local planning commissions, park and recreation boards, and elected officials on the protection, conservation, management, promotion, and use of local natural resources. Newly formed EACs could help to champion and implement some of the recommendations identified in this plan.

The recommendations for the DRC are generally focused on redevelopment and increasing green infrastructure, access to the river, and implementation of multi-municipal efforts along the Route 291/13 corridor, including streetscape beautification and installation of the East Coast Greenway.

The recommendations for the NMS Study Area focus on more traditional RCP watershed goals of ensuring water quality, managing development pressure, and providing open space opportunities, including public access to waterways and establishing a public trail network that links the communities.

Implementation

One of the first steps for RCP implementation is to identify specific actions, responsible entities, technical and financial needs, and a timeline for implementation. Table 1 provides a comprehensive overview of the recommendations and associated implementation. It provides additional columns to indicate which watershed(s) the recommendations are applicable to, timing, lead organizations, sources of technical support, and potential project partners. The actions do not appear in any particular order, except by chapter. As evidenced by the implementation matrix, many of the recommendations will require coordination between local, county, and state government, and other agencies.

The Rivers Conservation Program provides technical and financial assistance to communities and rivers support groups for conservation activities. Upon municipal adoption of the RCP, the corresponding river or stream is placed on the Pennsylvania Rivers Registry. Once the watershed is placed on the Registry, it becomes eligible for several types of grants, depending on how they relate to the recommendations described in the plan.

TABLE 1
IMPLEMENTATION STRATEGY FOR THE DELAWARE RIVER CORRIDOR AND THE NAAMANS, MARCUS HOOK, AND STONEY CREEK WATERSHEDS AREA

Timing Key:
*High Priority - whether completion is long or short term, these items get top consideration.
LG = Laying the Groundwork - Actions that set up other actions. These must be done first, so should begin immediately.
S = Short Range (1-2 years / ASAP)
M = Medium Range (2-5 years)
L = Longer Range (5-10 years or more)
O = Ongoing

ID #	Recommended Action	Study Area	Timing	Lead Organization	Partners	Technical Support	Reference Page
LU-1	Create additional public access points along Study Area waterways.	DRC/NMS	O	GB ,CD	DCNR, DVRPC	DCNR, DVRPC	3-8, 3-9
LU-2	Complete a brownfields inventory for each municipality in the Study Area.	DRC/NMS	S	GB, CD	DCCC, DCED, PADEP	PADEP, USEPA	3-13
LU-3	Pursue opportunities for cleanup and redevelopment of known or potentially contaminated sites.	DRC/NMS	O	GB, DCCC	DC, PADEP, USEPA	PADEP, USEPA	3-14
LU-4	Buffer industrial land uses through landscaping, screening, and other mechanisms to preserve the aesthetics in Study Area communities.	DRC/NMS	O	GB, I/B	DC, I/B	DC	3-7
LU-5	Protect significant viewsheds of the Delaware River through adoption of local ordinances that require preservation of views.	DRC	S	GB	DC	DC	3-9
LU-6	Balance the needs of existing industries with the desire to attract new public access, recreational, and business redevelopment opportunities.	DRC	O	GB	BCVB, DC, DCCC	DC, DCED	3-8
LU-7	Implement waterfront zoning districts or waterfront zoning overlays to preserve the Delaware River shoreline for water dependent and water-enhanced uses.	DRC	S	GB	DC	DC	3-9
CR-1	Adopt local policies and programs to preserve historic and cultural assets.	DRC/NMS	S	GB	DC, HG	DC, HG, PHMC	4-2
CR-2	Update municipal surveys, as necessary, and convert records to electronic format for use in geographic information systems (GIS).	DRC/NMS	M	DC	GB, HB	PHMC	4-3
CR-3	Promote restoration and adaptive reuse of historic buildings.	DRC/NMS	O	GB	DC, HG	PHMC	4-2
CR-4	Adopt and/or strengthen historic preservation ordinances and create historic architectural review boards (HARBs) that would assist with municipal preservation programs.	DRC/NMS	S	GB	HG	DC, PHMC	4-2
CR-5	Promote historic people, places, and events in open spaces and along trails through the use of interpretive signage.	DRC/NMS	M	BCVB	DC, GB, HG	DC, HG	4-2
CR-6	Create a listing of publicly accessible historic resources for future interpretation.	DRC/NMS	M	DC	GB, HG	BCVB, PHMC	4-11
NR-1	Maintain and enhance environmental ordinances, including those dealing with stormwater and floodplain management and the protection of riparian buffers, woodlands, wetlands, and steep slopes.	DRC/NMS	O	EAC, GB	DC	DC, LT	5-8,
NR-2	Promote the use of low impact development (LID) techniques for new development and redevelopment.	DRC/NMS	O	EAC, ED, GB	DCCC	DVRPC, PADEP, USEPA	5-39
NR-3	Maintain a stringent stormwater management ordinance that minimizes impacts to water quality and quantity in order remain in compliance Act 167 and the requirements of the municipal MS4 stormwater management permit.	DRC/NMS	O	GB, EAC	DC, PADEP	DC, PADEP, USEPA	5-42
NR-4	Participate in the Community Rating System through the National Flood Insurance Program to help reduce the risk of flood damage and to lower the cost of flood insurance premiums.	DRC/NMS	O	GB	DC, FEMA	DC, DCED, FEMA	5-43

ID #	Recommended Action	Study Area	Timing	Lead Organization	Partners	Technical Support	Reference Page
NR-5	Implement a public education program to address inflow and infiltration (I&I).	DRC/NMS	S	GB	DC, DELCORA	DC, DELCORA	5-40
NR-6	Establish a stormwater best management practice (BMP) initiative to encourage retrofit of properties with green infrastructure, such as rain gardens, bioswales, and pervious paving.	DRC/NMS	M	DC	EAC, GB, WO	DVRPC, PADEP, USEPA	5-45
NR-7	Develop a program, possibly in conjunction with an environmental advisory council (EAC), schools, or a watershed group, to promote awareness to residents and businesses about stormwater and water quality issues.	DRC/NMS	S	DC	EAC, Schools, WO	PADEP, USEPA	5-39
NR-8	Conduct site-specific studies for flooding.	DRC/NMS	M	GB	FEMA, PADEP	FEMA, PADEP	5-44
NR-9	Work with watershed organizations and other community groups to educate the public about the importance of riparian buffers.	DRC/NMS	O	DC	EAC, GB, LT, WO	DCNR, PADEP, WO	5-45
NR-10	Identify locations for stream bank and riparian buffer restoration, and undertake implementation projects throughout the Study Area.	DRC/NMS	M	GB, WO	EAC, DC, LT, R, Schools	DC, PADEP	5-45
NR-11	Identify and prioritize opportunities to increase tree cover in residential neighborhoods, commercial street corridors, and in industrial areas.	DRC	S	DC	GB, R, STC, TV	DC, TV	5-18
NR-12	Work with regional and local organizations to reintroduce freshwater tidal wetlands along the Delaware River and at the mouth of tributary streams.	DRC	L	GB	CZTF, DC, DCNR, WO	DC, PADEP, USEPA	5-34
NR-13	Implement conservation ordinances, development practices, and other tools to protect woodlands with the largest blocks of contiguous forest.	NMS	S	GB	EAC, DC, DCNR, LT	DC, DCNR, LT	5-17
NR-14	Work with HOAs to develop management plans for their sensitive natural areas and protected open space.	NMS	M	GB	DC, LT, WO	DC, LT, WO	5-25
NR-15	Implement a stream naming program in order to encourage better stewardship of local waterways.	NMS	O	WO	GB, HG	DC, LT	5-46
NR-16	Connect failing and antiquated on-lot septic systems to existing sewers when and where feasible.	NMS	S	GB	DELCORA	PADEP	5-40
NR-17	Prepare an Act 167 plan for the NMS watersheds.	NMS	L	DC	GB, WO	PADEP	5-42
BR-1	Amend zoning and subdivision land development ordinances to promote sustainable land development practices to minimize or mitigate potential impacts of development on natural communities.	DRC/NMS	S	GB	DC, EAC, LT	DC, LT	6-2
BR-2	Preserve and enhance sensitive natural communities and wildlife areas through proactive planning and land management.	DRC/NMS	O	DC	GB, LT, R	DCNR, LT	6-2
BR-3	Utilize the Natural Heritage Inventory (NHI) to prioritize preservation areas and land management techniques.	DRC/NMS	O	GB	DC, LT, WO	DCNR	6-5
OS-1	Continue to preserve land and develop parks and other public open space, as appropriate, along the Delaware River and other Study Area waterways.	DRC/NMS	O	DC, GB	CZTF, DC, GB	DCNR, LT, PADEP	7-4
OS-2	Create local trail networks that link neighborhood trails, parks, historic resources and other destinations in the study area with the regional greenway network, including the East Coast Greenway.	DRC/NMS	M	GB	BCVB, DC. DVRPC, R	DC, DCNR, DVRPC	7-20
OS-3	Establish new trails along streams, open corridors, and along road and utility rights-of-way.	DRC/NMS	M	GB	DC, LT, R	DC, DCNR, DVRPC	7-20

ID #	Recommended Action	Study Area	Timing	Lead Organization	Partners	Technical Support	Reference Page
OS-4	Partner with “friends of” groups to help maintain and improve park and natural area resources while encouraging community stewardship.	DRC/NMS	O	GB	EAC, R	DC, DCNR	7-7
OS-5	Promote a variety of recreational activities in municipal parks, as appropriate, in order to meet the needs of an active, diverse community.	DRC/NMS	S	GB	EAC, R	DC	7-2
OS-6	Partner with educational groups, including schools, to promote environmental education activities in parks.	DRC/NMS	M	GB	Schools, WO	DC	7-15
OS-7	Explore opportunities to increase passive open space as part of the revitalization process.	DRC	O	GB	DC, DCCC	DCNR	7-4
OS-8	Explore opportunities to develop pocket parks and community gardens in urban areas, especially on vacant lots and brownfields.	DRC	O	GB	DC, DCCC, R	DCNR, USEPA	7-7
OS-9	Participate in the development of the Delaware River Water Trail for recreational canoeists and kayakers.	DRC	O	PEC	DC, DVRPC, GB	DCNR	7-19
OS-10	Increase both physical and visual riverfront access opportunities by providing viewing areas and boat launch facilities.	DRC	O	GB	DC, CZTF, PFBC	DC, DCNR, PFBC	7-4, 7-19
OS-11	Maximize opportunities for creating connectivity through the use of trails in new development.	NMS	O	GB	EAC, R	DC, DCNR	7-15
SI-1	Partner with the Brandywine Conference and Visitors Bureau (BCVB) to promote the coastal zone corridor through social media and interactive mapping.	DRC/NMS	S	DC	BCVB, CZTF, DCCC, HG	PADEP	8-3
SI-2	Promote heritage tourism and other cultural activities, including historic house and village tours, mill and farm tours, and ghost tours, and war reenactments.	DRC/NMS	M	HG	DC, GB, R	BCVB, DC, DCNR	8-3
SI-3	Evaluate the applicability of Cheste rcity's Climate Adaptation element for use in other Study Area Communities	DRC/NMS	S	DC	CZTF, GB, I/B		8-5
SI-4	Implement the East Coast Greenway as a mechanism to promote trail connection to Study Area attractions.	DRC	L	GB	CZTF, DC, DVRPC	DC, DVRPC, PEC	8-2
SI-5	Work with County Planning, the County Commerce Center, and the Brandywine Conference and Visitors Bureau to develop tourism support services, such as hotels, restaurants, and bicycle-related facilities.	DRC	L	DC	DVRPC, GB	DCNR	8-2
SI-6	Develop a marketing campaign for the Corridor using the Internet and social media techniques nfor navigation through the area and interpretation of heritage resources.	DRC	M	DC	DCNR, GB		8-3
SI-7	Pursue State Byway Status for Route 291/13.	DRC	S	DC	CZTF, GB	PennDOT	8-3
SI-8	Work with regional entities to identify a strategy to protect and restore tidal wetlands and shorelines along the Delaware River and its tributary streams.	DRC	L	DC	DCNR, GB, NPO, PADEP	DVRPC, NPO, PADEP, USEPA	8-4
SI-9	Identify and plan for potential risks to riverfront infrastructure associated with possible storm surges or sea level increase.	DRC	M	GB	DC, DVRPC, I/B, PennDOT	DVRPC, NPO, USEPA	8-4
SI-10	Evaluate existing levees and tide gates for structural integrity and adequacy to handle storm surges.	DRC	M	GB	ACE, FEMA	ACE, FEMA	8-5
SI-11	Explore assets in the study area for potential tourism value and regional appeal.	NMS	S	DC	BCVB, GB, HG	DCNR, DVRPC, PEC	8-3

ID #	Recommended Action	Study Area	Timing	Lead Organization	Partners	Technical Support	Reference Page
I-1	Initiate joint planning activities and revitalization programs through the promotion of municipal partnerships.	DRC/NMS	O	DC	GB, LT, WO	DCED, DVRPC	9-2
I-2	Utilize the full range of planning tools and programs to implement the recommendations listed in the RCP.	DRC/NMS	O	GB	DC	DC	9-16, 9-17
I-3	Form joint or individual environmental advisory councils (EACs) to address recommendations in the Rivers Conservation Plan.	DRC/NMS	S	GB	PEC, R	DC, PEC	9-2
I-4	Coordinate with County and municipal historic groups on watershed projects to gather local cultural and historic information, and to implement preservation and educational programs that raise awareness about the Study Area's history.	DRC/NMS	O	GB	BVCB, DC, HG, WO, R	DC, HG	9-12
I-5	Partner with local school districts and universities to maximize opportunities for collaboration to create awareness about watershed issues.	DRC/NMS	S	GB	EAC, R, Schools, WO	DC, LT	9-13
I-6	Work with area universities to identify technical assistance and service learning opportunities and additional community activities.	DRC/NMS	O	GB	DC, R, Schools	DC	9-14
I-7	Partner with the Darby Creek Valley Association (DCVA) and Chester-Ridley-Crum Watersheds Association (CRC) to assist with watershed issues that exist within the Delaware River drainage areas.	DRC	O	GB	DC, EAC, WO	DC	9-11
I-8	Participate in the Delaware County Coastal Zone Management Task Force to share information about riverfront corridor issues and to participate in coastal zone planning efforts.	DRC	O	GB	BCVB, DC, HG, I/B, WO	DC	9-12
I-9	Form a watershed organization to address water resource and other related issues that exist within the NMS watersheds.	NMS	S	R	DC, GB, WO	DC, PEC	9-11
I-10	Identify opportunities to work with local homeowners' associations to address restoration of riparian buffers, maintenance of open space, and reforestation.	NMS	O	GB	DC, R, WO	DC, PADEP	9-12

ACE	Army Corps of Engineers
BCVB	Brandywine Conference and Visitors Bureau
CZTF	Delaware County Coastal Zone Task Force
DC	County of Delaware (Planning Department, Conservation District, Parks Department, etc.)
DCCC	Delaware County Commerce Center
DCED	Pennsylvania Department of Community and Economic Development
DCNR	Pennsylvania Department of Conservation and Natural Resources
DELCORA	Delaware County Regional Water Quality Control Authority
PADEP	Pennsylvania Department of Envronmental Protection
DVRPC	Delaware Valley Regional Planning Commission
EAC	Environmental Advisory Council
USEPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency (FEMA) (or Pennyslvania Emergency Management Agency (PEMA))
GB	Governing Body (municipal and consultant staff)
HG	Historical Group
I/B	Industry and/or Businesses
LT	Land Trust (i.e., Natural Lands Trust, Brandywine Conservancy, etc.)
NPO	Non-Profit Organization
PEC	Pennsylvania Environmental Council
PennDOT	Pennsylvania Department of Transportation
PFBC	Pennsylvania Fish and Boat Commission
PHMC	Pennsylvania Historic and Museum Commission
R	Residents and Civic Organizations (friends groups, civic organizations, homeowners associations)
Schools	Schools, school districts, colleges, universities, etc.
STC	Shade Tree Commission (municipal)
TV	TreeVitalize
WO	Watershed Organization (e.g., CRC, DCVA, NCWA)