Delaware Direct Watershed River Conservation Plan

Executive Summary

April 2011

EXECUTIVE SUMMARY

Delaware Direct Watershed River Conservation Plan

No other watershed in Pennsylvania can compare to the Delaware Direct in terms of resource complexity. Much of the watershed has been developed and re-developed multiple times throughout history, resulting in a largely impervious urban landscape. Today, the riverfront is rapidly approaching an unprecedented period of transformation that is garnering the attention of recreational enthusiasts, neighborhood associations, developers and international planners.

Before implementing these transformative planning efforts and development initiatives, Philadelphia must consider the fact that the Delaware River not only serves the City's water resource needs, but also the needs of a much larger ecosystem. The river itself begins in New York State and stretches more than 330 miles through four states and 42 counties before draining to the Atlantic Ocean at the Delaware Bay. The entire City of Philadelphia drains into the Delaware River. However, the city can be divided into seven smaller watersheds, including the Delaware Direct watershed. In order to achieve the vision of thriving neighborhoods supported by a healthy environment, it is imperative that the watershed's various resources are protected throughout all stages of development and implementation.

Project Description

The Delaware Direct Watershed River Conservation Plan (RCP) is one component of multiple ongoing watershed planning efforts led by the Philadelphia Water Department (PWD) and the Delaware Direct Watershed Partnership. A river conservation plan is designed to unite stakeholders with their local streams, rivers and valuable watershed resources and to foster opportunities to improve the health of the watershed and associated watershed communities. River conservation plans identify significant natural, recreational and cultural resources; determine issues, concerns and threats to river resources and values; and recommend specific actions to conserve, enhance and restore the project area.

The Delaware Direct Watershed is the area of the City of Philadelphia that drains directly to the Delaware River and generally consists of the Delaware River Waterfront and several city blocks inland. Located within the fifth-largest metropolitan area in the United States, the watershed is a complex urban area rich in cultural, economic and natural resources. Dozens of neighborhood plans, city plans, riverfront plans, community plans, and sustainability plans are underway within this project area. Figure 1 illustrates the RCP study area in relation to some of these efforts.

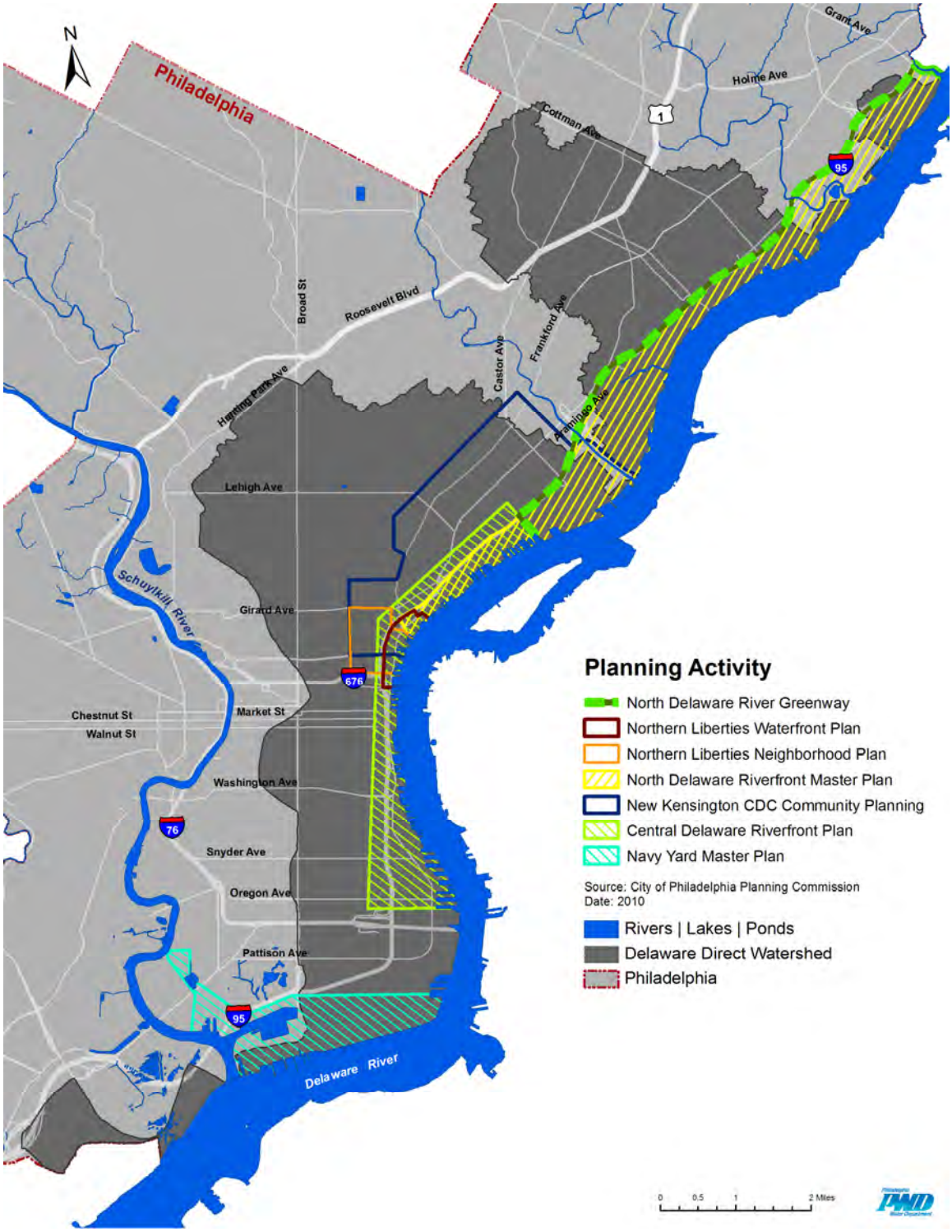

Figure 1 – Planning activity in the Delaware Direct Watershed

As many of these planning efforts contain parallel or complementary functions to the river conservation planning process, this RCP seeks to create a comprehensive planning inventory for this unique watershed with the goal of developing a holistic management plan that facilitates restoration, enhancement and sustainable improvements. In keeping

with this overarching goal, this RCP will serve as an accessible tool—a digital document—to be used in the promotion and facilitation of future planning and management initiatives within the Delaware Direct Watershed.

Stakeholder buy-in is critical to the implementation of the Delaware Direct Watershed River Conservation Plan (RCP) and to all relevant existing planning efforts in the watershed. Stakeholder input was sought out and considered in the development of the planning process of the RCP in order to ensure the plan represents of stakeholder interests.

Acknowledgments

The Delaware Direct Watershed River Conservation Plan Team (RCP Team) is comprised of consultants—CH2MHill and Pennsylvania Horticultural Society (PHS)—along with Philadelphia Water Department (PWD) staff. This project was financed in part by a grant from the Community Conservation Partnerships Program, Keystone Recreation, Park and Conservation Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation.

River Conservation Plan Goals

The Delaware River and its surrounding watersheds have played a crucial role in the development, industrialization and modernization of Philadelphia. The mission to protect and restore the water resources of the City aligns with Philadelphians' desire to claim the river as their own—a place where residents and visitors alike are able to benefit from its natural beauty and the various services it provides. The goals of the Delaware Direct Watershed River Conservation Plan reflect these sentiments.

The Philadelphia Water Department has been leading watershed planning and partnership development initiatives over the past 10 years. During this period, many community partners have worked closely with PWD staff to discuss their wishes for their respective watersheds and create final lists of goals that reflect the multitude of stakeholder interests in each watershed. We have found from these experiences that the partners in these watersheds believe that achieving these goals will lead the watersheds to attain water quality and water quantity improvements, in addition to healthier natural environments and better quality of life for the people who live, work and play in the watersheds. The same goals developed through other area watershed planning activities were shared with the Delaware Direct Watershed partners (initially, the Steering Committee) and approved and adopted by the partners:

<u>Delaware Direct Watershed River Conservation Plan Goals</u>

- *Riverflow and Living Resources*: Improve river habitat and integrity of aquatic life.
- *In-River Flow Conditions*: Reduce the impact of urbanized flow on living resources.
- *Water Quality and Pollutant Loads*: Improve dry and wet weather river water quality to reduce harmful effects on public health and aquatic life.
- *River Corridors*: Protect and restore river corridors, buffers, floodplains and natural habitats, including wetlands.
- *Flooding*: Identify flood-prone areas and decrease flooding.

- *Quality of Life*: Enhance the community quality of life by providing improved access to the river, creating better connections to historic resources and planning appropriately in order to preserve the character of the surrounding neighborhoods.
- *Recreation*: Enhance and improve recreational opportunities and public amenities.
- *Stewardship, Communication, and Coordination*: Foster community stewardship and improve inter-governmental, state, local and stakeholder cooperation and coordination on a watershed basis.

The Existing Plans

The Delaware Direct Watershed RCP Steering Committee referenced several previous and ongoing planning efforts as a foundation for the RCP process. These complementary plans represent those efforts that significantly coincide with the RCP's goals and objectives. Two of these planning efforts, the Civic Vision for the Central Delaware and the Action Plan for the Central Delaware, focus on the riverfront between Allegheny and Oregon Avenues. These plans provide a framework for growth along the riverfront, addressing the ideas of sustainable urban growth, ecological principles, transportation policies and implementation strategies. Of primary concern in these plans is the ability of future development to bring residents and their neighborhoods closer to the river while simultaneously increasing property values, supporting a sustainable growth vision and enhancing the overall quality of life (Source: *A Civic Vision for the Central Delaware*).

In addition to the Central Delaware plans, the City of Philadelphia has committed to developing an urban environment that values open space, green space, environmental and economic sustainability, and an overall high quality of urban life through its GreenPlan and Greenworks planning initiatives. Encompassing similar values on a smaller scale, the New Kensington Riverfront plan and the Northern Liberties Neighborhood and Waterfront Plans strive to develop guidelines that promote low-impact development techniques, foster a seamless transition between traditional neighborhood fabrics and the developing waterfront, and successfully reconnect residents to the river, all while preserving the neighborhoods' diverse and eclectic characters.

Also included in the RCP's list of complementary planning efforts is the North Delaware Riverfront Greenway: Master Plan and Cost Benefit Analysis; the Natural Heritage Inventory of Philadelphia County; and the State of the Delaware River Basin Report. The Natural Heritage Inventory is intended to serve as a conservation tool by identifying environmentally sensitive areas within the City. The North Delaware Riverfront Greenway Analysis, similar to several of the abovementioned plans, strives to create a "River City" through the construction of a riverfront greenway that promotes the development of sustainable, livable communities. Perhaps encompassing the widest range of development and water resource management goals is the State of the Delaware River Basin Report. The report provides a benchmark of current conditions within the basin while also setting goals for future water resource and waterway corridor management, institutional coordination and cooperation, and public education and involvement.

For the Philadelphia Water Department, this River Conservation Plan is one of the first steps in the planning process for the Delaware Direct Watershed. The Philadelphia Water Department is also developing an Integrated Watershed Management Plan (IWMP) for this area, of which the RCP is an integral resource. The RCP initiated the public outreach effort and convened the Rivers Conservation Plan Steering Committee. This committee agreed to continue to meet as the Delaware Direct Watershed Partnership to advise the development of the IWMP. The Management Plan will develop objectives and management options to help meet and monitor progress toward the goals set in the RCP process. The documentation of existing planning efforts in the RCP will be utilized in the IWMP to emphasize recommendations already called for in local planning efforts. The IWMP guides the Philadelphia Water Department's efforts to restore and protect the Delaware Direct Watershed.

The Philadelphia Water Department committed to managing Combined Sewer Overflows (CSOs) through a watershed approach in the 1997 Long Term Control Plan (LTCP). The recent update to the LTCP, entitled *Green City, Clean Waters*, determines that implementing a wide-scale, distributed green stormwater infrastructure system is the most cost-effective way to reduce combined sewer overflows while maximizing benefits to the people of Philadelphia. In addition to eliminating runoff from small storms, reducing combined sewer overflows in the Delaware River and therefore improving water quality, green stormwater infrastructure such as rain gardens, tree trenches and bump-outs can also add health, safety and aesthetic benefits to a community. The IWMP will guide the implementation of the *Green City, Clean Waters* plan within the Delaware Direct Watershed. Ultimately, the goals set during the RCP process will also be realized during the implementation period of the *Green City, Clean Waters* plan.

Public Participation

The Delaware Direct Watershed RCP Team approached the community engagement process with respect for the extraordinary and very recent efforts to involve thousands of watershed residents and stakeholders in existing City and neighborhood planning processes. The RCP Team began by reviewing the outputs and recommendations from several documents that have significance and potential impact on the Delaware Direct Watershed.

The robust processes and extensive community input into these complementary plans prompted the RCP Team to identify recurring themes and most frequently cited recommendations in order for the community engagement process to move planning toward action steps. In the review and comparison of the various planning documents, consensus on several key principles emerged and was reaffirmed in the public participation process:

- Claim the Delaware waterfront as a signature cultural landscape that defines Philadelphia and informs the surrounding neighborhoods.
- Provide residents and visitors open access to a variety of experiences and amenities along the waterfront, including the ability to "touch the river."
- Balance public space as a cultural and social resource, with the opportunity to mitigate environmental impacts from human use and development.

- The imperative for government to lead by example on riverfront redevelopment, particularly where ownership and control issues are minimal and reinvestment can result in multiple benefits or benefits to the community as a whole.
- The desire of Philadelphians to have distinct and individual neighborhood identities while recognizing the need for safe, attractive and walkable access to neighborhood amenities such as parks, schools, restaurants, shopping, etc.
- Community input and influence on how neighborhoods are planned and developed, particularly when it comes to redevelopment projects that are likely to have significant impact on the life and/or character of a neighborhood.
- Strong agreement among City residents that multi-modal transportation options such as bus, trolley and light rail, are one of the most highly valued neighborhood amenities, providing relief from parking woes and the noise, congestion and pollution associated with cars.
- An understanding by citizens, professionals and municipal officials that outcomes are determined by both actions and policies: effective policies encourage desirable activities and, symbiotically, that citizen action can drive and direct municipal policy.

In addition to these unifying principles, the RCP planning team considered several specific projects and policies highlighted in the existing plans. Building on this information, groups of experts and stakeholders were identified and invited to participate in outreach activities. This approach allowed the RCP outreach components to minimize redundancy and capitalize on the energy of previous processes and to move planning toward action steps. Workshops, meetings and other outreach activities were organized around land-use typologies and place-based concerns so that proposed recommendations would be applicable and duplicable elsewhere in the watershed.

Steering Committee

The Delaware Direct Watershed River Conservation Plan Steering Committee first convened in November 2007. Twenty-eight individuals representing 19 key watershed organizations—including government, non-profit and community groups—were invited to represent their constituents and the many recent planning and community engagement processes that have taken place throughout the city and watershed.

The Steering Committee was charged with two primary tasks:

- To provide input and guidance to the River Conservation Plan Team throughout the planning process
- To form a partnership of key stakeholders to share information, ideas, activities, program goals and accomplishments

While the first task has an identifiable endpoint, the second is more open-ended. During the Steering Committee meeting held in September 2008, the Philadelphia Water Department invited Steering Committee members to continue the partnership as the City moves forward in creating its Combined Sewer Overflow Long Term Control Plan Update (*Green City, Clean Waters*) and Integrated Watershed Management Plan and other future programs related to watershed management and planning. One of the great

successes of the RCP project was the recognition by committee members that providing a forum for exchange and collaboration was valuable. The willingness of most participants to continue meeting as a group is a testament to the value and benefits of partnerships that are able to define and support common goals.

Watershed Partnership

The Delaware Direct Watershed Partnership consists of the members of the RCP Steering Committee, in addition to active participants that emerged from RCP public events and public meetings and other stakeholders that have shown an interest in the Partnership since the completion of the RCP planning process. Watershed partners share resources and expertise and coordinate information. The ultimate goal of the Philadelphia Water Department's watershed planning approach is to cultivate partnerships committed to adopting and implementing watershed management plans. As the Delaware Direct River Conservation Plan provides the foundation for the Delaware Direct Integrated Watershed Management Plan, the Partnership will serve as the lead in the implementation of the RCP, as well as the Delaware Direct Integrated Watershed Management Plan.

Workshops

Three workshops provided an opportunity to explore watershed issues. For each event, key experts and stakeholders were invited to consider proposals, best management practices, recommendations, actions to advance projects, and demonstration and learning models for the Delaware Direct Watershed. Each intensive workshop centered on a single thematic element that had emerged from complementary planning and community engagement work. In all, more than 100 individuals representing more than 50 organizations participated in three half-day workshops. The Pennsylvania Horticultural Society (PHS), with support from the William Penn Foundation, provided venues and hospitality for these meetings. Groups were convened at the Independence Seaport Museum to discuss one of the most challenging and contentious urban watershed issues: parking. A remarkable gathering of expertise met at PHS to create a study design for tidal wetland restoration, and concurrent groups discussed riparian restoration and park expansion planning. The final workshop event, held in a tent overlooking the Delaware River at Penn Treaty Park, challenged attendees to create priority recommendations for moving forward on a citywide green and complete streets initiative. Chapter 3 provides a detailed account of these gatherings and Appendix B of the RCP contains outputs and meeting notes.

Public Meeting

One large public meeting was held as part of the RCP process. On December 4, 2008, groups and individuals across the watershed were invited to participate in a series of activities and information-sharing sessions focused on creating and sustaining Healthy Neighborhoods. Rather than a traditional lecture format, the meeting plan provided for a series of activities and one-to-one discussions. The *Graffiti Wall* was designed to

introduce precedent examples of urban greening and sustainability approaches, stimulate conversation and provide organizers with a sense of what appealed to respondents. *Green Carpet Interviews* invited attendees to step onto the Green Carpet for a video interview on issues and concerns on their block. The *Map a Neighborhood Tour* used a personalized internet-based mapping exercise to create a tour of notable places in participants' respective neighborhoods. A *Healthy Neighborhood Polling Station* presented a series of slides as an accompaniment to 16 questions. Respondents were asked to rank the importance on a scale of 1-10 of various neighborhood concerns. The open house format allowed for drop-in visitation over a several hour period. An estimated 50 participants—including representatives from various neighborhood groups and non-profit organizations—attended the four-hour event.

Watershed Walks

Two opportunities to experience firsthand the realities of the highly urbanized Delaware Direct Watershed were offered as part of the RCP process. Watershed walks provide an opportunity to engage community in an exploration of real world conditions as they relate to specific issues. In the many planning processes that have involved the Delaware Direct communities and neighbors, issues related to connectivity—particularly the links from neighborhoods to the riverfront—have been a priority concern. Reflecting the importance of this issue, watershed walks focused on this priority.

Delaware Direct Watershed Profile

Land Use

The Delaware Direct Watershed is primarily composed of developed land, including commercial and residential buildings, transportation features, parking lots and other hardscape features. The mostly impervious watershed drains approximately 26% of the entire City of Philadelphia, or the equivalent of 35 square miles. The largest single land use is residential housing. Industrial and large-scale commercial facilities occupy much of the Delaware River waterfront. Transportation infrastructure is another major feature of land use, making up approximately 10% of the watershed's land area. Interstate 95 parallels the Delaware River through the watershed and has disconnected much of the city from this valuable water resource. Waterfront access is a major focus of planning efforts in the watershed.

Zoning

Many additions and changes have been made to the zoning code since it was first adopted, with a comprehensive revision and citywide zoning remapping undertaken in the early- and mid-1960s. Today, the Philadelphia zoning code is again undergoing a transformation because of the many issues that have occurred as a result of past regulations. The present code is considered by many to be overlong, confusing and outdated. The Zoning Code Commission was approved by voters in 2007 and

established to create an updated zoning code to improve the quality of design and development citywide.

Socioeconomic Characteristics

The total population of the Delaware Direct Watershed is 501,998 and represents almost one-third of the entire population of the City of Philadelphia (1,526,006, according to the U.S. Census Bureau data from 2010). Much of the Delaware Direct Watershed is a patchwork of city neighborhoods. The Delaware Direct contains a broad range of communities that differ in racial and ethnic make-up, income level and age. The watershed as a whole is racially and ethnically diverse, yet it contains a number of demographically distinct communities. Overall, the watershed has a high population density at over 14,000 persons per square mile. The neighborhoods of South Philadelphia, North Philadelphia and Northeast Philadelphia are densely populated urban neighborhoods. Other areas, such as Center City, show great contrast from block to block. Areas of industrial and commercial concentration, such as the waterfront, are largely unpopulated. Sources of employment are spread throughout the urban watershed, and several areas can be characterized as significant nodes of employment. Several of these nodes have grown around redevelopment and adaptive reuse projects.

Land Resources

The Delaware Direct Watershed is located within the Mid-Atlantic Coastal Plain. This flat, sandy region was formed when Triassic-period deposits were eroded and redeposited to the southeast by water and glaciers. The physical properties of the soils in the Delaware River drainage basin are the determining factor in the sediment-transport characteristics of the river and its tributaries. The soils, in turn, are determined by the geology and weathering processes of the rock material. Approximately 95% of the Delaware Direct Watershed is comprised of soils classified as Urban Land because they have been highly modified through development. More detailed information regarding the geomorphology of this area can be found in Chapter 4, the Land Resources section of this document.

Cultural and Historic Resources

The Delaware Direct Watershed is full of places to play, learn and relax, and it features a wide variety of native, colonial, industrial and modern historic sites. Community centers, neighborhood parks and community gardens are a common sight among the densely populated neighborhoods in the watershed. The watershed is bound by the Delaware River to the east, providing opportunities for boating and fishing, as well as views of the water. Waterfront redevelopment efforts are at the heart of many plans to improve life in the city and present an opportunity to further meet the cultural and recreational needs of residents and visitors.

Parks, Recreation and Open Space

The Delaware Direct Watershed contains 45 parks covering two square miles, or 3.4% of the land area. There are 108 recreation centers serving the surrounding communities' recreational needs. In total, recreation facilities amount to more than 4% of the watershed's land use. Several waterfront parks exist along the Delaware River, and more are in development. Currently, Penn Treaty Park, Pulaski Park, Washington Avenue Green and Pleasant Hill Park provide a variety of waterfront experiences. Race Street Pier and the Bridesburg Ecological Restoration site are reclaiming industrial waterfront property for public recreation. More than a dozen boat launches and marinas along the riverfront provide water recreation opportunities. The National Park Service operates the Independence National Historical Park located in Center City. A collection of local and neighborhood parks make up the remaining open space within the confines of the Delaware Direct Watershed. To find a local park, please visit the Philadelphia Parks Alliance website at www.philaparks.org and search the Park Directory.

Historic Resources

Covering much of the Delaware River waterfront, the Delaware Direct Watershed is rich in historical resources. It contains the site where William Penn is said to have made his treaty with the Delaware tribe, as well as several American Indian archaeological sites. The watershed contains some of the oldest neighborhoods in the city, such as Old City, Southwark, Northern Liberties, and Kensington. It was the heart of industrial Philadelphia, the focus of the massive manufacturing effort that, in the 19th century, gave Philadelphia the nickname "Workshop of the World." It contains Independence Hall and City Hall, Christ Church and Old Swede's Church, and the site of the first United States Navy Yard. Hundreds more significant government, religious, commercial, industrial and residential buildings and public spaces exist within the watershed.

Water Resources

The Delaware Direct Watershed constitutes approximately 1% of a larger drainage area known as the Delaware River Basin. It is important to keep this distinction in mind when discussing the water resources of the Delaware Direct Watershed. This relatively small urban drainage area is a piece of a much larger puzzle, and the quality of its water resources is influenced by conditions both upstream and across the river in New Jersey. As an interstate waterway, water quality of the Delaware River is managed in part by the Delaware River Basin Commission (DRBC). The DRBC has established interstate water management zones and accompanying designated uses for each segment of the river. These designated uses define ways in which the Delaware River provides value to people, such as support of aquatic life, recreation, public water supply and fish consumption. Zone 3, encompassing the Delaware Direct watershed, was listed in the most recent 2010 assessment as not meeting its designated use for aquatic life due to violations of dissolved oxygen (DO), pH, alkalinity and water temperature standards. Recommendations from the Water Resources Plan for the Delaware River Basin provide a framework for addressing new and historic water resource issues and problems in the

Delaware River Basin. The Basin Plan emphasizes an integrated approach, recognizing, for example, that water supply and water quality cannot be managed separately.

The design and operation of Philadelphia's sewer system also has an impact on water quality within the Delaware River. More than 80% of the land in the Delaware Direct Watershed drains to a combined sewer system, with just a small portion of land directly draining to the river itself, either through overland flow or separate storm sewers. Combined sewer systems are common in many older cities and collect and convey both sewage and stormwater runoff in a single pipe network. These sewers are designed to overflow into the Delaware River when the capacity of the system is overwhelmed by increased flow during major storms. This release of untreated sewage mixed with stormwater is referred to as a combined sewer overflow (CSO). There are 54 outfalls where CSOs can occur along the Philadelphia side of the Delaware River.

Philadelphia has adopted a comprehensive watershed restoration approach that promotes control of stormwater at the source through low-impact development and green stormwater infrastructure practices on the land as the primary method to reduce combined sewer overflows. Green stormwater infrastructure includes a range of soil-water-plant systems that mimic nature by intercepting stormwater, infiltrating a portion of it into the ground, evaporating a portion of it into the air, and in some cases releasing a portion of it slowly back into the sewer system. These green infrastructure investments will be coupled with strategic investments in the existing conventional infrastructure system, such as upgrades and expansions at the wastewater treatment plants.

Biological Resources

The Delaware Direct Watershed is part of the Upper Estuary of the Delaware River, a tidal zone with free-flowing waters south of Trenton and north of the Delaware Bay. The Upper Estuary is characterized by intertidal wetlands fed by freshwater streams and is part of a larger ecosystem that provides habitat for both transient and resident species. The river is a stop in the Atlantic flyway for migratory birds, as well as a thoroughfare for anadromous fish (fish that move from salt water to fresh water to reproduce).

Activities to support development, such as dredging, filling and deforestation, have greatly reduced natural ecological communities. The transformation of natural lands into urban land affects floral and faunal density and diversity, providing an opportunity for invasive species to establish themselves. Additionally, commercial and residential landscaping has contributed to the introduction of plant species not native to the region.

Although Philadelphia has one of the most developed waterfronts in the state, it contains a number of species that are confined to the tidal reaches of the Delaware River. In 2009, the Philadelphia Water Department (PWD), with grant support from Pennsylvania's Department of Conservation and Natural Resources (DCNR), performed an ecological survey of the southern portion of the Delaware River's waterfront. The study's findings suggest that the river in our region is serving as a nursery area for anadromous fish. In 2010, scientists from the Academy of Natural Sciences and the Partnership for the Delaware Estuary discovered seven species of freshwater mussels in

the Delaware River between Chester, PA and Trenton, NJ. Two of these species were previously considered to be locally extinct.

Issues, Concerns, Constraints and Opportunities

Through public dialogue spurred by the Civic Vision for the Central Delaware and GreenPlan Philadelphia, it was evident that watershed residents highly value their ability to access their rivers for recreational use and to simply experience the riverscape. The RCP Team engaged in numerous public participation activities to further involve the community in decisions involving their rivers and water resources. The RCP Team conducted one-of–a-kind workshops that confirmed the primary issues raised in previous planning efforts. The documentation of watershed characteristics revealed constraints that further inform the issues facing the Delaware Direct Watershed.

Overall, the watershed issues identified during the RCP process center on:

- Waterfront access
- Connections between watershed neighborhoods and the Delaware River
- Waterfront development and its effects on existing resources
- Recreation and open space
- Land-based environmental degradation
- Loss of habitat and ecological services
- Water quality
- Stakeholder coordination

Within the watershed, there are also many opportunities to mitigate the impacts of urbanization. The diversity of natural and cultural resources and the desire for community involvement with waterfront development illustrates some of the potential. The following is a partial list of the opportunities that support sustainable transformation of the Delaware Direct Watershed.

- A unified civic vision for portions of the waterfront
- Active neighborhood and community organizations
- Local and national focus on sustainability
- Update of the zoning code and the City Comprehensive Plan
- East Coast Greenway Alliance (ECGA)
- Philadelphia Complete Streets Executive Order
- Reconstruction of Interstate I-95

Recommendations

The extensive planning activity and public interest in the Delaware Direct Watershed has generated a number of recommendations for managing the watershed's resources. These recommendations are the product of collaboration between stakeholders at all levels from community members, neighborhood organizations, and regional leaders.

Stakeholder recommendations range from seeking funding for feasibility studies to increasing the number of bus stops on Delaware Avenue. The Philadelphia Water Department's riverbank assessments recommend educating property owners in ways to improve the riverbank through clean-up, lawn care and stormwater management. The previous and ongoing planning efforts provided the insight and expertise of professionals from multiple disciplines as well as the thousands of participants in the respective plans' outreach components. These recommendations range from improving street crossings to managing invasive plant species and identifying opportunities for collaborative efforts. While Chapter 9 of this report is dedicated to presenting the range and depth of these recommendations, the following list attempts to summarize these recommendations by organizing them around common themes.

Common themes of recommendations include:

- Improve connections from neighborhoods to the waterfront
- Reduce Combined Sewer Overflows through green stormwater infrastructure
- Create continuous riverfront multi-use recreational trail
- Enhance/expand existing riverfront parks (Pulaski, Penn Treaty & Pleasant Hill)
- Create new riverfront parks
- Where feasible, undertake ecological restoration projects to re-establish tidal wetlands, meadows, and riparian forest
- Expand the amount of locally accessible green space within neighborhoods designed for a multitude of benefits
- Support tree planting initiatives throughout the watershed
- Encourage and adopt sustainable development practices
- Establish green and complete street practices to encourage multi-modal transportation, support pedestrian movement and improve the environment
- Ensure new development complements existing neighborhood character
- Create spaces for a range of active and passive uses under I-95
- Support collaboration among various city departments, civic organizations, nonprofits organizations and others

A summary recommendations matrix was used to present the specific recommended actions of the complementary planning projects inventoried for the RCP. The matrix also illustrates the connection between the plans' recommendations and the RCP goals.

The following complementary plans were inventoried for this component:

- An Action Plan for the Central Delaware (2008)
- Central Delaware Riverfront Master Plan
- A Civic Vision for the Central Delaware (2007)
- East Coast Greenway
- Green 2015 (2011)

- Green City, Clean Waters (2009)
- GreenPlan Philadelphia (2011)
- Greenworks Philadelphia (2009)
- Natural Heritage Inventory of Philadelphia County (2008)
- New Kensington Riverfront Plan (2008)
- North Delaware Riverfront Greenway: Master Plan and Cost Benefits Analysis (2006)
- Northern Liberties Neighborhood Plan (2005)
- Northern Liberties Waterfront Plan (2007)
- Philadelphia Pedestrian and Bicycle Plan (2010)
- Water Resources Plan for the Delaware River Basin (2004)
- State of the Delaware River Basin Report (2008)

Conclusion

Access is the central theme of the Delaware Direct Watershed River Conservation Plan. While there are indeed physical barriers that have disconnected the watershed from the Delaware River, there is also a need for access to information. Watershed stakeholders need access to the inventory of ideas, resources and efforts at work in the watershed in order to engage and to lend their strength. We see this RCP not as the last step but as a place to start; a point at which anyone with an interest in improving the health, viability and sustainability of the region can engage in the planning process. This watershed is in the midst of positive transformation and we hope that you find this report useful as you contribute to the successful implementation of the recommendations put forth in this plan.

To review the Delaware Direct Watershed River Conservation Plan in its entirety, please visit:

http://www.phillywatersheds.org/your_watershed/delaware/delaware_RCP

Delaware Direct Watershed River Conservation Plan

April 2011

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CHAPTER 1

PROJECT DESCRIPTION

Introduction

The Delaware Direct Watershed River Conservation Plan (RCP) is one component of multiple ongoing watershed planning efforts led by the Philadelphia Water Department (PWD) and the Delaware Direct Watershed Partnership. In 2006, the PWD obtained grant funding from the Pennsylvania Department of Conservation and Natural Resources (PADCNR) to undertake this RCP effort. River conservation plans are intended to identify significant natural, recreational and cultural resources; to determine issues, concerns and threats to river resources and values; and to recommend specific actions to conserve, enhance and restore the project area.

Delaware Direct Watershed River Conservation Plan Goals

The Delaware Direct Watershed Partnership, which continues to meet beyond the completion of this plan, will advise the development of future watershed planning efforts in the Delaware Direct Watershed. The goals of the Delaware Direct Watershed RCP were developed to coincide with those developed for all Philadelphia watersheds through the Integrated Watershed Management Planning (IWMP) process. The IWMPs identify improvements to the health of the water resources in Philadelphia watersheds while respecting the diverse needs of stakeholders. The Delaware Direct Watershed River Conservation Plan goals have come to represent an overarching vision for the Delaware Direct Watershed.

Delaware Direct Watershed River Conservation Plan Goals

- *Riverflow and Living Resources*: Improve stream habitat and integrity of aquatic life
- *In-river Flow Conditions*: Reduce the impact of urbanized flow on living resources
- *Water Quality and Pollutant Loads*: Improve dry and wet weather stream quality to reduce the effects on public health and aquatic life
- *River Corridors*: Protect and restore river corridors, buffers, floodplains and natural habitats including wetlands
- *Flooding*: Identify flood-prone areas and decrease flooding
- *Quality of Life*: Enhance residents' quality of life through environmental improvements
- *Recreation*: Enhance and improve recreational opportunities
- *Stewardship, Communication, and Coordination*: Foster community stewardship and improve inter-governmental, state, local and stakeholder cooperation and coordination on a watershed basis

1.1 - Planning Process

The Delaware Direct Watershed is the area of the City of Philadelphia that drains directly to the Delaware River and generally consists of 21 miles of Delaware River waterfront and several city blocks inland. Beginning with European settlement in the 1600s, the Delaware Direct watershed has become increasingly developed and is today home to more than half a million residents in more than 70 neighborhoods. The watershed also includes a large portion of the central business district of Philadelphia, Independence National Historical Park, the Philadelphia International Airport and the Port of Philadelphia. Figure 1.1, the Watershed Base Map, shows project area and some of the neighborhoods within it.

The diversity of resources and the ultra-urban nature of the Delaware Direct Watershed present both opportunities and challenges for watershed health and viability. However, there is evidence that this area is poised to capitalize on the opportunities. Dozens of neighborhood plans, city plans, riverfront plans, community plans and sustainability plans have been undertaken to determine the best ways to move forward. Figure 1.2 maps some of the plans active in the watershed.

One of the major issues facing the Delaware Direct Watershed is the perceived disconnection from its associated water resources. Development of the Delaware riverfront for commercial and industrial use has created barriers to views and access points that reinforce these connections. The conversions of streams to sewers have essentially hidden the water resources so crucial to everyday life in the City. This RCP seeks to unite stakeholders with their local historic streams, rivers and valuable watershed resources through a holistic approach to conservation planning.

Using a community-based planning process, the RCP team capitalized on the momentum of complementary planning efforts, the expertise and enthusiasm of the Delaware Direct Watershed Partnership (previously the RCP steering committee) and the local knowledge of the public that participated in the outreach processes, described in Chapter 3 of this report. This outreach sought to capture the concerns of and amenities identified by the people that live, work and play in the Delaware Direct Watershed. Chapters 2 and 4 - 7 explore the state of the watershed through its socio-economic, natural, cultural and historic aspects, forming a profile of existing conditions. These characteristics are used to identify the components of underlying constraints and document the resources available for managing watershed issues. A summary of watershed issues, as well as the opportunities available to address them, is presented in Chapter 8. The RCP concludes with Chapter 9, which proposes actions for mitigating issues and managing resources.

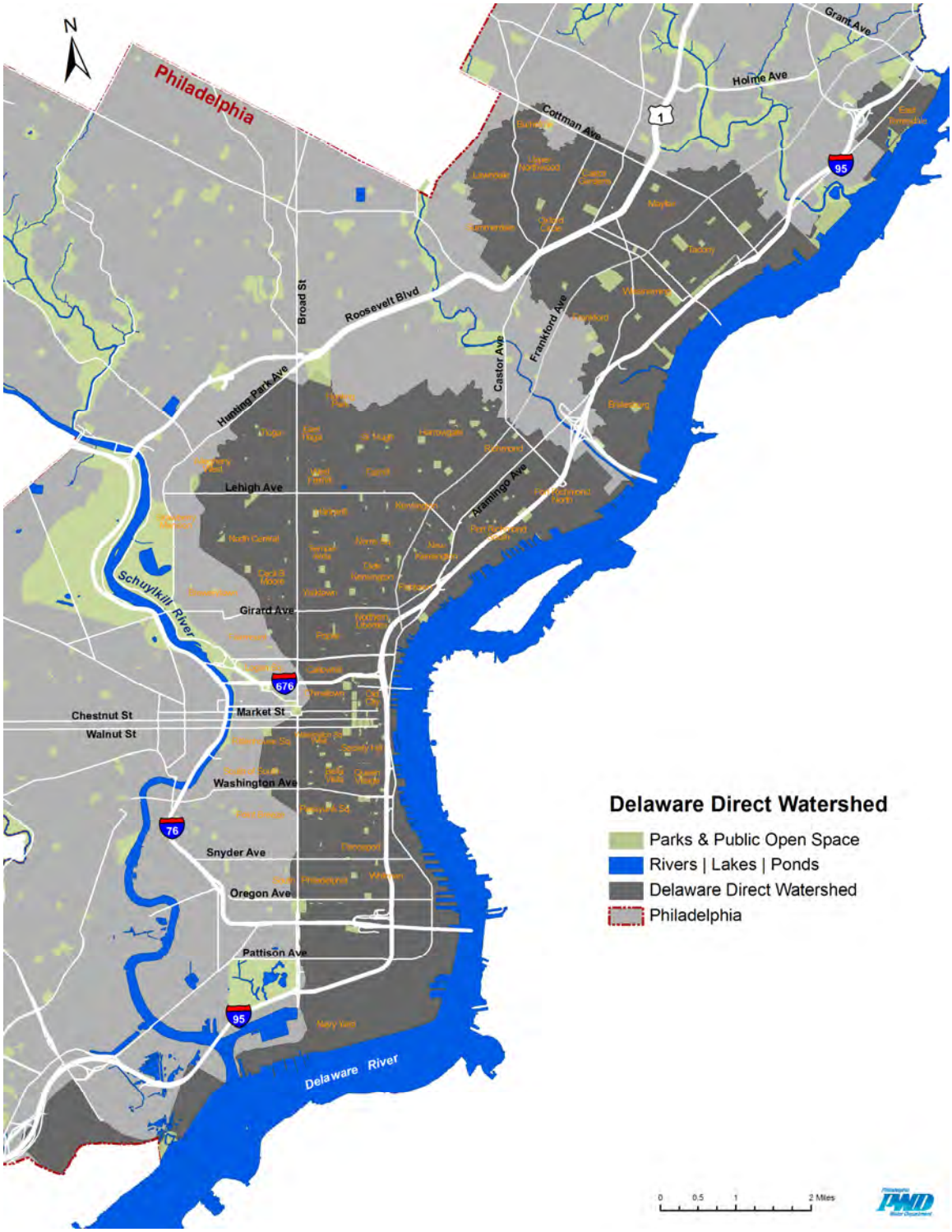

Figure 1.1 - Delaware Direct Watershed Base Map
SOURCE: PWD

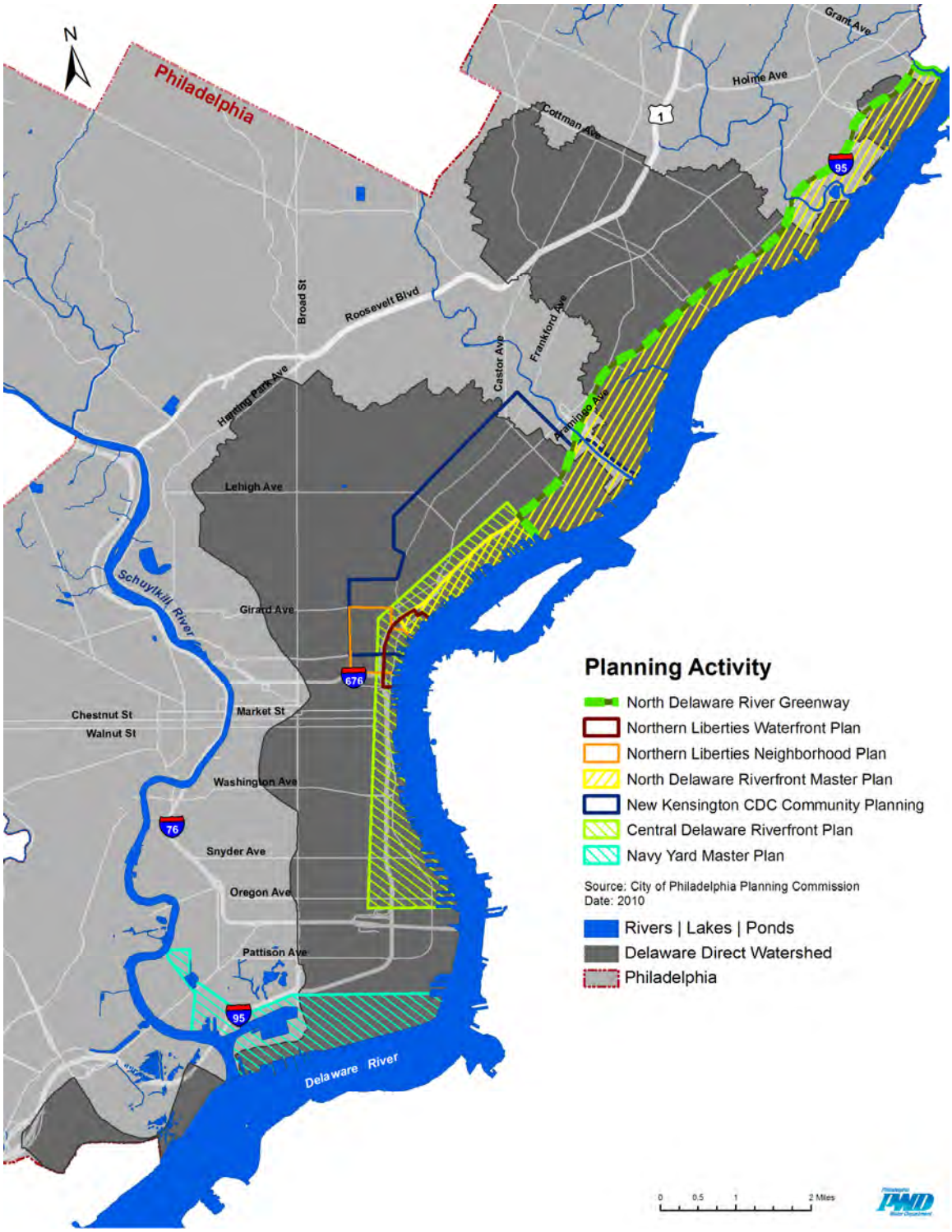

Figure 1.2 - Existing plans in the Delaware Direct Watershed
SOURCE: PWD

What Makes This River Conservation Plan Unique?

With authorization from the Department of Conservation and Natural Resources (DCNR), the RCP Team determined this watershed deserved a unique approach.

As mentioned, there are many plans and projects that have been previously undertaken or are currently underway in this watershed. Table 1.1 provides a list of plans and projects referenced for the RCP. Several of these plans achieve many of the functions of the RCP, including outreach, goals and objectives, inventory of technical resources and recommendations for implementation. The RCP team determined it would be useful for this report to both build upon and add to the momentum created by these complementary plans. This report identifies the connections of these plans to the goals and objectives of the Delaware Direct Watershed RCP and presents them graphically in Chapter 9. Additionally, the RCP Team adjusted and refined the traditional RCP public participation approach to build upon the vast amount of public input and issue identification gathered by the existing and ongoing plans.

Public Participation Process

The RCP team began by reviewing the outputs from several documents that have significance and potential impact on the Delaware Direct Watershed to identify recurring themes and most frequently cited recommendations. After reviewing and comparing the various planning documents, consensus on several key principles emerged:

- Claim the Delaware waterfront as a signature cultural landscape that defines Philadelphia and informs the surrounding neighborhoods.
- Provide residents and visitors open access and a variety of experiences and amenities along the waterfront, including the ability to "touch the river."
- Balance public space as a cultural and social resource, with the opportunity to mitigate environmental impacts from human use and development.
- The imperative for government to lead by example on riverfront redevelopment, particularly where ownership and control issues are minimal and re-investment can result in multiple benefits or benefits to the community as a whole.
- The desire of Philadelphians to have distinct and individual neighborhood identities as well as safe, attractive and walkable access to a host of neighborhood amenities such as parks, schools, restaurants, shopping, etc.
- Community input and influence on how neighborhoods are planned and developed, in particular when it comes to redevelopment projects that are likely to have significant impact on the life and/or character of a neighborhood.
- Strong agreement among City residents that multi-modal transportation options such as bus, trolley and light rail are one of, if not the most, highly valued neighborhood amenity, providing relief from parking woes and the noise, congestion and pollution associated with cars.
- An understanding by citizens, professionals and municipal officials that outcomes are determined by both action and policies: Effective policies encourage desirable activities and, symbiotically, citizen action drives and directs municipal policy.

Building on the organizing themes and recommendations in those documents, working groups of experts and stakeholders were convened. The intent and effect of this approach was to maintain the vitality and interest of those who had already made significant planning contributions, to avoid redundant processes and, most important, to move key concepts and recommendations forward. Chapter 3 provides a detailed discussion of the public outreach process.

Web-Based Format

An additional unique element of the Delaware Direct Watershed RCP is its format. With the desire to promote access to the volume of information presented in this report, the RCP team determined it would be most useful to the watershed stakeholders to showcase the plan as a web-based document. The web-based format serves to minimize unnecessary duplication, to synthesize information and, hopefully, to streamline the application of the planning recommendations.

Rivers Registry

Pending approval by the PA DCNR, the RCP recommendations (and the report in its entirety) will become available on the Pennsylvania Rivers Registry. This listing will enable the projects on the recommendations list to be eligible for funding.

The purpose of the registry is to promote river conservation and to recognize rivers or river segments in communities that have completed river conservation plans. The registry is also an avenue to endorse local initiatives by binding them together in a statewide recognition program. In order for a river to be placed on the registry, it must have an approved plan and local municipal support. Registry status must be achieved to qualify for implementation, development or acquisition grants. (Source: DCNR)

Table 1.1 - Plans and Projects referenced for the Delaware Direct WatershedRiver Conservation Plan

PLAN	ON-LINE LOCATION
Action Plan for Central Delaware (2008)	http://issuu.com/pennpraxis/docs/actionplan_full
Center City District Planning for Growth 2007 – 2012	http://www.centercityphila.org/docs/CCD-PLAN07.pdf
Central Delaware Riverfront Master Plan	http://www.plancentraldelaware.com/
Civic Vision for Central Delaware (2007)	http://issuu.com/pennpraxis/docs/civic-vision-for-the-central-delaware
Delaware River: State of the Basin Report, 2008	http://www.state.nj.us/drbc/SOTB/index.htm
East Coast Greenway	http://www.greenway.org/pa.aspx
Green City, Clean Waters	http://www.phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan/
GreenPlan Philadelphia	http://www.greenplanphiladelphia.com/
Greenworks Philadelphia, 2009	http://www.phila.gov/green/greenworks/2009-greenworks-report.html
Green 2015: An Action Plan for the First 500 Acres	http://planphilly.com/green2015-action-plan-first-500-acres
A Natural Heritage Inventory for Philadelphia County, 2008	http://www.fairmountpark.org/pdf/nhi.pdf
New Kensington Riverfront Plan, 2008	http://www.plancentraldelaware.com/wp-content/uploads/2010/05/NKCDCRiverfrontPlan.pdf
North Delaware Riverfront Greenway: Master Plan and Cost Benefits Analysis, 2006	http://www.drcc-phila.org/plans.htm
North Delaware Riverfront Rail Stations Urban Design Study, 2008	http://www.philaplanning.org/plans/ndelrailsum.pdf
Northern Liberties Neighborhood Plan, 2005	http://www.nlna.org/images/NLNA_Plan_WebVersion.pdf
Northern Liberties Waterfront Plan, 2007	http://www.nlna.org/images/NLNA_WaterfrontPlan_Web.pdf
Philadelphia Navy Yard Master Plan, 2004	http://www.navyyard.org/uploads/files/FinalReport.pdf
Philadelphia Pedestrian and Bicycle Plan	http://tooledesign.com/philadelphia/documents.html
South Port Expansion Plan	http://aapa.files.cms-plus.com/SeminarPresentations/07_OPSAFIT_Walsh_Jim.pdf
State of the Delaware River Basin Report, 2008	http://www.state.nj.us/drbc/SOTB/index.htm
Water Resources Plan for the Delaware River Basin, 2004	http://www.state.nj.us/drbc/basinplan.htm
PROJECT	**ON-LINE LOCATION**
Big Green Block	http://www.phila.gov/findrec/RecCenterDetails.aspx?ID=831
Bridesburg Ecological Restoration Project	http://www.pecpa.org/ecological-restoration/bridesburg-ecological-restoration-project-0
Columbus Square Stormwater Planters	http://www.columbussquarepark.org/
Green Public Open Space Program - Vacant Lands Analysis	not published yet
Herron Playground	http://www.phila.gov/recreation/facilities/Facilities_A-Z.html
Lardner's Point Park	http://www.dcnr.state.pa.us/sust-lands/studies/lardners-point-park.pdf
Liberty Lands Park	http://www.nlna.org/committees/liberty-lands.html
Pleasant Hill Park Plan	http://www.dcnr.state.pa.us/brc/keystone/cameos/1pleasanthillparkplanphila.pdf
Race Street Pier	http://www.delawareriverwaterfrontcorp.com/index.php?pageID=59&image=59a
River Greenway Design Guidelines	http://www.philaplanning.org/plans/gwaydesign.pdf
Tidal Delaware River Water Trail	http://www.pecpa.org/tidaltrail
Washington Green Park (Pier 53)	http://www.delawareriverwaterfrontcorp.com/index.php?pageID=64&image=64a

1.2 - Acknowledgements

This project was financed in part by a grant from the Community Conservation Partnerships Program, Keystone Recreation, Park and Conservation Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation. The Delaware Direct Watershed River Conservation Plan (RCP) Team would like to thank the members of the steering committee who contributed to the development of this plan. The team would also like to thank the members of the watershed community who generously donated their time to attend the River Conservation Plan public outreach events.

Delaware Direct Watershed RCP Steering Committee Members

The steering committee is made up of stakeholders that represent the broad interests and expertise of agencies, organizations and community groups in the Delaware Direct drainage area. The steering committee helped identify issues of concern, technical resources and outreach strategies. Steering committee members helped recruit participants for the focus groups, workshops and community meetings, and most committee members attended several of these events as well. Quarterly meetings provided an opportunity for cross-pollination on a variety of issues and agendas.

The following individuals served on the Delaware Direct Watershed RCP Steering Committee:

Organization	Representative
Army Corps of Engineers	Chuck MacIntosh
Center City District	Ben Ginsberg
Center City District	Nancy Goldenberg
Dept. of Conservation & Natural Resources	Carolyn Wallis
Philadelphia Parks & Recreation	Barbara McCabe
Delaware River Basin Commission	Jessica Sanchez
Delaware River Basin Commission	John Yagecic
Delaware River City Corp.	Sarah Thorp
Philadelphia Parks & Recreation	Stephanie Craighead
Mayfair CDC	Maurice Hartley
Nature Conservancy	Bill Kunze
New Kensington CDC	Sandy Salzman
Norris Square Neighborhood Project	Reed Davaz McGowan
Pennsylvania Horticultural Society	Maitreyi Roy
PA House of Representatives	Tom Minehart

Organization	Representative
PA House of Representatives	Tony Payton
Passyunk Square Civic Association	Susan Patrone
Passyunk Square Civic Association	Marge Rosenblum
Philadelphia City Planning Comm.	Mike Thompson
Philadelphia City Planning Comm.	Alan Urek
Pennsylvania Environmental Council	Patrick Starr
Penn Praxis	Andrew Goodman
Penn Praxis	Michael Greenle
Penn Praxis	Harris Steinberg
Philadelphia Water Department	Glen Abrams
Philadelphia Water Department	Joanne Dahme
Philadelphia Water Department, Consultant	Tiffany Ledesma Groll
Wissanoming Civic Association	Glen Devil

Project Advisor

Cindy Dunlap, Chief, Planning Projects Section, Pennsylvania Department of Conservation and Natural Resources

Project Team

Glen Abrams, Philadelphia Water Department
Joanne Dahme, Philadelphia Water Department
Tiffany Ledesma Groll, consultant to Philadelphia Water Department
Paul Fugazzotto, consultant to Philadelphia Water Department
Maggie Allio, consultant to Philadelphia Water Department
Katie Shafer, consultant to Philadelphia Water Department
Katie Kranich, co-op to Philadelphia Water Department
Wesley Horner, formerly CH2M HILL
Courtney Marm, CH2M HILL
Brian Marango, CH2M HILL
Joy Lawrence, Pennsylvania Horticultural Society
Todd Baylson, Pennsylvania Horticultural Society

1.3 – Planning Initiatives Referenced for the RCP

The following section expands on the list presented in Table 1.1 by providing brief descriptions for the planning efforts and project designs referenced for the RCP.

1.3a – Plans

A Civic Vision for Central Delaware (2007) / Action Plan for Central Delaware (2008)
http://issuu.com/pennpraxis/docs/civic-vision-for-the-central-delaware
http://issuu.com/pennpraxis/docs/actionplan_full

Penn Praxis (the clinical practice of the University of Pennsylvania's School of Design), the Philadelphia City Planning Commission, and design consultant Wallace, Roberts & Todd (WRT) collaborated on a conceptual "Vision Plan" for the Central Delaware Riverfront, which was funded by the William Penn Foundation and begun in the fall of 2006.

An extensive civic engagement process took place as a result of the plan and included outreach to neighborhood associations, local businesses and individual citizens. The planning process resulted in the production of two reports: A Civic Vision for the Central Delaware (2007) and a follow-up report, An Action Plan for the Central Delaware: 2008–2018 (2008). Together, they call for a dramatic physical transformation of the Central Delaware Riverfront.

Center City District Planning for Growth 2007 – 2012
http://www.centercityphila.org/docs/CCD-PLAN07.pdf

Prepared by Center City District and Central Philadelphia Development Corporation, Center City: Planning for Growth, 2007-2012 offers proposals for investment and development targeting the years 2007 – 2012 and the Center City area. It also contains a summary of prior plans for Center City from the last 60 years, beginning with the Better Philadelphia Exhibition of 1947. The Center City District retained seven design firms, which focused on the potential future of four districts: East Market Street, West Market Street and JFK Boulevard, Broad Street and City Hall, and the Benjamin Franklin Parkway. The recommendations contained in this document are not meant as final plans, but rather suggestions that should be considered and possibly revised and adopted as a flexible framework for growth.

Central Delaware Riverfront Master Plan
http://www.plancentraldelaware.com/

The Central Delaware Master Plan is a $1 million planning effort for the area between I-95 and the Delaware River and between Oregon and Allegheny Avenues. The plan will develop overall recommendations for land use and transportation, including zoning and design guideline recommendations. The plan will also map a new system of parks, trails, streets and development sites along with phasing recommendations and cost estimates. A key principle of the plan is to utilize public investment in a "public" realm of parks, trails and streets in order to leverage private investment on adjacent parcels. The parks

will be spaced approximately every ½ mile along the riverfront and will be connected by a continuous, multi-use recreational trail. The parks and trails will obviously accomplish recreational goals; however, they will also be designed to accomplish ecological and environmental goals such as stormwater management, shoreline restoration, wetlands creation and flood prevention. Additionally, a comprehensive street network will be identified for circulation and transportation; certain streets will be designated as "connector streets" and will be targeted for improvements such as landscape, lighting, improved pedestrian and bicycle access, and signage.

East Coast Greenway
http://www.greenway.org/pa.aspx

The Delaware River City Corporation (DRCC) is creating the North Delaware Riverfront Greenway, which is an eight-mile link in the East Coast Greenway in Philadelphia. The East Coast Greenway (ECG) is a project to create a 3,000 mile urban path that links the major cities of the Atlantic coast of the United States from Calais, Maine to Key West, Florida. The path is for non-motorized human transportation (i.e., biking and walking). DRCC works with the Pennsylvania Committee for the East Coast Greenway, which is comprised of volunteers who coordinate route selection in the state.

The East Coast Greenway enters Morrisville, Pennsylvania from Trenton over the Calhoun Street Bridge. It currently enters PA Bicycle Route E for much of the 55-mile route, through Bucks County, Philadelphia, and Delaware County. The route ends in Delaware, near Marcus Hook.

Green City, Clean Waters
http://www.phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan/

On September 1, 2009, the Philadelphia Water Department (PWD) submitted the Green City, Clean Waters plan to the PA Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (EPA) to detail how PWD will invest approximately $2 billion over the next 25 years to significantly reduce Combined Sewer Overflows (CSOs)—a combination of sewage and stormwater that overflows into our rivers and streams when it rains. To ensure this public investment not only results in clean and beautiful waterways but also provides tangible, additional benefits to our citizens, PWD is dedicating a large portion of this plan to a green stormwater infrastructure (GSI) approach. Examples of green stormwater infrastructure include stormwater tree trenches, stormwater planters and stormwater bump-outs.

The Philadelphia Water Department's vision behind the Green City, Clean Waters plan is to unite the City of Philadelphia with its water environment, creating a green legacy for future generations while incorporating a balance between ecology, economics and equity. The green stormwater infrastructure approach is essential in making this vision a reality.

GreenPlan Philadelphia
http://www.greenplanphiladelphia.com/

GreenPlan Philadelphia is the City's Parks and Recreation Department's blueprint for sustainable open space. It is the City's first comprehensive plan, targeting its parks, recreation areas and open space. GreenPlan Philadelphia will guide and inform decision-making about open space use, acquisition, development, funding and management. The mission of GreenPlan Philadelphia is to reconnect all Philadelphians to green parks and open space by developing a long-term vision, preparing a strategic plan and implementing the plan's recommendations over the next 15 years. It will ensure that open space continues to enhance the environmental, social and economic well-being of our City.

Greenworks Philadelphia, 2009
http://www.phila.gov/green/greenworks/2009-greenworks-report.html

The Mayor's Office of Sustainability's Greenworks Philadelphia is the six-year plan to help make Philadelphia the greenest city in America. Greenworks Philadelphia envisions a city in which residents and businesses benefit from lower energy costs, cleaner air, greener neighborhoods, better transit and new jobs. It also acknowledges that broad visions are meaningless unless backed by specific, measurable and achievable shorter-term targets. Therefore, Greenworks Philadelphia also presents the specific steps that all Philadelphians, not just their government, must take over the next seven years to reinvent the City.

Greenworks Philadelphia builds upon the 2007 Local Action Plan for Climate Change, which was produced by the Sustainability Working Group, a task force of municipal employees. The Local Action Plan outlined a series of steps that the City of Philadelphia government should take to reduce greenhouse gas emissions by 10 percent by 2010. Many of these efforts are already underway and are described in Greenworks Philadelphia. Also incorporated are the goals of GreenPlan, the City's open space plan.

Greenworks Philadelphia considers sustainability through five lenses: Energy, Environment, Equity, Economy and Engagement. For each category, an overarching goal was set, with measurable targets and specific initiatives designed and described to help Philadelphia reach the targets by 2015. These goals, targets and initiatives have been refined over the past 10 months by the Sustainability Working Group with input and feedback from City employees, local and national non-profit organizations, and civic and business leaders, including members of the Mayor's Sustainability Advisory Board.

Green 2015: An Action Plan for the First 500 Acres
http://planphilly.com/green2015-action-plan-first-500-acres

Greenworks Philadelphia includes a recommendation to add 500 acres of new publicly accessible green space to the City by 2015. This plan, referred to as Green2015, outlines the approach to meet the 500-acre goal for Philadelphia. Green2015 aims to unite city government and neighborhood residents around the issue of transforming 500 acres of

empty or under-used land in Philadelphia into parks for neighbors to enjoy by 2015. Transforming these empty spaces into parks and green places creates important new opportunities for children to play and for neighbors to gather. Most of the targeted land, which can be greened, is already publicly owned and, therefore, requires no money to acquire. The planning, implementation and maintenance of these parks will be a collaborative effort among many partners, including neighbors, businesses, nonprofit organizations, developers and City agencies. The plan was prepared by Penn Praxis and Philadelphia Parks and Recreation.

A Natural Heritage Inventory for Philadelphia County, 2008
http://www.fairmountpark.org/pdf/nhi.pdf

The Philadelphia County Natural Heritage Inventory is a document compiled and prepared by the Pennsylvania Natural Heritage Program (PNHP) of the Western Pennsylvania Conservancy (WPC). It contains information on the general locations of rare, threatened and endangered species, of the highest quality natural areas in the county, and areas in need of restoration to native habitat. It is not an inventory of all open space and it is based on the best available information. It is intended as a conservation tool and should in no way be treated or used as a field guide.

Accompanying each site description are general management and restoration recommendations that would help to ensure the protection and continued existence of these natural communities, rare plants and animals while enhancing the quality of existing green space and open space. Recommendations are based on the biological needs of these elements (communities and species) and the efforts necessary to maintain the health of the overall natural system. Managed areas, such as federal, state, city lands; private preserves; and conservation easements are also provided on the maps, where information was available. The maps are useful in determining where gaps occur in the protection of local significant habitats, natural communities and rare species.

New Kensington Riverfront Plan, 2008
http://www.plancentraldelaware.com/wp-content/uploads/2010/05/NKCDCRiverfrontPlan.pdf

The New Kensington Community Development Corporation (NK CDC) produced the New Kensington Riverfront Plan. The plan focuses on the New Kensington stretch of the river and emphasizes a balance between development and open space, creating gateways into the community and creating a framework for implementation. The plan was guided by a broad task force of stakeholders.

North Delaware Riverfront Greenway: Master Plan and Cost Benefits Analysis, 2006
http://www.drcc-phila.org/plans.htm

The North Delaware Riverfront is a valuable resource to the entire City of Philadelphia. With more than 700 acres of vacant and underutilized land, the riverfront has the potential for greenway development in concert with mixed-use, commercial and residential development. While some of the existing properties need environmental

clean-up, a properly developed continuous greenway and trail system (as proposed in the Greenway Plan) will provide an area devoted to public recreation, open space and economic development for new and existing riverfront neighborhoods.

The North Delaware Riverfront Greenway Master Plan and Cost Benefit Analysis, prepared by the Pennsylvania Environmental Council, Northeast River Task Force and various City agencies, focuses on the implementation of a "Public Greenway" that maximizes return of public investment, the creation of new revenue and significant recreational areas and open spaces for the City of Philadelphia. The analysis contains three alternative greenway scenarios. A consultant team (Greenways Incorporated, Econsult Corporation, and Schelter and Associates) worked to gather all relevant data for the plan, solicit public input, review priorities and synthesize all of the information into a final implementation plan.

North Delaware Riverfront Rail Stations Urban Design Study, 2008
http://www.philaplanning.org/plans/ndelrailsum.pdf

The North Delaware Riverfront Rail Stations Urban Design Study focuses on the opportunities and challenges facing five stations along SEPTA's Trenton (formerly R7) regional rail line, which connects Center City Philadelphia with Trenton, New Jersey. The five stations—Bridesburg, Wissinoming (currently closed), Tacony, Holmesburg Junction and Torresdale—each present a unique set of issues and constraints related to their existing uses, market pressures and transportation infrastructure. At the same time, all of the stations share much in common, including a proximity to the North Delaware Riverfront, which promises to change substantially over the coming decades. The guiding objective of this project is to transform each station into an active community resource that serves the needs of and encourages increased rail ridership by existing and new residents alike. The study was prepared for the Philadelphia City Planning Commission by Interface Studio, Lager Raabe Skafte Landscape Architects, Jaskiewicz Transport International and Nina Liou.

Northern Liberties Neighborhood Plan, 2005
http://www.nlna.org/images/NLNA_Plan_WebVersion.pdf

The Northern Liberties Neighborhood Plan, prepared by Interface Studio for the Northern Liberties Neighbors Association (NLNA), seeks to amplify the community's uniqueness and provides a guide that represents community goals for the neighborhood's future. The document is also a tool to organize the planning efforts and coordination with City agencies and other stakeholders/investors that will be partners in the implementation of the plan. Completed in 2005, GIS and three-dimensional modeling techniques were utilized to help community members quantify and comprehend the changes underway, while also enabling them to visualize the impact of proposed future development. Through the planning process, local stakeholders were encouraged to establish priorities and goals for the neighborhood's redevelopment, improvements were identified for open space and major streets, and policies were recommended to retain the community's mixed-use character.

Northern Liberties Waterfront Plan, 2007
http://www.nlna.org/images/NLNA_WaterfrontPlan_Web.pdf

The Northern Liberties Waterfront Plan was released in April 2007 by the Northern Liberties Neighbors Association. This community-based riverfront vision guides development from the Benjamin Franklin Bridge to Penn Treaty Park. Commissioned by NLNA and financed by local developers, it is the first community plan to address land along the central Delaware. The plan focuses on ideas for narrowing the gap between the river and its neighbors, such as east-west "civic incisions" that reclaim important connector streets as public space, manicured parks under portions of I-95, and floating trail elements in the river that will allow people to travel along a continuous riverfront trail despite private control of riparian land.

Philadelphia Navy Yard Master Plan, 2004
http://www.navyyard.org/uploads/files/FinalReport.pdf

Located just below South Philadelphia, the Navy Yard comprises approximately 1,200 acres with the Navy, commercial ship building and other industrial activities occupying the Shipyard, which makes up the western portion of the site. To the east of the Shipyard, the Navy Yard Master Plan calls for the establishment of five distinct districts that propose a dynamic, mixed-use waterfront development that successfully extends the City south to its riverfront. The five districts are: Corporate Center, Historic Core, Research Park, Marina District and East End.

Corporate Center (72 acres) proposes to construct approximately 1.4 million square feet of new office space, 110,000 square feet of potential retail and 5,600 parking spaces.

Historic Core (167 acres) plans to reuse 2.4 million square feet of existing buildings in conjunction with 1.4 million square feet of new development for office space, residential units, and creates an opportunity for an academic or research campus.

The Research Park (81 acres) design includes facilities for research and development, office, light manufacturing and distribution.

The Marina District (115 acres) envisions a 250-slip marina, an executive conference center, recreation and marina support facilities. Two development options exist, in which one is primarily commercial and the other is primarily residential.

East End (87 acres) is presented in the plan in three alternative designs: an industrial development, a residential neighborhood and an 18-hole championship golf course.

Philadelphia Pedestrian and Bicycle Plan
http://tooledesign.com/philadelphia/documents.html

The Pedestrian and Bicycle Plan identifies strategies to increase the number and frequency of people walking and bicycling in the City by improving the connectivity,

safety, convenience and attractiveness of Philadelphia's pedestrian and bicycle networks.

An expanded bikeway network will not only make bicycling safer and more convenient, but will also help to promote a wider recognition and acceptance of bicycling as a viable transportation mode. Likewise, improving the pedestrian network will enhance the safety, comfort, efficiency and attractiveness of walking in Philadelphia.

The plan includes physical infrastructure recommendations, as well as recommendations for policies, regulations, design standards and programs that affect walking and bicycling Citywide.

South Port Expansion Plan
http://aapa.files.cms-plus.com/SeminarPresentations/07_OPSAFIT_Walsh_Jim.pdf

The Philadelphia Regional Port Authority's South Port Expansion Plan proposes that the main ship channel of the Delaware River be deepened from its existing 40 feet to 45 feet over a distance of 109.4 kilometers. This action will result in 27 million cubic yards of dredged material. This is an approximately $265 million project with a local match of $76 million. The final environmental review of the potential project is currently in progress by Pennsylvania, New Jersey and Delaware.

Water Resources Plan for the Delaware River Basin, 2004
Delaware River: State of the Basin Report, 2008
http://www.state.nj.us/drbc/basinplan.htm (Basin Plan)
http://www.state.nj.us/drbc/SOTB/index.htm (State of the Basin Report)

In 1999, the Delaware River Basin Commission (DRBC) began a process to develop a new and unifying vision for water resources management in the Delaware River Basin. The Water Resources Plan for the Delaware River Basin (Basin Plan), unveiled in 2004, presents a direction for integrated water resource management. The Basin Plan acknowledges the connection between land and water and valuing aquatic habitat protection, while ensuring adequate flows and supplies for human needs. In accepting the new Basin Plan, the governors of each participating state directed the preparation of a periodic environmental conditions report. The Delaware River: State of the Basin Report (2008) fulfills that mandate.

The State of the Basin Report is designed to serve as a benchmark of current conditions and a point of reference for gauging progress toward management goals. It also provides a platform for measuring and reporting future progress in water resource management and serves as a guide for adjusting monitoring and assessment programs. Finally, it is intended to communicate our understanding of the health of the Basin to increase public involvement in the Delaware River Basin and Estuary Program activities, and to build consensus on a broad array of actions that can be taken to continue to improve water quality, water availability, and to enhance the living resources of the Delaware River Basin.

1.3b - Project Designs

Big Green Block

http://www.phila.gov/findrec/RecCenterDetails.aspx?ID=831

The Shissler Recreation Center and the surrounding blocks, located in Fishtown and often referred to as the Big Green Block, saw significant site improvements in 2010 as a result of the collaboration between the Philadelphia Water Department, the Pennsylvania Horticultural Society (PHS), New Kensington Community Development Corporation, Sustainable 19125, Mural Arts Program, and the new Philadelphia Parks and Recreation. Improvements to the Shissler Recreation Center and the surrounding area include rain gardens in the parking lot, bioretention on the sports field, stormwater tree trenches and murals.

The Kensington Creative and Performing Arts (CAPA) High School (also a project of the Big Green Block) design includes several green stormwater infrastructure features, such as porous pavement in the parking lot, reinforced turf material at service roads, and underground detention facilities for the slow release of stormwater. Fifty percent of the roof surfaces on the property contain a green roof system. Several rain gardens are installed throughout the property, and rain water is harvested from the gym for use in the building. Plumbing fixtures and the reuse of rainwater will reduce potable water use by more than 40% at Kensington CAPA High School. The Philadelphia Water Department's (PWD) stormwater management guidelines and regulations informed the development of this project and significantly shaped the design.

Bridesburg Ecological Restoration Project

http://www.pecpa.org/ecological-restoration/bridesburg-ecological-restoration-project-0

The Bridesburg Ecological Restoration Project site consists of two parcels located in Bridesburg, a historic Philadelphia neighborhood. The project was led by the Pennsylvania Environmental Council (PEC). The first site is an approximately 9-acre parcel owned by the City of Philadelphia and the second is an approximately 7.5-acre parcel owned by National Grid, locally known as the "Philly Coke site." The two parcels are ranked as high-priority restoration sites under PEC's Philadelphia North Delaware River Greenway Ecological Assessment and Prioritization Report. The preliminary design utilizes both parcels to create a restored riverfront, upland habitat areas and public recreation amenities. The amenities include a low-impact trail that could offer access to the Delaware River for local residents and East Coast Trail users, benches at vantage points along the trail, and a park, if the area permits. The project would also restore and enhance existing wetlands that benefit the community and create a habitat for wildlife

Columbus Square Stormwater Planters

http://www.columbussquarepark.org/

In May 2010, a series of stormwater planters were constructed by the Philadelphia Water Department along Columbus Square Park, located at 13th and Wharton Streets. This project is the first green street project in South Philadelphia. A green street is a designated city block that integrates green stormwater infrastructure. The stormwater planter is a specialized planter installed into the sidewalk and is designed to manage street and sidewalk runoff. The planter is lined with a permeable fabric, filled with gravel or stone, and topped off with soil, plants and sometimes trees. This green street is the first of many proposed projects that will begin to transform sidewalks and streets in the City.

Green Public Open Space Program - Vacant Lands Analysis
Not published

The Philadelphia Water Department (PWD) is reviewing and analyzing vacant lands in the Combined Sewer Overflow (CSO) sections of Philadelphia for stormwater management potential, which aligns well with Philadelphia Parks & Recreation's Green 2015 planning effort. The goal of this program is to identify parcels of vacant lands that are appropriate for stormwater management and which are adjacent to the public right-of-way. The goal is to also add new public open spaces to neighborhoods that currently lack access to green space.

Herron Playground
http://www.phila.gov/findrec/RecCenterDetails.aspx?ID=761

The Philadelphia Department of Recreation collaborated with the Philadelphia Water Department and the City's Capital Programs Office to design and construct a green playground at Herron Playground. The park boasts rain gardens, porous play surfaces, a basketball court that was reconstructed and resurfaced with porous asphalt and a subsurface infiltration system, which also manages stormwater runoff from parts of Earp and American Streets.

Lardner's Point Park
http://www.dcnr.state.pa.us/sust-lands/studies/lardners-point-park.pdf

Lardner's Point is a five-acre City-owned parcel along the river that was formerly used as a storage and landing site for the historic Lardner's Point pump station. The final design envisions a combination of green building amenities that will consist of a river overlook of the park, the restoration of the riparian buffer, new meadow plantings with native species, the restoration of the pier for fishing and sitting, the creation of new wetlands and marsh meadows, an incorporation of picnic areas, pedestrian paths and bike trails along the river, and interpretative signage. The focus of the signage would be on the historical and environmental elements incorporated into the park.

Liberty Lands Park
http://www.nlna.org/committees/liberty-lands.html

At Liberty Lands Park in Northern Liberties, stormwater runoff from the adjacent street and the park flows into a rain garden and is filtered into cisterns underneath the park. The benefits of this project include the reduction of stormwater runoff to the combined sewer system in a neighborhood that suffers from flooding and basement back-ups. The project also enhances an already active green open space that serves as a significant community amenity. Project partners include the Philadelphia Water Department, Northern Liberties Neighbors Association, Pennsylvania Horticultural Society and Pennsylvania Department of Environmental Protection.

Pleasant Hill Park Plan
http://www.dcnr.state.pa.us/brc/keystone/cameos/1pleasanthillparkplanphila.pdf

The Pleasant Hill Park Plan will transform an unused space in Northeast Philadelphia into a park with a constructed wetland that integrates open space, education and recreation, while restoring the historic fish hatchery. Access to the Delaware River will be improved as a result of the design. An environmental education center will also be added to the site. The hope is that children will fish in the ponds and/or play on the playground, protected by a tree-lined boulevard with a bioswale median and a riparian buffer to protect the park from floods while establishing habitats for many species.

Race Street Pier
http://www.delawareriverwaterfrontcorp.com/index.php?pageID=59&image=59a

Race Street Pier, also known as Pier 11, will be one of the first projects in the City to create and maintain a vibrant green public space under the new Civic Vision for the Central Delaware Riverfront. The goal is to develop a publicly accessible amenity for residents and tourists. Funding for this new park has been provided by the City of Philadelphia, Pennsylvania Department of Conservation and Natural Resources, William Penn Foundation, a Pew Charitable Trusts challenge grant, Pennsylvania Horticultural Society and Pennsylvania Department of Environmental Protection (Coastal Zone Management).

River Greenway Design Guidelines
http://www.philaplanning.org/plans/gwaydesign.pdf

The focus of the River Greenway Design Guidelines is on the public ribbon of land along the riverbank referred to as the City's "River Greenway." This greenway will benefit communities that have historically lined the river but that have never had direct access to it. In addition, the new paths of circulation along the river will support recreational experiences that will be among the best of their kind.

Tidal Delaware River Water Trail
http://www.pecpa.org/tidaltrail

The Tidal Delaware River Water Trail is a unique 56-mile water trail from Trenton/Morrisville to Marcus Hook. Water Trails are paths that have been verified and

mapped to provide users with access to the environment and to recreational opportunities along their way. The Pennsylvania Environmental Council and the Delaware River Waterfront Corporation are working in partnership on providing the user with this unique experience and to raise awareness of the Water Trail.

Washington Avenue Green (Pier 53)
http://www.delawareriverwaterfrontcorp.com/index.php?pageID=64&image=64a

As one of the City's first new green public spaces in decades, the former asphalt-clad land and in-land portion of Pier 53 has been transformed into a one-acre collection of gardens, "embryonic woodlands" and meadows. With a limited budget, Washington Avenue Green incorporates trees, dendritic decay gardens, two-foot-tall "sitting" walls for visitors, benches with a waterfront view, floating wetlands, a rain garden and a rubble meadow. This project was led by the Delaware River Waterfront Corporation.

CHAPTER 2

DELAWARE DIRECT WATERSHED PROFILE

Introduction

The Delaware River originates on the western slopes of New York State's Catskill Mountains and stretches through four states and 42 counties before meeting the Atlantic Ocean at the Delaware Bay (Figure 2.1). Approximately 100 miles upstream from the Delaware Bay, the river passes through the fifth-largest metropolitan area in the nation—the heavily developed Philadelphia area. It is along this urban and industrialized corridor that the Delaware Direct Watershed is located. The land area of the watershed totals approximately 35 square miles and includes roughly 25% of the entire city of Philadelphia (135 square miles). As the Delaware River enters the Philadelphia metropolitan area, it is fed by several creeks and streams, each with its own drainage area, or watershed. As the river flows through the most developed portion of land along this course, the natural surface features that once helped to drain the watershed have been replaced with underground sewers. The Delaware Direct Watershed, located adjacent to and along 21 linear miles of riverbank in Philadelphia, drains directly into the Delaware River through the City's combined sewer system, by overland flow and via private infrastructure. At the southern end of the watershed, the Delaware meets its largest tributary, the Schuylkill River. From here, the river flows past Wilmington, Delaware, and eventually completes its 330-mile course to the Atlantic Ocean at the mouth of the Delaware Bay near Cape Henlopen, Delaware. [1]

While it is important to frame the watershed as part of the larger Delaware River Basin (DRB), the Delaware Direct is mostly unlike any other part of the DRB. As the city developed, the surface streams that historically drained the land were incorporated into a network of drainage pipes to mitigate health hazards. Ultimately, the piped streams became part of what is called a combined sewer system: a system in which rainwater, along with household and commercial waste, is collected in a single pipe and directed to a water treatment facility or nearby creeks and rivers during rain events. Presently, the watershed is densely populated and largely made up of developed land and impervious surface.

The imperviousness of land area and the hidden streams have created a unique watershed with very specific characteristics and management challenges. In response, the Philadelphia Water Department (PWD) has recently submitted the Green City, Clean Waters Plan to the Pennsylvania Department of Environmental Protection (DEP) and to the U.S. Environmental Protection Agency (EPA). The plan details how the City of Philadelphia will invest $2 billion over the next 25 years with a proactive and sustainable approach to protecting the city's water resources. More specific information pertaining to the water resources in the Delaware Direct Watershed and the challenges

[1] Philadelphia Water Department, Delaware River Source Water Protection Plan, 2007

associated with its protection and management can be found in Chapter 5, the Water Resources section of this document.

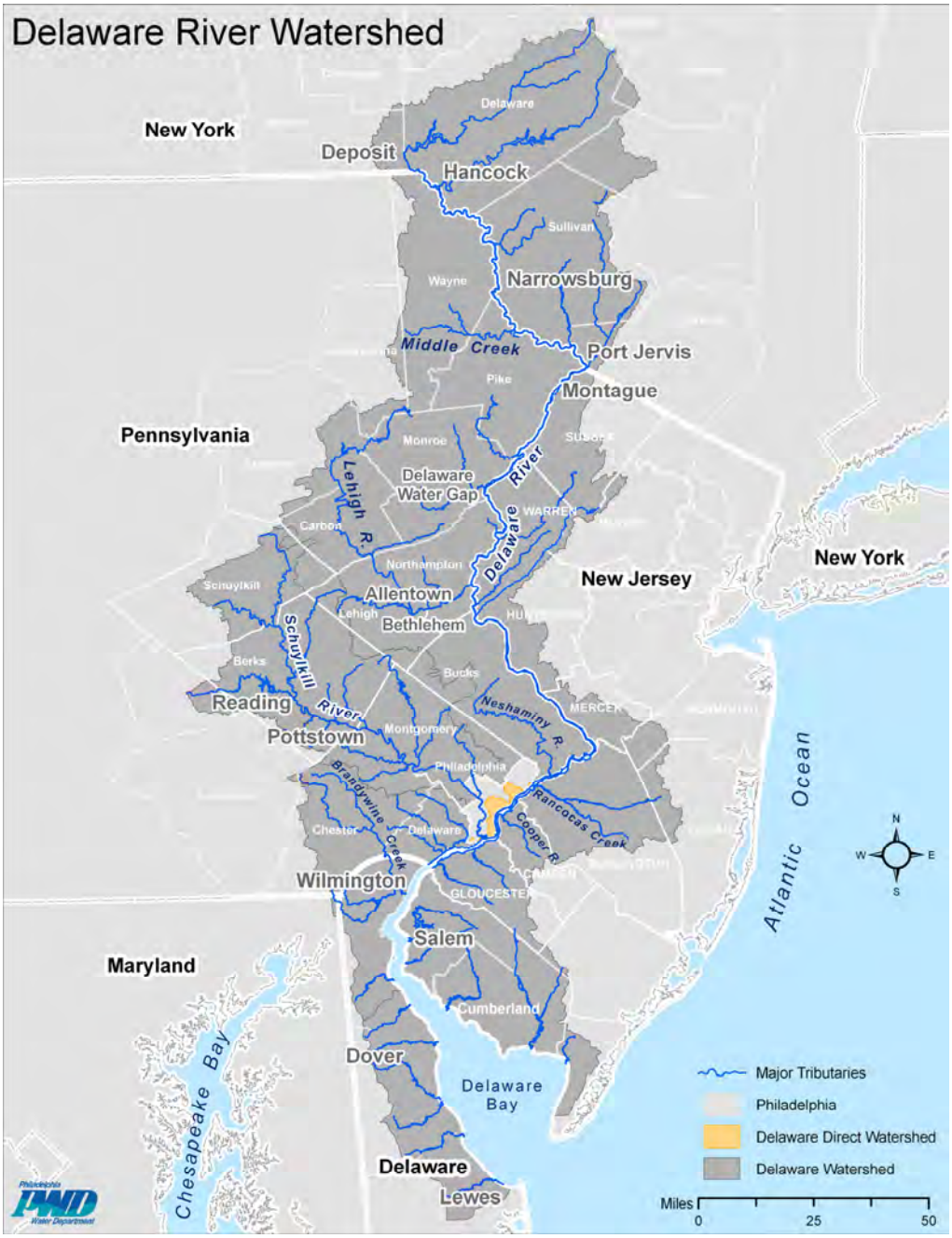

Figure 2.1 – Delaware River Watershed within the Delaware River Basin
Source: PWD

2.1 Watershed Characteristics

The Delaware Direct Watershed is located within the Mid-Atlantic Coastal Plain. This flat, sandy region was formed when Triassic-period deposits were eroded and redeposited to the southeast by water and glaciers. The physical properties of the soils in

the Delaware River drainage basin are the determining factor in the sediment-transport characteristics of the river and its tributaries. The soils, in turn, are determined by the geology and weathering processes of the rock material. Approximately 95% of the Delaware Direct Watershed is comprised of soils classified as Urban Land because they have been highly modified through development. More detailed information regarding the geomorphology of this area can be found in the Chapter 4, the Land Resources section of this document.

2.1a – Land Use

According to the land use map, Figure 2.2, the most prevalent land use in the watershed is residential property, totaling nearly 40%. Most of this is comprised of row homes, a common feature of Philadelphia neighborhoods. Other residential multi-family and single-family housing also contribute to this large proportion. Manufacturing and commercial property make up roughly 23% of the land use within the watershed. Not surprisingly, most of the industrial and manufacturing land is concentrated in large parcels along the riverfront. While there are many smaller commercial properties interspersed between mostly residential areas, much of the commercial property is concentrated in Center City Philadelphia and extends north on Broad Street toward Temple University. The Port Authority's pier facilities along the riverfront also present a high concentration of commercial land use. Transportation features, such as railways and roadways occupy approximately 10% of the watershed's land. Another notable feature is the amount of land used by parking, totaling 7.65%of the watershed. Wooded land is one of the least represented features in this urban watershed.

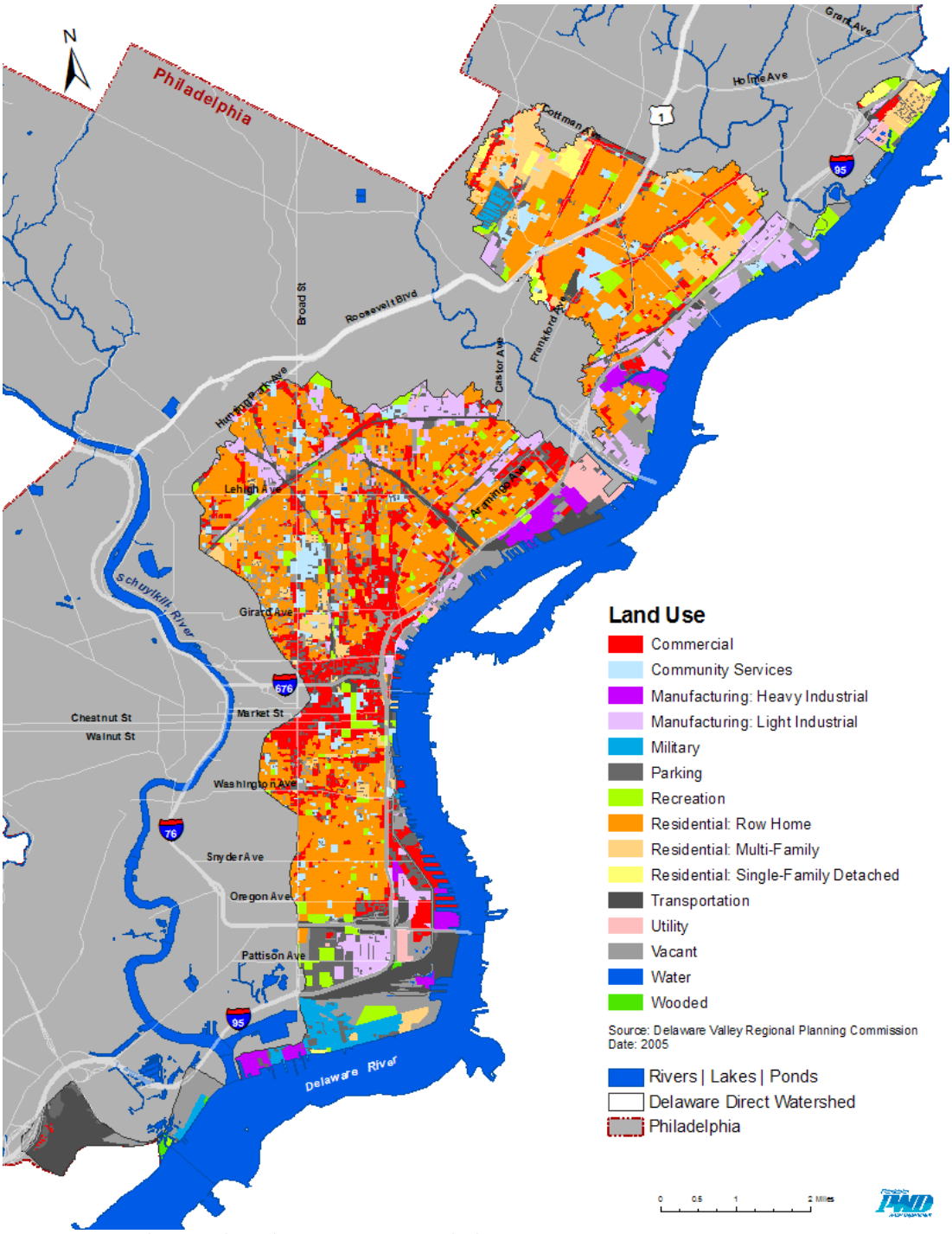

Figure 2.2 - Land Use in the Delaware Direct Watershed
Source: PWD

The urban nature of the watershed can be seen in the amount of impervious surface cover present, totaling 68% of the land area. Buildings and automobile-related features, such as roadways and parking lots make up the majority of impervious surface. Table 2.1 shows the impervious surface categories and their percentage of occurrence in the watershed, while Figure 2.3 shows these impervious features on a Watershed Base Map.

Many planning initiatives in the watershed seek to reduce the amount of impervious hardscape features to help manage stormwater volumes while adding green space for public use and to enhance neighborhood aesthetics.

Table 2.1 – Impervious Features in the Delaware Direct Watershed

IMPERVIOUS FEATURE	**PERCENT**
Travelway	14.15%
Medians	0.28%
Shoulder	0.22%
Travel Bridge	0.77%
Railroad Bridge	0.17%
Pedestrian Bridge	0.02%
Pond	0.20%
Stream	0.07%
Reservoir	0.01%
Building	22.91%
Institution	1.49%
Tank	0.19%
Building Center	0.08%
Parking	12.22%
Sidewalk	7.84%
Concrete Slab	3.47%
Driveway	1.81%
Alley	0.83%
Parking Island	0.14%
Pools	0.02%
Railroad Ballast	1.14%
Marsh	0.13%
Total Impervious	**68.17%**
Natural Surface (Pervious)	31.83%

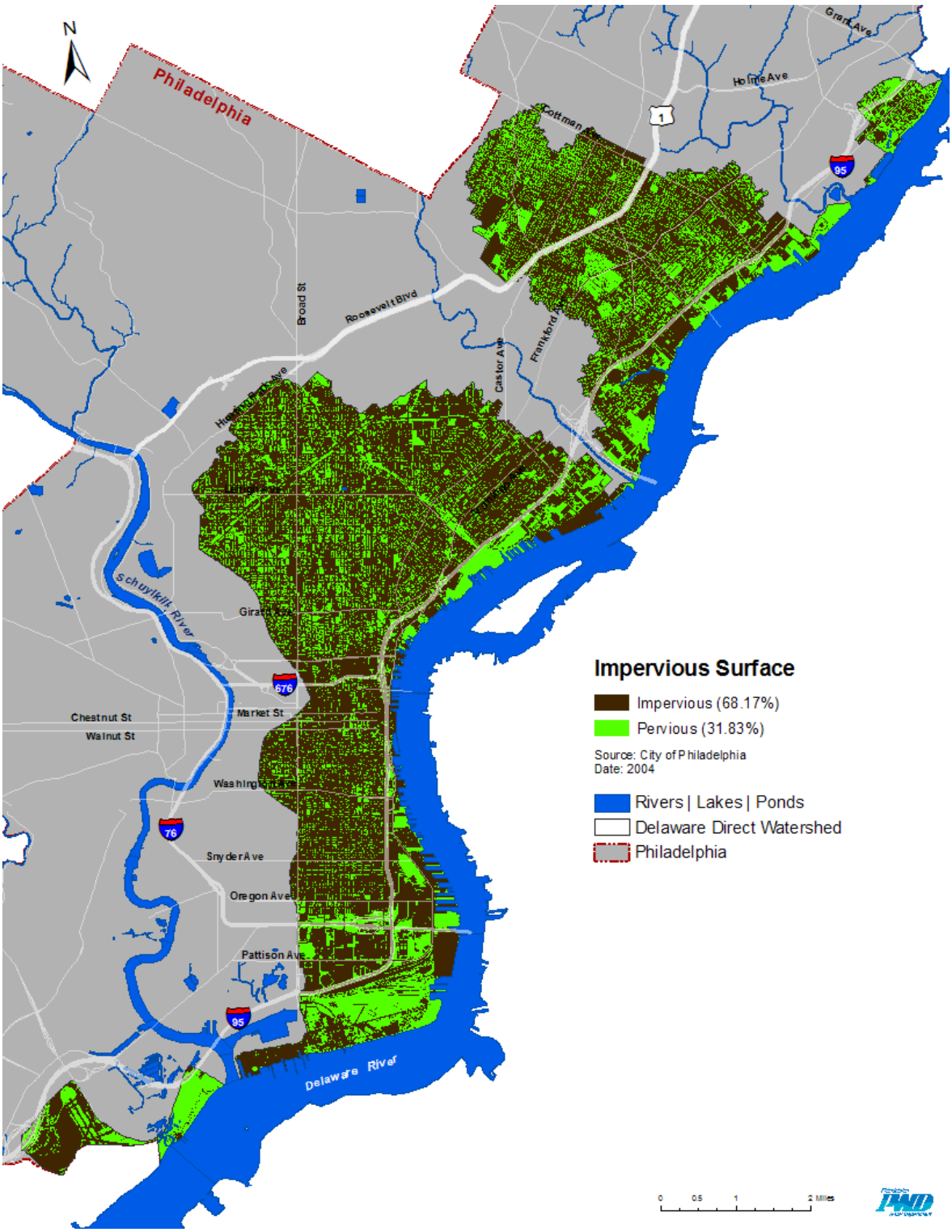

Figure 2.3 - Impervious Surface in the Delaware Direct Watershed
Source: PWD

2.1b - Zoning and Ownership

Zoning

Zoning represents the types of development that are encouraged by municipalities and that can set restrictions on various land uses. The aim of zoning is to protect the safety, health and well-being of the public by imposing regulations on building construction and development types. Philadelphia adopted its first zoning code in 1933, and the code was originally developed to prevent industrial centers from degrading residential communities.

Many additions and changes have been made to the zoning code since it was first adopted, with a comprehensive revision and citywide zoning remapping undertaken in the early- and mid-1960s. Today, the Philadelphia zoning code is again undergoing a transformation because of the many issues that have occurred as a result of past regulations. The present code is considered by many to be overly long, confusing and outdated. Therefore, the Zoning Code Commission was approved by voters in 2007 and established to create an updated zoning code to improve the quality of design and development city-wide. The Figure 2.3 displays a map of the Delaware Direct as it is currently zoned in the year 2010. [2]

[2] Philadelphia Zoning Code Commission, 5 Feb. 2011 <www.zoningmatters.org>

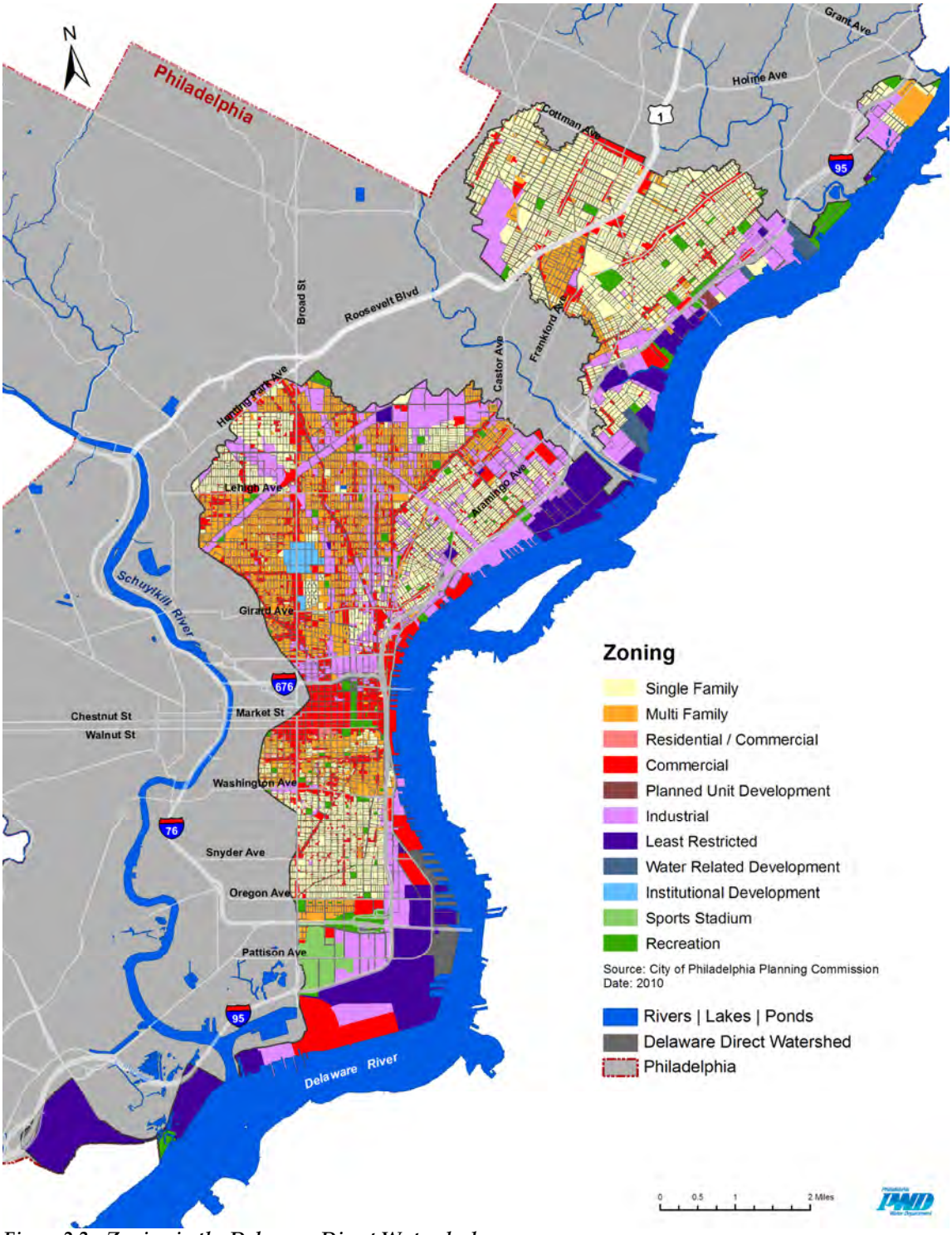

Figure 2.3 - Zoning in the Delaware Direct Watershed
Source: PWD

Unclear regulations made enforcement of the code difficult. The new zoning code will be easier for the general public and development community to understand and will be created to support approaches to sustainable growth and changing technologies while

yielding predictable development results. Reinforcing the character of neighborhoods is in the forefront of the zoning code revision.

The new code is currently in draft form and has been released for public review. The mission as stated in Philadelphia's New Zoning Code Consolidated Draft (Sept. 2010) is as follows:

- Hold consistency with the City's comprehensive plan
- Ensure properties and open space have enough light, air, privacy and access
- Maintain neighborhood character
- Conserve natural and historical areas and sites
- Foster the City's sustainability goals in renewable energy, conservation of both energy and water, and availability of urban food gardens
- Create development plans that are fair with equal distribution across the City
- Safe transportation for all (walk, car, bike, rollerblade, public transit, etc.)

For the most up to date information regarding the zoning code, please visit Zoning Matters and the Philadelphia City Planning Commission websites.

Land Ownership

Public land makes up approximately 25% of the land parcels in the watershed, while privately owned land occupies 75%. Vacant land makes up 12.65 % percent of the total parcel area. A high concentration of vacant land in the watershed is located along the riverfront at former industrial and commercial sites. Figures 2.4, 2.5 and 2.6 illustrate land ownership in the watershed.

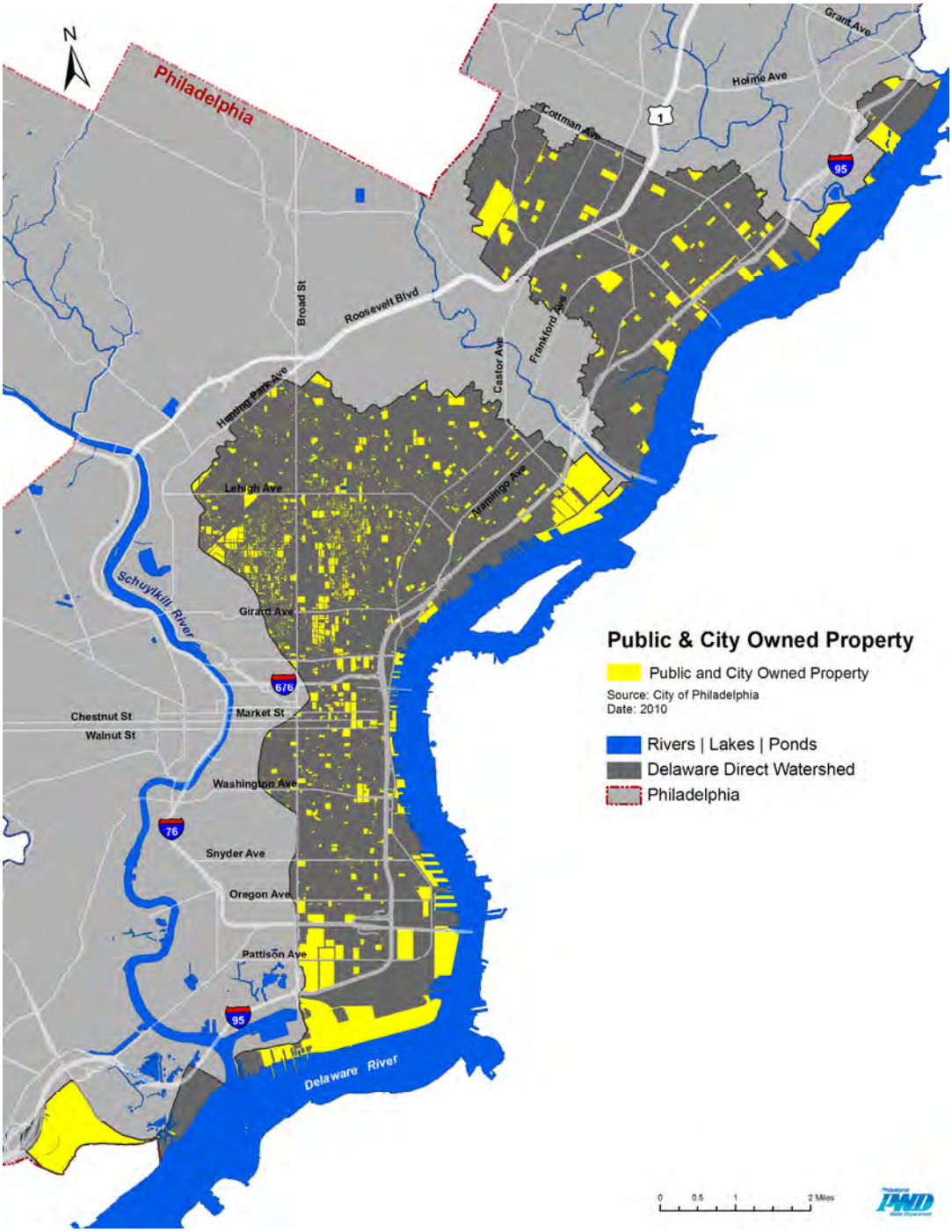

Figure 2.4 – Public and City Owned Property in the Delaware Direct Watershed
Source: PWD

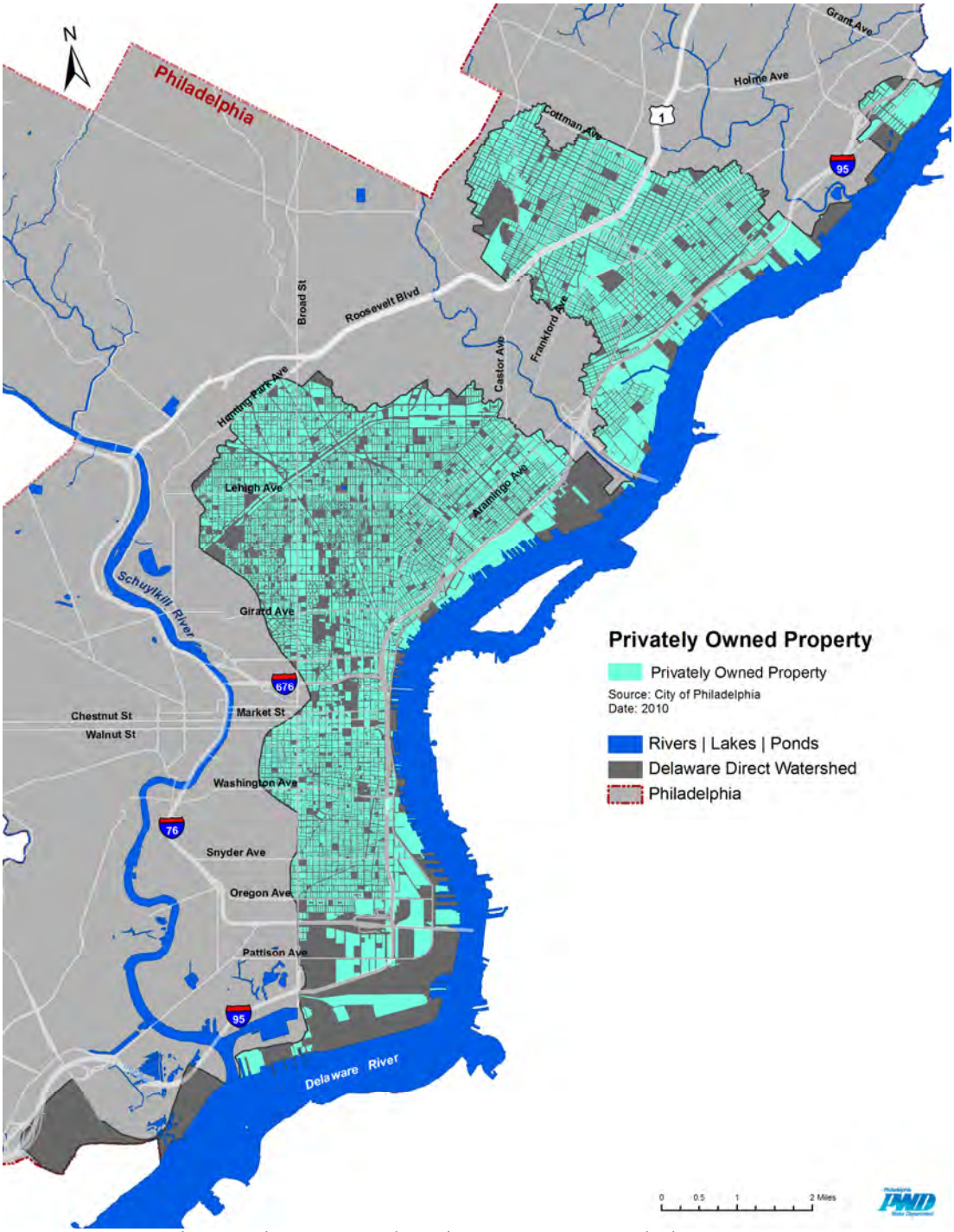

Figure 2.5– Privately Owned Property in the Delaware Direct Watershed
Source: PWD

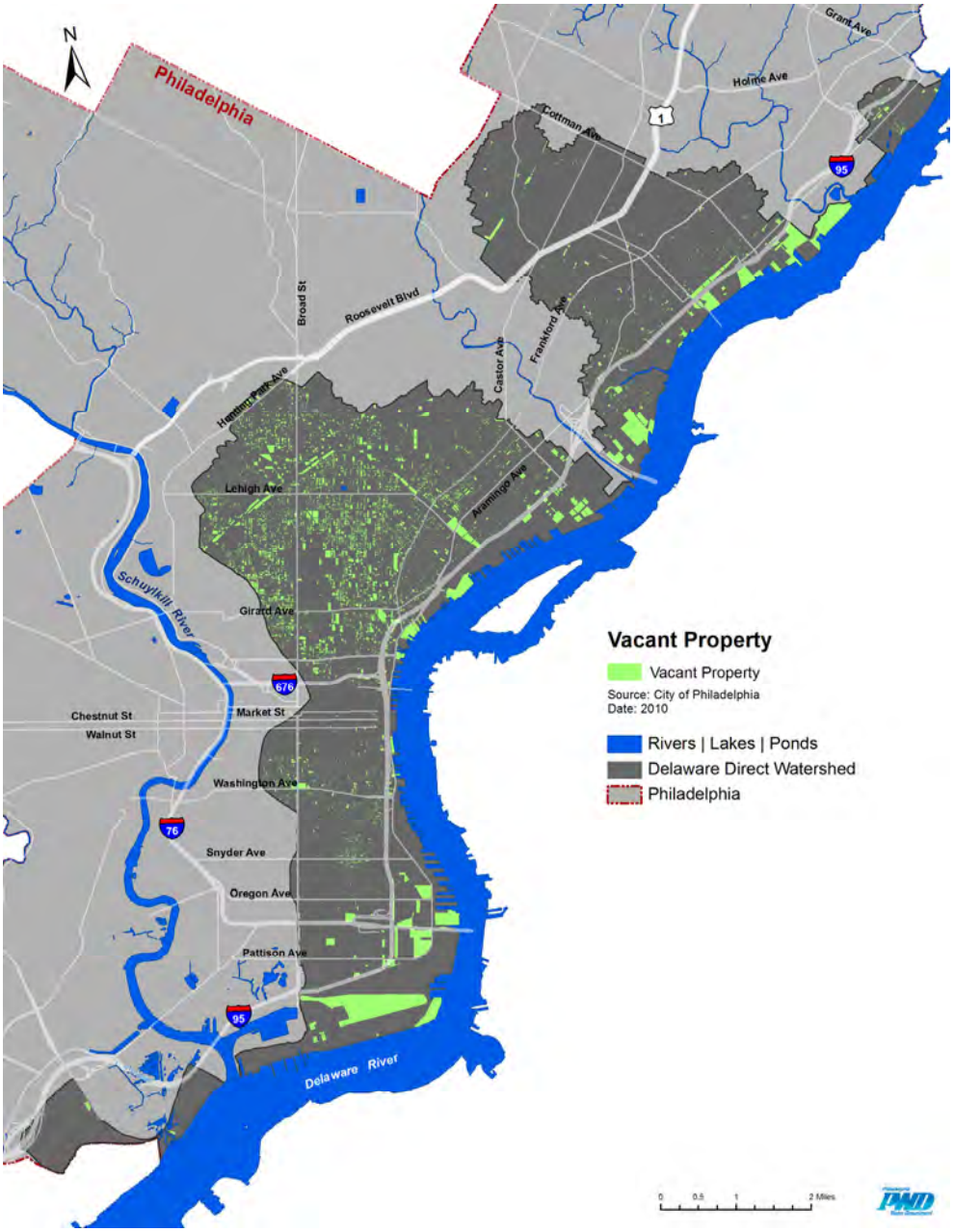

Figure 2.6 – Vacant Property in the Delaware Direct Watershed
Source: PWD

2.1c - Transportation Facilities

A fully developed transportation network connects residents and commuters to the various resources within the watershed. As part of urban Philadelphia, the watershed is also very accessible by car. From small neighborhood streets to arterial roads and interstates, roadways make up nearly 15% of the watershed's land area. Also, four large bridges connect the watershed to neighboring New Jersey. Public transportation is

served by bus, trolley, subway, elevated rail, regional rail and ferry service. Totaling 8% of the surface area in the watershed, sidewalks provide substantial pedestrian infrastructure. The Delaware Direct is home to both the Philadelphia International Airport (PHL) and the headquarters of Southeastern Pennsylvania Transportation Authority (SEPTA). Figure 2.7 shows SEPTA infrastructure in the watershed. SEPTA bus routes run throughout the watershed. The Market-Frankford Line, the Broad Street Line, and the Ridge Spur trains serve the watershed through thirty-one stations. All regional rail lines can be accessed by Market East Station. Figure 2.8 depicts transportation infrastructure including the airport, bridges, the River Link Ferry to Camden, and bike routes. In general, the watershed is relatively bike-friendly. There are fifty-one linear miles of bike lanes in the watershed. Combined with other bike-friendly routes, nearly one-quarter of the watershed is considered bike-able. For more information regarding public transportation services, visit Southeastern Pennsylvania Transportation Authority (SEPTA) for schedules and fares or the River Link for information regarding the ferry system.

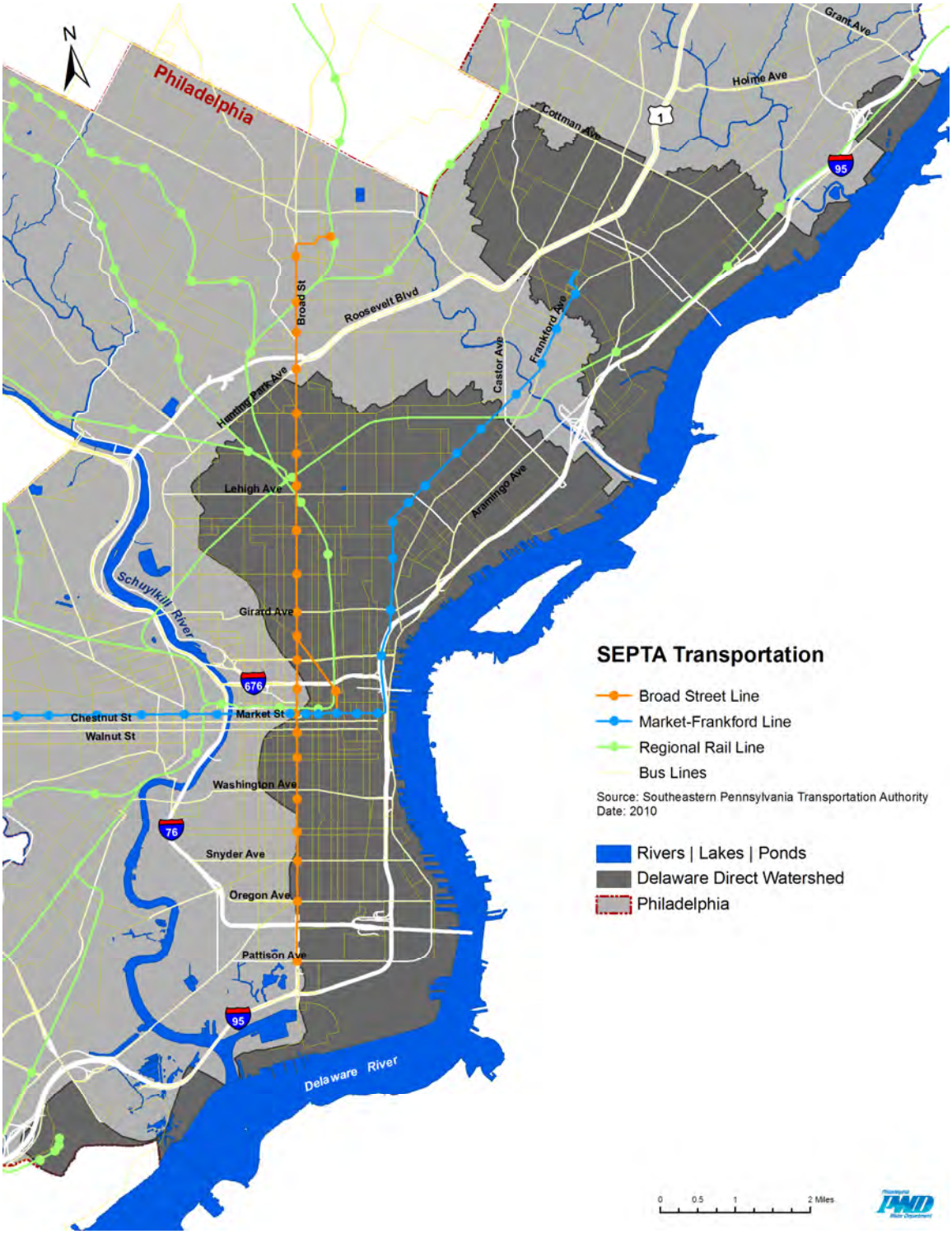

Figure 2.7 – SEPTA Transportation in the Delaware Direct Watershed
Source: PWD

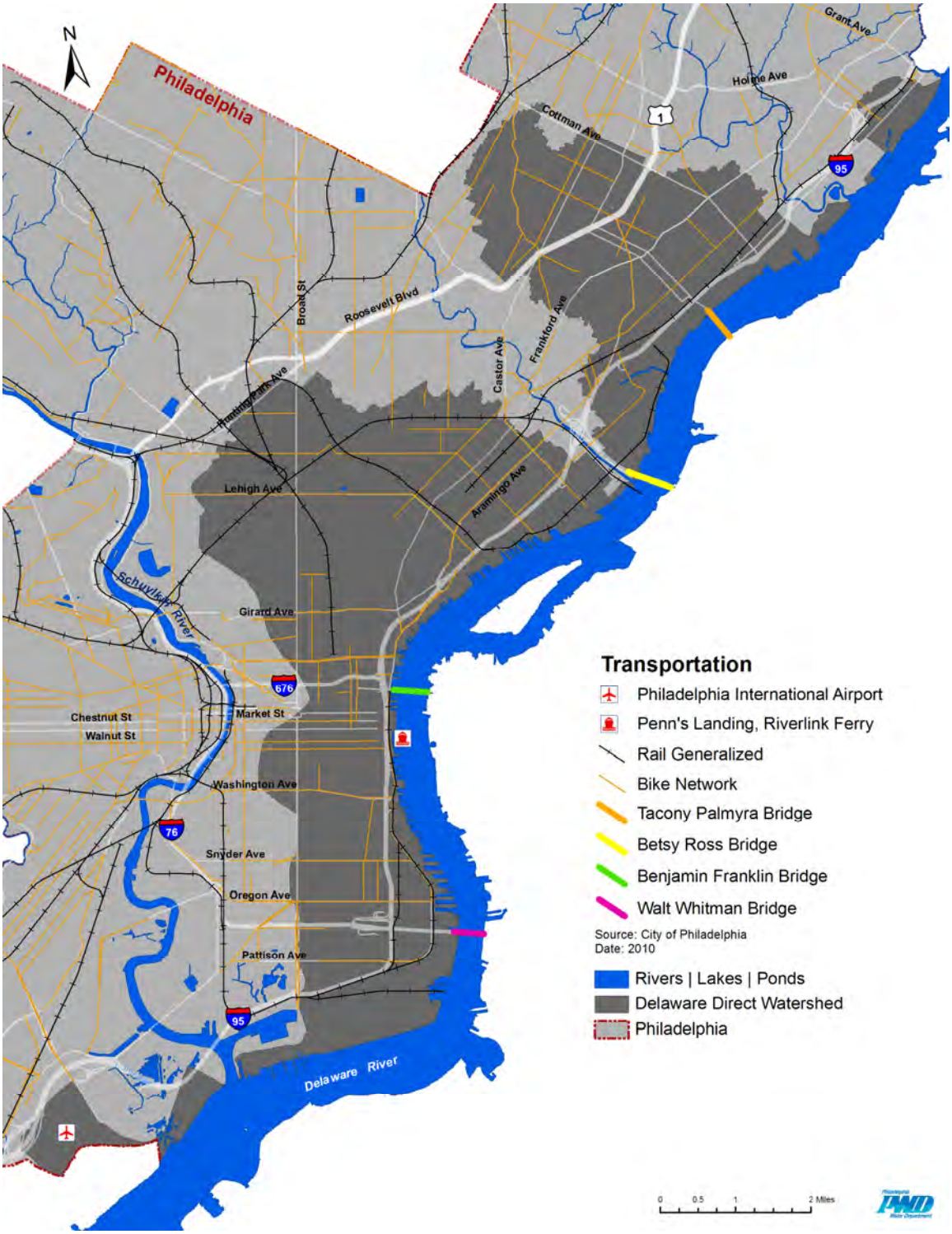

Figure 2.8 – Transportation in the Delaware Direct Watershed
Source: PWD

2.2 – Parks, Recreation and Open Space

The Delaware Direct Watershed contains a total of 45 parks covering two square miles, or 3.4% of the land area. There are 108 recreation centers that serve the surrounding communities' recreational needs. A recent assessment by Philadelphia Parks and Recreation (PP&R) identified many facilities in need of maintenance and upgrades. PP&R is proposing safety improvements for play areas in parkland at Penn Treaty Park. The project includes removing aging, unsafe and outdated equipment and replacing it with new ADA-accessible play equipment and safety surfaces. Proposed improvements to existing trails and the development of new trails within the Fairmount Park system will increase accessibility and recreational opportunities. This project includes improvements to trails along the Delaware, Tacony and Poquessing creeks. These trails allow Philadelphians to bike, walk, rollerblade and run through these parks, enjoying the waterways, wildlife and vegetation of Fairmount Park. More than a dozen boat launches and marinas along the riverfront also provide opportunities for water-based recreation. Figure 2.9 shows recreation resources within the project area.

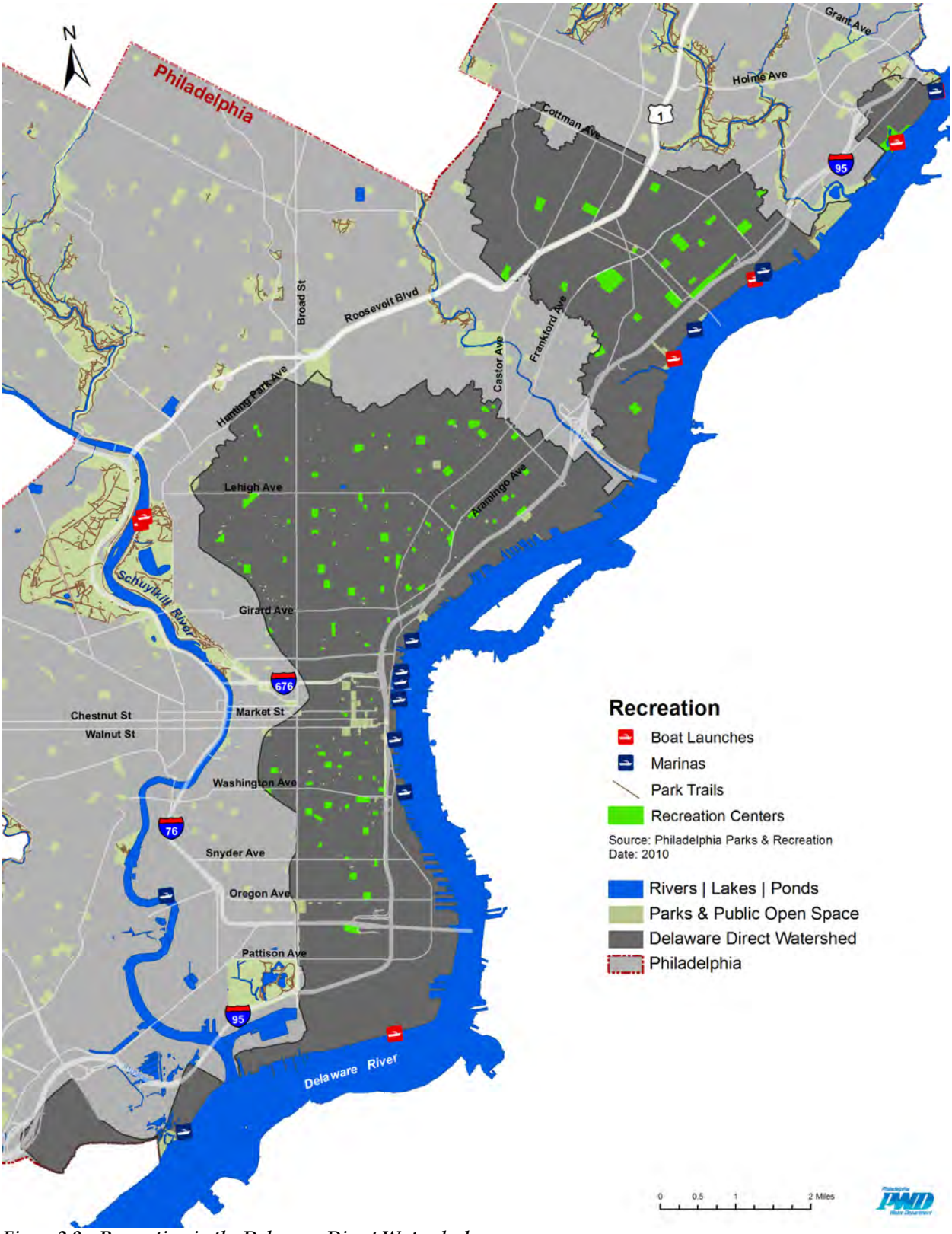

Figure 2.9 – Recreation in the Delaware Direct Watershed
Source: PWD

2.2a - Waterfront Characteristics

The eastern boundary of the Delaware Direct Watershed is in fact the Delaware River including 21 miles of riverfront. Historically, the riverfront was developed for industrial use, which limited public access to the water. These large facilities, both active and abandoned, are indeed a major feature of the waterfront. The presence of Interstate 95 also poses challenges in reconnecting residents to the Delaware riverfront. Redevelopment efforts are varied but have lacked a unified vision. The Navy Yard and the Arsenal Business Center present examples of successful redevelopment of two former U.S. military installations that both respect their histories and create new economic opportunities in the watershed. Casino development is one of the most contentious issues affecting the riverfront within the watershed. The Sugarhouse Casino, situated on the 22-acre site of a former sugar refinery, is located in the Fishtown neighborhood. A second casino has been given a license to develop a 16-acre parcel at Columbus Boulevard and Tasker Avenue in South Philadelphia, although the license was recently revoked due to the developer's lack of progress in building the casino. Opponents view the development of the waterfront for the use of casinos as a poor use of riverfront property, and many residents of neighboring communities are wary of the changes that casinos may bring.

Several waterfront parks exist along the Delaware River including Penn Treaty Park in Fishtown, Pulaski Park in Port Richmond, and Pleasant Hill Park in East Torresdale. Recent projects, such as Washington Avenue Green, have transformed former industrial sites into public open space, incorporating principles of stormwater management, riparian plantings and innovative approaches to public art and green design. Race Street Pier, at the foot of the Ben Franklin Bridge, will similarly use a former industrial site to provide much-needed civic open space along the riverfront. The groundbreaking for this project took place on November 9, 2010. Furthermore, The Delaware River City Corporation (DRCC) has developed the plan for Lardner's Point Park, a 4.5-acre park adjacent to the Tacony-Palmyra Bridge in Northeast Philadelphia.

The DRCC is also heading the development of two portions of the Delaware Trail: the K&T and the Baxter Trail. These trails are to be connected to the greater East Coast Greenway, a trail system that stretches from Florida to Maine. Also in place are plans for a Delaware Riverfront Trail that is to be incorporated into a recently adopted Central Delaware Riverfront zoning overlay (Bill No. 090170). The zoning overlay proposes that all land within 100 feet of the waterfront edge between Allegheny and Oregon avenues be utilized in the development of a publicly accessible, multi-use trail.

Another recent development in regard to recreation and open-space improvements is the creation of the Delaware River Waterfront Corporation (DRWC), a nonprofit organization seeking to transform the Central Delaware into a vibrant and easily accessible destination. The organization has already begun implementing recommendations from several ongoing planning efforts, primarily those found in the Civic Vision Plan and the Action Plan for the Central Delaware. Both of these plans recognize the need for sustainable green space and its positive impact on air quality, public health and stormwater management.

Waterfront Assessments

The Philadelphia Water Department conducted visual assessments of the Delaware River waterfront over two successive days in June, 2007. Due to limited on-foot access to the riverbank, these assessments were conducted by boat, starting at the Darby Creek confluence and continuing upstream to the Poquessing Creek confluence. Overall, very little of the waterfront exists in a natural state, and it exhibits minimal vegetative coverage and tree canopy. Eel Grass (*Vallisneria americana)* and spadderdock (*Nuphar luteum)* are the most common types of vegetation noted in these assessments. Bird species, such as cormorants, laughing gulls, herring gulls, seagulls, Canada geese, mallard duck, blue heron and osprey were observed during the assessments. Abandoned piers, vehicles and other structures are also featured along most segments. Full text of these assessments can be found in Appendix A of this document and a virtual tour in Google Earth is available online at http://www.phillywatersheds.org/your_watershed/delaware/virtual_tours

2.3 - Socioeconomic Characteristics

The total population of the Delaware Direct Watershed is 501,998 and represents approximately one-third of the entire population of Philadelphia (1,526,006, according to the U.S. Bureau of the Census data from 2010). Most of the Delaware Direct Watershed is a patchwork of city neighborhoods. There are at least 72 neighborhoods within the project area, as seen on the watershed base map, Figure 1.1. Many neighborhoods have their own initiatives and projects that are helping to improve quality of life and to create sustainable communities. The Table 2.2 lists neighborhoods within the watershed and references civic organizations within those neighborhoods when available.

Table 2.2 – Neighborhood Civic Organizations in the Delaware Direct Watershed

Neighborhood	**Civic Association**
Allegheny West	Allegheny West Foundation
Bella Vista	Bella Vista United Civic Association
Bridesburg	Bridesburg Town and Civic Association
Burholme	Burholme Community and Town Watch Civic Association
Cabot	
Callowhill Chinatown North	Callowhill Neighbor Association
Castor Gardens	Castor Gardens Civic Association
Cecil B Moore	
Chinatown	Philadelphia Chinatown Development Corporation
Dickinson Narrows	Dickinson Narrows Civic Association
East Kensington	East Kensington Neighbors Association
East Passyunk	East Passyunk Crossing Civic Association and Town Watch
East Poplar	East Poplar Community Association
East Tioga	
East Torresdale	East Torresdale Civic Association
Fairhill	
Fishtown	Fishtown Neighbors Association
Forgotten Blocks	
Francisville	Francisville NDC

Frankford	Frankford Civic Association
Frankford Valley	Frankford Valley Civic Association
Greenwich Lovely	
Harrowgate	
Hawthorne	Hawthorne Empowerment Coalition
Holmesburg	Holmesburg Civic Association
Hunting Park	Hunting Park Civic Association/ Ayuda Community Center
Juniata Park	Juniata Park Civic Association
Kensington	Kensington Neighbors United Civic Association
Kensington South	Kensington South CDC
Lawndale	
Ludlow	
Market East	
Mayfair	Mayfair Civic Association
Navy Yard	None found
New Kensington	New Kensington CDC
Newbold	Newbold Civic Association
Norris Square	Norris Square Civic Association
North Central	
North Delaware	
Northern Liberties	Northern Liberties Neighbor Association
Northwood	Northwood Civic Association
Old City	Old City Civic Association
Olde Kensington	Olde Kensington Neighbors Association
Oxford Circle	
Passyunk Square	Passyunk Square Civic Association
Pennsport	Pennsport Civic Association
Point Breeze	Point Breeze Civic Association
Port Richmond North	Olde Richmond Civic Association
Port Richmond South	Olde Richmond Civic Association
Queen Village	Queen Village Neighbors Association
Richmond	Olde Richmond Civic Association
Rittenhouse Sq.	Friends of Rittenhouse Square
Society Hill	Society Hill Civic Association
South Of South	SOSNA (South of South Neighborhood Association)
South Philadelphia	South Philadelphia Communities Civic Association
Spring Garden	Spring Garden Civic Association
St Edwards/Hartranft	
St. Hugh	
Strawberry Mansion	
Summerdale	Friends of Summerdale Civic Association
Tacony	Tacony Civic Association
Temple Area	
Tioga	
Upper Northwood	Northwood Civic Association
Washington Square West	Washington Square West Civic Association
West Fairhill	West Fairhill Community Association
West Kensington	

West Poplar	West Poplar NAC (Neighborhood Advisory Committee)
Whitman	Whitman Council Inc
Wissinoming	Wissinoming Civic Association
Yorktown	Yorktown Community Development

2.3a - Population Density

Overall, the population density of the Delaware Direct is high, around 14,764 persons per square mile. However, the way in which population is distributed varies. Some areas of the watershed show great contrast in terms of population density, especially along the Delaware River waterfront and in Center City. As illustrated in Figure 2.10, several areas that depict zero population are adjacent to those with greater than 50 persons per acre. While this is sometimes indicative of vacant property, it is also evidence of a mix of commercial and residential development throughout the watershed. The southern end of the watershed is home to large industrial and commercial facilities that contrast with the densely populated neighborhoods of South Philadelphia. The central portion of the watershed is comprised of the central business district and its surrounding neighborhoods. This area also shows high contrast in population density; for example, when a multi-story commercial property is adjacent to a multi-story residential property. The northern and northeastern parts of the watershed exhibit more even population distribution and relatively high population density. These areas are predominantly residential city neighborhoods, with the exception of Temple University Main Campus in North Philadelphia and the other employment nodes of Northeast Philadelphia.

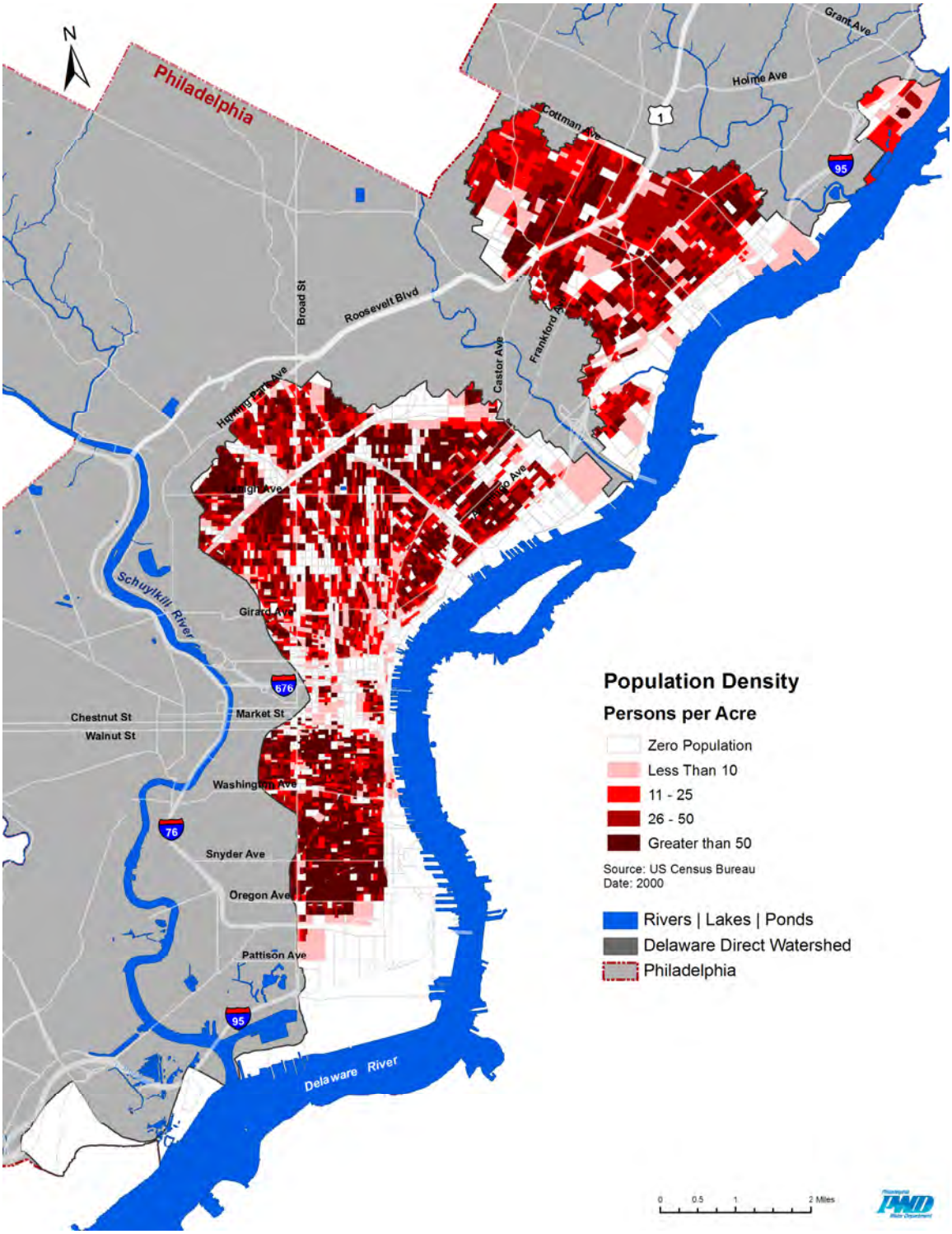

Figure 2.10 – Population Density in the Delaware Direct Watershed
Source: PWD

2.3b - Demographic and Socioeconomic Factors

The Delaware Direct contains a broad range of communities that differ in racial and ethnic make-up, income level and age. The watershed in its entirety is racially and ethnically diverse, yet there are a number of demographically distinct communities within. As a whole, the watershed contains 56% white residents and 44% non-white residents, according to the 2000 U.S. Census. The watershed does differ from the city as a whole, which contains 44% white residents and 56% non-white residents.

The population of white residents is concentrated primarily in the northern reach of the watershed, where the easternmost communities of Tacony, Mayfair and Wissinoming are almost entirely white and display very low counts of non-white minority residents. Neighborhoods to the west of this area, such as Oxford Circle and Castor Gardens, contain a more racially-mixed population. The majority of neighborhoods along the Delaware itself, such as Port Richmond, Fishtown and Old City, are predominantly white. South Philadelphia contains pockets of minority residents but the southernmost portion consists of mainly white residents.

Neighborhoods found farther inland contain much larger numbers of minority residents, yet also show signs of racial segregation. The majority of the central-western portion of the watershed, including the neighborhoods of North Philadelphia, North Central Philadelphia, Tioga, East Tioga, Allegheny West, Strawberry Mansion, Cecil B. Moore, Cabot and Yorktown is predominantly African-American, with each of these neighborhoods containing 75% or more black residents.

Similarly, Hispanic residents are clustered primarily in the neighborhoods to the immediate east of these areas, such as St. Hugh, Fairhill, West Kensington and Norris Square. These neighborhoods are made up of 75% or more Hispanic residents. The primary contingent of Asian residents is found in Chinatown near Center City Philadelphia and in the central portion of South Philadelphia. Figure 2.11 provides four maps depicting minority population concentrations within the project area.

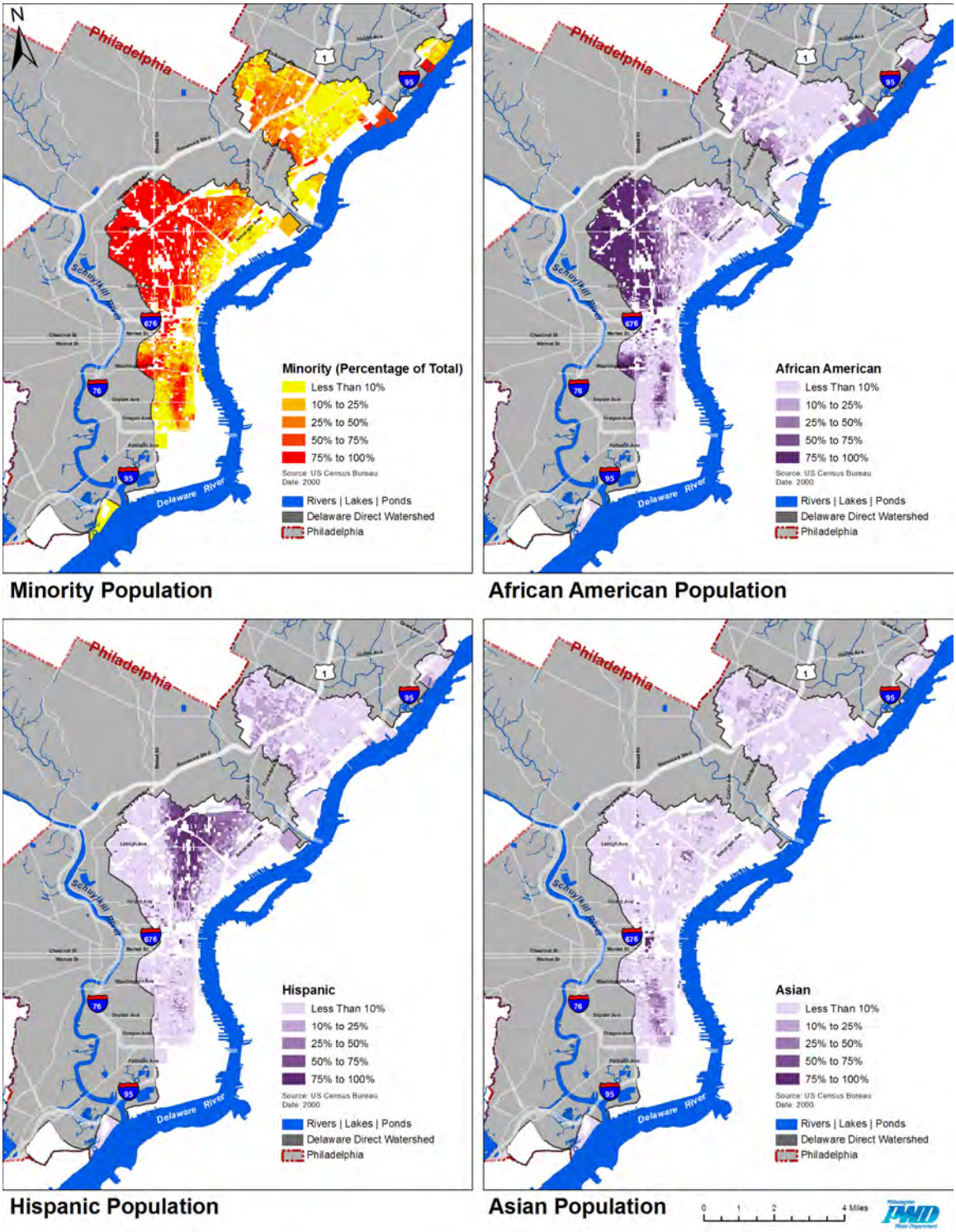

Figure 2.11 – Minority Population Distribution within the Delaware Direct Watershed
Source: PWD

While the majority of the watershed contains predominantly residents who are native U.S. citizens, there are certain portions where higher numbers of foreign-born residents

are found. There are three main pockets of foreign-born residents, one in the northernmost portion of the watershed, in the vicinity of the neighborhoods of Oxford Circle and Castor Gardens, the next in the highly Hispanic portion of the watershed, namely the neighborhoods of St. Hugh, Fairhill, West Kensington and Norris Square and the third covering a large portion of Center City and central South Philadelphia, those areas which are most highly populated by Asian residents. Small pockets of immigrant populations are found outside of this area. Figure 2.12 shows the distribution of foreign born residents of the watershed.

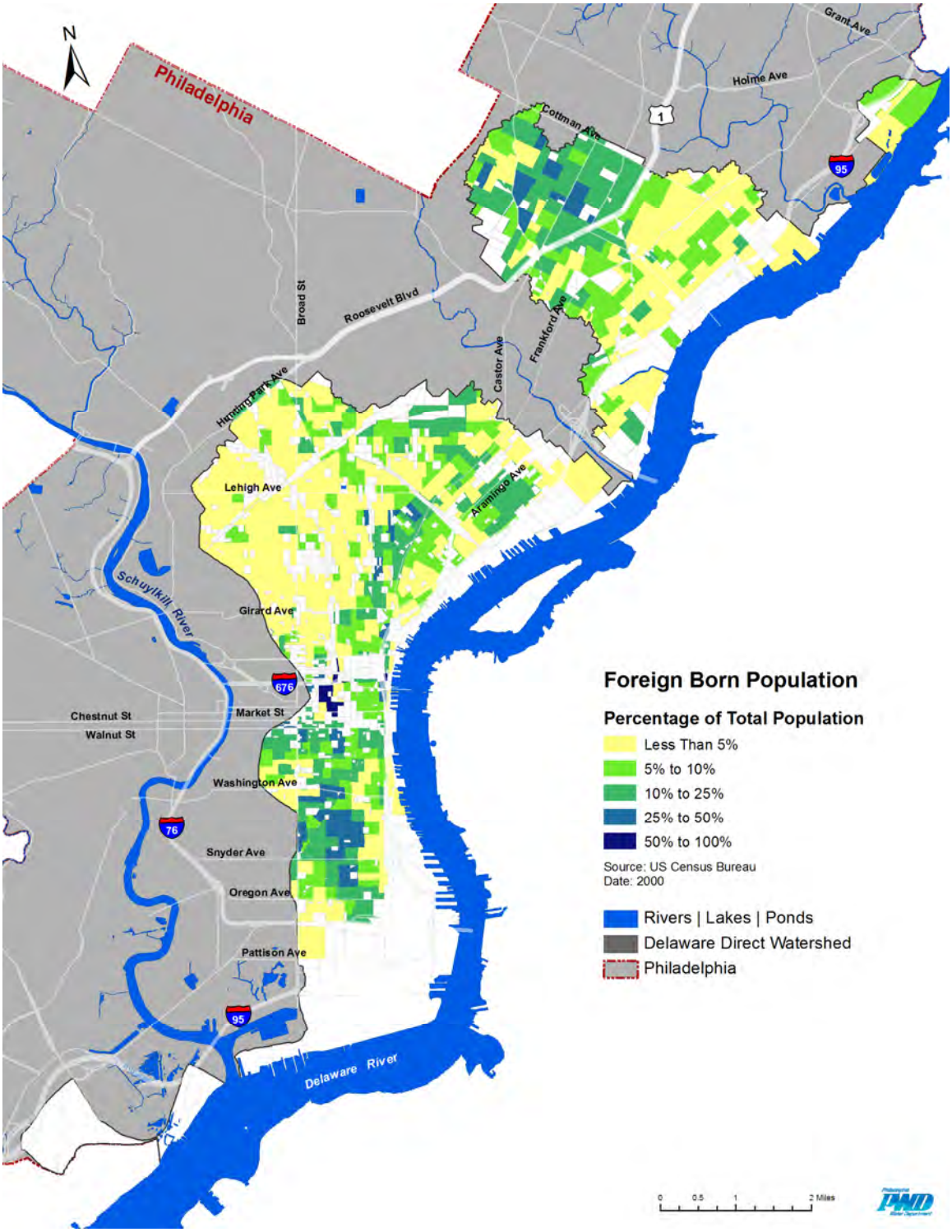

Figure 2.12 – Foreign Born Population in the Delaware Direct Watershed
Source: PWD

The communities within the watershed also differ in age. Communities in the northernmost and southernmost portions of the watershed have higher numbers of residents over 65 years old, whereas the neighborhoods throughout North Philadelphia

and the central portion of the watershed have greater residents under the age of 18. Center City contains the lowest numbers of residents under age 18. Figure 2.13 shows this characterization of age distribution in the watershed.

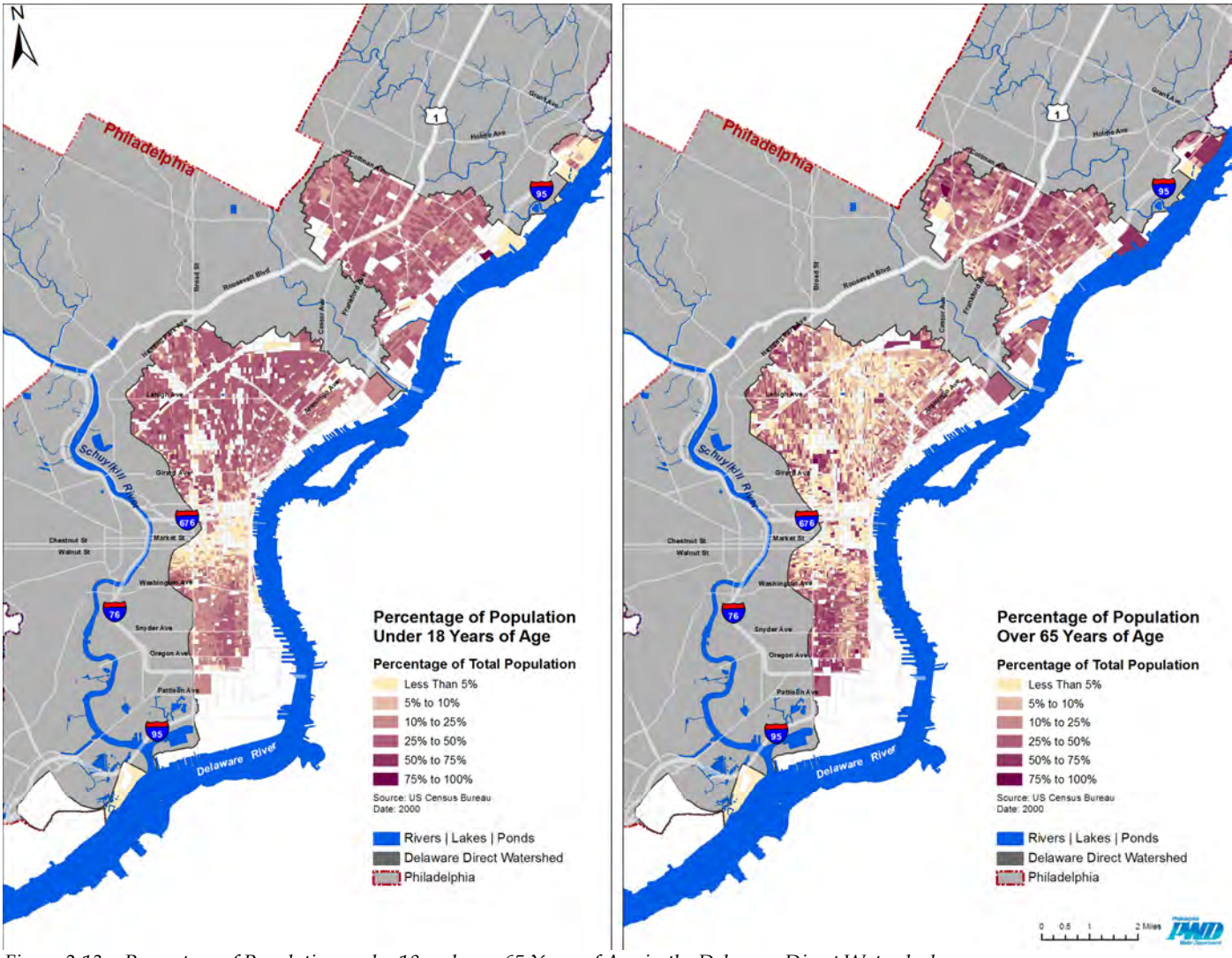

Figure 2.13 – Percentage of Population under 18 and over 65 Years of Age in the Delaware Direct Watershed
Source: PWD

While the median 2000 income of households within the watershed ($29,164) is nearly equal to that of the city ($30,517), this factor varies greatly by neighborhood as well. The highest incomes are found in the Old City portion of the watershed, where the median reaches as high as $87,027. Moderately high incomes are also found in the northernmost neighborhoods and throughout Center City. On the other hand, the lowest incomes are found in the central portion of the watershed in the North Philadelphia neighborhoods, in those same neighborhoods which are predominantly black and Hispanic. The median household income in these areas ranges from $7,500 to $25,000, significantly lower than the city median.

2.3c - Source of Employment

Employment is varied and spread throughout the watershed. The largest employer is the School District of Philadelphia, whose headquarters is on North Broad Street in the Callowhill neighborhood. PNC Bank, SEPTA, Thomas Jefferson Hospital, Macy's, Comcast and Temple University all have their main facilities firmly within the watershed as well, providing large numbers of jobs in these specific locations, as well as contributing throughout the watershed in satellite locations. Between large corporations and the significant contribution of smaller employers, many types of employees work in the Delaware Direct Watershed.

Within the watershed, there are a few areas of employment concentration that can be called nodes of employment. These are zones with a high concentration of jobs and economic activity, creating a large-scale impact on the watershed in various ways. These regions emerge on both the population density map and the land use map with their heavy concentration of zero population and singular land use, respectively. The Delaware Direct Employment Nodes map, Figure 2.14, plots these facilities by address to give a general picture of their locations. The southernmost node is the Philadelphia International Airport (PHL). It is one of the largest economic engines in Pennsylvania, generating an estimated $14.2 billion in spending and accounting for more than 141,000 jobs within the region.[3] To the north, the Philadelphia Naval Yard is an example of adaptive reuse of a historic military facility. This waterfront development houses more than 80 companies and employs approximately 7,500 people in retail, distribution facilities and research laboratories.[4] Another employment node of the watershed is found along Christopher Columbus Boulevard, which parallels the riverfront pier facilities operated by the Philadelphia Port Authority. Columbus Boulevard is a hub for large retail chains, such as Home Depot, Lowe's, IKEA, Target, Wal-Mart and Best Buy, as well as many other smaller retailers. In terms of use, this retail corridor is contrasted by the adjacent shipping, warehouse and distribution facilities operated by the Philadelphia Port Authority sited along the waterfront. The Port of Philadelphia is one of only 14 ports in the United States permitted to handle the U.S. military cargoes headed for international destinations.[5]

[3] Philadelphia International Airport, Feb 5 2011 <www.phl.org>
[4] Philadelphia Navy Yard, Feb 5 2011 <www.navyyard.org>
[5] Philadelphia Regional Port Authority, Feb 5, 2011 <www.philaport.com>

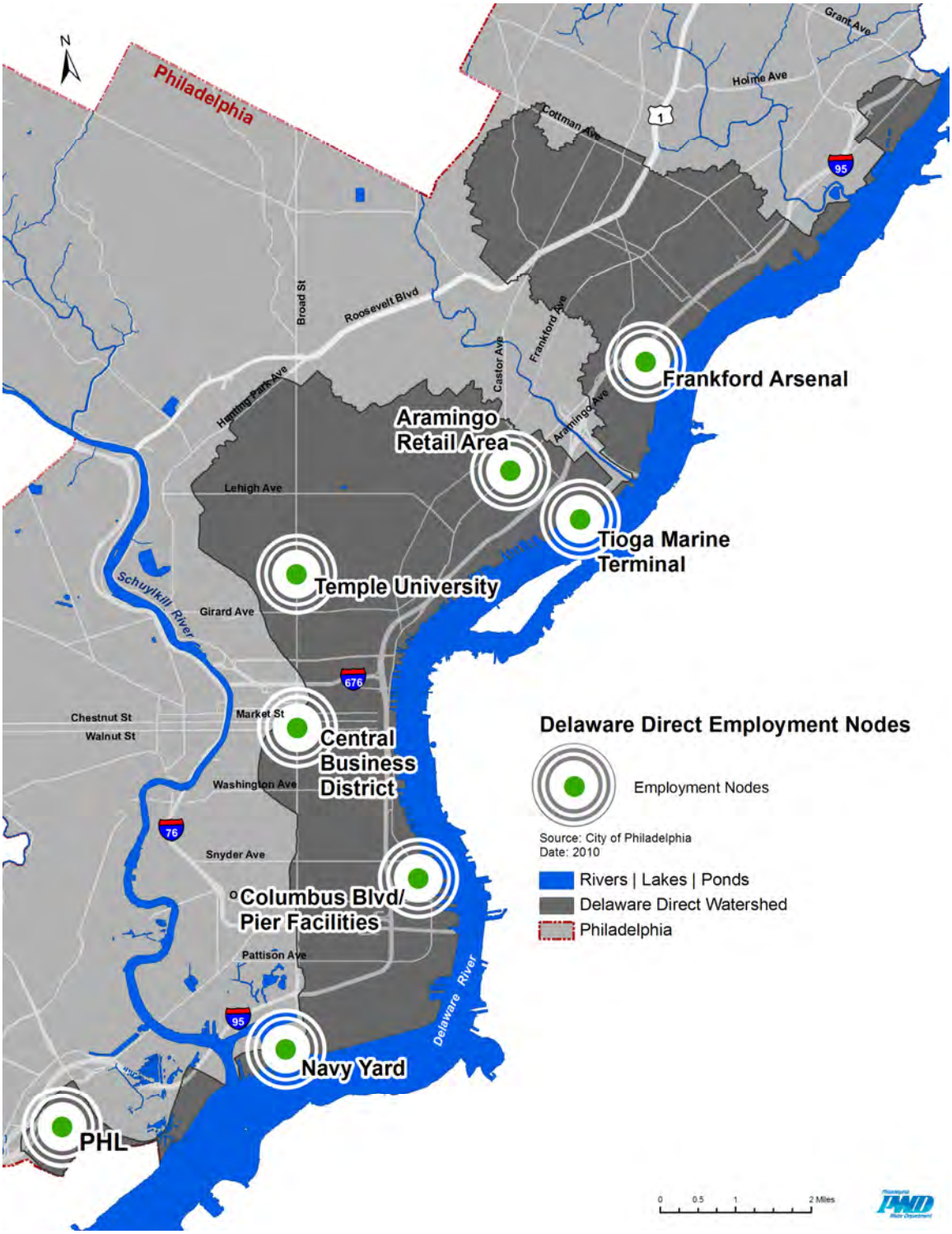

Figure 2.14 – Delaware Direct Employment Nodes in the Delaware Direct Watershed
Source: PWD

The Central Business District is the commercial heart of Center City Philadelphia, an area bound by the Delaware River to the east and the Schuylkill River to the west. The

north and south boundaries are marked roughly by Vine Street to the north and South Street to the south. Because the boundaries of the Delaware Direct Watershed are determined by drainage characteristics, the western boundary of the watershed is approximately located at Broad Street, just east of City Hall, and creates an irregular edge not confined by city blocks. Within the watershed, this node of employment contains its largest concentration of jobs as well as high diversity in employment type. The city's largest employer, the School District, is within this node, as is Jefferson Hospital. Much of the region's historic tourism is within this node and is home to Independence National Historical Park, the Liberty Bell and other significant historic sites. The Central Philadelphia Development Corporation(CPDC) is a rich source of economic and employment data for the city and this node in particular. When referencing this information, keep in mind that the watershed boundaries do not always include all of the areas referenced in CPDC reporting.

In North Philadelphia, Temple University is a center for employment in education and health services. Temple is the 27th-largest university in the United States, and Temple University Hospital is a major teaching center. Northeast Philadelphia contains three nodes that contribute significantly to the employment characteristics of the watershed. The economy of this area evolved from farming to industry in the 19th century, and factories and mills sprang up along the Delaware River waterfront and the creeks that drained to the river. The Aramingo Retail area covers approximately seven blocks of Aramingo Avenue between Wheatsheaf Lane and Allegheny Avenue. This concentration of big-box stores, grocery stores and other smaller retail establishments has been designated a Business Improvement District. The redevelopment efforts have transformed vacant industrial sites into jobs and services for the surrounding neighborhoods and beyond. Tioga Marine Terminal, owned by the Port Authority of Philadelphia, occupies 116 acres along the Delaware River at Tioga Street. This facility handles mostly produce and container shipping. The northernmost node of significant employment is the Frankford Arsenal. A part of the U.S. Arsenal System for manufacturing military munitions, this site has been redeveloped as an 86-acre business campus, Arsenal Business Center. The northernmost part of the site was assumed by the Pennsylvania Fish and Boat Commission for use as a boat launch access ramp and fishing site on the Delaware River. The southernmost part is currently being used as a light-industrial and office park.

All these areas of employment concentration have been developed over several centuries and most are the product of the heavy industrialization that occurred at the turn of the 19th century. The needs of the growing city were often met at the expense of our region's natural resources. However, current attitudes toward sustainability seek to mitigate some of the challenges created by development on this scale. As our economy shifts away from industrial-based activities, abandoned and underused facilities become redevelopment opportunities. The high profile that comes with such concentrations of employment and economic activity provides great opportunities for aligning market forces with public sentiment. Hopefully, these economic engines will become agents of change, providing access to services as well as access to the waterfront and public green space.

CHAPTER 3

PUBLIC OUTREACH

Introduction

The Delaware Direct Watershed River Conservation Plan (RCP) utilized a unique approach to community engagement and public outreach. In addition to following the traditional RCP process of establishing a steering committee and hosting public events, the RCP process also evaluated previous planning efforts that incorporated a large amount of public outreach in a variety of formats. Full Outreach and Meeting Documentation is available in Appendix B.

Outreach Principles

From the outset, the planning team approached the community engagement process with respect for recent efforts to involve thousands of watershed residents and stakeholders in the City and neighborhood planning processes. The RCP began by reviewing the outputs from several existing planning documents that have significant potential impact on the Delaware Direct watershed. Brief summaries of these documents are presented in Section 1.4 of this report and links are provided to the sponsoring agencies' websites.

The robust processes and extensive community input into these complementary plans enabled the RCP team to identify recurring themes that were developed into key principles for guiding the pubic outreach components.

1. Claim the Delaware waterfront as a signature cultural landscape that defines Philadelphia and informs the surrounding neighborhoods.
2. Provide residents and visitors open access to the Delaware and allow for a variety of experiences and amenities along the waterfront, including the ability to "touch the river."
3. Balance public space as a cultural and social resource, with the opportunity to mitigate environmental impacts from human use and development.
4. The imperative for government to lead by example on riverfront redevelopment, particularly where ownership and control issues are minimal and re-investment can result in multiple benefits, or benefits to the community as a whole.
5. The desire of Philadelphians to retain distinct and individual neighborhood identities while recognizing the common desire for safe, attractive and walkable access to neighborhood amenities such as parks, schools, restaurants, shopping, etc…
6. Community input and influence on how neighborhoods are planned and developed, particularly when it comes to redevelopment projects that are likely to have significant impact on the life and/or character of a neighborhood.
7. Strong agreement among City residents that multi-modal transportation options such as bus, trolley and light rail are one of, if not the most, highly valued neighborhood

amenity, providing relief from parking woes and the noise, congestion and pollution associated with cars.

8. An understanding by citizens, professionals and municipal officials that outcomes are determined by both action and policies: effective policies encourage desirable activities and, symbiotically, citizen action can drive and direct municipal policy.

In addition to these unifying principles, the RCP planning team considered several specific projects and policies highlighted in the existing plans. Building on this information, groups of experts and stakeholders were identified and invited to participate in outreach activities. This approach allowed the RCP outreach components to minimize redundancy, yet still capitalize on the energy of previous processes and to move planning towards action steps. Workshops, meetings and other outreach activities were organized around land-use typologies and place-based concerns so that proposed recommendations would be applicable and possibly duplicated elsewhere in the watershed.

3.1 - Steering Committee

The Delaware Direct Watershed RCP Steering Committee first convened in November 2007. Twenty-eight individuals, representing 19 organizations (including government, non-profit and community groups), were invited to represent their constituents and the many related planning and community engagement processes that have taken place throughout the City and in the watershed. See table 1.1 in Chapter 1 of this document for a list of Steering Committee participants.

The Steering Committee was charged with two primary tasks:

- To provide input and guidance to the River Conservation Plan team throughout the planning process
- To form a partnership of key stakeholders to share information, ideas, activities, program goals and accomplishments

The Delaware Direct Watershed RCP Steering Committee met three times over the course of the project. A first meeting in November 2007 sought input and guidance on information-gathering and start-up phases of work. A second meeting in February 2008 focused on community engagement and workshops. A third meeting in September 2008 reviewed workshop outcomes and gathered recommendations for content and organization of the final report.

Steering Committee #1: November 15, 2007
The first meeting included a dozen representatives of partner agencies along with members of the planning team. The group reviewed the planning goals, methodology and approaches to the RCP. Much of the meeting was devoted to discussion on what key elements, features, issues and concerns the representatives felt should be covered in the RCP.

Steering Committee #2: February 20, 2008
An expanded group convened for a project update and information exchange. The focus of the evening meeting was to develop the work plans for future focus groups and workshops.

Steering Committee #3: September 24, 2008
The fall meeting centered on a summary of outcomes and lessons learned from the focus groups and workshops. The team presented findings and received feedback and input from the Committee on the first large public meeting. PWD gave a presentation on continuing the Steering Committee as the Delaware Direct Watershed Partnership and presented a set of goals and objectives for discussion.

Watershed Partnership
The Philadelphia Water Department (PWD) addresses water quality and water quantity issues through a watershed management approach. PWD establishes watershed partnerships comprised of key stakeholders in each watershed. The ultimate goal of the PWD's watershed planning approach is to cultivate partnerships committed to implementing watershed management plans, once completed. The Delaware Direct Watershed Partnership consists of the members of the RCP Steering Committee in addition to active participants who emerge from RCP public events and public meetings. Watershed partners share resources and expertise and coordinate information with each other. The Delaware Direct Watershed River Conservation Plan provides the foundation for further watershed plans.

3.2 - Workshops

A series of three research and problem-solving sessions were held in the spring and summer of 2008. The meeting plans for these workshops were highly structured. Using presentations, discussions and a review of proposals from planning work conducted by the City and neighborhoods in the Delaware Direct Watershed, working groups considered how to advance key concepts. Rather than begin with basic input on issues, concerns and ideas, workshops were designed to test ideas and apply concepts from previous planning efforts against real-world conditions. Source material for workshops came from planning processes with extensive community engagement.

For each workshop, key experts and stakeholders were invited to consider proposals, best management practices, recommendations, actions to advance projects and learning models for the Delaware Direct Watershed. Each intensive workshop centered on a single thematic element that had emerged from complementary planning and community engagement work. In all, more than 100 individuals representing more than 50 organizations participated in the three half-day workshops. The Pennsylvania Horticultural Society (PHS), with support from the William Penn Foundation, provided venues and hospitality for these meetings. Groups gathered at the Independence Seaport Museum to discuss one of the most challenging and contentious urban watershed issues: parking. A remarkable gathering of experts met at PHS offices to create a study design for tidal wetland restoration, and concurrent groups discussed

riparian restoration and park expansion planning. The final workshop event, held in a tent overlooking the Delaware River at Penn Treaty Park, challenged attendees to create priority recommendations for moving forward on a city-wide green and complete streets initiative.
Appendix B contains detailed outcomes from the three workshop and focus groups.

Workshop #1: Pulaski Pier Park, April 2008

Overview

Multiple previous and ongoing plans (Vision for the Central Delaware, New Kensington Riverfront Plan, North Delaware Riverfront Greenway) call for improvements to the City-owned and operated Pulaski Park (Figure 3.1). Of particular note is the park's importance as one of only four public waterfront parks within the City's 21 miles of Delaware waterfront. Approximately 40 attendees, including natural resource professionals, planning and design professionals, and community leaders, convened to discuss practical next steps to explore proposals to expand, enhance and restore ecological functions at Pulaski Park. The focus group included scientists, practitioners, policy experts and other watershed stakeholders with specific interests and expertise in wetland restoration, riparian rights and public parks. Attendees broke up into three sub-groups to review one of several proposals for Pulaski Park. Groups focused on wetland restoration, riparian restoration and adaptive re-use of pier structures, and expansion of the park into adjacent municipally owned riverfront property.

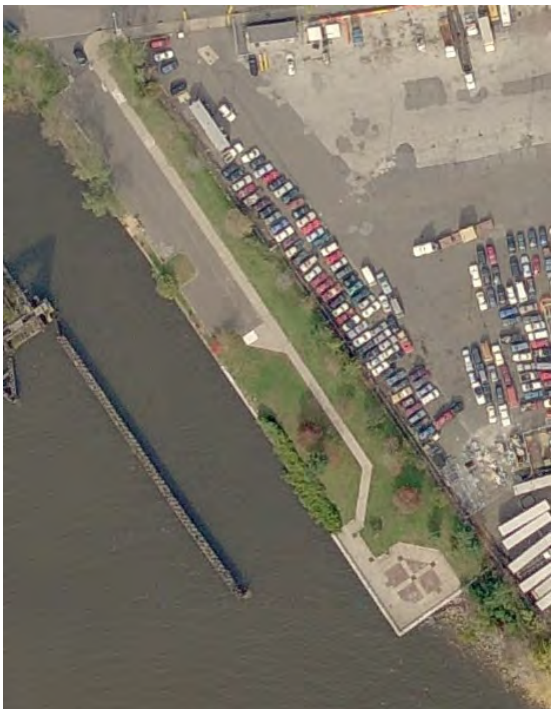

Figure 3.1 - Pulaski Pier Park

Each working group was asked to outline tasks and issues related to specific restoration and design elements proposed for Pulaski Park. These outlines can be used to help structure future requests for proposals from consultants who may be asked to provide ecological, engineering and planning services in support of a variety of detailed feasibility studies for Pulaski Park. A brief summary of the discussion from each working group follows.

Subgroup one: Outline of tasks and consideration for wetland restoration at Pulaski Park.

Consideration was given by the group to identify potential wetland restoration locations along the waterfront in Philadelphia. The group also identified key project goals, including the importance of defining explicit endpoints.

Subgroup two: Outline of tasks and consideration for restoration of riparian areas, including piers and bulkheads at Pulaski Park.

The group found it difficult to limit consideration only to the river's edge of the park as opposed to the entire park. A proposal for park expansion also resulted. As such, the group considered, but did not limit itself, to a discussion of the riparian areas. The group noted that a clear understanding of land ownership, use and regulations was most critical to the project.

Subgroup three: Outline of tasks and consideration for park expansion from existing Pulaski Pier Park into adjacent municipal property.
The group suggested that the outline would have relevance to any future public use on post-industrial lands. This group readily identified a clear and concise goal for the project: evaluate the feasibility and cost/benefit of expanding Pulaski Park. The group noted that there would need to be a designated project sponsor, whether that was one agency or a consortium of partnering groups. Ownership issues were of primary importance. Mapping and investigations related to boundaries are a priority.

Workshop #2: Advanced Parking Lot Design, June 2008

Overview

As one of the largest impervious surface cover types within the City, auto-related infrastructure, such as parking lots, is noted in every planning and referenced study and is a primary source of concern as Philadelphia struggles to meet its water quality goals. In addition to affecting stormwater, parking design impacts traffic, congestion, air quality and the pedestrian experience.

Figure 3.2 - Pier 70 shopping area

Approximately 30 attendees, including urban design, planning and policy professionals, met at the Independence Seaport Museum to consider alternative designs and strategic approaches for three different neighborhood typologies in and around the waterfront in South Philadelphia. The typologies reflect typical urban parking approaches and classic parking models: big box retail mall; residential tower; and private/public mix of parking options available in a vibrant commercial district. Attendees were broken into groups and assigned specific locations to focus their discussions. These locations were the mall adjacent to Pier 70 in South Philadelphia (Figure 3.2), Stamper Square in Society Hill, and Bainbridge and 3rd Street in Queen Village. Topics of discussion included:

- Efficiency of existing resources
- Need and dependence on private vehicles
- Improved/enhanced public transportation options
- Providing community parking amenities versus private parking amenities
- Environmental performance of parking facilities and structures

Workshop #3 – Green Streets & Riverfront Connections, July 2008

Of all the urban retrofits recommended in recent planning efforts, green streets occupy pride of place. Whether denoted as green connectors, green corridors, green ways, great streets, or complete streets, there is no lack of institutional and academic interest in the transformation of this key feature of the urban landscape. The July 2008 focus group gathered to explore in detail what the experience of a journey to the riverfront is like today, and ways in which the physical and psychological barriers to connection can be negated or dissolved.

Approximately 40 attendees with expertise and interest in issues related to transportation, mobility and riverfront access participated in a challenge to reach the meeting location, Penn Treaty Park on the Delaware waterfront, using atypical modes of transportation. Having reached the meeting (Figure 3.3), each of four subgroups was tasked with looking at green and complete street initiatives from a different perspective: policy, design, funding and short-term fixes.

Figure 3.3 – Green Streets & Riverfront Connections workshop

Several key conclusions and recommendations that came from the groups were directed squarely at creating the bureaucratic infrastructure to allow for improvements of streetscapes for pedestrian, multi-modal use, stormwater management, aesthetics, and greening—not only for streets linking to Penn Treaty Park, but across the City. Retooling, it was suggested, could begin with the City creating a joint task force of key and relevant agencies, including Philadelphia Department of Streets and The Philadelphia Water Department.

The barriers presented by the current configuration of Delaware Avenue are the most important issue noted. The distance across multiple lanes, the sense of exposure and vulnerability when walking parallel with high-speed traffic, and the lack of any way-finding or pedestrian signals makes the experience daunting for pedestrians. Difficulty of pedestrian use on Delaware Avenue is compounded by the presence of Interstate 95, which limits connectivity to adjacent neighborhoods.

3.3 - Public Meetings

One large public meeting was held during the RCP process.

Public Meeting #1: Healthy Neighborhoods
Date: December 4, 2008
Location: Center for Architecture
Attendees: Approximately 60

Overview
On December 4, 2008, groups and individuals across the watershed were invited to convene and participate in a series of activities and information-sharing sessions focused on creating and sustaining Healthy Neighborhoods. Rather than a traditional lecture format, the meeting plan provided for a series of activities and one-to-one discussions. The open house format allowed for drop-in visitation over a period of several hours. The four-hour event was attended by more than 60 participants, including representatives from various neighborhood groups and non-profit organizations.

Graffiti Wall
The graffiti wall (Figure 3.4) was designed to introduce precedent examples of urban greening and sustainability approaches, stimulate conversation and provide organizers with a sense of what appealed to respondents. About 40 feet of 3-foot-wide paper was posted around the meeting room, and dozens of color photographs of various urban forms and scenes were taped to the paper. Images included streetscapes, buildings, stormwater management systems, green roofs and a variety of transit and mobility designs, as well as some historical images. Visitors were invited to use colored markers and self-adhesive notes to offer comments in response to the images.

One interesting outcome of this exercise was the dialogue that developed between respondents. Commentary developed around several images addressing the assignment of space in the public right-of-way in the most effective ways to offer multi-modal. In general, the most frequent response was to images that depicted a design that met the needs of more than one user group. Several street scenes were noted for the clever ways in which pedestrian, bicycles, parking, and trolleys shared space to the benefit of all. There was also significant negative commentary where streetscapes seemed designed only for cars.

Figure 3.4 –The graffiti wall, public meeting December, 2008

There was also a good deal of "wow" factor in many responses. Clearly there was a great deal of excitement around design ideas that were either new or tapped into an existing care or concern. Some of the design ideas that respondents showed particular desire or enthusiasm for were complex green spaces, where green components (such as trees or planters) were incorporated into buildings or streetscapes.

Figure 3.5 - Green carpet interviews, public meeting December, 2008

Green Carpet Interviews

Attendees were invited to step onto the "Green Carpet" (Figure 3.5) for a video interview on issues and concerns on their block. The range of responses was very broad. Issues related to traffic congestion and parking were mentioned frequently in addition to the need for more trees, less litter and more crime prevention and safety. When asked how their concerns connected to air, land or water, many respondents mentioned land use planning and zoning.

Map a Neighborhood Tour

Attendees at the meeting took advantage of a personalized internet-based mapping exercise by creating a tour of notable places in their particular neighborhood. Using the "My Maps" feature in Google Maps (Figure 3.6), participants were able to show locations and pathways between resources and landmarks in their neighborhood. Most participants chose to highlight favored or special places and few pointed out problems or challenges. Interestingly, almost every participant started their tour at their house and stopped first at their local park or favorite coffee shop/restaurant. At least one communal gathering space was highlighted in every tour map.

The exercise was enjoyable for the organizers and participants and proved to be an interesting and useful means for sharing information. Several participants mentioned they would use this feature to organize tours to show friends and family members the places they cherish in their neighborhood.

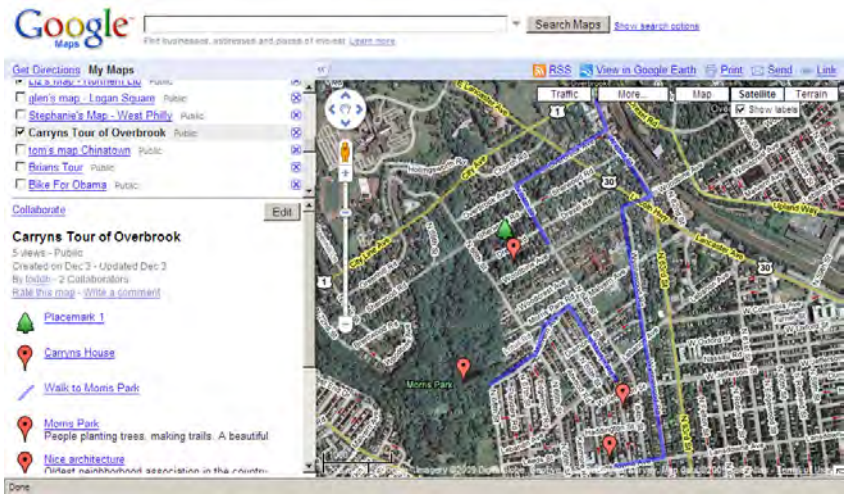

Figure 3.6 - "My Maps" feature in Google Maps

Issue Polling

A Healthy Neighborhood Polling Station was set up and presented a series of slides as an accompaniment to 16 questions. Respondents were asked to rank importance of various neighborhood concerns on a scale of 1-10. Of the estimated 60 visitors, only 15 completed surveys, and on this basis, organizers consider the data anecdotal. With that qualifier in mind, there was a great diversity of opinion. The 15 respondents represented 13 different zip codes. Walkable access to parks and access to public transit rated as the most important amenity for a healthy neighborhood. In second place were

clean air, and pedestrian- and bike-friendly safe streets. The lowest score was inexpensive and easy parking.

3.4 - Watershed Walks

Watershed walks provide an opportunity to engage stakeholders in an exploration of real-world conditions as they relate to specific issues. In the many planning processes that have involved the Delaware Direct communities and neighbors, issues related to connectivity—particularly the links from neighborhoods to the riverfront—have been a priority concern. Reflecting the importance of this issue, watershed walks were focused on this issue. Two opportunities to experience first-hand the realities of the highly urbanized Delaware Direct watershed were offered as part of the RCP process.

Watershed Walk #1: July 31, 2008
Location: From multiple destinations to Penn Treaty Park
Attendees: Estimated 40 participants

As a prelude to the July 31, 2008 workshop on transportation, the first watershed walk invited participants to use a provided transit and trail map to travel to Penn Treaty Park using an alternate mode of transit. For most participants, this meant finding their way to Penn Treaty Park using something other than an automobile. Participants were eager to share their experiences, and 35 participants submitted travel data, as shown in Figure 3.7. Many found their way for the first time to historic Penn Treaty Park, and all agreed that it was worth the effort. All attendees to the July 2008 workshop were provided with a specially created transit map to make options easier to find. Participants completed a user survey upon arrival at the park.

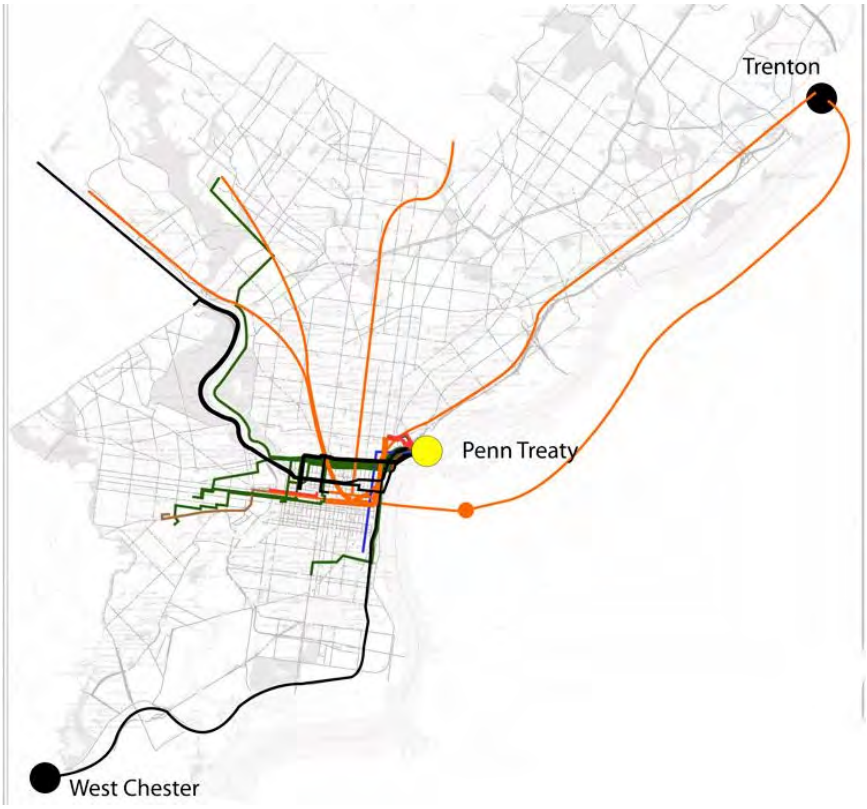

Figure 3.7 - Participant's travel routes to Penn Treaty Park

Participants gave high praise to the map and suggested that many riverfront destinations could benefit from a similar guide. Ideally, a riverfront map could be updated and available on the web. As for the travel experience, there was universal agreement that Delaware Avenue was anything but a user-friendly environment. Pedestrians and bicyclists found the speed and volume of traffic daunting. For those seeking to travel from the south or north on Delaware Avenue by bus, finding the right bus stop was another big challenge. The most pleasant trip was had by those walking to the park (aided no doubt by the sunny and breezy summer weather). Most of these travelers had local trips, but several walked for at least a portion of a longer journey. For many, the park itself was a revelation. About half the attendees had never been to this six-acre public park, but all found it to be well worth the trip. Many participants noted that access to Penn Treaty Park must come from Delaware Avenue, and that access can be both improved and expanded.

Watershed Walk #2: April 25, 2009
Location: From Penn Treaty Park through near neighborhoods of Fishtown
Attendees: Estimated 200 participants

The second watershed experience was hosted as part of the first annual Shad Festival, a celebration designed to emphasize the importance of the river as a fishery, both historically and as a goal for the future. Festival attendees were recruited as participants and invited to join three different guided tours of the neighborhood around Penn Treaty Park. Each walk was hosted by a representative from the Central Delaware Advocacy

Group (consisting of the Pennsylvania Horticultural Society, Penn Praxis and the North Delaware River Corporation). One group walked south along Delaware Avenue to gain a first-hand pedestrian experience while visualizing future development opportunities. The group in the second tour walked north to consider the future development of greenways, buffers and future riverfront trails. The third group walked west on Columbia Street to learn about the potential for green and complete streets that would connect neighborhoods to the riverfront.

3.5 - Public Outreach Identified in Planning Summary Inventory

As described throughout this report, dozens of neighborhood plans, city plans, riverfront plans, community plans, sustainability plans and more have been developed in the watershed. Each planning effort contains parallel or complementary functions to the RCP, including community outreach, goals and objectives; an inventory of technical resources; and recommendations for implementation. The Delaware Direct Watershed RCP, therefore, arose out of the extensive planning history of the study area as an effort to minimize duplication, synthesize information, and advance application of the planning recommendations.

Table 3.1 shows the previous and current planning efforts in the watershed inventoried for their public outreach components. Each plan listed in the table satisfied the RCP requirements of:

- Using community input or public participation
- Setting vision, goals and objectives
- Documenting the technical resources in an inventory
- Making project recommendations

In many cases, multiple outreach methods were utilized and this RCP capitalized on this these historic efforts.

Table 3.1 – Planning efforts inventoried for public participation

PLANNING EFFORT	YEAR	AUTHOR
An Action Plan for the Central Delaware	2009	PennPraxis; WRT; William Penn Foundation
Central Delaware Riverfront Master Plan	forthcoming	PennPraxis; DRWC
A Civic Vision for Central Delaware	2007	PennPraxis; WRT; William Penn Foundation
East Coast Greenway; Blueprint for Actioin	2007	DRCC
Green 2015	2011	PennPraxis; PP&R
Green City, Clean Waters	2009	PWD
GreenPlan Philadelphia	2009	PCPC; WRT
GreenWorks Philadelphia	2009	Philadelphia
Natural Heritage Inventory for Philadelphia County	2007	Western PA Conservancy
New Kensington Waterfront Plan	2008	NK CDC
North Delaware Riverfront Greenway Master Plan	2005	DRCC; PEC; Econsult Corp. Schelter & Associates
Northern Liberties Neighborhood Plan	2005	NLNA; Interface Studio
Northern Liberties Waterfront Plan	2007	NLNA; Interface Studio
Philadelphia Pedestrian and Bicycle Plan	2010	PCPC; WRT
State of the Delaware River Basin Report	2008	DRBC
Water Resources Plan for the Delaware River Basin	2004	DRBC

CHAPTER 4

LAND RESOURCES

The shape and stability of a watershed is based on the characteristics of the land. The way we develop, mitigate and transform the land directly affects the health of the surrounding and downstream water resources. Understanding the geology and soil characteristics within a watershed is an integral part of the Rivers Conservation process. The major geology and soil formations are briefly described here. For a more detailed discussion of basin geology and soils as well as the other physiographic provinces of the Delaware Watershed, please refer to the Background Section of the 2002 Source Water Assessment Report. The Delaware Direct also shares similar characteristics with its surrounding watersheds. For more in-depth discussions of the greater Philadelphia and Delaware River region, please refer to the Land Resource sections in any of the other River Conservation Plans.

4.1 Geology

A physiographic province is an area of land that is composed of a particular type(s) of rock as a result of having undergone certain environmental processes over time. Each province is distinguishable by its physical landforms, unique rock formations and groundwater characteristics. From north to south, the five physiographical provinces crossed by the entire length of the Delaware Basin are: the Appalachian Plateau, the Valley and Ridge, the New England Upland, the Piedmont and the Atlantic Coastal Plain. The Delaware Direct Watershed is located within the Piedmont and Atlantic Coastal Plain provinces. Figure 4.1 shows the geographical context of the provinces. Much of southeastern Pennsylvania consists of Piedmont land forms, with the exception of the far southeast corner where the portion of the Delaware Direct Watershed is surrounded by a sandy, flat coastal plain. This area is part of the Atlantic Coastal Plain, which also covers most of the eastern coast of the United States.

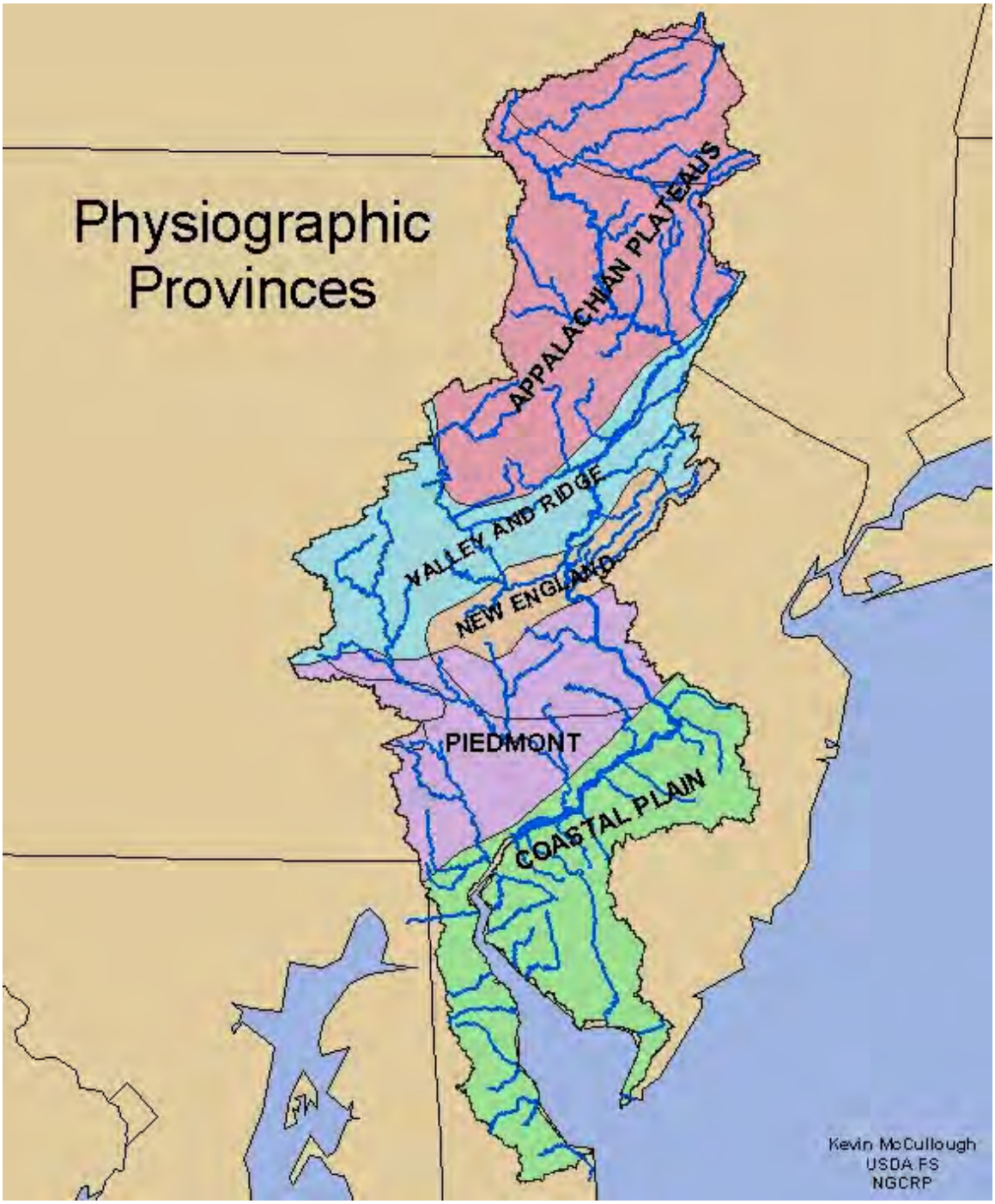

Figure 4.1: Physiographic Provinces of the Greater Philadelphia Region
Source: Physiographic Provinces

The uplands of the Piedmont and the lowlands of the Coastal Plain are separated by the dramatic Fall Line, which sharply rises between the two provinces. The Fall Line is a physical barrier of waterfalls and rapids that flows over relatively erosion-resistant crystalline rock stretching from New Jersey to Texas. The Fall Line serves as a natural boundary that marks the extent of navigable waters. Baltimore, New York, Philadelphia, Trenton and Wilmington are major cities in the Delaware Basin that are located on the

Fall Line. Within Philadelphia only the tributary streams, such as the Schuylkill River, cross the Fall Line. The Delaware River actually crosses farther north near Trenton, New Jersey.

The Coastal Plain Province was formed when Triassic Era deposits were eroded and redeposited to the southeast by water and glaciers. The plain, which slopes southeast to the Continental Shelf, is divided into two sections: the Outer Coastal Plain, which is comprised of southern New Jersey and eastern Delaware, and the Inner Coastal Plain, which consists of a narrow belt in Pennsylvania, northern Delaware, and an area in New Jersey located roughly 20 miles to the east of the Delaware River. The two sections, which are divided by a line of hills, were formed in different geological time periods: the Inner Coastal Plain in the Cretaceous and Pleistocene Eras, and the Outer Coastal Plain in the Tertiary Era. The image below depicts the land characteristics of the flat coastal deposits along the shore of the Delaware River in Far Northeast Philadelphia.

Shoreline along the western banks of the Delaware River
Source: North Delaware Aerials

4.1.a - Soils
The physical properties of the soils in the Delaware River drainage basin are the determining factor in the sediment-transport characteristics of the river and its tributaries. The soils, in turn, are determined by the geology and weathering processes of the rock material.

Approximately 95% of the Delaware Direct watershed is dominated by soils classified as Urban Land because they have been highly modified through development. Approximately 68% of the total land area is impervious surface resulting from buildings, parking lots, rooftops and roads dominating the landscape. Figure 4.2 shows the prevalence of urban soils, which are denoted as the striped white region. The remaining 5% of soil types range from loam to silty loam and are found in the northern reaches of the watershed where development and impervious cover become less prevalent.

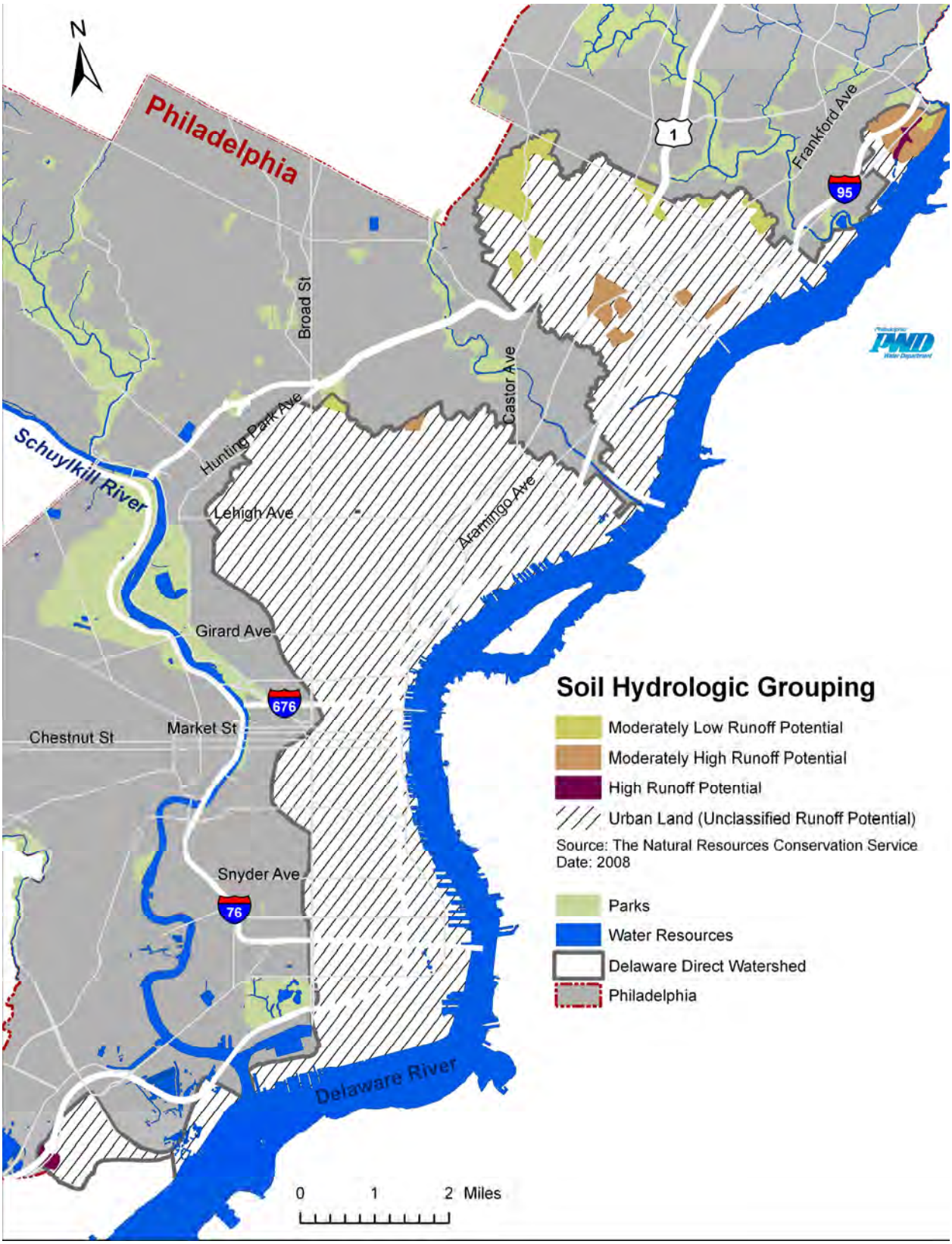

Figure 4.2 - Map depicting hydrologic soil groups in the Delaware Direct Watershed

The following points are examples of the composition of urban soils. In metropolitan areas, modification of the soil can vary, and these characteristics are defined by the United States Department of Agriculture (USDA) and the Natural Resources Conservation Service (NRCS) in their Urban Soils Primer document:

- Natural soil materials that have been moved around by humans
- Construction debris
- Materials dredged from waterways
- Coal ash
- Municipal solid waste
- A combination of any or all of the above

The USDA and NRCS have defined four hydrologic soil groups that are representative of the runoff potential. There are four categories of soil groups ranging from A to D, where Group A describes soils with very low potential for runoff and Group D contains soils with very high potential. The runoff potential is based on many hydraulic and hydrologic properties of fully saturated soils. Figure 4.3 outlines the hydrologic groups and depicts where extensive modification to the soils has not yet occurred. Urban soils do not fall under any of these hydrologic soil groups due to the uncertainty of the soil properties after alterations. Information regarding soil group definitions or characterization can be found in Part 630 Hydrology, Chapter 7 of the National Engineering Handbook.

4.1.b - Sinkholes

Sinkholes are formed by dissolution of underlying bedrock most commonly composed of limestone, salt or gypsum. Cavities of all sizes can form from natural processes and anthropogenic stresses such as groundwater pumping. Collapse occurs when the land can no longer support the overburdening stresses. Although sinkholes are a dangerous and common trend across the state of Pennsylvania, the local geology and soil characteristics of the Delaware Direct Watershed are at low to no risk of sinkholes. The United States Geological Survey has further information about sinkholes.

4.2 Critical Areas

As human impacts continue to alter the landscape, recognition of critical and hazardous areas become more and more important to the health and safety of the nation's watersheds. Sites for the disposal of human and industrial wastes may occupy small areas within a watershed, but the lasting effects can have numerous impacts depending on the type of facility, abundance of chemicals and the compliance to regulations.

It is important to emphasize that hazardous site information is updated and changed on a regular basis. To review the most recent information in a specific location, please refer to the EPA's Envirofacts website.

4.2.a - Landfills and Waste Sites

The Pennsylvania Department of Environmental Protection records show there are currently no municipal waste landfill facilities within the Delaware Direct Watershed.

The City of Philadelphia promotes, develops and implements litter reduction programs in an effort to increase public awareness of litter as a source of pollution. There are 500 solar-powered compaction litter receptacles in Center City, and more than 700 standard litter baskets in other commercial districts throughout the City. The Inlet Cleaning (IC) unit is responsible for the inspection and cleaning of more than 78,000 stormwater inlets within the entire City of Philadelphia. The unit is also responsible for retrieving and installing inlet covers, replacing missing covers, installing locking covers and clearing choked inlet traps and outlet pipes, as well as alleviating flooded streets due to open hydrants, broken water mains, rain storms and during major fires. As a resident, business owner or community member, please visit the What You Can Do section at PWD's Office of Watersheds website for more simple ways to protect our waterways.

The Philadelphia More Beautiful Committee, supported by the City of Philadelphia Department of Streets, promotes the empowerment of local neighborhoods to keep streets clean, healthy and safe. Support, awards and resources are provided for neighborhood partners and residents and can be found on the Philly Streets Department website. The Department of Streets also runs the Streets and Walkways Education and Enforcement Program (SWEEP) to educate citizens about the laws of compliance and the benefits of keeping a clean city, with a main focus on commercial areas. The Streets Department has also launched the UnLitter Us campaign to unite the people of Philadelphia to end the blight of litter and put trash where it belongs.

Effects of anthropogenic debris along the Delaware Riverfront

Citywide initiatives and programs can keep the riverfront clean and green

The Philadelphia Automotive Scrap Yard Compliance Task Force Initiative was created specifically to address numerous complaints about scrap metal and auto salvage businesses operating in communities. The collaborative initiative includes support from federal, state and local organizations, including the U.S. Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Protection (DEP). The task force conducts inspections, provides compliance and educational assistance and, where necessary, will support enforcement of noncompliance.

4.2.b - CERCLA/CERCLIS

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), frequently referred to as the Superfund Act, was enacted in 1980 to address abandoned hazardous waste sites. The United States EPA uses a national database called the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) to manage and track the activities and status of Superfund sites. The CERCLIS database is a non-enforced list of potential, known and archived areas of contamination.

Depending on the severity of contamination at a site, some projects may be added to the National Priority List (NPL) where federal funds would be set forth to remediate the area. The Superfund dollars are most commonly used on older sites where, due to the age of the contamination, the responsible party may be unknown. There are currently 148 sites on the CERCLIS list within the Delaware Direct Watershed. These sites vary with respect to their level of pollution and threat to the environment, with many of the sites only listed for investigation purposes and not due to public risk. Of the 148 sites, two are currently listed on the final NPL and one has been deleted from the final NPL. To reiterate, there may not be imminent pollution hazards associated with every location. Rather, there is potential for the EPA to further investigate the site and determine what future procedures, if any, the site may receive.

To view a complete table of the 148 listed sites located within the Delaware Direct Watershed, see Appendix C. The CERCLIS is updated approximately every three months and is publicly accessible on the EPA Envirofacts website.

4.2.c - Other Environmental Protection Databases

The Resource Conservation and Recovery Act (RCRA) was passed in 1976 to regulate and document the transportation, treatment and disposal of hazardous and non-hazardous waste. RCRA information, such as the CERCLIS database, tracks and reports the storage status and transportation locations of responsible parties and notifies the appropriate governmental entity if contamination to a site is found in association with any part of the waste cycle. The Delaware Direct Watershed contains many RCRA sites, as it is a hub for industrial, transportation and health services that handle a variety of waste products.

The Emergency Planning and Community Right to Know Act of 1986 (EPCRA) requires certain types of manufacturing facilities to submit annual reports of the chemicals released into the environment. The Toxic Release Inventory (TRI) program was

developed to provide a catalog of transported and released chemicals and make this information available to local communities. Businesses and landowners must provide documentation in the TRI database. In addition, all companies that come into contact with specified waste material (such as by storage or disposal) must report to the state and federal agencies.

Documentation for these programs is updated regularly at the state and federal levels. For local information regarding a specific area or site, refer to the EPA Envirofacts website for the most accurate data.

4.3 - Accidents and Spills

Spills and contamination events, accidental or intentional, pose a threat to the water quality of the Delaware River. Such catastrophic events can occur directly in the Delaware River or reach the water supply indirectly through a leak in a buried pipeline or car or truck accident. The most recent large spill occurred in 2004, when the single-hull tanker Athos I began leaking oil while docking. Approximately 263,000 gallons of oil were spilled into the Delaware River. This affected not only the Delaware, but also some upstream tributaries.

The Early Warning System (EWS) was established to notify drinking water utilities in the event of any change in the water quality of the Delaware River. To aid in the planning of emergency responses, the EWS is expanding to include catastrophes and terrorist attacks as well as industrial intakes and discharges into its system. Chapter 5 of this document provides more information about the water resources of the Delaware Direct Watershed.[1]

Additional information:
Geology of Pennsylvania
Sinkholes
Urban Soils Primer
EPA Envirofacts
SWEEP
Philadelphia More Beautiful
UnLitter Us

[1] Philadelphia Water Department, Delaware River Source Water Protection Plan, 2007

CHAPTER 5

WATER RESOURCES

Introduction

The Delaware Direct Watershed constitutes approximately 1% of a larger drainage area known as the Delaware River Basin, shown in Figure 5.1. It is important to keep this distinction in mind when discussing the water resources of the Delaware Direct Watershed. This relatively small urban drainage area is a piece of a much larger puzzle, and the quality of its water resources is influenced by conditions both upstream and across the river in New Jersey.

The Delaware River Basin

The Delaware River originates on the western slopes of New York's Catskill Mountains as two separate branches that meet at Point Mountain in Hancock, NY. From Point Mountain to the mouth of the Delaware Bay, the 330-mile Delaware River winds its way south along the interior of the Eastern coast of the United States (Figure 5.1). From Hancock, NY, the river flows southeast for 78 miles through rural regions along the New York-Pennsylvania border to Port Jervis in the Shawangunk (Catskill) Mountains. It then heads southwest along the border between Pennsylvania and New Jersey, through the Appalachian Mountains and the 42 miles of the Minisink Valley and the Delaware Water Gap in the Kittatinny Mountains (also known as Blue Mountain in Pennsylvania). Turning southeast again at Easton, PA, where it is met by the Lehigh River (its second largest tributary), the Delaware then flows approximately 80 miles to the tidal waters of Trenton, NJ. Approximately 30 miles downstream of Trenton, the river passes Philadelphia—the fifth-largest metropolitan region in the nation—and the mouth of the Schuylkill River, its largest tributary. The river continues past the city of Wilmington, DE, and widens and enters the Delaware Bay. With Cape May, NJ, on its eastern shore and Cape Henlopen, DE on the west, the river completes its course and empties into the Atlantic Ocean.[1]

The drainage area (or watershed) often referred to as the Delaware River Basin covers an area of more than 13,000 square miles and encompasses four states, 42 counties and 838 municipalities in the mid-Atlantic region of the country. More than 15 million people (approximately 5% of the nation's population) rely on the waters of the Delaware River Basin for drinking, agriculture and industrial use.[2] This River Conservation Plan focuses on the water resources of the Delaware Direct Watershed in Philadelphia. For more information on the entire Delaware River Basin, view the State of the Basin Report, published by the Delaware River Basin Commission (DRBC).

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[1] DELAWARE RIVER BASIN COMMISSION, STATE OF THE DELAWARE RIVER BASIN REPORT, 2008

[2] DELAWARE RIVER BASIN COMMISSION, BASIN FACTS, 5 FEB. 2011<HTTP://WWW.STATE.NJ.US/DRBC/THEDRB.HTM

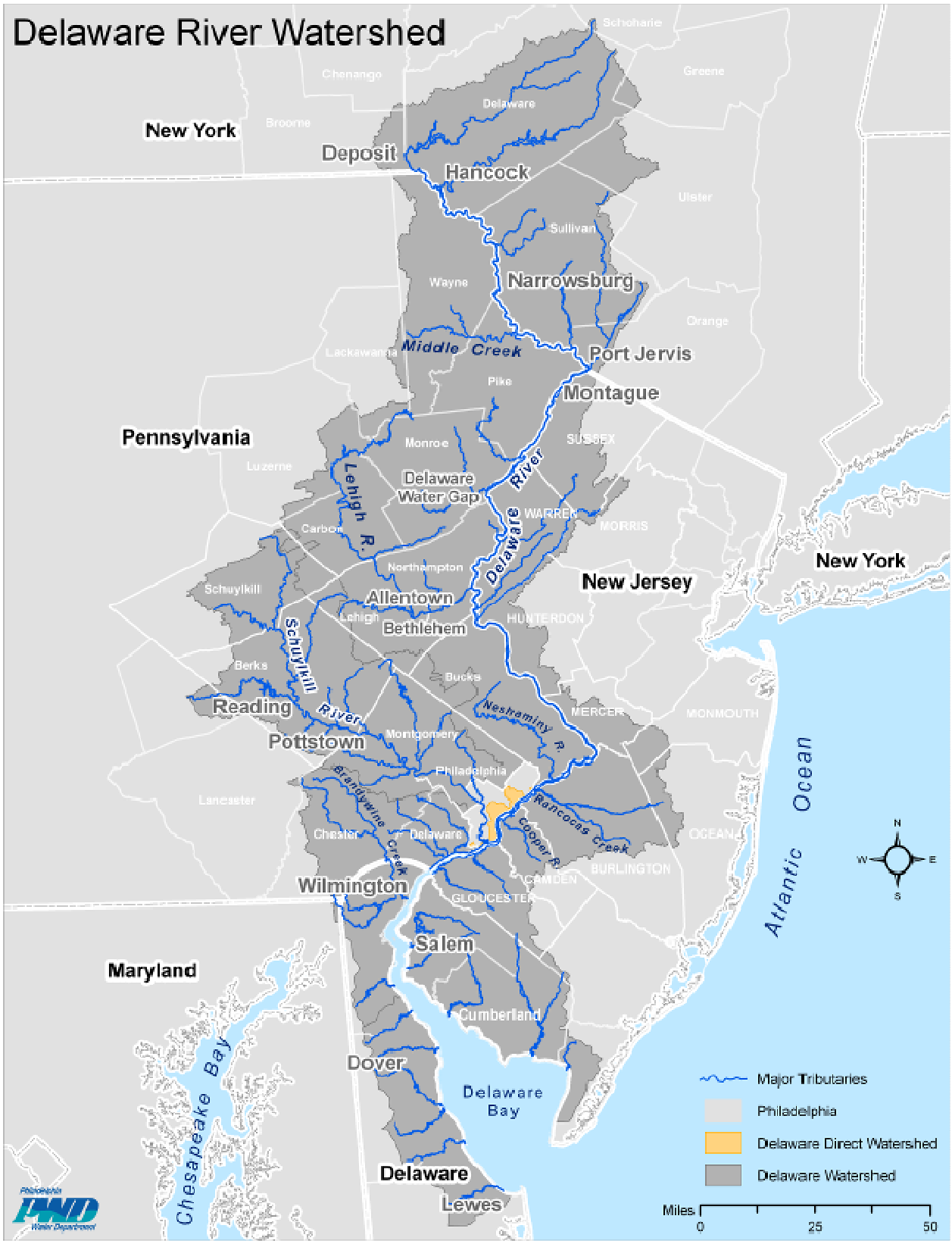

Figure 5.1: The Delaware Direct Watershed within the Delaware River Basin

5.1 – Tributaries

The water resources in the Delaware Direct Watershed have undergone significant transformation from their original, natural state. Urbanization from settlement to development and redevelopment has created a man-made drainage area. An area that was once covered by free-flowing streams, open spaces and tidal marshlands is now a densely populated and paved city atop a network of engineered sewers. This urbanization process eliminated most of the naturally occurring freshwater lakes, ponds, wetlands and tributary streams to the Delaware River within the City of Philadelphia. For more information on wetlands and an update on the life they support in the Delaware Direct Watershed, refer to Chapter 6.

Tributaries
Due to Philadelphia's development over the last 200 years, many of the Delaware River's original tributaries—smaller streams and creeks that fed into the Delaware—were forced underground and became part of the current sewer system. This endeavor took decades to complete, even for small streams. According to historic maps and PWD data, the direct drainage to the Delaware River prior to urbanization included an estimated 67 linear miles of tributaries.

PWD studies historical records, maps and other archival material to better understand the natural hydrology of Philadelphia's past and plan for its future. These efforts have resulted in the ongoing development of a Geographic Information System (GIS) map of these original tributaries. Figure 5-2 approximates the locations of the historic streams in Philadelphia. More information about the historic tributaries of Philadelphia can be found in Chapter 7 of this document and online at phillyh2o.org.

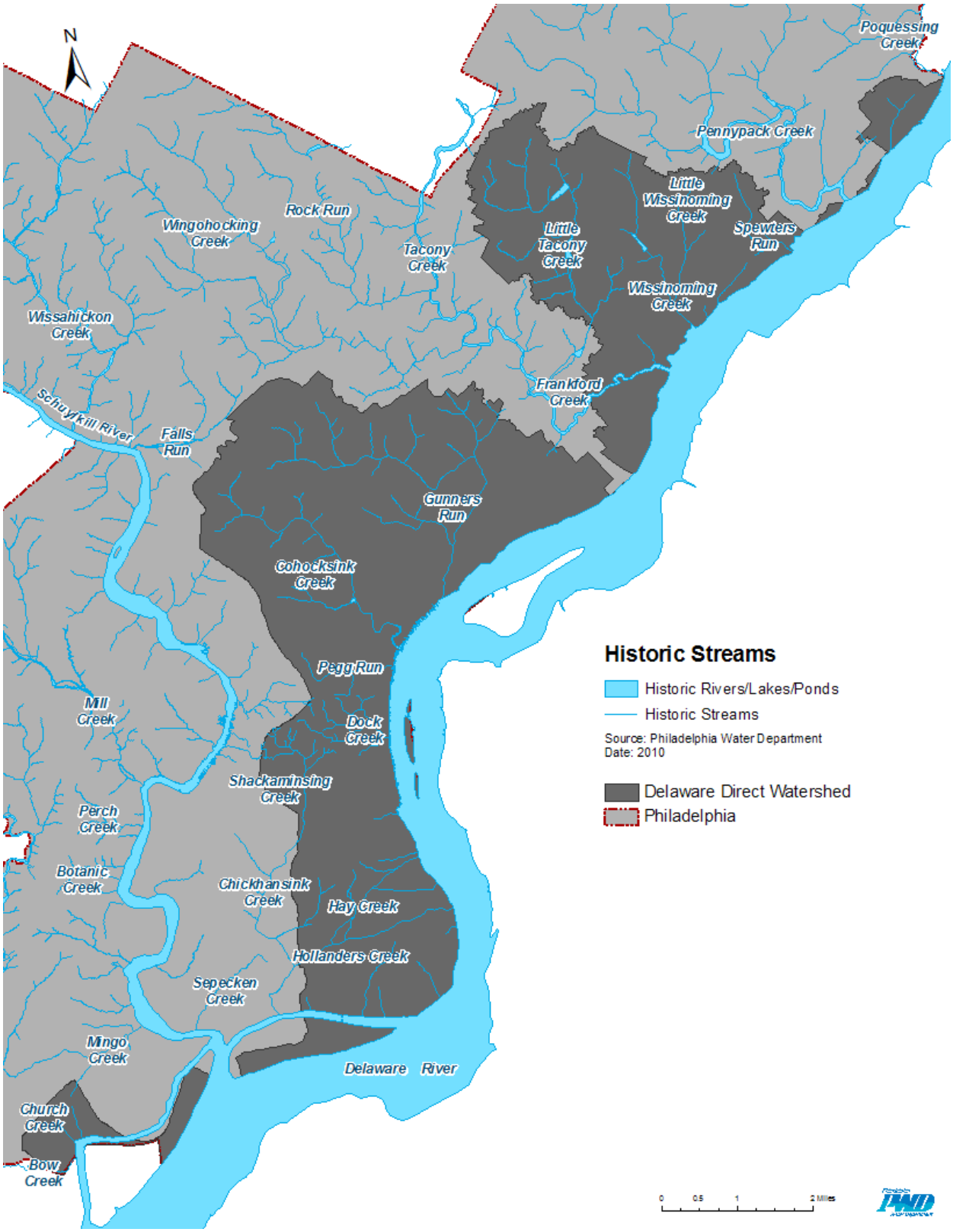

Figure 5.2 - Historic Streams in the Delaware Direct Watershed

Water Quality Management

The objective of the Clean Water Act (CWA) is to "restore and maintain the physical chemical and biological integrity of the Nation's waters."(CWA ref). Some parts of the Clean Water Act are carried out not by the Federal government, but by individual states and authorized tribes, territories and interstate water management agencies. Two of the most important functions are assessing waters to see whether they are healthy (Section 305[b]) and listing waters that appear to be impaired (Section 303[d]).
Because the Delaware River and its tributaries constitute an interstate waterway (passing through New York, Pennsylvania, New Jersey and Delaware), its water quality is not regulated by any individual state authority. Rather, water quality is managed specifically for the Delaware Estuary (i.e., the tidal portion of the river, which stretches from the mouth of the Delaware Bay to Trenton) by the Delaware River Basin Commission (DRBC).

The DRBC has established Interstate water management zones and accompanying designated uses for each segment of the river. These designated uses are categories of ways in which the Delaware River is used by or provides value to people, such as support of aquatic life, recreation, public water supply and fish consumption. Water quality standards are developed to provide appropriate water quality conditions to meet uses occurring in (or desired for) the zone. DRBC interstate water management zones thus have different water quality standards.[3] For example, it would be inappropriate to have water quality standards intended to support Public Water Supply use in saline zones, or temperature criteria protective of trout and other cold water fish in warmwater areas. Designated uses for the Delaware Direct watershed, which is located in DRBC interstate zone 3, tend to be less stringent than other zones, recognizing the long history of urban water pollution in this area. For more information on water quality in the Delaware River, refer to the DRBC State of the Basin Report and Partnership for the Delaware Estuary State of the Estuary Report.

The DRBC assesses the Delaware River every two years, utilizing "boat run" water quality sampling data collected approximately monthly at several stations along the river as well as continuous monitoring equipment at selected USGS gaging stations. Results of the assessment are reported to the US EPA in a water quality assessment report. Zone 3, encompassing the Delaware Direct watershed, was listed in the most recent 2010 assessment as not meeting its designated use for aquatic life due to violations of dissolved oxygen (DO), pH, alkalinity and temperature water quality standards. This listing occurred due to DRBC's interpretation of current US EPA policy (one observed violation and one confirmation) and marked a change from the 2008 assessment where a less stringent method of interpreting the standard was used and zone 3 was listed as supporting aquatic life use.[4]Zone 3 was also listed as not meeting its designated use for fish consumption due to the presence of elevated levels of polychlorinated biphenyls (PCBs, a class of persistent organic toxic chemicals once used widely in industrial applications such as transformers). More information is available in the DRBC 2010 Delaware River and Bay Integrated List Water Quality Assessment

[3] DELAWARE RIVER BASIN COMMISSION, ADMINISTRATIVE MANUAL - PART III: WATER QUALITY REGULATIONS, 20
[4] DELAWARE RIVER BASIN COMMISSION, 2010 DELAWARE RIVER AND BAY INTEGRATED LIST, 2010

5.2 – Floodplains & Localized Flooding

Floodplains are lands adjacent to a stream or river subject to natural flooding. Only a small area of the Delaware Direct Watershed lies within the 100- and 500-year floodplains—that is, the land expected to be flooded once every 100 or 500 years. Although the riverfront areas are at low elevations, there is little to no reported occurrences of the Delaware River overflowing its banks. The highly developed shoreline includes bulkheads and other man-made structures to protect the City from flooding. Figure 5.3 depicts FEMA flood zones in the Delaware Direct Watershed.

The Philadelphia region, like other areas in the Delaware River Basin, has recently experienced storms of great intensity at great frequencies. Certain neighborhoods within the Delaware Direct Watershed have experienced localized flooding as a result of the sewer system lacking the capacity to drain stormwater runoff from intense, proximate rainfall events. These neighborhoods include Northern Liberties, Washington Square West and areas of South Philadelphia. PWD has initiated a large-scale storm flood relief project to reduce property damage from flooding and basement backups. PWD's efforts include work on multiple fronts—from continuous sewer inspection and maintenance to better stormwater management—to understand the causes of flooding and implement tools to alleviate damage to flood-prone properties.

The Philadelphia Water Department (PWD) has agreed to assist water customers with flooding conditions in basements due to heavy rainstorms through the Basement Protection Program (BPP). The eligibility guidelines and application materials for this optional program are available by calling 215-685-6069. A program information sheet can be downloaded from http://www.phila.gov/water/pdfs/BPP_info_flyer.pdf

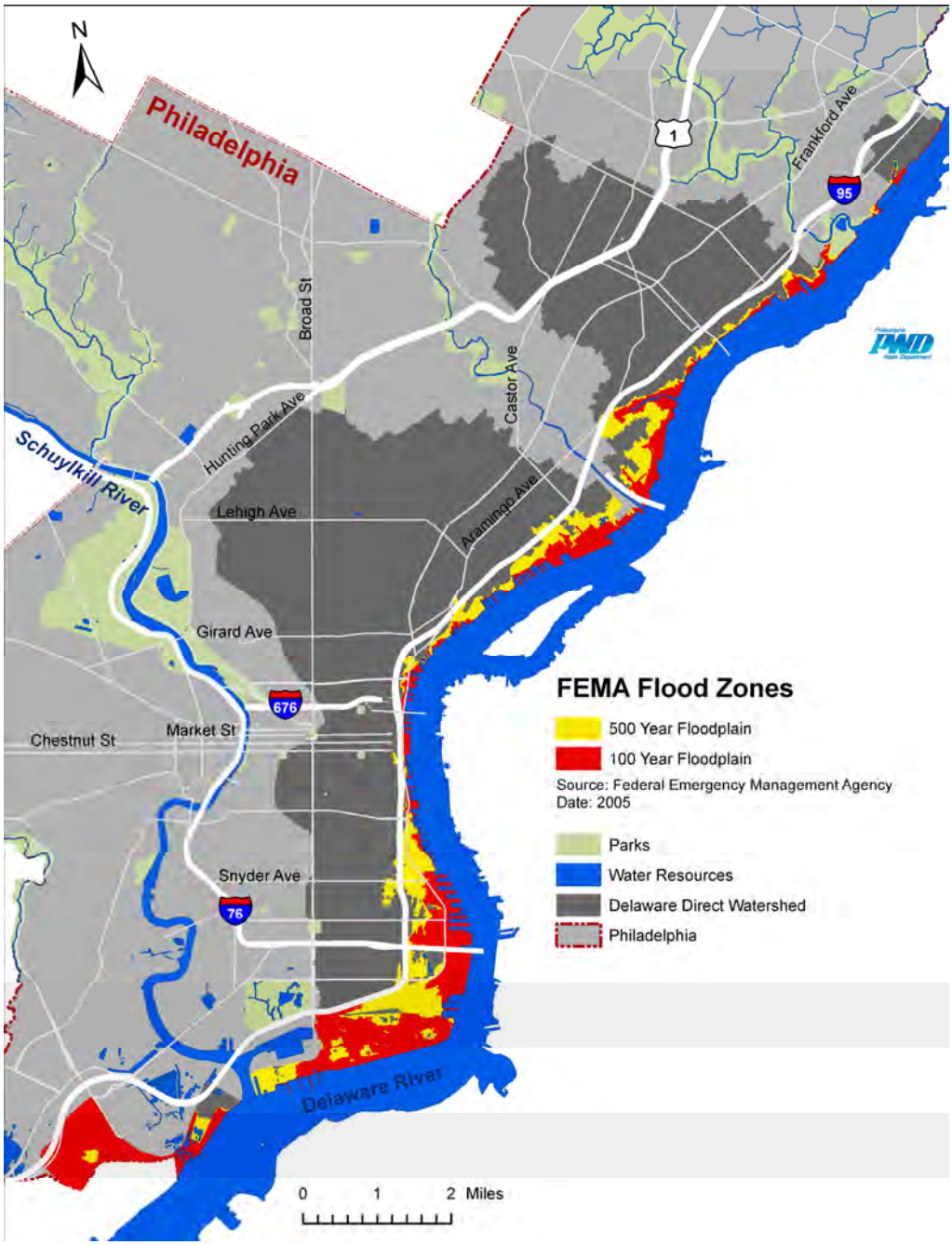

Figure 5.3: FEMA Flood Zones in the Delaware Direct Watershed

5.3 – Water Quality

Rivers, lakes and oceans are not sterile bodies of water. Not only do they contain naturally occurring organisms and bacteria, they can also be contaminated by outside sources. Water quality in a river is affected by many factors, including weather, climate, industrial and sewage discharges, and accidental spills. The hydrologic impacts from the conversion over time of Philadelphia's landscape from woodlands and marshes to a

densely populated impervious urban area coupled with the alteration of surface tributary streams to sewer drainage pipes present other layers of factors affecting water quality.

Philadelphia's Sewer System

THE PHILADELPHIA WATER DEPARTMENT HAS THE DISTINCTION AS THE OLDEST MUNICIPAL W DEPARTMENT IN THE UNITED STATES. ITS MASSIVE SEWER SYSTEM NETWORK INCLUDES 1,600 MI OF COMBINED SEWERS, 1,200 MILES OF SEPARATE SANITARY AND STORM SEWER LINES, 150 MIL INTERCEPTING SEWERS, 169 COMBINED SEWER REGULATING CHAMBERS, 85,600 MANHOLES, AND 75,000 STORMWATER INLETS. DEVELOPMENT OF THIS EXTENSIVE INFRASTRUCTURE SYSTEM OCC OVER AN ENTIRE CENTURY AND SIGNIFICANTLY CONTRIBUTED TO THE DEVELOPMENT PATTERNS O CITY.

DURING THE COLONIAL ERA, STORMWATER WAS MANAGED SIMPLY THROUGH NATURAL RUN NEAREST STREAM. THE CITY'S FIRST SEWERS, BUILT AROUND 1740, WERE CONSTRUCTED TO CO ONLY STORMWATER. HUMAN WASTE WAS COLLECTED IN PRIVY WELLS AND MOST COMMERCI WERE SIMPLY DUMPED DIRECTLY INTO AN ADJACENT STREAM. AFTER THE CITY BEGAN TO SUP WATER TO CITIZENS IN 1801, FIXTURES SUCH AS BATHTUBS AND WATER CLOSETS CAME INTO V AND THE WASTEWATER PRODUCED BY EACH HOUSEHOLD GREATLY INCREASED.

IN THE EARLY 1860S BOTH HUMAN AND COMMERCIAL WASTES WERE ALLOWED INTO THE CITY' SEWERS ALONG WITH STORMWATER, CREATING THE "COMBINED SEWERS" STILL UTILIZED IN M PHILADELPHIA. SEWERS AT THAT TIME SIMPLY EMPTIED INTO THE NEAREST STREAM OR RIVER OF WHICH BECAME OPEN SEWERS THEMSELVES. BY THE SECOND HALF OF THE 19TH CENTURY, A EPIDEMICS SUCH AS TYPHOID FEVER KILLED THOUSANDS, PROVIDING PROPER SEWAGE DISPOS STORMWATER MANAGEMENT BECAME A SUBJECT OF GREAT CONCERN. THEREFORE, WHEN CITY ENGINEERS DREW UP PRELIMINARY DRAINAGE MAPS IN THE 1880S, MANY OF THE CITY'S SMALLE STREAMS WERE PLANNED FOR CONVERSION INTO SEWERS, OFTEN IN ADVANCE OF DEVELOPMENT (LEVINE, 2002).

THE PRACTICE OF CULVERTING STREAMS WAS UNDERTAKEN FOR A NUMBER OF REASONS. FIRS STANDARD SEWAGE DISPOSAL DIRECTED BRANCH SEWERS TO STREAMS. THEREFORE, CULVER STREAMS WAS VIEWED AS A POSITIVE STEP TOWARD PROTECTING PUBLIC HEALTH. SECOND, R RELYING ON GRAVITY FLOW WAS THE SIMPLEST AND CHEAPEST APPROACH TO SEWAGE AND STORMWATER DISPOSAL, PLACING SEWERS IN THE NATURAL STREAM VALLEYS AFFORDED ENO GRAVITY FLOW THEY NEEDED WHILE MINIMIZING THE NEED FOR EXTENSIVE EXCAVATION. THIRD, CULVERTING STREAMS AND FILLING IN THE STREAM VALLEYS FACILITATED REAL ESTATE DEVEL REDUCED OTHER CITY OBLIGATIONS. FOR INSTANCE, THE COST OF BUILDING A BRIDGE AT EA CROSSING WAS AVOIDED AND THE REGULAR GRID PATTERN THAT FACILITATED LAND SUBDIV EASILY EXTENDED ACROSS THE CITY (LEVINE, 2002).

AFTER THE COMMONWEALTH OF PENNSYLVANIA PASSED A LAW PROHIBITING MUNICIPALITIES BUILDING NEW SEWERS THAT WOULD DISCHARGE UNTREATED SEWAGE DIRECTLY INTO STREA PHILADELPHIA PUBLISHED A COMPREHENSIVE REPORT IN 1914 DETAILING PLANNED IMPROVEM TO SEWAGE COLLECTION AND TREATMENT. THE PLAN CALLED FOR MILES OF INTERCEPTING SE DESIGNED TO KEEP SEWAGE OUT OF THE RIVERS AND CARRY IT TO THREE PROPOSED TREATMEN

HOWEVER, THIS EXTENSIVE SYSTEM TOOK OVER 50 YEARS TO COMPLETE. TODAY'S SYSTEM, WITH MANY UPGRADES AND ADDITIONS, STILL CONFORMS TO THE OUTLINES OF THE 1914 PLAN.

THE INTERCEPTOR SEWERS AND SEWAGE TREATMENT PLANTS WERE NOT BUILT TO HANDLE THE SIGNIFICANTLY INCREASED VOLUMES DURING MAJOR STORMS BUT INSTEAD WERE DESIGNED TO OVERFLOW INTO RIVERS AND STREAMS TO PREVENT STREET AND BASEMENT FLOODING, AND EVE A COMBINED SEWER OVERFLOW (CSO). INDEED, BUILDING AN INFRASTRUCTURE THAT COULD AND TREAT THE TOTAL AMOUNT OF STORMWATER THAT RUSHES INTO COMBINED SEWERS DU STORM WOULD HAVE BEEN (AND STILL REMAINS) COST PROHIBITIVE. COMBINED SEWER SYSTEM OVERFLOWS ARE NOT UNIQUE TO PHILADELPHIA AND ARE IN FACT COMMON IN MANY OLDER C ACROSS THE COUNTRY.

TODAY, THE Delaware Direct Watershed is home to more than a half-million people, and 68% of the area is covered by impervious surfaces causing significant amounts of stormwater runoff. These factors exacerbate the problem of CSOs. More than 80% of the land in the Delaware Direct Watershed drains to a combined sewer system, with just a small portion of land directly draining to the river itself, either through overland flow or separate storm sewers.

Separate sewer systems contain two different pipes for stormwater and sanitary sewage. Wastewater from homes, businesses, and industry is transported directly to treatment plants. The stormwater sewer pipe carries water collected from street inlets, building downspouts, and other storm sewer lines to the receiving river and is discharged through a stormwater outfall. Figure 5.4 shows the types of sewers and CSO outfalls in the study area.

WHILE WATER QUALITY IN THE CITY'S RIVERS AND STREAMS HAS VASTLY IMPROVED OVER THE THIRTY YEARS DUE TO CLEAN WATER ACT REGULATIONS ON "POINT SOURCES" OF POLLUTION, PHILADELPHIA'S WATERWAYS STILL DO NOT MEET DESIGNATED USE STANDARDS. TODAY, TH SIGNIFICANT REMAINING IMPACTS TO THE HEALTH OF THE CITY'S RIVERS AND STREAMS RESUL STORMWATER RUNOFF, OR "NON-POINT SOURCE POLLUTION," AND COMBINED SEWER OVERFLO

Point and Non-Point Sources of Water Pollution

Point sources, defined as pollution released directly into waterways, can bring both industrial and municipal waste to the Delaware River. Common point source pollution creators include industrial factories, storage tank leaks, boats, combined sewer overflows and commercial animal farms.

Unlike pollution from industry, CSOs and sewage treatment plants, non-point source pollution (NPS) comes from many different sources. Non-point source pollution includes stormwater runoff from urban, suburban, and agricultural areas. STORMWATER RUNOFF BECOMES POLLUTED AS IT FLOWS ACROSS THE LANDSCAPE, PICKING UP CONTAMINA AS SEDIMENT, NUTRIENTS FROM FERTILIZERS, CHEMICALS FROM PESTICIDES, HERBICIDES, BAC METALS, gasoline, and motor oil.

DISCHARGES FROM BOTH COMBINED AND SEPARATE SEWERS NOT ONLY CONTAMINATE OUR WATERWAYS, MAKING IT UNSAFE AND DIFFICULT TO RECREATE ALONGSIDE THE CREEKS, BUT T

AND THE INTENSITY OF THE STORMWATER WREAKS HAVOC ON THE WATERWAYS THEMSELVES - STREAMS TO FLOOD, BANKS TO ERODE, AND FISH AND INSECT COMMUNITIES TO BE DISPLACED

The volume of stormwater increases as a watershed becomes more populated and developed. The water quality threat from stormwater creates a need for stormwater best management practices and more sustainable land development practices, such as low-impact development, that help mitigate the negative impacts of development.

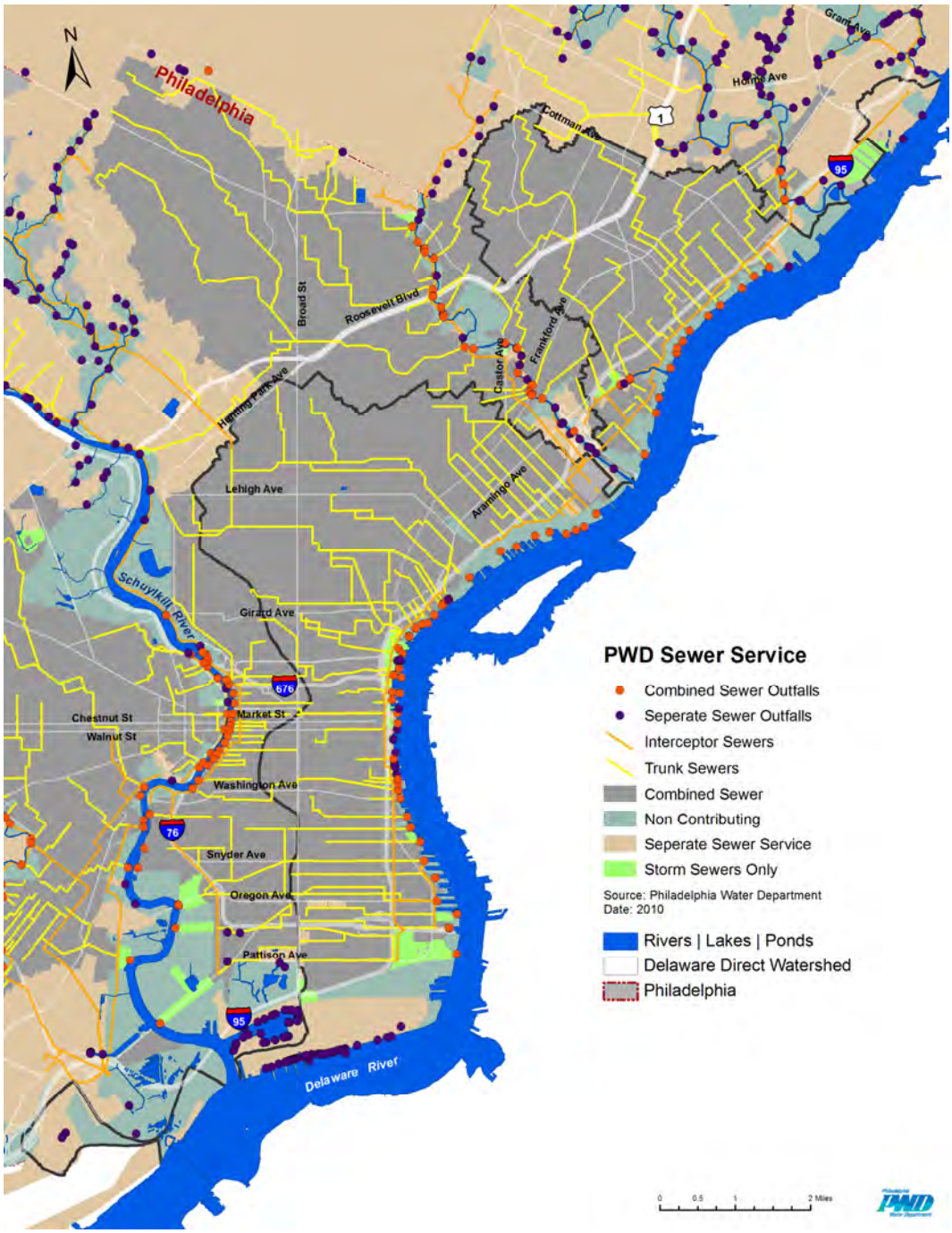

Figure 5.4 - CSO Outfalls in the Delaware Direct Watershed

Combined Sewer Overflow Long-Term Control Plan

There are 54 outfalls where CSOs can occur along the Philadelphia side of the Delaware River. Philadelphia's Combined Sewer Overflow Public Notification System, otherwise known as CSOcast, is an online tool to alert the public of possible overflows from Philadelphia's combined sewer system. For details on the CSO Long Term Control Plan Update in relation to the Delaware River and other receiving waterways, please refer to Philadelphia's CSO Long Term Control Plan Update (Green City, Clean Waters).

While there are large demands on the combined sewer system, there are also great opportunities for positive transformation. Philadelphia's approach to attainment and maintenance of the designated and beneficial uses of these waters is guided by planning, developing and implementing technically viable, cost-effective improvements and operational changes. To this end, PWD is investing in necessary capital projects to increase the system's ability to store and treat combined sewer and stormwater flows.

CONVENTIONAL APPROACHES TO REDUCING COMBINED SEWER OVERFLOWS RELY ON UNDERGRO INFRASTRUCTURE INVESTMENTS TO DETAIN THE EXCESS VOLUME OF SEWAGE COMBINED WITH STORMWATER AND PUMP IT BACK INTO THE SEWER NETWORK WHEN TREATMENT CAPACITY IS AFTER THE RAIN EVENT. GUIDED BY "GREEN CITY, CLEAN WATERS," PHILADELPHIA has adopted a comprehensive watershed restoration approach that promotes control of stormwater at the source through low-impact development and green stormwater infrastructure practices on the land. GREEN STORMWATER INFRASTRUCTURE INCLUDES A RANGE OF SOIL-WATE PLANT SYSTEMS THAT MIMIC NATURE BY INTERCEPTING STORMWATER, INFILTRATING A PORT INTO THE GROUND, EVAPORATING A PORTION OF IT INTO THE AIR, AND IN SOME CASES RELEASI PORTION OF IT SLOWLY BACK INTO THE SEWER SYSTEM. Comprehensive and long-term implementation of these stormwater practices will be achieved through three primary mechanisms:

- Stormwater regulations on development activities
- Customer stormwater billing and crediting, primarily based on the amount of unmanaged impervious surface
- City-led investments in green stormwater infrastructure projects

These green infrastructure investments will be coupled with strategic investments in the existing conventional infrastructure system, such as upgrades and expansions at the waste water treatment plants.

Water Resource Monitoring Program

The Philadelphia Water Department and the United States Geological Survey (USGS) have been working cooperatively on PWD's Water Resource Monitoring Program to continuously monitor all of the watersheds in the Philadelphia area. The measurements in the monitoring program include: water temperature, pH, dissolved oxygen and conductance for the one Delaware River station near the Benjamin Franklin Bridge. Color-coding of each parameter allows for an easy reading of water quality. Up-to-date measurements can be found online at Philadelphia Water Resources Monitoring Program.

As discussed above, the Delaware Direct represents only 1% of the entire Delaware River Basin, and there is the potential for other sources of pollution to enter into the large watershed upstream of Philadelphia. PWD analyzes data obtained from other agencies' monitoring efforts to better understand and study water quality in the river.

5.4 – Water Supply

Public Drinking Water Sources

The Delaware River is an important water supply for the City of Philadelphia. All drinking water in Philadelphia is withdrawn by the Philadelphia Water Department (PWD) from surface water sources located on the Delaware and Schuylkill Rivers. PWD services the entire City of Philadelphia and a small portion of the surrounding municipalities with approximately 250 million gallons of drinking water on a daily basis, with the Delaware contributing about one-half of the water supply. PWD's Baxter drinking water treatment plant is located on the Delaware River, in the Torresdale neighborhood of Philadelphia.

Source Water Protection Program

Although a dramatic improvement in water quality has been achieved for the City's two major rivers since the passage of the federal Clean Water Act in the early 1970s, more work remains in order to protect drinking water sources from pollution. PWD'S Source Water Protection Program EMBODIES THE DEPARTMENT'S MULTI-BARRIER APPROACH TO ENSURI THE SAFETY AND QUALITY OF PHILADELPHIA'S DRINKING WATER. THE SOURCE WATER PROTEC PROGRAM STAFF WORKS CLOSELY WITH THE DEPARTMENT'S TREATMENT PLANT MANAGERS A OPERATORS TO ANTICIPATE AND RESPOND TO EMERGENCIES AND CHALLENGES TO CONVENTIONA TREATMENT TECHNIQUES. The program has developed a thorough understanding of the City's water supply characteristics, including ambient water quality conditions, major sources of actual and potential contamination, water availability, flow patterns and management practices in the upstream areas of the Delaware River Basin.

The success of the Source Water Protection Program's organized and comprehensive approach is evident in the integrity of the Delaware and Schuylkill Rivers as drinking water supplies. In order for the program to continue to meet its high standards, PWD employs a wide range of tools, including research projects, regional partnerships, outreach and education, advanced technologies, and on-the-ground implementation and monitoring to achieve source water goals.

Completed in 2002, the Delaware Source Water Assessment was created in response to the 1996 Safe Drinking Water Act Amendments, which called for the assessment of all source water supplies across the United States to identify potential sources of contamination. PWD, along with its project partners, conducted a watershed-based, multi-phase assessment that identified and prioritized potential and existing sources of contamination and evaluated the vulnerability of the water supply to these contaminant sources. The Source Water Protection Plan establishes a set of priority actions to address

threats to the water supply identified during the assessment phase. The plans' recommended action items are based on a holistic watershed approach that recognizes the interconnectedness between source water protection concerns, upstream land and water use, and the need to maintain a healthy aquatic ecosystem. New research, technologies, analysis and assessment methods are important tools in protecting the drinking water quality.

The Source Water Assessments and Protection Plans are fundamental elements of PWD's Source Water Protection Program. However, the program encompasses a much wider range of projects related to research, on-the-ground implementation, partnership workgroups and in-city initiatives. Since its inception, the Source Water Protection Program has implemented numerous local and watershed-wide BMPs, developed partnerships to address regional water quality and quantity concerns, created an advanced water quality early warning system to support drinking water treatment operations along with an associated system for recreational water quality advisories, and conducted research, monitoring and analyses for a broad range of issues related to drinking water treatment support and regulatory compliance. PWD's partnerships have proved imperative to implementation of source water protection projects that are located beyond Philadelphia's jurisdictional boundaries.

Marcellus Shale Natural Gas Drilling

Natural gas drilling—because it is a new technology in the Delaware River Basin with still evolving regulations around all aspects of water quality protection—has the full attention of the Philadelphia Water Department (PWD). At this point in time, PWD believes that the current regulatory framework, if enforced, is adequate to protect our water supply from immediate threats. PWD is watching, monitoring and evaluating upstream activities. If something appears to be imminently dangerous to our water supply, alarms will be raised.

The long-term impacts from drilling on the water quality of the Delaware Basin are not well understood. In particular, the impacts of wastewater discharge on drinking water quality—even under the improved regulations under the state's wastewater treatment requirements—are not known. With this in mind, PWD has communicated and is in continual discussion with the Environmental Protection Agency (EPA), the PA Department of Environmental Protection (PADEP), and the Delaware River Basin Commission (DRBC) concerning water supply concerns relating to Marcellus Shale drilling. PWD has shared with its regulating partners that it expects complete respect by the natural gas industry of current and future regulations designed to protect our water resources and public health.

CHAPTER 6

BIOLOGICAL RESOURCES

Introduction

The Delaware Direct Watershed is part of the Upper Estuary of the Delaware River, a tidal zone with free-flowing waters south of Trenton and north of the Delaware Bay. The Upper Estuary is characterized by intertidal wetlands fed by freshwater streams and is part of a larger ecosystem that provides habitat for both transient and resident species. The river is a stop in the Atlantic flyway for migratory birds, as well as a thoroughfare for anadromous fish (fish that move from salt water to fresh water to reproduce).

The Delaware River has been heavily altered from pre-European settlement in the 17th century, with only a few remaining ecological communities. Early development activities such as deforestation, dredging, shoreline hardening and filling have contributed to decreased water quality, diminished habitat for terrestrial and aquatic species, and overall reductions or extirpation of commercial fisheries within the region. At the time of colonization, Philadelphia contained 10 to 20 square miles of tidal marshland, primarily located along the Schuylkill and Delaware rivers.[1] This area has been transformed and is now populated by industrial complexes, public works and the Philadelphia International Airport. These alterations have severely affected the aquatic ecosystems that depend on the tidal marsh. The tidal marsh filters water, contains floodwaters and provides habitat for hundreds of species of birds, mammals, fish and reptiles along with an untold number of plants, insects and other invertebrates. The only remaining large contiguous tract—a 200-acre (<⅓ square mile) remnant of tidal marsh—can be found within the John Heinz National Wildlife Refuge at Tinicum. This is also one of the only federally owned wetland parcels in Pennsylvania.

Although Philadelphia has one of the most developed waterfronts in the state, it contains a number of species that are confined to the tidal reaches of the Delaware River. Many of these plant species, such as Subulate arrowhead (Sagittaria sublata), Spatterdock (Nuphar polysepala), Arrow Arum (Peltandra virginica), Pickerel weed (Pontaderia cordata), and Multiflowered mud-plantain (Heteranthera multiflora), are only found in tidal mudflats. Mudflats are areas of fine silt that occur in tidal areas. These intertidal areas are typically exposed during low tide but are covered with water during high tide.

[1] Pennsylvania Natural Heritage Program, A Natural Heritage Inventory of Philadelphia County, Pennsylvania, 2008

6.1 – Wildlife

6.1.a - Terrestrial Wildlife

Mammals

The urbanization of Philadelphia has caused the disappearance of many mammalian species such as the Eastern cougar (Puma concolor couguar), the Grey wolf (Canis lupus), the Harp seal (Pagophilus groenlandicus) and the Harbor seal (Phoca vitulina). Philadelphia has several other mammals that reside in the City. These species are a reminder of the diversity of wildlife that used to exist in Philadelphia. White-tailed deer (Odocoileus virginianus), Red fox (Vulpes vulpes), Opossum (Didelphis virginiana), Raccoon (Pryocon lotor), North American beaver (Castor canadensi), Grey squirrel (Sciurus carolinensis), and the Chipmunk (Tamias striatus) are all seen in Philadelphia. Squirrels, mice, chipmunks and birds serve as seed dispersers, moving seeds away from the competition of the parent plant by either eating the fruit or otherwise carrying the seed to another location. By doing this, they increase biodiversity in areas they frequent. Surprisingly, bats also have a presence in the City. They feed on insects over bodies of water, such as the Delaware River, at night. The Little brown bat (Myotis lucifugus) and Eastern pipistrelle (Pipistrellus subflavus) are found in the City but travel in the winter to the suburbs in order to hibernate in caves. Some species have been introduced to life in the City, such as feral cats and dogs. When they are released from human care, these domesticated pets can be destructive to wildlife and also have been known to outcompete native species from certain areas. The Norway rat (Rattus norvegicus) was also introduced into this area. [2]

Birds

Philadelphia's location within the Atlantic Flyway makes it an important potential habitat for migratory birds to over-winter, breed and rest. Human encroachment into marshland habitats has caused diminished mating and resting grounds in the greater Philadelphia region. Many of the indigenous species found in Tinicum Marsh have been listed on the State's rare, threatened or endangered list. Thousands of other birds use Tinicum as a resting area during migration in the spring and fall. Other common birds are more readily adapted to urban settings where there are many places to nest, hide and feed. Many gull species found in the open water of the Delaware Bay or in the Atlantic Ocean travel up the shoreline to Philadelphia. Here, they will feed, mature and rest before returning to the open waters.[3] For more information on recent bird sightings as well as a complete list of observed birds, visit John Heinz National Wildlife Refuge on the web.

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[2] NHI, 2008

[3] NHI, 2008

Table 6.1- Terrestrial Wildlife Species of Concern

Scientific Name	Common Name	Status
Ardea herodias	Great Blue Heron	Secure G
Asio flammeus	Short-eared Owl	Secure G, Endangered S P
Atrytonopsis hianna	Dusted Skipper	Imperiled R
Botaurus lentiginosus	American Bittern	Apparently Secure G, Endangered S P
Callophrys gryneus	Juniper Hairstreak	Secure G, Vulnerable R
Casmerodius albus	Great Egret	Secure G, Endangered S P
Celithemis eponina	Halloween Pennant	Secure G
Circus cyaneus	Northern Harrier	Secure G
Cistothorus palustris	Marsh Wren	Secure G
Datana ranaeceps	A Hand-maid Moth	Critically Imperiled R
Enallagma durum	Big Bluet	Secure G, Vulnerable R
Euphyes conspicuus	Black Dash	Apparently Secure G, Vulnerable R
Falco peregrinus	Peregrine Falcon	Apparently Secure G, Endangered S P
Glyptemys muhlenbergii	Bog Turtle	Vulnerable G, Imperiled R, Endangered S P, Threatened F
Gomphaeschna antilope	Taper-tailed Darner	Apparently Secure G, Historical R
Haliaeetus leucocephalus	Bald Eagle	Secure G, Threatened S P
Hemileuca maia	Barrens Buckmoth	Secure G
Hesperia metea	Cobweb Skipper	Imperiled R
Ixobrychus exilis	Least Bittern	Secure G, Endangered S P
Kinosternon subrubrum	Eastern Mud Turtle	Secure G, Critically Imperiled R, Extirpated P
Lasionycteris noctivagans	Silver-haired Bat	Secure G
Libellula incesta	Slaty Skimmer	Secure G
Libellula needhami	Needham's Skimmer	Secure G, Historical R
Lycaena hyllus	Bronze Copper	Secure G, Vulnerable R
Nastra lherminier	Swarthy Skipper	Secure G, Vulnerable R
Nicrophorus americanus	American Burying Beetle	Historical R, Endangered F
Nycticorax nycticorax	Black-crowned Night-heron	Secure G, Endangered S P
Pandion haliaetus	Osprey	Secure G, Threatened S P
Papilio cresphontes	Giant Swallowtail	Secure G, Imperiled R
Phoca vitulina	Harbor Seal	Secure G
Podilymbus podiceps	Pied-billed Grebe	Secure G
Pseudemys rubriventris	Redbelly Turtle	Secure G, Threatened S
Rana sphenocephala	Coastal Plain Leopard Frog	Secure G, Critically Imperiled R, Endangered S P
Satyrium titus	Coral Hairstreak	Secure G, Vulnerable R
Speyeria idalia	Regal Fritillary	Vulnerable G, Critically Imperiled R
Stylurus plagiatus	Russet-tipped Clubtail	Secure G, Critically Imperiled R
Tyto alba	Barn Owl	Secure G

G: Global status R: State Rank S: State Status P: State Proposed Status F: Federal Status
(For clarifications on statuses see Table 6.2)
Source: Pennsylvania Natural Heritage Program

Table 6.2- Concern Species Levels

Term	Definition
Secure	Common; at least 10,000 individuals with 100 occurrences
Apparently Secure	Uncommon; around 10,000 individuals with 100 occurrences
Vulnerable	Rare in Range or only found in restricted range; 3,000-10,000 individuals with 21-100 occurrences; In danger of population decline due to human influences (removal, habitat destruction)
Imperiled	Rare; 1,000-3,000 individuals or 2,000-10,000 acres, or 10-50 river miles with 6-20 occurrences
Critically Imperiled	Near Extinction; less than 1,000 individuals, or 2,000 acres, or 10 river miles with less than 5 occurrences
Possibility Extinct	Historical occurrences with hope of individual cases undiscovered
Extirpated	Thought to be extinct in the area of study with little chance of any remaining individuals
Endangered	Extreme danger of extinction throughout range in Pennsylvania
Threatened	May soon become Endangered within Pennsylvania's natural range for the given species
Rare	Given population is removed from main population, or only found in specific restricted range, or limitations in range
Accidental	Not normally found in area, does not spend a significant period of time in area, sometimes lost
Candidate	Possibility for status, but has not been approved for concern

Source: Pennsylvania Natural Heritage Program

6.1.b - Aquatic Wildlife

Fish

Resident and migratory fish communities within the Delaware Basin have historically been subjected to various human influences, including legacy pollution, over-fishing and habitat modifications. In 2009, the Philadelphia Water Department (PWD), with grant support from Pennsylvania's Department of Conservation and Natural Resources (DCNR), performed an ecological survey of the southern portion of the Delaware River's waterfront. More than 2,400 fish were captured, identified, measured and released back into the river (Table 6.3). Seasonal differences in fish community structure was expressed with the predominance of juvenile river herring and American shad in the

late summer months. These findings suggest that the river in our region is serving as a nursery area for anadromous fish species (species that move from salt water to fresh water in order to reproduce).[4]

Table 6.3-Fish species identified during the spring and summer surveys (PWD, 2009)

Scientific Name	Common Name	Number of Captures
Alosa aestivalis	Blueback herring	1195
Alosa sapidissima	American shad	493
Alosa pseudoharengus	Alewife	214
Hybognathus regius	Eastern silvery minnow	180
Morone americana	White perch	85
Dorosoma cepedianum	Gizzard shad	73
Morone saxatilis	Striped bass	38
Ictalurus punctatus	Channel catfish	34
Brevoortia tyrannus	Atlantic menhaden	25
Cyprinus carpio	Common carp	24
Lepomis spp.	Sunfish species	15
Anguilla rostrata	American eel	9
Perca flavescens	Yellow perch	9
Lepomis gibbosus	Pumpkinseed sunfish	5
Lepomis macrochirus	Bluegill sunfish	4
Cyprinella analostana	Satinfin shiner	2
Micropterus salmoides	Largemouth bass	2
Anchoa mitchilli	Bay anchovy	1
Fundulus diaphanus	Banded killifish	1
Micropterus dolomieui	Smallmouth bass	1
Notropis hudsonius	Spottail shiner	1

Source: Philadelphia Water Department Technical Memorandum: Ichthyofaunal Survey, 2009

Atlantic Shad

The Atlantic shad (Alosa sapidissima) (Figure 6.1) has a history of mirroring the Delaware River's health in Philadelphia. At its peak in the 1800s, the shad population catch was at 16 million pounds. During this same period, dams near the headwaters were being built and industrial pollution was contributing to the reduced concentrations of dissolved oxygen in the Delaware River. The last one million pound catch was in 1916. Shad populations in the Philadelphia region still have not fully recovered from legacy impacts; however, with the continued improvements in water quality, removal of historical dams and management strategies implemented by the Pennsylvania Fish &

[4] Philadelphia Water Department, Technical Memorandum: Ichthyofaunal Survey, 2009

Boat Commission (PFBC), American shad are slowly making a return to Philadelphia and its major tidal tributaries. [5]

Figure 6.1- Philadelphia Water Department staff (biologist Joe Perillo) holding an American shad
PWD, 2009

Eels

The American eel (Anguilla rostrata) also faces a population crisis with numbers at historic lows. A variety of factors has caused this population decline, including habitat loss, predation and disease. However, the American eel is still quite common in the Delaware River and represents a significant number of the world's American eel population. The life cycle of the American eel is complex, but an illustration of various life stages is shown in Figure 6.2. American eels start their life as eggs in the Sargasso Sea, where they mature from the larval stage to glass eels. From there, juvenile eels move to a freshwater habitat, such as the Delaware River, and mature from elvers to yellow eels to adult silver eels.[6]

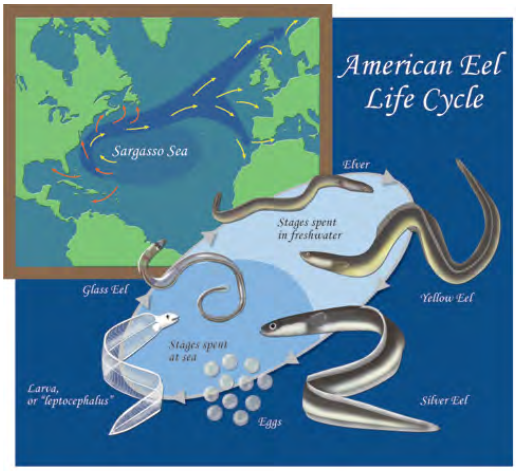

Figure 6.2- Life Cycle of American eel
Source: [Natural History Magazine: American Eel Life Cycle]

[5] NHI, 2008
[6] NHI, 2008

Mussels and Oysters

Bivalves are invertebrates with hinged shells (e.g., oyster, clam, or mussel). Bivalve reefs absorb wave energy, protecting salt marshes, trapping sediment and reducing bank erosion. They can also provide other ecosystem services, such as water filtration, habitat creation, carbon sequestration, benthic algae mats and nutrient sinks. [7] A list of bivalves in the Delaware River is presented in Table 6.4.

Table 6.4-Bivalves in the Lower Delaware Watershed

Scientific name	Common name	State Status
Alasmindonta heterodon	Dwarf wedgemussel	Imperiled
Alasmindonta undulata	Triangle floater	Vulnerable
Alasmindonta varicosa	Brook floater	Imperiled
Anodonta implicata	Alewife floater	Vulnerable
Elliptio complanata	Eastern elliptio	Secure
Lampsilis cariosa	Yellow lampmussel	Vulnerable
Lampsilis radiata	Eastern lampmussel	Imperiled
Lasmigona subviridis	Green floater	Imperiled
Leptodea ochracea	Tidewater mucket	Critically Imperiled
Ligumia nasuta	Eastern pondmussel	Critically Imperiled
Margariteifera margariteifera	Eastern pearlshell	Imperiled
Payganodon cataracta	Eastern floater	Vulnerable
Strophitus undulatus	Squawfoot	Apparently Secure

(For clarifications on statuses see Table 6.2)
Source: Kreeger, Healthy Bivalves = Healthy Watersheds: Rebuilding Bivalve Biodiversity, Populations and Ecosystem Services as a Basis for Ecosystem Restoration, 2009

Freshwater mussels are extremely sensitive organisms and are one of the most imperiled animals in North America. A majority of the continent's species are in decline. Of the 12 species native to the Delaware River Basin, almost all are classified as reduced, threatened or locally extinct. Loss of habitat and pollution are two common causes for the declining mussel population.

In 2010, scientists from the Academy of Natural Sciences and the Partnership for the Delaware Estuary discovered seven species of freshwater mussels in the Delaware River between Chester, PA and Trenton, NJ. Two of these species were previously considered locally extinct. Dr. Danielle Kreeger, science director at the Partnership for the Delaware Estuary, explained, "We have so few mussels left in almost all of our streams in the area, so to find seven species living together in dense communities right near Philadelphia was unexpected and cause for celebration."[8] Visit the Partnership for the Delaware Estuary for more information on their activities in the watershed.

[7] Danielle Kreeger and David Bushek, Mussel Powered Living Shorelines for Salt Marsh Erosion Control, 2010
[8] Shaun Bailey, Freshwater Mussels Discovered in Urban Delaware River

There are several other aquatic species identified as species of concern. These lists help bring awareness to species that need protection. Table 6.5 lists species of concern in Philadelphia.

Table 6.5-Aquatic Wildlife Species of Concern

Scientific Name	Common Name	Status
Alasmidonta heterodon	Dwarf wedgemussel	Critically Imperiled R, Endangered S P F
Acipenser brevirostrum	Shortnose sturgeon	Vulnerable G, Critically Imperiled R, Endangered S P F
Acipenser oxyrhynchus	Atlantic sturgeon	Vulnerable G, Critically Imperiled R, Endangered S P, Candidate F
Alasmidonta varicosa	Brook floater	Vulnerable G, Imperiled R, Endangered P
Lasmigona subviridis	Green floater	Vulnerable G, Imperiled R
Lampsilis cariosa	Yellow lampmussel	Vulnerable G, Vulnerable S
Ligumia nasuta	Eastern pondmussel	Apparently Secure G, Critically Imperiled R
Phocoena phocoena	Harbor porpoise	Secure G , Accidental S
Anodonta implicata	Alewife floater	Secure G
Aphredoderus sayanus	Pirate perch	Secure G, Extirpated R P
Enneacanthus obesus	Banded sunfish	Secure G, Critically Imperiled R, Endangered S P
Gasterosteus aculeatus	Threespine stickleback	Secure G, Critically Imperiled R, Endangered S P
Umbra pygmaea	Eastern mudminnow	Secure G, Vulnerable R
Noturus gyrinus	Tadpole madtom	Secure G, Critically Imperiled R, Endangered S P

G: Global status R: State Rank S: State Status P: State Proposed Status F: Federal Status
(For clarifications on statuses, see Table 6.2)
Source: Pennsylvania Natural Heritage Program

Exotic Aquatic Wildlife

A contributing factor to the loss of biodiversity in aquatic ecosystems is the introduction of exotic species. The Port of Philadelphia receives ships from all over the world. It is not uncommon for non-native or exotic species to be introduced through international shipping in ballast water or attached to ship hulls. Species such as the Asiatic clam (Corbicula fluminea), Flathead catfish (Pylodictis olivaris), Zebra mussel (Dreissena polymorpha), Common carp (Cyprinus carpio) and Snakehead (Channidae spp.) are examples of non-native species to the Delaware Estuary. Zebra mussels may cover boat hulls, pipelines and drinking water intakes. Common carp were introduced as a source of food and for sport, but their growing population threatens native aquatic vegetation. All species of Snakehead fishes have been added to the U.S. Fish and Wildlife Service's injurious species list. Some species of Snakehead are able to survive out of water long enough to travel over land to other water bodies.

6.2 – Vegetation

Not unlike wildlife, vegetative species in the Delaware Direct Watershed have been adversely affected by the impacts of urbanization. In South Philadelphia, the conversion of floodplains and marshland into developed land has greatly reduced plant diversity. The transformation of natural lands into urban land decreases plant density and provides opportunity for invasive species to become established. In addition, commercial and residential landscaping has changed the inventory of plants found in the watershed.

Urban Forests

Urban forests consist of native tree species as well as exotic species introduced over time. As a result, urban forests often exhibit greater species diversity than surrounding, more natural lands. Approximately 57% of the tree species in Philadelphia are native to Pennsylvania. Notably, 18.2%of all species are native to Asia. The three most common tree species found in Philadelphia's urban forest are Black cherry (*Prunus serotina*), Crabapple (*Malus*), and Tree-of-heaven (*Ailanthus altissima)*, a species native to China. Other species that appear in significant numbers are Tulip poplar (*Liriodendron tulipifera*), Red maple (*Acer rubrum*), Boxelder (*Acer negundo*), Northern red oak (*Quercus rubra*) and White mulberry (*Morus alba*). [9]

The USDA Forest Service recently published a report on the existing and possible tree canopy in Philadelphia. Tree canopy is important for both environmental and economic reasons, as it reduces stormwater runoff, improves air quality and raises property values. Philadelphia has an estimated 2.1 million trees, with canopy covering 15.7% of the city. Tree density amounts to roughly 25 trees/acre, which is comparable to tree density in other American cities such as San Francisco (22.5) and New York (26.4).

Philadelphia residents have the most land available to plant trees and control the majority of the City's tree canopy. Existing tree canopy in the Delaware Direct Watershed is generally very low, as much of the land has been developed or covered by impervious surface. Chinatown, North Philadelphia and South Philadelphia exhibit the lowest percentage (3% each) of tree canopy in the City. However, some areas of the watershed, such as the Navy Yard and Bridesburg, have a high percentage of land available for potential tree canopy. Table 6.6 summarizes information contained in the USDA Forest Service Report, Assessing Urban Forest Effects and Values.[10]

Philadelphia is fortunate to have a large amount of municipal parkland (referred to as the Fairmount Park system) managed by the Philadelphia Department of Parks and Recreation (PP&R). Much of this land is wooded and minimally developed, providing significant habitat for flora and fauna. PP&R undertakes various environmental restoration projects with its 9,200 acres of parkland. The park's restoration activities include:

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[9] United States Department of Agriculture, Assessing Urban Forest Effects and Values, 2008
[10] USDA, 2008

- Controlling and removing exotic invasive plants and replacing them with species native to Philadelphia County;
- Increasing the density and diversity of native plants in riparian zones, forests and other areas; and
- Constructing new and restored/expanded existing wetlands.

Table 6.6 –Philadelphia Urban Forest Summary

Feature	**Measure**
Number of trees	2.1 million
Tree cover	15.7%
Most common species	black cherry, crabapple, tree of heaven
Percentage of trees < 6-inches diameter	57.5%
Pollution removal	802 tons/year ($3.9 million/year)
Carbon storage	530,000 tons ($9.8 million)
Carbon sequestration	16,100 tons/year ($297,000/year)
Building energy reduction	$1,178,000/year
Avoided carbon emissions	$14,400/year
Structural value	$1.8 billion
Ton – short ton (U.S.) (2,000 lbs)	

USDA, 2008

Woody Plant Species

Philadelphia's geographic location within the Delaware Basin allows for warm air to come up from the Delaware Bay, providing a milder temperature to the area. The combination of this mild temperature and sandy soils allows for species that typically inhabit more southern regions to live in this area (see Table 6.7). In pre-colonial Philadelphia, the forests consisted mostly of Sweet-gum (Liquidambar styraciflua) and Oak trees (Quercus spp.). The floodplains also would have had a strong influence on the type of species that grow in the area. In consistently wet areas, there were more Swamp white oaks (Quercus bicolor), Pin oaks (Quercus palustris), and Red maples (Acer rubrum). Along the banks of the river, Black willows (Salix nigra), River birches (Betula nigra), and Smooth alder (Alnus serrulata) were the dominant tree canopy. In floodplain areas that experienced frequent inundation, the forests were mostly American Sycamore (Platanus occidentalis), Silver maple (Acer saccharinum) Elm (Ulmus spp.), Eastern cottonwood (Populus deltoids), Common hackberry (Celtis occidentalis), Black walnut (Juglans nigra), Butternut (Juglans cinerea), Green ash (Fraxinus pennsylvanica), and

Box-elder (Acer negundo). Human influences have greatly reduced the area of historical floodplains in Philadelphia and along the Delaware River. Other common species in the area include American beech (Fagus grandifolia), Black cherry (Prunus serotina), Eastern black walnut (Juglans nigra), Tulip poplar (Liriodendron tulipifera), and Honey locust (Gleditsia triacanthos).[11]

Table 6.7 -Native Woody Species in Philadelphia

Scientific Name	Common Name
Acer negundo	Box-elder
Acer rubrum	Red maple
Acer saccharinum	Silver maple
Alnus serrulata	Smooth alder
Betula nigra	River birch
Carya cordiformis	Bitternut hickory
Carya glabra	Pignut hickory
Carya laciniosa	Shellbark hickory
Carya ovata	Shagbark hickory
Carya tomentosa	Mockernut hickory
Castanea dentata	American chestnut
Celtis occidentalis	Common hackberry
Chamaecyparis thyoides	Atlantic white-cedar
Clethra alnifolia	Sweet pepperbush
Fagus grandifolia	American beech
Fraxinus pennsylvanica	Green ash
Gaylussacia frondosa	Dangleberry
Ilex glabra	Inkberry
Ilex opaca	American holly
Ilex verticillata	Winterberry
Juglans cinerea	Butternut
Juglans nigra	Black walnut
Leucothoe racemosa	Fetter-bush
Liquidambar styraciflua	Sweet-gum
Magnolia virginiana	Sweetbay magnolia
Myrica pensylvanica	Bayberry
Nyssa sylvatica	Blackgum
Ostrya virginiana	Hop-hornbeam
Photinia melanocarpa	Black chokeberry
Pinus rigida	Pitch pine
Platanus occidentalis	Sycamore
Pogonia ophioglossoides	Rose pogonia
Populus deltoides	Eastern cottonwood
Quercus alba	White oak
Quercus bicolor	Swamp-white oak
Quercus coccinea	Scarlet oak
Quercus falcata	Southern red oak
Quercus palustris	Pin oak

[11] PNHP, 2008

Quercus phellos	Willow oak
Quercus prinus	Chestnut oak
Quercus rubra	Northern red oak
Quercus velutina	Black oak
Rhododendron viscosum	Swamp azalea
Salix nigra	Black willow
Sassafras albidum	Sassafras
Ulmus americana	American elm
Ulmus rubra	Slippery elm
Vaccinium corymbosum	Highbush blueberry
Prunus serotina	Black cherry
Liriodendron tulipifera	Tulip poplar
Gleditsia triacanthos	Honey locust

NHI, 2008

Herbaceous Vegetation

Herbaceous vegetation is classified as plants without woody stems or bark trunks. Flowers, grasses and ferns are all herbaceous plants. Many of these species serve as ground cover. Typically, these plants will go dormant in the winter and produce new growth in the spring. Many herbaceous plants are known to be early-succession plants, which are the first to establish in an area that has been disturbed or cleared. Trees and scrub tend follow herbaceous plants in succession. Table 6.8 includes a listing of native herbaceous species to Philadelphia. Table 6.9 lists species of concern in Philadelphia.

Table 6.8- Native Herbaceous Species in Philadelphia

Scientific Name	Common Name
Actaea racemosa	Black cohosh
Actaea pachypoda	Doll's eyes
Agastache nepetoides	Yellow gianthyssop
Agastache scrophulariaefolia	Purple hyssop
Agrimonia parviflora	Southern agronimy
Alisma subcordatum	Southern water-plantain
Anaphalis margaritacea	Pearly everlasting
Anemone virginiana	Tall anemone
Apocynum cannabinum	Indian hemp
Aquilegia canadensis	Columbine
Arisaema triphyllum	Jack-in-the-pulpit
Asarum canadense	Wild ginger
Asclepias incarnata	Swamp milkweed
Asclepias syriaca	Common milkweed
Asclepias tuberosa	Butterfly-weed
Aster cordifolius	Blue wood aster
Aster divaricatus	White wood aster
Aster laevis	Smooth aster
Aster lateriflorus	Calico aster
Aster linariifolius	Stiff-leaved aster
Aster macrophyllus	Big-leaf aster
Aster novae-angliae	New England aster

Aster novi-belgii	New York aster
Aster puniceus	Purple-stemmed aster
Baptisia tinctoria	Wild indigo
Bidens cernua	Bur marigold
Bidens comosa	Beggars-ticks
Bidens connata	Beggars-ticks
Bidens frondosa	Beggars-ticks
Caltha palustris	Marsh marigold
Caulophyllum thalictroides	Blue cohosh
Chamaecrista fasciculata	Partridge-pea
Chelone glabra	Turtlehead
Claytonia virginica	Spring-beauty
Clematis virginiana	Virgin's bower
Desmodium canadense	Showy tick-trefoil
Dicentra cucullaria	Dutchman's breeches
Dodecatheon media	Shooting-star
Epilobium coloratum	Purple-leaved willow herb
Eupatorium fistulosum	Joe-pye-weed
Eupatorium hyssopifolium	Hyssop-leaved eupatorium
Eupatorium perfoliatum	Boneset
Eupatorium purpureum	Joe-pye-weed
Eupatorium rugosum	White snakeroot
Euphorbia corollata	Flowering spurge
Gentiana clausa	Closed gentian
Geranium maculatum	Wild geranium
Geum laciniatum	Rough avens
Helenium autumnale	Sneezeweed
Helianthus decapetalus	Thin-leaved sunflower
Helianthus giganteus	Swamp sunflower
Heliopsis helianthoides	Ox-eye
Heracleum lanatum	Cow parsnip
Heuchera americana	Alumroot
Hibiscus moscheutos	Swamp mallow
Houstonia caerulea	Bluets
Hypericum punctatum	Spotted St. John’s-wort
Hypoxis hirsuta	Yellow star-grass
Iris versicolor	Blue-flag iris
Krigia biflora	Two-flowered cynthia
Lespedeza capitata	Round-headed bush-clover
Lespedeza hirta	Hairy bush-clover
Liatris spicata	Spiked gayfeather
Lillium canadense	Canada lily
Lillium superbum	Turk's cap-lily
Lobelia cardinalis	Cardinal flower
Lobelia siphilitica	Great-blue lobelia
Ludwigia alternifolia	Seedbox
Mertensia virginica	Virginia bluebells
Maianthemum racemosum	False-Solomon's seal

Mimulus alatus	Winged monkey-flower
Mimulus ringens	Allegheny monkey-flower
Mitchella repens	Partridge-berry
Monarda didyma	Bee-balm
Monarda fistulosa	Wild bergamot
Oenothera biennis	Evening-primrose
Oenothera fruticosa	Sundrops
Peltandra virginica	Arrow-arum
Penstemon digitalis	White beardtongue
Penstemon hirsutus	Hairy beardtongue
Penthorum sedoides	Ditch stone-crop
Phlox maculata	Wild sweet-william
Phlox paniculata	Summer phlox
Physostegia virginiana	False dragonhead
Podophyllum peltatum	Mayapple
Polemonium reptans	Jacob's ladder
Polygonatum biflorum	Solomon's seal
Polygonum arifolium	Halberd-leaved tearthumb
Pontederia cordata	Pickerel-weed
Porteranthus trifoliatus	Bowman's root
Pycanthemum tenuifolium	Narrow-leaved mountain mint
Pycanthemum virginianum	Mountain mint
Rudbeckia laciniata	Cutleaf coneflower
Rudbeckia triloba	Three-lobed coneflower
Sagittaria latifolia	Arrowhead
Sanguinaria canadensis	Bloodroot
Saururus cernuus	Lizard's tail
Sedum ternatum	Wild stone crop
Senecio aureus	Golden-ragwort
Senna hebecarpa	Wild senna
Sisyrinchium angustifolium	Blue-eyed grass
Smilax pulverulenta	Carrion-flower
Solidago bicolor	Silver-rod
Solidago ceasia	Blue-stem goldenrod
Solidago flexicaulis	Zigzag goldenrod
Solidago gigantea	Smooth goldenrod
Solidago juncea	Early goldenrod
Solidago nemoralis	Gray goldenrod
Solidago odora	Sweet goldenrod
Solidago puberula	Downy goldenrod
Solidago rugosa	Wrinkle-leaf goldenrod
Solidago sempervirens	Sea-side goldenrod
Spiranthes cernua	Nodding ladies'-tresses
Symphyotrichum pilosum v. pilosum	Heath aster
Thalictrum dioicum	Early meadow-rue
Thalictrum pubescens	Tall meadow-rue
Thalictrum thalictroides	Rue-anemone

Tradescantia virginiana	Spiderwort
Trillium cernuum	Nodding trillium
Uvularia perfoliata	Bellwort
Uvularia sessifolia	Wild oats
Verbena hastata	Blue vervain
Verbena urticifolia	White vervain
Veronia novaborescensis	New York ironweed
Viola blanda	Sweet white violet
Viola labradorica	American dog violet
Viola sororia	Common blue violet
Viola striata	Striped violet
Zizia aptera	Heart-leaved golden alexander
Zizia aurea	Golden alexander

Source: Selected Native Plants of Philadelphia: Herbaceous Plants (Wildflower, Ferns, Grasses, Sedges, Rushes)

Table 6.9- Vegetation Species of Concern in Pennsylvania

Scientific Name:	Common Name:	Status
Aletris farinosa	Colic-root	Secure G, Critically Imperiled R, Endangered P
Alopecurus aequalis	Short-awn foxtail	Secure G, Vulnerable R, Threatened P
Ammannia coccinea	Scarlet ammannia	Secure G, Imperiled R, Endangered S, Threatened P
Andropogon gyrans	Elliott's beardgrass	Secure G, Vulnerable R, Rare P
Aristida longespica var. geniculata	Spiked needlegrass	Secure G, Watch P
Asclepias rubra	Red milkweed	Secure G, Extirpated R S P
Asclepias variegata	White milkweed	Secure G, Critically Imperiled R, Endangered P
Baccharis halimifolia	Eastern baccharis	Secure G, Vulnerable R, Rare S P
Bidens bidentoides	Swamp beggar-ticks	Vulnerable G, Critically Imperiled R, Threatened S, Endangered P
Bidens laevis	Beggar-ticks	Secure G, Critically Imperiled R, Endangered P
Chamaesyce polygonifolia	Small sea-side Spurge	Secure G, Imperiled R, Threatened S P
Chasmanthium laxum	Slender sea-oats	Secure G, Critically Imperiled R, Endangered SP
Chrysopsis mariana	Maryland golden-aster	Secure G, Critically Imperiled R, Threatened S, Endangered P
Cirsium horridulum	Horrible thistle	Secure G, Critically Imperiled R, Endangered SP
Cladium	Twig rush	Secure G, Imperiled R, Endangered SP

mariscoides		
Cuscuta campestris	Dodder	Secure G, Imperiled R, Threatened P
Cuscuta pentagona	Field dodder	Secure G, Imperiled R, Threatened P
Cyperus diandrus	Umbrella flatsedge	Secure G, Imperiled R, Endangered SP
Desmodium laevigatum	Smooth tick-trefoil	Secure G
Desmodium nuttallii	Nuttalls' tick-trefoil	Secure G, Imperiled R
Desmodium obtusum	Stiff tick-trefoil	Secure G
Echinochloa walteri	Walter's barnyard-grass	Secure G, Critically Imperiled R, Endangered SP
Elatine americana	Long-stemmed water-wort	Apparently Secure G, Endangered R P, Extirpated S
Eleocharis obtusa var. peasei	Wrights spike Rush	Secure G, Critically Imperiled R, Endangered SP
Eleocharis parvula	Little-spike spike-rush	Secure G, Critically Imperiled R, Endangered SP
Elephantopus carolinianus	Elephant's foot	Secure G, Vulnerable R, Endangered S, Rare P
Ellisia nyctelea	Ellisia	Secure G, Imperiled R, Threatened SP
Erianthus giganteus	Sugar cane plumegrass	Secure G, Extirpated RSP
Eryngium aquaticum	Marsh eryngo	Apparently Secure G, Extirpated RSP
Eupatorium rotundifolium	A eupatorium	Secure G, Vulnerable R
Euthamia tenuifolia	Grass-leaved goldenrod	Secure G, Critically Imperiled R, Threatened SP
Fimbristylis annua	Annual fimbry	Secure G, Imperiled R, Threatened SP
Galactia regularis	Eastern milk-pea	Secure G, Extirpated RSP
Gentiana saponaria	Soapwort gentian	Secure G, Critically Imperiled R, Endangered P
Glyceria obtusa	Blunt manna-grass	Secure G, Critically Imperiled R, Endangered SP
Gratiola aurea	Golden hedge-hyssop	Secure G, Critically Imperiled R, Endangered P
Heteranthera multiflora	Multiflowered mud-plantain	Apparently Secure G, Critically Imperiled R, Endangered SP
Hypericum stragulum	St Andrew's-cross	Apparently Secure G, Imperiled R, Threatened P
Isotria medeoloides	Small-whorled pogonia	Imperiled G, Critically Imperiled R, Endangered SP, Threatened F
Juncus biflorus	Grass-leaved rush	Secure G, Imperiled R, Threatened P
Juncus dichotomus	Forked rush	Secure G, Critically Imperiled R, Endangered SP
Juncus scirpoides	Scirpus-like rush	Secure G, Critically Imperiled R, Endangered SP
Juniperus communis	Common juniper	Secure G, Imperiled R
Lathyrus palustris	Vetchling	Secure G, Critically Imperiled R, Endangered P
Lathyrus venosus	Veiny pea	Secure G, Imperiled R, Endangered P
Lemna obscura	Little water duckweed	Secure G, Extirpated RSP
Lemna perpusilla	Minute duckweed	Secure G, Critically Imperiled R

Lemna valdiviana	Pale duckweed	Secure G, Historical R, Extirpated SP
Leucothoe racemosa	Swamp dog-hobble	Secure G, Vulnerable R, Threatened P
Limosella australis	Awl-shaped mudwort	Secure G, Extirpated R S P
Lycopus rubellus	bugleweed	Secure G, Critically Imperiled R, Endangered S P
Lyonia mariana	Stagger-bush	Secure G, Critically Imperiled R, Endangered S P
Lythrum alatum	Winged-loosestrife	Secure G, Critically Imperiled R, Endangered P
Micranthemum micranthemoides	Nuttall's mud-flower	Possibly Extinct G, Extirpated R S P
Monarda punctata	Spotted Bee-balm	Secure G, Historical R, Endangered S P
Muhlenbergia uniflora	Fall Dropseed muhly	Secure G, Imperiled R, Endangered S , Threatened P
Opuntia humifusa	Prickly-pear cactus	Secure G, Vulnerable R, Rare S P
Oxypolis rigidior	Stiff cowbane	Secure G, Imperiled R, Threatened P
Panicum commonsianum var. commonsianum	Commons' panic-grass	Secure G, Historical R, Extirpated P
Panicum polyanthes	Panic-grass	Secure G, Apparently Secure R
Panicum scoparium	Velvety panic-grass	Secure G, Critically Imperiled R, Endangered S P
Phaseolus polystachios	Wild kidney bean	Secure G, Critically Imperiled R, Endangered P
Phlox pilosa	Downy phlox	Secure G, Critically Imperiled R, Endangered P
Phyllanthus caroliniensis	Carolina leaf-flower	Secure G, Critically Imperiled R, Endangered S P
Pinus echinata	Short-leaf pine	Secure G, Critically Imperiled R, Threatened P
Piptochaetium avenaceum	Blackseed Needlegrass	Secure G, Critically Imperiled R, Endangered P
Pluchea odorata	Shrubby camphor-weed	Secure G, Critically Imperiled R, Endangered P
Poa autumnalis	Autumn bluegrass	Secure G, Critically Imperiled R, Endangered S P
Potamogeton vaseyi	Vasey's pondweed	Apparently Secure G, Critically Imperiled R, Endangered S P
Prenanthes serpentaria	Lion's-foot	Secure G, Vulnerable R, Threatened P
Ptilimnium capillaceum	Mock bishop-weed	Secure G, Extirpated R, Endangered S, Extirpated P
Pycnanthemum verticillatum var. pilosum	Hairy mountain-mint	Secure G, Historical R, Undetermined S, Extirpated P
Rallus elegans	King rail	Apparently Secure G, Critically Imperiled R, Endangered S P
Rallus limicola	Virginia rail	Secure G, Vulnerable R
Ranunculus aquatilis var. diffusus	White water-crowfoot	Secure G, Vulnerable R, Rare S
Sagittaria calycina var. spongiosa	Long-lobed arrow-head	Secure G, Critically Imperiled R, Endangered S P

Sagittaria subulata	Subulate arrowhead	Apparently Secure G, Vulnerable R, Rare S P
Schoenoplectus smithii	Smith's bulrush	Secure G, Critically Imperiled R, Endangered S P
Scleria pauciflora	Few flowered nutrush	Secure G, Imperiled R, Threatened S P
Senna marilandica	Wild senna	Secure G, Vulnerable R, Rare P
Sericocarpus linifolius	Narrow-leaved white-topped aster	Secure G, Critically Imperiled R, Endangered S P
Sisyrinchium fuscatum	Sand blue-eyed grass	Secure G, Historical R, Extirpated S P
Solidago uliginosa	Bog goldenrod	Secure G, Imperiled R, Threatened P
Sparganium androcladum	Branching bur-reed	Secure G, Critically Imperiled R, Endangered S P
Spiranthes lucida	Shining ladies'-tresses	Secure G, Vulnerable R, Threatened P
Spiranthes vernalis	Spring ladies'-tresses	Secure G, Critically Imperiled R, Endangered S P
Strophostyles umbellata	Wild bean	Secure G, Imperiled R, Endangered P
Stylosanthes biflora	Pencilflower	Secure G, Imperiled R, Endangered P
Symphyotrichum novi-belgii	New York aster	Secure G, Imperiled R, Threatened S P
Triphora trianthophora	Nodding pogonia	Vulnerable G, Historical R, Endangered S P
Triplasis purpurea	Purple sandgrass	Apparently Secure G, Critically Imperiled R, Endangered S P
Tripsacum dactyloides	Eastern gamma-grass	Secure G, Critically Imperiled R, Endangered P
Veratrum virginicum	Virginia bunchflower	Secure G, Critically Imperiled R, Endangered P
Vernonia glauca	Tawny ironweed	Secure G, Critically Imperiled R, Endangered S P
Viola brittoniana	Coast violet	Apparently Secure G, Critically Imperiled R, Endangered S P
Woodwardia areolata	Netted chainfern	Secure G, Imperiled R, Threatened P
Zizania aquatica	Indian wild Rice	Secure G, Vulnerable R, Rare S P
Magnolia virginiana	Sweet bay magnolia	Secure G, Imperiled R, Threatened S P
Quercus falcata	Southern red oak	Secure G, Critically Imperiled R, Endangered S P
Quercus phellos	Willow oak	Secure G, Imperiled R, Endangered S P
Schoenoplectus fluviatilis	River bulrush	Secure G, Vulnerable R, Rare S P

G: Global status R: State Rank S: State Status P: State Proposed Status F: Federal Status
(For clarifications on statuses, see Table 6.2)
(Source: Pennsylvania Natural Heritage Program)

Invasive Vegetation

An invasive species is an introduced organism within an area of concern that is likely to cause environmental or economic harm. Native species have to fight for space and

resources against introduced invasive species. View Table 6.10 for a list of invasive plant species along the Delaware Riverfront.

Table 6.10- Invasive Species in Philadelphia:

Scientific Name:	Common Name:
Acer platanoides	Norway maple
Ailanthus altissima	Tree-of-heaven
Akebia quinata	Akebia
Alliaria petiolata	Garlic mustard
Ampelopsis brevipedunculata	Porcelain berry
Berberis spp	Barberry
Berberis thunbergii	Japanese barberry
Broussonetia papyrifera	Paper mulberry
Celastrus orbiculatus	Asiatic bittersweet
Diervilla spp	Bush honeysuckles
Elaeagnus umbellata	Autumn olive
Hedera helix	English ivy
Ligustrum vulgare	Common privet
Lonicera japonica	Japanese honeysuckle
Lythrum salicaria	Purple loosestrife
Morus alba	White mulberry
Paulownia tomentosa	Princess tree
Polygonum cuspidatum	Japanese knotweed
Polygonum perfoliatum	Mile-a-minute
Populus alba	White poplar
Pueraria lobata	Kudzu
Rosa multiflora	Multiflora rose
Ulmus pumila	Siberian elm
Vitis sp.	Wild grape

Source: Fairmount Park Invasive Plant Species

6.3 – Pennsylvania Natural Diversity Inventory (PNDI) Species

The Pennsylvania Natural Diversity Inventory (PNDI) is used to identify rare or significant ecological features within the State that require special consideration when reviewing activities that require a DEP permit, approval or authorization. This inventory includes plants, animals, natural communities and geologic features. Potential adverse impacts to threatened and endangered species can be identified during the project development phase of the permit review process. Measures to avoid, minimize or otherwise mitigate those impacts are explored, documented and considered during the permit review process. [12]Table 6.11 provides a breakdown of the rare, threatened, endangered, and candidate species found in Philadelphia.

[12] Pennsylvania Department of Environmental Protection, Policy for Pennsylvania Natural Diversity Inventory Coordination During Permit Review and Evaluation, 2009

Table 6.11- PNDI Species in Philadelphia

Scientific Name:	Common Name:	PNDI Status:
Acipenser brevirostrum	Shortnose sturgeon	Endangered
Acipenser oxyrhynchus	Atlantic sturgeon	Endangered
Enneacanthus obesus	Banded sunfish	Endangered
Gasterosteus aculeatus	Threespine stickleback	Endangered
Glyptemys muhlenbergii	Bog turtle	Endangered
Noturus gyrinus	Tadpole madtom	Endangered
Pseudemys rubriventris	Redbelly turtle	Threatened
Rana sphenocephala	Coastal plain leopard frog	Endangered
Umbra pygmaea	Eastern mudminnow	Candidate

See Defined Species Concern Levels for clarifications on Statuses
Source: Fish & Boat Endangered Species Code, 1984

6.4 – Important Habitats

Wetlands

Wetlands play an important role in maintaining regional biodiversity. These transitional locations between aquatic and terrestrial areas are inhabited by specific wetland vegetation and wildlife. Species that are found in Philadelphia's wetlands are listed in Table 6.11. Wetlands include fens, bogs, marshes and swamps. Conservation of these areas is of extreme importance for the Delaware River ecosystem and for the region as a whole. Many migratory species come to the Philadelphia area to rest and breed. Although man-made wetlands are less productive than natural ones, wetland creation is necessary to counterbalance the prior destruction of natural areas.

Scientists from the Philadelphia Water Department (PWD) identified and documented locations of remnant freshwater tidal wetlands in 2006 and 2007. They identified and mapped 187 acres of existing or potential tidal wetlands along the Delaware River waterfront. Of the existing wetland acreage, 27 acres were identified as potential enhancement sites. Based on those sites, areas for potential wetland creation were also identified. Figures 6.3 - 6.5 illustrate the existing Delaware Riverfront wetlands, as well as the potential wetland enhancement and creation sites identified by PWD in 2007.

The Philadelphia Water Department's Wetland and Stream Project Registry (2007) is an initiative that resulted in a list and a map of potential projects within Philadelphia's watersheds. The registry is designed to be an inventory of potential projects and provides a method for the valuation of the mitigation projects. These projects include wetland creation, wetland enhancement, wetland restoration, invasive management, wetland preservation, stream restoration, stream day-lighting, dam removal and habitat restoration. Currently, there are more than 200 candidate sites for projects on the registry. Figure 6.6 shows a map of the registry. Also, Table 6.12 lists plant species found in the Philadelphia wetlands.

Table 6.12- Species typically found in wetlands in Philadelphia

Scientific Name	Common Name
Amaranthus cannabinus	Salt-marsh water-hemp
Bidens spp.	Beggar-ticks
Carex folliculata	Northern long sedge
Carex leptalea	Bristlystalked sedge
Carex seorsa	Weak stellate sedge
Chrysosplenium americanum	Golden saxifrage
Coptis trifolia	Goldenthread
Dryopteris carthusiana	Spinulose wood fern
Eurybia radula	Rough aster
Gallium asprellum*	Rough bedstraw
Galium triflorum	Sweet-scented bedstraw
Glyceria melicaria	Slender mannagrass
Hibiscus moscheutos	Crimsoneyed rosemallow
Impatiens capensis	Jewelweed
Leersia oryzoides	Rice cutgrass
Lindera benzoin	Spicebush
Ludwigia peploides	Primrose-willow
Nuphar lutea	Spatterdock
Onoclea sensibilis	Sensitive fern
Osmunda cinnamomea	Cinnamon fern
Peltandra virginica	Green arrow-arum
Pilea pumila	Clearweed
Polygonum arifolium	Halberdleaf tearthumb
Polygonum punctatum	Dotted smartweed
Pontederia cordata	Pickerelweed
Sagittaria latifolia	Broadleaf arrowhead
Schoenoplectus fluviatilis	River bulrush
Sium suave	Hemlock waterparsnip
Symplocarpus foetidus	Skunk cabbage
Zizania aquatica	Annual wild rice

*also observed by PWD
NHI, 2008

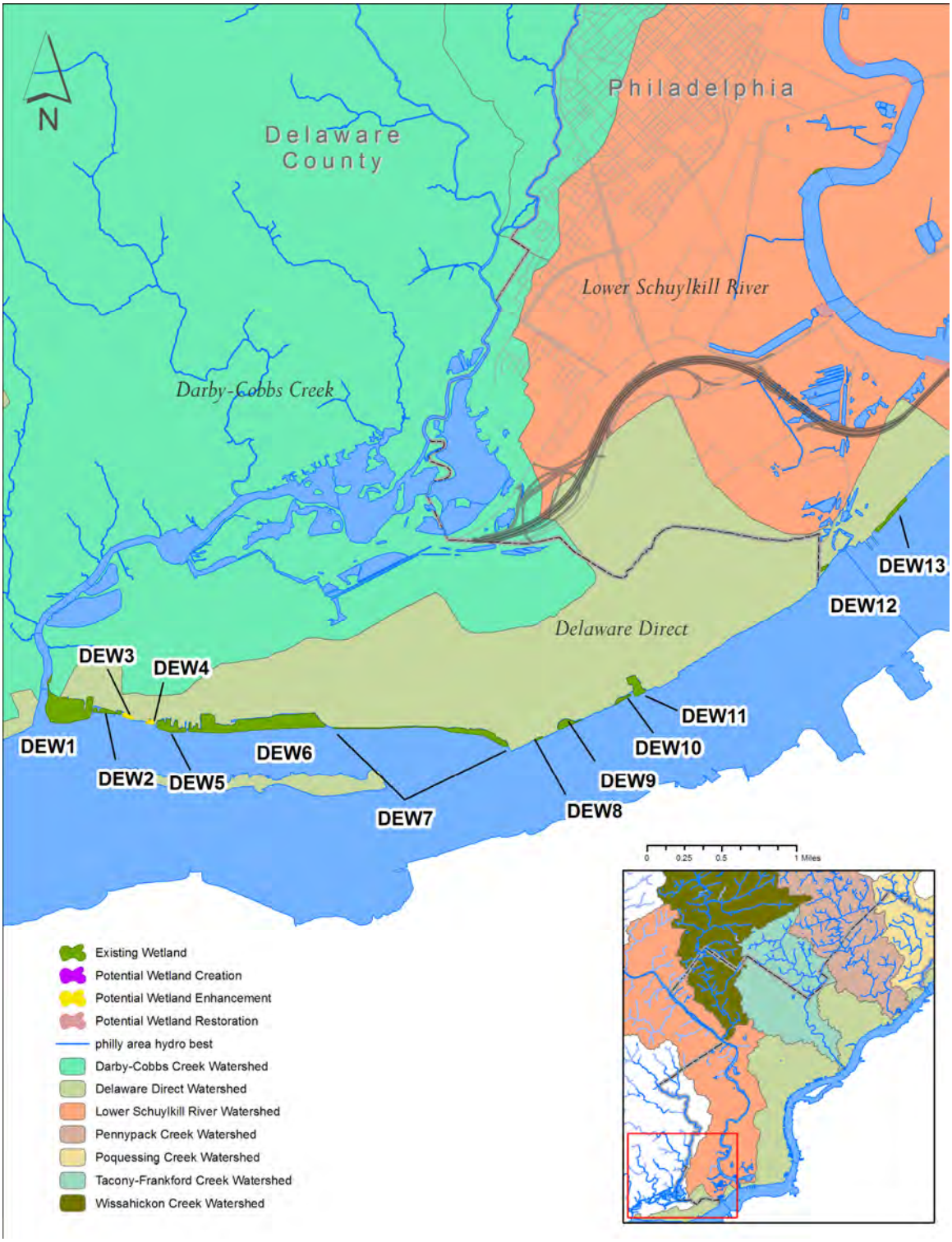

Figure 6.3 - Upper Delaware Estuary Existing Wetland Areas, Potential Wetland Enhancement Areas, and Potential Wetland Creation Areas, Lower Study Area
Source: PWD

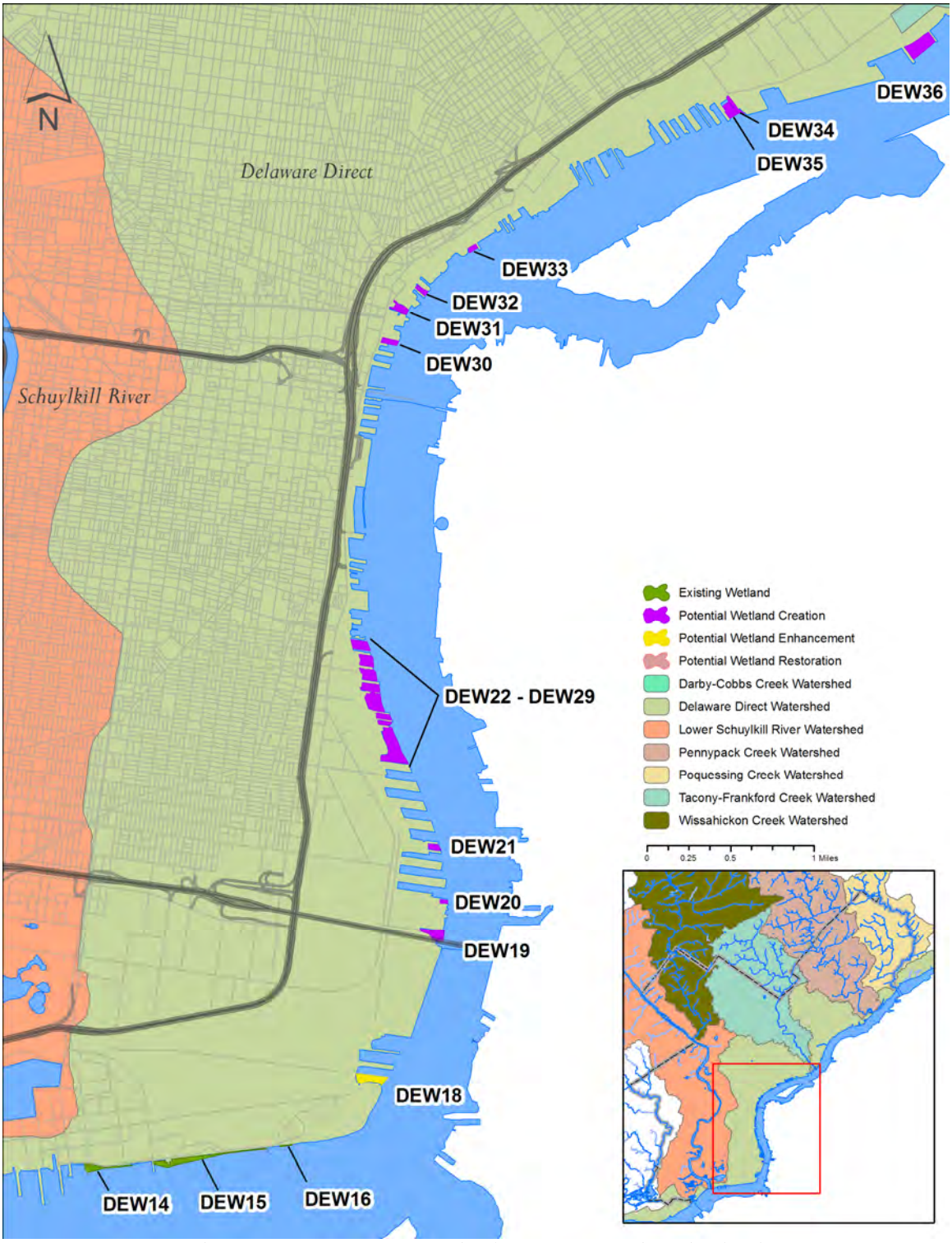

Figure 6.4 - Upper Delaware Estuary Existing Wetland Areas, Potential Wetland Enhancement Areas, and Potential Wetland Creation Areas, Middle Study Area
Source: PWD

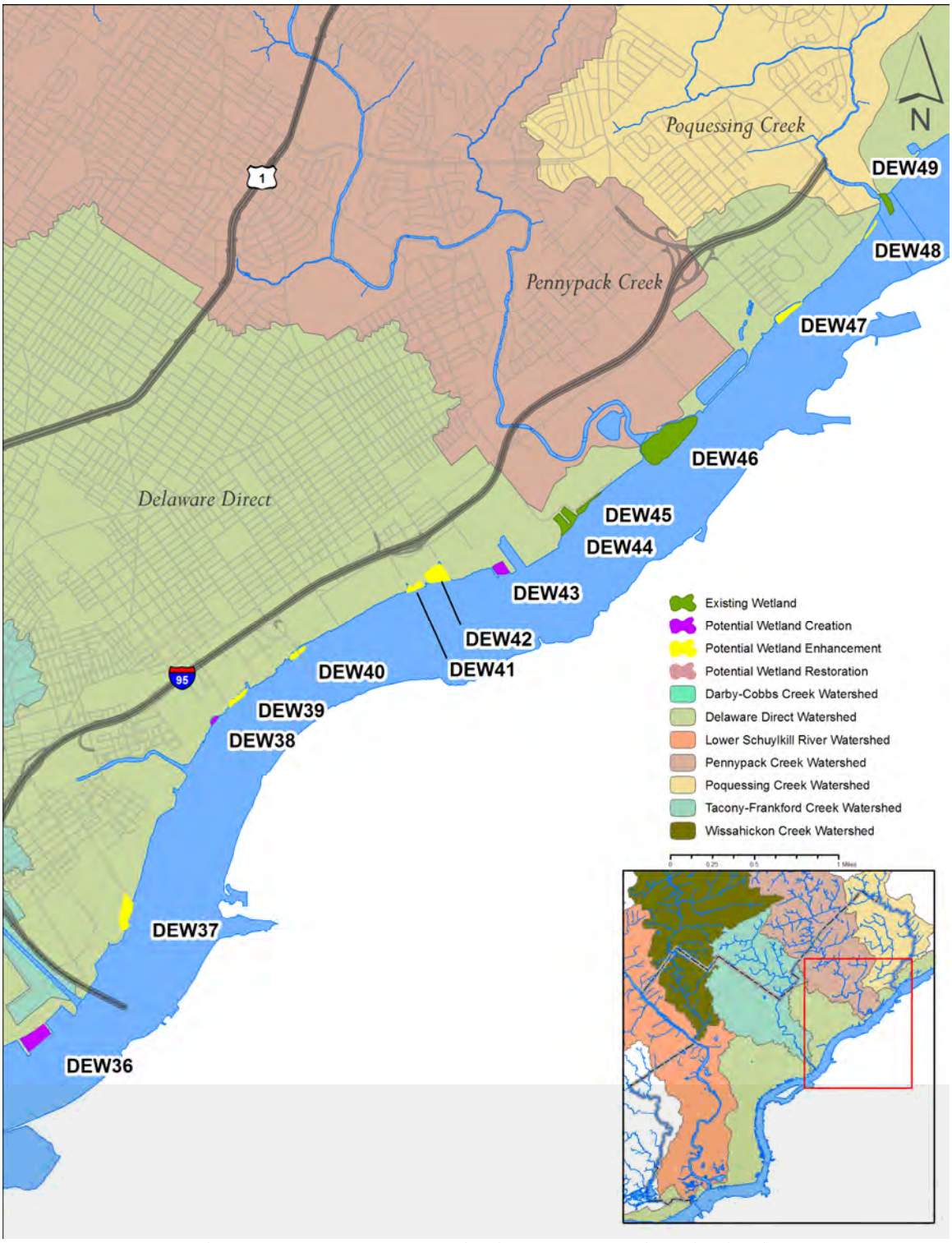

Figure 6.5 - *Upper Delaware Estuary Existing Wetland Areas, Potential Wetland Enhancement Areas and Potential Wetland Creation Areas, Upper Study Area*
Source: PWD

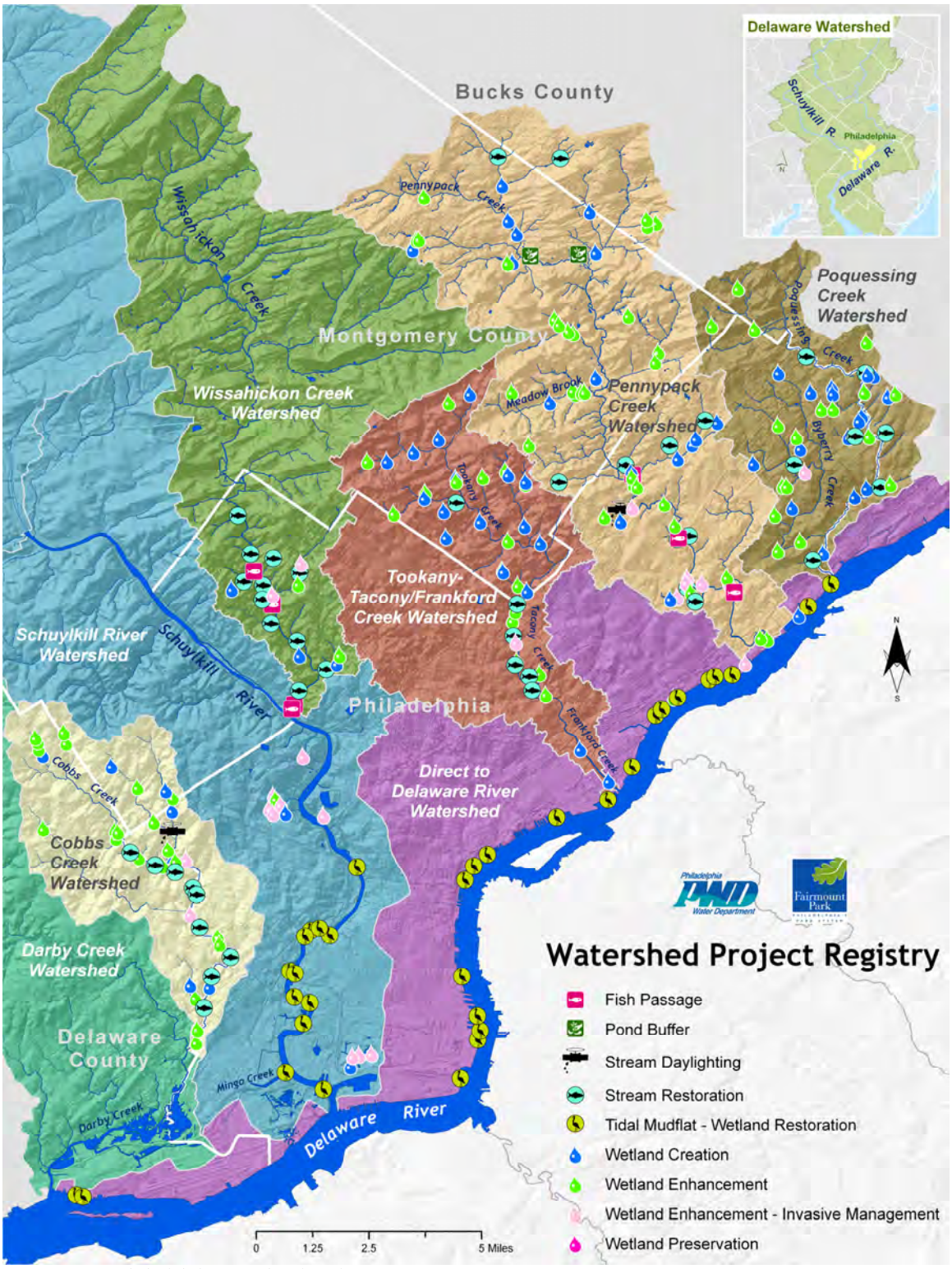

Figure 6.6 - Philadelphia Wetland and Stream Project Registry
Source: PWD

Natural Heritage Inventory of Philadelphia County: Conservation Sites

The Natural Heritage Inventory contains information on the general locations of rare, threatened and endangered species, and identifies areas in need of habitat restoration. General management and restoration recommendations accompany each site description to help protect these natural communities, rare plants and animals, as well as to enhance the quality of the existing green space and open space. The recommendations are based on the biological needs of the communities and species and the efforts necessary to maintain the health of the natural system. The National Heritage Inventory is not an inventory of open space, but rather a conservation tool based on the best available information. View figure 6.7 for NHI Significance and Conservation Priority Sites in Philadelphia, including those within the Delaware Direct Watershed.

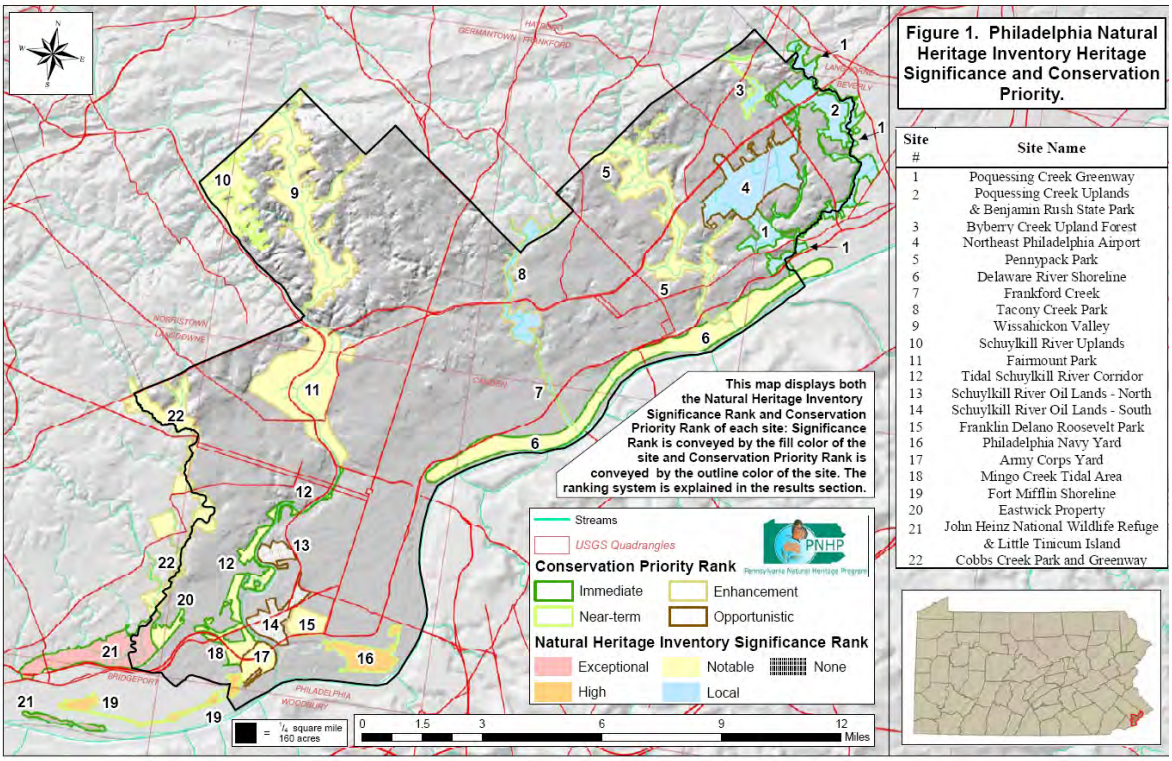

Figure 6.7 - Natural areas inventory in the Delaware Direct Watershed
Source: PNHP

In the Delaware Direct Watershed, the following sites are listed as Conservation Priorities:

- Delaware River Shoreline
- Philadelphia Navy Yard
- Army Corps Yard

The following information provides an overview of these sites and their significance as presented in the NHI. The NHI of Philadelphia County should be consulted for more detailed information.

Delaware River Shoreline
Conservation Priority: Immediate

This area is positioned for dense urban redevelopment which, if done in the traditional manner, will further degrade the biological value of the small areas of natural habitat that remain within the site. It is very important that any development within this site account for the placement of structures with the 100-and 500-year FEMA floodplains and allow for natural habitat to remain along the tidal Delaware River shoreline.

Natural Heritage Significance: Notable

This extensive site along the Delaware River shoreline is tidally influenced along its length and has the ability to support tidal species of concern throughout the site. The species of concern noted within this site are only found in specific areas where tidal habitat remains protected and in a few of the more naturally managed park.

Philadelphia Navy Yard
Conservation Priority: Near-term

Managed by the Philadelphia Industrial Development Corporation, the remains of the Philadelphia Navy Yard are slated for redevelopment. However, this process has been slowed by the costs associated with the project. As redevelopment plans are created for the currently undeveloped areas it will be important to assess the environmental impacts of developing a site that hosts numerous species of concern, was formerly an island, and is almost entirely within the 100-year FEMA floodplain.

Natural Heritage Significance: High

Large areas of the Navy Yard were reverting to natural cover, opening them up to colonization by grassland species with the lower, wetter areas supporting wetland species. The site supports 72 native plant species with an additional 46 non-native plant species recorded at the site. Of these plant species, five are listed as species of concern in the Commonwealth. An additional two bird species of concern are found utilizing the Navy Yard.

Army Corps Yard
Conservation Priority: Opportunistic

This site is still used by the Army Corps for maintenance of the Delaware River shipping channel; however, if the site were to become available for other purposes, restoration to a freshwater tidal community should be examined.

Natural Heritage Significance: Notable

This site provides excellent hunting habitat for adult dragonflies and damselflies, with two species of concern noted at the site feeding on the extensive aggregation of insects over the ponds. One of the local peregrine falcons (Falco peregrinus) has also been observed feeding at this location. It seems likely that these species of concern are reproducing in the surrounding landscape and are simply refueling and maturing here.

CHAPTER 7

CULTURAL RESOURCES

Introduction

The Delaware Direct Watershed is full of places to play, learn and relax. This diverse cultural landscape allows residents and visitors to enjoy historic sites such as Independence National Historical Park and the Liberty Bell, fishing and boating on the Delaware River and concerts at Penn's Landing. The Delaware Direct Watershed contains the earliest settled land in the City of Philadelphia and features a wide variety of native, colonial, industrial and modern historic sites. While the expansive green space of Fairmount Park is not located within the watershed, residents can easily access the park on foot or by public transit. Community centers, neighborhood parks and community gardens are a common sight among the densely populated neighborhoods in the watershed. Waterfront redevelopment efforts are at the heart of many plans to improve life in the City and present an opportunity to meet the cultural and recreational needs of residents through a progressive approach to smart development.

7.1 – Recreation Overview

The Delaware Direct Watershed contains a total of 45 parks, covering two square miles, or 3.4% of the land area. There are 108 recreation centers that serve the surrounding communities' recreational needs. In total, recreation facilities amount to more than 4% of the watershed's land use. Several waterfront parks exist along the Delaware River, and more are in development. Currently, Penn Treaty Park, Pulaski Park, Washington Avenue Green and Pleasant Hill Park provide a variety of waterfront experiences. Race Street Pier and the Bridesburg Ecological Restoration Site are reclaiming industrial waterfront property for public recreation. More than a dozen boat launches and marinas along the riverfront provide water recreation opportunities. Figure 7.1 depicts recreation resources within the project area. The National Park Service operates the Independence National Historical Park located in Center City. State parks do not exist within the Delaware Direct Watershed. A collection of local and neighborhood parks make up the remaining open space within the confines of the Delaware Direct Watershed. To find a local park, please visit the Philadelphia Parks Alliance website at www.philaparks.org and search the Park Directory.

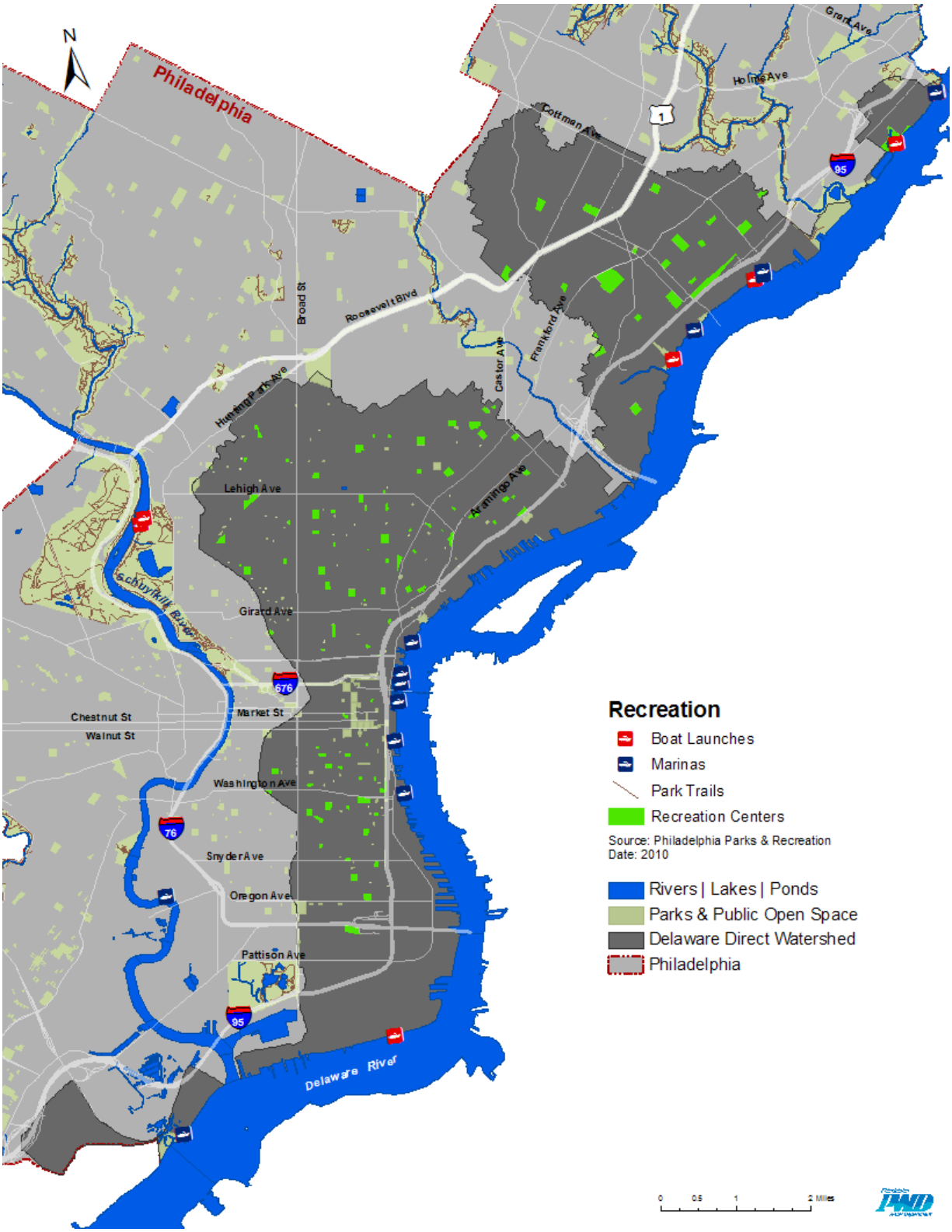

Figure 7.1 – Recreation Resources in the Delaware Direct Watershed

Philadelphia Department of Parks and Recreation

The Philadelphia Department of Parks and Recreation (PP&R) promotes the well-being of the City, its citizens and visitors by offering beautiful natural landscapes and parks, historically significant resources, high quality recreation centers and athletic programs, along with enriching cultural and environmental programs. These programs include athletics such as baseball, basketball, amateur boxing, golf, tennis, rowing and hockey. PP&R also offers summer camp programs in arts and culture as well as programs for individuals with mental and physical disabilities.

PP&R is divided into nine Recreation Districts, which were redrawn in the summer of 2007. The Delaware Direct Watershed is primarily represented by Districts 2, 6 and 7, with portions of the watershed covered by Districts 1, 3, 5 and 9. A district map can be found on the Department of Parks and Recreation website. The Department website also features a searchable database to locate resources by recreation center name, zip code, street address or through a clickable map.

Fairmount Park

Fairmount Park is Philadelphia's 9,200-acre citywide park system. The park offers a variety of experiences, including trails, gardens, woodlands, rivers and streams, ball fields and golf courses, picnic areas and playgrounds, historic homes, environmental centers, the Ben Franklin Parkway, the Robin Hood Dell, the Mann Center for the Performing Arts, the Philadelphia Zoo, the Philadelphia Museum of Art and the Fairmount Water Works. A total of 62 parks make up the entire park network within the City. A map of the park can be found at the Fairmount Park website.

PP&R Strategic Objectives

On July 1, 2010, the Philadelphia Recreation Department and Fairmount Park combined to form Philadelphia Parks & Recreation (PP&R). Building on the vision, mission and goals of the newly merged department, a set of strategic objectives were developed. The web document, Philadelphia Parks and Recreation Strategic Objectives, offers more specific steps to achieve the following core objectives.

- Develop and Equitably Distribute New Urban Green Spaces
- Develop High Level Practices and Expand Leadership in "Out of School Time" Activities
- Implement a National Model for Natural Resource and Urban Forest Management
- Provide High-Quality Facilities to Showcase Urban Outdoor Recreation and the City's Environmental, Cultural and Historic Assets
- Embed "Green" Practices Throughout the Department

In addition to strategic goals, the newly formed department has identified several essential imperatives through extensive community engagement. These are:

- **Safety**
  All facilities, trails, parks and other amenities must be physically safe but also feel safe to all participants and staff.

- **Clean, attractive and fully functional facilities**
  Buildings, fields and parks, along with all other public assets, must be clean and welcoming. All assets must also be maintained in optimum condition for ready use by individuals and groups.
- **Programs for all**
  While acknowledging significant investments in youth development programming, it is incumbent upon the department to provide enriching, relevant and accessible activities for people of all ages and interests.
- **Care for the environment**
  With the new department being responsible for 13% of Philadelphia's land mass, it is of the utmost importance to the city's present and future that we take the appropriate actions to preserve and sustain the city's green space. This holds true for the large wooded areas of the parkland as well as for neighborhood parks and playgrounds.

Tidal Delaware River Recreation Survey
The Tidal Delaware River Recreation Survey was carried out on behalf of the Pennsylvania Environmental Council (PEC) to identify the best ways to promote and further develop recreational opportunities on the Tidal Delaware. The effort involved conducting focus groups to collect data regarding participants' perception of and comfort with recreating on the Tidal Delaware. The study also sought to identify the existing awareness of recreational opportunities along the river and the reasons for the current range of activity levels. The survey included self-identified water recreationalists of varying experience levels. The study also differentiated between Tidal Delaware users and those who do not utilize the Tidal Delaware for recreational purposes. The three groups consisted of 1) experienced and frequent users of the Tidal Delaware, 2) experienced water recreationalists who utilize waters outside of the Delaware Tidal area, and 3) novice boaters interested in learning water sports (it is assumed that this group is not familiar with the Tidal Delaware).

Key findings from this report included several explanations on why current Tidal Delaware users choose the river as a recreation destination. The report yielded responses that suggest that the Tidal Delaware is most often chosen for recreational activities based on location, convenience and the uninterrupted, long stretches of water afforded by the Tidal Delaware. Non-users identified lack of awareness as the number one reason for not boating on the river; in other words, the Tidal Delaware was not at the top of their mind as an option for recreation. In addition to low "top-of-mind" awareness, kayakers voiced safety concerns regarding large commercial traffic. Novice users reported a lack of equipment, lack of information on Tidal Delaware access, and the requirement of boating skills to navigate on "big rivers" as reasons for a lack of involvement on the Tidal Delaware.

All participating groups expressed interest in having a map detailing access points along the Tidal Delaware. The "experienced- non-tidal" users expressed the importance of secure parking. Novice boaters voiced a need for better boating skills prior to going out on the Tidal Delaware. Availability of some kind of boat rental facility was another

request on behalf of the novices. The awareness of existing resources and events was surprisingly low across the focus groups.

7.2 - Planning Initiatives Affecting Recreation in the Delaware Direct Watershed
A number of initiatives seek to create more recreational opportunities in this urban watershed. There is currently significant focus on bringing city residents and visitors to the Delaware Riverfront, encouraging both land-based and water-based recreation. Many of these initiatives seek to protect and enhance the watershed's remaining natural resources through innovative design and planning strategies. Others seek to educate the public on interacting with the river in safe and enjoyable ways.

7.2a - Plans
The following plans create and/or improve recreational features along the waterfront.

Central Delaware Riverfront Master Plan
The Central Delaware Master Plan is a $1 million planning effort for the area between I-95 and the Delaware River and between Oregon and Allegheny Avenues. The plan will develop overall recommendations for land use and transportation, including zoning and design guideline recommendations. The plan will also map a new system of parks, trails, streets and development sites, along with phasing recommendations and cost estimates. A key principle of the plan is to utilize public investment in a public realm of parks, trails and streets in order to leverage private investment on adjacent parcels. The parks will be spaced approximately every ½ mile along the riverfront and will be connected by a continuous, multi-use recreational trail. The parks and trails will obviously accomplish recreational goals; however, they will also be designed to accomplish ecological and environmental goals such as stormwater management, shoreline restoration, wetlands creation and flood prevention. Additionally, a comprehensive street network will be identified for circulation and transportation; certain streets will be designated as "connector streets" and will be targeted for improvements such as landscape, lighting, improved pedestrian and bicycle access, and signage.

The North Delaware Riverfront Greenway (NDRG)
Prepared by the Pennsylvania Environmental Council, Northeast River Task Force and various City agencies in 2006, this plan presents three different scenarios that may impact the riverfront of the Delaware River in Northern Philadelphia. The Delaware River City Corporation (DRCC) was formed to guide implementation of the completed Greenway Plan which includes:

- Eleven miles of riverfront greenway, including trails, parks, green connector streets and trailheads with parking and restrooms.
- Neighbors and visitors using the trails, parks and connector streets comprising the Greenway.
- Neighbors, local civic organizations, businesses and visitors engaged in maintaining and assisting with the security of the Greenway.
- A volunteer infrastructure providing leadership for communications, trail tending, park management and fundraising committees.

The Greenway reflects the ideas and demands of the public expressed through focus groups, planning meetings and public open house meetings. The plan also includes

linking the Delaware River back to the City and its neighborhoods through public transportation and convenient, safe walkways. Open space provides a buffer between the hard city surfaces and will manage stormwater while providing aesthetic improvements. The Greenway Plan is also likely to raise property values in the surrounding areas, create jobs and bring funds into the City, among other benefits.

Green 2015: An Action Plan for the First 500 Acres
The Mayor's Office of Sustainability has drafted the Greenworks Philadelphia plan, which includes a recommendation to add 500 acres of new publicly accessible green space to the City by 2015. This plan, referred to as Green2015, outlines the approach to meet the 500-acre goal for Philadelphia. Green2015 aims to unite city government and neighborhood residents around the issue of transforming 500 acres of empty or under-used land in Philadelphia into parks for neighbors to enjoy by 2015. Transforming these empty spaces into parks and green places creates important new opportunities for children to play and for neighbors to gather. The Department of Parks and Recreation (PP&R) has identified five areas of significant need. Three of these areas include neighborhoods within the Delaware Direct Watershed.

The Philadelphia Water Department (PWD) is analyzing vacant land in the combined sewer area for stormwater management potential and for the purposes of the Green 2015 planning effort. The goal is to identify vacant lands that are appropriate for stormwater management from adjacent public right of ways (and sidewalks) and to provide new public open space to neighborhoods that lack access to green space.

Philadelphia Pedestrian and Bicycle Plan
The Pedestrian and Bicycle Plan identifies strategies to increase the number and frequency of people walking and bicycling in the City by improving the connectivity, safety, convenience and attractiveness of Philadelphia's pedestrian and bicycle networks. The plan includes physical infrastructure recommendations, as well as recommendations for policies, regulations, design standards and programs that affect walking and bicycling citywide. Active modes of transportation such as walking and biking provide many people with an affordable way of incorporating physical exercise into their daily routine, helping to fight obesity and related chronic diseases. This plan builds on and will support several major City policy and planning initiatives.

7.2b - Project Designs
Various other organizations, such as the Delaware River City Corporation and the recently formed Delaware River Waterfront Corporation, are working to create new recreational amenities along the waterfront, particularly a Delaware Riverfront trail, which will eventually run the entire length of the Delaware River in Philadelphia. Another focus is the redevelopment of dilapidated piers, such as Pier 53 (recently completed), into parks and ecological enhancement zones.

Washington Green Park (Pier 53)
http://www.delawareriverwaterfrontcorp.com/index.php?pageID=64&image=64a

As one of the City's first new green public spaces in decades, the former asphalt-clad land and in-land portion of Pier 53 has been transformed into a one-acre collection of gardens, "embryonic woodlands," and meadows. With a limited budget, Washington Green Park incorporates trees, dendritic decay gardens, 2-feet tall "sitting" walls for visitors, benches with a waterfront view, floating wetlands, a rain garden and a rubble meadow. This project was led by the Delaware River Waterfront Corporation.

Bridesburg Ecological Restoration Project
http://www.pecpa.org/ecological-restoration/bridesburg-ecological-restoration-project-0

The Bridesburg Ecological Restoration Project site consists of two parcels located in Bridesburg, a historic Philadelphia neighborhood. The project was led by the Pennsylvania Environmental Council (PEC). The first site is an approximately 9-acre parcel owned by the City of Philadelphia and the second is an approximately 7.5-acre parcel owned by National Grid, locally known as the "Philly Coke site." The two parcels are ranked as high-priority restoration sites under PEC's Philadelphia North Delaware River Greenway Ecological Assessment and Prioritization Report. The preliminary design utilizes both parcels to create a restored riverfront, upland habitat areas and public recreation amenities. The amenities include a low-impact trail that could offer access to the Delaware River for local residents and East Coast Trail users, benches at vantage points along the trail, and a park, if the area permits. The project would also restore and enhance existing wetlands that benefit the community and create a habitat for wildlife.

Pleasant Hill Park Plan
http://www.dcnr.state.pa.us/brc/keystone/cameos/1pleasanthillparkplanphila.pdf

The Pleasant Hill Park Plan will transform an unused space in Northeast Philadelphia into a park with a constructed wetland that integrates open space, education and recreation, while restoring the historic fish hatchery. Access to the Delaware River will be improved as a result of the design. An environmental education center will also be added to the site. The hope is that children will fish in the ponds and/or play on the playground, protected by a tree-lined boulevard with a bioswale median and a riparian buffer to protect the park from floods while establishing habitats for many species.

Lardner's Point Park
http://www.dcnr.state.pa.us/sust-lands/studies/lardners-point-park.pdf

Lardner's Point is a five-acre City-owned parcel along the river that was formally used as a storage and landing site for the historic Lardner's Point pump station. The final design envisions a combination of green building amenities that will consist of a river overlook of the park, the restoration of the riparian buffer, new meadow plantings with native species, the restoration of the pier for fishing and sitting, the creation of new wetlands and marsh meadows, an incorporation of picnic areas, pedestrian paths and bike trails along the river, and interpretative signage. The focus of the signage would be on the park's historical and environmental elements.

Race Street Pier
http://www.delawareriverwaterfrontcorp.com/index.php?pageID=59&image=59a

Race Street Pier, also known as Pier 11, will be one of the first public space projects in the City to create and maintain a vibrant green public space under the new Civic Vision for the Central Delaware Riverfront. The goal is to develop a publicly accessible amenity for residents and tourists. Funding for this new park has been provided by the City of Philadelphia, Pennsylvania Department of Conservation and Natural Resources, William Penn Foundation, a Pew Charitable Trusts challenge grant, Pennsylvania Horticultural Society and Pennsylvania Department of Environmental Protection (Coastal Zone Management).

7.2c - Trails

Tidal Delaware River Water Trail

A water trail is a recreational route in a lake, river or ocean that identifies access points to the water body and day-use and/or camping sites for the boating public. Water trails emphasize low-impact use and promote resource stewardship. The Tidal Delaware Water Trail identifies a 56-mile stretch of the Delaware River that has been checked and mapped to guide a variety of river experiences for users of all levels of expertise. TidalTrail.org offers safety information, events information and interactive maps that can be downloaded and printed. These maps show points of interest, such as historic sites, fishing locations, kayak rentals and public park facilities.

East Coast Greenway

The Delaware River City Corporation (DRCC) is creating the North Delaware Riverfront Greenway, an eight-mile link in the East Coast Greenway in Philadelphia. The East Coast Greenway (ECG) is a project to create a 3,000-mile urban path that links the major cities of the Atlantic coast of the United States from Calais, Maine to Key West, Florida. The path is for non-motorized human transportation (i.e., biking and walking). DRCC works with the Pennsylvania Committee for the East Coast Greenway, which is comprised of volunteers, to coordinate route selection in the state.

The East Coast Greenway enters Morrisville, Pennsylvania from Trenton over the Calhoun Street Bridge. It currently enters PA Bicycle Route E for much of the 55-mile route, through Bucks, Philadelphia, and Delaware counties. The route ends in Delaware, near Marcus Hook.

For additional information:

- Official Visitor Site for Philadelphia (interactive map of recreational resources)
- Fairmont Park Conservancy
- North Delaware Riverfront Greenway Plan
- Philadelphia Parks Alliance

7.3 – Historical and Archeological Resources

Introduction
Development in the Delaware Direct took place over several centuries. Swedish and Dutch settlers in the area from the 1630s predated William Penn's founding of Philadelphia in 1682. In Penn's original city (which consisted of the two square miles between Vine and South Streets running from the Delaware to the Schuylkill), the area around Dock Creek was settled first. Almost simultaneously, however, German immigrants were settling in Frankford and Germantown. By the 19th century, shipping and industrial enterprises spread the length of the waterfront, evidenced today by the large number of abandoned wharves, warehouses and factories now found along the river. The areas south and north of the original city were settled early and included the neighborhoods of Southwark, Northern Liberties and Kensington. Residential development in South Philadelphia, which included large areas of swampland, could not begin until major draining and land filling was undertaken beginning at the end of the 19th century. Some areas of Northeast Philadelphia remained mostly rural farmland until the residential housing boom that accommodated soldiers returning after the end of World War II. With the current redevelopment of the Delaware River waterfront taken into consideration, the Delaware Direct is still in a state of flux and transformation today, as it has been for more than 350 years.

7.3a – Historic Resources
The Delaware River waterfront is rich in historical resources. It contains the site where William Penn purportedly made his treaty with the Indians, as well as several Native American archaeological sites. The watershed contains some of the oldest neighborhoods in the city, such as Old City, Southwark, Northern Liberties, Fishtown, and Kensington, as well as some of its wealthiest sections and some of its most impoverished. It was the heart of industrial Philadelphia, the focus of the massive manufacturing effort that, in the 19th century, gave Philadelphia the nickname "Workshop of the World." The Delaware Direct Watershed contains Independence Hall and City Hall, Christ Church and Old Swedes Church, the United States Navy Yard, the Frankford Arsenal, and many other significant government, religious, commercial, industrial and residential buildings and public spaces. One site that no longer exists, but figured prominently in the lives of many immigrants to the United States, was the Washington Avenue Immigration Station

Historic Districts
This watershed contains all or parts of dozens of historic districts, listed both on the National Register of Historic Places (administered by the National Park Service of the U.S. Department of Interior) and the Philadelphia Register of Historic Places (maintained by the Philadelphia Historical Commission). These listings recognize historical and cultural significance, qualifies them for historic preservation grants when available. Most of the historic districts in Philadelphia represent residential housing, but several also encompass commercial and industrial sites. Aside from these designated

sites, there are many other historic structures in the Delaware Direct that are worthy of preservation but not listed on either register.

It is beyond the scope of this report to list every historically significant structure in this large area; for example, the Queen Village (formerly Southwark) neighborhood claims more than 900 buildings on the Philadelphia register. Table 7.1 lists selected national districts and includes links to detailed online maps of some of the districts and Figure 7.2 shows all local historic districts overlaid on the watershed. These detailed maps are for informational purposes only; some distortion may have occurred in the reproduction process. The Philadelphia Historical Commission maintains inventories of historic buildings for some, but not all, the listed districts. Also, an excellent Wikipedia page has information on more than 520 individual historic buildings in Philadelphia listed on the National Register, with photographs and interactive maps to help locate each property.

Table 7.1 – National Register Historic Districts in the Delaware Direct Watershed

National Register of Historic Places Historic Districts Only districts that are all or partially within theDelaware Direct Watershed are listed. Links lead to online PDF maps of the districts.
Broad Street, South (Juniper to Pine)
Callowhill Street (eligible only as of 11-29-2010)
Clinton Street (900 and 1000 blocks)
Dropsie University Complex (2321-29 N. Broad)
East Center City (6th St. to Juniper St., Market St. to Locust St.)
Elfreth's Alley
Fairmount Avenue (Fairmount Ave.; Melon, North, 15th, 16th, and 17th Sts.)
Fort Mifflin
Four Public Squares of Philadelphia (Franklin, Washington, Rittenhouse and Logan)
Frankford Arsenal (Tacony & Bridge Sts.)
Girard Avenue (1415-2028 Girard and 1700 block of Thompson)
Independence National Historical Park
Lit Brothers Department Store
Lower North Philadelphia Speculative Housing (Jefferson, 19th, Berks, Broad Sts.)
Navy Yard
North Broad Mansion District (1400,1500 Blocks N. Broad, 15th & 16th Sts.)
Northern Liberties (Green-Brown, 3rd-5th Sts., American St., Fairmount Ave.)
Old City (Front St. to 5th St., Walnut St. to Wood St.)
Portico Row (900-30 Spruce)
Rittenhouse (around Rittenhouse Square)
Society Hill (Walnut to Lombard, 8th to Delaware River)
South Front Street (700 Block)
Southwark (Front to 5th; Washington to Lombard, also section to Del. River)
Spring Garden (Fairmount Ave., 19th, 18th, Mellon, 15th Sts.)
Stewart Development Houses (1020-1028 Spruce St.)
Strickland (William) Row (215-227 S 9th St.)
Washington Avenue (10th to Broad, Carpenter to Washington)
Washington Square West (Juniper, 9th thru 13th, Lombard, Locust, Pine)
West Center City Commercial (1500-1700 bl. Walnut, 1500-2000 bl. Chestnut)
West Diamond Street (3008-3215 Diamond St. 3008-3146, 3011-3215 Diamond St.)

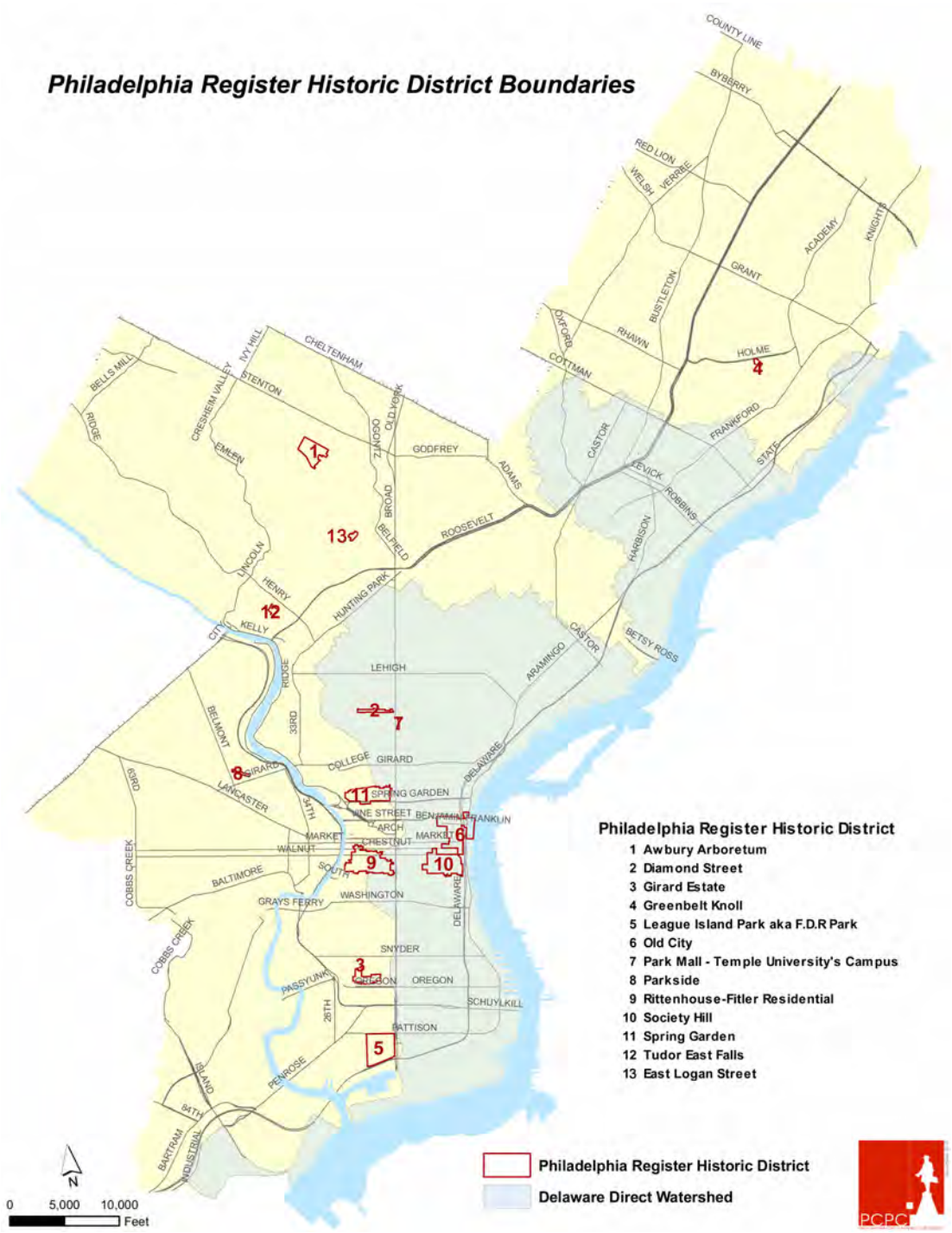

Figure 7.2 – Philadelphia Register Historic Districts with Delaware Direct Watershed overlay

Archaeological Sites
The Delaware Direct Watershed is rich in discovered and potential archaeological sites, especially in riverfront areas. Recent excavations have uncovered pieces of the area's industrial history along the Aramingo Canal, Revolutionary War history in Kensington, and history of slavery at the President's house on Independence Mall. At the so-called "Hertz Lot" at Vine Street and Delaware Avenue, remnants of both the Penny Pot Tavern and a shipyard slipway were uncovered; the site is listed on the national register of Historic Places. The Philadelphia Archaeological Forum (PAF), a group of professionals and laypeople dedicated to the protection and preservation of archaeological resources in the Philadelphia, has an excellent web page covering both Native American history and archaeology in Philadelphia. The group has also posted an interesting 20-minute video, "The River and the City: Archaeology of the Delaware Riverfront," focusing on an archeological dig in the Southwark section of South Philadelphia but also providing a basic historical overview of riverfront development.

7.3b - Watershed History
The Delaware Direct Watershed includes several watersheds whose hydrology has been greatly altered over the past 300 years. In these watersheds, the streams no longer run on the surface, but in underground combined sewer pipes built in the 18th, 19th and 20th centuries. These "combined sewers" still carry stream flow, stormwater runoff and sewage from surrounding businesses and residences. A description of the reasoning and process used to justify the burying of urban streams in underground sewers can be found on PWD historical consultant Adam Levine 's Creek to Sewer page of his PhillyH2O website.

Streams in this watershed that were eliminated in this manner include Hollander's Creek and other meandering tidal streams that once drained the marshland of South Philadelphia, Dock Creek in Center City, Pegg's Run and Cohocksink Creek in Northern Liberties, Gunner's Run (or Aramingo Canal) in Kensington, Wissinoming Creek, which runs through the neighborhood of the same name, and other smaller streams . Most of the land in the watersheds of the three remaining surface streams draining into the Delaware—Frankford Creek, Pennypack Creek and Poquessing Creek—are not included in the Delaware Direct. River conservation plans have been completed for each of these three watersheds and are available at the Philadelphia Water Department's Office of Watersheds website.

Even when they were built properly, these early sewers often proved inadequate to drain the neighborhoods around them, resulting in the flooding of low-lying areas during storms. To provide additional drainage capacity, so-called "relief" sewers were built to capture flow from upstream of the flood-prone areas and carry this flow directly to the Delaware River. Examples of relief sewers in the Delaware Direct Watershed (and their associated historic streams) are those along Wakeling and Van Kirk streets (Little Tacony Creek), Fairmount Avenue and Shackamaxon Street (Cohocksink Creek), Walnut Street (Dock Creek), McKean Street and Snyder Avenue (South Philadelphia tidal streams), and others. This system of underground drainage, in which some sewers followed the original stream beds and others simply carried flow in a straight line to the

riverfront outfall, drastically altered the natural hydrology of this area, overlaying it with a system engineered by man to serve the needs of a growing urban population.

South Philadelphia Marshland

To divide the southern section of the city into two halves (one in the Delaware Direct, the other draining into the tidal portion of the Schuylkill River watershed) makes sense from a modern sewer drainage point of view. However, the entire "Neck" (as the section of the city below South Street, now called South Philadelphia, was once known) historically encompassed thousands of acres of tidal marsh, with creeks that flowed with the rising and falling tides back and forth between the two rivers.

This area included large tracts of low land, some of it barely above water and much of it marshy ground inundated with every high tide. Several streams meandered through the marshland, the largest being Hollander's Creek and Shackaminsing (sometimes called Shackhanson or Chickhausing) Creek. Earthen dikes were built around much of South Philadelphia in the 18th century to keep out the high tide, and drainage canals were cut through the low-lying land to help dry it out. These changes made it both more habitable and more amenable to agriculture. "The Neck" was once an area full of small farms, producing vegetables and hay, and meat from piggeries and other livestock, for sale in the markets of the nearby city.

Much of the area remained marshy until the late 19th and early 20th centuries, when major landfilling operations were undertaken. One major filling project was undertaken to make land for League Island (now FDR) Park and the Sesquicentennial Exposition in 1926. This required millions of cubic yards of fill, some of which came from the concurrent excavation for the section of the Broad Street Subway north of center city. Other material used to fill South Philadelphia lowlands consisted of material dredged from the Delaware and Schuylkill rivers in various channel deepening projects. Coal ash, the residue from burning coal (which was the main form of heat for many households from the 1830s through the 1940s) also was collected and used to fill low ground and build up street embankments through the marshland.

Bulkheading and Filling of Riverfront Land

Besides the extensive lowlands of South Philadelphia, other areas of tidal marshland once existed in areas all along the Delaware riverfront. Dikes similar to those built in South Philadelphia were also used to keep out the high tide. Gradually, in South Philadelphia and elsewhere in the city, the riverfront marshes were filled in to create wharves, to extend various streets (such as Delaware Avenue in the early 20th century, and Interstate 95 at the end of the same century), and to create new land, most of it for industry. One common way to fill land was to create bulkheads by driving either logs or sheets of metal into the bed of the river, and then filling in the landward side of the piles until solid ground was created. The material used for the filling could come either from excavations on land or from dredging operations in the river.

Figure 7.3 shows a number of historic drainage areas that are part of the Delaware Direct Watershed. Each area is described below. The PhillyH2O website includes much

information about many of these individual watersheds, which can be found on the Archives page.

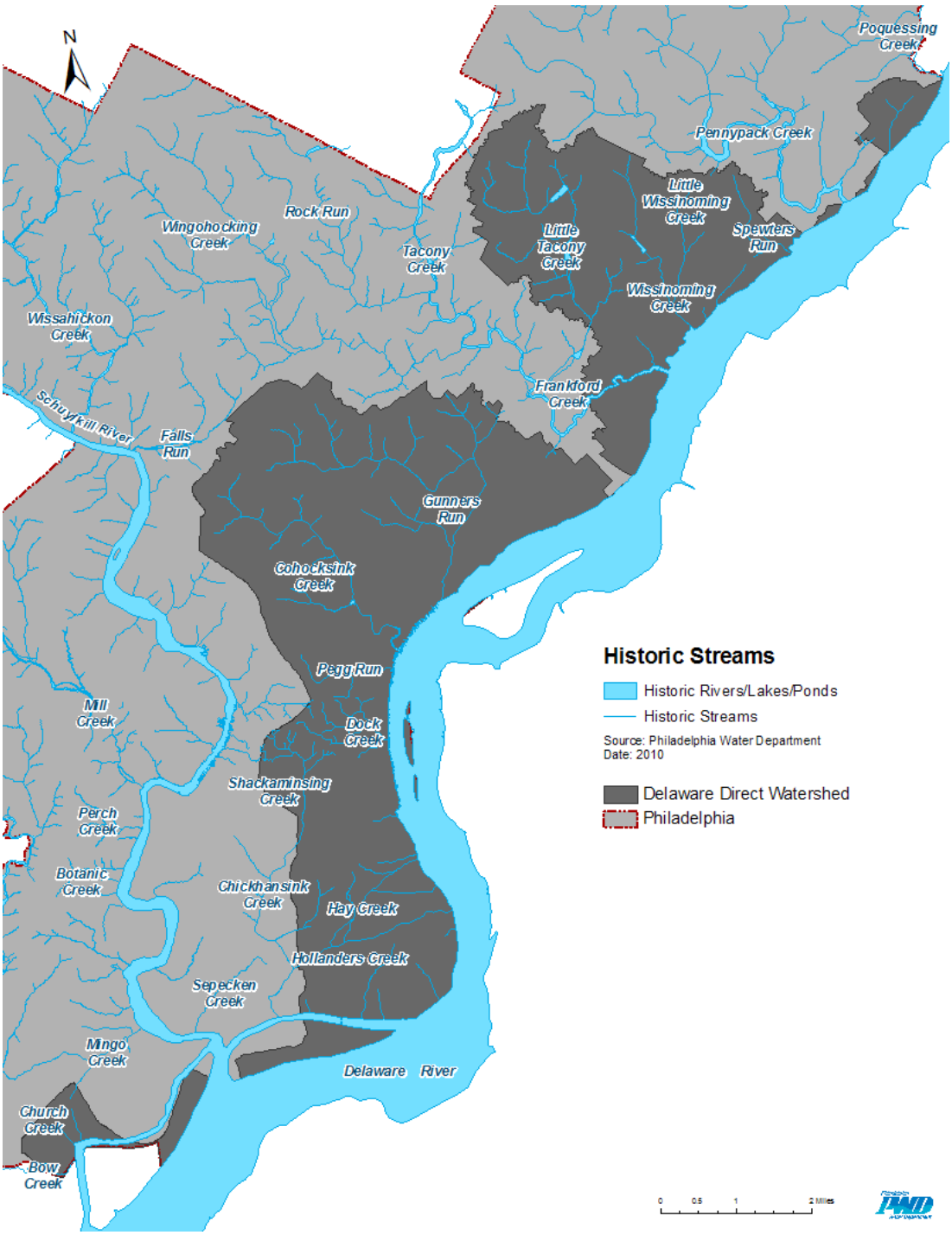

Figure 7.3 – Historic Streams in the Delaware Direct Watershed

Dock Creek (1765-1810) had its mouth at Spruce Street, and with several tributaries drained much of the eastern half of the original Philadelphia. (The city originally

covered only the two square miles from the Delaware to the Schuylkill, and between Vine and South streets. In 1854, Philadelphia absorbed the other 28 municipalities of the County of Philadelphia, creating the 129-square-mile city we know today.) Dock Street, below Second Street, winds over part of the original course of this stream.

Pegg's Run (about 1830) entered the Delaware at about Willow Street, and this winding street still marks the course of this small stream.

Cohocksink Creek (1840s to about 1920s) drained a large watershed that reached almost to 33rd and Diamond streets, with the mouth of the creek where Poplar Street now meets the Delaware River. The lower reaches of the creek were converted into a canal before the sewer encapsulation began. A series of winding streets, including Laurel Street and Canal Street, still trace the stream's meandering course through the Northern Liberties neighborhood.

Gunner's Run (1900-1930s) had several tributaries that ran through North Philadelphia and emptied into the Delaware River at Dyott Street. The lower stretch became the Aramingo Canal in the 1840s, which became polluted with industrial waste and sewage and was covered beginning in 1900.

Frankford Creek's original lower reach (at Bridge Street) is part of the Delaware Direct. As part of a flood control project, a new, straightened channel was constructed in 1956. The old meandering channel ran through the heart of the Bridesburg neighborhood, emptying into the Delaware just south of the Frankford Arsenal. A small leg of this channel is still open, up to Bridge Street, where it serves as an outlet for a storm sewer that was built in the upper section of the original stream bed, as well as the Wakeling Street Sewer (see below).

Much of the watershed of the **Little Tacony Creek** (1900-1930s), which once entered Frankford Creek at about Torresdale Avenue, is also included in the Delaware Direct. This is because two large sewers, in Wakeling Street and Van Kirk Street, capture much of the flow that would otherwise follow the old course of the Little Tacony, carrying it directly to the Delaware River.

Wissinoming Creek (1920s to 1930s) drained an area between Frankford and Holmesburg, with a system that included the main stream and Little Wissinoming Creek.

Spewter's Run (1930s?) drained a small area adjacent to the Delaware River, between the Pennypack and Poquessing creeks.

Other Online Resources

Workshop of the World website includes historical surveys of more than 150 industrial sites in Philadelphia, from "Workshop of the World" (1990), "Workshop of the World Revisited" (2007), and other sources. The surveys are organized in 17 neighborhoods by

industry classification or alphabetically. Links are included to the Hexamer General Surveys, the Historic American Engineering Records, historic and contemporary photos, plus extensive footnotes and bibliographies. Based on wide-ranging research by members of the Oliver Evans Chapter of the Society for Industrial Archaeology and others, the site is designed and managed by Torben Jenk.

Greater Philadelphia Geohistory Network, hosted by The Athenaeum of Philadelphia, is the best online source for maps of Philadelphia. It includes maps of the entire city as well as detailed atlases that show the city block by block, ranging from the city's founding into the 20th century. Special collections include historic aerial photographs and more than 2,000 Hexamer General Surveys, created to provide insurance companies with detailed plans and information about industrial properties. The surveys are searchable in a number of ways, including by location and type of industry, and many of them are in the Delaware Direct Watershed. These surveys, as well as many of the maps and aerial photographs, are from the Free Library of Philadelphia Map Collection. For anyone who needs to see the "real thing" and not just an online image, this collection, located on the second floor of the Central Library at 1901 Vine Street, is the most comprehensive and most accessible collection of printed maps in the city and includes many maps not available online.

Other online sources for maps include:

- American Philosophical Society "Realms of Gold" Collection
- Library of Congress American Memory Project
- NOAA (National Oceanographic and Atmospheric Administration) – Collection of historic navigation charts.
- Maptech - historic topographical maps of Pennsylvania, New Jersey and other states

The ushistory.org website includes a Virtual Tour covering nearly 100 historic and cultural sites within the Old City neighborhood centered around Independence Hall. A brief history of each site is provided, along with a photograph. It also features an excellent 12-minute video about the city's religious, political and cultural history, which places many of these historic sites in their chronological and social context.

Philaplace, from The Historical Society of Pennsylvania and various partners, is a collection of online neighborhood histories and contemporary stories that focuses on the Southwark (Queen Village), Northern Liberties, and Kensington neighborhoods. An interactive map provides a useful interface for this wealth of information.

Places in Time, a website created by architectural historian Jeffrey A. Cohen (and his students) and hosted at Bryn Mawr College, contains a wealth of visual and documentary information about Philadelphia and the surrounding counties.

Ken Milano's online Encyclopaedia Kensingtoniana, covering the Kensington and Fishtown neighborhoods and vicinity, is an excellent historical resource for the so-called "river wards" of the city. Along with Rich Remer, Torben Jenk and others, he is one of

the founders of the Kensington History Project, which contributed to an excellent issue of *Pennsylvania Legacies* magazine on Old Kensington in 2002.

A wide range of information related to the Delaware Direct Watershed, including photographs, maps and government reports, can be found on PhillyH2O, the website of PWD historical consultant Adam Levine.

Harry Kyriakodis has done extensive research and writing about his neighborhood of Northern Liberties, just north of Vine Street. He is especially interested in the fate of Pegg's Run, which now runs underneath Willow Street, and the industrial history of the neighborhood. He gives occasional tours of the neighborhood through various venues; contact him for more information.

The Queen Village Neighbors Association has an excellent historical section about the neighborhood once known as Southwark. The Queen Village Historic Preservation Committee, co-chaired by Al Dorof and Jean Barr, has also produced a pictorial guide to the roughly 950 buildings in the neighborhood that are listed Register of Historic Places of the Philadelphia Historic Commission. This represents one of the largest concentrations of 18th- and 19th-century historically significant homes in the nation.

The Northeast Philadelphia History Network includes histories of many neighborhoods in this area, as well as forums on various historical topics. The site also provides links to other historical societies and watershed groups.

Gloria Dei (Old Swedes) Episcopal Church has an online collection of newsletters, some of which contain articles about the history of the church and the Delaware River waterfront.

The Navy Yard website includes information about its history and architecture, as well as a walking tour brochure (12 MB, PDF) to guide visitors through the open areas of the 1,200-acre site.

Independence Seaport Museum's J. Welles Henderson Archives and Library has a selection of online exhibits celebrating the history of the city's riverfront.

The Preservation Alliance for Greater Philadelphia is a good source for information on local historic preservation issues. This organization also offers a number of walking tours of historic neighborhoods, several of which are in the Delaware Direct Watershed.

PhillyHistory, from the City of Philadelphia Department of Records, features photographs from City Archives, the Free Library, Library Company of Philadelphia, Philadelphia Water Department, and elsewhere. Photos are searchable by location or keyword.

A search in Google Books, the Internet Archives, or other online archives will find numerous old publications about this area; many of these texts may be downloaded for free. One of particular interest is Frank Taylor's 1895 *Handbook of the Lower Delaware*

River, with informative text and many photographs that describe the riverfront and the bay from Trenton, NJ to Cape Henlopen, DE.

CHAPTER 8

ISSUES, CONCERNS, CONSTRAINTS AND OPPORTUNITIES

Introduction

This River Conservation Plan was developed during a time of tremendous activity and effort in planning the transformation of the Delaware waterfront and Delaware Direct Watershed into a more habitable and healthy environment. Many of the plans referenced as the foundation of this RCP (Table 1.1) engaged stakeholders to explore and document issues, concerns and constraints to identify opportunities for progress. The RCP team further explored the state of the watershed from various perspectives, including those of the individuals engaged in the public participation processes related to this RCP (detailed in Chapter 3). Technical information regarding the natural and cultural resources of the watershed (Chapters 4, 5, 6 and 7) provide a more comprehensive picture of the factors that will influence the implementation of planning efforts. This chapter also outlines issues, concerns and constraints associated with the tremendous opportunities at hand.

Overall, the watershed issues identified during the RCP process center on:

- Waterfront access
- Connections between watershed neighborhoods and the Delaware River
- Waterfront development and its effects on existing resources
- Recreation and open space
- Land-based environmental degradation
- Loss of habitat and ecological services
- Water quality
- Stakeholder coordination

8.1 – Opportunities

Despite its highly urbanized condition, there are many ways to mitigate the negative impacts of development in the Delaware Direct Watershed and, in some cases, create transformative opportunities. The diversity of natural and cultural resources and the desire for community involvement with waterfront development illustrates true potential. The following opportunities are evidence that sustainable transformation of the Delaware Direct Watershed is already underway.

- **Multiple community planning efforts**

There are more than 30 planning efforts referenced in this RCP. The number of plans affecting the watershed is an indication of the momentum toward improving quality of life and sustainability in the watershed.

- **A unified civic vision for portions of the waterfront**

A Civic Vision for the Central Delaware incorporated an extensive public participation process to ensure that thousands of residents' voices were heard regarding the scope and focus of redevelopment on the Delaware Riverfront.

- **Organizations dedicated to the implementation of waterfront plans**

The Delaware River City Corporation and the Delaware River Waterfront Corporation have developed and implemented projects that have significantly improved waterfront access, recreation and entertainment along the Delaware waterfront. Both organizations have projects in development that will continue to enhance the waterfront experience.

- **Active neighborhood and community organizations**

Most of the watershed's neighborhood and civic groups are fully engaged in improving their communities. New Kensington Community Development Corporation and Northern Liberties Neighborhood Association are only two examples of neighborhood groups that have focused intense effort on improving their communities through planning efforts.

- **Local focus on sustainability**

The City of Philadelphia has made significant gains toward the mayoral commitment to become the greenest city in America through initiatives and incentives for sustainable development.

- **National attention on sustainability**

Sustainability has garnered national attention and popularity. Marketing the idea of sustainability is associated with practically every American industry. Philadelphia's plans for smart growth are in line with this ongoing dialogue.

- **Philadelphia Water Department's (PWD)Green City, Clean Waters plan**

PWD is committed to implementing the Green City, Clean Waters plan, which uses green stormwater infrastructure to reduce Combined Sewer Overflows (CSOs). This plan seeks to unite the City of Philadelphia with its water environment, creating a green legacy for future generations while realizing ecol¬ogy, economics and equity.

- **Update to the zoning code**

The Philadelphia Zoning Code Commission is in the process of modernizing the outdated and complex zoning code. These changes promise to preserve the character of neighborhoods and encourage development that meets the needs of the City. The creation of a commission to revise the zoning code in 2007 was supported by nearly 80% of Philadelphia voters.

- **Philadelphia 2035**

Philadelphia 2035 is the City of Philadelphia's first comprehensive plan since 1960. The plan consists of a long range Citywide plan and nineteen Strategic District Plans. Philadelphia 2035 establishes a sustainable, 25-year framework for growth, preservation, economic development, public investment, and the overall physical form of the city.

- **Formation of the Delaware Direct Watershed Partnership**

The Delaware Direct Watershed Partnership that grew out of the RCP process will continue to play a role in managing the watershed resources as the. The partnership will help foster

collaboration and communication between watershed stakeholders essential for improving the heath and viability of the watershed.

- **The East Coast Greenway Alliance (ECGA)**

Dedicated to building an urban greenway connecting the entire Eastern Seaboard, the East Coast Greenway Alliance promotes and supports the vision for connecting local trails into a continuous route. The Philadelphia portions of the greenway will enhance connectivity to the waterfront as well as improve waterfront access and recreational opportunities in the watershed.

- **Philadelphia Complete Streets Executive Order**

In June 2009, Mayor Michael Nutter signed a Complete Streets executive order. This policy aims to balance the needs of all users in the transportation network, including pedestrians and cyclists, potentially leading to a landscape less dominated by automobiles.

- **Reconstruction of Interstate I-95**

The Pennsylvania Department of Transportation (PennDOT) is in the midst of a long-term, multi-phase infrastructure initiative to expand and rebuild I-95 in Philadelphia. This project provides potential enhanced waterfront connection corridors through reconfiguration of interchanges and improving existing design.

8.2 – Issues

The issues identified in this section emerged as a product of both the concerns of the public and the constraints of existing conditions, resources and policy. The following section connects these concerns and constraints to their respective issues. Although these issues are listed separately, they are deeply interrelated. In fact, some issues exhibit overlap of concerns and constraints. Concerns or constraints that apply to multiple issues often result in opportunities for similar processes to make progress toward multiple goals. For example, the conversion of vacant property to open space can improve waterfront access, restore ecological services, provide recreation and mitigate land-based environmental degradation.

Waterfront Access

The issue of waterfront access refers to the need to experience the Delaware River firsthand. Residents and visitors lack sufficient public waterfront access for gathering, boating, walking and biking. This lack of access is a result of development patterns and historical land use. Through public dialogue spurred by the Civic Vision for the Central Delaware and GreenPlan Philadelphia, it was evident that watershed residents highly value their ability to access their rivers for recreational use and to experience the riverscape.

Waterfront Access Concerns and Constraints :

- Majority of riverfront parcels are under private ownership
- Private communities limit access to the northern portion of the riverfront
- Narrow existing greenway corridor and limited trails
- Lack of green public space
- Fragmented land

- Vacant/misused sites
- Deteriorating structures
- Lack of parking
- Lack of collaboration between public and private sectors

Connections between watershed neighborhoods and the Delaware River
Getting to the Delaware River from the neighborhoods of Philadelphia and beyond poses a significant challenge. Distance is not always the primary factor to access to the river. Many neighborhoods directly adjacent to the Delaware River are disconnected from the river despite close proximity. Without connectivity, access points are irrelevant; the reverse is also true. This issue also affects visitors to the area attempting to experience the Delaware Waterfront as a destination. Connecting the city to the river is a primary focus of this RCP and the complementary plans inventoried for the RCP process.

Some concerns and constraints identified with this issue are:
- Minimal points of public riverfront access from adjacent neighborhoods
- A limited number of streets pass through the barrier created by I-95
- Automobile-dominated landscape and vehicular travel speed
- Poor sidewalk surface quality and lack of upgrades complying with ADA regulations
- Lack of federal, state, local and private funds for transformational urban redevelopment projects
- Lack of common standards for multi-modal streets
- Lack of bike parking

Waterfront development and its effects on existing resources
Development is an essential component to the transformation of the Delaware River Waterfront. Planning efforts are underway to move development toward modes that best serve the City, residents and visitors. There is potential for development to be at odds with the existing cultural and environmental characteristics of adjacent areas.

Some concerns and constraints identified with this issue are:
- Proximity of neighborhoods to proposed development presents a potential conflict of uses
- Proximity of historic resources to proposed development presents a potential conflict of uses
- Effect of development on recreational opportunities along the waterfront
- Lack of parking facilities and impact of parking facilities
- Noise pollution
- Crime and safety
- Increased traffic
- Protection of natural habitat, flora and fauna
- Adverse impact on water quality

Recreation and Open Space
Providing open space and recreational opportunities in the watershed is a major focus of this River Conservation Plan (RCP). Several areas of the watershed lack sufficient access to these amenities. Green space offers many benefits, from stormwater management to environmental

and public health. The public processes associated with this RCP and the complementary plans confirm the need and desire for increased opportunities for recreation and open space. The City of Philadelphia's plan for open space, Green 2015, is poised to create many new opportunities for residents to access open space and recreational opportunities.

Some concerns and constraints identified with this issue are:

- Lack of public green space and trails
- Private ownership of riverfront parcels
- Inability to acquire vacant property
- Safety and traffic concerns
- Development pressures that decrease opportunities for open space
- Urban landscape clutters views of open space
- Automobile-dominated landscape
- Lack of bicycle parking

Land-based environmental degradation

Land-based environmental degradation stems from alteration by human activity. Improving the environmental quality of watershed communities is essential to both public health and economic viability.

Some concerns and constraints identified with this issue are:

- Aging combined sewer infrastructure and combined sewer overflows
- Illegal dumping and litter
- Cost of remediating brownfield sites
- Deteriorating and abandoned structures
- Bulkheads/hardened edges of the riverfront

Loss habitat and ecological services

The ecological services provided by natural areas are essential for the health of watershed flora and fauna. Urbanization has severely affected the natural areas of the Delaware Direct watershed, rendering them unable to support species once present. Stakeholders show great interest in protecting or enhancing the habitats that still exist.

Some concerns and constraints identified with this issue are:

- Conversion of tributaries and streams to sewers
- Illegal dumping in sensitive habitats
- Invasive plant and animal species
- Bulkheads/hardened edges of the riverfront
- Urbanization

Water quality of the Delaware River

Maintaining and improving the water quality of the Delaware River is a consistent theme of the many plans associated with this RCP. Water has an influence on human health and recreation as well as the overall health of ecosystems. The Delaware River provides more than half of the drinking water for the city of Philadelphia.

Some concerns and constraints identified with this issue are:

- Illegal dumping
- Combined sewer overflows
- Poor stormwater management
- Accidents and spills

Stakeholder Coordination

While some of the concerns related to this issue are a matter of perception, collaboration among agencies, organizations and individuals that have a stake in the health of the watershed are essential to meeting the goals set for the river and watershed. The perceived lack of openness and transparency to government oversight and the development process has given some an excuse to disengage. However, the resources and support offered through collaboration can help all stakeholders expand the opportunities for mutual gain.

8.3 - Issues Matrix

In order to connect the issues identified in the primary planning efforts of the RCP, a summary Issue Matrix was prepared. The Issues Matrix (Table 8-1) relates individual plans to the issues and themes that were raised in this watershed.

Table 8.1 – Summary matrix relating planning efforts with the overarching issues identified in the RCP Process

PLAN	ISSUES IDENTIFIED							
	Lack of Waterfront Access	Connectivity	Waterfront Development and its Effects on Existing Resources	Recreation and Open Space	Land Based Environmental Degradation	Loss of Natural Areas and Habitat	Water Quality of the Delaware River	Stakeholder coordination
Delaware Direct Watershed RCP	X	X	X	X	X	X	X	X
Action Plan for the Central Delaware / A Civic Vision for the Central Delaware	X	X	X	X	X		X	X
Central Delaware Riverfront Master Plan	X	X	X	X		X		
East Coast Greenway; Blueprint for Action	X	X		X		X		X
Green 2015		X		X				
Green City, Clean Waters				X	X		X	X
GreenPlan Philadelphia				X				
GreenWorks Philadelphia				X	X		X	
Natural Heritage Inventory for Philadelphia						X	X	
New Kensington Waterfront Plan	X	X	X	X	X		X	X
North Delaware Riverfront Greenway Master Plan	X	X	X	X	X		X	
Northern Liberties Neighborhood Plan	X	X	X	X		X		
Northern Liberties Waterfront Plan	X	X	X	X		x		
Philadelphia Pedestrian and Bicycle Plan		X		x	X			X
State of the Delaware Basin Report						X	X	X
Water Resources Plan for the Delaware River Basin	X					X	X	X

CHAPTER 9

RECOMMENDATIONS

Introduction

The extensive planning activity and public interest in the Delaware Direct Watershed has generated a number of recommendations for managing the watershed's resources. Through the Delaware Direct Watershed RCP public participation process, stakeholder recommendations were collected. The Philadelphia Water Department conducted riverbank assessments, which generated recommendations specific to the Delaware waterfront. The recommendations culled from previous and ongoing planning efforts provide the insight and expertise of professionals from multiple disciplines as well as the thousands of participants in the respective plans' outreach components. This chapter presents all of these recommendations and concludes with a list of potential grants and funding opportunities for implementation of RCP projects.

Delaware Direct Watershed Partnership

The Delaware Direct River Conservation Plan provides the foundation for the watershed management planning efforts in the Delaware Direct Watershed. The Delaware Direct Watershed Partnership will lead the implementation of the RCP and continue to guide the development of future watershed plans. The partnership consists of the members of the RCP Steering Committee, in addition to active participants that emerged from RCP public events and public meetings. These watershed partners share resources and expertise and coordinate information. The ultimate goal of the watershed planning approach is to cultivate partnerships committed to implementing watershed management plans once completed.

9.1 – Public Outreach Recommendations

The public outreach process of the Delaware Direct Watershed RCP was designed to further explore the issues, opportunities and recommendations inventoried from previous and ongoing planning efforts in the watershed. As explained in the Public Outreach chapter of this report (Chapter 3), several key principles emerged from these complementary plans.

- Claim the Delaware waterfront as a signature cultural landscape that defines Philadelphia and informs the surrounding neighborhoods.
- Provide a variety of experiences and amenities along the waterfront to residents and visitors, allowing for open access and the ability to "touch the river."
- Balance public space as a cultural and social resource, with the opportunity to mitigate environmental impacts from human use and development.
- The imperative for government to lead by example on riverfront redevelopment, particularly where ownership and control issues are minimal and re-investment can result in multiple benefits or benefits to the community as a whole.
- The desire of Philadelphians to have distinct and individual neighborhood identities while ensuring safe, attractive and walkable access to parks, schools, restaurants, shopping, etc.

- Community input and influence on how neighborhoods are planned and developed, particularly with regard to redevelopment projects that are likely to have significant impact on the life and/or character of a neighborhood.
- Strong agreement among City residents that multi-modal transportation options such as bus, trolley and light rail are one of, if not the most, highly valued neighborhood amenity, providing relief from parking woes and the noise, congestion and pollution associated with cars.
- An understanding by citizens, professionals and municipal officials that outcomes are determined by both actions and policies: effective policies encourage desirable activities and, symbiotically, that citizen action can drive and direct municipal policy.

Building upon these points of consensus, the RCP team further explored the interests of stakeholders—including both experts and the public—through the public participation process. This approach provided for continued information sharing by those who had already made significant planning contributions within the watershed.

Workshop 1 – Pulaski Pier Park: April 2008

Overview

Approximately 40 attendees—including natural resource professionals, planning and design professionals and community leaders—convened to discuss practical next steps to explore proposals to expand, enhance and restore ecological functions at Pulaski Park, one of four public parks along the Delaware River waterfront. The Workshop included scientists, practitioners, policy experts and other watershed stakeholders with specific interests and expertise in wetland restoration, riparian rights and public parks. Attendees broke into three subgroups to review one of several proposals for Pulaski Park and to outline tasks and issues related to specific restoration and design elements proposed for Pulaski Park.

Subgroup one: *Wetland restoration at Pulaski Park*

- Secure funding for feasibility study for wetland restoration
- Establish goals of design wetland creation – use of the site will influence restoration goals.
- Investigate ownership of submerged lands
- Investigate removal of fill at stream edge
- Investigate permitting and regulatory requirements relating to working in navigable waters
- Keep surrounding neighborhoods and business community informed through outreach and education.

Subgroup two: *Restoration of riparian areas, including piers and bulkheads at Pulaski Park*

- Secure funding for feasibility study for restoration of riparian areas
- Identify specific ownership of parcels
- Identify existing hydrology, water level/tidal fluctuations, flooding issues, etc.
- Identify water quality issues
- Identify regulatory issues
- Develop civic partnerships

Subgroup three: *Park expansion from existing Pulaski Pier Park into adjacent municipal property.*

- Secure funding for feasibility study for park expansion
- Investigate parcel boundaries and ownerships
- Identify political boundaries and where they break
- Test the history of the fill activity
- Understand the activity of existing plans to determine what role Pulaski Park will play in connecting them
- Identify a project sponsor
- Engage the community (including users, existing surrounding landowners and residents) to identify conflicts and common interests
- Explore user needs for parking and recreation
- Investigate expansion to the south rather than the north

Each subgroup produced outlines for the three proposed means for park expansion. These outlines, if developed further, could serve as a DRAFT Requests for Proposal (RFP) from consultants who may be asked to provide ecological, engineering and planning services. A recurring recommendation from these subgroups was to seek funding for feasibility studies. The DRAFT RFP is included in Appendix B of this report.

Workshop 2 – Advanced Parking Lot Design: June 2008

Overview

As one of the largest impervious surface cover types within the City, auto-related infrastructure (e.g., parking lots) is noted in every planning and reference study and is a primary source of concern as Philadelphia struggles to meet its water pollution reduction goals. In addition to impacting stormwater, parking design impacts traffic, congestion, air quality and the pedestrian experience.

Approximately 30 attendees, including urban design, planning and policy professionals, met to consider ways to address impacts and concerns related to automobile parking. The following recommendations were identified in this workshop.

- Support the Philadelphia Water Department's reallocation of stormwater utility fees to reflect the stormwater impact. New rate structures are one way to incentivize higher environmental performance.
- Reconsider requirements for developers to provide one private off-street parking space for every residential unit.
- Revamp current zoning and building code requirements to give developers credit for:
  - designated car share vehicle parking spaces
  - shuttle service
  - secure bicycle storage
  - access to regional rail or other major transit hubs
  - improvements to, or creation of, community parking resources
  - parking lot sharing agreements
  - other program approaches that encourage greater efficiency and use of existing parking resources

- Maximize capacity of existing parking areas on and off street, including diagonal street parking, compact car spaces, using corners and edges for scooters and motorcycles.
- Create transit-oriented development incentive zones, including restructuring the use of tax abatement to incentivize transit-oriented development.
- Encourage parking lot design standards that meet average daily use and not the peak annual usage (which is currently required).
- Building and zoning policies that encourage the highest environmental performance standards for parking buildings and infrastructure.
- Community zoning standards that require facades or other street-friendly presentation of parking facilities, whether surface or building.
- Investment and improvements to mass transit and alternate transit infrastructure to reduce the use and demand for private cars.

Workshop #3 – Green Streets & Riverfront Connections, July 2008

Overview

Recent planning efforts have focused attention on the desire of Philadelphians to reconnect with the Delaware waterfront. The RCP team used this workshop to explore the current experience of a journey to the riverfront, and examine ways to minimize both the physical and psychological barriers to connection.

Approximately 40 attendees with expertise and interest in issues related to transportation, mobility and riverfront access participated in a challenge to reach the meeting location, Penn Treaty Park on the Delaware waterfront, using atypical modes of transportation (see *Watershed Walks* section in Chapter 3). Upon reaching the meeting, four subgroups explored different aspects of green and complete street linkages specific to Penn Treaty Park. Recommendations identified in the subgroups include:

- Investigate processes and systems that have led to successful green and complete street redesign projects and operating programs in other cities and other countries.
- Conduct cost-benefit analysis for Philadelphia that considers capital and operating costs across and among agencies for green and complete street projects.
- Develop concierge services, interdepartmental checklists and other review coordination systems.
- Establish common design standards for a variety of different street types: local residential and neighborhood connectors, City thoroughfare, and inter-City boulevards.
- Develop multi-agency partnerships that will be required to design, fund and operate effective green streets. The City should begin immediately by convening a task force of the relevant agencies to forge long-term partnerships.
- Design streets for multiple uses and consider neighborhood context and impact. Streets designed only to maximize the flow of cars discourage the life and vitality of neighborhoods.
- Leverage multiple funding sources by designing streets that meet the needs of multiple users.
- Enhance streets that are already excellent from a pedestrian use standpoint through the implementation of simple upgrades such as tree plantings, improved pedestrian crossings, adding a bike lane or traffic-calming measures.

- Improve way-finding and other signage for pedestrians, particularly during construction when routes may be blocked or altered. Construction planning too frequently focuses only on the impacts on auto traffic.
- Begin large/long-term construction projects with a community process—not just to inform, but to solicit issues and concerns, and to gather input on ways in which the project can leverage resources and provide long-term community improvements.

Public Meeting: Healthy Neighborhoods, December 2008

Overview

On December 4, 2008, groups and individuals across the watershed were invited to convene and participate in a series of activities and information-sharing sessions focused on creating and sustaining healthy neighborhoods. Activities were organized to generate feedback on proposed designs and to engage in one-on-one discussions. More than 60 participants, including representatives from various neighborhood groups and non-profit organizations, were in attendance. The meeting's varied activities generated the following recommendations:

- Support designs that meet the needs of more than one user group
- Promote design ideas that are either new or tapped into an existing care or concern
- Develop designs for complex green spaces where green components, such as trees or planters, are incorporated into buildings or streetscapes
- Acknowledge the importance of neighborhood amenities (i.e., green space, cafés, grocery stores and community centers) and the pathways that provide access between them

Watershed Walk, July 2008

Overview

Issues related to connectivity, particularly the links from neighborhoods to the riverfront, have been a priority concern of planning efforts in the watershed. Watershed walks were organized in order to get participants' feedback on the experience of traveling to a riverfront destination, Penn Treaty Park. From various starting points, 35 participants arrived at the park on foot, by bicycle, by car, or via modes of public transportation.

Based on their experiences, the following recommendations were generated:

- Improve and expand access to Penn Treaty Park from Delaware Avenue
- Increase the number of bus stops on Delaware Avenue
- Produce a public transit map to riverfront destinations
- Provide guided walking tours to the public

9.2 - Riverbank Assessment Recommendations

The Delaware River Waterfront is the heart of many of the planning initiatives within the watershed. In order to gain a detailed picture of conditions along this corridor of the watershed, riverbank assessments were conducted over two consecutive days in June 2007. PWD employees performed these assessments in a boat, starting at the Darby Creek confluence and continuing upstream for 26 miles to the Poquessing Creek confluence. In addition to providing

a baseline of existing conditions, these assessments may assist with prioritizing the locations of restoration projects. The full text of assessments can be viewed in Appendix A.

The following recommendations are organized by river segment from south to north. Some of the actions require alerting riverfront property owners of steps they might take to improve the health of the river.

Darby Creek Confluence to Philadelphia International Airport (PHL)

- Contact management of boat/yacht clubs and Lagoon Night Club about Best Management Practices (BMPs).
- Contact management at Governor Printz Park about lawn care and stormwater management.
- Investigate abandoned pipe and concrete structure.

Philadelphia International Airport (PHL) to Fort Mifflin

- Contact management of United Parcel Service about Best Management Practices.
- Contact management of Fort Mifflin about lawn care and stormwater management.
- Build a fortified stone wall at UPS location.
- Investigate abandoned pumping station and oil/fuel storage facility for possible chemical runoff.
- Investigate old railroad track pier with pipes running underneath.

Fort Mifflin to Philadelphia Port Authority

- Contact the Army Corps of Engineers about stormwater management and Best Management Practices.
- Contact the Army Corps of Engineers regarding the abandoned bulkhead.
- Contact Aker Philadelphia Shipyard about stormwater management and Best Management Practices.
- Contact Aker Philadelphia Shipyard regarding abandoned structure.
- Contact the Philadelphia Regional Port Authority about Best Management Practices.
- Contact the Philadelphia Regional Port Authority regarding the abandoned piers.

Port Authority to Penn's Landing – Pier 36 Heliport

- Contact the Philadelphia Port Authority about Best Management Practices and stormwater management.
- Replace missing debris screens.
- Continue partnership with the Delaware River Waterfront Corporation.
- Investigate abandoned piers and broken bulkhead.
- Contact the Pier 36 Heliport about stormwater runoff.

Penn's Landing – Pier 36 Heliport to the Waterfront Square Condominiums

- Continue partnership with the Delaware River Waterfront Corporation.
- Contact all restaurants and residential units about stormwater management.

Waterfront Square Condominiums to Westway Terminal Co. Inc.

- Replace missing tide gates.

- Contact Westway Terminal Co. about Best Management Practices and stormwater management.
- Investigate the status of the Philadelphia Electric Co.'s buildings.
- Investigate abandoned piers and bulkheads.
- Investigate ownership of sunken boat.
- Have abandoned cars removed from banks.

Westway Terminal Co., Inc. to Bridesburg Outboard Club

- Contact municipalities regarding stormwater management and Best Management Practices.
- Contact the Bridesburg Outboard Club about stormwater management.
- Conduct clean-up of the Frankford Creek confluence.
- Investigate suspected concrete dump site.

The Bridesburg Outboard Club to the Wissinoming Yacht Club

- Contact all businesses about stormwater management and Best Management Practices.
- Contact Rohm & Haas regarding clear discharge coming from the 6-inch pipes.
- Investigate the pipeline located at the old Keiser's Tire & Battery facility.

Wissinoming Yacht Club to the Pennypack Confluence

- Contact businesses and park directors about stormwater management and Best Management Practices.
- Investigate unidentified properties.
- Investigate the vacant warehouse.

The Pennypack Confluence to the Poquessing Confluence

- Contact all businesses about stormwater management and Best Management Practices.
- Contact management of condos and townhouses about lawn care and stormwater management.

9.3 –Previous and Ongoing Planning Initiatives Recommendations

The planning efforts identified below represent an immense effort to provide informed management of the Delaware Direct watershed's resources, often involving significant input from public participation and outreach. For this reason, they served as the foundation for several processes related to this RCP. The actions and management options recommended by these plans are very specific and, in some cases, cover actions that may go beyond a typical River Conservation Plan project list.

<u>Planning Projects Inventoried for the Delaware Direct Watershed RCP</u>

- An Action Plan for the Central Delaware, 2008.
- Central Delaware Riverfront Master Plan
- A Civic Vision for the Central Delaware, 2007
- East Coast Greenway

- Green 2015, 2011
- Green City, Clean Waters
- GreenPlan Philadelphia, 2011
- Greenworks Philadelphia, 2009
- Natural Heritage Inventory of Philadelphia County, 2008
- New Kensington Riverfront Plan, 2008
- North Delaware Riverfront Greenway: Master Plan and Cost Benefits Analysis, 2006
- Northern Liberties Neighborhood Plan, 2005
- Northern Liberties Waterfront Plan, 2007
- Philadelphia Pedestrian and Bicycle Plan, 2010
- Water Resources Plan for the Delaware River Basin, 2004
- State of the Delaware River Basin Report, 2008

Connection to RCP Goals: Recommendations Matrix

A Recommendations Matrix was prepared in order to relate the recommendations of every planning effort to the goals of the RCP.

Delaware Direct Watershed River Conservation Plan Goals

- *Riverflow and Living Resources*: Improve stream habitat and integrity of aquatic life
- *In-river Flow Conditions*: Reduce the impact of urbanized flow on living resources
- *Water Quality and Pollutant Loads*: Improve dry and wet weather stream quality to reduce the effects on public health and aquatic life
- *River Corridors*: Protect and restore river corridors, buffers, floodplains and natural habitats including wetlands
- *Flooding*: Identify flood-prone areas and decrease flooding
- *Quality of Life*: Enhance residents' quality of life through environmental improvements
- *Recreation*: Enhance and improve recreational opportunities
- *Stewardship, Communication, and Coordination*: Foster community stewardship and improve inter-governmental, state, local and stakeholder cooperation and coordination on a watershed basis

The matrix shows the connection between planning efforts inventoried and the RCP goals, with notations where an overlap occurs. The full plans should be referenced for a higher level of detail regarding recommendations or when forming a River Registry project. Additional information, such as "who must take action" and the timeframe for action is contained in these plans.

A Civic Vision for the Central Delaware, 2007 / An Action Plan for the Central Delaware, 2008

PennPraxis (the clinical practice of the University of Pennsylvania's School of Design), the Philadelphia City Planning Commission and design consultant Wallace, Roberts & Todd

(WRT), collaborated on a conceptual "Vision Plan" for the Central Delaware Riverfront, which was funded by the William Penn Foundation and began in the fall of 2006.

An extensive civic engagement process took place as part of the planning process and included outreach to neighborhood associations, local businesses and individual citizens. The planning process resulted in the production of two reports: A Civic Vision for the Central Delaware (2007) and a follow-up report, An Action Plan for the Central Delaware: 2008–2018 (2008). Together, they call for a dramatic physical transformation of the Central Delaware Riverfront.

For More Information

A Civic Vision can be viewed or downloaded from www.planphilly.com/vision/vision
An Action Plan can be viewed or downloaded from http://planphilly.com/action-plan-central-delaware-2008-2018

Recommendations Matrix

The relationship between the Central Delaware Plan recommendations and the River Conservation Plan goals are presented in Table 9.1

Table 9.1 - Recommendations Matrix relating the implementation projects identified in the Civic Vision and Action Plan for the Central Delaware to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
A Civic Vision for Central Delaware (PennPraxis, 2007) and Action Plan for the Central Delaware (2008)								
Early Action								
Work with the Center City District to launch a two-mile interim bike trail from Pier 70 to the Benjamin Franklin Bridge that will showcase the recreational potential of the future river trail.						X	X	
Enhance Penn Treaty Park and Pulaski Park through collaborative initiatives with the state Department of Conservation and Natural Resources (DCNR) and local community groups.							X	
Evaluate the cost and feasibility of creating park space at the terminus of the Lehigh Avenue rail viaduct.							X	
Construct tidal wetlands, meadows and floodplain forest at the existing finger piers adjacent to Pier 70 in conjunction with efforts by the Philadelphia Water Department and the Pennsylvania Department of Environmental Protection's efforts to meet the federal mandate of the Clean Water Act.	X		X	X		X		
Work with the Penn's Landing Corporation to craft a Request for Qualifications and Request for Proposals for the redevelopment of the Festival Pier/Incinerator site as an integrated public park space and development parcel.						X	X	
Draft and adopt an interim zoning overlay to establish development standards for the central Delaware. At a minimum, the zoning ordinance should mandate a 100-foot buffer for public riverfront access where feasible and create use and design guidelines for riverfront development.				X		X		X
Short Term Initiative - Background Projects								
Institute policies to provide density bonuses to developers to foster the development of mixed-income housing, "sustainable" buildings, historic preservation, and adaptive reuse, and transit-oriented development.						X		X
Establish a trust to target priority land acquisitions for public open space.				X		X		X
Conduct additional research on potential funding sources and management structures. Mobilize city and state officials to begin implementing the strategies proposed.						X		X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
A Civic Vision for Central Delaware (PennPraxis, 2007) and Action Plan for the Central Delaware (2008)								
Form a historic preservation task force to ensure that historical structures within the project area are preserved and that tours or markers illustrate the riverfronts' evolution from its colonial and industrial eras to the present.						X		
Modify the official city plan to extend key city streets to the riverfront and establish the ideal alignment for the redesigned Delaware Boulevard.						X		
Conduct a feasibility study for the proposed transportation network along the central Delaware, focusing on reconstructing I-95 at Center City and connecting Market Street and Old City with Delaware Boulevard and the river.						X		
Capitalize on the transit-alternatives analysis being undertaken by the Delaware Regional Port Authority to develop an implementation plan for mass transportation options along the riverfront.						X		
Adopt a Complete Streets policy to ensure that standards for multimodal movement and public access are met.						X	X	
Assess feasibility of and locations for water-based recreation activities given the central Delaware's water currents and industrial uses.						X	X	
Conduct an ecological study that outlines the impact future riverfront development on the Delaware watershed.	X	X		X	X	X		
Encourage ongoing planning studies at the neighborhood level.						X		X
Encourage collaboration between the City Planning Commission and the Bicycle/Pedestrian Advisory Task Force on a study of how to integrate car sharing and bike sharing into the central Delaware transit network.							X	X
Coordinate a public-education campaign to ensure ongoing support for the civic vision.								X
Short-Term Initiatives, High Visibility Projects								
Design, construct, and expand the interim riverfront trail that will be implemented as one of the civic vision's early action projects	X					X	X	X
Create spaces for a range of active uses underneath I-95 including stormwater parks, rain gardens, green parking, pedestrian trails and paths, recreation facilities and civic portals.						X	X	

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
A Civic Vision for Central Delaware (PennPraxis, 2007) and Action Plan for the Central Delaware (2008)								
Begin the redesign of Delaware Boulevard, a roadway that will serve as the spine of future riverfront activity, widening sidewalks to encourage greater pedestrian activity and incorporating a landscaped median along the length of the entire boulevard.						X	X	
Acquire the necessary rights-of-ways required to establish the boulevard along the entire length of the riverfront. This would include another between Cumberland Street and Lehigh Avenue, and an extension of Lehigh Ave from Richmond Street to Delaware Boulevard a small area of private property between Dyott Street and Schirra Drive.						X		
Begin to extend major Philadelphia streets to the riverfront at key locations to provide connections to the river and serve as gateways to the neighborhoods. These essential connector streets include Lehigh Avenue, Cumberland Street, Columbia Avenue, Spring Garden St, Frankford Ave (connecting with Ellen Street), Washington Avenue, Dock Street, Reed Street and Tasker Street .			X			X	X	
Develop a series of signature parks.							X	
Work with Conrail and possibly the Pennsylvania Industrial Development Corporation (PIDC) to ensure that the portions of the Port Richmond rail yards adjacent to the river remain accessible to the public despite the potential for the property to become a light industrial center.						X	X	X
Establish dedicated rights-of-way for buses along Delaware Boulevard to improve the efficiency of public riverfront transit. Bus Rapid Transit (BRT) can serve Philadelphia well as an interim approach to improved mass transportation along the riverfront.						X		X
Finish design and construction of the Festival Pier/Incinerator site at Spring Garden Street. The city-owned parcel could be designed to include commerce, culture, open space, and development. In conjunction with this development, investments should be made in the Spring Garden Street station of the Market-Frankford line.						X	X	

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
A Civic Vision for Central Delaware (PennPraxis, 2007) and Action Plan for the Central Delaware (2008)								
Develop green space and create public riverfront access at the foot of Washington and Snyder Avenues in South Philadelphia. These riverfront parks may include tidal wetlands and revitalized piers to provide new venues for fishing and boat docking.	X					X	X	
Establish a water-taxi system to support riverfront activity and provide connections north and south along the river and east to Camden.							X	
Mid-Term Initiatives								
Develop partnerships. There are multiple opportunities for collaboration between city and state agencies. In particular, integrated planning efforts between PennDOT and the PWD could help these agencies maximize the limited funding each agency has for infrastructure improvements.								X
Complete Delaware Boulevard. In the mid-term, the boulevard should be implemented from Lehigh Avenue to Allegheny Avenue along the river's edge.						X		
Work with PennDOT to realize long-term interchange reconstruction roadway improvements in conjunction with the Girard Avenue						X		
Construct the additional streets necessary to build the proposed street network that would extend Philadelphia's city grid on the west side of I-95 to the river's edge. A network of streets, with its accompanying infrastructure for utilities (sewer, water, power, etc.), offers a ready template for new types of development.						X		X
Complete the riverfront trail so that it is continuous throughout the project area. This trail will serve as Philadelphia's portion of the East Coast Greenway, which links Maine to Florida by a continuous bike path.						X	X	X
Add amenities to the riverfront including, water recreation, public art, historical markers, attractive landscaping and active programming that helps define the trail and parks.						X		X
Long-Term Initiatives								
Complete the development of Delaware Boulevard. Increased population density, public-space amenities, mass transit, and an integrated road network could dramatically alter the character of what is currently Delaware Avenue/Columbus Boulevard.						X		

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
A Civic Vision for Central Delaware (PennPraxis, 2007) and Action Plan for the Central Delaware (2008)								
Begin the reconstruction of I-95 in the southern and central sections of the central Delaware. Collaborative partnerships between city, state and federal agencies in the short- and mid-term could result in new ways of thinking about the future of the interstate; thereby reconnecting the city to the riverfront by eliminating the barrier-like quality of I-95.						X		X
Complete the open space and marina at Penn's Landing, creating a signature green space on the Delaware through an international design competition.							X	
Redevelop the PECO site as an alternative energy generator or a commercial, performance or art space. The adaptive reuse of this iconic building would create a new landmark along the riverfront and complement an improved Penn Treaty Park.						X		
Begin to develop new, medium-density, mixed-use development between Washington and Oregon Avenues as the big-box retail buildings in South Philadelphia near the end of their economic cycle.						X		
Complete the transition of the Port Richmond rail yards into a business park and mixed-use community.						X		

Central Delaware Master Plan
The Central Delaware Riverfront Master Plan is a $1 million planning effort for the area between I-95 and the Delaware River and between Oregon and Allegheny Avenues. The plan will develop overall recommendations for land use and transportation, including zoning and design guideline recommendations. The plan will also map a new system of parks, trails, streets and development sites along with phasing recommendations and cost estimates. A key principle of the plan is to utilize public investment in a public realm of parks, trails and streets in order to leverage private investment on adjacent parcels.

For More Information
To stay up-to-date on Central Delaware River planning efforts, visit: www.plancentraldelaware.com.

Recommendations Matrix

The relationship between the Central Delaware Riverfront Master Plan recommendations and the River Conservation Plan goals is presented in Table 9.2.

Table 9.2 - Recommendation Matrix relating the implementation projects identified in the Central Delaware Riverfront Master Plan to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Central Delaware Riverfront Master Plan								
Incorporate parks along riverfront and space the parks about every ½ mile along the riverfront.	X		X	X	X	X	X	
Integrate continuous multi-use recreation trail that connects to parks.				X		X	X	X
Develop comprehensive street network that is identified for circulation and transportation with certain streets designated as connector streets.						X	X	X

East Coast Greenway
The East Coast Greenway (ECG) is a project to create a 3,000-mile urban path that links the major cities of the Atlantic coast of the United States from Calais, Maine to Key West, Florida. The path is for non-motorized human transportation (i.e., biking).

The East Coast Greenway enters Morrisville, Pennsylvania from Trenton over the Calhoun Street Bridge. It follows PA Bicycle Route E for much of the 55-mile route, through Bucks, Philadelphia and Delaware counties. The route ends in Delaware, near Marcus Hook. Pennsylvania will contain 43 miles of the ECG trail.

Among others, some of the projects currently in planning and design are:

- Delaware Canal State Park Trail
- K&T Rail Trail
- Botanic Park Trail
- Tinicum- Ft. Mifflin Trail

Furthermore, the Delaware River City Corporation (DRCC) is creating the North Delaware Riverfront Greenway, an eight-mile link in the ECG in Philadelphia that will connect the Delaware and Schuylkill Rivers.

For More Information
For more information on the East Coast Greenway, visit: http://www.greenway.org/pa.aspx.

Matrix Recommendations
The relationship between the East Coast Greenway recommendations and the River Conservation Plan goals is presented in Table 9.3.

Table 9.3 - Recommendation Matrix relating the implementation projects identified in the East Coast Greenway to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
East Coast Greenway								
To develop the North Delaware Riverfront Greenway, an eight-mile link in the East Coast Greenway that will connect the Delaware and Schuylkill rivers in Philadelphia						X	X	X

Green2015: An Action Plan for the First 500 Acres

The goal of Green2015, produced by PennPraxis for Philadelphia Parks and Recreation (PP&R), is to unite city government and neighborhood residents to transform 500 acres of empty or underused land in Philadelphia into parks for neighbors to enjoy by 2015. New parks on formerly vacant land will transform neighborhoods, create jobs, help reduce crime and provide access to fresh food.

For More Information

For more information on Green2015, please visit: http://planphilly.com/green2015-action-plan-first-500-acres.

Recommendations Matrix

The relationship between the Green2015's recommendations and the River Conservation Plan goals are presented in Table 9.4.

Table 9.4 - Recommendation Matrix relating the implementation projects identified in Green 2015 to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Green 2015								
To create 500 new acres of "greened public space" by 2015 in order to increase public access to parks and recreational resources	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Serve neighborhoods with less green space first, providing parks within a reasonable walking distance of all city residents.						X	X	X
Create parks that enhance people's relationships and create stronger communities.						X	X	X
Identify future green spaces that will act as catalysts for the revitalization of underutilized industrial sites, vacant land and their surrounding communities.								X
Green space created for 2015 must meet the city's long-term vision for open space.			X			X	X	X
New green space should provide a multitude of benefits for city residents.						X	X	X
Create diverse and multifunctional spaces for changing age groups, recreation types and animal habitats.	X					X	X	X
Raise the funds necessary to acquire, design, implement and maintain new city parks.								X
Engage partners and collaborations between public and private sectors								X
Transform one or two recreation centers as demonstration projects to test low-maintenance design ideas and sustainable-design principles.						X	X	
Coordinate policy initiatives to green schoolyards and make them assets for students and neighborhoods.						X	X	X
Reduce the impediments to transforming schoolyards into parks.								X
Create a streamlined process for identifying and transforming public vacant land into public parks and green spaces.								X
Create a database to track the progress of parks projects and identify priority sites for green space.								X
Meet with public agencies to discuss low-cost transfer of publicly owned vacant land for the purpose of creating new city parks.								X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Green 2015								
Work with PIDC to identify PIDC-managed properties where park space can help support economic development.								X
Coordinate with PWD and private land-owners who have expressed interest in greening their parcels to manage stormwater and reduce the associated fees.	X	X	X	X	X			X
Work with the Philadelphia International Airport to ensure that public access is granted on a portion of the 82 acres of wetland sites						X	X	X
Create a "rail corridor watch list"								X
Complete all watershed parks and river trails to ensure continued public access for pedestrians and cyclists.						X	X	X
Create small-scale bike and pedestrian corridors following the course of a historic stream.						X	X	
Provide on-grade bike and pedestrian routes to existing parks following a street right of way						X	X	
Use existing rail corridors (some active, some vacant) to create major, separated bike and pedestrian connections that link citizens to existing waterfront parks and that contain significant planting.						X	X	

Green City, Clean Waters

Green City, Clean Waters (also known as the Combined Sewer Overflow (CSO) Long Term Control Plan Update) is the Philadelphia Water Department's plan that describes how the City of Philadelphia proposes to invest approximately $2 billion over the next 25 years to transform the health of the City's waterways through a sustainable, land-based approach. Green City, Clean Waters will leave behind a green legacy for future generations and incorporate a balance between ecology, economics and equity. Every dollar spent is intended to provide a maximum return in benefits to the public and the environment.

For More Information

For more information on Green City, Clean Waters, visit: www.phillywatersheds.org.

Recommendations Matrix

The relationship between Green City, Clean Waters recommendations and the River Conservation are in table 9.5

Table 9.5 - Recommendation Matrix relating the implementation projects identified in Green City, Clean Waters to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Green City, Clean Waters								
Large-scale implementation of green stormwater infrastructure to manage runoff at the source on public land and to reduce demands on sewer infrastructure	X	X	X			X	X	X
Requirements and incentives for green stormwater infrastructure to manage runoff at the source on private land and to reduce demands on sewer infrastructure	X	X	X			X		X
A large- scale street tree program to improve appearance and to manage stormwater at the source on City streets	X		X			X		X
Increased access to and improved recreational opportunities along green and attractive stream corridors and waterfronts	X	X	X	X	X	X	X	X
Preserved open space utilized to manage stormwater at the source	X		X		X	X	X	X
Converted vacant and abandoned lands to open space and responsible redevelopment	X	X	X		X	X	X	X
Restored streams with physical habitat enhancements that support healthy aquatic creatures	X							
Additional infrastructure-based controls when necessary to meet appropriate water quality standards		X	X					

GreenPlan Philadelphia

GreenPlan Philadelphia is the City's Parks and Recreation Department's blueprint for sustainable open space. It is the City's first planning project that targets its parks, recreation areas, and open spaces. GreenPlan Philadelphia will guide and inform decision-making about open space use, acquisition, development, funding and management. The mission of GreenPlan Philadelphia is to reconnect all Philadelphians to green parks and open space by developing a long-term vision, preparing a strategic plan and implementing the plan's recommendations over the next 15 years. Implementing it will ensure that open space continues to enhance the environmental, social and economic well-being of our City.

For More Information

For more information on GreenPlan Philadelphia plan:
http://www.greenplanphiladelphia.com/

Recommendations Matrix

The relationship between the Greenworks targets and the River Conservation Plan goals are presented in Table 9.6

Table 9.6 - Recommendation Matrix relating the implementation targets identified in GreenPlan Philadelphia to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
GreenPlan Philadelphia								
Achieve at least 30 percent tree cover in every neighborhood	**X**		**X**			**X**		
Support tree planting and stewardship within the city's communities	X		X			X		X
Expand the use of stormwater management elements to help meet the City's Stormwater reduction target of managing the first inch of rainwater to reduce burdens on the sewer system	X	X	X			X		X
Improve existing meadows, and create 220 acres of new meadows	X							
Ensure that there is a trail within a half mile of all residents						X	X	
Connect independent trail systems in a comprehensive citywide system						X	X	
Supplement the proposed trail systems with 300 miles of on –street						X	X	
Create 200 acres of new or improved urban stream banks and tidal/non-tidal wetlands				X				
Promote the creation of commercial urban agriculture projects that are profitable and environmentally responsible, beginning with a goal of 10 projects within the first five years	X					X		
Expand the use of pervious surfaces to help meet the City's stormwater- reduction target of managing the first inch of rainwater			X			X		
Expand the use of heat reflective surfaces to reduce urban head island effects						X		
Use open space resources to meet Philadelphia's renewable energy requirements and reduce dependence on fossil fuels.	X		X			X		
Increase park space to ten acres of parkland per thousand residents.			X			X	X	

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
GreenPlan Philadelphia								
Ensure that all residents are adequately served by parks and recreation centers						X	X	
Green 100 additional schoolyards through the Campus parks Program			X			X		
Reduce vacant land and structure abandonment from 10% to 5% of privately held parcels. (60,000 to 28,000 parcels)						**X**		
Develop parkland and open space connectors along the city's riverfronts	X		X	X		X	X	
Create and average of two public river- access points per mile along the Delaware and Schuylkill Rivers								
Create a citywide network of 1,400 miles of green streets			X			X		
Apply measures recommended in GreenPlan Philadelphia to large-scale master-planned private developments	X		X			X	X	
Increase the use of integrated building design measures that augment sustainability goals for open space, public space, and natural systems	X		X			X		
Improve the performance of plazas, sidewalks, and landscaped spaces pursuant to GreenPlan Philadelphia targets and recommendations						X		
Upgrade cleanliness standards along utility and rail corridors and in passenger-rail facilities. Apply GreenPlan Philadelphia measures within rights-of-way						X		
Use programs at parks and other public facilities to expand environmental-education opportunities						X		X
Create broad citizen and interest-group understanding of GreenPlan Philadelphia, the City's green-performance objectives, and the opportunities available in the city's diverse open-space resources						X		X
Institutionalize GreenPlan Philadelphia within city government						X		X
Implement rigorous maintenance practices to proved safe, high-quality, sustainable public open space	X		X			X		
Achieve excellence in environmental design			X			X		

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
GreenPlan Philadelphia								
Strengthen and expand private stewardship, partnerships, and volunteer efforts in parks and other public open-space facilities						X		X
Regularly measure and update the progress of GreenPlan Philadelphia. Revise targets and goals as circumstances warrant						X		X
Support GreenPlan Philadelphia implementation with increased capacity to collect, analyze and maintain relevant data						X		X
Increase private funding participation to achieve 30% of funding for GreenPlan Philadelphia initiatives through non-governmental sources						X		
Diversify public funding sources for GreenPlan Philadelphia initiatives	X		X			X	X	
Diversify funding, and strategically prioritize the capital needs of Fairmount Park, the Department of Recreation, and GreenPlan Philadelphia initiatives						X	X	

Greenworks Philadelphia, 2009

The Mayor's Office of Sustainability's Greenworks Philadelphia is the six-year plan to help make Philadelphia the greenest city in America. Greenworks Philadelphia envisions a city in which residents and businesses benefit from lower energy costs, cleaner air, greener neighborhoods, better transit and new jobs. It also acknowledges that broad visions are meaningless unless backed by specific, measurable and achievable shorter-term targets. Therefore, Greenworks Philadelphia also presents the specific steps that all Philadelphians—not just their government—must take over the next seven years to reinvent the City.

Greenworks Philadelphia builds upon the 2007 Local Action Plan for Climate Change, which was produced by the Sustainability Working Group, a task force of municipal employees. The Local Action Plan outlined a series of steps that the City of Philadelphia government should take to reduce greenhouse gas emissions by 10 percent by 2010. Many of these efforts are already underway and are described in Greenworks Philadelphia. Also incorporated are the goals of GreenPlan, the City's open space plan.

Greenworks Philadelphia considers sustainability through five lenses: Energy, Environment, Equity, Economy and Engagement. For each category, an overarching goal was set, with measurable targets and specific initiatives designed and described to help Philadelphia reach the targets by 2015. These goals, targets, and initiatives have been refined over the past 10 months by the Sustainability Working Group with input and feedback from City employees, local and national non-profit organizations and civic and business leaders, including members of the Mayor's Sustainability Advisory Board.

For More Information

For more information on the GreenWorks plan :
http://www.phila.gov/green/greenworks/2009-greenworks-report.html

Recommendations Matrix

The relationship between the Greenworks recommendations and the River Conservation Plan goals are presented in Table 9.7.

Table 9.7 - Recommendations Matrix relating the implementation projects identified in Greenworks Philadelphia to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Greenworks Philadelphia (City of Philadelphia, 2009)								
Lower City Government Energy Consumption by 30 Percent						X		
Reduce Citywide Building Energy Consumption by 10 Percent						X		
Retrofit 15 Percent of Housing Stock with Insulation, Air Sealing and Cool Roofs						X		
Purchase and Generate 20 Percent of Electricity Used in Philadelphia from Alternative Energy Sources						X		
Reduce Greenhouse Gas Emissions by 20 Percent	X					X		
Improve Air Quality toward Attainment of Federal Standards						X		
Divert 70 Percent of Solid Waste from Landfill						X		
Manage Stormwater to Meet Federal Standards	X	X	X					
Provide Park and Recreation Resources within 10 Minutes of 75 Percent of Residents						X	X	
Bring Local Food within 10 Minutes of 75 Percent of Residents						X		
Increase Tree Coverage toward 30 Percent in All Neighborhoods by 2025						X		
Reduce Vehicle Miles Traveled by 10 Percent						X		
Increase the State of Good Repair in Resilient Infrastructure						X		
Double the Number of Low- and High-Skill Green Jobs						X		X

Natural Heritage Inventory for Philadelphia County, 2008

The Philadelphia County Natural Heritage Inventory is a document compiled and prepared by the Pennsylvania Natural Heritage Program (PNHP). The PNHP is a partnership between The Western Pennsylvania Conservancy, The Department of Conservation and Natural Resources, The PA Fish and Boat Commission and, The PA Game Commission. It contains information on the general locations of rare, threatened and endangered species; of the highest quality natural areas in the county; and areas in need of restoration to native habitat. It is not an inventory of all open space and it is based on the best available information. It is intended as a conservation tool and should in no way be treated or used as a field guide.

Accompanying each site description are general management and restoration recommendations that would help to ensure the protection and continued existence of these natural communities, rare plants and animals while enhancing the quality of existing green space and open space. Recommendations are based on the biological needs of these elements (communities and species) and the efforts necessary to maintain the health of the overall natural system. Managed areas, such as federal, state, city lands; private preserves; and conservation easements, are also provided on the maps, where information was available. The maps are useful in determining where gaps occur in the protection of local significant habitats, natural communities and rare species.

For More Information

For more information on the Natural Heritage Inventory report for Philadelphia:
http://www.naturalheritage.state.pa.us/CNAI_Download.aspx

Recommendations Matrix

The relationship between the Natural Heritage Inventory recommendations and the River Conservation Plan goals are presented in Table 9.8.

Table 9.8 - Recommendation Matrix relating the implementation projects identified in the Natural Heritage Inventory report for Philadelphia to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Natural Heritage Inventory for Philadelphia County (Western PA Conservancy, 2008)								
Consider conservation initiatives and tools for natural areas on private land	X		X	X		X		
Orient management and restoration plans to address species of special concern and Natural communities as targets of conservation (not simply open or multi-use space) through the active maintenance of existing high quality natural area and restoration of more degraded spaces	X			X		X		
Protect bodies of water with adequate natural buffers	X		X	X		X		
Provide for buffers around natural areas	X		X	X		X		
Increase the connectivity of the city's green space with surrounding landscapes						X	X	X
Encourage and utilize existing grassroots organizations interested in preserving and restoring the city's natural areas								X
Manage for control of known invasive species and early detection of new invasive species in key natural area				X		X		
Promote community education on the importance of ecological health in urban environments								X
Incorporate Natural Heritage Inventory information into city planning efforts	X	X	X	X				

New Kensington Riverfront Plan, 2008

The New Kensington Community Development Corporation (NKCDC) produced the New Kensington Riverfront Plan. It is a plan that focuses on the New Kensington stretch of the river and emphasizes a balance between development and open space, creating gateways into the community, and creating a framework for implementation. The plan was guided by a broad task force of stakeholders.

For More Information

The Riverfront Plan can be downloaded at:
http://nkcdc.org/content.asp?cat=LANDUSE&varcontentcat=LAND_USE_WATERFRONT

Recommendations Matrix

The relationships between the New Kensington Riverfront Plan implementation projects and the River Conservation Plan goals are presented in Table 9.9.

Table 9.9 - Recommendation Matrix relating the implementation projects identified in New Kensington Riverfront Plan to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
New Kensington Riverfront Plan (WRT, 2008)								
Frankford Avenue Streetscape and Gateways			X			X		
Columbia Avenue Streetscape and Gateways			X			X		
Frankford Avenue Riverfront Access						X	X	
Penn Treaty Park Enhancements						X	X	
Pulaski Park Expansion						X	X	
Girard Interchange Accessibility Improvements						X	X	
Frankford Creek corridor	X	X	X	X	X	X	X	X

North Delaware Riverfront Greenway: Master Plan and Cost Benefit Analysis, 2006

The North Delaware Riverfront is a valuable resource to the entire City of Philadelphia. With more than 700 acres of vacant and underutilized land, the riverfront has the potential for greenway development in concert with mixed-use, commercial and residential development. While some of the existing properties need environmental clean-up, a properly developed continuous greenway and trail system (as proposed in the Greenway Plan) will provide an area devoted to public recreation, open space and economic development for new and existing riverfront neighborhoods.

The North Delaware Riverfront Greenway Master Plan and Cost Benefit Analysis, prepared by the Pennsylvania Environmental Council, Northeast River Task Force and various City agencies, focuses on the implementation of a "Public Greenway" that maximizes return of public investment, the creation of new revenue and significant recreational areas and open spaces for the City of Philadelphia. The analysis contains three alternative greenway scenarios. A consultant team (Greenways Incorporated, Econsult Corporation, and Schelter and Associates) worked to gather all relevant data for the plan, solicit public input, review priorities and synthesize all the information into a final implementation plan.

The recommendations for this report are presented as six neighborhood maps with proposed trail alignments. These graphics can be accessed by following this link: http://www.drcc-phila.org/maps%201.htm

For More Information

For more information on the North Delaware Riverfront Greenway Plan: http://www.drcc-phila.org/plans.htm

Recommendations Matrix

The relationship between the North Delaware Riverfront Greenway recommendations and the River Conservation Plan goals are presented in Table 9.10

Table 9.10 - Recommendations Matrix relating the implementation projects identified in North Delaware Riverfront Greenway to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
North Delaware Riverfront Greenway, 2006								
Plan recommendations are in a graphical format and can be accessed on the web: http://www.drcc-phila.org/maps%201.htm	X	X		X		X	X	X

Northern Liberties Neighborhood Plan, 2005

The Northern Liberties Neighborhood Plan, prepared by Interface Studio for the Northern Liberties Neighbors Association (NLNA), seeks to amplify the community's uniqueness and provides a guide that represents the community's' goals for the neighborhood's future. The document is also a tool to organize the planning efforts and coordination with City agencies and other stakeholders/investors that will be partners in the implementation of the plan. Completed in 2005, GIS and three-dimensional modeling techniques were utilized to help community members quantify and comprehend the changes underway, while also enabling them to visualize the impact of proposed future development. Through the planning process, local stakeholders were encouraged to establish priorities and goals for the neighborhood's redevelopment, improvements were identified for open space and major streets, and policies were recommended to retain the community's mixed-use character.

For More Information

The full plan can be downloaded at
http://www.nlna.org/images/NLNA_Plan_WebVersion.pdf

Recommendations Matrix

The relationship between the Northern Liberties Neighborhood Plan recommendations and the River Conservation Plan goals are presented in Table 9.11.

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Table 9.11 - Recommendation Matrix relating the implementation projects identified in Northern Liberties Neighborhood Plan to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Northern Liberties Neighborhood Plan (Interface Studios, 2005)								
Reinforce the diversity of the neighborhood's population and the unique collective identity								
Promote excellence in design through Urban Design Committee and Zoning Committee Activity								X
For large, new, residential developments, advocate for affordable units						X		
Complete the Northern Liberties Community Center						X		
Encourage public art by local artists including the design of new street furniture and lighting						X		
Expand the NLNA website to collect, organize and distribute local stories and histories								X
Promote and expand organized community events						X		X
Preserve the collaged landscape and mosaic of land uses								
Limit conversion of commercial properties for residential development						X		
Encourage commercial use on Girard, Spring Garden, and 2nd Street						X		
Form a business association with the legitimacy and support of a wide range of local businesses								X
Create a business retention and marketing initiative								X
Create and adopt guiding principles for the redevelopment of key commercial properties								X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Northern Liberties Neighborhood Plan (Interface Studios, 2005)								
Re-establish 2nd Street as the heart of the neighborhood								
Encourage ground floor commercial use for every parcel between Spring Garden Street and Girard Avenue								X
Undertake traffic calming measures at key intersections and change 2nd Street's one-way traffic flow to two-way						X		
Significantly improve the physical character of 2nd Street between Poplar and Fairmount including conceptual ideas for creating new public space, greening, and traffic management.								X
Adopt a "Green" philosophy and demand low-impact development techniques								
Promote low-impact development and green building technologies through the Zoning Committee and Urban Design Committee through new open space requirements and green expectations on new development	X	X	X			X		
Educate neighborhood residents about effective individual efforts to reduce the impact of development on the environment						X		X
Reactivate the Tree Tenders program and target new tree plantings			X			X		X
Identify, acquire, secure, and improve the neighborhood's inventory of open space						X	X	
Create an Open Space Fund funded by developers who cannot meet the new open space requirements – funds will be used to maintain and expand local green space						X	X	X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Northern Liberties Neighborhood Plan (Interface Studios, 2005)								
Foster a seamless transition between the traditional neighborhood fabric and the developing waterfront								
Oppose any future restrictions to waterfront access						X		
Improve pedestrian crossings to the waterfront at Frankford, Brown, and Spring Garden						X	X	
Seek funds for streetscape improvements for Fairmount, Brown, and Laurel						X		
Develop active park space and parking under the highway and El to creatively reuse vacant, under utilized space retrofit for an alive and growing neighborhood						X	X	
Ensure livability through optimized mobility								
Limit curb cuts for parking along major streets								X
Advocate for increased SEPTA ridership								X
Improve bicycle and pedestrian facilities						X	X	
Improve signage and information about on-street parking						X		X
Develop a shared parking approach to under utilized lots along Green Street						X		X
Create new parking lots						X		X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Northern Liberties Neighborhood Plan (Interface Studios, 2005)								
Build capacity within the NLNA; generate desirable change								
Charge a nominal fee for project review								
Expand the NLNA Volunteer Base through an outreach campaign and greater awareness in local press, the web and in key local gathering spaces								X
Develop transparency in the zoning review process and expectations and automate application submittal and review by the NLNA								X
Maintain a database of new development proposals and outcomes								X
Form a coalition with surrounding neighborhood groups to address issues of common concern.								X

Northern Liberties Waterfront Plan, 2007

The Northern Liberties Waterfront Plan was released in April 2007 by the Northern Liberties Neighbors Association. This community-based riverfront vision guides development from the Benjamin Franklin Bridge to Penn Treaty Park. Commissioned by NLNA and financed by local developers, it is the first community plan to address land along the central Delaware. The plan focuses on ideas for narrowing the gap between the river and its neighbors, such as east-west "civic incisions" that reclaim important connector streets as public space, manicured parks under portions of I-95, and floating trail elements in the river that will allow people to travel along a continuous riverfront trail despite private control of riparian land.

For More Information

The full plan can be downloaded at www.nlna.org/images/NLNA_WaterfrontPlan_Web.pdf

Recommendations Matrix

The relationship between the Northern Liberties Waterfront Plan recommendations and the River Conservation Plan goals are presented in Table 9.12.

Table 9.12 - Recommendation Matrix relating the implementation projects identified in Northern Liberties Waterfront Plan to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Northern Liberties Waterfront Plan (Interface Studios, 2007)								
Activity Channel / Waterfront Trail: Continuous public access along the riverfront via a linked waterfront trail is a basic right. Our approach is to treat the trail as one public amenity comprising three very different characteristics							X	
Trail as expanded sidewalk: There are moments when the trail must operate as an active part of Delaware Avenue. Embrace these moments, and ensure that the sidewalk is designed to handle active bicycle lanes and other necessary amenities.						X	X	
Trail along the River's edge: Where possible, require new developments to provide at least a 50-foot public right-of-way in perpetuity. Where properties are deeper, advocate for a 150-foot right-of-way.	X	X		X		X	X	
Trail floating along the water: Where opportunities to build a 50-foot trail are lost, bypass them. Create a floating trail that allows people to experience the feel of the water. One benefit is that the trail will create inlets, each of which can adopt a distinct personality.						X	X	
A Natural River's Edge: A natural riparian edge along the River can bring enormous benefits. A number of areas where the riparian edge can and should be improved have been identified.	X	X	X	X	X	X	X	

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Northern Liberties Waterfront Plan (Interface Studios, 2007)								
Play Space: It was strongly expressed that the waterfront should consist of multiple parks, linked to one another and the adjacent neighborhoods. This includes improving and expanding Penn Treaty Park to the south along the coastline in an expanded right of-way; creating small, passive plazas; developing a new park under I-95 to foster stronger connections between Northern Liberties, Fishtown, and the waterfront; transforming the parking lot on Festival Pier into an active park; and capping Spring Garden with a public gateway to the River.						X	X	
Green Links: The perpendicular streets – Callowhill, Fairmount, Brown, Poplar, Laurel, Frankford, Shackamaxon, Marlborough and Columbia must remain active, neighborhood-serving, and green.						X	X	
In the case of Shackamaxon, Marlborough and Columbia Streets, the former right-of-ways that extended from Delaware Avenue to the River should be recovered providing connections to the waterfront trail system between development sites.						X	X	
Civic Incisions: Both Spring Garden Street and Delaware Avenue should be reclaimed as a civic gesture of the community, facilitating east-west connections and promoting more pedestrian activity.						X	X	

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Northern Liberties Waterfront Plan (Interface Studios, 2007)								
To act as a true riverfront boulevard, Delaware Avenue needs improved intersections, crosswalks (including electronic countdowns) and additional landscaping. Long-term improvements include new light rail and expanded bicycle lanes to provide alternative modes of transportation.						X	X	
To more strongly connect the Spring Garden El station to the River, Spring Garden Street between the station and Delaware Avenue should be transformed into a linear park by planting the median with wild grasses, removing street parking, adding landscaping and enhancing the bicycle lanes.						X	X	
Bus stops, message boards / kiosks and benches should be designed with the community's industrial past and artistic present in focus.						X	X	
I-95 Insulation: I-95 is a barrier that must be addressed. Creative attention to I-95's edges are essential, and the community should have the chance to influence the look, feel and function of these edges from the ground up. There are 4 proposals for I-95:						X		X
Create new open space where the highway is lofted above the City grid						X	X	
Selectively excavate under the highway to reconnect streets once severed by I-95, most notably Poplar Street;								X
Re-plant the berms along the highway edge to accommodate a strong row of trees that frame views to the waterfront as well as swales to improve stormwater management;	X	X	X	X		X		

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Northern Liberties Waterfront Plan (Interface Studios, 2007)								
Build new infiltration planters at the base of the highway walls, and treat the wall surfaces with vines and murals	X	X	X	X		X		
A Multi-Modal Waterfront: The waterfront should offer the best of multiple forms of transportation including public transit, automobile access, cycling and walking.						X		
Improve the Frankford / Laurel / Delaware intersection – Re-routing Frankford Avenue to intersect with Delaware Avenue at a right angle thereby creating a new plaza as a gateway to Fishtown.						X		
Change Callowhill Street to two-way traffic. The complicated intersection at 2nd and Callowhill where I-95 traffic descends into the City should be redesigned to allow for two-way traffic.						X		
Improve the Spring Garden El Station wrapping the interior of the underpass with a metal mesh and rear lighting to improve the physical appearance of the underpass.						X		
Pursue water taxi and river ferry service.						X	X	X
Insert light rail onto Delaware Avenue.						X		
Apertures: 11 locations have been identified as opportunities to create varied installations that express these hidden historical and cultural narratives. .						X		X
An Adaptive Environment: A calendar of events needs to be created that populates the River with unique experiences from farmers' markets to art shows and concerts throughout the year.						X		X

Philadelphia Pedestrian and Bicycle Plan

The Pedestrian and Bicycle Plan identifies strategies to increase the number and frequency of people walking and bicycling in the City by improving the connectivity, safety, convenience and attractiveness of Philadelphia's pedestrian and bicycle networks.

An expanded bikeway network will not only make bicycling safer and more convenient, but will also help to promote a wider recognition and acceptance of bicycling as a viable transportation mode. Likewise, improving the pedestrian network will enhance the safety, comfort, efficiency and attractiveness of walking in Philadelphia.

The plan includes physical infrastructure recommendations, as well as recommendations for policies, regulations, design standards, and programs that affect walking and bicycling Citywide.

For More Information

The full plan can be viewed and downloaded at http://www.bicyclecoalition.org/files/Philadelphi_PandB_Plan_Final_lowres.pdf

Recommendations Matrix

The relationship between the Philadelphia Pedestrian and Bicycle Plan recommendations and the River Conservation Plan goals are presented in Table 9.13.

Table 9.13 - Recommendation Matrix relating the implementation projects identified in the Philadelphia Pedestrian and Bicycle Plan to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Philadelphia Pedestrian and Bicycle Plan								
General Approaches to Implementing Plan Recommendations								
Re-convene and institutionalize the Bicycle and Pedestrian Advisory Task Force to monitor progress on the implementation of physical improvements and policy changes recommended in the Plan, and to advise the City on new pedestrian and bicycle issues as they arise						X	X	X
Coordinate pedestrian and bicycle recommendations to avoid potential conflicts and take advantage of opportunities for dual improvements.						X	X	X
Act on opportunities to make pedestrian and bicycle network improvements, whether through specific spot improvements, as part of corridor projects (such as resurfacing, restriping, or streetscape projects), or as part of development/redevelopment projects.						X	X	X
Establish a collaborative relationship with parallel and complementary projects, such as storm water management (Green City, Clean Waters) and curb ramp replacement.						X	X	X
Pursue additional funding to program the design and construction of pedestrian and bicycle improvements on a priority basis.						X	X	
Pedestrian Network Policy Recommendations								
Establish sidewalk design guidelines						X	X	
Improve sidewalk furnishings						X	X	
Improve street crossings						X	X	
Expand and improve pedestrian signals						X	X	
Improve Driveways and Lay-Bys						X	X	

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Philadelphia Pedestrian and Bicycle Plan								
Support requirements for sidewalks in new development						X	X	
Establish sidewalk retrofit guidelines						X	X	
Bicycle Network Policy Recommendations								
Expand bicycle network design						X	X	
Improve Bicycle Treatment at Intersections						X	X	
Provide more bicycle parking						X	X	
Improve bicycle access to transit						X	X	
Health and Safety Policy Recommendations								
Educate , enforce and encourage health and safety policy recommendations						X	X	
Management and Monitoring Policy Recommendations								
Mitigate construction disruption						X	X	
Maintain existing pedestrian network						X	X	
Support management of sidewalk encroachments						X	X	
Prepare bicycle detours						X	X	
Address policy for bicycles in buildings						X	X	
Improve crash reporting and records						X	X	
Improve and increase pedestrian and bicyclist counts						X	X	

Water Resources Plan for the Delaware River Basin, 2004 (Basin Plan)

The purpose of the Basin Plan is to provide a unified framework for addressing new and historic water resource issues and problems in the Delaware River Basin. The Plan emphasizes an integrated approach, recognizing, for example, that water supply and water quality cannot be managed separately; that groundwater and surface water are two aspects of the same resource, separated in time and space but fundamentally interrelated. Integrated management means considering all aspects of the water resource in decision-making. Conversely, it means recognizing that a wide range of decisions—not just those traditionally associated with water management—can affect our water resources.

The Plan sets a direction for policy and management decisions over the next 30 years and should be used as a guide for policy setting, decision-making and prioritizing actions originating from governmental units, private entities, organizations and individuals. It forms a framework within which existing and new programs can be incorporated and coordinated for effective results.

For More Information

To view this report: http://www.state.nj.us/drbc/basinplan.htm

Recommendations Matrix

The relationships between the Water Resources Plan for the Delaware River Basin recommendations and the River Conservation Plan goals are presented in Table 9.14 below.

Table 9.14 - Recommendation Matrix relating the implementation projects identified the Water Resources Plan for the Delaware River Basin to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
GOAL 1.1: Equitably balance the multiple demands on the limited water resources of the Basin, while preserving and enhancing conditions in watersheds to maintain or achieve ecological integrity.								
a. Develop an integrated resource management strategy to determine amount of water available for allocation considering: 1) Water budget 2) Instream flow needs 3) Ground water availability 4) Assessment tools 5) Degree of hydrologic/biologic disruption	X	X	X	X				
b. Assess the ecological integrity of watersheds and integrate the criteria into water allocation strategies		X						
c. Discourage and where necessary manage any expanded or future transfers of water and wastewater into or out of the Basin to minimize and mitigate environmental or other negative impacts, while giving consideration to feasible alternatives, the water needs of the sending basin, and the efficient use in the receiving basin of available resources		X	X					
d. Assess existing transfers of water and wastewater into or out of the Basin in light of changes, such as new water resource management strategies, technologies, storage, planning, and/or demand		X	X					

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
e. Manage future and expanded transfers of water and wastewater among watersheds to minimize and mitigate environmental or other negative impacts, while giving consideration to feasible alternatives, the water needs of sending watershed and the efficient use in the receiving watershed of available resources		X						
f. Assess existing watershed transfers of water and wastewater in light of changes, such as new water resource management strategies, technologies, storage, planning, and/or demand		X						
g. For future droughts ensure the equitable allocation of water supplies for essential domestic, commercial, industrial, power generation, and agricultural uses, while maintaining ecological integrity of aquatic ecosystems		X				X		
GOAL 1.2: Ensure an adequate supply of suitable quality water to restore, protect and enhance aquatic ecosystems and wildlife resources.								
a. Integrate in-stream flow and estuary fresh water inflow requirements for the support of healthy aquatic ecosystems into water resource regulations and decision-making	X	X	X					
b. Where water quality meets or is better than standards for the protection of aquatic life and wildlife, implement anti-degradation regulations, policies and/or other mechanisms to maintain or improve existing water quality	X	X	X					

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
c. Where water quality is not sufficient to protect aquatic life and wildlife, employ strategies to provide protection through the implementation of TMDLs and other regulatory and non-regulatory means	X	X	X					
GOAL 1.3: Ensure an adequate and reliable supply of suitable quality water to satisfy public water supply and self-supplied domestic, commercial, industrial, agricultural, and power generation water needs								
a. For normal hydrologic conditions ensure supplies for projected public and self-supplied domestic, commercial, industrial, agricultural, and power generation demands through 2030		X						
b. Plan under drought of record conditions, to provide adequate supplies for projected public and self supplied domestic, commercial, industrial, agricultural, and power generation demands through 2030		X						
c. Ensure maximum feasible efficiency of water use across all sectors, prioritizing efforts based on the existence of watershed transfers and/or substantial consumptive use; including promoting water conservation technology and habits, leak detection and repair, pricing incentives, etc.		X						
d. Increase the beneficial reuse and recycling of reclaimed water		X						
e. Where water quality meets or is better than standards for the protection of drinking water, implement anti-degradation regulations, policies and/ or other mechanisms to maintain or improve existing water quality			X					

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
f. Where water quality does not meet standards for the protection of drinking water, employ strategies to achieve standards through the implementation of TMDLs and/or other regulatory and non-regulatory means			X			X		
g. Protect the quality of public and industrial water supplies by preventing the isochlor from exceeding 180 parts per million at river mile 98			X					
h. Develop flow and transport models and tools to track large scale accidental and intentional contaminant releases to 1) Assess the impacts to water intakes and basin water resources and 2) Direct emergency response actions	X	X	X					
i. Develop water supply contingency plans to address critical water needs in the event of the loss of usable source water and water intake or distribution infrastructure			X					

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
GOAL 1.4: Ensure adequate and suitable quality stream flows for flow-dependent recreational activities								
a. Integrate consideration of flow regimes to support water-based recreation in the river and tributaries into allocation and management decisions							X	
b. Where water quality meets or is better than standards for the protection of recreational uses, implement anti-degradation regulations, policies, and/ or other mechanisms to maintain or improve existing water quality			X				X	
c. Where water quality does not meet standards for the protection of recreational uses, employ strategies to achieve standards through the implementation of TMDLs and/or other mechanisms			X				X	
GOAL 2.1: Prevent or minimize flood-induced loss of life and property, and protect floodplain ecology.								
a. Upgrade and modernize flood warning and forecasting capabilities					X	X		X
b. Characterize flood damage risks; prioritize and implement actions to reduce risk and losses, and address human induced ecological impacts of hydromodification		X			X	X		
GOAL 2.2: Enhance water-based recreation in the river and its tributaries.								
a. Develop a recreational water use and public access plan for the Basin that provides for: 1) Increased public access 2) Improved recreational experiences for all users through signage, guides, provision of destination points, linkage to other recreational opportunities, etc. 3) Increased availability of pump-out facilities, etc						X	X	

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
b. Develop identified recreational facilities and amenities per Basin-wide Recreation Plan							X	
c. Create a continuous network of water trails for the river, tributaries and lakes						X	X	
d. Reduce or prevent generation of debris and trash and expand clean up programs in river and tributaries						X	X	
e. Develop an inter-state campaign to promote the Basin as a recreation and tourist destination						X	X	X
f. Ensure that recreational uses do not impair the ecological integrity of aquatic and riparian ecosystems	X						X	
g. Support and encourage watershed communities to incorporate water based recreational assets in planning and management, including requirements in subdivision ordinances							X	X
GOAL 2.3: Protect, conserve and restore healthy and biologically diverse riparian and aquatic ecosystems.								
a. Implement conservation plans for populations, assemblages and communities of indigenous aquatic and terrestrial plants and animals (Consider habitat needs for water quality and availability, reproduction, food supply and refuge from predation)	X							
b. Implement fisheries management plans to sustain commercially and recreationally important species of the Basin	X							
c. Increase the quality, diversity and function of wetlands throughout the Basin.	X		X	X				
d. Implement strategies to protect critical riparian and aquatic habitat	X			X				
e. Implement invasive species management throughout the Basin	X	X		X				

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Water Resources Plan for the Delaware River (DRBC, 2004)								
f. Employ regional approaches to sediment management to improve the beneficial use of dredged materials in habitat restoration		X						
g. Prioritize and remove impediments to fish passage		X						
h. Stabilize stream channels based on systemic analysis of causes of instability		X		X				
GOAL 3.1: Preserve and restore natural hydrologic cycles in the Basin's watersheds.								
a. Encourage and support land use designs that maintain pre-development response to storm events with respect to infiltration and runoff volume, velocity, and quality		X	X					X
b. Address adverse effects from existing land use practices			X					
c. Discourage land use and stormwater management practices that exacerbate hazardous conditions, e.g. sinkholes, flooding, etc					X	X		
GOAL 3.2: Maintain and restore the integrity and function of high-value water resource landscapes.								
a. Map high value water resource landscapes and assist watershed communities in prioritizing these resources for protection	X							X
b. Develop guidance for performance standards that protect the function of high value water resource landscapes	X							X
c. Encourage and assist watershed communities to prioritize high value water resource landscaping for land preservation programs	X							X
d. Minimize contamination threats to drinking water supplies utilizing information from source water assessment programs			X			X		X
GOAL 3.3: Fully integrate water resource considerations into land use planning and growth management.								

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
a. Develop watershed assessments to identify priority water resource issues that should be considered in community land use plans and ordinances								X
b. Encourage and support watershed communities working together on regional planning and growth management								X
c. Ensure availability of land and water resources data, analytical tools, and models to guide local and regional land use and growth management planning and decision-making								X
d. Adopt and implement plans and ordinances that incorporate scientifically sound and legally implementable provisions for the protection and enhancement of water resources (States to support and encourage; local and county government to implement; private and non-governmental organizations to partner)								X
e. Integrate water resource elements into local, multi-municipal, regional, and state agency and authorities' plans, regulations, and decision-making processes								X
GOAL 3.4: Encourage development and redevelopment in areas where growth can improve the economic viability of local communities while providing for the protection and enhancement of the water resources of the Basin; discourage development and redevelopment where it may impair water resources and their related natural resources.								
a. Identify and prioritize areas that would benefit environmentally and economically from redevelopment			X			X		
b. Develop criteria and incentives for coordinated review processes that facilitate development and redevelopment consistent with the goal								X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
c. Develop criteria and disincentives to be applied during coordinated review processes that discourage development, and redevelopment inconsistent with the goal								X
d. Maintain and make necessary and prudent changes to existing navigable waterways and ports and use regional approaches to manage dredged materials		X	X			X		
GOAL 3.5: Physically and visually emphasize and strengthen the social, historic, cultural, recreational and economic connections of communities to the Basin's waterways.								
a. Encourage waterside re-development, that emphasizes public access as well as aesthetic, historic, recreational, economic and cultural values						X	X	X
b. Create waterway transit opportunities for residents, commuters and visitors						X	X	X
GOAL 4.1: Improve coordination and cooperation in the management of water resources in the Basin.								
a. Achieve consistency in the implementation of water quality standards that apply to the shared waters of the Basin			X					X
b. Ensure at state boundaries that downstream state water quality standards are attained			X					
c. Achieve comparable monitoring, documentation and accurate reporting of data that involve the basin-wide water resources of the Basin								X
d. Achieve consistency in protection of public health in regard to consuming fish and shellfish, due to chemical contamination, in regard to the shared waters of the Basin			X			X		

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Water Resources Plan for the Delaware River (DRBC, 2004)								
e. Achieve consistency in content and communication of advice for primary contact recreational use of shared waters								X
f. For future drought conditions, improve exchange of hydrologic information, drought status reports, and drought restrictions among DRBC, states, and public								X
g. Foster communication among state and local watershed programs and processes								X
h. Improve coordination of stormwater management programs and practices								X
i. Encourage communication for water resource planning among the watershed communities and counties within a watershed								X
j. Improve coordination among State Coastal Zone Management programs								X
k. Improve coordination for invasive species management								X
l. Evaluate and coordinate funding for flood mitigation								X
m. Support and implement watershed based trading, where appropriate, as a tool to complement traditional approaches to water quality management and improvement			X					X
GOAL 4.2: Increase sharing of data, information, and ideas among Basin stakeholders and reduce duplication of effort.								
a. Complete framework data layers for the entire basin plus several selected GIS layers accessible via the internet								X
b. Make digital data layers and water related databases available to view and download, integrated across political boundaries								X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
c. Develop a database of ongoing management activities to foster partnerships and reduce duplication of efforts								X
d. Improve methods of communication with and among local governments on water resource issues and provide adequate opportunities for discussion of key issues								X
e. Increase opportunities for the sharing of ideas, data, technology and information among public and private sector professionals involved in water resource issues								X
f. Increase opportunities for technology transfer among water resource professionals								X
GOAL 4.3: Secure adequate resources for programs and projects that encourage cooperative water resources planning and management.								
a. Inventory existing resources and identify gaps to implement Basin Plan Objectives								X
b. Explore additional resource opportunities								X
c. Increase opportunities to leverage federal, state and other funds for water resource planning, protection and restoration								X
GOAL 4.4: Ensure that water resource partners support and execute water resources management in accordance with the Guiding Principles, Goals and Objectives of the Basin Plan.								
a. Create or enhance formal partnerships for the purpose of implementing the Basin Plan Objectives								X
GOAL 4.5: Utilize the planning and regulatory powers of a regional governmental authority, the Delaware River Basin Commission, to facilitate coordination and cooperation.								
a. Enhance DRBC Comprehensive Plan to promote coordination and achievement of the Basin Plan Objectives								X
GOAL 5.1: Establish a Basin-wide sense of place.								

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Water Resources Plan for the Delaware River (DRBC, 2004)								
a. Create awareness and understanding of the river and associated resources so that citizens, businesses and officials are motivated to describe their home or place of business in terms of their watershed						X		X
b. Create awareness and understanding of the river and associated resources so that citizens, businesses and officials are motivated to act in ways that help protect and restore the watershed						X		X
c. Continue and expand the use of Internet and mass media resources to educate the public about water resources use, waterway corridor management, land management for water resources protection, institutional cooperation and coordination for water resource management, and education for water resource management and stewardship				X				X
d. Maintain a clearinghouse for information on local watershed efforts, such as river conservation plans, restoration and preservation efforts – and opportunities for financial and technical assistance								X
e. Make education and outreach a priority to achieve public awareness and personal involvement on behalf of the Basin and local watersheds								X
f. Increase participation in volunteer water resource projects and programs in the Basin								X
g. Increase the number of projects, programs and opportunities for citizen participation in water resources management protection and enhancement by 25%								X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
Water Resources Plan for the Delaware River (DRBC, 2004)								
h. Engage under-represented populations in water resource issues and stewardship								X
i. Implement a watershed signage program for the main stem Delaware River and all of its major tributaries and on state and interstate highways in the Basin								X
j. Provide information to enhance the ability of citizen and community groups to participate in restoration activities on their property and in their local watersheds								X
GOAL 5.2: Increase student and youth awareness, understanding, and active participation in water resources issues.								
a. Develop and initiate a strategy to incorporate watershed curricula in the education standards of the four Basin states								X
b. Provide a water resources related outdoor experience for every student in the watershed before high school graduation								X
c. Continue to promote and expand school programs that provide active participation in watershed protection, restoration, monitoring and awareness building								X
d. Maintain a web-based clearinghouse specifically for educators								X
GOAL 5.3: Increase private sector awareness, understanding, and active participation in water resources issues.								
a. Collect and disseminate to members of the commercial community information about water resources issues								X
b. Highlight demonstration projects that provide technology and information transfer to commercial interests in the Basin								X
c. Encourage private sector funding and participation in partnerships, initiatives and enhancement endeavors								X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
Water Resources Plan for the Delaware River (DRBC, 2004)								
GOAL 5.4: Increase local public officials' awareness, understanding, and active participation in water resources issues.								
a. Provide outreach and technical assistance programs targeted at local public officials, professional staff and consultants								X
b. Work with local governments to identify small watersheds where community-based actions are essential to meeting DRB preservation and restoration goals								X
c. Work with watershed community officials and organizations, and supply resources to develop effective water resource programs								X
d. Enhance funding for locally based programs that pursue restoration and protection projects								X

Delaware River: State of the Basin Report, 2008

In 1999, the Delaware River Basin Commission (DRBC) began a process to develop a new and unifying vision for water resources management in the Delaware River Basin. The Water Resources Plan for the Delaware River Basin (Basin Plan), unveiled in 2004, presents a direction for integrated water resource management, acknowledging the connection between land and water and valuing aquatic habitat protection while ensuring adequate flows and supplies for human needs. In accepting the new Basin Plan, the governors of each participating state directed the preparation of a periodic environmental conditions report. The State of the Basin Report is designed to serve as a benchmark of current conditions and a point of reference for gauging progress toward management goals. It also provides a platform for measuring and reporting future progress in water resource management, and a guide for adjusting monitoring and assessment programs. Finally, it is intended to communicate our understanding of the health of the Basin, to increase public involvement in the Delaware River Basin and Estuary Program activities, and to build consensus on a broad array of actions that can be taken to continue to improve water quality, water availability, and to enhance the living resources of the Delaware River Basin.

For More Information

For more information about this report: http://www.state.nj.us/drbc/

Recommendations Matrix

The relationships between the Delaware River: State of the Basin Report recommendations listed above and the River Conservation Plan goals are presented in Table 9.15.

Table 9.15 - Recommendation Matrix relating the implementation projects identified in Delaware River: State of the Basin Report to the Delaware Direct Watershed River Conservation Plan Goals

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	**In-river Flow Conditions**	**Water Quality & Pollutant Loads**	**River Corridors**	**Flooding**	**Quality of Life**	**Recreation**	**Stewardship, Communication, & Coordination**
State of the Basin, 2008 (DRBC, 2008)								
Enhance continuous monitoring of water quality. Continuous monitoring of some water quality parameters—particularly dissolved oxygen, pH and temperature—is necessary for accurate condition assessment.			X					
Link monitoring to water quality concerns and criteria. Each parameter of concern should be reviewed to determine its appropriate monitoring frequency., Coordination is necessary to ensure that agencies monitor within similar periods and for similar chemical forms.			X					
Enhance capacity for landscape change analysis. Land use/land cover data were among the most problematic to obtain and use since no single intra-basin organization coordinates or assembles timely land use and land cover data for the entire basin. A significant gap needs to be filled for adequate landscape change assessment.	X					X		X
Link landscape and population assessment. Landscape change and population reporting should be synchronized to provide a more robust assessment of development patterns and potential impacts to water resources.						X		X

	RIVER CONSERVATION PLAN GOALS							
	Riverflow & Living Resources	In-river Flow Conditions	Water Quality & Pollutant Loads	River Corridors	Flooding	Quality of Life	Recreation	Stewardship, Communication, & Coordination
State of the Basin, 2008 (DRBC, 2008)								
Increase data accessibility and mapping capability. While significant progress has been made to improve the retrieval of water data, some water-availability data still reside on local management systems that are difficult or impossible to obtain electronically. Monitoring and assessment data should include a geographic coding to allow them to be spatially represented.		X	X					X
Indicator selection was primarily based on data availability and completeness. Additional indicators should be considered for future reporting.								X
Evaluate water quality and hydrologic indicators. The use of additional chemical or flow indicators may be advisable. Coordination of state data collection would greatly enhance tributary evaluation.		X	X					X
Programmatic goals and objectives of the Water Resources Plan for the Delaware River Basin (Basin Plan) and the Comprehensive Conservation Management Plan (CCMP) for the Delaware Estuary should be reviewed to inform the selection of additional appropriate indicators.								X

9.4 – GRANT AND FUNDING OPPORTUNITIES

The implementation of the recommendations in this chapter may be eligible for various grant funding. The following resources provide a starting point for investigating funding options.

Environmental eGrants

Environmental eGrants is an electronic grants system that provides one-stop shopping to the grantee community for all Pennsylvania Department of Environmental Protection (DEP) and Department of Conservation and Natural Resources (DCNR) grants. Environmental eGrants standardizes the application process and provides an environmentally friendly way to submit a grant application to DEP or DCNR through a secure internet connection.

Information can be obtained on the following grants:

- DCNR Community Conservation Partnerships Program (C2P2)** described below**
- DCNR Wild Resource Conservation Program
- DCNR Heritage Area Grants
- DCNR Volunteer Fire Assistance
- DCNR TreeVitalize
- DEP Coastal Zone Management
- DEP Community Cleanup Grant
- DEP PA Conservation Works!
- DEP PA Green Energy Works! Combined Heat and Power
- DEP PA Green Energy Works! Biogas
- DEP PA Green Energy Works! Solar
- DEP Grants and Loans

For more information: https://www.grants.dcnr.state.pa.us/

Community Conservation Partnerships Program (C2P2)

Local governments, county governments and non-profit organizations can apply for Community Conservation Partnerships Program (C2P2) funding to assist them with addressing their recreation and conservation needs as well as supporting economically beneficial recreational tourism initiatives. There are three basic grant project types: planning, acquisition and development.

The C2P2 contains the following grant components:

- Community Recreation
- Land Trusts
- Rails-to-Trails
- Rivers Conservation
- Snowmobile/ATV
- Heritage Areas
- Land and Water Conservation Fund
- Recreational Trails

All components have been combined into one annual application cycle (generally in the Spring), and use a single application format and process with one grant manual and one set of application forms. Applications selected for federal LWCF funding require some supplemental information to enable submission of the application to the National Park Service (NPS). Generally, all components require a match, usually 50 percent of cash or in-kind contributions. For more information, http://www.dcnr.state.pa.us/brc/grants/

Pennsylvania Department of Environmental Protection

The Pennsylvania Department of Environmental Protection has created a very useful factsheet that describes the potential funding sources for watershed groups. Name and phone number contacts for state, federal, public and private programs are provided along with a program description and whether the funding can be used for project planning or implementation. Click here to download the factsheet.
http://www.sourcewaterprotection.org/pdf/DEP%20Funding%20for%20Watershed%20Groups.pdf

Catalog of Federal Funding Sources for Watershed Protection

The United States Environmental Protection Agency website has a searchable database of federal funding sources for watershed protection projects. The database includes information on financial assistance sources (grants, loans, cost-sharing) available to fund a variety of watershed protection projects.
http://cfpub.epa.gov/fedfund/

Delaware River Basin Commission

The DRBC has a list of information and opportunities for watershed associations within the Delaware River Basin available on their website. Information on state, federal, public and private funding organizations is provided at
http://www.state.nj.us/drbc/watershedgroupsinfo.htm

William Penn Foundation - Environment and Communities Grants

The William Penn Foundation's Environment and Communities grants promote the protection, conservation, and restoration of Philadelphia's water resources. These grants support policy reform as well as promote local projects that test applications of regulations and demonstrate new practices or approaches.
http://www.williampennfoundation.org/ecFundingPriorityProtectandConserve.aspx

Appendix A:
Riverbank Assessments

Darby Creek Confluence to Philadelphia International Airport (PHL):

There was a traffic road and train bridge crossing the creek at the confluence and a tidal wetland just upstream from the confluence.

The operative businesses along this section of the river, in order and heading upstream, were the West End Boat Club, Corinthian Yacht Club, Lagoon Night Club, Riverside Yacht Club, Anchorage Marina, and Philadelphia International Airport.

The yacht clubs had marinas, docks, boat moorings, parking lots, and club houses. The Lagoon Night Club had a restaurant, hotel for 100 guests, Castaways Café, shower and laundry facility, live music, two large decks, a marina, and eighty boat slips.

Upstream from the Corinthian Yacht Club was the Governor Printz Park, Essington, PA. This seven acre park is on the site of New Sweden, the first European settlement in Pennsylvania. There was a three foot retaining wall with a set of steps leading to the river. The park's lawn was mowed to the edge.

An abandoned pipeline extending to a cement structure was noted upstream from Anchorage Marina.

Spadderdock (*Nuphar luteum*), was present along this whole section with pockets of eelgrass (*Vallisneria Americana*) present in the submerged littoral zones. Cormorants and herring gulls were perched on old dock posts. There were no fish, filamentous algae, smells, barriers, or trash noted along this section.

Philadelphia International Airport (PHL) to Fort Mifflin:

Looking downstream from the United Parcel Service (UPS) complex lies a long, thin island in the middle of the river known as Little Tinicum Island. The island's vegetation consisted of trees and bushes and there were sandy banks showing signs of boater activity.

A UPS building and parking lot located on Hog Island Road was approximately 100 feet upstream from Little Tinicum Island and on the banks of the Delaware River.

The banks near UPS were flat and sandy and the vegetative coverage consisted of common reed (*Phragmites* sp.), spadderdock (*Nuphar luteum*), and deciduous trees. Spadderdock was noted throughout this section as well as adequate tree canopy. Wildlife seen this day was Canadian geese and a blue heron.

A stone fortified wall began just upstream of UPS and continued for approximately 250 feet upstream. There was one outfall and an old railroad track pier, 175 feet long, with pipes running beneath. Further upstream was an abandoned pumping station on a 300 foot concrete dock with a barge docked at its banks. Following the river upstream, the Stena Victory tanker was docked just downstream of a large number of oil/fuel tanks.

Fort Mifflin, located at 1 Fort Mifflin Road and Hog Island Road, had a stone wall bank with grass and shrub vegetative coverage with very little tree coverage. There were several fort-like, historical structures as well as a waterway with bridges, hills, and bunkers on this section of the river bank. Living history events and tours are held from March 1 to December 1 at the Fort.

Fort Mifflin to Philadelphia Port Authority:

Upstream from Fort Mifflin was the Army Corps of Engineers' Delaware River location, which continues along West Fort Mifflin Road to the Schuylkill River confluence. There were two twin concrete docks, three tug boats, multiple buildings and parking facilities, and a barge along a side dock. There was very little vegetation on the banks and large areas of impervious cover. There was an abandoned bulkhead approximately 300 feet downstream from the Schuylkill confluence. There was a large patch of land just before the confluence that was used for dredge material.

Directly upstream of the Schuylkill River confluence was the Aker Philadelphia Shipyard. Noted were multiple cranes, ships, boats, docks, cement bulkheads, and residences. There was almost zero vegetation along this section until the residential area, where there were some trees and lawns. Aquatic species consisted primarily of patches of eelgrass. There was also an abandoned structure located at the upstream end of the Navy Yard.

Continuing upstream was the Philadelphia Regional Port Authority where tractor trailers were being unloaded. There were many piers, some looked operational (e.g.,Conrail Pier 122 and Keystone Cocoa Center Pier 84) and some that appeared abandoned (e.g., Pier 98 and Pier 92).

The Walt Whitman Bridge extended across the river at this section and the naval ship, "SS United States," was docked at the Port Authority.

Many birds were noted along this section, such as cormorants, herring and laughing gulls, mallard ducks, and seagulls. No other fish or wildlife was observed.

Port Authority to the Penn's Landing – Pier 36 Heliport:

There were five identifiable/operational piers along this section. Piers 80, United States Lines, and 78, Philadelphia Port Corporation, were directly off East River Street and were surrounded by parking areas. The U.S. Coast Guard pier had boat mooring docks, coastal equipment on their pier, and a parking lot that had stormwater Best Management Practices in place. Piers 40 and 38 were un-named but seemed operational.

Two outfalls, D67 and D65, were observed with missing debris screens. There were many abandoned piers along this section, some falling apart into the river and others covered with wild vegetative growth. There was one broken bulkhead downstream of the U.S. Coast Guard Pier.

The Penn's Landing – Pier 36 Heliport, located off of South Columbus Boulevard, between Catherine and Fitzwater Streets appeared well-maintained.

Penn's Landing – Pier 36 Heliport to the Waterfront Square Condominiums:

The operative businesses along this section of the river, in order and heading upstream, were the Dockside Luxury Apartments, Charthouse Restaurant, Moshulu Restaurant, Seaport Museum, Pier 3 Condominiums, Pier 5 Condominiums, Hibachi Restaurant, Dave & Buster's, Cavanaugh's River Deck, and Waterfront Square Condominiums. Parking areas are prevalent along this section with minimal green space incorporated into the design. There were ample docking facilities at each condominium building.

Penn's Landing, an outdoor space for festivals and events, was located along this section, as was Municipal Pier 9 which appeared neglected, possibly abandoned. There was one abandoned pier, Pier 11, overgrown with vegetative growth, directly downstream from the Ben Franklin Bridge. The Ben Franklin Bridge extended across the river at this section. Two amphibious "Ride the Ducks" vehicles were noted just below the bridge.

Waterfront Square Condominiums to Westway Terminal Co. Inc.:

Upstream of the Waterfront Square Condominiums was a submersed boat that was directly next to a collapsed pier. Derelict or abandoned piers and bulkheads were a common theme along this reach of the river.

There was an unidentified outfall twenty feet upstream of the submersed boat. Outfalls D39 and D38, which was missing its debris screen, were further upstream. Continuing upstream were outfalls D25 and D24 which were both missing their debris screens (i.e. near Delaware Ave. and E. Cambria Streets). There was one more unidentified outfall just upstream of the Westway Terminal Co., which was also devoid of a debris screen.

Approximately 250 yards upstream of the Waterfront Square Condominiums was Penn Treaty Park, and area defined by adequate tree canopy and a large parcel of mowed land. Just upstream were the Philadelphia Electric Co. buildings which appeared abandoned. The Westway Terminal Co. appeared operational. There was a large amount of storage tanks on the Westway property and the surrounding ground cover was either impervious concrete or asphalt.

Several abandoned vehicles were sighted along this section. Concrete and steel remnants were prevalent as well as general trash debris. A railroad bridge extended across a small inlet in front of outfalls D25 and D24.

There were many bird species noted, such as the mallard duck, cormorants, blue heron, and geese.

Westway Terminal Co., Inc. to Bridesburg Outboard Club

The Streets Department's Wheatsheaf Lane Sanitation Yard was just upstream of the Westway Terminal, Delaware and East Allegheny Avenues. There was no vegetation visible and it appeared that the grounds were completely covered with asphalt. Continuing upstream between Castor Avenue and Lewis Street was the Philadelphia Water Department's sludge transport barge and a Philadelphia Electric Co. building. Directly next to the Philadelphia Electric Co. was the Northeast Wastewater Treatment Plant.

There were two bridge barriers along this section. One was the New Jersey PATCO line located just downstream of the Frankford Creek confluence. This region was littered with tires, old debris, and a "stripped" jeep. The other was the Betsy Ross Bridge just upstream of the Frankford Creek confluence. The rocky bank under the Betsy Ross Bridge had a 4 foot diameter pipe coming off the bank.

Approximately 100 yards upstream of the Betsy Ross Bridge was a trucking facility and outfall D15. Upstream of the trucking facility was a suspected concrete dumping site approximately 250 feet long, an old railroad track pier, and an old railroad track pier with an abandoned brick structure. Directly upstream of this pier was a vegetated inlet filled with spadderdock.

One quarter mile upstream of the Betsy Ross Bridge was the Bridesburg Outboard Club. Six boats were moored approximately 10 feet off the bank. The bank was rocky and there were stairs leading up from a pier to a parking lot.

Numerous Canada geese and laughing gulls were noted along this section.

The Bridesburg Outboard Club to the Wissinoming Yacht Club

Just upstream of the Bridesburg Outboard Club was a large leveled area consisting of dirt and grass seed adjacent to a dilapidated boat launch. This tract of land could be part of the Bridesburg Outboard Club.

Continuing upstream were Sun Oil Company and Rohm & Haas. There was a petrochemical barge alongside the Sun Oil dock as well as storage tanks. A building adjacent to Rohm & Haas had two 6 inch pipes discharging a clear liquid down a sluice into the river. The Frankford inlet intercepted at this point and had a train bridge crossing the stream.

Approximately 100 yards upstream of the Frankford inlet was the artifacts of the Frankford Arsenal boat launch. Further upstream were the Frankford Arsenal, S SM Inc., and United Metal Traders Inc. Each property had buildings, trailer beds, storage

tanks and asphalt parking lots. The bank area of S SM Inc. and United Metal Traders Inc. had a lush vegetative coverage of trees and shrubs.

Next to S SM Inc. was the old Kieser's Tire & Battery facility where an old pipeline was noted extending outward 50 yards from the bank.

Directly upstream of Kieser's Tire & Battery was the Wissinoming Yacht Club which had 16 boats moored. There was minimal vegetative coverage on the bank with the remainder of the property covered by concrete, asphalt and two buildings.

There were three outfalls (D13, D11 and D07) and two CSO regulators (R13 and R14) along this section. A green heron was noted on the Rohm & Haas bank and 20 Canada geese were on the Frankford Arsenal bank. No other fish or wildlife was observed.

*2010 Update: The PA Fish & Boat Commission removed floating docks and walkways located at the Frankford Arsenal boat launch in November of 2009.

Wissinoming Yacht Club to the Pennypack Confluence

The River's Edge Memorial Park was just upstream from the Wissinoming Yacht Club. The majority of the property was mowed grass and vegetative cover was poorly represented. Adjacent to the park was the 4.5 acre Lardner's Point Park which had minimal tree and shrub coverage, areas of mowed grass, wild grasses/weeds covering the banks, and what appeared to be an abandoned boat launch. There was also a parking lot and an active pumping station, Lardner's Point Pumping Station, at this site.

The Tacony Palmira Bridge was directly upstream of Lardner's Point Park. Approximately 350 yards upstream from the Tacony Palmira Bridge a large amount of tires and concrete wheels were used for bank stabilization which continued for 500 yards going upstream. This stretch of the river housed what appeared to be a junk yard, a trucking facility and multiple warehouses. The bank was tree-lined throughout this section with large areas of impervious cover from the tree-line extending back to Interstate 95.

Continuing upstream at Princeton Avenue was a public boat launch. Quaker City Yacht Club was just upstream with 23 boats moored the day of the assessment. Fifty yards upstream of the Quaker City Yacht Club was the 25 acre Morris Iron & Steel facility with Waste Management directly adjacent. In the river, in front of the Waste Management facility there was an abandoned barge that was heavily covered with vegetated growth. Continuing upstream a vacant warehouse with a large amount of open space was noted.

Approximately 50 yards upstream from the vacant warehouse was Pennypack Park. There was a fishing pier, soccer fields, and a gazebo viewed from the river. Directly behind the park were the buildings of the Philadelphia prison system. The Pennypack confluence ran through this cluster of buildings.

The vegetation, Spadderdock, was noted at the Tacony Palmira Bridge, the Quaker City Yacht Club and Pennypack Park. Wildlife that day was Canada geese, cormorants, and swallows.

The Pennypack Confluence to the Poquessing Confluence

Pennypack Park continued for approximately one mile on the north side of the Pennypack confluence. This area was heavily vegetated and had an adequate tree canopy. Adjacent to the park, going upstream, was the Pennypack Pumping Station. One quarter mile further upstream was the Baxter Raw Water Intake and Sedimentation Basin. A dredging barge was noted in front of the basin. Upstream at Linden Avenue was the Linden Avenue boat launch which is a public boat launch. This area had a road and parking lot for 50 vehicles. Directly behind the parking lot was Pleasant Hill Park which had a baseball field, minimal tree coverage and mowed lawn areas. Also at Linden Avenue was Outfall D09205, a large cement wall, sandy banks and a waterfront café.

Continuing upstream for a 3-mile stretch was a series of condos, townhouses and single homes. Accompanying these residential areas were benches, playgrounds, parking lots and two in-ground swimming pools. All lawn areas were mowed to the bank.

The Delaware River Yacht Club, located at Fitler Street, had 14 boats moored. Further upstream was the Poquessing confluence and the Glen Foerd Mansion. There was good vegetative growth at the mansion.

There were 2 osprey nests on navigational buoys. One osprey was seen in flight as well as one heron.

Appendix B-1: Steering Committee

Delaware Direct River Conservation Plan
Steering Committee
Updated September 2008

Chuck MacIntosh	Army Corps	charles.p.macintosh@usace.army.mil
Ben Ginsberg	Center City District	bginsberg@centercityphila.org
Nancy Goldenberg	Center City District	ngoldenberg@centercityphila.org
Victor Banks	DCNR	abank@state.pa.us
Carolyn Wallis	DCNR	cwallis@state.pa.us
Barbara McCabe	Dept. of Rec.	barbara.mccabe@phila.gov
Jessica Sanchez	DRBC	Jessica.Sanchez@drbc.state.nj.us
John Yagecic	DRBC	John.Yagecic@drbc.state.nj.us
Sarah Thorp	DRCC	smthorp@drcc-phila.org
Stephanie Craighead	Fairmount Park	stephanie.craighead@phila.gov
Maurice Hartley	Mayfair CDC	
Bill Kunze	Nature Conservancy	bkunze@TNC.ORG
Sandy Salzman	New Kensington CDC	ssalzman@nkcdc.org
Reed Davaz McGowan	Norris Square NeighProject	rdm@nsnp.com
Maitreyi Roy	PA Horticultural Society	mroy@pennhort.org
Tom Minehart	PA House of Representatives	tminehart@pahouse.net
Tony Payton	PA House of Representatives	tpayton@pahouse.net
Susan Patrone	Passyunk Square Civic	susan.patrone@yahoo.com
Marge Rosenblum	Passyunk Square Civic	margerosenblum@juno.com
Mike Thompson	PCPC	michael.thompson@phila.gov
Alan Urek	PCPC	Alan.Urek@phila.gov
Patrick Starr	PEC	pstarr@pecpa.org
Andrew Goodman	PennPraxis	agoodman@design.upenn.edu
Michael Greenle	PennPraxis	greenle@pobox.upenn.edu
Harris Steinberg	PennPraxis	harrisst@design.upenn.edu
Glen Abrams	PWD	glen.abrams@phila.gov
Joanne Dahme	PWD	joanne.dahme@phila.gov
Glen Devil	Wissanoming Civic Association	

DELAWARE DIRECT RCP STEERING COMMITTEE

NOV 15 LAUNCH MEETING AGENDA (DRAFT V3)

I. WELCOME AND INTRODUCTIONS – PWD (TIFFANY) [10 MIN]

II. PURPOSE/VISION OF RCP AND STEERING COMMITTEE – PHS (MICHAEL) [20 MIN]

a. Outline purpose and flow of tonight's meeting.
b. Goal and Vision:
    - Display DCNR RCP goal language.
    - Display our goal statement, based on DCNR and this watershed.
    - Note ways in which Delaware Direct RCP is special (i.e., multiple existing plans to utilize, and focus on advancing implementation).
c. Role of Steering Committee
    - Expectations re: time commitment and tasks we'll ask them to do.
    - List various purposes and responsibilities (e.g., "buy-in" for future support, guidance on process and particulars, involve and inform constituencies, etc.).
d. Feedback on above **[ACTION]**

III. RCP TEAM PROCESS AND PROGRESS – PHS (MICHAEL) [20 MIN]

a. Note what we've done so far (e.g., inventorying existing plans, starting to extract data on community input and watershed resources).
b. Identify three main existing plans (GreenPlan, North Delaware, Central Delaware) and show list of all others. Individual Steering Comm members give very brief description and status of each.
    - Feedback on list of plans. **[ACTION – MARK UP POSTER]**
c. Outline our process, using North Delaware Greenway as model.
    - Criteria, Inventory, Analysis, Synthesis
d. Note potential for various "focus groups," as needed to fill data gaps.
e. Describe what we will be doing with this information (i.e., will yield model projects to be explored in design charrettes).

IV. MODEL PROJECT TYPES AND SITES – CAHILL (WES) [40 MIN]

a. Define and describe selection criteria (i.e., common features, replicable, currently part of problem and/or opportunity for improvement).
b. List examples (e.g., rowhomes, streetscape, large-scale riverfront residential, big box with parking lot, vacant lot, park/open space, etc.).
c. Discussion and begin to brainstorm possible model project types and specific locations. **[ACTION]**

V. HOW TO MAXIMIZE IMPACT OF THIS EFFORT – PHS (JOY?) [15 MIN]

a. What specific skills, programs do you bring to this process? **[ACTION]**
b. What special audiences, interests, experts, or other stakeholders should we include in the process? **[ACTION]**

VI. NEXT STEPS (10 MINUTES) – PHS (MICHAEL) [10 MIN]

a. List future agenda items.
b. Note tasks that may have been assigned during meeting.
c. Set next meeting.

NOVEMBER 15, 2007

DELAWARE DIRECT WATERSHED RCP STEERING COMMITTEE LAUNCH MEETING

Committee members present: Victor Banks (DCNR), Stephanie Craighead (FPC), Ben Ginsberg (Center City District), Andrew Goodman (PennPraxis), Chuck MacIntosh (Army Corps), Marge Rosenblum (Passyunk Square Civic), Patrick Starr (PEC), Mike Thompson (PCPC), Sarah Thorp (DRCC), Alan Urek (PCPC), Carolyn Wallis (DCNR).

Cahill Associates: Wes Horner, Courtney Marm
PWD: Glen Abrams, Joanne Dahme, Tiffany Ledesma Groll
PHS: Todd Baylson, Joy Lawrence, Michael Leff

COMMENTS DURING PRESENTATION:

- Additional steering committee members suggested:
  - DVRPC, which provides planning and implementation grants. Maybe Chris Lynn or Patty Elkis.
  - Community for central part of the City seems not to be well represented (e.g., Society Hill, and some other CC resident groups). If not added to steering committee, should at least cover through focus groups.
  - Special topics of interest to community groups (e.g., basement flooding). May have a focus group on such topics and get community participation that way.
  - Delaware River Port Authority?
  - School District representative?

- In GreenPlan, sustainability framework and interweaving of social/economic and environmental factors is the future and thoughtful…good planning work to learn from. The tool is relevant to other efforts.

- North Delaware initiative (DRCC) has $23 million for roads and trails.

ADDITIONS TO MODEL PROJECT TYPES AND SITES

- Wetland/habitat restoration (e.g., Pleasant Hill Park).
- Green Streets – What do they look like? Push the idea; means different things to different people; we want environmental function; maximize stormwater management potential; connectors.
- Greening Schoolyards – ID'ed in GreenPlan. What are the institutional barriers?
- GreenPlan creating analysis – High qualities of disadvantage (DVRPC methodology) + challenged access to open space; greened schoolyards could be solutions.

- Highway-related vacant land (30+ acres in Bridesburg) that is just mowed or weeds. Related, there are viaducts (Amtrak viaduct is an eyesore).
- Acknowledgment that these are not always populated places, so maybe not highest priority, but still great opportunities.
- 17-unit infill housing proposal in N Phila. draining stormwater into an underground cistern. Resulted in zero stormwater footprint with no contribution to combined sewer. Was not funded and idea needs to be explored more, but this is likely the future of housing in CSO areas.
- Intermediate-to-larger scale redevelopment sites (e.g., Philly Coke site). They are promoting a drain filter solution for managing stormwater because of high cost of building utilities. The result could be urban blight instead of the green vision that was originally proposed in North Delaware plan. Could bring suburban-style development to urban riverfront.

MAXIMIZING IMPACT OF THIS EFFORT

- Who else should we be speaking to individually, or in organized focus groups?
    - Developers
    - SEPTA
    - School District
    - PennDOT / I-95
    - CDCs

- What do you want the Delaware Direct RCP process to address?
    - **TIDAL WETLAND** restoration… It's in the river, so is it part of the watershed? (Patrick Starr)
    - The **RIVER'S EDGE** needs to be discussed. What should it look like – hard edge? pilings? natural?
    - More **PUBLIC ACCESS** to rivers, esp. due to threat to public access by large-scale development. (Joanne Dahme, Ben Ginsberg)
    - **GREEN STREETS,** located where they could hold stormwater (prevent from going into sewer) to help alleviate basement and neighborhood flooding, etc. (Joanne Dahme)
    - Need **GREEN STREET** prototypes to help focus on what works here in Philadelphia and pushing the early projects we have done (e.g., West Phila tree trench). (Glen Abrams)
    - **EDUCATIONAL COMPONENT** illustrated by PWD part of presentation was great and highlighted connection between big picture environmental issues and basement backup flooding. People who see this would get that connection. (Alan Urek)
    - See more **PHYSICAL GREENING** happen here. (Tiffany Ledesma Groll)
    - New innovative suggestions for **MAINTENANCE.** Critically important issue. (Stephanie Craighead)
    - Related: **LOW-MAINTENANCE** landscapes and public spaces.

- Finding collaborative **FUNDING** sources and ways to identify and share grant finding/writing and eventually receiving.
- Major **FUNDING** is out there (e.g., I-95 reconstruction) and could be tapped for landscape.
- **WATER QUALITY** to make river swimmable/fishable and enjoyable and safe for workers. Find new shared **FUNDING** for WQ. (Mike Thompson)
- Importance of **NEW ZONING CODE,** because despite support for vision plan, same folks still support standard development like Sugarhouse Casino.
- New thinking on **"GREEN INFRASTRUCTURE."** Can Green Streets be the new stormwater infrastructure that houses tie into? (Glen Abrams)
- Plans and newly proposed **GREEN INFRASTRUCTURE** need to be coordinated. If one area is corrected or modified, it could impact areas downstream. (Chuck MacIntosh)
- **GREEN ROOFS** handled at a neighborhood scale/districts. What are the incentives to help organize that and reduce its costs? Seeing that sort of physical improvement get translated into a reduced water bill will be important. (Carolyn Wallis)
- Concerns about implementation. **EDUCATION** and **COORDINATION** are key. How will stakeholders feed into plan and help with coordination (e.g., SEPTA and school district), so that they will modify their own activities/practices? Separate entities are working on all these different agendas; coordinating perspectives and resources will be needed to realize the culmination of all these plans. How will people be motivated to care? (Victor Banks)
- The signature idea from PennPraxis Central Delaware plan involves open space designed with **ENVIRONMENTAL FUNCTIONALITY** that serves **MULTIPLE PURPOSES.** Create these. (Andrew Goodman)
- Making these planning efforts **IMPORTANT** to people is critical. The **COMMUNITY ENGAGEMENT** process will need to make this **RELEVANT.**

Notes submitted by Michael Leff (PHS)

DELAWARE DIRECT RCP STEERING COMMITTEE

FEBRUARY 20, 2008

AGENDA

5:30 **I. WELCOME AND INTRODUCTIONS** (Tiffany Ledesma Groll, PWD)

5:45 **II. OVERVIEW** (Michael Leff, PHS)

- Preview tonight's meeting
- Recap Nov 15 launch meeting: highlights & outcomes
- Snapshot of team progress (Wes Horner, Cahill Associates)
  - Report structure
  - Content – what we'll need from committee

6:00 **III. STEERING COMMITTEE MEMBER UPDATES** (Michael Leff, PHS)

- New City Administration
  - Making contact – who, when, how, by whom?
- GreenPlan Philadelphia (Alan Urek, PCPC)
- Central Delaware Riverfront Vision (Harris Steinberg, PennPraxis)
- North Delaware Riverfront Greenway (Sarah Thorp, DRCC)
- New Kensington Riverfront Plan (Sandy Salzman, NKCDC)
- Others?

6:20 **IV. FOCUS GROUPS** (Ray Lawrence, PHS)

- Purpose and vision
- Four (or five) group themes:
  1. Natural Environment (April)
  2. Built Environment (May)
  3. Healthy Neighborhoods & Communities (June)
  4. Mobility/Connectivity (July)
  5. Policy & Programming – Steering Comm as "5th focus group"
- Split into four breakout groups by focus group theme:
  - Brainstorm – participants, recruitment, event structure, date, time, location

7:20 **V. NEXT STEPS** (Wes Horner)

- Schedule: project phases and completion benchmarks

7:30 **ADJOURN**

DDirect
Steering Committee Consolidated notes from small work groups
Steering Committee February 20, 2008

Group 1 Natural Lands

BMP Examples

- Rivers Edge
  - how to reclaim bulkheads and piers
  - stormwater outfalls, pipes remain - how to make an amenity
  - soften hard edges, where, how?
- Wetlands
  - Creation, rehabilitation
  - Along river but also upstream
- Parkland and rec sites
  - Stormwater infiltration, disconnects, amenities
- Urban forests
  - Forest areas and individual trees
  - Boston Urban Wilds
- Streams
  - Daylighting
  - Streambank stabilization
  - Riparian and upland buffers
- Indigenous vegetation

Invitees

- Experts from elsewhere
  - NYC Highlands [CORRECT?]
  - Local experts, Andropogon, WRT
- Army Corps Engineers
- PA Dept Environmental Protection
- US Environment Protection Agency
- US Fish & Wildlife Service
- Nat'l. Oceanic & Atmospheric Administration
- PA Fish and Boat
- Coast Guard
- Developers
  - Tim McDonald, Onion Flats
- Artists
  - Public Art in Natural Spaces
- City Sustainability Coordinator
- Phila Muni Agencies
  - PDR, CPO, FPC
- Community and Friends groups
- Land Trusts
- Partnership for the Delaware Estuary

Issues/Special concerns

- Maintenance, stewardship
- Flooding
- Abandoned lands
  - RR corridors, structures, brownfields
- Dumping

Safety

Natural Lands - issues (cont**)**

Development pressure vs. preservation
Riparian rights
Access
Ownership & land use - private/public
Restoration/ re-creation

Materials/Resources

GreenPlan Opportunties Map
BMP Images
PWD Wetland registry
Riverfront and edge images
Natural Areas Inventory (from GreenPlan)

Meeting Day/Time/Location

On river, Glen Foerd, Penn's Landing, Fort Mifflin, Pennypack on Del, Seaport Museum, Boat
Week day - morning or afternoon

Group 2 Buildings and Parcels

BMP Examples

Green roofs
Zoning code, cost, policy
LEED
Parking
Policy cost-share
Cost, who pays city or private
Residential rain barrels, container gardens
Private waterfront (mostly)
Market, how to?
Policy will drive private sector to implement bmp's
Green area ratio
Generate energy off the grid

Issues/Special Concerns

Incentives - economics
Policy structure must be implemented throughout
Zoning
The Market
Spot zoning
Community benefit agreements

Invitees

Private Land owners
- Conrail
- Port Authority
- Jim Anderson
- Penns Landing Corp
- Casinos

Zoning code commission
Office of sustainability

Buildings and Parcels - *Invitees* (cont)
Phila Industrial Development Corp
Building Industry Assoc
ULI
Rubin/PREIT
Goldenberg (Ikea)
Condos on pier
District Reps PlanPhilly
Riparian issue rights
ACE
Del Valley Green Building Council
Realtors
Design Advocacy Group
Am Inst Architects
PCA

Materials/Resources
BMP's from other cities
Info on issues, fact sheets
List of provocative questions to be provided to participants in advance with all background info.
State, city, businesses to attend to make meeting more desirable to participants

Meeting Day/Time/Location
Breakfast/Lunch - during workday
In city
Hyatt
SeaPort Museum
Penns Landing Corp Board Room
Host?
WRT, Rubin, PRIET

Group 3 Mobility
BMP Examples [NOTE: Beware of shifting focus to "good planning" overall, as opposed to strictly related to preserving/protecting natural resources.]
Bike sharing, car sharing
Bike system, network
Light rail
Regional connections
Water taxi
Complete streets
Local streets, grid
Inter-neighborhood travel, intra-neighborhoods
TOD

Invitees
Philly car share, zip car
SEPTA
TMA
Phila Industrial Development Council, Navy Yard

Philly Bike Coalition Hanz, Alex, John
East Coast Greenway
Phila Streets Dept
Fairmount Park Council

Mobility - Invitees (cont)
PennDOT
Delaware Valley Regional Planning Commission Barry, Chris
Phila Dept Rec
Planning
Bike/Ped Coordinator/Task Force
CDC's - Neighborhood groups
Delawre River Port Authority
Phila School District
Clean Air Council
Phila Water Dept
Penn Environmental Council
Schuylkill River Development Corp
Delaware River Basin Commission
Center City District

Issues/Special Concerns
Riverfront access cutoff
Intra neighborhood mobility
Equitable access/trails
Design of trails/streets are not pedestrian scale
Parks need connections not isolation
Awareness of users
Regional draw of trail - provide parking etc.
Enhancing riverfront access - relates to entire city and mobility issues citywide
Long term vision for mobility
Liability for safety, maintenance
Zoning

Materials/Resources
Previous planning efforts
Central, North, NKCDC graphics
PennDOT Plans
City bike and ped plan
DVRPC regional map
GreenPlan map

Day/Time/Venue
4th of July
July hard month, late June or end of July
Daytime meeting
30th Street station [NOTE: Wrong watershed]
Seaport Museum
Convention Center [NOTE: Good one]

Group 4 Healthy Neighborhoods
BMP Examples

Tree planting
Corridor greening
Cleanliness ~ anti-litter ~ combat creeping ugliness
Buffering between incompatible uses
` Green buildings
green walls, terraces, “chia” walls

Healthy Neighborhoods - BMP (cont)

Zoning and variance process needs predictability
Incentivize efficiency/lower energy use
Building Property maintenance codes/enforcement
Green infrastructure vs. grey
Policies to reduce litter,
Improved recycling
Improved trash collection
Management contract issues
BMPs need to include community especially concerning maintenance and stewardship
Community buy-in

Invitees

Phila branch of Integrated Pest Management [NOTE: Seems overly specific]
Folklore project
Del Val Green Building Council
Health Dept
Air Management
Frankford Historical Society
Business Assocs
Frankford and Tacony
Parks friends groups
Tacony Tookenay Frankford Partnership
Northern Liberties Neighborhood Association Clean and Green
Special Services districts
CCD, UCD, Stadium, South Street, Headhouse Sq. CLIP program
PCPC community partners
All active civics in watershed

Issues/Special Concerns

Zoning
Environment Benefit/Designation area
Eliminate nuisances
How? Who’s responsible?

Materials/Resources

Obstacles
Existing zoning
Culture, language, social barriers
Information/education
Funding for maintenance
Lack of enforcement

Pathways
Zoning reform
Build service capacities within cultural communities

Webpage, other outreach efforts

Meeting Day/Time/Location

Not a weekend
Lithuanian Music Hall in Port Richmond
Schools, Libraries, Church halls

FEBRUARY 20, 2008

DELAWARE DIRECT WATERSHED RCP STEERING COMMITTEE 2ND MEETING

OVERVIEW (Michael Leff)

- noted 6 new faces at tonight's meeting
- Provided a brief overview of the 11/15 Steering Committee meeting
- Discussed Model Project Types: on the ground, implementable strategies to protect/preserve/enhance the natural resources in the watersheds

REPORT STRUCTURE (Wes Horner)

- Introduced the RCP / DCNR process noting that this was a vastly unique study area
- Explained the DCNR template for preparing RCPs
- Handed out 1st draft outline that tries to meet all the DCNR requirements
- Goal is to be short and sweet in the body of the report
- We will be borrowing/coordinating from previous planning efforts
- The RCP can be the clearinghouse for the electronic gathering of information
- M. Leff mentioned that the RCP would seek to advance other plans and provide momentum

STEERING COMMITTEE MEMBER UPDATES

Given the new City administration, who should the RCP focus contact

1. **PWD** (Joanne Dahme) is/has had conversations with Council reps about flooding problems; the Office of Sustainability will be key for the RCP
    - The RCP will be another means to implement other plans
2. **PHILADELPHIA PLANNING COMMISSION** (Alan Urek) – provided report update; currently in somewhat of a holding patter while refining draft document; Plan release landed in between administrations has created the need for time extensions;
    - Pritchett – new Planning hire at Mayor's office; Gillen – Senior Advisor at Economic Development; and Andrew Altman - new Commerce Director;
    - GreenPlan cannot be released until Altman (Director of the new Office of Sustainability) has reviews and is on board
    - Future Actions –more money needs to be budgeted for the Fairmont Park Commission; more money needs to be included in a capital program; more money needs to be allocated for GreenPlan implementation
    - It seems that the new administration is focusing on healthy cities which is key to GreenPlan implementation;
3. **PENNPRAXIS** (Harris Steinberg) –Central Delaware Civic Vision

- Civic Associations wanted voice in the process; more funding has been allocated to maintain the civic voice;
- Working on an Action Plan for May release – *Ten Steps to Implement the Civic Vision*
- PennPraxis can serve as a liaison as a greater source for the entire riverfront
- Coalition for Philadelphia Riverfront – CPR – reached out to PEC, etc. as technical advisors, then will reach out to other riverfront groups
- Many projects are in the wings (most are struggling with funding issues)
- Goal is to release the 10-step plan in May, along with a simultaneous implementation project.

4. **DEPT. OF RECREATION** (Barbara McCabe) – DCNR has provided funding for installation of a new pier railing (at what location?); noted that it is difficult to keep public involved b/c of time required when waiting on funding.
5. **NORTH DELAWARE** (Sarah Thorp) – has 'received' $30 million federal funding (but there is a lot of paperwork and red tape in order to get the money) for a 2-mile section of trail design.
    - DCNR has identified an early action project in Pennypack Park along the Delaware, which will be complete by Fall
    - Lardner's Point Park – mitigation money is arriving late spring; Phase I for new park in Fairmont Park Commission network
    - 50 new street trees are being installed along a Green Connector Street (Orthodox Street) across from Westrum site.
    - Delaware Avenue Extension – one mile new road; currently in final design with construction anticipated in Early 2009; Adding new road to City Plan
6. **NEW KENSINGTON CDC** (Joe McNulty) – provided a PPT presentation
    - Knowing they needed an intermediate step between the Civic Vision and the future Master Site Plans, they (NKCDC) hired WRT and prepared a plan for the 4-miles of Riverfront, connecting the neighborhoods to the riverfront

FOCUS GROUPS (Ray Lawrence)

DESCRIPTION – there have been many previous planning efforts in the City; this RCP seeks to leverage the efforts – use their wisdom and provide a summary for the RCP. First though, let us step up a level (on the cake of thinking) and best serve our partners interest's and tap into some new thinking.

Model project types are defined as broad categories – a side implication of which is the focus group categories. Essentially these are our aggregated classes of themes; big classes of ideas; use to think in new dynamics, ultimately to move into the charette and implementation of projects.

The Steering Committee broke into 4 focus group themes: Natural Environment; Built Environment; Healthy Neighborhoods & Communities; and Mobility/Connectivity. Steering Committee members self-selected into one of the four groups and brainstormed the following categories: BMP Examples; invitees; issues/special concerns; material/resources; meeting day, time, and location. [see PHS notes from meeting]

DELAWARE DIRECT STEERING COMMITTEE
SEPTEMBER 24, 2008

AGENDA

Welcome/Introductions

Staffing Updates

Partner Updates
- Civic Vision and Action Plan for Central Delaware
- North Delaware Greenway
- Green Plan
- Others _____

Review of Project Activities

Outline of Next Steps and Final Report

Philadelphia Water Department – Goal Setting

Conclusion/Next Steps

Adjourn

Appendix B-2: Workshops

Invitation List DE RCP Focus Group #1 - April 30, 2008

Contact	**Agency/Org**
Andrew Altman	Director of Commerce and Deputy Mayor for Planning and Economic Development
Andrew Goodman	Penn Praxis
Barbara McCabe	Phila Dept of Recreation
Ben Ginsberg	Center City District (Mgr. of Planning & Transport.)
Carmen Zappile	PIDC
Carol Ann G Davis, Jeff Lapp, or Carol Petrow	US EPA
Carolyn Wallis [Steering Comm]	PA DCNR
Christine Knapp	PennFuture
Chuck MacIntosh [Steering Comm]	Army Corps Engineers
Colin Franklin, Carol Franklin, or Marita Roos	Andropogon
David Burke [Steering Comm] Desiree Henning-Dudley; Ken Anderson; Abdel Nassani or someone from engineering and permitting?	PA DEP
David Velinsky, Rich Horowitz, Roland Wall	Academy of Natural Sciences
Flavia Rutkosky; Rick McCorkle	US Fish and Wildlife
Harris Steinberg [Steering Comm]	Penn Praxis
Howard Neukrug	Philadelphia Water Dept
Janice Woodcock	Phila. City Planning
Janina Narayanan	City Planning
Jeff Featherstone, Mary Myers, Lynn Mandarano	Temple University
Jenn Adkins and Danielle Kreeger	Partnership for Delaware Estuary
Jennifer Lewis	NLNA Pres
Jessica Rittler Sanchez or John Yagecic [Steering Comm]	Delaware River Basin Commission
Jim Schmid	Schmid & Company
Joan Blaustein, Tom Witmer [Stephanie Craighead reps FPC on Steering Comm]	Fairmount Park
Joe Syrnick	SRDC

Contact	Agency/Org
John Haak	Philadelphia Planning Commission
John Keene	U of Penn
John Pedrick	PA Fish and Boat
Jon Edelstein AND Andy Toy	Phila Dept of Commerce
Karen Black	May 8 consulting
Kathy Enggasser, *President*	Bridesburg Civic Association
Keith Bowers	Biohabitats
Lance Butler or Eric Haniman	Philadelphia Water Dept
Mami Hara	Wallace Roberts Todd
Marc Stier	Northern Liberties Neighbors?
Maya van Rossum or Tracy Carluccio, Dick Albert	Delaware Riverkeeper
Mindy LeMoine [Patrick Starr reps PEC on Steering Comm]	EPA / Pennsylvania Environmental Council
Monica Santoro	Penn's Landing Corp (Marina) - Naval Ship and Vessel Coordinator; Marina Director
Pat Cahill	Philadelphia Marine Center (Marina)
Phyllis Martino	Impact Services
Regina Gorzkowski-Rossi	Friends of Pulaski Park
Rob Fleming	Philadelphia University
Robin Mann	Sierra Club
Sam Reynolds	Army Corps Engineers
Sam Simpkin	Washington West Civiv
Sandy Salzman or Joe McNulty [Steering Comm]	New Kensington CDC
Sandy Wiggins	Consilience
Sarah Robb Grecco	TTF Watershed
Sarah Thorp [Steering Comm]	Delaware River City Corporation
Scott Page	Interface Studio
Simeon Hahn and/or Craig Woolcott	NOAA
Susan Patron	
Terry McKenna	Keating Environmental Management
Tim McDonald	McDonald Bros. Real Estate Development
Wendell Pritchett or Keri Salerno	Philadelphia Sustainability Coordinator
	Society for Ecological Restoration
	USGS

Email subject line:
Delaware River Conservation Plan invitation

Email body:

Will you join us?

You've received this invitation because we'd particularly like to include you in an important focus group at the Pennsylvania Horticultural Society (100 N. 20th St, Philadelphia) on the morning of **Wednesday, April 30th, 8:30-11:30.** The topic involves the ecology and natural resources of the river's edge and surrounding lands. Please read on for details.

The Delaware Direct Watershed is an area that comprises much of Philadelphia's riverfront and surrounding neighborhoods. The Philadelphia Water Department (PWD) with funding from the Pennsylvania Department of Conservation and Natural Resources (DCNR) is leading a River Conservation Plan for this watershed area. The purpose of a river conservation plan is to provide a comprehensive approach to preserving and improving the natural and community resources of the waterway and its surrounding land area.

In the past several years, as you know, many important riverfront plans have been proposed. PWD and their planning partners, Cahill Associates and the Pennsylvania Horticultural Society (PHS), recognize the opportunity to build on this work. Beginning this month, a series of focused conversations will bring together experts and stakeholders to assess resources and develop next steps.

On April 30, this first focus group will consider the broader topic of waterfront opportunities and river edge ecology by taking a closer look at current proposals for the area. Through a more detailed investigation of a carefully selected riverfront location, we will explore a variety of challenges and opportunities that are likely to be encountered along the waterfront – including wetland restoration, reestablishing natural shorelines, adaptive reuse of abandoned piers and bulkheads, and reclamation and restoration of industrial landscapes.

DCNR, PWD, Cahill Associates, and PHS invite you to help move an inspired vision a step closer to reality. Please join us for an engaging morning exchange of information and ideas.

RSVP to Tiffany Ledesma Groll at PWD (215-499-3756, ledesmagrolltd@cdm.com).

For more information or to suggest other people you think we should invite, please contact Michael Leff or Joy Lawrence at PHS. (215-988-8795, mleff@pennhort.org, or 215-988-8898, jlawrence@pennhort.org).

Hope to see you then!

Michael Leff & Joy Lawrence
Pennsylvania Horticultural Society
100 N. 20th Street - 5th Floor
Philadelphia, PA 19103

Invitees to DE RCP Focus Group #1 - April 30, 2008

Contact	Agency/Org	RSVP	Small Group
Andrew Altman	Director of Commerce and Deputy Mayor for Planning and Economic Development		
Andrew Goodman	Penn Praxis	Yes	
Barbara McCabe	Phila Dept of Recreation	Yes	
Ben Ginsberg	Center City District (Mgr. of Planning & Transport.)	Yes	
Carmen Zappile	PIDC	Yes	
Carolyn Wallis [Steering Comm]	PA DCNR	Yes	
Christine Knapp	PennFuture	Yes	
Chuck MacIntosh [Steering Comm]	Army Corps Engineers	Yes	
Craig Woolcott	NOAA		
Danielle Kreeger	Partnership for Delaware Estuary		
David Burke	PA DEP	Yes	
David Velinsky	Academy of Natural Sciences	yes	
Flavia Rutkosky	US Fish and Wildlife	Yes	
Glen Abrams	PWD	yes	
Howard Neukrug	Philadelphia Water Dept	Yes late	
Janina Narayanan	City Planning	Yes	
Jeff Featherstone	Temple University		
Jeff Lapp	US EPA	Yes	
Jenn Adkins	Partnership for Delaware Estuary		
Jennifer Lewis	NLNA Pres		
Jessica Rittler Sanchez or	Delaware River Basin Commission		
Jim Schmid	Schmid & Company		
Joe Syrnick	SRDC		
John Haak	Philadelphia Planning Commission	Yes	
John Keene	U of Penn		
John Pedrick	PA Fish and Boat	Yes	
John Yagecic [Steering Comm]	DRBC		
Jon Edelstein	Phila Dept of Commerce	Yes	

Contact	Agency/Org	RSVP	Small Group
Karen Black	May 8 consulting		
Kathy Enggasser, *President*	Bridesburg Civic Association		
Keith Bowers	Biohabitats	Yes	
Kristen Ford	Brown and Keener	yes	
Lance Butler	Philadelphia Water Dept	yes	
Marc Stier	Northern Liberties Neighbors?		
Maya van Rossum	Delaware Riverkeeper	yes	
Paul Racette	PEC	yes	
Monica Santoro	Penn's Landing Corp (Marina) - Naval Ship and Vessel Coordinator; Marina Director	Yes	
Pat Cahill	Philadelphia Marine Center (Marina)		
Phyllis Martino	Impact Services		
Regina Gorzkowski-Rossi	Friends of Pulaski Park	Yes	
Rich Horowitsz	Academy of Natural Sciences		
Rob Fleming	Philadelphia University		
Robin Mann	Sierra Club		
Roland Wall	Academy of Natural Sciences		
Sam Reynolds	Army Corps Engineers	Yes	
Sam Simpkin	Washington West Civiv		
Sandy Salzman	New Kensington CDC	Yes	
Sandy Wiggins	Consilience		
Sarah Lowe	Fairmount Park		
Sarah Robb Grecco	TTF Watershed	Yes	
Sarah Thorp [Steering Comm]	Delaware River City Corporation		
Simeon Hahn	NOAA	yes	
Susan Patron	Passyunk Neighborhood	Yes	
Terry McKenna	Keating Environmental Management		
Tim McDonald	McDonald Bros. Real Estate Development		
Wendell Pritchett	Director of Policy, Research, and Planning	yes	

Attendees Delaware Direct RCP April 30, 2008

Ecology and Riverfront Design - Case Study
Pulaski Park

Contact	Agency/Org	Group
Andrew Goodman	Penn Praxis	Wetland
Barbara McCabe	Phila Dept of Recreation	Parking
Carmen Zappile	PIDC	Bulkheads and Piers
Carolyn Wallis	PA DCNR	Wetland
Courtney Marm	Cahill Associates	Wetland
Chuck MacIntosh	Army Corps Engineers	Bulkheads and Piers
David Burke	PA DEP	Bulkheads and Piers
Flavia Rutkosky	US Fish and Wildlife	Bulkheads and Piers
Glen Abrams	PWD	Parking
Howard Neukrug	Philadelphia Water Dept	Bulkheads and Piers
Janani Narayanan	City Planning	Parking
Jeff Lapp	US EPA	Wetland
Jim Schmid	Schmid & Company	Parking
Joanne Dahme	PWD	Bulkheads and Piers
John Haak	Philadelphia Planning Commission	Bulkheads and Piers
Jon Edelstein	Phila Dept of Commerce	Parking
Joy Lawrence	PHS	
Keith Bowers	Biohabitats	Wetland
Kristen Ford	Brown and Keener	Parking
Lance Butler	Philadelphia Water Dept	Wetland
Maya van Rossum	Delaware Riverkeeper	Wetland
Michael Leff	PHS	
Paul Racette	PEC	Bulkheads and Piers
Monica Santoro	Penn's Landing Corp (Marina) - Naval Ship and Vessel Coordinator; Marina Director	Parking
Regina Gorzkowski-Rossi	Friends of Pulaski Park	Parking

Contact	Agency/Org	Group
Rich Horowitz	Academy of Natural Sciences	Wetland
Sam Reynolds	Army Corps Engineers	Wetland
Sandy Salzman	New Kensington CDC	Wetland
Sarah Robb Grecco	TTF Watershed	Parking
Simeon Hahn	NOAA	Wetland
Susan Patron	Passyunk Neighborhood	Bulkheads and Piers
Tiffany Ledesma Groll	PWD	Bulkheads and Piers
Todd Baylson	PHS	Parking
Tom Witmer	Fairmount Park	Parking
Wesley Horner	Cahill Associates	Bulkheads and Piers

Group 1 – Blue: Wetland Restoration
Facilitator: Courtney Marm (Team Leader - Simeon Hahn/NOAA, Note Taker - Carolyn Wallis/DCNR)

To start off the meeting off, Lance (PWD) asked about the mapped discrepancy b/w proposed wetland areas on maps (11x17 site map versus large wall poster). He clarified that the PWD undertook bathymetric sounding for the larger area which was the outline of the proposed wetland. He was unsure about the source of the smaller area.

Lance followed the comment up by stating that the CSO outfalls were a major problem – stating that wetland veggies are not likely to remain w/out significant re-engineering of the CSO outfall or elimination of the outfall (unlikely). PWD is not planning to move outfall at this time.

1. **SPECIFIC INVESTIGATIONS** (This group was very action-oriented and thorough; in fact, it seemed that the group were ready to jump in and craft the RFP!)

a. Consider establishing goal to maximize the wetland creation; phase it out by cost estimates and phases of wetland creation OR by type of wetland vegetation
   - Ownership - who is owner of submerged lands?
   - low water mark

b. Goals of the design – ecology and/or recreation; (the use of the site - public boating access, kayaking, or birdwatching – will influence the restoration goals)
c. Geotech investigation of soils:
   1. soil texture
   2. sediment transport
   3. presence of contaminants or toxicity levels
d. water depth / bathymetry
e. Hydrology/hydraulics – wave energy or coastal marine engineering investigations
f. PNDI survey
g. Utility survey
h. Habitat Functional Assessment (pre and post development)
i. Archeological
j. RR gantries – Act 106; NEPA
k. Discover reference site – other wetlands in the area; and history
l. Plants and Animal survey – seasonal fish survey; plants
   i. Improvement of habitat for existing species
m. Potential of removal of fill at the stream edge to expand the wetland/parlk
   i. Hardline at edge
   ii. Can we remove the parking lot? (Maya question) – The Consultant should consider the opportunity for park expansion; 20 years down the line, the parking lot could potentially be removed and allow the River to get back to what it historically may have been.

General Comment from the community rep: This community really wants active recreation kayak or canoeing within proposed wetland area.

2. SKILLS AND EXPERTISE

a. Civil engineers for infrastructure
b. Restoration Ecologists
c. Wetland Biologist
d. Hydrologist
e. Surveyor
f. Title
g. Chemical Lab to read/interpret analysis
h. Geotechnical engineer specializing in coastal engineer
i. Permit/regulatory "guru"
j. Historic resources
k. Community outreach
l. Landscape Architects

3. DATA SETS

a. Hydrologic sets – CSO overflow volumes or modeling (from PWD)
b. Water quality/chemical concentrations in CSOs (NURP, DRBC, PWD)
c. Existing bathymetry charts (NOAA)
d. Land use history/background; detailed title search (DVRPC)
e. PNDI – bugs/bunnies
f. Tidal data (USGS and NOAA)
g. DuPont's report (2008) compilation Delaware Estuary datasets
h. PA heritage conservatory – natural resource inventory for the Delaware (City's GreenPlan)
i. Sediment/contaminant data; information from the Dredging/deepening studies (ACOE)
j. TMDL study (DRBC)
k. Aerials; Civic information (MOIS)
l. Aerial photography; Historic review of change in landuse (DVRPC)
m. Nonpoint source runoff from surfaces
n. Fish, birds, etc habitat and species data (ANS)
o. Environmental sensitivity indices from NOAA
p. Characterize streambank and shoreline edge (could be a part of survey)
q. Review existing restoration success monitoring data/reference sites

4. TECHNICAL REFS (MIXED WITH #3)

a. Vegetation guides from Partnership for the Delaware Estuary
b. Virginia Institute of Marine Sciences – examples of intertidal wetland restorations sites; shoreline stabilization guides
c. Projected Sea Level rise – 2005 source for the Bay [issue of veggie's surviving with water rise / salinity – brackish is an issue but group did not reach consensus.]
d. Climate change – issue is frequency of storm events and potential impact
e. Corp of Engineers – source of technical data

f. NOAA
g. After the Athos Oil Spill, someone collected data on wetland restoration sites – NOAA and the Partnership is source

5. REGULATORY (THIS SECTION TOOK A LOT OF TIME TO WORK THROUGH!)

a. Clean Water Act 404 (ACOE)
b. L and I regs
c. Section 105 (DEP)
d. sediment and erosion control (PWD)
e. infrastructure / drainage right of way (PWD/City)
f. Riparian Rights – Submerged Lands License
g. Expansion of navigable waters needs a permit (under 404)
    a. Sam explaining important issue – Section 10 authority covers any work in navigable waters. The consultant will have to address what's going on within the limits of federal waters / mean high water b/c it's tidal.
        i. Any work in the water requires authorization from ACOE under Section 10
        ii. Placing any things into water = CWA Section 404
        iii. Could design project with work, no discharge of dredge or fill = covered by the Section 10 permit
        iv. Pipe extension, driving pilings, planting in water = Section 10
        v. Permitting and regulatory requirements directly relates to project COST (Sam stressed this point multiple times).
        vi. Placement of fill by bringing elevations up is covered under Section 404
        vii. Design project to meet ACOE Nationwide Permit 27 which will reduce costs/ use for restoration projects – bank restoration work is not eligible for this permit; loss of resource/replacement
        viii. **Sam's advice – the design team should design the project to minimize regulatory involvement**

Permits, cont'd

- Any improvements to pier will need permits;
- Federalizing the entire project even though it's upland work.
- If wetland restoration is part of park restoration then ACOE can federalize the entire project
- Other things get involved; section 106 and national historic act is called into; Endangered Species Act – (sturgeon); consistency determination with State;
- NEPA regulation - questionable if it's needed, and who would be responsible to prepare. ACOE must do it for analysis but if Congress gives Federal money then the federal entity has to do the NEPA document
- For Master Planning purposes, the project must have a consultant team experienced in planning for permits; consultant will evaluate permits, but will not apply for permits

Group gets sidetracked on conceptual master planning feasibility versus the permitting and future implementation; The outcome of the project will either be a "10% Plan for funding" or a "30% conceptual site design"; Permits are potential obstacles; Carolyn advocates for Option-oriented approach which will shape the implementation phase.

MASTER PLAN (10%) versus CONCEPTUAL SITE DESIGN (30%)

RFP should go further into design process / or Phase the project
Prioritize the phases – Aquatic restoration is 1;
Regulatory issue directly relates to scope;

The group realized that they thought the project was more about a "design" yet the directions called for master plan creation; there was much discussion about which process would provide a better project outcome.

Funding Resources for Implementation is great background document. Someone commented that there are parties/developers looking for wetland creation sites (example of airport). It was pointed out that a developer does not want to be encumbered by the details outlined in this process. Maya reminds the group that a developer cannot truly pay for wetland restoration when they are destroying habitat.

6. COMMUNICATION AND INPUT

a. Inform community every step of the way; make it two-way; make it regular.
b. Problem is the distance from neighborhoods – people tend to forget that the neighbors do care;
c. Pre-conceptual phase – involve the community as an informational resource
d. Neighborhoods in the area: Bridesburg; Port Richmond
e. Business Community - Tioga Terminal; tank farms; Anderson land
f. Sim reminds the group that this is in-stream design;
g. Birdwatching +fishing: is this appealing for kids as an "attractive nuisance"
h. Wetlands can filter but they cannot do everything
i. Proper communication for upland and in-stream water issues
j. Lance – think long-term b/c PWD's water quality standards must be met and the long term planning is helping
k. Need to make the area bigger (parking lot) and well lit b/c it's an attractive nuisance
l. Community knows that it's a long-term project
m. Need honest discussion about recreation vs ecological benefits (no boating in restored wetland). Help people understand that boating could be wrong for ecological restoration
n. Education should be part of outreach; it has started with Central and NKCDC; those processes did not have successful outreach with businesses
o. Regulatory process forces public input
p. Maya – allow communication to happen early in process, well before permit stage;
q. Input must be sincere – make it a real two-way conversation

r. Momentum is critical; the community groups stay involved
s. Community workshop after field work and data assessment – with consultants to provide info and get feedback
t. Wide array of stakeholders – not just locals; this is one location designed to restore river as a whole

7. SC0PE 0F W0RK / C0ST

a. This project should be a 30% Concept Design not a Master Plan which implies 10% vision
b. It is difficult to develop a fee without knowing what is ultimately being designed
c. It's easier to have concept design that the consultant can then flesh out.
d. The group had a healthy discussion on the semantics b/c each has its own process.
e. The group agreed that there was a need for consistency with consultant – both in planning, concept, design and engineering.
f. Estimate of $500,000 per acre for design and construction ($3.5 million at 7 acres); 20% of that for design [backing into conceptual design fee]
g. $100,000 seems reasonable (NOAA) – others think it's too light – Bowers thinks it's doable;
h. For a wetland concept only – $100,000 is feasible (that assumes no shoreline manipulation or CSO extension or utility work etc). If one were to include those itesm, then the project would increase to about $200,000
i. And, if any CSO infrastructure re-working would become part of the project then the price would go up even more.
j. CEM note – I think there was confusion in the group b/w Total Project Cost and Cost per Acre; I am unsure if the final agreed number is $100,000 per acre (which is written down on the notes) or just $100,000 in total.

TIMELINE

a. one year/ 12 months ($100,000 concept)
b. six months for permits and future

Group 2 – Red: **PIERS/BULKHEADS/REVETMENTS (WATER/LAND)INTERFACE**

Though our geography was simply the land-water edge/interface, seems to me that Red Team has to understand its area of interest as including the land area of the existing park and possibly some areas beyond. Blue was the in-water wetland area and Green was parking lot but Central and New Kensington and other plans all show a Pulaski Circle which seems to extend considerably beyond existing sliver of park and extend into adjacent parcels substantially to the north and west and south. Somehow this question of "study area" I think is very important – just how far should this study extend, with study answers influencing how far plan actions will extend.

I. Tasks for Consultant
- Identify specific ownership of parcels
  - Explain levels of ownership.bundles of rights that might vary with pierhead line vs bulkhead line and by various time period/effective laws at the time
  - Understanding different levels of ownership and the different levels of regulation imposed on this ownership becomes critical – as we are seeing in casino mess
  - Todd's investigations in who "owns" what demonstrate how confused and confusing all of this is
- Environmental Assessments:
- Identify existing hydrology, water level/tidal fluctuations, flooding issues, ice jams, etc.
  - Need to make sure we understand both the technical and regulatory issues surrounding removal of bulkheads/piers – will flooding worsen, etc.
  - Issues surrounding currents, bathymetric studies?
  - Issues surrounding sediments, quantity and quality
  - Issues surrounding global warming (sea level, salinity, etc.)
- Identify water quality issues
- Floral and faunal inventories/assessments
- Archaeological and Historical Studies
  - Piers and other improvements
- Cultural Importance
- Land Use
  - Historical at site
  - Adjacent land use story
  - Areawide context
  - Planning Array
    - Various plans as per our inventory
    - Historical planning
    - Pending proposals
  - Market/Highest-Best Use Issues
- Transportation and Utilities context
  - Immediate access
  - Neighborhood and regional access

- Parking issues
- Recreational Inventory and Assessments
  - Existing rec use
    - Active and passive
    - Fishing, trails, other
  - Existing supply of rec facilities
  - Neighborhood/City/Regional Needs
- Engineering Assessments:
  - Structural/built forms inventory and assessment of conditions
    - History, materials used, current condition, history of filling, etc.
  - Geotechnical analyses: quantitative, bearing capacities
  - Contamination of Structures and Site: Phase I and Phase II
  - Identify CSO outfalls and related issues
- Regulatory Issues
  - Federal
    - Clean Water Act
      - Wetlands
      - Done under a nationwide permit
    - NEPA, Section 106
      - Alternatives
    - Mitigation
      - Minimization
      - Removal of fill?
      - Wetland restoration in water displaces other aquatic habitat
  - State
    - Submerged lands licenses?
      - Bulkhead and pier lines and rights and regulations
    - Wetlands
    - Stream/water encroachment permitting
    - Other?
  - Local/City
    - Land use controls
      - Existing and new Zoning
      - Depts. Planning and Commerce
    - Other?
- Other Issues
  - What about 100 ft buffer?
  - Wes: this whole question of 100 ft buffer is going to have to delve into this complex ownership and regulation issue – 100 ft from what? Based on who's ownership? Already being regulated by whom and in what ways?
  - Technically, how would we define this buffer? Seems probably that it would look quite different than Chester County headwaters/US Forest Service type of buffer, with some sort of blend between hard and soft edges, possibly some bulkheading, whatever – this becomes maybe a charrette unto itself – maybe someone has already done this?

- Furthermore, the watershed functionality of buffer along the Delaware, with matrix of CSOs, becomes rather different than buffer functions in rural headwaters.
- Costs: construction and O&M

Skills and Expertise
- Multi-disciplinary team approach
  - Subs
  - Reflects the outline above!
- Multiple engineering types
  - Geotechnical
  - Marine
  - Hydrologists, water resources
- Environmental specialists
  - Biologists, marine geochemists
- Wetlands (jurisdictional and restoration), landscape ecologists, landscape architects
- Planners: urban, recreational, regulatory
- Cultural resources experts
- Maritime attorney
  - Issue of ownership and regulation of shoreline critical
  - Consult UWAG – Urban Waterfront Action Group

Data Sets and References (Combined)
- Identify data gaps – essential
  - Existing sources/studies/data sets
  - Sampling and data development
    - Site testing/sampling
    - Structural assessments
  - Existing plants, biota
- River edge, instream, landward

Communication/Inputs
- First inventory/assess all previous outreach/educational efforts, results – minimize Duplication
  - K&T and East Coast Greenway processes; highlight these
- What is purpose of Communication/Inputs
  - We haven't talked much yet about this concept plan and goals/objectives of this concept plan – who decides/answers these important questions
    - Environmental vs recreational vs etc etc
- Develop partnerships (existing civics and others)
  - Take plan to them/use their forums
- Must maintain delicate balance between trying to control the process vs being open and welcoming
- Meetings – perhaps 4 public by major phase of planning
- User surveys might be useful, especially for recreation needs/elements

Media: email, local papers, etc.
Make sure folks understand substance of requirements, such as the importance of understanding NEPA requirements for mitigation, importance of avoidance, importance of alternatives, before you get to compensatory mitigation and mitigation elsewhere (see our friend from USFWS)

Scope of Work
- Big Picture focus – ecological restoration of wetlands plus recreational elements with parking
- Think through whether this is feasibility study or concept design or both
  - There may be multiple steps/stages where outcomes (of feasibility) determine the next steps in concept design
  - Process/planning will need to be flexible, able to adjust to these different Outcomes

Budget and Timeline
- At least 12 to 18 months
  - There may be several different tasks requiring data development/site and structure sampling which require considerable time and money
- Very difficult but $250,000-500,000 seems likely

Group 3 – Green: Parking Lot

1) Specific Investigations:

- Parcel boundaries
- Ownership
- Verify ongoing activities (PRPA sign on building, they are a state authority, they probably lease to a user).
- Investigate history of land uses and implications. Some history is known. The fire boat used to dock there, it was the central fire boat docking area.
- Soil testing for potential contaminants, for stability.
- Test of the history of the fill activity, when it was done. Dig a series of pits to see the profile.
- Flip questions to put regulatory stuff first. Any material movement (the testing) will require permitting.
- Ensure you are not "taking" water that would need to be "added" elsewhere like a mitigation.
- Explore political boundaries and where they break. Council members break at Allegheny. State senate may break in the area. Keep that in mind constantly.
- Explore infrastructure/active industrial use there and its use and what that means – setbacks, off loading requirements. Regulations come from ATF, homeland security issues etc. + zoning.
- Is it designated a port or a public access facility?
- What is the port security requirement?
- Is there a prospect of adjacent land uses changing, and if so what do those mean?
- What are the prospects for connecting with other open spaces, and human and ecological features? This is a very important connection (planned) so the scope should have deliberate connections made.
- Clear understanding of the various plans out there and the role Pulaski Park will play in connecting them.
- Identify a project sponsor. The port, others.
- Does it make sense to take away industrial waterfront to make more space for public recreation in a place like this? Are there other opportunities to do a swap that might make more sense? We are presuming there is an excess. + This is just an impound lot. Why couldn't they coexist?
- Are there precedents for coexistence of open space, ecology and industrial use?
- Can we consider ourselves pioneers by converting industrial land to recreation? A playground was destroyed by I95 and the community is impatient and something needs to happen fast.
- User needs need to be explored. Do they need additional parking? Boat ramps? Could that be an issue? What is the demand for use? Will that require a structure?
- Investigate expanding to the south, not the north. Revisit the dialogue and disagreements about expanding to the north that occurred in the Central Del Vision.
- Contemplate if its possible to excavate the parking lot and bring the water in.
- Generate clean energy on the site? Windmills etc.
- Does DRPA have any say in this part of the land and/or jurisdiction?

2) Skills and expertise

- Environmental/geotechnical survey
- Legal and regulatory expertise
- Community participation and facilitation
- Land use /environmental planning
- Negotiator between city and land owners and other parties
- Development/fundraising director or someone with knowledge about funding, grant programs, federal, fish and wildlife funding
- Lobbyist!!!! To get significant enough amounts of $. Direct federal $
- Army Corp of Engineers
- DRCC and Penn's Landing to explore partnerships to seek funding.
- Cobble together local funding to find a match
- Developers who are trying to build in water who need a mitigation project including ports, casinos
- Ecological restoration and construction expertise – wetland + land area work e.g. a meadow
- Historian to explore cultural, neighborhood and economic history
- Translation skills e.g. polish in this area
- Water mineral testing
- Structural engineer pier stability testing

3) And 4) Data sets and Technical References

- Existing Plans: 7 on the screen +
- No concrete neighborhood plan.
- The New Kensington Plan
- Delaware Riverfront Greenway Plan
- Plan or vision for the Delaware River Port Authority? E.g. tram docking station would allow Pulaski to be a
- Organizations: Clean Air Council, DRPA, PRPA, Sunoco, Other active industrial users, leaseholders, NOAA, Delaware River Basin Commission (sets water quality standards via Trenton), Delaware Estuary, Fish and Boat Commission, Coast Guard, Army Corp of Engineers, DCNR, PA DEP, Academy of Natural Sciences, Western PA Conservancy,
- Community Orgs: PROPAC (port Richmond Civic), friends of Pulaski Park, Proarte Associates (Regina's org.)
- What are the standards and research and standards of performance of ecological restoration in terms of pollution mitigation from other projects, from ecology experts, environmental restoration experts.
- Technical experts: bird watchers to see and understand habitat, Academy of Natural Sciences, PWD, Audobon Society
- Existing plan from 2004 done by Polish American Community. They hoped to inspire other communities.

5) Regulatory

- DCNR,
- PA DEP - Land under water is owned by State of PA
- Pier Inspection – every square inch inspected by underwater dive team
- Maintenance of pier inspection twice a year annually
- Homeland Security / ATF. Allowable buffers.
- Army Corp related to floodplain issues, bulk head lines, riparian lines etc.
- State legislators can grant leases for some of the state-owned land
- PWD
- PCPC
- License and Inspections – Zoning, Code Enforcement, Building
- City Council
- Dept. of Recreation
- Streets Department
- Historic Commission

6) Communication and Input

- We are not at the starting point, the community is frustrated and needs to see something happen
- Don't leave behind other groups of residents
- Engage different groups separately so they are comfortable and so we can identify conflicts and common interests
- Incorporate Polish community's community vision from 2004
- Identify a project sponsor. The port? others?
- Engage existing surrounding landowners esp. industrial users. Ask them general questions.
- Based on that create your 3 proposals/options
- Choose 3 developers/designs/options via RFQ/RFP process…and share with community and invite input
- Some number of private stakeholder meetings, some number of public community meetings

7) Scope of Work

- Background

- Synthesize Issues

- Stakeholder and Public Forums

- Alternative Conceptual Plan
    - Articulate givens + contemplating other ideas
    - 3 alternative proposals for all of the parking areas
    - Rough cost range – very broad brush , high, medium and low

- Final Design
    - Specifications
    - Design drawings
    - Phasing plans

- Action Plan
    - Order of magnitude costs
    - Permits needed?

8) Timeline

3 years.

Other)

- Create a marketing piece to say "we have this project, and need a marketing piece to describe the mitigation possibilities etc."
- Maintenance of pier inspection twice a year annually
-

PULASKI PARK DESIGN DEVELOPMENT PROJECT
DRAFT PRE-RFP

1. TEAM COMPOSITION – DESCRIBE VIA AN ORGANIZATION CHART THAT DETAILS EACH MEMBER'S EXPERTISE AND ROLE

Consultant teams should include the following types of professional expertise documented in a project organizational chart with attendant descriptions of roles and relevant expertise. If you believe one or several of these areas of knowledge are not required (and are therefore absent from your team) please explain why.

a. Civil engineers for infrastructure
b. Geotechnical Engineer specializing in coastal engineering
c. Marine Engineer (structural?) specializing in infrastructure along and in water
d. Restoration Ecologist with actual implementation/construction experience
e. Wetland Biologist with both aptitude for jurisdictional and restoration issues
f. Marine Geochemist (?)
e. Hydrologist and Water Resources Specialists
f. Permit/regulatory specialist familiar with local environment and last 18 months
g. Historian and/or Cultural Resource Specialist
h. Community Outreach/Meeting facilitation specialist
i. Landscape Architects
j. Landscape Ecologist
k. Land Use/Environmental Planner specializing in recreational planning
l. Maritime Attorney familiar with local environment and last 18 months
m. Negotiator between city, land owner(s), and other parties
n. Development/fundraising director or someone with knowledge about funding, grant programs, federal, fish and wildlife funding
o. Lobbyist –needed to get significant enough amounts of $ and direct federal $
p. Translator (adjacent community speaks polish and significant spanish-speaking populations are in the area

Your team should also identify professional sources (not necessarily part of your team) for the below tasks:

a. Lab(s) to read/interpret various analyses
b. Surveyor to create survey of vicinity
c. Real estate professional to clarify Title and ownership matters

2. IDENTIFIED DATA, TO BE RETRIEVED BY CONSULTANT TEAM – COMPILE A MASTER L THAT CATALOGUES THE RELEVANT DATA AND ITS SOURCE AND SUMMARIZES GERMAI INFORMATION

The project steering committee has identified the following resources that the consultant team should retrieve from the identified organizations and digest and incorporate in your work ***prior*** to commencing the specific investigations described in Section 3 below.

Specific technical resources and data:

a. Hydrologic sets – CSO overflow volumes and existing modeling - PWD
b. Water quality/chemical concentrations in CSOs - NURP, DRBC, PWD
c. Existing bathymetry charts - NOAA
d. Land use history/background - DVRPC, PCPC
e. Detailed title search - City of Phila, Dept. of Records
f. Tidal data - USGS and NOAA
g. Delaware Estuary 2008 dataset compilation report - DuPont
h. PA Heritage Conservatory Natural Resource Inventory for the Delaware River - PCPC, GreenPlan
i. Sediment/contaminant data from assorted dredging/deepening studies - ACOE
j. TMDL study - DRBC
k. Most recent aerial photography - MOIS, City of Phila.
l. Historic aerial photography to review land use changes over time - DVRPC
m. Fish and bird habitat and species data - ANS
n. Environmental sensitivity indices - NOAA
o. Review existing restoration sites and monitor their data - organizations unknown
p. Vegetation guides - Partnership for the Delaware Estuary
q. Data collected about wetland restoration sites post-Athos Oil Spill – NOAA Partnership for the Delaware Estuary
r. Projected Sea Level rise (issue of increase in water salinity and impact on vegetation) – 2005 information from Source for the Bay
s. Existing Land Use, Concept, Master, Neighborhood Greenway and Area Plans covering the area that speak about the future (including in this case)

- The New Kensington Riverfront Plan
- Central Delaware Plan
- North Delaware Greenway Plan
- GreenPlan Philadelphia
- Northern Liberties Neighborhood and Waterfront Plans

More general resources that will be of value include:

a. Army Corp. of Engineers – source of various types of technical data
b. Virginia Institute of Marine Sciences – examples of intertidal wetland restorations sites and author of shoreline stabilization guides
c. NOAA
d. UWAG – Urban Waterfront Action Group

e. DRCC (potential management/operations and funding partnerships)
f. Penn's Landing (potential management/operations and funding partnerships)
g. Academy of Natural Sciences
h. Philadelphia Water Department
i. Audobon Society
j. Various Community and Business Organizations (including in this case):

- Clean Air Council
- DRPA
- PRPA
- Sunoco
- Other active industrial users, landowners and leaseholders
- Delaware River Basin Commission (sets water quality standards via Trenton),
- Delaware Estuary
- Fish and Boat Commission,
- Coast Guard
- DCNR
- PA DEP
- Western PA Conservancy
- PROPAC (port Richmond Civic)
- Friends of Pulaski Park
- Proarte Associates (Regina's org.)

UNKNOWN:
PNDI – bugs/bunnies

3. UNDERTAKE SPECIFIC INVESTIGATIONS – DESCRIBE FINDINGS IN A TECHNICAL MEMORANDUM

Consultant proposals shall include a detailed description of how and in what sequence the following specific investigations will be undertaken:

General
a. Assess which of the below specific investigations will require permitting and proceed to secure the appropriate permits accordingly.

b. Survey of specific and current land parcel boundaries/extents throughout the vicinity[1] and ownership of those parcels. Explain levels of ownership.bundles of rights that might vary with pierhead line vs. bulkhead line and by various time period/effective laws at the time

[1] Vicinity means the existing park land, the adjacent parking lot, and areas underwater adjacent to these land features as well as those areas (both land and water) within or buffered by a 45 feet boundary on all sides. Where this buffered area hits another land or water feature, such as a road, river inlet (created by land or pier) or building, the furthest edge of that feature, even in excess of 45 feet, will be considered part of the vicinity.

c. Survey of recent case law and relevant regional riverfront projects to provide road map for determining who owns submerged lands in the Pulaski vicinity. Then the consultant should propose a process and the specific steps needed to determine ownership of submerged lands in the Pulaski vicinity. This process should anticipate likely challenges and via the specific investigation position this project to refute them. This process should be synced with the consultant's regulation assessment process described below.

d. Survey soil conditions throughout vicinity via Geotech investigation in order to learn:

i. presence of contaminants or toxicity levels
ii. soil texture
iii. sediment transport, quality and quantity, esp. regarding underwater soils
iiii. Soil stability.

e. Survey the vicinity for existing hydrology and hydraulic conditions, water levels, currents and tidal fluctuations to understand extent of waters impact on land, river's edge and in-water areas. This should be done in general as well as with a specific eye towards the ability to establish wetlands and other ecological restoration projects.

f. Survey potential for archeological findings throughout the vicinity. Study local historical holdings, Sanborn maps and other historic records to inform decision about extent of investigation. Work with existing local ethnic community groups who have abundant historical records.

g. Survey and map underground and above ground utilities and utility easements throughout the vicinity.

h Survey, inventory and assess flora and fauna and animals including seasonal fish throughout the vicinity.

i. Survey, create an inventory of, and assess the condition of the structures and built form of Pulaski Park and the vicinity including its history, land use history, materials used, history of fill (assess by digging pits and other below ground assessments) current conditions, etc. Then create a summary of the implication of this task for moving forward.

j. Survey to verify currently ongoing activities (Including in this case there is a PRPA sign on building adjacent to parking lot and Pulaski Park, they are a state authority so they probably lease to a user that should be reached out to). This survey should identify any active industrial/port uses and any associated ATF or Homeland Security regulations including setback requirements, direction about public access, on and off loading requirements and security measures. Then create a summary of the implication of this task for moving forward.

k. Survey non-point source runoff surfaces in the vicinity.

l. Analyze/evaluate flooding history

m. Analyze/evaluate history of ice jams (really?)

n. Analyze/evaluate water quality issues including those related to global warming (sea level, salinity etc.)

o. Survey relevant plans for historical intentions, good ideas, pending proposals and aspirational connections. What are the prospects for connecting with other open spaces, and human and ecological features?

p. Survey market conditions to understand the highest and best use/investment context for adjacent land areas and to understand susceptibility to change for adjacent lands. Summarize the prospects of significant land use changes in the future and the implications Then create a summary of the implication of this task for moving forward.
q. Survey transportation features throughout the neighborhood including parking, neighborhood and regional access, and the friendliness of pedestrian connections.

r. Specifically locate CSO outfalls and observe their performance during heavy rain event

s. Perform a Phase I and Phase II assessment of the park land and the adjacent parking lot.

t. Perform a geotechnical analysis of the bearing capacity of the various lands throughout the Pulaski vicinity with an eye to determining which are most susceptible to what types of changes in the future.

u. Survey habitat function pre-development throughout the vicinity via a Habitat Functional Assessment. Document baseline conditions and set the stage for a post-development follow up assessment.

v. Survey user needs and existing opportunities in the neighborhood that meet, over supply or under supply those needs including recreational uses (active and passive) parking, boat ramps, and other types of needs and demands.

w. Understand City/regional recreational needs and extent to which Pulaski park meets or could meet them.

x. Identify any gaps in data and knowledge that will need additional resources to understand and plug.

y. Survey potential funding resources for implementation. In this case could windmills be placed on the site and used to generate energy which would be sold for revenuw to upkeep an expanded park.

z. Survey for relevant precedents (In this case the coexistence of open space, ecology and industrial use)

Wetland-related
a. Clarify realistic extent of potential wetland by working with PWD
b. Determine low water mark, vicinity water depths and bathymetry (what this mean?)

River's Edge-related
a. Survey streambank and shoreline edge, piers, and other remnants of prior uses, Photo-document conditions there and characterize sections of the river's edge through quantitative and qualitative analyses.

Parking lot related
a. Contemplate if its possible to excavate the parking lot and bring the water into new pools excavated in the land and/or fill for programming, ecological restoration and other purposes.
UNKNOWN:
PNDI survey

4. CATALOGUE POTENTIALLY APPLICABLE REGULATIONS/APPROVALS AND THE STEPS N SATISFY THEM – DESCRIBE FINDINGS IN A TECHNICAL MEMORANDUM AND CREATE AN IN PERMIT APPLICATION BOOKLET

Consultant proposals shall include a detailed description of their approach to catalogue any and all potentially applicable regulations, including those listed below and others as of yet unknown.

The first priority will be identifying any regulations and/or permitting steps that will be required in order to begin the specific investigations described above in Section 3. Anticipate spending time securing the appropriate permits after the majority of the regulations have been catalogued (so that site investigations can commence) but before writing the technical memorandum.

A technical memorandum describing their approach should demonstrate how the consultant will catalogue each regulation independently, understand its intent, how it is applied, who it is applied by, what needs to be done to satisfy it, define any timeline associated with said regulation, and describe how the project will need to comply. The approach should describe how it will identify contact information for the appropriate monitoring or regulatory agency responsible for each regulation. A successful approach, once implemented, will cover all necessary steps to satisfy all applicable regulations to enable the proposed project to proceed with no unanticipated regulatory-related delays.

a. Clean Water Act 404 (ACOE)

b. City of Philadelphia License and Inspections regulations, ordinances and permits

c. Section 105 (DEP)

d. Sediment and erosion control (PWD)

e. Infrastructure / drainage right of way (PWD/City)

f. Riparian Rights – Submerged Lands License

g. Expansion of navigable waters needs a permit (under 404)
Section 10 authority covers any work in navigable waters. The consultant will have to address what's going on within the limits of federal waters / mean high water b/c it's tidal. (this information was from Sam in Courtney's group)

h. Any work in the water requires authorization from ACOE under Section 10

i. Placing any things into water = CWA Section 404

j. Pipe extension, driving pilings, planting in water = Section 10

k. Wetland restoration or creation-related regulations, including the displacement of other aquatic habitat and other related issues as well as the likely overlap of federal, state and local regs.

l. NEPA including specifically section 106 as well as likely others.

m. Regulations related to removing or moving fill, includes Section 404 (of what?), potentially others as well as the likely overlap of federal, state and local regs.

n. City of Philadelphia existing zoning, building code, code enforcement, and variance processes

o. City of Philadelphia relevant agency reviews including PCPC, PWD, Streets, Historic Commission, Dept. of Recreation and potentially others.

p. Bulkhead and pier line rights and regulations and the appropriate organizations.

q. Stream and water encroachment permits that may be required and the appropriate organization.

r. Any ATF or Homeland Security regulations including setback requirements, on and off loading requirements and other attendant security measures.

s. DCNR regulations and requirements

t. PA DEP regulations and requirements

u. Stringent pier inspections by underwater dive teams – regulatory org. unknown

v. Army Corp of Engineer regulations and requirements including floodplain issues, bulk head lines, riparian lines etc.

There are a number of less specific regulatory-related matters the consultant should anticipate. Please prepare a narrative that describes your approach to addressing, and where required, creating, the below items:

a. Permitting and regulatory requirements directly relate to project cost. The consultant should describe all relevant and achievable specific ways in which they can minimize specific costs in order to reduce specific regulatory oversight.

b. Satisfying one or several regulations could create a confusing, unclear or competing set of outcomes (e.g. the answer to satisfying one regulations will likely create a circumstance or outcome in violation of other applicable regulations). The consultant's approach will describe how it will identify those potential regulation-conflict points and the involved organizations with regulatory oversight and articulate how to resolve the conflict so that the project can anticipate such potential delays and enter implementation with a game plan for resolving them.

c. The consultant will prepare the client to, but not actually apply for, relevant permits. Therefore the consultant shall create a **PERMIT APPLICATION BOOKLET** which will enable the client to follow all the necessary steps to satisfy all applicable regulations with no unanticipated regulatory-related delays.

d. Many regulations require varying types and scales of community input. The narrative should describe how these requirements will be seamlessly and efficiently synced with ongoing community communications efforts to be described in response to section 7 below.

e. Matters related to submerged lands remain murky. Although clarifying these matters is described as a need under specific investigations above, the likelihood of this murky issue holding up the project down the road requires that it be analyzed in the context of the regulatory environment as well.

UNKNOWN/NOT SURE HOW TO FIT IN:

- Could design project with work, no discharge of dredge or fill = covered by the Section 10 permit
- RR gantries – Act 106; NEPA (from specific investigations)
- Design project to meet ACOE Nationwide Permit 27 which will reduce costs/ use for restoration projects – bank restoration work is not eligible for this permit; loss of resource/replacement.
- If wetland restoration is part of park restoration then ACOE can federalize the entire project
- NEPA regulation - questionable if it's needed, and who would be responsible to prepare. ACOE must do it for analysis but if Congress gives Federal money then the federal entity has to do the NEPA document

- Any improvements to pier will need permits;
- Federalizing the entire project even though it's upland work.
- Other things get involved; section 106 and national historic act is called into; Endangered Species Act – (sturgeon); consistency determination with State;

5. ARTICULATE PROJECT GOALS – DESCRIBE GOALS WHICH OPTIMALLY BLEND COMPET INTERESTS GIVEN ANALYSIS OF SITE, POSSIBILITIES AND ONGOING DIALOGUE IN A NA

a. Recreation vs. ecological restoration. What goal or set of goals will arrive at the right balance for this project, setting, community and circumstances?

6. PROPOSE OPTIMAL SOLUTIONS TO CERTAIN DIFFICULT DECISIONS ARRIVED AT VIA EVALUATION TO INFORM PROJECT IMPLEMENTATION – DESCRIBE FINDINGS IN A TECH MEMORANDUM AND IN A CONCEPT PLAN

Consultant proposals shall include a detailed description of the evaluation process they will undertake to answer the below questions based on: the specific investigations, various technical information, the regulatory environment and the steps described in the Permit Application Booklet, anticipated costs, the anticipated project schedule and community input. The consultant should be prepared to put forth defensible and informed answers to the below questions that will withstand the inevitable scrutiny.

a. Can fill be removed along the river's edge to expand the area available for potential wetland? In what places does fill exist and where could fill be removed?

b. Can the hard edges of the existing park and landscape be removed?

c. Should the project move forward without knowing whether or not the adjacent parking lot will be available for park expansion? Can it?

d. Does it make sense to take away industrial waterfront to make more space for public recreation in a place like this? Are there other opportunities to do a swap that might make more sense?

e. Must the park area be bigger to make it widely used and remove it as an "attractive nuisance"?

f. Can a wetland be built near an existing CSO outflow? What will be needed for such an intervention to be stable in that environment?

g. If any wetland restoration or creation work is undertaken, should its success or failure be measured by wetland size or the type of vegetation that prospers, or what combination of the two?

h. What phasing, if any, will optimize the project? Some have claimed that in-river restoration work should occur before any physical improvements on the land. Others claim land-based improvements will lead to more users and stewardship, which are needed for a successful ecological restoration to prosper. What makes the most sense?

i. Will the restoration of Pulaski Park and the vicinity, including yet to be made decisions about whether or not to include adjacent land areas such as the parking lot or the extent of ecological restorations possible and desired there, be best served by a Master Plan or a Conceptual Site Plan with varying options.

j. Could Pulaski be expanded to the south, not the north? This will require revisiting the dialogue that occurred in the Central Del Vision process and disagreements about expanding to the north into arguably more active industrial areas.

7. COMPILE EXISTING COMMUNITY (BOTH CITIZEN AND BUSINESS) INPUT AND PROPOSE MEANS FOR OUTREACH AND COMMUNICATION TO COMMUNITY (BOTH CITIZEN AND BU – SUMMARIZE EXISTING COMMUNITY INPUT IN A NARRATIVE AND CREATE AND MANAG SYSTEM FOR ONGOING COMMUNICATIONS

Consultant proposals shall include a detailed description of how they will compile existing community input as well as establish and manage an ongoing and meaningful system for communicating as project planning and implementation occur. A kickoff meeting with the client and consultant will set the tone for project communications and clarify the purpose, aspirations and scope of this aspect of the project.

The consultant approach should include the following:

a. Channels and systems for regular sincere two-way communication (community to project and project to community)

b. The ability to communicate with neighbors/constituents who may live relatively far away from the actual project site.

c. The ability to utilize community knowledge and expertise as a part of the project in interesting ways.

d. The ability to include multiple adjacent neighborhoods including Kensington, Bridesburg; Port Richmond

e. The ability to include the Business Community - Tioga Terminal; tank farms; Anderson land, and others. These stakeholders have not often enough been reached out to.

f. The ability to communicate to, *and about,* upland in-river water issues

g. The ability to educate users as project planning unfolds about balance issues such as recreation vs. ecological benefits (no boating will be able to be allowed in a restored wetland if it is to survive).

h. The ability to educate the general public about the substance of NEPA and other regulatory requirements which will dictate to a certain extent the process of such projects including mitigation, the importance of avoidance and the generation of alternatives, before compensatory mitigation and mitigation elsewhere are considered.

i. The ability to empower and partner with existing and new community partners in order to leverage resources and maintain momentum. Existing partners include: Delaware River City Corp., NKCDC, Penn's Landing, and the Central Delaware Planning Process led by Penn Praxis. New partners should start with the business community.

j. The ability to sync ongoing efforts with regulation-required community outreach processes seamlessly and efficiently. (see above)

k. A plan and resources allocated to host up to four community workshops/meetings after initial field work and specific investigations have been completed in order to garner informed feedback to inform conceptual design as well as some number of private stakeholder meetings, some number of public community meetings.

l. Summary of existing outreach/educational efforts and results highlighting these efforts.

m. A plan for taking the communication process to reluctant partners and their forums such as high level meetings with nearby businesses.

n. A plan for undertaking user preference/programming surveys

o. A plan for outreach to local media/newspapers as well as email/website based outreach

p. The ability to engage different groups separately so they are comfortable and so we can identify conflicts and common interests

q. A plan for identifying project sponsor(s)

8. CREATE A SCOPE OF WORK FOR PROJECT IMPLEMENTATION WITH ORDER-OF-MAGN COSTS TO GUIDE NEXT STEPS

COURTNEY'S GRP BELOW:

a. This project should be a 30% Concept Design not a Master Plan which implies 10% vision
b. It is difficult to develop a fee without knowing what is ultimately being designed
c. It's easier to have concept design that the consultant can then flesh out.
d. The group had a healthy discussion on the semantics b/c each has its own process.

e. The group agreed that there was a need for consistency with consultant – both in planning, concept, design and engineering.
f. Estimate of $500,000 per acre for design and construction ($3.5 million at 7 acres); 20% of that for design [backing into conceptual design fee]
g. $100,000 seems reasonable (NOAA) – others think it's too light – Bowers thinks it's doable;
h. For a wetland concept only – $100,000 is feasible (that assumes no shoreline manipulation or CSO extension or utility work etc). If one were to include those itesm, then the project would increase to about $200,000
i. And, if any CSO infrastructure re-working would become part of the project then the price would go up even more.
j. CEM note – I think there was confusion in the group b/w Total Project Cost and Cost per Acre; I am unsure if the final agreed number is $100,000 per acre (which is written down on the notes) or just $100,000 in total.

TIMELINE

a. one year/ 12 months ($100,000 concept)
b. six months for permits and future

Todd's Group below

- Alternative Conceptual Plan
  - Articulate givens + contemplating other ideas
  - 3 alternative proposals for all of the parking areas
  - Rough cost range – very broad brush , high, medium and low
  - Choose 3 developers/designs/options via RFQ/RFP process…and share with community and invite input

- Final Design
  - Specifications
  - Design drawings
  - Phasing plans

- Action Plan
  - Order of magnitude costs
  - Permits needed?

8) Timeline

3 years.

WES'S GRP BELOW:

Scope of Work

Big Picture focus – ecological restoration of wetlands plus recreational elements

with parking
Think through whether this is feasibility study or concept design or both
There may be multiple steps/stages where outcomes (of feasibility) determine the next steps in concept design
Process/planning will need to be flexible, able to adjust to these different Outcomes

Budget and Timeline
At least 12 to 18 months
There may be several different tasks requiring data development/site and structure sampling which require considerable time and money
Very difficult but $250,000-500,000 seems l

Costs: construction and O&M

8. OTHER COMMENTS I COULD NOT FIND A GOOD SLOT FOR

- Birdwatching +fishing: is this appealing for kids as an "attractive nuisance"

- Lance – think long-term b/c PWD's water quality standards must be met and the long term planning is helping

- Create a marketing piece to say "we have this project, and need a marketing piece to describe the mitigation possibilities etc."

- Maintenance of pier inspection twice a year annually

- General Comment from the community rep: This community really wants active recreation kayak or canoeing within proposed wetland area.

- Someone commented that there are parties/developers looking for wetland creation sites (example of airport). It was pointed out that a developer does not want to be encumbered by the details outlined in this process. Maya reminds the group that a developer cannot truly pay for wetland restoration when they are destroying habitat.

- Ensure you are not "taking" water that would need to be "added" elsewhere like a mitigation.

- Does DRPA have any say in this part of the land and/or jurisdiction?

WES'S ISSUE ABOUT 100FT BUFFER:

Other Issues
What about 100 ft buffer?
Wes: this whole question of 100 ft buffer is going to have to delve into this complex ownership and regulation issue – 100 ft from what? Based

on who's ownership? Already being regulated by whom and in what ways?
Technically, how would we define this buffer? Seems probably that it would look quite different than Chester County headwaters/US Forest Service type of buffer, with some sort of blend between hard and soft edges, possibly some bulkheading, whatever – this becomes maybe a charrette unto itself – maybe someone has already done this?
Furthermore, the watershed functionality of buffer along the Delaware, with matrix of CSOs, becomes rather different than buffer functions in rural headwaters.

Useful aspect of meeting: Hopefully of potential use to planners who may actually seek to have this type of work done in future projects along the Delaware.

FOUND PARTICIPATION IN THE WORKSHOP TO BE HIGHLY BENEFICIAL IN LEARNING OF PROPOSED AQUATIC RESTORATION PROJECTS. WOULD LIKE TO PARTICIPATE IN FUTURE WORKSHOPS THAT MIGHT ADDRESS SUBJECTS/TOPICS RELATED TO CURRENT/PROPOSED PROJECTS ON THE WATERFRONT.

SAM REYNOLDS (PHILA. DIST./USACE)

Great Workshop!
↳ good learning process for all in our group

DO IT again!

"I think that these types of "mind-melds", in the long run, make much better projects. Any time that I can fit meetings involving "vision" into my schedule, it is a plus. Happy to help with anything I can bring to the table.

MEETING FEEDBACK

NEVER INVOLVED IN A PROCESS LIKE THIS TO RECOMMEND FOR RFP PROCESS

WHAT WAS GOOD WAS THE VARIETY OF PARTICIPANT BACKGROUND EXPERIENCE TO INFORM BROAD PERSPECTIVE

Great Team!

Comment

I appreciated timeliness. Part perspective was necessary. Directions for Team were clear

Good meeting.

Thank you

GREAT EXERCISE. VERY INTERESTING.

I LEARNED A LOT + WAS ABLE TO CONTRIBUTE AS WELL.

Monica Santoro

very insightful

Educational

FROM PAUL PACETTE, PEC PRACETTE @ PEPA.ORG

WE ARE WORKING ON AN ECOLOGICAL ASSESSMENT OF THE NORTH DELAWARE WATERFRONT. A MAPPING AND PRIORITIZATION PROJECT. PURPOSE IS TO IDENTIFY ECOLOGICAL RESTORATION OR ENHANCEMENT OPPORTUNITIES ALONG THE GREENWAY

WORKING WITH DNREC, ACOE, EPA, AND OTHERS

- GREAT WAY TO BRAINSTORM ABOUT THE PROJECT & TO DEVELOP AN RFP. FOR THIS SITE & FUTURE SITES

- WHILE I SEE THE MERITS OF BREAKING UP INTO SMALLER GROUPS TARGETING SPECIFIC AREAS, IT DOES TAKE ALWAY FROM LOOKING AT THE SITE FROM A WHOLISTIC PERSPECTIVE.
  PERHAPS LESS TIME IN THE BREAKOUT GROUPS & MORE TIME AS A WHOLE GROUP

- Great mix of folks on team.
- Good directions - Cahill is doing a great job.
- Good timing for mtg.
- She'll set up a web site to track topics.

FEEDBACK

An incredible wealth of resources in this room. Can you please circulate notes/minutes to participants? And can share everyone's email addresses so we can continue to correspond?

I think the focus group format worked really well for this topic but may not work well for some of the future topics. There were people here who had incredible wetland expertise, but do the same people exist in Philly for topics for big box retrofitting? Might be harder to do.

Name	Affiliation	
Joe McNulty	New Kensington Community Development Corporation - Delaware Riverfront O	
Stephanie K. Craighead	Fairmount Park Commission	
Carolyn Wallace	DCNR	
Sarah Thorp	Delaware River City Corporation	
Nacima Boukenna	Philadelphia Parking Authority	
Andrew Goodman	PennPraxis	
Alison Hastings PP/AICP	Delaware Valley Regional Planning Commission - Planner	
Chris Linn	DVRPC	
Stephanie Kruel, AICP	Phillly Car Share - Community Relations Coordinator	
Tina Roberts	Tower Inv.	
Laura Rozumalski	PWD	
Glen Abrams	PWD	
Lisa Beyer	PWD	
Jeanne Waldowski	PWD	
Tiffany Ledesma Groll	PWD	
Eric Werfel	PWD	
Patrick Starr **+3**	PEC	
	PEC	
	PEC	
	PEC	
David Fecteau, AICP	Philadelphia City Planning Commission	
McCrea Dunton	DCNR Intern	
Miachel Thompson	Philadelphia City Planning Commission	
Sarah Corlett	New Kensington Community Development Corporation - Delaware Riverfront O	
Jennifer Martell	WRT	
Courtney Marm	Cahill	
Wes Horner	Cahill	
Todd Baylson	PHS	
Joy Lawrence	PHS	
Meghan Weir	PHS	
Nando Micale	WRT	
Mami Hara	WRT	
Kent	WRT	Joy to invite
Glen		
	Rubin/PREIT	Left message with dev
Jessica	PWD	
Suzanna Randalls	PWD	
Jack Thrower	Bower Lewis Thrower	
Megan Delevan	Bower Lewis Thrower	
Cecil Baker	Cecil Baker Partners	
Alexandra Fazio	Cecil Baker Partners	
Charles MacIntosh	TNC	
Robert Keppel	Cope Linder Architects	
John S. Gattuso	Liberty Property Trust	
Bill Fisher	Liberty Property Trust	
Linda Dottor	Community Design Collaborative	

Name	Affiliation
Dan Garafolo	DVGBC President/PENN Envt'l Sustainability Coordinator
John Elfrey	Streets/L&I
David Perri	Streets/L&I
Eileen Evans	Streets/L&I
	Goldenberg
	Goldenberg
Tina Roberts	Tower Investments
Bart Blatstein	Tower Investments
Rob Irons	Bohler Eng. - Schmidt's
Jessica Brooks	PWD
Suzanna Randalls	PWD
Martine Belanger	Philadlephia Planning - Parking Lots
Harry Aponte	Deputy Director - CPO
Rick Tustin	Director - CPO
Susan Baltake	ULI
Susan Baltake	ULI
Terry McKenna	Keating Development
Carmen Z.	PIDC
Karen Black	Building Industry Assoc./May 8 Consulting
Kiki Bolender	DAG and AIA
	DAG and AIA
	DAG and AIA
Natalia Olson	Planning Zoning and DVRPC
Natalie Beckwith	DVGBC Administrative and Programs Assistant
Jill Kowalski	DVGBC Exec. Dir.
Heather Blakeslee	
John Claypool	AIA Executive Director
Jim Cuorato	Brandywine Realty
	Westrum
	Ikea
	Rubin/PREIT
	Condos on pier ??
	District Reps PlanPhilly
	Realtors
	Design Advocacy Group http://www.designadvocacy.org/contact.asp
Mark Alan Hughes	Office of Sustainability
Christine Knapp	PennFuture

Delaware Direct River Conservation Plan
Focus Group #2 The Built Environment

Advanced Parking Lot Design

New stormwater regulations, restructured utility fees, new urban design standards - all of these will require and inspire different approaches to how we use and store our automobiles. Although we are a long way from abandoning the car-centric culture, residents, urban designers, and economists are recognizing that vibrant healthy communities are rooted in the pedestrian experience. This workshop will explore innovations that create attractive, functional and cost saving parking solutions that work for cars, neighborhoods and people. We will look specifically at select sites in and around Columbus Boulevard in South Philadelphia.

Santa Monica Civic Center Parking Garage - on track to become a LEED first

Independence Seaport Museum
211 Columbus Blvd.
Philadelphia PA 19106

Wednesday June 4, 2008
8:30 Registration and continental breakfast

9:00 - 11:00 AM
Seating is limited - RSVP requested

RSVP by May 30, 2008

Tiffany Ledesma-Groll 215.499.3756 LedesmaGrollTD@cdm.com
Joy Lawrence, PHS 215-988-8898 jlawrence@pennhort.org

This is the second in a series of four workshops exploring conservation design opportunities for the Delaware Direct watershed. Sponsored by Philadelphia Water Department, Cahill Associates, Inc. and Pennsylvania Horticultural Society.

Big Building	Big Lot	BID
Y	O	P

Alison Hastings PP/AICP	DVRPC	Y
Andrew Goodman	PennPraxis	O
Carolyn Wallace	DCNR	O
Chris Linn	DVRPC	P
David Fecteau, AICP	PCC	O
Eric Werfel	PWD	O
Glen Abrams	PWD	P
Jeanne Waldowski	PWD	Y
Jennifer Martell	WRT	O
Joe McNulty	NKCDC	P
Laura Rozumalski	PWD	P
Lisa Beyer	PWD	P
McCrea Dunton	DCNR	O
Meghan Weir	PHS	P
Michael Thompson	PCC	Y
Nacima Boukenna	PPA	Y
Paul Racette	PEC	O
Patrick Starr	PEC	P
Jessica Anderson	PEC	P
Sarah Corlett	NKCDC	Y
Sarah Thorp	DRCC	O
Stephanie K. Craighead	FPC	O
Stephanie Kruel, AICP	Philly Car Share	Y
Tiffany Ledesma Groll	PWD	P
Tina Roberts	Tower	Y
Todd Baylson	PHS	Y
Wes Horner	Cahill	
Joy Lawrence	PHS	
Courtney Marm	Cahill	O
Meghan Weir	PHS	
Leah Stine	PHS	
Brian Shuster	PHS	

Delaware River Conservation Plan
Focus Group #2 Built Environment
June 4, 2008
Advancing Parking Lot Design

Agenda

8:30 - 9:00	Breakfast
9:00 - 9:20	Welcome/Introduction
	Parking Lots - Program and Design Solutions Overview
9:20 - 10:40	Working Groups
10:40 - 11:00	Review and Next Steps
11:00	Adjourn

Next Focus Group Coming in July - Transit and Mobility

Advanced Parking Lot Design

Delaware Direct RCP
Focus Group #2 Built Environment
Meeting Plan/Agenda

Introduction/Welcome
9:00 - 9:30

Review of Parking Lot considerations (Todd and Courtney to review)
% Watershed impervious
# parking lots, parking spaces - # cars (quantify what we are talking about)
environmental impacts - primarily water related, heat island,
social - encourage cars, discourage pedestrian, undermine mass transit
cultural/aesthetic - street dynamics

Brief overview of alternative approaches (possible guest?)

Financing and Policy

Break Out Groups
9:30 - 10:45

Group 1 (aerial of Ikea, Walmart, Target or other similar)
Your client will be retrofitting their large retail/commercial existing parking lot to achieve zero stormwater runoff. The client wants to leverage this investment in order to maximize good PR and provide additional amenities that will make the parking the new “green greeting” entryway for customers. Your team will consider possible means to achieve this outcome, and describe the qualifications and scope of services that will be used to select a consultant who can deliver the stormwater design, and meet the new program goals for customer experience.

Group 2 (find a tower with associated surface parking)
Your client is building a new 175 unit residential condominium. The developer wants to have as many parking spaces for tenants, guests, service providers as possible. However, the site is not large, and everything has to fit on the parcel. The developer is also looking for LEED certification for her building and wants the parking structure to add points. Your team will describe the qualifications and scope of services that will direct the consultant investigations and proposals to maximize on-site parking, and gain LEED credits.

Group 3 (strip mall off Washington Ave)
Your client is a strip mall owner who gets constant complaints from his retail tenants about the parking lot. Some tenants feel that they are paying for parking they don’t use, others feel their customers are crowded out; the largest tenant, a busy restaurant, says his customers are harassed by other business owners. The property owner expects to pass along the new stormwater fees to these tenants, but is looking for a way to make to make an equitable distribution, and help resolve the ongoing arguments. Your team will create a strategic approach for your client to address tenant issues and assign fair costs.

RETROFIT GROUP - Parking Lot as a Customer Service
Big Box on the Delaware

Your client is interested in retrofitting their large retail/commercial existing parking lot to achieve zero stormwater runoff. The client wants to leverage this investment in order to maximize promotional opportunities and provide amenities that will make the parking lot the new "green gateway" for customers. Your team is to describe the qualifications and scope of services that will be used to select a consultant who can create a state-of- the-art stormwater design, and meet the new program goals for creating a new level of customer experience.

1. Consider various ways in which the parking facilities might be retrofitted as a green gateway. Describe any **specific investigations** the consultant should be directed to undertake to evaluate approaches and determine feasibility. This list should include any knowledge gaps that need to be filled.

2. **Skills and expertise**: List the professional skills and expertise that will be required by the consultant (team) and any subcontractors.

3. **Technical references**: List known technologies, research materials, reference sites, technical manuals, other projects etc. that the consultant should reference that are specific and relevant to parking lot issues for high volume retail and/or commercial riverfront development that could be investigated in an efficient manner by a consultant working within a budget.

4. **Communication and Input**: Describe elements of effective public input/community engagement process for the overall project. Keep in mind the project's goal of creating customer amenities and awareness, balanced with the fact that this is privately held and managed property.

5. **Regulatory**: List specific permitting, regulatory or governance issues that will likely impact project planning and design. Identify gaps in knowledge about regulatory matters that will need to be explored by the consultant to prevent project delays

6. Summarize the **scope of work** and expected outcomes from the consultant's study work. What, in the group's estimation, is a reasonable **budget** and **timeline** for this work?

BIG BUILDING GROUP - Efficient and Effective Design
Scaling for the neighborhood

Your client has proposed a new 70 unit residential condominium and 100 room hotel. The developer wants to have as many parking spaces for tenants, guests, service providers as possible. However, the site is not large, and the parcel is in a dense residential neighborhood. The developer wants to work with the community to minimize and offset traffic and parking impacts. Your team will outline a scope of services for a parking consultant to investigate and propose approaches that will maximize parking and minimize neighborhood impacts by consider the neighborhood's existing parking infrastructure, and approaches for creating new parking.

1. Consider possible options for parking on-site and sharing existing, modifying or creating parking facilities off-site. Describe **specific investigations** the consultant should be directed to explore approaches and determine feasibility. This list should include any knowledge gaps that need to be filled.

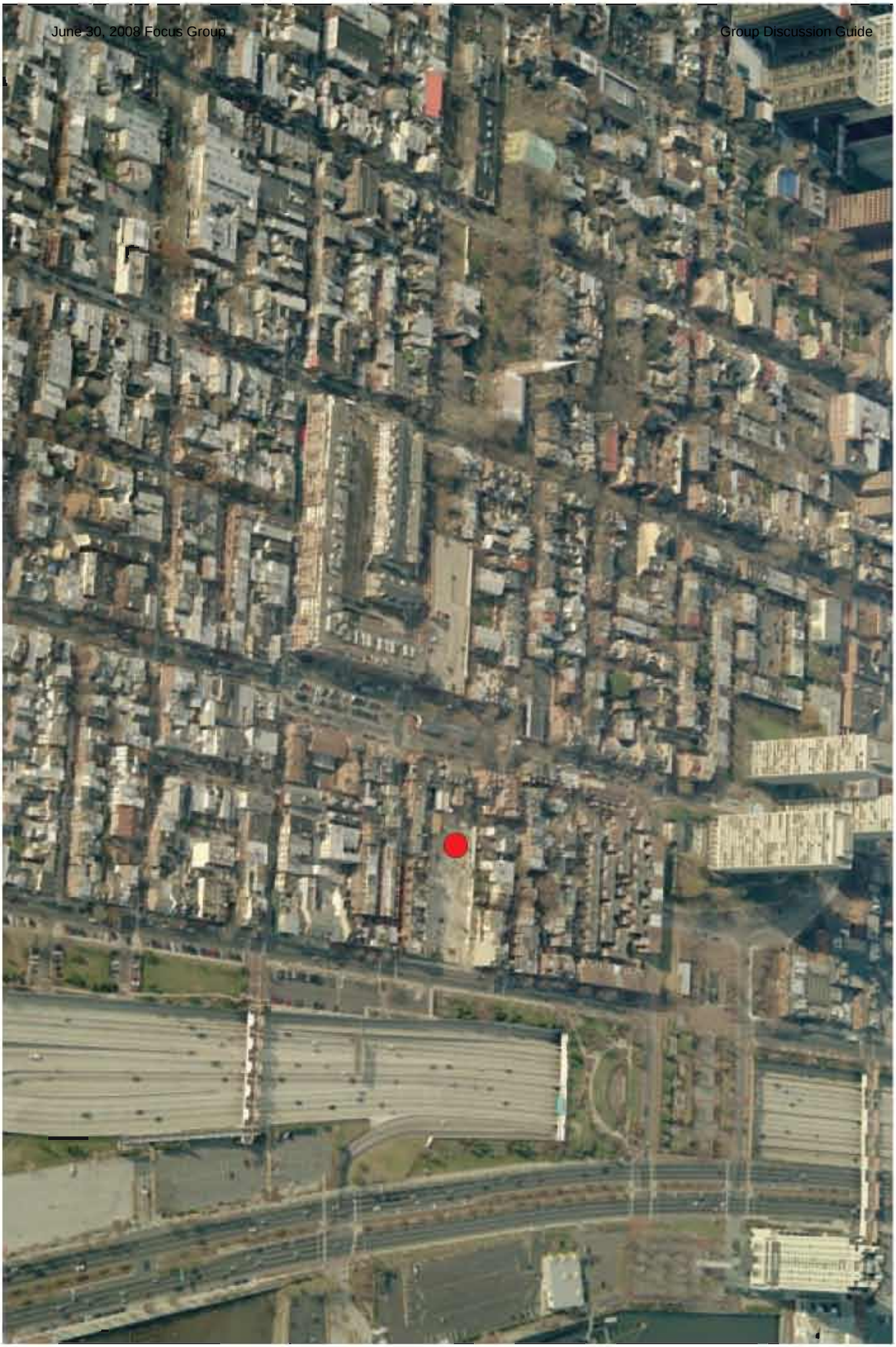
2. **Skills and expertise**: List professional skills and expertise that will be required by the consultant (team) and any subcontractors.

3. **Technical references**: List approaches and technologies, such as reference sites, manuals, academic studies, similar projects, etc. that would be helpful to develop a successful approach(es) to integrating larger scale buildings into residential neighborhoods - with a particular eye to resolving parking issues.

4. **Communication and Input**: Describe an effective public input/community engagement process for the overall project. Keep in mind how the project might present off-site parking solutions to the community.

5. **Regulatory**: List specific permitting, regulatory or governance issues that will likely impact project planning and design. Identify gaps in knowledge about regulatory matters that will need to be explored by the consultant to prevent project delays

6. Summarize the **scope of work** and expected outcomes from the consultant's study work. What, in the group's estimation, is a reasonable **budget** and **timeline** for this work?



LEED PARKING GROUP - Commercial Parking +
Business district parking solutions

Your client is a Business Improvement District (BID) interested in providing more parking for its restaurant district in order to draw customers and keep them for longer visits. Their have proposed transforming an existing surface lot into a multi-story garage that will quadruple the number of spaces available. Your team will outline a scope of services for a design consultant to create a parking garage that will be embraced by businesses and neighbors, enhance the experience of visitors, reflect the character and values of the neighborhood, and go for Gold LEED certification.

1. As relates to design and construction of a new multi-story parking facility - describe any **specific investigations** the consultant should be directed to undertake to consider approaches and determine feasibility. This list should include any knowledge gaps that need to be filled.

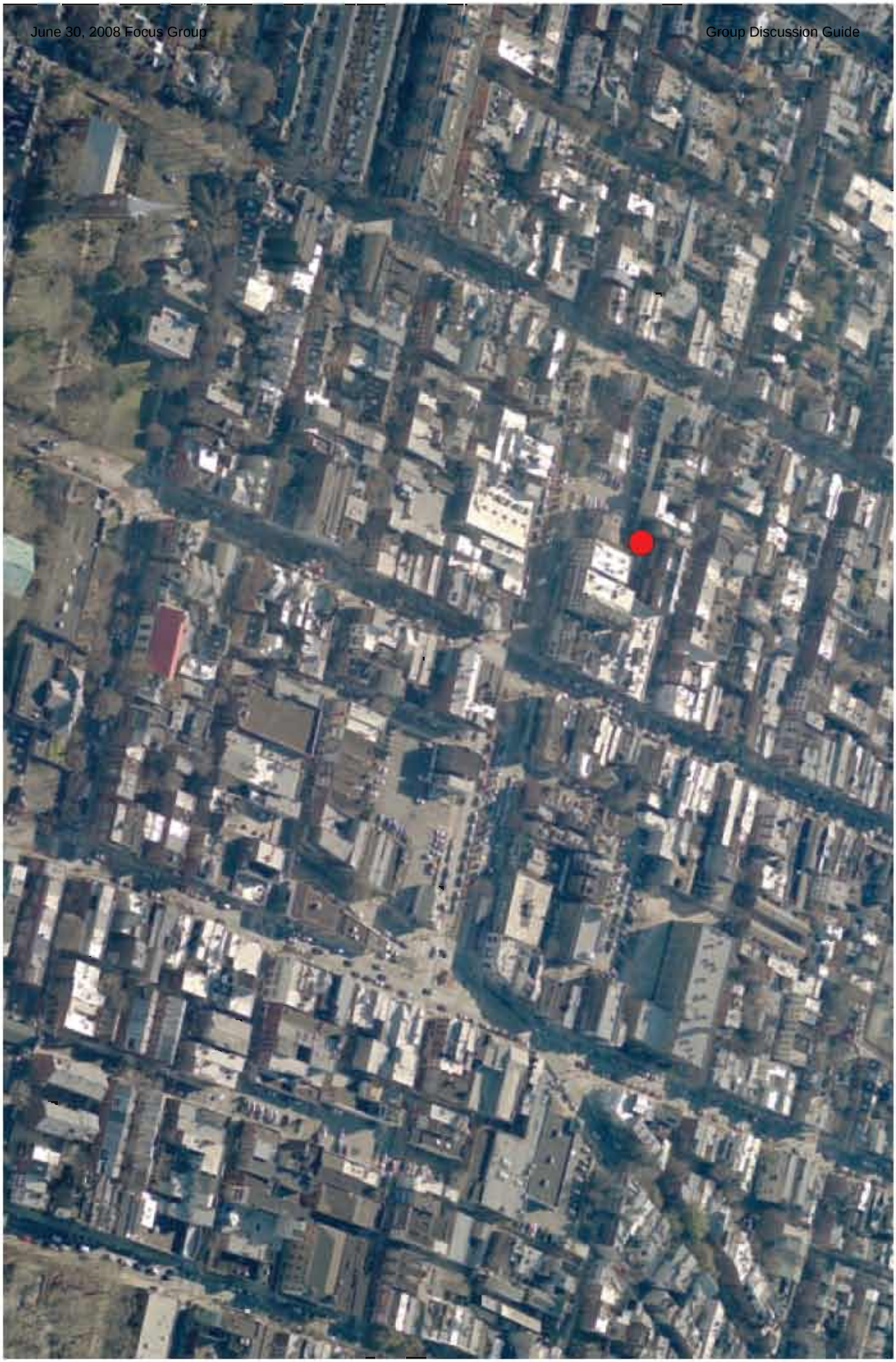
2. **Skills and expertise**: List the professional skills and expertise that will be required by the consultant (team) and any subcontractors.

3. **Technical references**: List approaches and technologies, such as reference sites, manuals, academic studies, similar projects, etc. that would be helpful to develop a successful approach(es) to designing a LEED building for cars.

4. **Communication and Input**: Describe an effective public input/community engagement process for the overall project. .

5. **Regulatory**: List specific permitting, regulatory or governance issues that will likely impact project planning and design. Identify gaps in knowledge about regulatory matters that will need to be explored by the consultant to prevent project delays

6. Summarize the **scope of work** and expected outcomes from the consultant's study work. What, in the group's estimation, is a reasonable **budget** and **timeline** for this work?



GROUP 1 – YELLOW: BIG BUILDING, STAMPER SQUARE

1. Specific investigations and knowledge gaps:
   - Liaison with parking authority to expand permits, control on street parking and other solutions.
   - Transportation impact analysis: number of cars in and out per day and time series; interface with SEPTA/ mass transit
   - Parking inventory: three blocks in each area; assess utilization of existing and sharing opportunities; convert existing land uses to new parking
   - Trip to PCPC: global issues associated with development
   - Massing pf building/ hotel specific design
   - Residential versus hotel demand/ need: zoning regulatory and market demand and distance from transit (TOD); extended stay versus overnight; anticipated clientele
   - Historic analysis of appropriate building type/ design
   - Pending and proposed development in neighborhood
   - Existing stormwater runoff conditions of adjacent residential
   - Market analysis, target market and clients
   - Hydrology study: groundwater; underground infrastructure; ID problematic conditions (might result in adjacent ROWs being laid)
   - Explore impact fees for: traffic signals and traffic impact; PA legislation about traffic fees; environmental impact; per residence; need a new school or other public amenities. (Capacity may already exist)

2. Skills and expertise:
   - Community liaison: negotiation- community demands and what can be accommodated; education- real versus perceived impacts
   - Traffic engineer: traffic signal timing; parking specs and regulatory environment
   - Shared parking options: community liaison identifies parking and landowners
   - Transportation specialist- to encourage progressive parking: maybe traffic engineer- very progressive though; team including architect/ LEED oriented; likely full service firm with a proven track record and urban focus; maybe a special sub consultant, will liaison with SEPTA, bicycle coalition; explore alternatives to standard moves.
   - Architect, potentially full service
   - PE/ hydrology/ stormwater: full service firm; specialized engineering firm; contemplate green roof/ pervious surfaces
   - Developer: talking to community; building the right team (environmental, community, architect, engineer); both local and non-local on team to get innovation and familiarity with the process and what is feasible here
   - LEED AP: to document for certification; might be a part of the team
   - Landscape Architect: relationship of building to ground and street; plantings to manage stormwater

3. Technical references:
   - Shuttle-parking article

- Wash-West area buildings: street level retail/ building wrap; successful (St. James) and not so successful (Chestnut St and 11th)
- Rittenhouse Square 10: preserved façade; parking off alley/ street – no curb cut
- 2nd and Girard: mixed use Tower Developments with first floor retail and residential wrapping parking structures
- The HUB – 40th and Chestnut: no parking at all; they got 100 percent parking variance and saved money
- Engineering blue book
- Talk with developers who know costs
- Center city parking study

4. Communication and input process:
   - Educate the community to reduce expectations and alley fears that new residents and cars will overwhelm the neighborhood
   - Let people know about some options like PPA medallion

5. Regulatory constraints:
   - Zoning – unpredictable
   - Not even regulatory maters but councilman… and privilege
   - Agencies need to understand times and fuel costs change, and tenants don't all want cars anymore
   - New stormwater regulations

6. Scope of work, budget and timeline:
   -

7. Policy options:
   - Pass legislation that says one carsharing parking space satisfies requirement for 50 residential units and automatic 25 percent reduction in parking requirements
   - Reintroduce stalled…
   - Zoning code commission embracing center city parking study
   - Shuttle service to and from anchor destinations and institutions (such as NoLibs and Temple)
   - If a development is above a certain size they should look at shuttle options and sharing such services – TMA
   - Help developers build less parking, which many of them want to do because they cant finance the parking costs and parking for residence does not produce a cash flow.

GROUP 2 – ORANGE: BIG LOT, WALMART SHOPPING CENTER LOT

1. Specific investigations and knowledge gaps:
   - Green roofs
   - Green medians / bioswales
   - Suppliers' vehicles
   - Customer shuttles
   - Stacked structures
   - Reduce number of spaces – study requirements
   - Permeable surfaces
   - Trees
   - Create park/stormwater collection zone
   - Retrofit building to maximize space
   - Shade structures
   - Renewable energy – solar/wind
   - Develop public open space along river
   - Marina
   - Ferry stops
   - Amenities for boaters
   - Ownership
   - Wetland banking requirements
   - Wetlands along riverfront to collect water from rooftops and parking
   - Re-use of piers
   - River habitat
   - Transportation/ traffic/ parking usage studies
   - Soil/ geotech
   - Philly carshare spaces
   - Existing stormwater modeling and CSOs
   - Rooftop drainage
   - Recreation opportunities (bikes, paddle craft)
   - Market research – benefit to businesses
   - Vending – alternative retail

2. Skills and expertise:
   - Landscape architect
   - Architect/ structural engineer
   - Alternative energy expert
   - Hydraulic engineer
   - Ecologist – wetlands expert
   - Recreation
   - Traffic engineer
   - Soil/ geotech specialist
   - Economist
   - Marketing

- Urban planner
- Marine engineer
- Civil engineer
- Health
- Interpretation and education

3. Technical references:
- PWD stormwater BMP manuals
- GIS data layers – PWD PAMap
- Portland BMPs
- PNDI
- Philly natural resources inventory
- Precedents from other countries
- Green roof manuals
- Permeable paver manuals
- Historic river uses
- Trade group/ industry standards
- National association of shopping centers
- ULI
- CNU
- Zoning
- Phoenix – big box store zoning classification
- PWD wetland registry
- Central Delaware Plan
- Philly Green Plan
- Ford Motor Company River Rouge
- USGBC
- Friends Center
- Pleasant Hill Park
- Saylor's Grove
- John Heinz refuge

4. Communication and input process:
- Leadership from stores
- CDCs
- City council/ politicians
- Central Delaware Advisory group
- Penn Praxis
- Community and designers charette/ visualizations
- Universities
- Public agencies
- Health community
- Foxwoods and other neighboring uses/ landowners
- Marketing/ branding industries

- Environmental groups (Audubon)
- Philly Carshare
- SEPTA
- Boating community
- Bicycle coalition

5. Regulatory constraints:
- PWD stormwater regulations
- Stormwater fees
- Army corps
- DEP – wetlands, NPDES, EPA
- DRBC
- Planning Commission
- Art commission
- Historic commission
- Zoning, L & I, setbacks

6. Scope of work, budget and timeline:
- Feasibility and site analysis, investigations
- Master planning – design, phasing, concept
- Cost benefit analysis
- Site design
- Financing
- Bidding
- Construction

Additional notes
- More than just a shopping center
- Reduce impervious surface/ zero runoff
- Cost benefit to client
- Integrate renewable energy

GROUP 3 – PINK: LEED PARKING, COMMERCIAL PARKING FOR BUSINESS IMPROVEMENT DISTRICT

1. Specific investigations and knowledge gaps:
   - Distinguish between residential parking versus short-term parking
   - Consider potential for reorganizing the angled or non-angled parking on Bainbridge and reconfigure other on-street parking
   - Identify actual demand and what the specific shortfall is through a parking study
   - Identify ownership and usage of existing lots
   - Consider options that may be presented if parking is consolidated (ie- lots converted to parks, etc.)
   - Compile study of traffic counts and patterns
   - Identify what is allowed with current zoning
   - Consider other transportation options and related issues

2. Skills and expertise:
   - Knowledge of standards – local and national
   - Appropriate parking structure for this location
   - LEED certification and knowledge
   - Transportation planners
   - Civil engineers
   - Stakeholder facilitator
   - Designers/ architects
   - Economic analysis
   - Urban planners

3. Technical references:
   - Research façade treatments
   - Inventory place-based references
   - Ventilation systems and technologies
   - Vehicle organization technologies (stacking, automation)
   -

4. Communication and input process:
   - Identify existing neighborhood plans
   - Find/ conduct surveys about parking needs and attitudes – businesses, residents, and visitors
   - Meeting- outreach and fact finding, follow-up, design alternatives and feedback, final presentation (four meetings total).
   - Website, polling, signage at the site, mailings

5. Regulatory constraints:
   - Zoning
   - Stormwater management
   - Building codes (especially challenges presented in using innovative materials

6. Scope of work, budget and timeline:

Year 1:

- Assessments – parking spaces, costs, residential versus visitor parking
- Identify existing plans
- Identify demand boundaries and service area
- Identify regulatory issues
- Site characterization, traffic studies, case studies
- Consider alternatives- shuttles, connections to existing parking options and transit lines
- Present alternatives and survey the public

Year 2-4

- Design and build

(The group chose not to discuss budget do to lack of expertise.)

Additional notes

Elements that a well designed parking structure will include:

- Appropriate scale for the physical structure of the neighborhood
- Wrapping with retail or mixed use
- Attractive appearance and materials
- Green roof
- Stormwater management practices
- Solar panels
- Efficient air exchange technology
- Innovative materials
- Special parking space designations for compact/hybrid
- Incentives for use of new vehicle technologies (ie- charging stations for electric)
- Real time signage indicating the number of spaces available or where customer must park

First Name	Last Name	Affiliation	Comments
Victor	* Banks	DCNR	
Antonio	Fiol-Silva	Wallace Roberts & Todd	Principal
Andrew	* Goodman	Penn Praxis	Attended #2
Alison	Hastings	DVRPC	Attended #2
Adam	Kromm	Wallace Roberts & Todd	Also invite other WRT folks that Adam has mentior
Alan	* Urek	Philadelphia City Planning Co	(Janani Narayanan will attend.)
Ariel	Ben-Amos	Mayor's Office of Transportati	PennDesign MCP Candidate, intern
Barbara	* McCabe	Department of Recreation	
Bob	Borski	Delaware River City Corp.	
Ben	* Ginsberg	Center City District	
		Bicycle Coalition of Greater P	
Bridget	Keegan	Penn Praxis	
William	* Kunze	The Nature Conservancy, PA	
Carolyn	Johnson	Philadelphia City Planning Co	PennDesign MCP Candidate, transportation and pe
Chuck	Davies	Penn DOT	Can also select other DOT staff
Charlie	Denny	Phila Dept of Streets	Primary Traffic Engineer
Chuck	* Macintosh [CK]	Army Corps of Engineers	
Chris	Linn	DVRPC	Attended #2
Carolyn	* Wallis	DCNR	Attended #2
Carmen	Zappile	PIDC	
David	Burke	PA DEP	Attended #1
Darin	Gatti	Phila Dept of Streets	
Dave	Fecteau	Phila	Attended #2
David	* Ortiz	Philadelphia City Planning Co	
Dave	Perri	Phila Dept of Streets	Adam Kromm says Perri can recommend engineer
David	Schaaf	Philadelphia City Planning Co	Has knowledge of historical issues in this area
David	Lange	National Park Service	
Debby	Schaaf	Philadelphia City Planning Co	Strategic Planning and Policy, Chair, Bicycle/Pedes
Dave	Fogel	SEPTA	Planning Director for SEPTA
David	Kantor	Center City District	or other steering committee member, Ben Ginsberg
Denise	Goren	Michael Baker	VP of Project Development (previous Deputy Mayo
Donnie	Maley	Mayor's Office of Transportati	PennDesign MCP Candidate, intern
Donna A.	Stewart	Greeley and Hansen	
Elaine	Elbich	Penn DOT	
Eric	Werfel		Attended #2
Eva	Gladstein	NTI	
Fran	Hanney	Penn DOT	
Flavia	Rutkosky	US Fish and Wildlife	Attended #1
Nando	Micale	Wallace Roberts & Todd	
Frank	Jaskiewicz	JtZI	Adam Kromm's favorite traffic engineer, also recom
Glen	* Abrams	PWD	
Michael	* Greenle	Penn Praxis	
Harris	* Steinberg	Penn Praxis	
Howard	Neukrug	PWD	From Adam Kromm's suggestions, not on steering
Janani	* Narayanan	Philadelphia Planning Commi	Attended #1
Jim	Schmid	Schmid & Company	Attended #1
Jeanne	Waldowski		Attended #2
Jessica	* Sanchez	Delaware River Basin Commi	
Jennifer	Martel	Wallace Roberts and Todd	Attended #2
Joe	* McNulty	New Kensington CDC	Attended #2
Joan	Blaustien	Fairmount Park Commission	
Joanne	* Dahme	PWD	
Joe	Minott	Clean Air Council	
John	Haak	Philadelphia Planning Commi	Attended #1
John	* Yagecic	DRBC	
Jon	Edelstein	Phila Dept of Commerce	
Julie	Thompson	Penn Praxis	PennDesign MCP Candidate, intern
Karen	Randal	Phila Dept of Commercial Dev	Manager

First Name	Last Name	Affiliation	Comments
Karen	Black	BIA (Building Industry Associa	May 8 Consulting
Kieth	Bowers	Biohabitats	Attended #1
Maya	van Rossum	Delaware River Keeper	Attended #1
Kyle	Gradinger	Wallace Roberts & Todd	
Kimberly	Long	DEP	
Christine	Knapp	Penn Future	
Kristen	Ford	Brown and Keener	Attended #1
Lance	Butler	PWD	Attended #1
Jeff	Lapp	US EPA	Attended #1
Laura	Rozumalski	City	Attended #2
Mindy	Lemoine	EPA/PEC	
Linda	Meckel	Parsons Brinkerhoff	PennDesign MCP Candidate, intern
Lisa	Beyer	City	Attended #2
Lynn	Mandarano	Temple University - Center fo	
Maggie	Allio	Delaware River Basin Commi	
Marge	* Rosenblum	Passyunk Square Civic	
Marian	Maxfield Hull	URS	
Mark	Focht	Fairmount Park Commission	
Mark	Rhoads	URS	
McCrea	Dunton		Attended #2
Mami	Hara	Wallace Roberts & Todd	
Mike	* Thompson		Attended #2
Michael	Miller	Olin Partnership	Penn Design MCP and MLA candidate, intern
Maitreyi	* Roy	PHS	
Monica	Santoro	Penn's Landing Corp	Attended #1, Naval ship ane vessel coordinator, m
Michael	Tweed	Wallace Roberts & Todd	
Nancy	* Goldenberg	Center City District	
Patty	Elkis	DVRPC	
Paul	Racette	PEC	Attended #2
Patrick	* Starr	Pennsylvania Environmental (	Paul Racette as backup.
Reed Davaz	* McGowan	Norris Square Neighborhood	North Phila
Rina	Cutler	Mayor's Office of Transportati	
Robert	Allen	Fairmount Park Commission	
Rose	Gray	APM	
Sebastian	Martin	PEC	PennDesign MCP Candidate, intern
Simeon	Hahn	NOAA	
Simeon	Hahn	NOAA	Attended #1
Sean	Jalosinski	Philadelphia Sports Complex	
Shawn	McCaney	William Penn Foundation	
Sarah	* Thorp	Delaware River City Corp.	Attended #2
Sandy	* Salzman	New Kensington CDC	
Shanta	Schachter	New Kensington CDC	
Stephanie	* Craighead	Fairmount Park Commission	
Stephanie	Kruel	Philly Car Share	Attended #2
Steve	Buckley	Mayor's Office of Transportati	
Susan	* Patrone	Passyunk Square Civic Assoc	
Nikki	Thorpe	Michael Baker	PennDesign MCP Candidate, intern
Tina	Roberts	Tower Investments	Attended #2
Tom	* Minehart	State Representative	
Tony	* Payton	State Representative, inc. No	North Phila
Vadim	Fleysh	Phila Dept of Streets	
Vukan	Dr. Vuchic	Penn Engineer	
Win	Akeley	Friends of Penn Treaty Park	Checking PHS Parks Team.
Maggie	Allio	Delaware River Basin Commission	

*Steering Committee

July 31, 2008 Focus Group

Meeting Park Permit

PERMIT

All permits granted shall be subject to all applicable laws, rules and regulations. The persons to whom such permits are granted shall be bound by said laws, rules and regulations. Any persons or assignees to whom such permits are granted shall be liable for any loss, damages or injury sustained by any person whatsoever by reason of the act or omission of the permittee or assignee.

Fairmount Park Commission
CASE Building, West Park
4301 Parkside Avenue
Philadelphia, PA 19131

Fairmount Park
PHILADELPHIA'S PARK SYSTEM

No sales permitted.
Grounds to be left in a clean and orderly condition.
No person shall commit disorderly conduct of any kind.
This Permit is subject to withdrawal without notice.

Mr. Todd Baylson
Pennsylvania Horticutural Society
100 N. 20th Street, 5th Floor
Philadelphia, PA 19103

Telephone / Fax Number: 215-988-8895/215-988-8810

Date Issued July 27, 2008

SE081868

PERMISSION IS HEREBY GRANTED FOR *(NAME OF PERSON OR ORGANIZATION)*

Pennsylvania Horticutural Society ("Organizer")

ACTIVITY AND NUMBERS OF PARTICIPANTS

Mobility and Connections Workshop (the "Event") 60

DATE

Thursday, 7/31/2008 TIME **8:00:00 AM to 1:00:00 PM**

LOCATION

Penn Treaty Park, District# 1S (the "Park")

RIVILEGES

Permission granted for the above event, the organizer must have all necessary city permits and licenses before the start of the event. A certificate of insurance with the minimum limits approved by the City of Philadelphia, naming the City of Philadelphia and the Fairmount Park Commission as additionally insured must be forwarded to the City's Risk Manager and a copy to the Fairmount Park Special Events Office. The permit is null & void without the certificate.
No vehicles or heavy equipment on the grass areas of the Park. All areas must be left clean of litter.
No rain dates will be scheduled due to the volume of requests. All permits are granted on a rain or shine basis.
KEEP THIS PERMIT WITH YOU AT ALL TIMES DURING THE EVENT.

Coordinate all activities with Sam Curry, District #1S Manager at 215-685-1660. Advise all participants that no road closures have been approved for this event. Organization must have all required city licenses and permits.

Call Doc
Pure Drop

215-988-8810

CC: Park Police (2), Bessler, Bldg.Maint., Rec.,OL&M,Info,Property,Rangers,MKTG,MDO,City Rep., EMS,WW, PMA, Dist.# 1S, file

PLEASE READ CAREFULLY BEFORE SIGNING

No Infringement. Organizer warrants and represents that any and all information, images, video and audio files and event access that it provides does not violate any third party's intellectual property rights, including, but not limited to trademarks, patents, copyrights or trade secrets. Any violation of this provision shall be considered a material breach of this Permit. Organizer further warrants and represents that it has obtained ASCAP, BMI, SESAC, and similar performance licenses, required for the use of copyrighted or licensed material in connection with the Event, or otherwise required in connection with the use of the Park for the Event.

Compliance. Organizer warrants and represents that its offer and promotion of these events does not violate any local, state or federal laws, including, without limitation, consumer protection and obscenity laws. Any violation of this provision shall be considered a material breach of this Permit.

Charges. Fairmount Park charges a fee for its overtime services, as specified in the attached invoice. Organizer authorizes Fairmount Park to deduct its fees for all services from the security deposits, if Organizer fails to pay for invoiced services.

Indemnification. Organizer shall indemnify, defend and hold harmless the City of Philadelphia, the Fairmount Park Commission, and their respective officers, employees and agents from and against any and all losses, costs (including, but not limited to, litigation and settlement costs and counsel fees), claims, suits, actions, damages, liability and expenses, occasioned wholly or in part by Organizer's act or omission or negligence or fault or the act or omission or negligence or fault of Organizer's agents, subcontractors, suppliers, employees or servants in connection with the Permit.

No Implied Warranties. The content and functionality of the Fairmount Park site is provided on an "as is" basis without warranties of any kind, either express or implied, including but not limited to warranties of merchantability and fitness for a particular purpose. Neither this Permit or any documentation furnished under it is intended to express or imply any warranty that the services will be uninterrupted or that the Fairmount Park site will provide uninterrupted or error free service.

Third Party Providers: Fairmount Park uses third party providers and provides no warranty and accepts no liability for losses/failures resulting from non-performance or failures of those providers.

LIMITATION OF LIABILITY. FAIRMOUNT PARK SHALL NOT BE LIABLE FOR ANY LOSS OF BUSINESS, PROFITS OR GOODWILL, INTERRUPTION OF BUSINESS, OR FOR ANY INDIRECT, SPECIAL PUNITIVE, CONSEQUENTIAL, OR INCIDENTAL DAMAGES THAT RESULT FROM ORGANIZER'S USE OR INABILITY TO USE FAIRMOUNT PARK'S SERVICES. FAIRMOUNT PARK'S LIABILITY TO ORGANIZER SHALL NOT, FOR ANY REASON, EXCEED THE FEES CHARGED BY FAIRMOUNT PARK FOR ITS SERVICES DURING THE PRECEDING 12 MONTH PERIOD.

Force Majeure. Fairmount Park shall not be liable for any delay or failure in performance under this Permit resulting directly or indirectly from acts of God or any causes beyond its reasonable control.

Termination for Convenience. Fairmount Park shall have the right to terminate this Permit for convenience via written notice to Organizer.

Termination for Cause. If Organizer breaches this Permit and fails to cure such breach within ten (10) days of notice of such breach, Fairmount Park may terminate this Permit. Organizer's warranties and representations and the Indemnification provision of this Permit shall survive any termination of the Permit.

Entire Agreement; Successors and Assigns. This Permit, and the terms and documents incorporated by reference, constitutes the entire agreement between the Fairmount Park and Organizer relative to the subject matter hereof and shall be binding upon the parties hereto and upon their heirs, administrators, representatives, executors, successors and assigns, and shall inure to the benefit of said parties. Any previous agreement or negotiations between Fairmount Park and Organizer concerning the subject matter hereof is superseded by this Permit.

Governing Law. This Permit and the obligation hereunder shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

Notices. Any notice required or permitted hereunder must be given in writing, by telegram, overnight courier, email or facsimile transmission. Failure of Organizer to notify Fairmount Park of any change in contact information shall constitute a breach of this Permit.

Modification. Only a written instrument signed by both parties may amend any provision of this Permit.

Waiver. No waiver of any kind under this Permit shall be deemed effective unless contained in writing signed by the party charged with such waiver, and no waiver of any right arising from any breach or failure to perform will be deemed to be a waiver or authorization of any other breach or failure to perform or of any other right arising under this Permit.

IN WITNESS WHEREOF, the parties have executed this Permit by signing, dating below and faxing or mailing the originally signed document to Fairmount Park.

For Organizer:
Organizer (Legal Name of Organization): _____

Event Date:	7/31/2008
Permit # :	SE081868

Name of Authorized Signing Party:

_____ Title/Position: _____

Signature: _____ Date: _____

Please sign and date on the above line. Returned the signed permit along with a check payable to Fairmount Park in the amount of the total cost line on page 4. The permit will be countersigned by Fairmount Park and returned to you prior to your event.

For Fairmount Park:

_____ Date: _____

Joseph Callan, Special Events Manager

Fairmount Park Special Events Service Request

SE081868

Event Mobility and Connections Workshop **Date of Event** 7/31/2008 to 7/31/2008

Contact Person Todd Baylson **Telephone** 215-988-8895/215-988-8810

Starting Time 8:00:00 AM **Ending Time** 1:00:00 PM

Location Penn Treaty Park **District(s)** 1S

Insurance_Commission Approval_License Agreement

Service Requested

O. & L. M. Clean up before and after event.	**Bldg. Maint.** Electrician
Police FYI	**Rangers** FYI
Commission	**City Services**

Fairmount Park Special Event

Fairmount Park Commission
CASE Building, West Park
4301 Parkside Avenue
Philadelphia, PA 19131
215-685-0060

SE081868

Event Mobility and Connections Workshop **Date of Event** 7/31/2008 to 7/31/2008

Starting Time 8:00:00 AM **Ending Time** 1:00:00 PM

Contact Person Todd Baylson **Organization** Pennsylvania Horticutural Society

Address 100 N. 20th Street, 5th Floor **City** Philadelphia **State** PA **Zip** 19103 **Telephone** 215-988-8895 **Location** Penn Treaty Park **District(s)** 1S

Item	Hourly Rate	# of Hours	# of Hours (1.5)	# of Hours (2X)	Cost
Electrician	$30.65	0	0	0	$ 0.00
Plumber	$30.65	0	0	0	$ 0.00
Ground Worker	$27.24	0	0	0	$ 0.00
Grounds Supervisor	$33.43	0	0	0	$ 0.00
Special Event Mgr.	$36.60	0	0	0	$ 0.00
Jeep	$10.00	0			$ 0.00
Pick-up	$10.00	0			$ 0.00
Trash Truck	$43.50	0			$ 0.00
Front End Loader	$32.00	0			$ 0.00
Generator	$56.00	0			$ 0.00
					$ 0.00
Contribution	Waived by MAF				$ 0.00
Misc. Charge					
Security Desp.	**(Refundable after the site inspection.) Waived by MAF**				
Total Cost					**$ 0.00**

The security deposit will be returned upon satisfactory post-event inspection of the site.
This is an estimated invoice based on services requested on the application.
The invoice will increase with a request for additional services. Fairmount Park personnel will inspect the event ocation following your event. The area must be left clean and all trash removed.

☐ **There are no charges for services against Security Deposit for this event. Security Deposit may be returned.**

☐ Please charge the event for the following for services performed

ACCOUNTING USE ONLY
Attach supporting documentation for deposit and return

Deposit Amount: _____

Deposit credit of: _____

Date sent to Acctg: _____

District Manager **Date**

Special Events Manager

Greetings,

On behalf of the Delaware Direct River Conservation planning team, I would like to invite you to join Pennsylvania Horticultural Society, Pennsylvania Department of Conservation and Natural Resources, and the Philadelphia Water Department for a special workshop on **Mobility and Connections** that will take place the **morning of Thursday July 31st**. Breakfast at 8:30 AM, presentations and workshops 9:00 AM - 11:30 AM. Thanks to Fairmount Park and the Friends of Penn Treaty Park for helping us host this event at Penn Treaty Park. This spectacular riverfront location is one of our city jewels, and we are delighted to be able to offer the opportunity to conduct a workshop in such a magnificent location. Please mark your calendars right away.

One of the most consistent challenges to emerge from neighborhood and riverfront planning is the desire of our citizens to strengthen ties to the river. At the meeting on July 31st, we are challenging you, the workshop attendees, to take this challenge head-on and make your way to Penn Treaty Park using means and modes other than an automobile. And if you don't normally use an automobile, try an alternate to your typical mode of transit. Your experience will be the launching point for the rest of the morning's activities.

We expect this will be a fun and interesting morning for policy and planning professionals with expertise in traffic planning and engineering, as well as a variety of interested stakeholders. The goal of the Delaware Direct River Conservation Plan is to leverage and advance the good work of the many plans already in place by taking next steps on key priorities that will affect the watershed. Connections to the river, in particular green and complete streets are without question, one of the most frequently cited specific recommendations for Philadelphia's neighborhoods. Please join us, and join in the effort to respond to this challenge.

RSVP Please! jlawrence@pennhort.org or ledesmagrolltd@cdm.com We will be following up with important meeting materials and details.

Best,

Joy Lawrence
Manager Environmental Initiatives, Philadelphia Green
Pennsylvania Horticultural Society
100 N. 20th Street
Philadelphia PA 19103

215-988-8898

Visit Philadelphia Green on the web...
www.philadelphiagreen.org

2009 Philadelphia Flower Show, March 1-8
"Bella Italia"

Getting to Penn Treaty Park

CAHILL ASSOCIATES
Environmental Engineers, Scientists, & Planners
www.thcahill.com

Invitation Map

Connections West via 15 - Girard Avenue Trolley: Broad Street Subway (Broad and Girard) and West Philadelphia

Trolley Route

15 - any Girard Ave stop to Girard and Columbia

Bus Routes

From North:
25 - Frankford Ave to Delaware and Laurel
5 - Frankford Transportation Center to Girard Station

From South:
43 - Spring Garden Station to Beach & Columbia
25 - Spring Garden Station or Columbus Blvd to Delaware and Laurel
5 - Penn's Landing to Girard

Regional Rail:
PATCO (8th & Mkt), Market East Station (11th & Mkt), 30th St Station (30th & Mkt), via Market Frankford El

Boat Access:
Piers Marina (Chestnut & Ben Franklin Bridge)

Board Bus 25 or 43 Penn Treaty Park 0.9 mile

Penn Treaty Park 0.4 mile

Penn Treaty Park 0.6 mile

Penn Treaty Park 0.2 mile

Penn Treaty Park

Girard Station

Spring Garden Station

Hancock Park

Hart Playground

Hetzell Playground

Fishtown Rec Center

City Playground

Liberty Lands

Pedestrian Routes
Bus Lines
15 - Girard Ave Trolley
Market Frankford El
Bike Lanes
Penn Treaty Park
Parks

N

0 325 650 Feet

July 31, 2008 Focus Group

Check In			Break out Group	#
	Abrams	Glen*		2
	Akeley	Win		4
	Allen	Robert		3
	Baylson	Todd		
	Blaustien	Joan		3
	Boyle	John		2
	Butler	Lance		1
	Chiorean	Stephanie		3
	Clapper	Judy		2
	Clark Stuart	Sarah		2
	Cooper	Shari		1
	Dahme	Joanne*		3
	Dement	Tammy Leigh		4
	Elbich	Elaine		1
	Fecteau	David		4
	Finch	Spencer		2
	Flemming	Alex		3
	Ford	Kristen		2
	Ginsberg	Ben		3
	Girman	Michael J, III		2
	Hara	Mami		1
	Keegan	Bridget		3
	Kelly	Tim		4
	Knapp	Christine		1
	Krom	Adam		

	Kruel	Stephanie		2
	Lampton	Cara		3
	Lawrence	Joy *		4
	Ledesma Groll	Tiffany		3
	Marino	Joseph		4
	Martin	Sebastian		4
	Maxfield Hull	Marian		1
	McCabe	Barbara		1
	McCoubrey	Stephen		2
	Meddin	Russell		4
	Neukrug	Howard		3
	O'Brien	Mike		3
	Olson	Natalia		1
	Patrone	Susan		3
	Randall	Suzanna*		1
	Rahn	Anne		4
	Rominger	Leah		
	Roy	Maitreyi		
	Rutkosky	Flavia		3
	Salzman	Sandy		
	Schuster	Brian		
	Schaaf	David		1
	Starr	Patrick		1
	Thorp	Sarah		4
	Washington	Mark		1
	Weir	Meghan		

	Werfel	Eric		4
	Winters	Dennis		2
13		design		
12		policy		
12		funding and partnership		
11		short term remedies		

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? _____
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time _____(hours:minutes) and how much total distance

_____ (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

_____

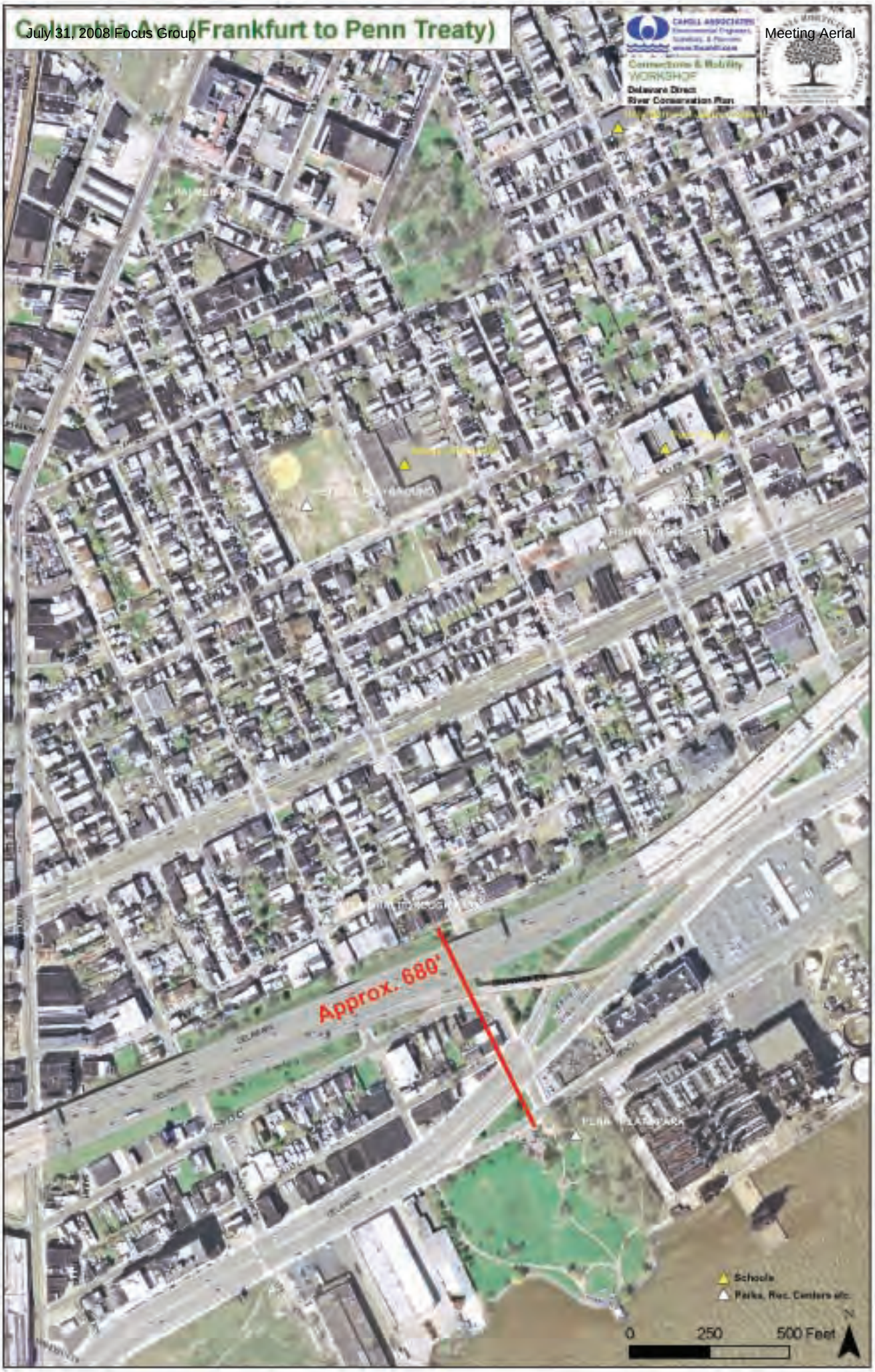
9. What route or method would you recommend to your grandmother, or a neighbor with young children?

_____

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

_____

Getting to Penn Treaty Park


Columbia Ave (Frankfurt to Penn Treaty)
July 31, 2008 Focus Group
Meeting Aerial
Connections & Mobility
WORKSHOP
Delaware Direct
River Conservation Plan
Approx. 680'
Schools
Parks, Rec. Centers etc.
0
250
500 Feet

Check In			Break out Group	#
X	Abrams	Glen		2
X	Akeley	Win		4
	Allen	Robert		3
✓	Baylson	Todd		
X	Blaustien	Joan		3
X	Boyle	John		2
	Butler	Lance		1
X	Chiorean	Stephanie		3
	Clapper	Judy		2
X	Clark Stuart	Sarah		2
X	Cooper	Shari		1
X	Dahme	Joanne		3
X	Dement	Tammy Leigh		4
X	Elbich	Elaine		1
X	Fecteau	David		4
	Finch	Spencer		2
X	Flemming	Alex		3
	Ford	Kristen		2
X	Ginsberg	Ben		3
	Girman	Michael J, III		2
	Hara	Mami		1
X	Keegan	Bridget		3
X	Kelly	Tim		4
	Knapp	Christine		1
X	Krom	Adam	~~RED~~ GREEN	

Buck, Marlene (NKCDC)
Roy, Maitreyi
Gradinger, Kyle WRT → RED

~~Stuart~~
Shanta Schakte

	Kruel	Stephanie		2
X	Lampton	Cara		3
-	Lawrence	Joy		4
X	Ledesma Groll	Tiffany		3
	Marino	Joseph		4
	Martin	Sebastian		4
X	Maxfield Hull	Marian		1
	McCabe	Barbara		1
X	McCoubrey	Stephen		2
X	Meddin	Russell		4
-	Neukrug	Howard		3
X	O'Brien	Mike		3
	Olson	Natalia		1
X	Patrone	Susan		3
X	Randall	Suzanna		1
X	Rahn	Anne		4
-	Rominger	Leah		
	Rutkosky	Flavia		3
X	Salzman	Sandy		
-	Schuster	Brian		
X	Schaaf	David		1
	Starr	Patrick		1
X	Thorp	Sarah		4
X	Washington	Mark		1
X	Weir	Meghan		
X	Werfel	Eric		4

	Werfel	Eric		4
	Winters	Dennis		2

July 31, 2008 Focus Group

Sign-in Sheets

NAME	NEIGHBORHOOD / ADDRESS	PHONE	EMAIL
Elaine Elbich	7000 Geerdes Blvd, K of P, PA 19406	610-205-6846	eelbich@state.pa.us
Dave Fecteau	1515 Arch St., 13th Fl. Phila, PA 19102	215 683-4670	David.Fecteau@phila.gov
Glen Abrams	2200 Arch St. #408 Phila 19103	215-685-6039	Glen.Abrams@phila.gov
Russell Meddin	2118 Race Street 19103	215-567 6767	russellmeddin@yahoo.com
Marlene Buck	2658 Edgemont St 19125	215-423-6452	MBUCK@NKCDC.ORG
Mark Washington	Phila. Streets Dept. Rm 980 MSB 1401 JFK Blvd 19102 Traffic Engineering	215-686-5530 5534	mark.washington@philagov
Tim Kelly	135 S. 19th St., Suite 200 19103	215-587-4004 4103	tkelly@cleanair.org
Shari Cooper	PWD	215-685-4949	shari.cooper@phila.gov
David Schaaf	city Planning Commission	215-683-4658	david.schaaf@phila.gov
Kyle Gradinger	WRT	215-772-1479	Kgradinger@ph.wrtdesign.com
Marian Hull	URS 1628 JFK Blvd 21st Fl. 19103	215-940-9270	Marian_hull@urscorp.com
Adam Krom	WRT	215 430-5065	akrom@ph.wrtdesign.com
Sarah Clem Stuart	Schuylkill River Park Alliance Bike Coalition	215-561-0483	SCSpa@comcast.net
Mike O'Brien	House of Representatives	215 523 3245	MOBrien@pahouse.net
John Boyle	Bicycle Coalition 801 S. Broad St Phila, PA 19110	215-242-9253	John@bicyclecoalition
Tiffany Ledesma Groll	PWD	215-499-3756	ledesmagrollt@cdm.com
Win Akeley	1210 Marlborough	215-291-0909	win_akeley@yahoo.com

NAME	NEIGHBORHOOD / ADDRESS	PHONE	EMAIL
Maitray Roy	100 N 20th St.	215 988 8873	mroy@pennhort.org
Stephen McCubrey	229 S. 42nd St.	215-387-0454	smccou@verizon.com
Cara Lampton	135 S. 19th St.	215 567-4004	clampton@cleanair.org
SARAH THORP	1138 Spackman St.	215 779 5515	sarthorp@drcc-phila.org
Susan Patrone	1529 S. 13th St.	215 467-3011	susan.patrone@yahoo
Eric Werfel	901 S 4th	215-370-4904	
SANDY SALZMAN	1231 MARLBOROUGH	215-427-0350	SSALZMAN@NKCDC.org
Suzanna Randall	1101 MARKET (PWD)	215.685.4949	Suzanna.Randall@phila.gov
Lance Butler	1101 Market (PWD)	215. 685. 4947	Lance.Butler@phila.gov
JOAN BLAUSTEIN	7145 LINCOLN DR - MT AIRY ~~1515 ARCH ST (FAL~~	215-683-0215	JOAN.BLAUSTEIN@PHILA.GOV
Joanne Dahm	1101 Market St	215-685-4944	joanne.dahm@phila.gov
Alex Flemming	SEPTA	215-580-3664	aFlemming@septa.org
Anne Rahn	Earth Force	215-884-9888	anne.rahn@verizon.net
STEPHANIE KRUEL	1515 MIFFLIN ST	215 730 0988 x116	stephanie@phillycoastshore.org

NAME	NEIGHBORHOOD / ADDRESS	PHONE	EMAIL
Stephanie Chiorean	5008 Walton Ave, Phila / W. Philly	814883.1909	stephanie.chiorean@phila.gov
BEN GINSBERG	CCD 660 Chestnut St.	215.440.5533	bginsberg@centercityphila.org
Tammy Leigh DeMent	RHS		
Bridget Keegan	PennPraxis	267.577.5070	bkeegan@design.upenn.edu
Shanta Schachter	NKCDC	215.427.0350 x127	sschachter@nkcdc.org
Sarah Cornett	NKCDC	215-427-0350 ext 111	scorlett@nkcdc.org

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19143 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

5. How much total time 040 (hours:minutes) and how much total distance 6 m. (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) (No) Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

bike lane in Chestnut

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19125 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 8 (hours:minutes) and how much total distance ½ (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

stop @ Canvas to get coffee on the way

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

walking down Columbia Ave.

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

I was surprised to see so many users in the park at 8:30 am (Small groups of people recreating together) including 3 Hispanic guys sitting with a case of beer)

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19119/ corner of Sherman & Sedgwick Sts
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

5. How much total time 45 (hours:minutes) and how much total distance 10 (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember
I look forward to it everyday.

7. Would you use this route again, and/or recommend it to others? Yes No
I bike from Mt Airy to 1515 Arch & back everyday

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?
I can't think of a thing

9. What route or method would you recommend to your grandmother, or a neighbor with young children?
bus, el and walking

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):
met other bikers that share information regarding their commute

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19143
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

5. How much total time 30 (hours:minutes) and how much total distance

_____ (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Better ~~[illegible]~~ ~~[illegible]~~ enforcement on bike lanes for bike
- bike boxes + protected bike lanes

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

nothing suitable for grandmother - possibly the bus.

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

_____

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19107
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other EL

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other EL

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other

5. How much total time 15min (hours:minutes) and how much total distance

1.25 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

[illegible]

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

[illegible]

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

[illegible]

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19104
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

5. How much total time 30 min (hours:minutes) and how much total distance 6 mi (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?
Less Public Transportation

9. What route or method would you recommend to your grandmother, or a neighbor with young children?
Public Transportation

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):
Took Less time than expected

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19102
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

(Walk) Bike Bus Trolley Regional Rail (Auto) Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail (Auto) Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail (Auto) Other_____

5. How much total time 0:10 (hours:minutes) and how much total distance 2 MILES (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes (No)
(I TOOK I-676)

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?
RIDE A BIKE OR A SCOOTER. TAKE A SCENIC ROUTE

9. What route or method would you recommend to your grandmother, or a neighbor with young children?
TAKE SEPTA'S MARKET-FRANKFORD LINE TO SPRING GARDEN STATION
TAKE SEPTA'S ROUTE 43 BUS TO PARK (DIRECT FROM WEST PHILA.)
(IF COMING FROM NW PHILA. VIA BROAD ST SUBWAY)

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):
NO

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19107 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 30min (hours:minutes) and how much total distance 10 miles (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?
I would have Biked

9. What route or method would you recommend to your grandmother, or a neighbor with young children?
Same One I Took Today

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):
yes. The amount of proposed development along this particular part of the River Front.

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19103
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 20 (hours:minutes) and how much total distance 3.0 (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

The heat

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

If using a bike, the same

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

It was difficult turning left from Spring Garden to Delaware Ave.

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19122 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 4 (hours:minutes) and how much total distance 1 mile (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Underpass @ I-95; gateway @ river

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

walk or 9L to Girard, then walk

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19128
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 25 (hours:minutes) and how much total distance 10 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

_____

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

_____

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

_____

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19119 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 1:15 (hours:minutes) and how much total distance 20 ? (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

_____

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

SAME - BUT WAIT FOR GIRARD TROLLEY INSTEAD OF WALKING

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

_____

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19095 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 45 (hours:minutes) and how much total distance _____ (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Take the bus

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

bus

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19144 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 40 (hours:minutes) and how much total distance 7 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

include trolley

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Same or w/ trolley + walk

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

- How pretty the River is once you get there -

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19012
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other El

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 0:50 (hours:minutes) and how much total distance 16 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?
Waiting for the El - shorter wait + a cooler (temperature-wise) wait

9. What route or method would you recommend to your grandmother, or a neighbor with young children?
Regional Rail + a cab

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):
enjoyable walk from Girard Station to Penn Treaty Park

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19107
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other Heavy Rail

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other Heavy Rail

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other Heavy Rail

5. How much total time 20-25 min (hours:minutes) and how much total distance 2 miles? (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Very little - perhaps better transit facilities at Spring Garden.

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Any route w/ few stairs and not too crowded (off peak)

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

Not really - someone asked me for directions to Phila. Com. College. I had the 43 bus schedule + provided directions how to get there. (east from Spring Garden St.).

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19123 - Waterfront Square
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

(Walk) Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

(Walk) Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

(Walk) Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 10 min (hours:minutes) and how much total distance 1/4 mi. (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember it was okay - not overly pleasant.

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

walking.

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

There is a lot of room for streetscape improvements: the like on Delaware Ave. - lots of positive opportunities for changing the character of Del. Ave

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19147
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time: equal

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time :35 (hours:minutes) and how much total distance 2 6 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Crossing Delaware was horrible!

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

That they drive

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19119
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other SEPTA - R7 The "EL"

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 1:15 (hours:minutes) and how much total distance

_____ (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember
except when I was lost

7. Would you use this route again, and/or recommend it to others? Yes No
After I figure out the mistake

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Remember my map, bring coffee, make sure the bus lines are Running (the 25 is not)

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Drive

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use other side of page if needed):

When your lost people will try to help.
The River is completed disconnected from the neighborhood
crossing under 95 was terrifying to walk.

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19143
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____ carpool w/3 people

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 0:45 (hours:minutes) and how much total distance

_____ (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember short trip from center city

7. Would you use this route again, and/or recommend it to others? Yes No

I don't have a car so, I would take the 1st trolley then the El then walk

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Nothing

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Depending on where my grandmother was coming from. - I am not sure
From the neighborhood, walk or bike

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

Not really, although I have been here before, about 2 years ago and this park did not look as clean and kept up! It looks great!

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19123
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail (Auto) Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail (Auto) Other_____

4. Circle the mode that required the most travel time: N/A

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 5 (hours:minutes) and how much total distance 5 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes (No) Don't remember

I wanted to walk, but got caught up @ my house, so had to drive

7. Would you use this route again, and/or recommend it to others? Yes (No) b/c I would have been late otherwise. (i)

Next time I would walk + leave extra early.

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Time

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Walk

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

Next time I will wake up much earlier to make up for the extra time it would take to walk.

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 08648
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other Hitch Hiked on Girard Ave with friend

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time _____(hours:minutes) and how much total distance _____ (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Walk could be better - more aesthetic

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Car / Route / tools

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19145 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other SUBWAY

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other SUBWAY

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 45 (hours:minutes) and how much total distance 4-5 ? (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Shade while waiting for the bus

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Same route

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

I thought the #15 was a trolley, but it was a bus!

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19125
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 5'' (hours:minutes) and how much total distance 3 Blocks (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

easier crossing @ Delaware Ave

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

car

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19147 - E. of Broad
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

5. How much total time 30" (hours:minutes) and how much total distance 3? (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?
fewer speeding cars/trucks / tree shade

9. What route or method would you recommend to your grandmother, or a neighbor with young children?
Public trans —

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):
Riverfront ... beauty / decay / fragilness of ecosystem —
Character of past industr./manufacturing sites —
possibilities!!

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19131 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail (Auto) Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail (Auto) Other_____

4. Circle the mode that required the most travel time:

Walk Bike (Bus) Trolley Regional Rail Auto Other_____

5. How much total time 25 (hours:minutes) and how much total distance 10 (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

More traffic today b/c of Phila Soul on Parkway

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

drive

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19125 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 5 min (hours:minutes) and how much total distance 1 mile (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

To have walked

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

walk if possible

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

No

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19125
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other Airplane

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 3 min (hours:minutes) and how much total distance

.1 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Underpass of I-95 on Marlborough St.

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Same

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

No

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 08010 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other Light Rail PATCO, MFL

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other Light Rail

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other Light Rail

5. How much total time 1:18 (hours:minutes) and how much total distance 21 mile (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Single fare Instrument

9. What route or method would you recommend to your grandmother, or a neighbor with young children? From my zip code Drive

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

Need ~~to~~ extensive local transit knowledge to complete

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19087 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

(Walk) Bike Bus Trolley Regional Rail Auto Other Carpool

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other carpool

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other carpool

5. How much total time 1:20 (hours:minutes) and how much total distance 35 (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

taken the train to subway to trolley & walked final distance

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

auto trains/trolley

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

walkers & joggers along trails & couple feeding baby in the park.

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19103 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply: subway?

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

5. How much total time 25 (hours:minutes) and how much total distance 3.5 (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember I'm tired!

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Sign on Del. Ave directing to the Park
Make Spring Garden/Del. Ave intersection safer for bikes - create a bike box + to make left hand turn lead ped. interval w/ ped/bike signal

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

bus or subway

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19104
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other Subway

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other Subway

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other

5. How much total time 45 (hours:minutes) and how much total distance 5 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

better ventilation/cooler air in subway stations

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Subway + Girard trolley

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

(1) bad smells at some points only walk from Girard Station (2) Penn Treaty Park is very pretty, - first time here

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19711 (Newark, DE)
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other Subway

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time ~2 hr (hours:minutes) and how much total distance _____ (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

less distance to cover! not much else, other than that

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

I recommend regional rail and walking w/in the city

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

I usually get off at suburban station, so traveling to market East station, I was less enthused about the physical state of the station (especially the subway section) - I thought it ~~was~~ looked old, ~~&~~ in disrepair.
I have never been to the park and I find it wonderful!

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19103 (Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk Bike Bus Trolley Regional Rail Auto Other El

3. Circle the mode that covered the greatest distance you travelled:

Walk Bike Bus Trolley Regional Rail Auto Other El

4. Circle the mode that required the most travel time:

Walk Bike Bus Trolley Regional Rail Auto Other_____

5. How much total time 20 (hours/minutes) and how much total distance 4 (estimated miles) from start to finish.

6. Did you enjoy the trip?: Yes No Don't remember

7. Would you use this route again, and/or recommend it to others? Yes No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

More street trees (Girard Ave.) & Signage directing route to river

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Not quite sure, but it would be a method that didn't rely on so much walking

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

There are no signs or clues of how to get to river, but every now and then you'd get glimpses of "openings" through I-95 Crossing Columbus/Delaware was daunting

PENN TREATY ALTERNATE ROUTE CHALLENGE SURVEY
July 31, 2008

1. Where did your journey begin? 19103 - 6460
(Zipcode)

2. Circle the mode(s) you used to travel here today - circle *all* that apply:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

3. Circle the mode that covered the greatest distance you travelled:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

4. Circle the mode that required the most travel time:

Walk (Bike) Bus Trolley Regional Rail Auto Other_____

5. How much total time 30 (hours:minutes) and how much total distance 2.5 (estimated miles) from start to finish.

6. Did you enjoy the trip?: (Yes) No Don't remember

7. Would you use this route again, and/or recommend it to others? (Yes) No

8. What one thing would you change that would have made your trip more pleasant and enjoyable today?

Advanced Stop Lines (Bike Box) at all right turns from Spring Garden. Keep bike lane on 22nd Marked through the Parkway intersections.

9. What route or method would you recommend to your grandmother, or a neighbor with young children?

Probably Green Street (at least west of Broad) but bike lanes on Spring Garden are nice.

10. Did you have any unusual or unexpected experiences or insights on your trip today? Explain briefly (use the other side of page if needed):

I was almost struck by a library truck that turned right while I was in the bike lane.

GROUP 1 GREEN: Green and Complete Streets - Policy and Permitting flowchart.
FACILITATOR: Suzanna Randall

Q: Planning proposals and initiatives have called for Philadelphia to create a new street grid, and enhance existing streets by adding pedestrian scale amenities and alternative stormwater infrastructure. Your task today is to consider the current permitting and oversight protocols that are in place for Philadelphia now, with the goal of amending and streamlining the process to better facilitate the design and construction of green and complete streets.

Consider the various steps required to conceive and execute a green/complete street project including planning, design, permits, funding, infrastructure, approvals and maintenance after completion. How are city, state and federal agencies involved in, and in what capacity:

Setting design standards

Design proposal review

Permitting

Implementation/Inspection

Operation/Maintenance/Management

List current steps, guidelines or processes for streetscaping projects that are currently in place.

Does the process differ between redevelopment and new development? Is scale an issue?

Map an ideal process/flow chart for design, permitting and implementation for new street development and/or redevelopment of complete/green street.

What considerations need to be addressed in order for multi-functional streetscapes to be effectively managed and maintained?

List criteria that will help determine city/state or private agencies/organizations that will need to invest over the long-term in care and maintenance?

GROUP 2 RED: Redesign Columbia Ave as a Complete and Green street.
FACILITATOR: Glen Abrams

Q: Columbia Ave is an important neighborhood street that moves people through the neighborhood and operates as public space. It is highlighted in several plans as a connector street between the Kensington neighborhood and the Delaware riverfront at Penn Treaty Park. Your task for today is to outline a process to develop complete/green street concept plan for Columbia Ave. between Frankford Ave. and Penn Treaty Park.

List specific elements that should be considered in order to create Columbia Ave. as a complete (mobility and connnections for people, bikes and cars) and green (offering a lush living landscape and ecologically functional) street.

List real world criteria that will form the basis for inclusion/exclusion of each of these elements on Columbia Ave?

List any investigations, analyses, research that will be required to create realistic conceptual plans? Describe a sequence and/or prioritize the various investigations.

List the professional competencies, areas of expertise that will be required to move from concepts to actual design documentation.

Estimate the time and budget required to create a) full concept plan for Columbia Ave and b) detailed design documents for Columbia Ave.

How will the concept and design development for Columbia Ave. differ from street to street - neighborhood to neighborhood. What processes would be different for creating a brand new green/complete street?

GROUP 3 YELLOW: Columbia Avenue Green and Complete street Partnerships
FACILITATOR: Joanne Dahme

Q: Complete and green streets will require coordination among various agencies and funders. Your task today is to propose a partnership model that will allow government, private corporations, non-profit agencies, foundations, and community to collaborate more efficiently and effectively, leverage discreet resources, and achieve the goal of Columbia Ave. as a model green and complete street.

List known sources of funding for streets and corridor improvements and transportation projects. Consider federal, state and local resources as well as private/non-profit sources. Consider how placemaking (streets as part of the public realm as well as transportation infrastructure) fits into the picture.

For each source listed above, note what elements of a "complete" street each source could potentially fund. E.g. Main Street programs will fund tree planting and street furnishings.

Partnership and collaboration require commitment, communication and coordination. Create a list of potential partners for the Columbia Avenue green/complete street project. Consider funders, technical assistance providers, project managers and stakeholders.

Propose the mechanisms for how these various partners will engage - who will meet, how often, and what is to be discussed and what are the desired outcomes.

List criteria that will help determine what agency/organization should lead the partnership.

List subcommittees or groups that would need to organize around specific agendas/topics.

How would a partnership to develop complete streetscape project on Columbia Ave. differ if it were a) another street in the same neighborhood b) a street in a different neighborhood c) development of a project on an entirely new street?

Will the project design and implementation organization be ongoing? How would the partnership facilitate long term oversight of management and maintenance issues?

GROUP 4 BLUE: Temporary solutions for Columbia Ave during I-95 reconstruction project.
FACILITATOR: Joy Lawrence

Q: There are a variety of streets that will be temporarily closed, opened and re-routed during the I-95 construction project. PennDOT and the City have expressed an interest in working with NKCDC and others to think about what types of temporary treatments, installations and ideas could be implemented during the construction project in order to keep Columbia Ave. as a safe and effective riverfront access street. Your task today is to outline an approach to creating temporary solutions that will maintain or even enhance Columbia Ave. as a connector corridor to the riverfront and Penn Treaty Park during the I-95 construction project.

In what ways could investment in temporary solutions contribute to long-term benefits? Consider potential impacts to watershed health, community engagement, increased awareness of issues and concerns related to neighborhood revitalization, complete streets, parks, riverfront access, etc.

List information, references, technical data that should be gathered and evaluated to establish criteria for potential solutions?

List any agencies, organizations, individuals who should be considered as stakeholders in the development and implementation of temporary solutions.

What technical competencies should be represented in the development of temporary design solutions?

List criteria that will help determine what agency or organization would be best positioned to act as a project leader.

Columbia Ave. is one of several connector streets that will be affected by I-95 construction. In what ways could temporary solutions for other connector streets differ from Columbia Ave? In what ways might they be the same or overlap?

Group 1 – Green: Green and Complete Streets - Policy and Permitting flowchart.
Facilitator: Suzanna Randall

What are the Steps?

- Plan
- Fundraising to do plan and implement
- Engage community / community participation
- Defining materials, colors, aesthetics, sense of place
- Maintenance and ownership – City versus PennDOT versus private
- Bid
- Perceived obstacle with doing something different – PennDOT
- Traffic study requirements
- Developer pays
- Street regulations – through Streets Department specs; signals and markings – through state
- Federal guidelines
- State mandated requirements

Obstacles?

- Requirements / standards
- Liability
- Operations and maintenance
- Replacement costs

PennDOT Projects – What is review process?

- Roadway design – meet City Streets specs
- Traffic control device – meet PennDOT
- State Roads designed by PennDOT – do environmental requirements and environmental impact
- Permit process with PennDOT – depends on who pays – can do something new but need to pay

Scale of Green Streets?
Steps in process?

- Create joint task force on Green Street process:
  DVRPC; Streets and PennDOT; DEP; PWD; PHDC; PIDC / Commerce; PCPC; SEPTA; Mayor's office, Sustainability; CPO; TRB
- Standards developed
- Designating historic interiors
- Policy
- Legislation

Look at other processes to develop policy. Identify impediments to Greet Streets. Look at process from other committees. Look at specs and policies.

Asset management, BCA, TRB – Transportation Research Board

Set up Maintenance organization / department for Greening – ILMA, PHS

Follow the money

1. Plan: Funding Strategy

2. Design: bus shelters; bike racks; trees; materials street print/ i.e. innovative designs; engineering to city specs; stormwater management / green streets

3. Maintenance and operation: contractor liability and indemnity – traffic signals needed; city specs / federal guidelines and state requirements; traffic signals, sidewalk construction; funding for future re-installs; contract agreement with PennDOT for future maintenance costs (what is standard versus non-standard?)

What are the steps?

- The City: create a joint task force (see above for details); look at other processes that have changed (other cities, other countries); cost benefit analysis for Philadelphia (asset management)
- Develop review coordination: all relevant agencies meet with applicant (eg- waterfront development / permitting, VRAG, Board of Highway Sup., Development Review Commission)
- Concierge service, interdepartmental checklist

Group 2 – Red: Redesign Columbia Ave as a Complete and Green street.
Facilitator: Glen Abrams

Elements

- Signage / wayfinding: banners, sidewalk paint, signs; "interpret river and access to river
- Two-way dedicated bike access
- Exciting underpass experience: art, lighting, etc.
- Shorter crossing distances: bump outs, mid-street safety haven; especially Girard and Delaware
- Traffic calming; slow down the cars so there is less competition with bikes
- Pedestrians should have crossing priority: allow enough time to cross, automatic cross light without pressing button, countdown
- Trees, other landscape elements
- Traffic calming on Delaware: traffic speeds and is intimidating to pedestrians
- Bike racks, especially at nodes like playground
- Public art

Real-world criteria

- I-95 reconstruction: improvements, art, etc.; would have to be temporary
- How is street used? – residential area, commercial, playground
- How many pedestrians?
- How many cars?
- Parking need – residential and commercial; need for parking precludes using street for other uses
- Neighborhood trends
- Street row – very narrow

Investigations

- Parking study: existing number of spaces, opportunities for shared parking, identify nearby opportunities for alternative parking, occupancy rate at different times of day
- Investigations of alternative row configurations, such as angle parking
- Neighborhood plans, studies
- Road safety audit – DVRPC experts, considering crossings, etc.
- Survey – average time to find parking, willingness to use alternative
- Wayfinding plan
- Identify opportunities for temporary art – "interpret" the river

Competencies

- Bike / pedestrian planning
- Landscape architects
- Civil engineer
- Community outreach
- Experts with experience designing complete streets

- Form steering committee with city agencies, community groups, artists
- Artists, public art

Is Columbia Avenue already a complete street? Maybe is just needs some minor design modifications.

Need to consider neighborhood character, topography, geology, etc.

Process

- 9 months – concept design documents
- 2.5 years – complete reconstruction - $6 million

Group 3 – Yellow: Columbia Avenue Green and Complete street Partnerships
Facilitator: Joanne Dahme

Focus on: "function and beauty" and "honoring the river"

Funding

- Identify local funding opportunities through City Council, from DVRPC
- Check in with local civic groups, such as NKCDC
- William Penn Foundation
- Establish a "Main Street manager / program"
- Safe route to school program (DVRPC)
- CZM
- DCNR / DEP
- Commercial Development Block Grants (CDBG)
- Main Street to Elm Street funding
- Business improvement districts
- Future waterfront agencies (Penn's Landing Corporation?)
- Fairmount Park and Treevitalize for tree funding
- PWD for infrastructure funding (stormwater management)
- Corporate sponsorship, advertising
- Local businesses on Columbia Avenue
- SEPTA
- Penn DOT
- Streets – demo products and first time installations; Knight and other foundations

Components of complete / green streets

- Artistic interpretations
- Stormwater management: bump outs, traffic calming; pervious paving on walkways, parking spots; planters, trees
- Trees
- Bike lanes
- Pedestrian street lights
- Bus stops and shelters
- Recycling and trash bins
- Striping, especially for pedestrians

Safety for pedestrians

- Amenities to activate space
- Bike racks, parking, storage
- Manageable, realistic operations and maintenance through public and private entities
- Sitting spaces, benches
- Wayfinding, signage, invite to the park on the other side of Delaware Ave
- Pedestrian countdown timer on signals

- Raised crosswalks
- Education campaign: partner with schools and university; info kiosk

Mechanism
- New Kensington CDC – lead group
- Office of Sustainability
- City and council support
- Friends of Penn Treaty Park

Sub-committee / Agendas
- Marketing – "Honor the river" and Penn Treaty Park
- Stormwater management, environment, river
- Transit, traffic
- Biking, pedestrian, multi-modal
- Economic development, cost/benefit analysis on BMPs and amenities

If different location…
- Template to be created by partnership (all players)
- Share template with other areas, streets, neighbors

Organizing, operations and maintenance
- Discuss initiation of process so it is developed on parallel track with "greening" projects
- Self sustaining materials throughout to keep maintenance low

Group 4 – Blue: Temporary solutions for Columbia Ave during I-95 reconstruction project.
Facilitator: Joy Lawrence

Permanent Outcomes of Temporary Solutions

- Preserve what is here, protect during construction
- Minimize road closings, preserve access to business corridor
- Provide an alternate route to access roads
- Single cross street closings
- Provide a visual key for direction; "follow the yellow brick road'
- Paint the route before construction starts – create a habit

Organized thinking about route marking

- Construct a mobile tunnel to protect pedestrians on sidewalk – make it interesting and inviting with art work, map, light; invite community participation
- Screening from construction
- Provide an alternative place for construction vehicles that can later turn into open space
- Demolish PECO unused site

Create more open space by working with PECO space

- If design can be amended suggest modifications to offer more green and preserve open space
- Marlborough and Delaware – paint direction guidelines or create a cross connection

Create a series of new connections to feeder and connector streets

- Add signage to alert cars to pedestrians
- Rubber bumpers or some other form of traffic slow down (calming)
- Incorporate storm water management as traffic calming that creates a greenway
- Across long stretches (Delaware, Columbia, Allen) create a pedestrian "rest zone" so the scramble across high traffic zones is not necessary
- At triangle, no man's land behind fence, create public, accessible green space, park, and dog run
- Landscape burm to make it attractive, reduce litter and trash
- Connection at Palmer – create a cross walk
- When removing roadway, try to connect open space to create a greenway or new park land
- Create a greenway as mitigation / PennDOT investment from Palmer Park to Penn Treaty Park
- Improve median along Delaware with plantings and trees, herbaceous, decorative: screen construction with exterior and green screens; murals on screen – decorative; make construction an asset
- Under I-95 create art corridor, business, etc. to add amenities to the neighborhood

Psychological barriers (remove)

- Let people know
- Inform people – time line and updates in local paper, sinage, website
- Programming – hold a festival on blocked streets; construction crew / neighborhood picnics as a way to dissipate anger and frustration
- Focus / outreach – advertising, voucher so construction workers use local restaurants and businesses
- Engage: NKCDC, Port Richmond Neighborhoods, other stakeholders, PennDot
- Meeting – community organizations and PennDOT: already happening, strengthen and formalize to extend Penn Treaty efforts "across the street"; articulate wish list and important concepts; ask PennDOT to review plan with these recommendations in mind

Important learnings:

- Have a plan and alternative, don't just say no
- Reduce hate – we're all trying to improve
- Create a coalition
- Engage government officials
- Pre-plan info ahead of time, reduce shock, and reduce neighborhood pushback

Event Setup, 07/30/2008

Event, 07/31/2008

Appendix B-3: Public Meeting

DD Watershed community groups

Marsha Bacal	Society Hill Towers
Caryn Hunt	NABR
Rene Goodwin	Pennsport Civic
Joe McNulty	NKCDC
John Scorsone	River's Edge Community Association
Laura Lanza	Port Richmond
Brian Abernathy	Councilman Frank DiCicco
Jeremy Beaudry	Fishtown Neighbors Association
Steve Weixler	Society Hill Civic
Dave Schaaf	Philadelphia City Planning Commission
Harris Steinberg	PennPraxis
Harris Sokoloff	Penn Project for Civic Engagement
Michael Greenle	PennPraxis
Bridget Keegan	PennPraxis
Andrew Goodman	PennPraxis

First Name	Last Name	Organization
Marsha	Bacal	Society Hill Towers Management Office
Jeremy	Beaudry	Fishtown Neighbors Association
Kirk	Brown	Dickinson Narrows Civic Association
Theresa	Costello	Port Richmond
Fred	Druding, Jr.	Whitman Council
Rene	Goodwin	Pennsport Civic Association
Caryn	Hunt	Neighbors Allied for the Best Riverfront
Laura	Lanza	Port Richmond on Patrol & Civic Assn.
Joe	McNulty	New Kensington CDC
Jim	Moss	Society Hill Civic Association
Jim	Penza	Whitman Council
Shawn	Rairigh	Neighbors Allied for the Best Riverfront
Jeff	Rush	Queen Village Neighbors Association
Sandy	Salzman	New Kensington CDC
Joe	Schiavo	Old City Civic Association
John	Scorsone	River's Edge Community Assn.
Sarah	Thorp	Delaware River City Corporation/Fishtown
Ira	Upin	Northern Liberties Neighbors Association
Steven	Weixler	Society Hill Civic Association

Brian	Abernathy	Councilman Frank DiCicco
Joan	Reilly	Pennsylvania Horticultural Society
Christine	Knapp	Penn Future
Patrick	Starr	Pennsylvania Environmental Council
Michael	Leff	Pennsylvania Horticultural Society
Shawn	McCaney	William Penn Foundation
Karen	Black	May 8 Consulting
David	Schaaf	Philadelphia City Planning Commission

Center *for* Architecture

Event Rental Agreement

Lessee: PENNSYLVANIA HORTICULTURAL SOCIETY
Organization

JOY LAWRENCE, PROGRAM MANAGER
Name & Title

100 N. 20TH ST 5TH FL PHILADELPHIA PA 19103
Address

215-988-8898 jlawrence@pennhort.org
Phone # Email

According to the conditions stated below, the Center for Architecture hereby lets unto the above named organization or individual the facilities described in this Rental Agreement.

FULL FACILITY
Facility(ies)

DELAWARE DIRECT - HEALTHY NEIGHBORHOODS
Event Name

DEC 3 4-6:30
Official Event Date(s) & Time(s)

3:00	7:00 ASAP!	100	$300
Setup Start Time	Cleanup Departure Time	Estimated # of attendees	Rental Fee

****

Conditions:

1. The organization or individual renting facilities at the Center for Architecture shall be referred to as the "lessee" in this Rental Agreement.

2. The Center for Architecture's responsibility is limited to opening the building, having an employee or representative of the Center for Architecture on site during the event, and performing reasonable setup and cleanup ***assistance***. Unless listed in the "Special Accommodations" section below, no other accommodations will be made by the Center for Architecture.

3. The lessee must provide setup and departure times for their use of the facilities. There is a minimum rental time of 3 hours, whether or not the full time is used by the lessee. An inconvenience fee of $50 will be assessed for every 15 minutes used beyond the agreed upon departure time. Any event starting or ending after 5pm is charged at the evening rate.

4. In conjunction with the execution of this agreement, the lessee must submit to the Center for Architecture both of the following documents:
   a. The "Hold Harmless" agreement signed by the lessee
   b. A "Certificate of Insurance" issued by the lessee's insurance company which confirms coverage of at least $1 million for the date and location of the rental.

5. A required deposit of at least 50% is due at the time of booking, with the remaining 50% balance due upon arrival on the first day of the event. Rentals will not be made official until the required deposit has been received and cleared. Checks will be made payable to "Center for Architecture".

6. In the event of cancellation, fees will be charged to the lessee using the following guidelines:
   a. More than 3 week's notice: 100% refund of required deposit
   b. 3 weeks notice or less, but more than 1 week's notice: 50% refund of required deposit
   c. 1 week's notice or less: 0% refund of required deposit

7. The lessee is responsible for the conduct of all persons in attendance at the event(s).

8. The lessee acknowledges that the Center for Architecture is a functioning office, gallery, rental hall and store and that employees, visitors, other lessees, and/or the public may occasionally walk through, by, or near the rented facilities and that occasional noise may enter the rented facilities due to the normal, daily operations of the Center for Architecture.

9. The use of the Center for Architecture's facilities does not imply endorsement or sponsorship of the event by the Center for Architecture. Therefore, publicity shall be designed in such a way that no suggestion of endorsement and/or sponsorship is implied.

10. Admission fees shall not be charged unless indicated in the "Special Accommodations" section below.

11. The Center for Architecture assumes no responsibility for property brought into the facilities.

12. Changes in the appearance of the premises including, but not limited to, decorating, the hanging of ornaments and/or displays is not permitted without the written permission of the Center Coordinator. All surfaces must be fully protected against damage.

13. Smoking is not allowed inside the Center for Architecture or within 20 feet of it entrances.

14. Alcohol is not to be served unless indicated in the "Special Accommodations" section below. Liability related to the serving or consumption of alcohol at the Center rests solely with the lessee, who should have proper insurance to cover such liability. The Center for Architecture ***strongly*** recommends that a licensed, insured bartender be hired to serve alcohol at the lessee's event.

15. _____

Special Accommodations (Catering, Alcohol, Admission Fees, Decorations/Displays, etc)

10' x 3' paper poster

6-8 11" x 17 signs for stations

Requested Amenities (Not all amenities may be available for your event. Indicate quantity next to desired amenities):

Main Hall **only**:

____ Wireless Microphone (1) ____ House Computer (1) ____ DVD/VHS Player (1) ____ Conference Phone (1)

Full Facility:

12 ~~10~~ 42"x42" Tables (13) 3 18"x60" Tables (5) 20 Stackable Chairs (149) ____ Executive Chairs (24)

____ Portable Projector (1) ____ DMX Lighting (board & lights not provided) (1) ____ Use of Refrigerator (1)

Center *for* Architecture

"Hold Harmless" Agreement

(Name of Lessee): Joy Lawrence on behalf of Pennsylvania Horticultural Society hereby assumes entire responsibility and liability for any and all damage or injury of any kind or nature to persons, whether employees or otherwise, and to property, real or personal including adjoining property caused by or resulting from the use by the lessee of the Center for Architecture facilities and agrees to indemnify, defend, and hold harmless the Center for Architecture, its agents and/or its employees from and against any and all claims, suits, actions, liability, loss, expense, damage, or injury to persons or to property caused directly or indirectly by the above named lessee, its agents, members or employees, its property or equipment, or any and all persons acting in the lessee's behalf or under their supervision or control, whether direct or indirect.

Signed

Joy Lawrence, Program Manager

Name & Title

Pennsylvania Horticultural Society

Organization

December 1, 2008

Date

Note:
In conjunction with the execution of this "Hold Harmless" Agreement, the lessee must submit to the Center for Architecture both of the following documents:

1. A completed "Event Rental Agreement" signed by the lessee
2. A "Certificate of Insurance" issued by the lessee's insurance company which confirms coverage of at least $1 million for the date and location of the rental.

It is understood that violation of any of the above conditions will void this Event Rental Agreement. The parties hereto intend to be legally bound by the above conditions.

Signed	Signed
JOY LAWRENCE, PROGRAM MANAGER	**David Bender, Center Coordinator**
Name & Title	Name & Title
PENNSYLVANIA HORTICULTURAL SOCIETY	**Center for Architecture**
Organization	Organization
12/1/2008	
Date	Date

DD RCP HEALTHY NEIGHBORHOODS Dec 3 Public Meeting
Load in at 3 pm - break down and out by 7pm

Open house hours 4- 6:30
Center for Architecture
1216 Arch Street

There will be a short (15 minute) convening session at 6 PM to present overview of DD RCP, impact of the evening activities, ways to stay connected.

PASSIVE DISPLAYS
Prepared and set by PHS
1. Big poster map of Philadelphia by zipcode x
2. Poster map Philadelphia by neighborhood x
3. Post it wall – large blank paper; photos of various neighborhood type amenities pinned up x. Crayons, waterbased markers, post-it notes, pencil/pens Open graffiti-like invitation to draw, post comments, thoughts, reflections etc.

CONVERSATION STATIONS
Interactive stations featuring partner projects
1. PEC Water trail – Jessica Anderson, PEC
2. Central Delaware Vision/Action – Bridget Keegan, Penn Praxis (computer)
3. North Delaware Greenway – Sarah Thorpe, ND
4. Zoning Matters – web voting (unmanned)

ACTIVITIES – PHS/CH2MHILL
1. Make a neighborhood tour – Brian Schuster, Todd Baylson, Courtney Marm - computer stations live web mapping (2-3 computer stations?)
2. Neighborhood values survey, rolling power point with survey sheets – Joy Lawrence (computer, projector)
3. Green Carpet Interview – Margaret Funderberg, (Shawn Kilgallon) "What's the biggest environmental or quality of life issue on your block?" "Can you describe how that issue connects to air, water or land?" - digital video set up (computer link? Projector?)
4. Invest your Cash (chip voting) – attendees receive chips on entering and deposit in ballot boxes by the door as they exit. (chips, voting boxes - Joy)

REGISTRATION – PHS/PWD
Available handout on the DD RCP; Sign in sheet with contact info (email preferred) , name tags (first name and city zipcode), - distribute chips/money (also remind exiting visitors to invest their cash) - Travis Alexander, Tiffany Ledesma-Groll

HOSPITALITY
John Tabasco – beverages, cheese platters and cookies $200 budget

NAME	NEIGHBORHOOD / ADDRESS	PHONE	EMAIL
MIKE THOMPSON	6630 WALKER 19035 / PCPC	215-683-4632	MICHAEL.THOMPSON@PHILLY.GOV
Marsha Breal	220 Locust St 19106 CDAG		mb2205@aol.com
Judith Robinson	2112 N. Woodstock St. 19121	(215) 235-6517	jdthrbnsn@ADL.com
Carryn M. Golden	921 Marlyn Road 19151		carryn@cdesignc.org
MARK ALEXANDER	GRADUATE HOSPITAL 2322 SAINT ALBANS PLACE Philly 19146	215 546-2577	MARKAL5#2@VERIZON.NET
ROBERT ALLEN	FAIRMOUNT PARK CHESTNUT HILL SECTION 19118	215-683-4619	robert.allen@phila.gov
ELAINE ULMER	Bella Vista 726 Fitzwater 19147	215-985-4285	eulmer@mgra-architects
Khiet Lung	Millbourne, PA 19082	215 592 7020x10	klung@pepa.org
PAUL RACETTE	PEC / UPPER DUBLIN TWP.	215-592-7020 112	PRACETTE@PECPA.ORG
JADE WALKER	Mill Creek Farm		
Antonio Federici	Germantown	215 367 2574	antonio_federici@urscorp.com
Jason Brady	University City	215-508-3310	jason.brady@sierraclub.org
MARYELLEN KIRKWOOD	NORTHWOOD	215 288 1902	
Alan Urek	City Planning Comm.	215 683 4628	alan.urek@phila.gov

NAME	NEIGHBORHOOD / ADDRESS	PHONE	EMAIL
Tom Stikeleather	Chinatown / N 9th St.	513 266 6693	tomstike@gmail.com
Carolyn Wallis	Art Museum	215-560-1182	cwallis@state.pa.us
KEITH WATKINS	2029 S. 8TH STREET	215-468-6111	keithwatkins@acsep.org
FRED MAUREA	5165 D St 19120	2153248942	SAME # VOICE ACTIVITY
Glen Abrams	Logan Square / 2200 Arch St.	215-694-7857	glen.abrams@phila.gov
Joann Dolenne	PWD	215-685-4944	joanne.dolenne@phila.gov
Lisa maiello	KSNAC / 1314 N. 4TH ST 19122	215-370-0091	LDMAIL@EARTHLINK.NET
Jade & Gravity Royale of "Lotus Monk"	Center City / Northern Liberties	267-467-8405	gravity180@hotmail.com
Patrick Hauck	Preservation Alliance 1616 Walnut St #1620 19103	215 546 1146 x 4	patrick@preservationalliance.com
Darlene Messina	169 Colton ST	215 485-9238	dmessina@alumn.upenn.edu
Tiffany Ledesma Grall	401 Olive St. Philadelphia 19123	215-499-3756	ledesmagrallhd@cdm.com
Liz Reed	914 N. American St. 19123	2156270110	earead@yahoo.com
Nora	"	"	"
Maureen Wellner	237 Brown St. 19123 N. Liberties	215 592-7793	maureen@wellnerphoto.com
TOM LENNON	"	"	tom@sylennon.com
Shanta Schachter	NCCDC / 2515 Frankford Ave Phila 19125	215.477.0350	sschachter@nlccdc.org ~~shanta@schachter.com~~
DAVID BENDER	1218 ARCH ST., PHILA, PA 19107	215.569.3186	DAVID@AIAPHILA.ORG

NAME	NEIGHBORHOOD / ADDRESS	PHONE	EMAIL
JOHN ENNIS	1120 CROSS ST.	215-551-7774	TERENURE@Hotmail.com
JOANNE ENNIS	"	"	ENNISMJENNIS@yahoo.com

December 3, 2008 Open House

Sign-in Sheets

What Measures the Health of *Your* Neighborhood

TAKE THE POLL

Rate the importance of the following things are to you for measuring the health of *your* neighborhood?

Circle a number from 1 – 10 that best describes how important you think that issue is to making your neighborhood healthy.

1 = Not important

10 = Really important

READY TO START?

You need a pen or pencil and the Healthy Neighborhood answer sheet with 16 rows of 1-10 answers.

HERE WE GO!

16 slides

You will have 10 seconds to answer

Rank each on a scale of 1 – 10

1 = Not important to me

10 = Really important to me

1. There is plenty of free and easy parking for cars in my neighborhood.

1 = not important 10 = really important

2. My community has safe and reliable public transit. Even without a car, everyone is able to get where they need to go.

1 = not important 10 = really important

3. Children can easily walk to the neighborhood school .

1 = not important 10 = really important

4. My community has safe and well kept playgrounds and/or play spaces for children .

1 = not important 10 = really important

5 . My community is bike friendly – it's safe and easy to get around on a bike and to get from our neighborhood to other areas of town.

1 = not important 10 = really important

6 . My community has at least one safe and well kept park or green space in walking distance.

1 = not important 10 = really important

7 . My community has a vibrant commercial center that features local merchants.

1 = not important 10 = really important

8 . My community is friendly – people recognize each other, greet each other on the street, and are willing to help each other out.

1 = not important 10 = really important

9. My community looks like people care – streets are cleaned, there's not much litter, people pick up after themselves.

1 = not important 10 = really important

10. Most people in my neighborhood are employed and many have good jobs.

1 = not important 10 = really important

11. My community rarely has problems with air quality. Kids and folks with respiratory problems can breathe easy in my neighborhood.

1 = not important 10 = really important

12. My community has a lot of local events and activities. You can usually find something interesting going on.

1 = not important 10 = really important

13. There are many different kinds of food choices and restaurants in my community. Finding fresh produce, heart healthy and organic choices is not difficult.

1 = not important 10 = really important

14. People who live in my neighborhood really like living here. Even if they could afford to live elsewhere, many people would choose to stay.

1 = not important 10 = really important

15. My neighborhood is safe and friendly for seniors and younger children. Street crossings are not too wide. Pedestrian crossings are clearly marked. Walk signals are long enough to allow for safe crossings.

1 = not important 10 = really important

16. My community has a mix of growth and stability. There are new buildings going up, but many great older buildings are being preserved or restored.

1 = not important 10 = really important

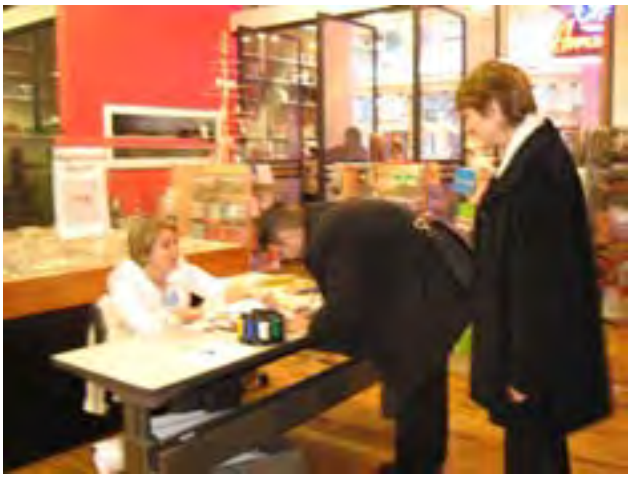
Is there anything else?

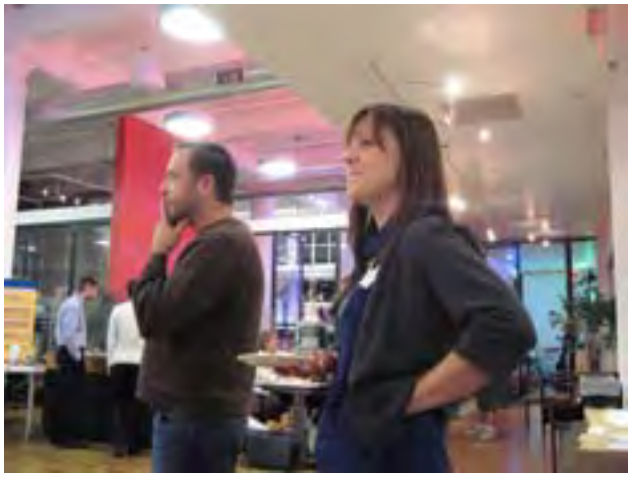
Use the reverse side of your answer sheet to write down any other qualities that you think are important to making your neighborhood healthy.

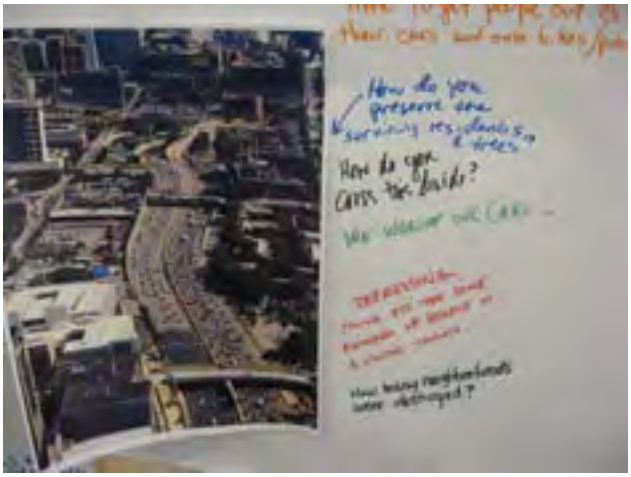
OK – that's it! Please be sure to drop your answer sheet in the box.

Will you be sure to write your residential zipcode at the top?

Event, 04/30/2009






How do you preserve the
How do you cross the divide?

PRETTY!
SIMPLE

My Zipcode 19103 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 11103

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 19103 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 15104 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

December 3, 2008 Open House

My Zipcode 19026 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 15107 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 1918 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 19 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode Completed Polls 19124

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

December 3, 2008 Open House

My Zipcode 19127 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

(17) Missing here is a question about healthy mix of people / diversity / intergenerational

* SOCIAL HEALTH *

My Zipcode 19128 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 19130 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 19143 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 19111 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

My Zipcode 10451 Completed Polls

HEALTHY NEIGHBORHOODS POLL

Circle the number that most describes how important the issue is to the health of your neighborhood. 1 = not important 10 = very important

#1) Parking	1	2	3	4	5	6	7	8	9	10
#2) Public Transit	1	2	3	4	5	6	7	8	9	10
#3) Walk to School	1	2	3	4	5	6	7	8	9	10
#4) Playgrounds	1	2	3	4	5	6	7	8	9	10
#5) Bike Friendly	1	2	3	4	5	6	7	8	9	10
#6) Walk to Parks	1	2	3	4	5	6	7	8	9	10
#7) Commerce	1	2	3	4	5	6	7	8	9	10
#8) Friendly	1	2	3	4	5	6	7	8	9	10
#9) Clean	1	2	3	4	5	6	7	8	9	10
#10) Jobs	1	2	3	4	5	6	7	8	9	10
#11) Clean Air	1	2	3	4	5	6	7	8	9	10
#12) Local Events	1	2	3	4	5	6	7	8	9	10
#13) Food Choices	1	2	3	4	5	6	7	8	9	10
#14) Choose to Stay	1	2	3	4	5	6	7	8	9	10
#15) Safe Streets	1	2	3	4	5	6	7	8	9	10
#16) Preservation	1	2	3	4	5	6	7	8	9	10

Poll Results

Parking	4	1	5	3	3	8	6	7	5	2	4	8	3	6	7	72
Public Transit	4	10	10	10	10	8	8	9	10	10	10	10	10	10	10	139
Walk to School	6	10	8	3	3	7	4	8	10	10	10	10	10	7	6	112
Playgrounds	7	10	9	3	4	5	7	8	10	10	10	10	10	10	7	120
Bike friendly	7	10	8	10	4	6	6	9	10	10	10	10	10	10	7	127
Walk to parks	8	10	10	7	10	8	8	8	10	10	10	10	10	10	10	139
Commerce	8	8	10	6	10	10	9	9	5		10	10	10	9	7	121
Social friendly	8	9	7	4	10	6	10	10	10	1	10	10	10	10	9	124
Clean	9	10	7	7	10	3	10	9	10	1	10	10	10	10	9	125
Jobs	8	9	10	6	8	6	10	8	9	10	10	6	10	7	6	123
Clean Air	8	10	8	8	9	5	8	9	10	10	10	9	10	9	7	130
Local events	7	8	6	9	7	5	6	8	9	10	9	7	10	10	6	117
Food choice	6	9	8	9	8	8	6	8	5	10	9	10	10	8	7	121
Would choose to stay		8	9	6	8	7	9	9	10	10	10	10	10	6	9	121
Safe streets	8	7	10	5	10	2	10	9	10	10	10	10	10	10	9	130
Preservation	6	6	8	8	8	7	9	8	10	10	10	10	10	8	9	127
Diversity of people										10						

December 3, 2008 Open House

Appendix B-4: Watershed Walks

Watershed Walks

Introduction

Watershed walks provide an opportunity to engage community in an exploration of real world conditions as they relate to specific issues. In the many planning processes that have involved the Delaware Direct communities and neighbors, issues related to connectivity – particularly the links from neighborhoods to the riverfront have been a priority concern. Reflecting the importance of this issue, watershed walks were focused on this issue.

Two opportunities to experience first-hand the realities of the highly urbanized Delaware Direct watershed were offered as part of the RCP process. The first, as a prelude to the July 31, 2008 Focus/Workshop on transportation, invited participants to use a provided transit and trail map to travel to Penn Treaty Park using an alternate mode of transit. Participants were eager to share their experiences and 35 participants submitted travel data. Many found their way for the first time to historic Penn Treaty Park, and 100% agreed that it was worth the effort.

A second watershed experience was hosted as part of the first annual Shad Festival, a celebration designed to emphasize the importance of the river as a fishery – both historically and as a goal for the future. Participants were recruited from festival attendees and invited to join three different guided tours of the neighborhood around Penn Treaty Park. Each walk was hosted by a representative from the Central Delaware Advocacy Group (consisting of the Pennsylvania Horticultural Society, Penn Praxis, and the North Delaware River Corp.). One group walked south along Delaware Avenue to gain a first-hand pedestrian while visualizing future development opportunities. The second tour walked north to consider the future development of greenways, buffers and future riverfront trails. The third group walked west on Columbia Street to learn about the potential for green and complete streets that would connect neighborhoods to the riverfront.

Watershed Walk #1: July 31, 2008

Location: From multiple destinations to Penn Treaty Park
Attendees: Estimated 40 participants.

The first watershed walk took a slightly unorthodox approach, inviting participants to make their way to Penn Treaty Park on the Delaware riverfront by an alternate method of transport. For most participants, this meant finding their way to Penn Treaty Park using something other than an automobile. All attendees to the July 2008 focus group were provided with a specially created transit map to make options easier to find. Participants

completed a user survey upon arrival at the park.

Participants gave high praise to the map, and suggested that many riverfront destinations could benefit from something similar. Ideally, a riverfront map could be updated and available on the web. As for the travel experience, there was universal agreement that Delaware Avenue was anything but a user-friendly environment. Pedestrians and bicyclists found the speed and volume of traffic daunting. For those seeking to travel from the south or north on Delaware Ave. by bus, finding the right bus stop was another big challenge. The most pleasant trip was had by those walking to the park (aided no doubt by the sunny and breezy summer weather). Most of these travelers had local trips, but several walked for at least a portion of a longer journey. For many the park itself was a revelation – about half the attendees had never been to this six-acre public park, but all found it to be well worth the trip. Anecdotally, and reiterated later in the workshop discussion, many noted that access to Penn Treaty Park must come from Delaware Avenue, and that access can be both improved and expanded.

Watershed Walk #2: April 25, 2009

Location: From Penn Treaty Park through near neighborhoods of Fishtown
Attendees: Estimated 200 participants.

Participants were recruited from festival attendees and invited to join three different guided tours of the neighborhood around Penn Treaty Park. Each walk was hosted by a representative from the Central Delaware Advocacy Group (Pennsylvania Horticultural Society, Penn Praxis and the North Delaware River Corp.). One group walked south along Delaware Avenue to experience first-hand the pedestrian experience and imagine a different future. The second tour walked north to consider the greenways, buffers and future riverfront trails. The third group walked west on Columbia Street to learn about the potential for green and complete streets to connect neighborhoods to the riverfront.

Getting to Penn Treaty Park

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Environmental Engineers, Scientists, & Planners
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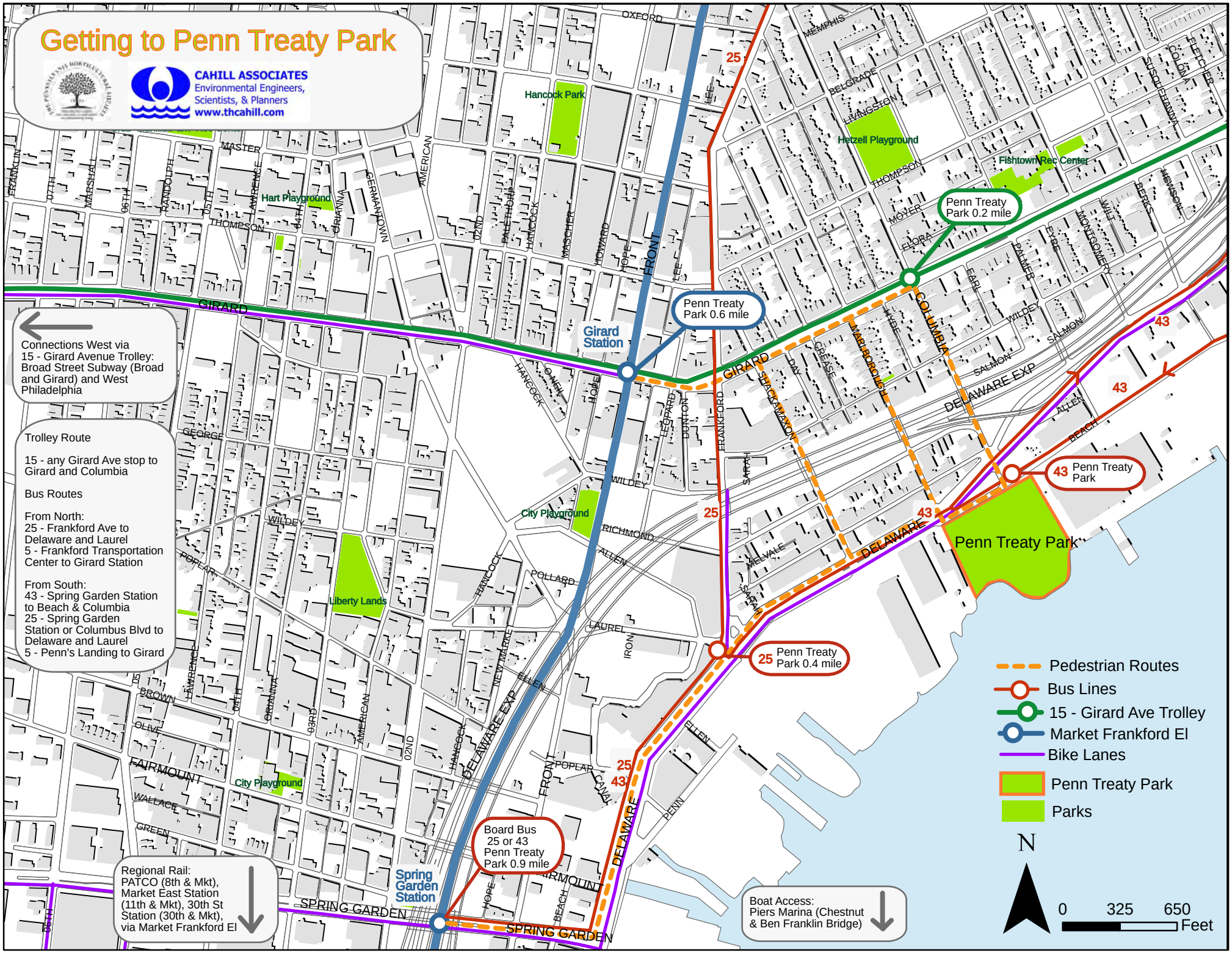

Appendix C: CERCLIS Sites in the Delaware Direct Watershed

CERCLIS Sites Located within the Delaware Direct Watershed		
EPA ID	**Site Name**	**NPL Status**
PASFN0305549	FRANKLIN SLAG PILE (MDC)	Currently on the Final NPL
PAD046557096	METAL BANKS	Currently on the Final NPL
PAD981939200	PUBLICKER INDUSTRIES INC	Deleted from the Final NPL
PAD048613368	2314 N AMERICAN ST	Not on the NPL
PAN000305658	2514 ORTHODOX ST SITE	Not on the NPL
PA0000569202	3200 N 22ND ST	Not on the NPL
PAN000306647	7327 STATE ROAD ELECTROPLATING	Not on the NPL
PA0000103812	ABANDONED DRUM USCG MSO PHILADELPHIA	Not on the NPL
PAD987387669	ABBOTT PLATING COMPANY	Not on the NPL
PAN000305882	ABSCO SCRAP YARD	Not on the NPL
PAD014624654	ACE SERVICE CORP	Not on the NPL
PAD982363863	ADELPHIA STEEL	Not on the NPL
PAD987277829	AERNAL WAREHOUSE	Not on the NPL
PASFN0305512	ALLEGHENY TRAIN E R	Not on the NPL
PAN000306701	AMERICAN ALLOYS CO	Not on the NPL
PAD981939267	AMERICAN ST TANNERY	Not on the NPL
PAD980539563	ANZON INC	Not on the NPL
PA0001096189	APCO DRUM RECYCLING COMPANY	Not on the NPL
PA0001312784	ARSENAL BUSINESS CENTER	Not on the NPL
PAD980552251	ASHLAND CHEMICAL COMPANY	Not on the NPL
PAN000306199	ATLANTIC METALS CORPORATION	Not on the NPL
PAD087094561	AUTO SHOW COLLISION CENTER	Not on the NPL
PAD980692750	B & P MOTOR EXPRESS PHILA TERMINAL	Not on the NPL
PAD987323441	BATH & KINGSTON DRUM DUMP	Not on the NPL
PAD002282713	BECK ENGRAVING COMPANY THE	Not on the NPL
PA0000569244	BOYLE GALVANIZING	Not on the NPL
PAD987327152	BRIDGE ST CHEMICAL SPILL	Not on the NPL
PASFN0305517	BROWN ST PCB SITE	Not on the NPL
PAN000306202	CAR-MOR METAL COMPANY	Not on the NPL
PAD980539688	CASSAR EDWARD H	Not on the NPL
PASFN0305417	CIONE PARK	Not on the NPL

PAD987390523	COLEMAN COMPANY	Not on the NPL	
PA0001186907	COLFAX INC	Not on the NPL	
PAD987388568	CONTAINER RECYCLER INC	Not on the NPL	
PAN000305980	CSX DIESEL FUMES SITE	Not on the NPL	
PAD987277225	DELAWARE RIVER DRUM REMOVAL	Not on the NPL	
PAD987390036	DEPT OF STS PIER LEAK	Not on the NPL	
PAD054733597	DODGE FOUNDRY CO	Not on the NPL	
PAD987366499	DRUM LOCATION 1-13-92	Not on the NPL	
PAD002277655	DWORKIN ELECTROPLATERS INC	Not on the NPL	
PAD987271194	E Z CHEMICAL	Not on the NPL	
PAD981035660	E CUMBERLAND ST SITE	Not on the NPL	
PA0002269678	EAST ALBERT ST	Not on the NPL	
PAN000306582	ELECTRIC STORAGE BATTERY SITE	Not on the NPL	
PAD987394921	ELLEN KNUTSEN CUMENE SPILL	Not on the NPL	
PAD002268944	FALKENSTEIN ELECTROPLATING	Not on the NPL	
PA0001745827	FLOAT DRUM, DELA RIVER/PA FISH BOAT COM	Not on the NPL	
PA0002392892	FLOATING DRUM EMERGENCY RESPONSE	Not on the NPL	
PAD077078210	FRANKFORD ARSENAL	Not on the NPL	
PASFN0305581	FRANKFORD ARSENAL BUILDING 108	Not on the NPL	
PAD002280725	FRANKLIN SMELTING	Not on the NPL	
PAD987280138	FRONT ST WAREHOUSE	Not on the NPL	
PAD987279726	GATX TERMINALS CORP	Not on the NPL	
PAD981044894	GENERAL ELECTRIC CO	Not on the NPL	
PAN000306637	GENERAL SMELTING COMPANY	Not on the NPL	
PAN000306579	GIRARD SMELTING COMPANY	Not on the NPL	
PAD987311883	GORDON/DAVIS LAUNDRY ER	Not on the NPL	
PA0001017144	GRANT CHEMICAL SITE	Not on the NPL	
PAD002269090	GRYPHIN PAINT SITE	Not on the NPL	
PAD987283520	HENSHELL CORPORATION	Not on the NPL	
PAD070283023	IMPERIAL METAL & CHEMICAL CO	Not on the NPL	
PAD980832547	INDEPENDENT WIRING	Not on the NPL	
PASFN0305399	INTERNATIONAL CHEMICAL CORP	Not on the NPL	2010
PA0001090315	JO ELM CUMENE SPILL	Not on the NPL	

PAN000306638	JOHN T LEWIS & BROS	Not on the NPL	Source: United States Environmental Protection Agency, Region 3,
PAD000432542	KERR-MC GEE CHEMICAL	Not on the NPL	
PAD982364416	KOMAK/ONTARIO ST	Not on the NPL	
PAD987347549	LAUREL PRODUCTS	Not on the NPL	
PAN000306653	LEFEVRE ST CONTAINER	Not on the NPL	
PAD987312428	MAGGIO CHEESE COMPANY	Not on the NPL	
PAD987279833	MARINE SAFETY OFFICE-PHILA (USCG)	Not on the NPL	
PAD980538672	MARTIN MARIETTA CORP PHILADELPHIA	Not on the NPL	
PAD981034317	MASTER MANUFACTURING CO	Not on the NPL	
PAD002277077	MC CLOSKY VARNISH CO	Not on the NPL	
PAD981106099	MCDONNELL DOUGLAS PESTICIDE	Not on the NPL	
PAD002279008	MCFADDEN, LAWRENCE CO	Not on the NPL	
PAD987322534	MERIT PRODUCTS SITE	Not on the NPL	
PA0002195295	MET THEATER PCB SITE	Not on the NPL	
PAD981737166	METAL BANK OF AMERICA	Not on the NPL	
PAN000306198	MINK SMELTING AND REFINING WORKS	Not on the NPL	
PASFN0305427	MSO E R USCG MSO PHILADELPHIA	Not on the NPL	
PA0000283713	MSO PHILA TWO DRUM EMERGENCY RESPONSE	Not on the NPL	
PAD002289619	NATIONAL CHEMICAL INSPECTION	Not on the NPL	
PA5170090018	NAVAL AVIATION SUPPLY OFFICE (ASO)	Not on the NPL	
PAD980539381	NL IND INC TATHAM BROTHERS	Not on the NPL	
PAD980539746	NL IND INC THOMAS SPARKS CO	Not on the NPL	
PAD980538557	NL IND INC WESTERN WHITE LEAD	Not on the NPL	
PAD981740046	NOROC ENTERPRISES	Not on the NPL	
PAN000306696	NORTH AMERICAN LEAD SMELTING	Not on the NPL	
PAN000306654	P E RECYCLING	Not on the NPL	
PAD067399378	PATHAN CHEMICAL SITE	Not on the NPL	
PAD987366846	PECO UNDERGROUND LINE	Not on the NPL	
PAN000305885	PENN GALVANIZING	Not on the NPL	
PAD987358611	PENN PETROLEUM COMPANY	Not on the NPL	
PAN000305681	PENNSYLVANIA ENGINEERING HOWARD ST	Not on the NPL	
PA0002371276	PHILA MSO 9-29 E R	Not on the NPL	
PA0001407113	PHILA ST DEPT YARD	Not on the NPL	

PAD980539324	PHILA CITY DUMP	Not on the NPL
PA0001401538	PHILADELPHIA EXTRACT COMPANY	Not on the NPL
PAD987339728	PHILADELPHIA MSO DRUM SITE - 12/30/96	Not on the NPL
PAD987332830	PIER 12 GASOLINE SPILL	Not on the NPL
PAD987327129	PINE OIL	Not on the NPL
PAD987389632	PUBLIC STORAGE	Not on the NPL
PAD987277498	PUROLITE CHEMICAL	Not on the NPL
PAD980832117	QUALITY CONTAINER CORPORATION SITE	Not on the NPL
PAD001739986	QUICKWAY INC	Not on the NPL
PA0001407899	RANDOLPH ST DRUM ER	Not on the NPL
PAD987399185	READING TERMINAL	Not on the NPL
PA0002373108	RED PHOSPHOROUS FIRE AT JUNKYARD	Not on the NPL
PA0000321208	REFRIGERATED ENTERPRISES	Not on the NPL
PAD980539621	REMINGTON RAND UNIVAC	Not on the NPL
PAD002310043	RICCIARDI & SONS CO INC AL	Not on the NPL
PA0000569145	RICHMOND ST RESPONSE	Not on the NPL
PAD980829758	RICHMOND ST SITE	Not on the NPL
PAD980707038	RICHMOND TOWN GAS	Not on the NPL
PAD077883346	ROHM & HAAS - PHILA PLT	Not on the NPL
PAD980829741	ROXBOROUGH CINDER	Not on the NPL
PAD982364234	SABLE DIAMONDS/US METAL & COINS	Not on the NPL
PAD987366507	SANSOM ST JEWELRY FIRE	Not on the NPL
PAD987353596	SANTIAGO JUNK YARD	Not on the NPL
PAN000306593	SCHISSLER RECREATION CENTER	Not on the NPL
PAD000000190	SKF IND INC SPEC BEARING DIV	Not on the NPL
PA0001325877	SOUTH 3RD ST DRUM SITE	Not on the NPL
PAD981103898	SOUTHEAST INCINERATOR	Not on the NPL
PAD987327087	SOVEREIGN OIL SPILL	Not on the NPL
PAD982364283	SPEEDY MUFFLER	Not on the NPL
PAD002279040	STATE ROAD SITE	Not on the NPL
PAD987352564	SUGARHOUSE REALTY, INC	Not on the NPL
PA0001186063	T&T TRANSPORTOR & WAGNER	Not on the NPL
PAD980919179	TACONY CRUCIBLE PROPERTY	Not on the NPL

PA0210000931	TACONY WAREHOUSE	Not on the NPL
PASFN0305480	TALCO METALS	Not on the NPL
PAD002300556	TECHNITROL INC	Not on the NPL
PAD147320824	THE FORGE COMPANY	Not on the NPL
PAD987268646	THOMPSON ST TRAILER SITE	Not on the NPL
PA0000452474	TIOGA MARINE TERMINAL EMERGENCY RESPONSE	Not on the NPL
PA0001405190	TIOGA ST TIRE FIRE	Not on the NPL
PA0001745306	TIOGA TERMINAL ER	Not on the NPL
PAD987348869	TULIP ST	Not on the NPL
PAD087098653	UNITANK TERMINAL SERVICE	Not on the NPL
PAN000306201	UNITED SMELTING AND REFINING COMPANY/LEAD SMELTERS INITIATIVE	Not on the NPL
PASFN0305460	USCG MARINE SAFETY OFFICE - DRUM RESPONSE	Not on the NPL
PA4170022418	USN PHILA NAVAL SHIPYARD	Not on the NPL
PAN000305629	VERDICT CHEMICAL SITE	Not on the NPL
PAN000305657	WALTER WAREHOUSE SITE	Not on the NPL
PAN000305935	WASHINGTON COMPRESSED STEEL	Not on the NPL
PA0000939801	WEST GLENWOOD ST E R	Not on the NPL
PA0000068247	WESTMORELAND RAILYARDS DUMP	Not on the NPL
PAN000305638	YORK METAL FINISHING	Not on the NPL