

PENNSYLVANIA

ACCESSING THE TIDAL DELAWARE

APRIL 2012

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

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The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region — leading the way to a better future.



The symbol in our logo is adapted from the official

DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

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Executive Summary

“A river is more than an amenity, it is a treasure.” –U.S. Supreme Court Justice Oliver Wendell Holmes writing about the Delaware River in *New Jersey v. New York*, 283 U.S. 336, 342 (1931).

The purpose of *Accessing the Tidal Delaware: Pennsylvania* is to further the revitalization of Pennsylvania’s tidal Delaware River waterfront communities by identifying multimodal transportation projects to improve access to the waterfront. Its intent is not to duplicate the endeavors of the numerous high-quality waterfront plans that have come before. Rather, it seeks to raise awareness about the existing efforts in Philadelphia, Bucks, and Delaware counties.

A series of competing, isolated access points will do little to further the goal of quality access to the waterfront. Instead, by sharing information on a regional basis through this study, DVRPC hopes that organizations will be able to create partnerships leading to implementation. In this era of limited funding and understaffing, improving access will require both strategic and collaborative action.

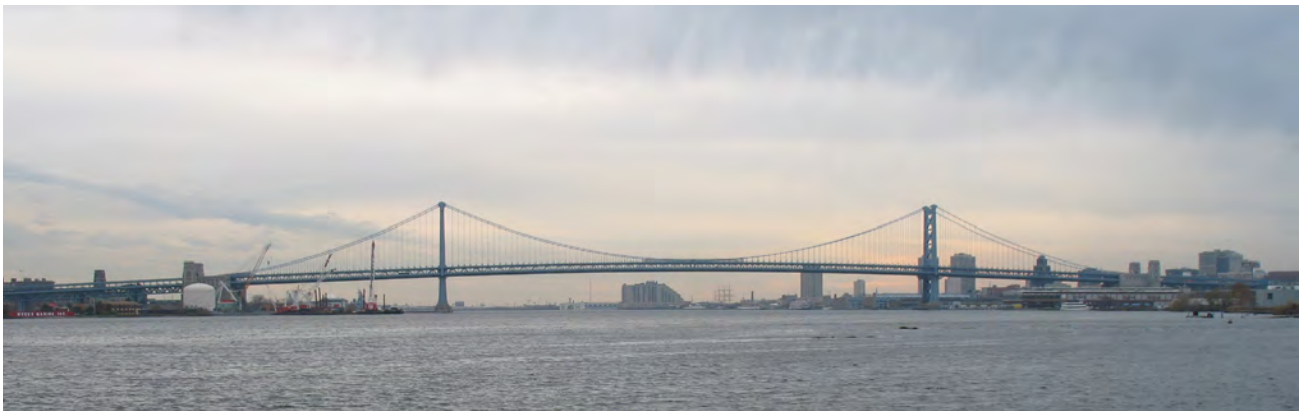
This study builds on the existing waterfront plans and activities by:

- identifying gaps in Bucks, Delaware, and Philadelphia counties where access to the waterfront has not been addressed and/or recommendations not determined;
- highlighting locations of recent transportation investment and grant program funding; and
- examining the specific multimodal transportation improvements still needed to realize the waterfront plans.

While access points do exist along the Delaware, the history of the river and riverfront communities shows that the public, by and large, has been cut off from the river for many years. The study examines what factors have contributed to this, among them I-95, railroads, and industrial land uses.

There is only a finite amount of waterfront, but there are a variety of uses competing for waterfront access, including residential, commercial, recreational, and industrial uses. This often leads to conflicts. Waterfront development that occurs on a parcel-by-parcel basis suffers from no larger vision of what the combined Delaware waterfront could be.

The study examines what we mean by access, both public and private, formal and informal, and what some of the barriers to access are. It looks at the different users of the waterfront and some of their competing concerns. Threats to access, such as sea level rise, are also examined. Recent waterfront plans in the three counties are reviewed, along with their transportation recommendations.



The Benjamin Franklin Bridge over the Delaware River as seen from Penn Treaty Park in Philadelphia (All photos courtesy of DVRPC unless otherwise noted)

The report concludes with both broad and specific recommendations to improve access to the Delaware:

- Use a Balanced Approach
- Secure More Open Space Along the Waterfront
- Improve Existing Assets First
- Design With Nature and With People in Mind
- Forge Relationships with Organizations in Neighboring States
- Pursue National Designation for the Tidal Delaware
- Compile Better Data on Waterfront Usage
- Raise the waterfront's profile, for example, by creating a "Delaware River Attractions" page on the Greater Philadelphia Tourism Marketing Corporation's website
- Update municipal zoning and subdivision and land development ordinances to require waterfront access, along with design standards

Appendices include case studies of successful waterfronts, waterfront access maps, and funding opportunities.

Introduction

The Delaware River is an important resource, for recreation, tourism, industry, and ecology. At times, these interests conflict. In the summer of 2010, seven species of native freshwater mussels that were thought to have been extinct in Pennsylvania and New Jersey were discovered between Chester, Pennsylvania and Trenton, New Jersey. In 2011, the first year when members of the public were allowed to cast their vote in the River of the Year competition sponsored by Pennsylvania's Department of Conservation and Natural Resources (DCNR) and the Pennsylvania Organization for Watersheds and Rivers (POWR), the Delaware River won the honor. At the same time, the conservation organization American Rivers named the Upper Delaware River the #1 Most Endangered River in the United States in 2010 due to the threat of Marcellus Shale drilling. In January 2011, a federal judge denied a legal challenge to the Pennsylvania Department of Environmental Protection (PA DEP) in a lawsuit aimed at stopping the dredging of the Delaware River shipping channel.

In the 1950s, the Delaware River was so polluted that its water peeled the paint off ships, and prevented the migration of shad upriver to spawn. The improvement in the river's water quality after the passage of the Clean Water Act in 1972 coupled with a decline in the importance of waterfront industry has led to renewed interest in waterfront development. Accompanying this interest is an outcry for public access to the river.

Over the past 25 years, there have been numerous plans put forth by public, private, and nonprofit entities related to the waterfront and the transportation systems that allow users to access it. The majority of these plans identify transportation as an important component of revitalization. Improvements to access roads, interchanges along I-95, enhanced public transportation, and construction of the East Coast Greenway is necessary to allow for the type of destination envisioned by these waterfront revitalization plans.

Since the mid-1960s, U.S. cities have transformed their urban waterfronts. Following successful waterfront projects such as the Inner Harbor in Baltimore, Boston's central waterfront, and Battery Park City in New York, municipalities and counties in the Philadelphia region began to examine their own underutilized waterfronts. Delaware County released two waterfront-related planning documents in the 1990s, and the Philadelphia City Planning Commission (PCPC) published *North Delaware Riverfront, Philadelphia: A Long-Term Vision for Renewal and Redevelopment* in 2001. In 2005, Bucks County published its *Waterfront Revitalization Plan*.



A couple enjoys a view of the Delaware from a bench in Neshaminy State Park in Bucks County.



Recreational boaters enjoy the river near Penn's Landing in Philadelphia.



Waterfront Square in Philadelphia is an example of development that has occurred along the Delaware River in recent years.



There are many different uses of the Delaware River waterfront. Here a plane landing at Philadelphia International Airport passes over historic Fort Mifflin.

Table 1: Study Area Municipalities

County Name	Municipality Name
Bucks	Bensalem Township
Bucks	Bristol Borough
Bucks	Bristol Township
Bucks	Falls Township
Bucks	Lower Makefield Township
Bucks	Morrisville Borough
Bucks	Tullytown Borough
Delaware	Chester City
Delaware	Chester Township
Delaware	Darby Township
Delaware	Eddystone Borough
Delaware	Folcroft Borough
Delaware	Glenolden Borough
Delaware	Lower Chichester Township
Delaware	Marcus Hook Borough
Delaware	Norwood Borough
Delaware	Prospect Park Borough
Delaware	Ridley Park Borough
Delaware	Ridley Township
Delaware	Tinicum Township
Delaware	Trainer Borough
Philadelphia	Philadelphia City

Source: DVRPC, 2011

With the housing market booming, luxury waterfront condos, such as Waterfront Square in Philadelphia, opened. Neighborhoods like Northern Liberties and New Kensington in Philadelphia could not keep up with all of the waterfront development applications. The Northern Liberties Neighborhood Association went so far as to issue a moratorium on waterfront development so that they could draft and release their own waterfront plan in 2007. Waterfront planning became an especially hot topic that year in Philadelphia after Penn Praxis, WRT, and the William Penn Foundation released their 2007 *Civic Vision for the Central Delaware*, which was followed shortly thereafter by the 2008 *Action Plan for the Central Delaware*. With so many individual initiatives and plans underway, a regional study to look at the entire length of the Delaware River on the Pennsylvania side of the river was needed. Bucks County recommended DVRPC add this study to the Work Program that is developed annually by the DVRPC Board and its planning partners to reflect the region’s short-range planning needs. DVRPC’s Board approved the request for the Fiscal Year 2011 Planning Work Program, which incorporates the planning programs and support activities within the nine-county DVRPC region for the period July 1, 2010 through June 30, 2011.

Study Area

This study focuses on three counties (Bucks, Philadelphia, and Delaware) on the Pennsylvania side of the Delaware River between Morrisville, Bucks County in the north and Marcus Hook, Delaware County in the south. The study area is roughly located between the Delaware River in the east and I-95 in the west (Figure 1 shows the study area and Figure 2 highlights several points of interest in the study area). The study area includes portions of 22 municipalities (see Table 1: Study Area Municipalities).

The study area varies in width from less than half a mile in areas of Philadelphia to almost five miles in Bucks County. Some general characteristics of the study area are shown in Table 2: Study Area at a Glance. The percentage of each municipality that is found in the study area is shown in Table 3. Of the municipalities in the study area, five have less than five percent of their area in the study area and therefore are excluded from the demographic data shown in Table 4. As of the 2010 Census, approximately 78,000 people lived in the study area.

Table 2: Study Area at a Glance

Characteristic	Measurement
Length in miles	57
Area in square miles	70
Number of counties	3
Number of municipalities	22

Source: DVRPC, 2011

Pennsylvania's tidal Delaware riverfront has an enviable transportation network, including major highways, such as I-95, I-276, and I-476; 12 bridges; an international airport; and a myriad of public transportation options, such as buses, trolleys, subways, and regional rail lines. (Vehicle counts for 10 bridges are shown in Table 5; trains are not included.) There is currently one ferry, DRPA's RiverLink, which operates between Philadelphia and Camden on a seasonal basis and serves tourists but not commuters. There are 15 SEPTA regional rail stations and one stop on the Market-Frankford Line within the defined study area. In fact, the largest land use category after "water" in DVRPC's 2005 Land Use data for the study area was "transportation." (See Table 6 and Figures 3–5 for land use data.) This is followed by residential, then manufacturing.



While there were seven ferries operating between Camden and Philadelphia during the 1800s, including the one in the image above, today the ferries have largely been replaced by bridges. Source: <http://www.ci.camden.nj.us/history/ferryindustry.html>

Table 3: Municipal Acres in Study Area

County Name	Municipality Name	Municipality Area in Acres	Municipality Area in Square Miles	Acres in Study Area	Square Miles in Study Area	Percent of Municipality in Study Area
Bucks	Bensalem Township	13,332.27	20.83	2,919.30	4.56	21.9%
Bucks	Bristol Borough	1,183.96	1.85	1,037.72	1.62	87.6%
Bucks	Bristol Township	10,972.90	17.15	2,992.56	4.68	27.3%
Bucks	Falls Township	17,052.54	26.64	11,354.86	17.74	66.6%
Bucks	Lower Makefield Township	11,718.82	18.31	0.59	0.00	0.0%
Bucks	Morrisville Borough	1,257.86	1.97	860.85	1.35	68.5%
Bucks	Tullytown Borough	1,323.82	2.07	999.07	1.56	75.4%
Delaware	Chester City	4,018.59	6.28	2,483.22	3.88	61.8%
Delaware	Chester Township	911.94	1.42	0.43	0.00	0.0%
Delaware	Darby Township	904.71	1.41	309.43	0.48	34.0%
Delaware	Eddystone Borough	1,085.06	1.70	1,076.58	1.68	98.8%
Delaware	Folcroft Borough	905.87	1.42	675.88	1.06	74.6%
Delaware	Glenolden Borough	619.09	0.97	0.01	0.00	0.0%
Delaware	Lower Chichester Township	692.12	1.08	174.39	0.27	25.0%
Delaware	Marcus Hook Borough	1,059.70	1.66	1,043.11	1.63	98.2%
Delaware	Norwood Borough	522.62	0.82	123.98	0.19	23.2%
Delaware	Prospect Park Borough	480.48	0.75	20.39	0.03	4.0%
Delaware	Ridley Park Borough	690.48	1.08	9.49	0.01	0.9%
Delaware	Ridley Township	3,453.61	5.40	613.33	0.96	17.8%
Delaware	Tinicum Township	5,590.02	8.73	5,556.41	8.68	99.4%
Delaware	Trainer Borough	888.92	1.39	707.22	1.11	79.9%
Philadelphia	Philadelphia City	90,989.10	142.17	11,687.14	18.26	12.8%
TOTAL		169,654.49	265.10	44,645.96	69.75	

Source: DVRPC, 2011

Table 4: Population of Municipalities with more than 5% of their land area in the study area

County	Municipality	2005	2010	2015	2020	2025	2030	2035
Bucks	Bensalem Township	58,886	59,184	59,466	59,733	59,984	60,221	60,440
Bucks	Bristol Borough	9,840	9,947	10,048	10,144	10,234	10,319	10,398
Bucks	Bristol Township	54,649	55,014	55,360	55,687	55,995	56,285	56,553
Bucks	Falls Township	34,273	34,465	34,645	34,816	34,977	35,129	35,268
Bucks	Morrisville Borough	9,815	9,883	9,948	10,008	10,066	10,120	10,170
Bucks	Tullytown Borough	2,000	2,041	2,080	2,117	2,151	2,184	2,214
Delaware	Chester City	37,028	37,079	37,127	37,171	37,214	37,253	37,290
Delaware	Darby Township	9,643	9,596	9,552	9,510	9,471	9,434	9,399
Delaware	Eddystone Borough	2,379	2,371	2,364	2,357	2,351	2,345	2,339
Delaware	Folcroft Borough	6,901	6,857	6,815	6,776	6,739	6,704	6,671
Delaware	Lower Chichester Township	3,493	3,488	3,483	3,478	3,473	3,469	3,465
Delaware	Marcus Hook Borough	2,264	2,270	2,276	2,282	2,288	2,293	2,297
Delaware	Norwood Borough	5,847	5,838	5,829	5,821	5,813	5,806	5,799
Delaware	Ridley Township	30,204	30,129	30,057	29,989	29,924	29,864	29,808
Delaware	Tinicum Township	4,252	4,233	4,216	4,200	4,185	4,170	4,157
Delaware	Trainer Borough	1,860	1,835	1,812	1,790	1,769	1,750	1,732
Philadelphia	Philadelphia City	728,054	722,800	724,962	727,139	731,831	734,039	736,268

Source: DVRPC, 2011

Table 5: Bridge Traffic Counts

Bridge	2010 Average Daily Traffic Counts	Operator
Calhoun Street*	10,600	Delaware River Joint Toll Bridge Commission
Trenton-Morrisville Route 1	54,300	Delaware River Joint Toll Bridge Commission
Lower Trenton	20,100	Delaware River Joint Toll Bridge Commission
276/Turnpike	41,249	Pennsylvania Turnpike Commission
Burlington-Bristol	30,000	Burlington County Bridge Commission
Tacony-Palmyra	50,000	Burlington County Bridge Commission
Betsy Ross	35,806	DRPA
Benjamin Franklin	107,422	DRPA
Walt Whitman	111,634	DRPA
Commodore Barry	40,320	DRPA
TOTAL	501,531	

*Calhoun Street Toll-Supported Bridge rehabilitation project took place in 2010, with a four-month shutdown from May 24 to September 24.

Source: Bridge Operators, 2011

Study Goals and Objectives

Goal: Unified Waterfront Planning

The goal of this study is to further the revitalization of Pennsylvania's tidal Delaware River waterfront communities by identifying multimodal transportation improvements necessary to improve access to the waterfront. The intent is not to duplicate the numerous existing high-quality waterfront plans. Rather, it seeks to raise awareness about these existing efforts in the three counties. A series of competing, isolated access points will do little to further the goal of quality access to the waterfront. Instead, by sharing information on a regional basis through this study, DVRPC hopes that organizations will be able to create partnerships leading to implementation. In this era of limited funding and understaffing, improving access will require both strategic and collaborative action.

Objectives

This study will build on the existing waterfront plans and activities by:

- identifying gaps in Bucks, Delaware, and Philadelphia counties where access to the waterfront has not been addressed and/or recommendations not determined;
- highlighting locations of recent transportation investment and grant program funding; and
- examining the specific multimodal transportation improvements still needed to realize the waterfront plans.

Improving access is important, as is providing information about these access points. Indeed, waterfront access is an issue of growing importance for state and local governments. Some states, such as Maine, have seen a need to provide information to private waterfront landowners, government and public entities, and waterfront users about their rights and responsibilities, through a website on Accessing the Maine Coast (<http://www.accessingthemainecoast.com>). This study seeks to improve the level of information relevant to waterfront access in the three counties.



This boat ramp at Ridley Township Marina in Delaware County provides physical access to Darby Creek, a tributary of the Delaware River.



An example of interpretive signage about the Tidal Delaware Water Trail.

Points of Interest

Bucks County



Pennsbury Manor

Philadelphia County



Glen Foerd

Delaware County



Heinz National Wildlife Refuge



Bristol Waterfront Park



Penn Treaty Park



Lazaretto



Neshaminy State Park



Pulaski Park



Governor Printz Park



Pen Ryn Mansion



U.S.S. United States



Market Square Memorial Park

Regional Location Map

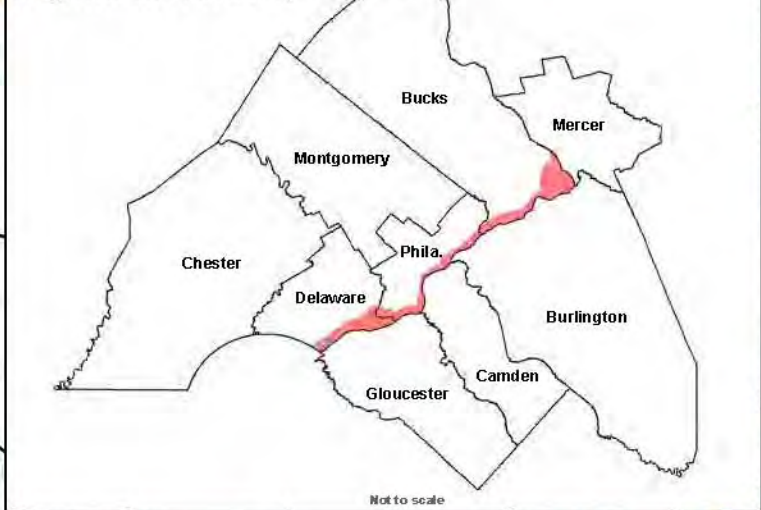


Figure 1: Study Area

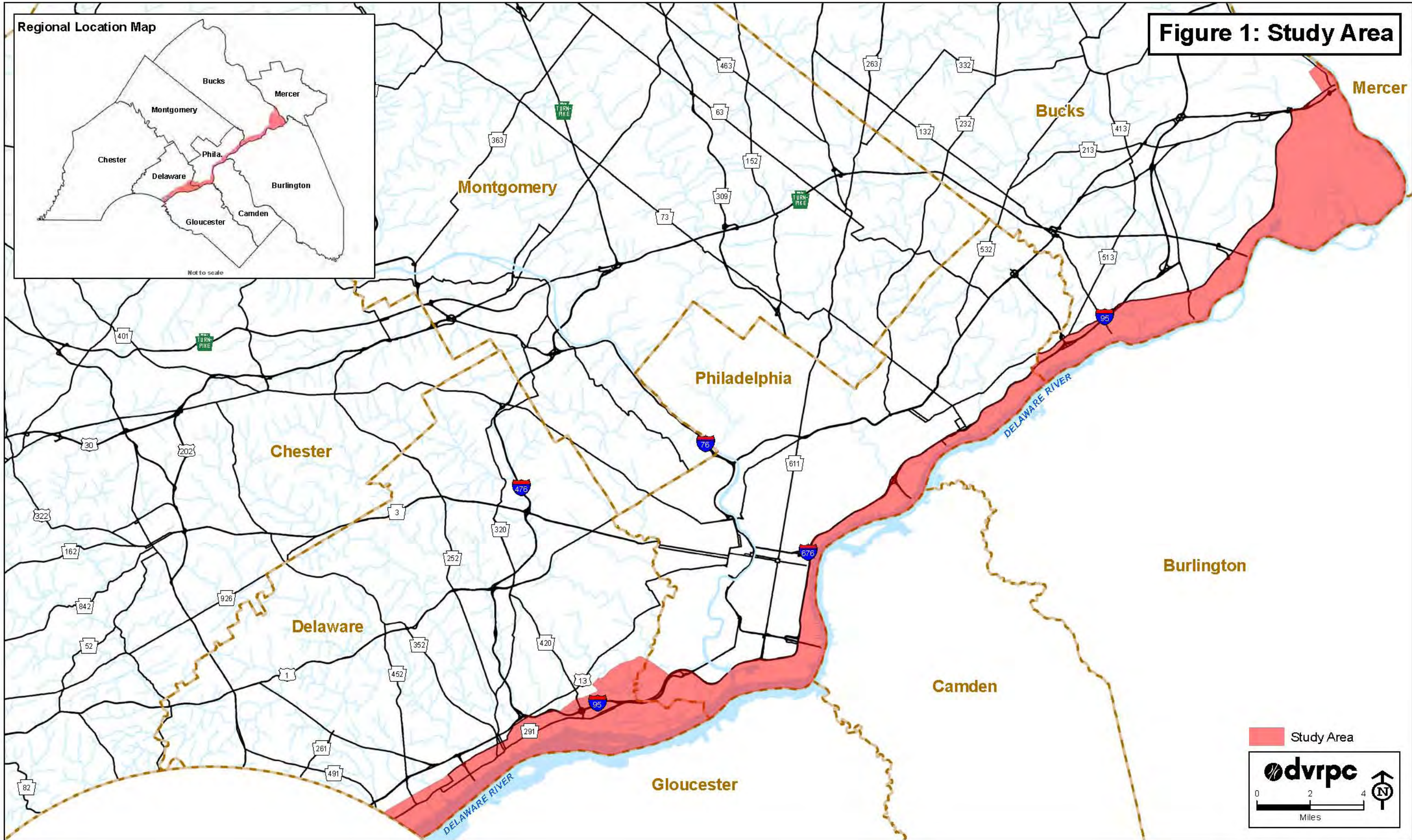



















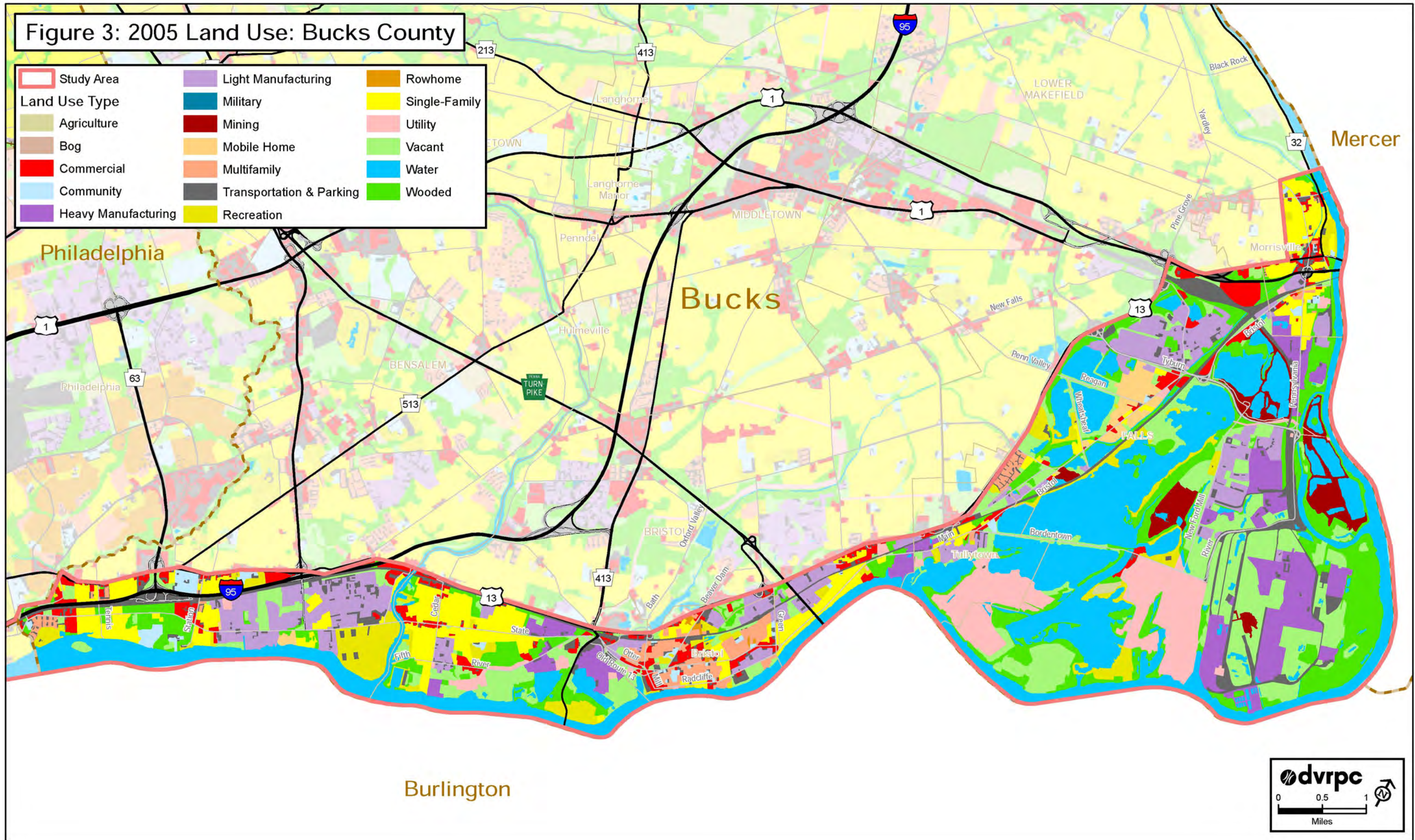


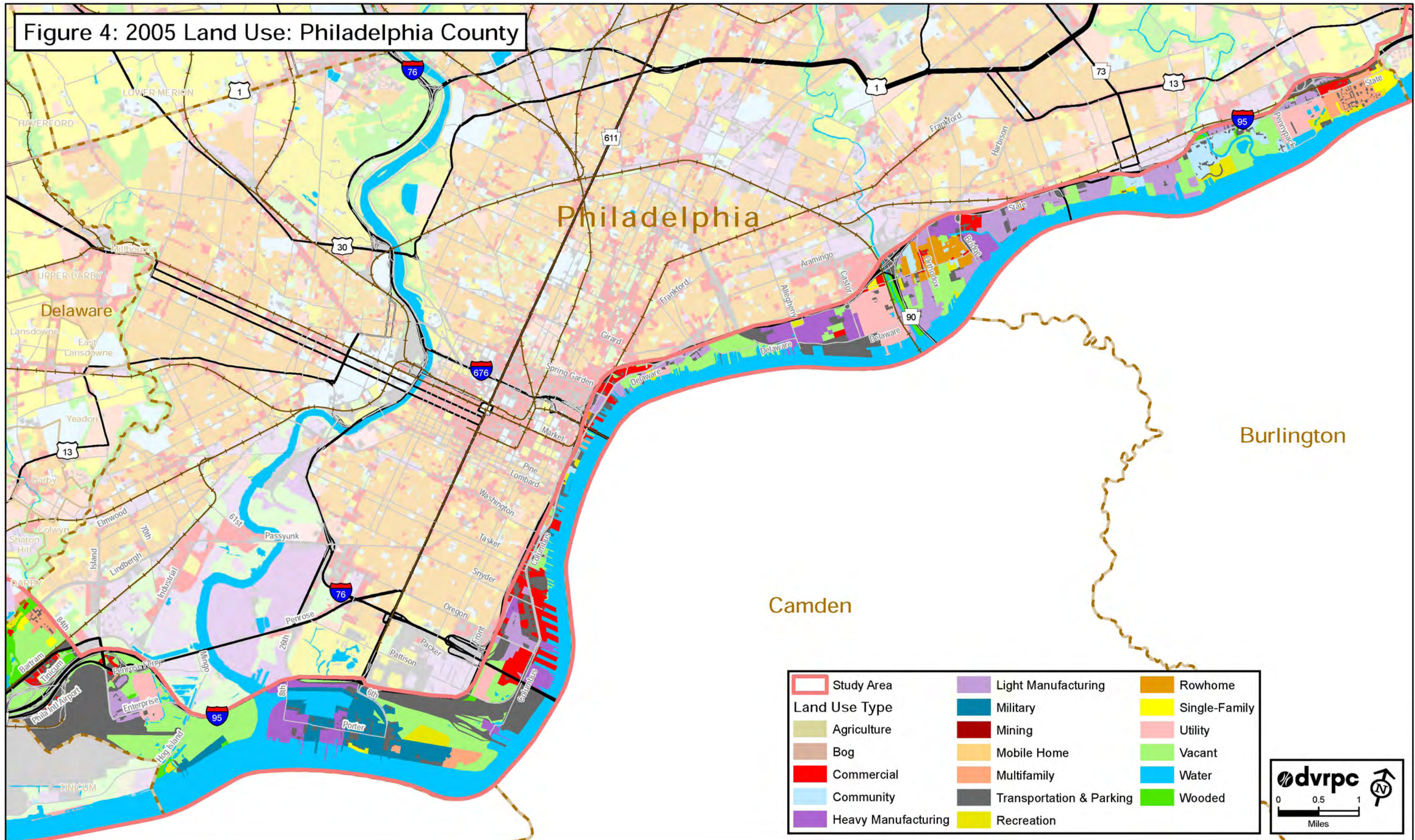
Figure 3: 2005 Land Use: Bucks County

 Study Area	 Light Manufacturing	 Rowhome
Land Use Type	 Military	 Single-Family
 Agriculture	 Mining	 Utility
 Bog	 Mobile Home	 Vacant
 Commercial	 Multifamily	 Water
 Community	 Transportation & Parking	 Wooded
 Heavy Manufacturing	 Recreation	



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0 0.5 1
Miles

Figure 4: 2005 Land Use: Philadelphia County

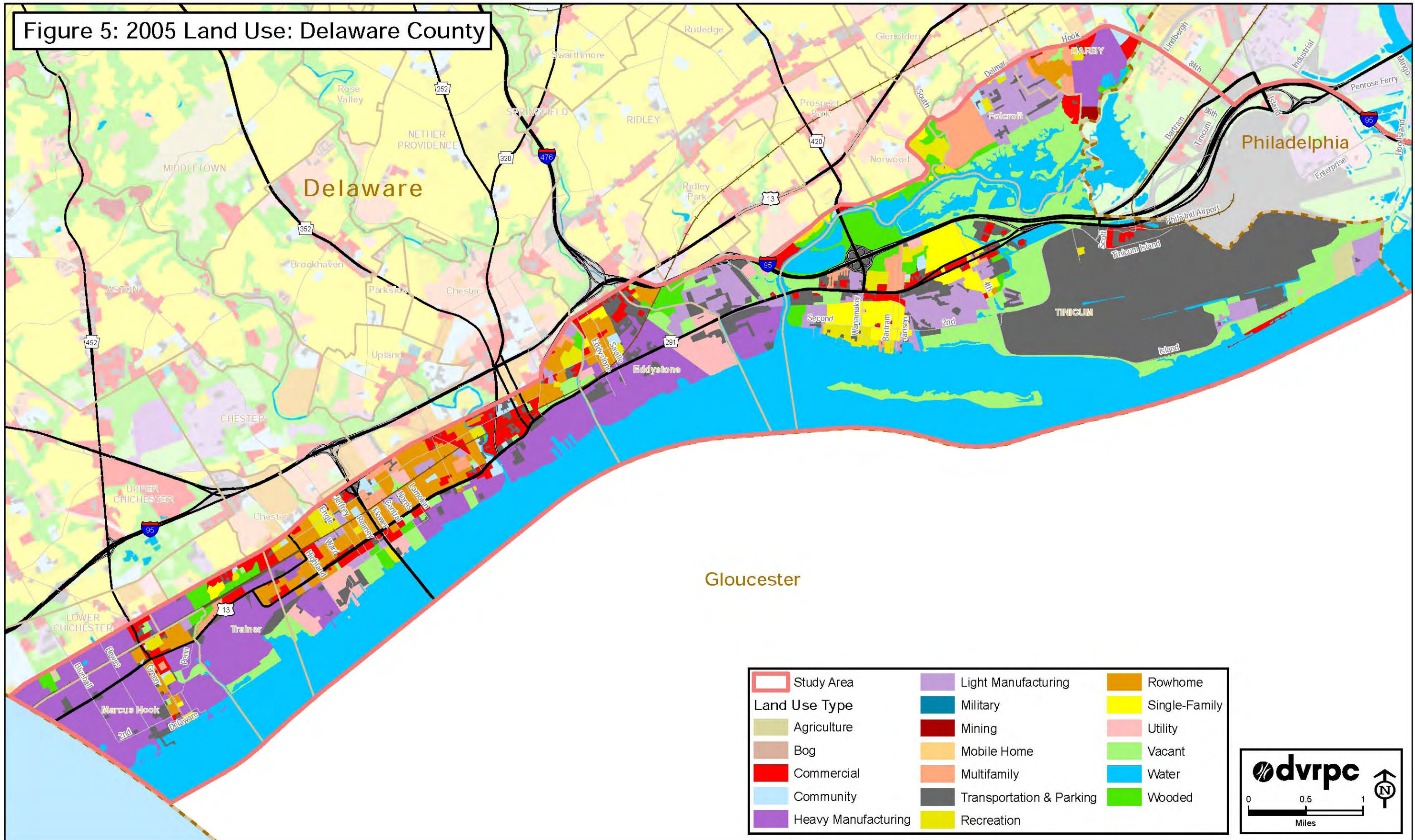


	Study Area		Light Manufacturing		Rowhome
	Agriculture		Military		Single-Family
	Bog		Mining		Utility
	Commercial		Mobile Home		Vacant
	Community		Multifamily		Water
	Heavy Manufacturing		Transportation & Parking		Wooded
			Recreation		

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0 0.5 1
Miles

Figure 5: 2005 Land Use: Delaware County

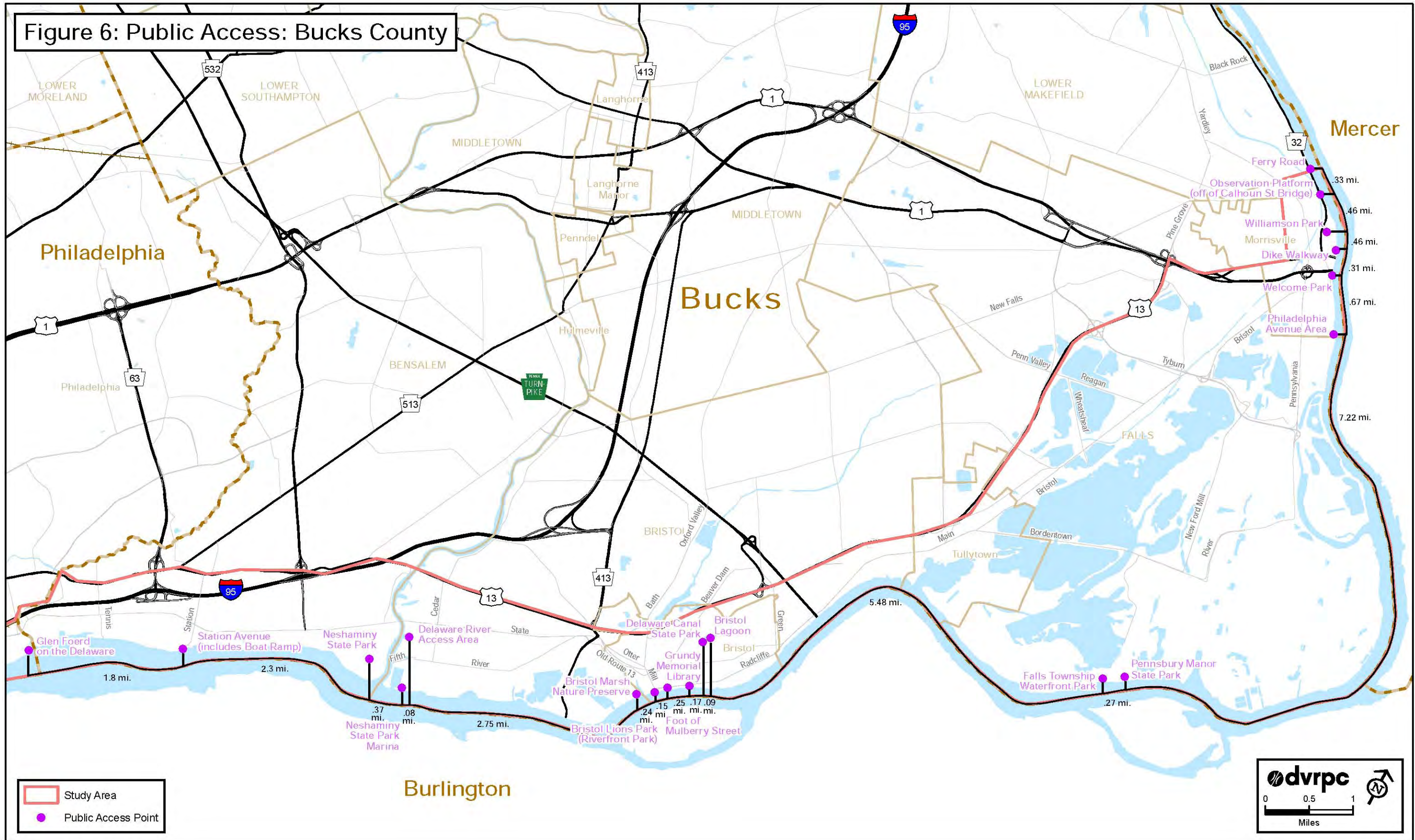


Study Area	Light Manufacturing	Rowhome
Land Use Type	Military	Single-Family
Agriculture	Mining	Utility
Bog	Mobile Home	Vacant
Commercial	Multifamily	Water
Community	Transportation & Parking	Wooded
Heavy Manufacturing	Recreation	

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0 0.5 1
Miles

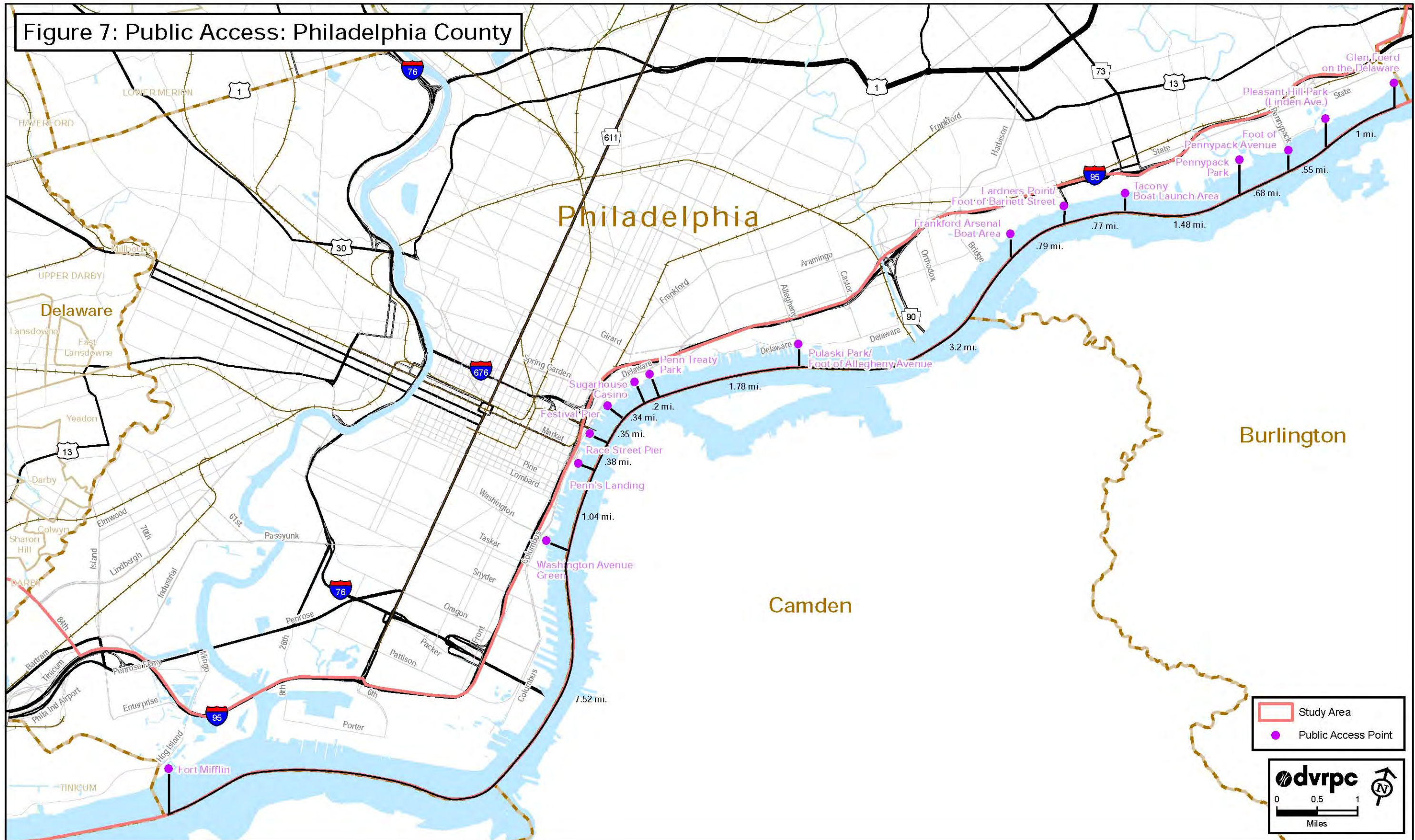
Figure 6: Public Access: Bucks County



Study Area
Public Access Point

0 0.5 1
Miles

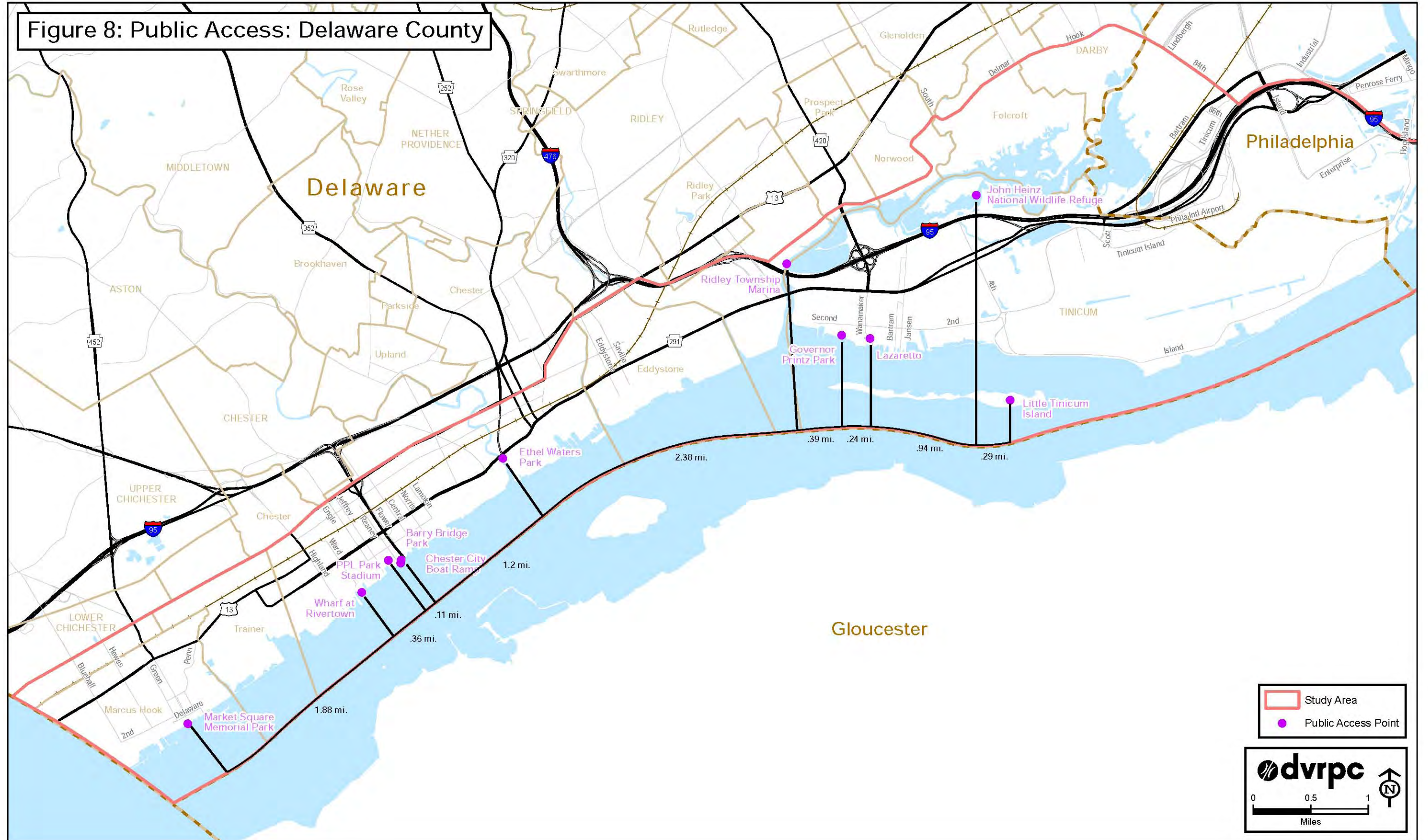
Figure 7: Public Access: Philadelphia County



Study Area
Public Access Point

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0 0.5 1
Miles

Figure 8: Public Access: Delaware County



Study Area
Public Access Point

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0 0.5 1
Miles

Table 6: Land Use in Study Area (2005)

Land Use	Bucks	Philadelphia	Delaware	TOTAL	
	Acres	Acres	Acres	Acres	Square Miles
Agriculture	20.01	0	35.09	55.10	0.09
Commercial	741.87	421.12	474.08	1,637.07	2.56
Community Services	172.91	195.13	83.23	451.27	0.71
Manufacturing: Heavy Industrial	1,176.22	616.13	1,728.59	3,520.95	5.50
Manufacturing: Light Industrial	1,628.96	771.95	628.78	3,029.69	4.73
Mining	406.45	0.00	10.16	416.61	0.65
Military	0.00	452.39	0.00	452.39	0.71
Parking	497.82	597.59	608.03	1,703.44	2.66
Recreation	873.35	202.08	226.15	1,301.58	2.03
Residential: Mobile Home	197.65	0.00	0.00	197.65	0.31
Residential: Multi-Family	377.35	220.59	265.26	863.20	1.35
Residential: Row Home	22.83	159.01	640.91	822.75	1.29
Residential: Single-Family Detached	1,482.30	83.94	282.89	1,849.13	2.89
Transportation	1,021.85	1,712.54	1,642.23	4,376.61	6.84
Utility	1,129.38	459.91	216.32	1,805.61	2.82
Vacant	2,536.57	1,834.78	1,183.65	5,555.00	8.68
Water	5,353.19	3,683.30	4,129.14	13,165.63	20.57
Wooded	2,518.94	182.84	345.71	3,047.49	4.76
Total	20,157.66	11,593.30	12,500.21	44,251.17	69.14

Source: DVRPC, 2005

Section One: Access to the Riverfront

What is Access?

Access can mean different things to different people. Residents and tourists want to access the river for recreation, such as walking, biking, fishing, boating, birdwatching, and picnicking. Power plants and manufacturers want to access the river because it provides water for their cooling processes. Commercial businesses want to access the water because it provides cheap energy and reliable transportation. Commercial fishermen, marina operators, and other water-dependent businesses (e.g., haul-out service yards, seafood handling facilities, and boat builders) want access to the river because it provides their livelihood. Many other businesses, such as restaurants and hotels, benefit from waterfront locations, and some even use it for their wash water, landscaping, or pools. Fauna and flora need access to the river to live and reproduce. The key is to balance all of these competing interests.

Public versus Private Access

Access can either be public or private. Public facilities are generally open to the public without a fee. Public access sites range in size. Some sites along the water, such as Penn's Landing in Philadelphia, are long and contain a great deal of waterfront, while others, such as Barry Bridge Park in Chester, are narrow and contain only a small amount of river frontage. Some areas, such as the foot of Mulberry Street in Bristol Borough, are small with limited facilities—nothing more than some grass along the water's edge, while others, such as Pennypack Park on the Delaware in Philadelphia, are expansive and provide parking, ball fields, picnic benches, and a gazebo. The upkeep and maintenance of the sites also varies widely. Visitors to Pulaski Park in Philadelphia might encounter overflowing trash cans and benches missing slats, while visitors to Marcus Hook's Market Square Memorial Park will find a well-maintained park that is home to a variety of events throughout the seasons, such as the Summer Music Festival, Riverfront Ramble, and Holiday Festival of Lights. DVRPC's 1997 report *Planning for Public Access to Pennsylvania's Coast: An Inventory of Existing Conditions* identified 96 access sites along the Delaware, of which only 46—less than half—were publicly owned (see Figures 6–8 for public access locations).

The private facilities can be further subdivided into those facilities where the public can pay to use the facilities/grounds (e.g., commercial marinas and private waterfront estates) and those only available to members (e.g., sporting clubs, private yacht clubs and gated waterfront communities).



Restricted Area signs, such as this one at the Navy Yard in Philadelphia, prevent unauthorized individuals from accessing certain stretches of the Delaware River.



Marcus Hook Memorial Park is an excellent example of public access along the Delaware.



The Corinthian Yacht Club is an 11-acre private club on the Essington waterfront for people with an interest in sailing, sailboat racing, cruising, boating, and trap shooting. It is one of the oldest continuously operating yacht clubs in the country.



Fishermen using an abandoned pier are an example of informal access to the Delaware River.



The kayaks and swan boats at the Penn's Landing Boat Basin offer residents and visitors physical access to the river. The Pennsylvania Environmental Council's Paddle Penn's Landing Program provides low-cost, safe kayaking and paddle boating opportunities on a protected section of the Delaware River. Over 4,000 people have enjoyed this experience to date.



The ViewPoint in Hamburg, Germany's HafenCity offers visitors a chance to observe the ships on the Elbe River.

Formal versus Informal Access

In addition to formal access, such as parks and marinas, described above, there is also a great deal of informal access to the Delaware River. This can take the form of local residents accessing the river where streets meet the river or even by trespassing on private property. The owners of these parcels may not be aware that the public is trespassing on their property, or they may simply choose to turn a blind eye. There are a variety of reasons for the popularity of informal access. Often there are high population densities and/or parking nearby. Alternatively, people might not be aware of nearby existing public access facilities, or they might find the rules at the public access facilities onerous. Finally, people might be seeking out solitude or opportunities to come in contact with nature away from the perceived crowding and congestion associated with other areas along the waterfront. The heavy use of these sites could indicate that additional formal access sites are needed.

Types of Public Access

Public access can have three components: physical access, visual access, and interpretive access.

Physical Access

Physical access means being able to get from inland areas to the river and move along its edge. It could also mean being able to physically enter and exit the river, such as in a boat or kayak. Physical access should be abundant and visible, so that people know about it and do not have to guess where it is. The access should be comfortable, safe, and convenient for a variety of different users, including pedestrians, cyclists, drivers, and boaters. For example, parking spaces and turnaround areas needed for boaters are different from those of cars or bicyclists.

Visual Access

Visual access is about having access to views of the river. This is a good alternative when physical access to the river is difficult due to ownership patterns or security concerns. Visual access can either be in the form of natural or man-made viewpoints (e.g., a hill or a tower) or view corridors. For example, in the City of Harrisburg, Pennsylvania, many downtown streets offer views of the Susquehanna River. The exit from the Landungsbruecken subway station and the HafenCity ViewPoint (an observation tower overlooking the Elbe River) in Hamburg, Germany are both excellent examples of visual access. Viewpoints do not necessarily need to be adjacent to the water's edge. The Port of Seattle has a "Public Access" page on its website (<http://www.portseattle.org/Parks-Public-Access/Public-Access/Pages/default.aspx>), which lists not just physical access sites but also viewpoints.

One such viewpoint is the Bell Street Pier at Pier 66, which offers telescopes so that people can observe shipping activities without interfering with the port's operations. The City of Seattle regulates view corridors through design standards in the shoreline district of its Land Use Code (see Sections 23.60.162, 23.60.454, and 23.60.458).

Interpretive Access

Interpretive access can be through either physical signs or educational programs that provide participants with knowledge about the river's history, industries, culture, ecology, and wildlife. One example is Delaware County's Riverfront Ramble, an annual festival featuring music, environmental education, and competitions targeted at families. In 2008, the Riverfront Ramble had events in six locations along the Delaware shore including Market Square Memorial Park in Marcus Hook, the John Heinz National Wildlife Refuge, and Governor Printz Park in Tinicum.

Another example of interpretive access is the Tidal Delaware River Water Trail Program, which focuses on the area between Trenton and Marcus Hook. Suitable for canoes, kayaks, or small motorized watercraft, Water Trails link access points, boat launches, day use sites, and overnight camping sites to form a recreational corridor. The Tidal Delaware River Water Trail uses a variety of tools to inform the public about the waterway, including a website (www.TidalTrail.org), signage, and maps. It is a partnership between the Pennsylvania Fish and Boat Commission (PFBC), Pennsylvania Environmental Council (PEC), the Pennsylvania Department of Conservation and Natural Resources (DCNR), and the Pennsylvania Department of Environmental Protection (DEP), among others.

The Pennsylvania Environmental Council also runs the Tidal Delaware Ambassador Program. In 2011, PEC trained its first class of volunteer Tidal Delaware River Ambassadors. The Ambassador program seeks to increase awareness and train citizen-leaders to organize events and lead tours that bring people to the river. This type of social infrastructure is also an example of interpretive access and should be developed alongside physical infrastructure.

Challenges to Access

Public Accessibility on Private Land and Physical Barriers

People want to be close to water, and according to the Public Trust Doctrine they have a right to be. The Commonwealth of Pennsylvania holds title to approximately 770 square miles of coastal lands beneath navigable waters. This easement means that the public is allowed to access the land between the ordinary high and low water marks. One of the challeng-

Characteristics of Best Public Access

- Invites public use by virtue of "unambiguously" public character
- Permits the public to walk, jog, and bike along the water's edge, while minimizing conflicts among types of users
- Allows boaters access to and from the water and a secure place to temporarily leave their boats
- Connects the downtown to the waterfront at points along its whole length
- Establishes or preserves visual connections to the waterfront from upland sites and streets
- Provides a variety of pedestrian experiences by using changes in width, elevation, orientation, plantings, and surface treatment
- Sparks visitors' curiosity through interpretive markers and signs explaining the waterfront's role in history, its contemporary industries, natural environment and wildlife, and other intrinsically interesting stories
- By its design, it guards the privacy and security of adjacent residences, as well as hazardous waterfront industrial sites
- Respects the needs of children, the elderly, and the disabled
- When public access is obtained through easements across private property, it should be recorded in the property deeds of each parcel crossed by the access way. Doing this will ensure that easements are not "lost" when parcels change hands.

Source: Delaware County Planning Department. "Delaware County Compendium of Waterfront Provisions." 1998.



The dark underpasses under I-95 are often perceived as a barrier that separates neighborhoods from the Delaware River.



Polluted runoff from parking lots on the riverfront contributes to poor water quality in the Delaware River.



Lack of sidewalks creates an unwelcoming environment for pedestrians.

es of public access, however, is that most of Pennsylvania's land is in private ownership, and the public is often not allowed to cross the private lands above the ordinary high water mark. Often there are fences or signs posted on private property to deter trespassing. Thus, many of Pennsylvania's municipalities and neighborhoods are located adjacent to the Delaware River, but citizens of these communities are often cut off from the waterfront.

DVRPC's 1997 report *Planning for Public Access to Pennsylvania's Coast: An Inventory of Existing Conditions* notes that many Pennsylvania residents have been unable to access the coastal zone because of large industrial sites, port activities, utilities, railroads, and highways. Other studies echo these sentiments. In their *A Food Plan for the Delaware River Waterfront*, the Food Trust writes that neighborhoods like Fishtown, Kensington, Bridesburg, Tacony, Torresdale, and Pennsport are cut off from the river. The 2001 *North Delaware Riverfront, Philadelphia: A Long-Term Vision for Renewal and Redevelopment Summary* report speaks of industrial uses, I-95, and the northeast rail corridor severing the Delaware River from the city and its neighborhoods. The problem applies not just to Philadelphia, but to Bucks County and Delaware County as well. For example, the 1998 *Delaware County Coastal Zone Compendium of Waterfront Provisions* also noted that existing development patterns made it nearly impossible to gain access to the Delaware River.

Brownfields

Because many properties along the waterfront were formerly used for industrial purposes, another challenge to public access is the environmental concerns associated with former industrial sites. A brownfield is a property where perceived or actual contamination delays its reuse. In addition to brownfield sites, there are also several sites on the U.S. Environmental Protection Agency's National Priorities List (also known as Superfund sites) in the study area. For example, the six-acre Metal Banks Site in Philadelphia leaked PCB-contaminated oil into the Delaware River, and the EPA is working with the property owner to remediate the groundwater.

Water Quality

While the water quality in the Delaware River has improved since the 1950s, there is still room for progress. Pennsylvania consumes land at a much higher rate than its population growth rate, and development negatively impacts waterways. As habitat is altered or disappears, wildlife populations decrease. Waterways are damaged due to abandoned mine drainage (AMD), acid rain, pollution, agricultural impacts, and—most recently—fracking for natural gas in the Marcellus shale.

Design

The design of waterfront buildings and parks must include provisions for flooding, hurricanes, severe tides, and sea level rise. Several homeowners whose homes were flooded in 2004 and 2005 along the Delaware in Yardley, Pennsylvania have decided to raise their homes one story to reduce damages caused by future floods. It is also challenging to design waterfront facilities that fit the local waterfront context, preserve existing views, and adaptively reuse buildings as much as possible.

Working Waterfront

As waterfront land is converted from industrial uses to other uses such as residences, offices, and parks, land prices also tend to rise, which can displace small marine businesses, such as boat repair businesses and bait shops. While planners are often quick to create a “water-dependent” zoning district in the local zoning ordinance to prevent working waterfront uses from disappearing entirely, this can also have unintended consequences, such as eliminating the possibility of waterfront restaurants.

Boating-related challenges

One of the biggest challenges for recreational boaters and tourists is that they must avoid commercial shipping traffic, such as container ships, barges, bulk carriers, and tankers. Recreational boaters should avoid the marked channels as much as possible to avoid tragic accidents, like the collision of a Duck Boat with a barge on the Delaware River in July 2010, which claimed the lives of two Hungarian tourists.

There are also extra challenges for boaters who are not from the Greater Philadelphia region. Philadelphia is approximately 45 nautical miles from the entrance to the Chesapeake and Delaware Canal. Boats that average 8 to 10 knots can make the journey between Delaware City and the Philadelphia waterfront in six hours, but it can take a full day in a slower boat. This is a particular challenge because along the stretch of river between the C&D Canal and Philadelphia, the Coast Guard lists only one anchorage where recreational boaters can lay over. A great deal of anchor rode—at least 40 feet—would be needed for boaters who choose to moor in the river instead of docking at a marina.

Signage

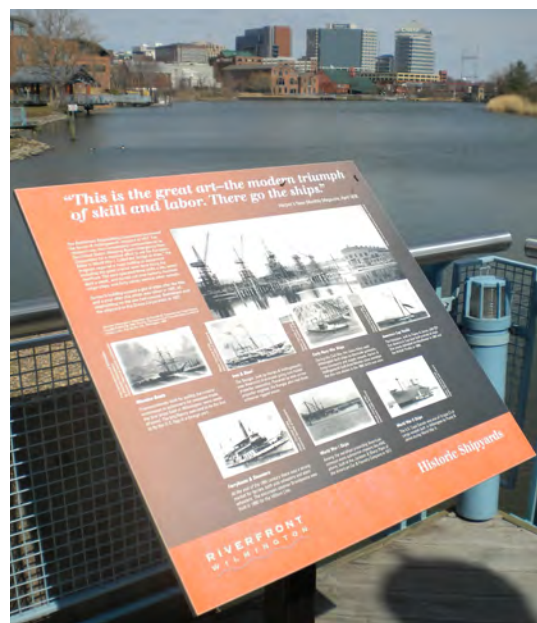
There is also a lack of informative, consistent signage to help people access waterfront sites. For example, Falls Township’s Waterfront Park in Bucks County is located near the Penn Warner Club, a private year-round facility offering members a wide variety of outdoor recreation activities. The club has erected a “Private” sign near the road, although



A “Ride the Ducks” boat on the Delaware River near the Benjamin Franklin Bridge.



The Piers Marina, featuring 110 slips, is found between former shipping terminal piers on the Philadelphia riverfront.



An example of interpretive signage along the Riverwalk in Wilmington, Delaware.

River Water Trail. This study highlighted what physical and attitudinal barriers prevent more recreational use of the river. PEC issued a summary report, *If We Build It, They Will Boat!*, which suggests that current and potential users need more information about recreational opportunities and access sites, and that a marketing approach could generate more recreational activity than new launch sites.

Different Uses of the Riverfront

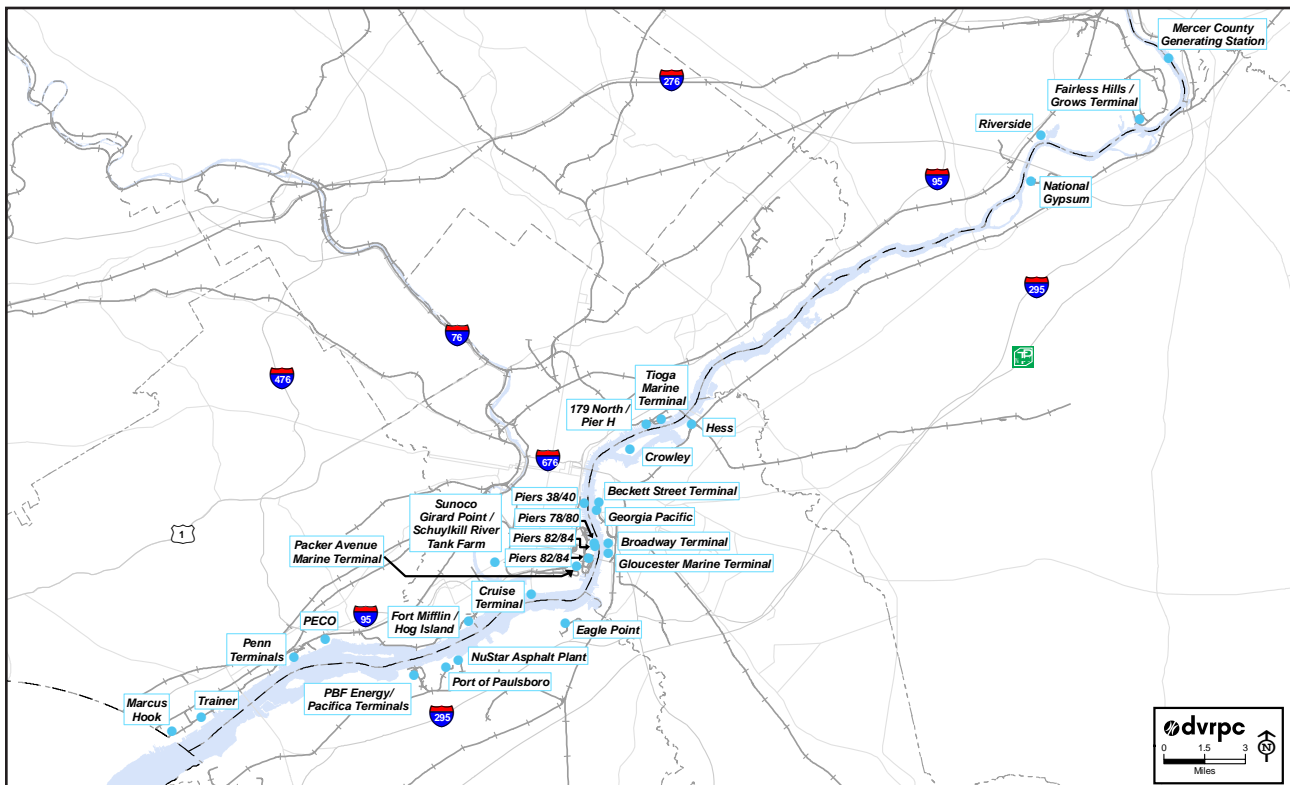
Industry and “Working” Waterfronts

The Delaware Estuary is home to a variety of shipping-related facilities (see Figure 9). There are 48 active deepwater berths of 35 feet or deeper, which includes the ports of Wilmington, Philadelphia, and South Jersey. These facilities handle bulk cargo, containers, and break bulk commodities. Although many of the facilities are public, there are also private facilities, such as oil refineries. The Delaware Estuary is the second largest oil port in the United States; it handles about 85 percent of the East Coast’s oil imports. The ports are also well-known for importing fruit and cocoa beans. Other leading commodities include iron, steel, cement, concrete, nuts, food products, meat, slag, and recyclable materials. Excluding barges, the river gets approximately 250 cargo ships and tankers per month, or 3,000 ships per year.



Packer Avenue Marine Terminal, PRPA’s busiest facility, is located on 112 acres south of the Walt Whitman Bridge in Philadelphia. It features seven cranes to load and unload cargo from ships.

Figure 9: Port Facilities



This map shows the port facilities, both public and private, between Marcus Hook and Trenton on both the Pennsylvania and New Jersey sides of the Delaware River.

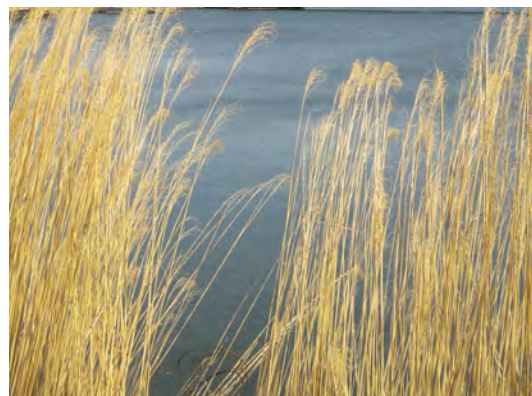
Table 7: Cargo in Metric Tons and Twenty-foot Equivalent Units (TEUs) Entering Delaware River Ports

Year	Metric Tonnage	TEUs
2005	69,518,905	491,940
2006	66,583,918	508,691
2007	74,178,495	562,465
2008	66,002,973	550,741
2009	67,241,146	434,435

Source: PRPA, October 2010



Condominiums and townhouses built on the waterfront often inadvertently price small waterfront businesses out.



Wetlands help prevent flooding and filter pollutants out of precipitation.

Although there is no umbrella organization for port-related activities in the Delaware Estuary, there are several active organizations, including the Philadelphia Regional Port Authority (PRPA) for the Port of Philadelphia; the South Jersey Port Corporation (SJPC) for the Port of Camden, New Jersey; the Diamond State Port Corporation (DSPC) for the Port of Wilmington, Delaware; and the Delaware River Port Authority (DRPA), a bi-state agency. Many of these organizations are part of DVRPC’s freight advisory committee, the Delaware Valley Goods Movement Task Force, which is open to representatives from trucking, railroads, ports, airports, shipping, freight forwarding, economic development, and local government. The Maritime Exchange for the Delaware River and Bay, a nonprofit trade association representing approximately 300 port and related businesses from Delaware, Pennsylvania, and New Jersey, estimates that the tri-state port complex contributes over \$4 billion to the regional economy, \$1.5 billion in wages and salaries, and \$150 million in state and local taxes on an annual basis. It is also an important regional employer, supporting over 75,000 direct, indirect, and induced jobs (see Table 7 for cargo volumes entering Delaware River ports).

Commercial Fishermen of America defines “working waterfronts” as marinas, boat repair yards, fish piers, and charter fishing docks. The organization argues that working waterfronts are disappearing across the United States as land is rapidly converted into private residential developments and non-water-dependent businesses due to the public’s desire to live by the water. According to a 2002 report prepared for the Pew Oceans Commission entitled *Coastal Sprawl: The Effects of the Urban Design on Aquatic Ecosystems*, waterfront land values and taxes are rising at astronomical rates. This has the effect of pricing existing small businesses out of the waterfront areas. Following the September 2010 National Working Waterways and Waterfronts Symposium, representatives from several federal, state, and local governments and organizations announced the formation of a National Working Waterways and Waterfronts Coalition, which will focus on education and awareness of the value of working waterways and waterfronts to local economies.

Natural Ecosystems

In addition to the value of creating residential, industrial, and open space facilities along the Delaware River, there is also great value in preserving natural areas. Wetlands are vitally important for several reasons. First, they act as sponges by trapping runoff water during rainstorms and slowly releasing it later; this helps prevent flooding and associated damages downstream. Second, wetlands act as filters. They help clean up polluted runoff from the land. Finally, wetlands provide habitat for animals, including macroinvertebrates, fish, amphibians, birds, mammals, and reptiles. Removing wetlands in one area of the world can often have global im-

plications. For instance, wetlands are often used as stopping points for animals during their annual migration. Additionally, wetlands serve as carbon sinks and thereby help to moderate global climate conditions.

Most of Pennsylvania's coastal wetlands have been lost. At 1,200 acres, the John Heinz National Wildlife Refuge, which straddles the border between Delaware County and the City of Philadelphia, is Pennsylvania's largest remaining freshwater tidal marsh. Established in 1972, it is home to many species of wildlife, including 300 species of birds, as well as foxes, deer, muskrats, turtles, fish, frogs, and many plants and wildflowers. It is open to the public.

Once damage is done to natural ecosystems it is often difficult and costly to undo. For example, it cost more than \$84 million to clean up the 115 miles of the Delaware River and 280 miles of shoreline that were affected by the Athos I oil spill on the Delaware River in 2004. Environmental protection is one area where it pays to be proactive; the New Jersey Department of Environmental Protection (DEP) found that every \$1 invested in watershed protection could save between \$7.50 and \$200 in costs associated with constructing or upgrading water treatment and filtration facilities.

Freshwater mussels are an important indicator species because they are very sensitive to changes in water quality and habitat degradation. They are some of the Delaware Estuary's most imperiled animals; all but a few of the estuary's native mussel species are in danger of being wiped out. Mussels provide a variety of useful functions, including filtering water, enriching the food supply, stabilizing riverbeds, and enhancing habitat.

Open Space, Recreation, and Tourism

It is important to keep the Delaware River clean to encourage additional use of the riverfront for recreational purposes, such as trails, biking, boating, and fishing. A clean river increases park attendance and recreational revenues.

Trails

Recently, there has been an increased interest in riverfront multi-use trails. Many of the existing and proposed trails in the study area are part of the East Coast Greenway (ECG), a 3,000-mile trail system that is currently under construction between Canada and Key West, Florida. The intention is to link all the major cities on the East Coast with an off-road, multi-use trail. Approximately 20 percent of the permanent route through Pennsylvania has been constructed, and another 34 percent is in development. In 2010, the Pennsylvania Environmental Council, Bicycle Coalition of Greater Philadelphia, City of Philadelphia, and Camden County Parks Department won a \$23 million U.S. Department of



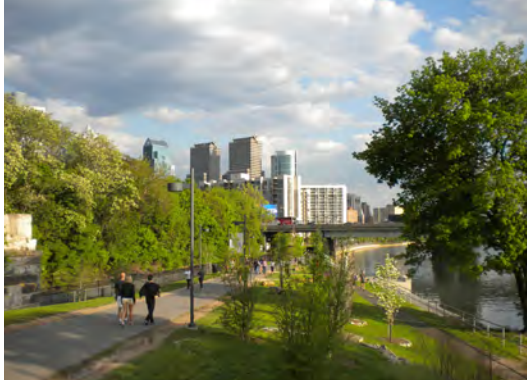
Preventing pollution is easier than cleaning it up once it has occurred.



The Partnership for the Delaware Estuary (PDE) is studying whether mussels can once again flourish in southeastern Pennsylvania's waterways. Source: PDE



A portion of the East Coast Greenway near Tyburn Road and Old Bristol Pike in Bucks County.



Many people enjoy walking, bicycling, and jogging along Schuylkill Banks in Philadelphia. Similar multiuse trails are planned for the Delaware River.



A sailboat cruises the Delaware near Penn's Landing in Philadelphia.

Transportation TIGER (Transportation Investment Generating Economic Recovery) grant. This will fund the completion of ten key trail links in Philadelphia and Camden, including the Delaware Avenue Trail between Allegheny Avenue and the Betsy Ross Bridge in Philadelphia (see Figures 13–15 for maps of the East Coast Greenway and Open Space in the study area).

Biking

Biking is also a popular recreation activity in the Delaware Valley region. According to a 2005 DVRPC study, 61 percent of Delaware Valley bicyclists used bikes for utilitarian purposes (commuting to school or work, work-related, social visits and errands) while 35 percent used them for recreation. According to a 2011 Bicycle Coalition study, Philadelphia has twice as many cycling commuters per capita as any other big city in the United States. The Bicycle Coalition attributes the increase in biking in recent years to higher gas prices, a growing obesity epidemic, the 2005 SEPTA strike, the completion of one mile of the Schuylkill River Trail between the Philadelphia Art Museum and Locust Street in 2004, heightened awareness about global warming and sustainability, and a growing urban bicycle culture.

Boating and Fishing

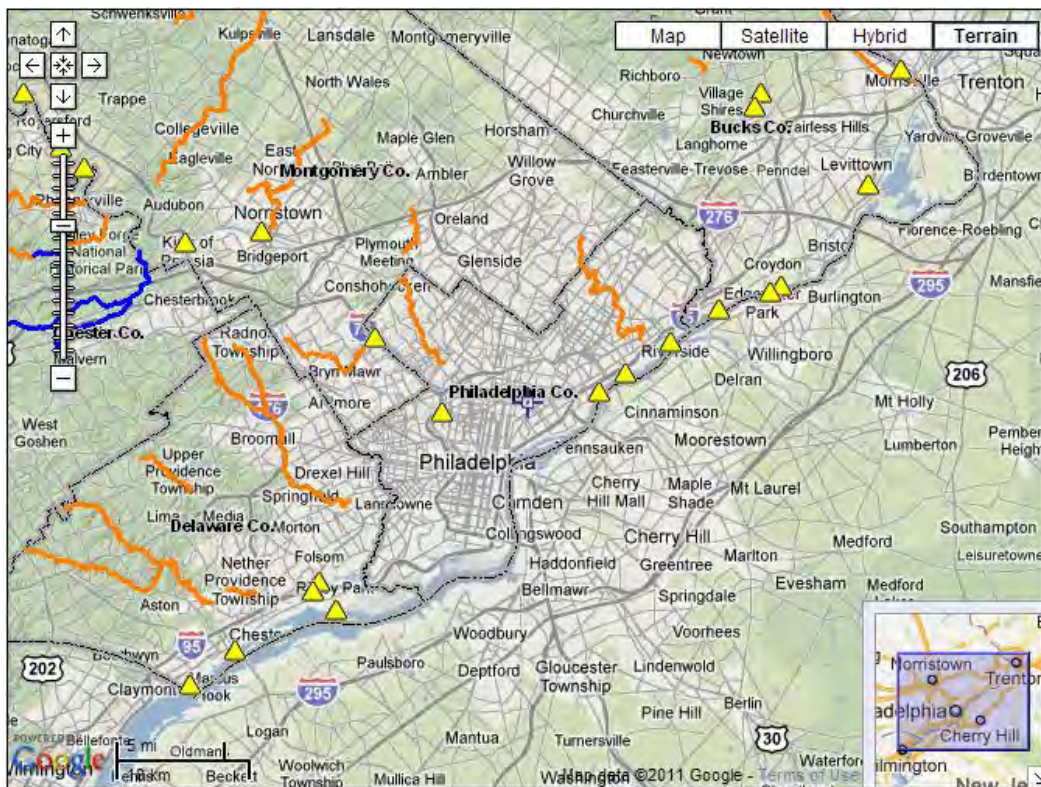
Pennsylvania's Fishing and Boating Access Strategy asserts that fishing and boating are popular recreational activities in Pennsylvania. In 2008, Pennsylvania sold 1,424,636 fishing licenses and permits and registered 338,556 boats (see Table 8). The Pennsylvania Fish and Boat Commission (PFBC) owns or controls over three hundred boating access sites in the Commonwealth. These sites vary considerably; some offer no facilities, while others offer boat ramps and parking lots. Approximately 13 are located in the study area. (See Figure 10 for PFBC access locations in the study area. Fishing and boating licenses data is provided by Hydrologic Unit Code [HUC] 8 watershed. See Figure 11 for HUC 8 watersheds that contain portions of the study area.)

Table 8: Fish & Boat Licenses by Watershed

HUC 8 Watershed	Area (acres)	Population	Current # of Fishing Licenses	Current # of Boating Licenses	Fish Licensees as % of Total Population	Boat Licensees as % of Total Population
Lower Delaware	246,060	1,923,572	31,011	10,746	1.6	0.6
Crosswicks-Neshaminy	187,742	484,066	19,977	9,864	4.1	2.0

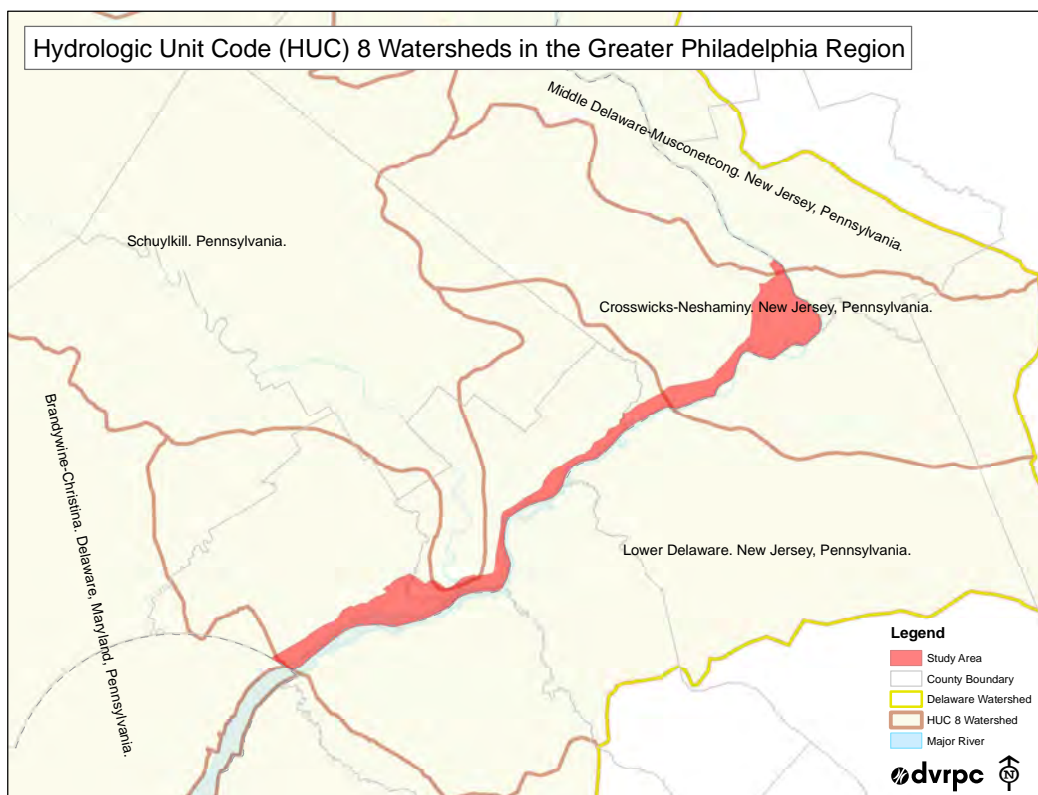
Source: 2010 Pennsylvania Fish & Boating Access Study

Figure 10: Pennsylvania Fish & Boat Commission Access Sites



Pennsylvania Fish and Boat Commission Access Sites are shown as yellow triangles in the figure to the left. There are approximately 13 in the study Area. Source: PA Fish & Boat Commission

Figure 11: HUC 8 Watersheds in relation to Study Area



For cataloging purposes, watersheds in the United States are identified by a unique hydrologic unit code (HUC) consisting of two to eight digits based on the four levels of classification in the hydrologic unit system, from the smallest (cataloging units) to the largest (regions). The Study Area falls mostly in Lower Delaware and Crosswicks-Neshaminy HUC 8 watersheds.

Figure 12: Delaware River Watershed



The Delaware River and its Watershed

The Delaware River is the last major undammed river in the eastern United States. It flows for 330 miles through 4 states, 42 counties, and 838 municipalities. It is fed by water that drains an area of 13,539 square miles (see Figure 12). Over 8 million people live in the Delaware River watershed, and even more (approximately 15 million, or 5 percent of the United States' population) obtain their drinking water from the Delaware. Many communities in the study area, including Philadelphia, Morrisville, and Bristol, draw their drinking water directly from the Delaware.

Delaware River Estuary

The coastal zone is an area where the land meets the sea. It includes coastal waters and their shore lands, as well as islands, marshes, and the shores of tributary streams that are tidally influenced. Pennsylvania's Delaware River coastal zone stretches for 57 miles between the falls near Trenton, New Jersey and the Pennsylvania–Delaware state border. Three Pennsylvania counties—Bucks, Philadelphia, and Delaware—lie alongside the Delaware Estuary, which is the world's largest freshwater port.

For millennia, humans have chosen to settle near bodies of water, and the Delaware River is no exception. Prior to European settlement, the Lenape settled along the shores of the Delaware River and used it for transportation and sustenance. Beginning in the early 1600s, English, Dutch, Swedish, Finnish, and German settlers arrived and settled the banks of the Delaware. By the late nineteenth century, fishermen caught enough shortnose sturgeon, Atlantic sturgeon, river herring, striped bass, and American shad in the Delaware that it had the largest annual commercial fish catch of any river on the Atlantic coast.

The Delaware River also became an industrial river. Early industries included timber rafting, shipbuilding, lumber and paper mills, tanneries, stone quarries, cement-making, iron, and coal. Although industrial use of the river has declined significantly since the middle of the twentieth century, there are still many industries that rely on Delaware River today, including steel manufacturing, chemical companies, paper mills, cement production facilities, and oil refineries.

Because people have lived, worked, and played along the shores of the Delaware River for hundreds of years, Pennsylvania's coastal zone has evolved into a tremendously complex area. The Delaware River waterfront contains a patchwork of different land uses. It is home to ecologically sensitive wetlands, important archaeological and historic sites, bustling port facilities, derelict industrial sites, grand mansions, and beloved parks and recreational facilities—often side by side.



Parts of the Delaware River watershed are in the Delaware and Lehigh National Heritage Corridor, which conserves cultural and natural resources in a five-county region along the historic Delaware and Lehigh Canals. This photo was taken near New Hope, Pennsylvania.



The Delaware River Falls between Trenton, NJ and Morrisville, PA



A chemical plant just north of the Commodore Barry Bridge in Chester, Pennsylvania

Appendices

See Appendix A for case studies of successful waterfronts in Alexandria, Virginia; Boston, Massachusetts; the Hudson River Walkway in New Jersey; and Wilmington, Delaware.

See Appendix B for a discussion about best practices for providing information to visitors through waterfront access maps.

See Appendix C for a list of funding opportunities related to waterfront projects and facilities.

See Appendix D for Transportation Improvement Program projects.

See Appendix E for Waterfront Plans and Studies.

Sea Level Rise in the Delaware Estuary

During the past century, estimates indicate that global sea level rose by about 6 inches (15 cm). During the same period, sea level rose by double in the Delaware Estuary; it rose by 1 foot (30 cm) due to both globally rising seas and subsistence in the Mid-Atlantic region. In this century, the International Panel on Climate Change (IPCC) predicts that global sea level will rise by as much as 3 feet (90 cm), though it will undoubtedly continue to be higher in the Mid-Atlantic Region. For this reason, it is quite possible that the region's coastal access sites will be subject to increased inundation, erosion, and flooding in the future. It is important to consider future climate change and sea level rise when discussing waterfront access.

Coastal Zone Management

Increasing numbers of people are moving to coastal zones across the United States. According to the U.S. Commission on Coastal Policy's 2004 *An Ocean Blueprint for the 21st Century* report, coastal watershed counties comprise less than 25 percent of the land area of the United States, yet they are home to more than 52 percent of the total United States population. Estimates indicate an average 3,600 people per day will move to coastal counties, for a total coastal population of 165 million by 2015. As a result, these areas are increasingly threatened by development, shoreline erosion, biodiversity losses, and non-point-source pollution.

The United States Congress responded to the development pressures in coastal areas by passing the Coastal Zone Management Act (CZMA) in 1972. The CZMA aims to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." Pennsylvania created a Coastal Zone Management Plan in 1980, which created a Coastal Resources Management Program (CRM) under the PA DEP. The CRM receives funding from the National Oceanic and Atmospheric Administration (NOAA), which it then redistributes to local governments, state agencies, and nonprofit organizations that undertake projects in the coastal zones.

Figure 13: East Coast Greenway & Open Space Map: Bucks County

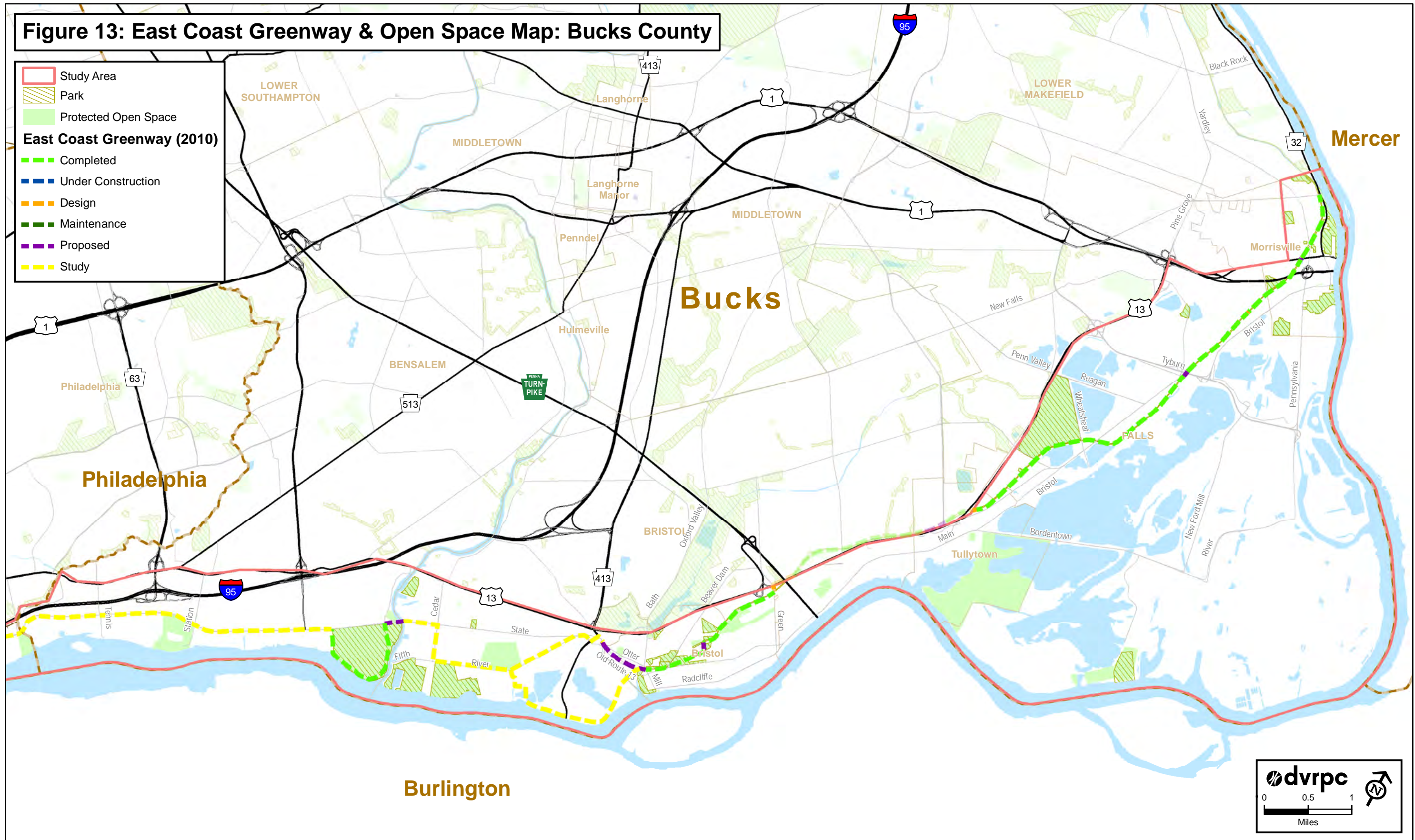
Study Area

Park

Protected Open Space

East Coast Greenway (2010)

- Completed
- Under Construction
- Design
- Maintenance
- Proposed
- Study



dvrpc

0 0.5 1

Miles

Figure 14: East Coast Greenway & Open Space Map: Philadelphia County

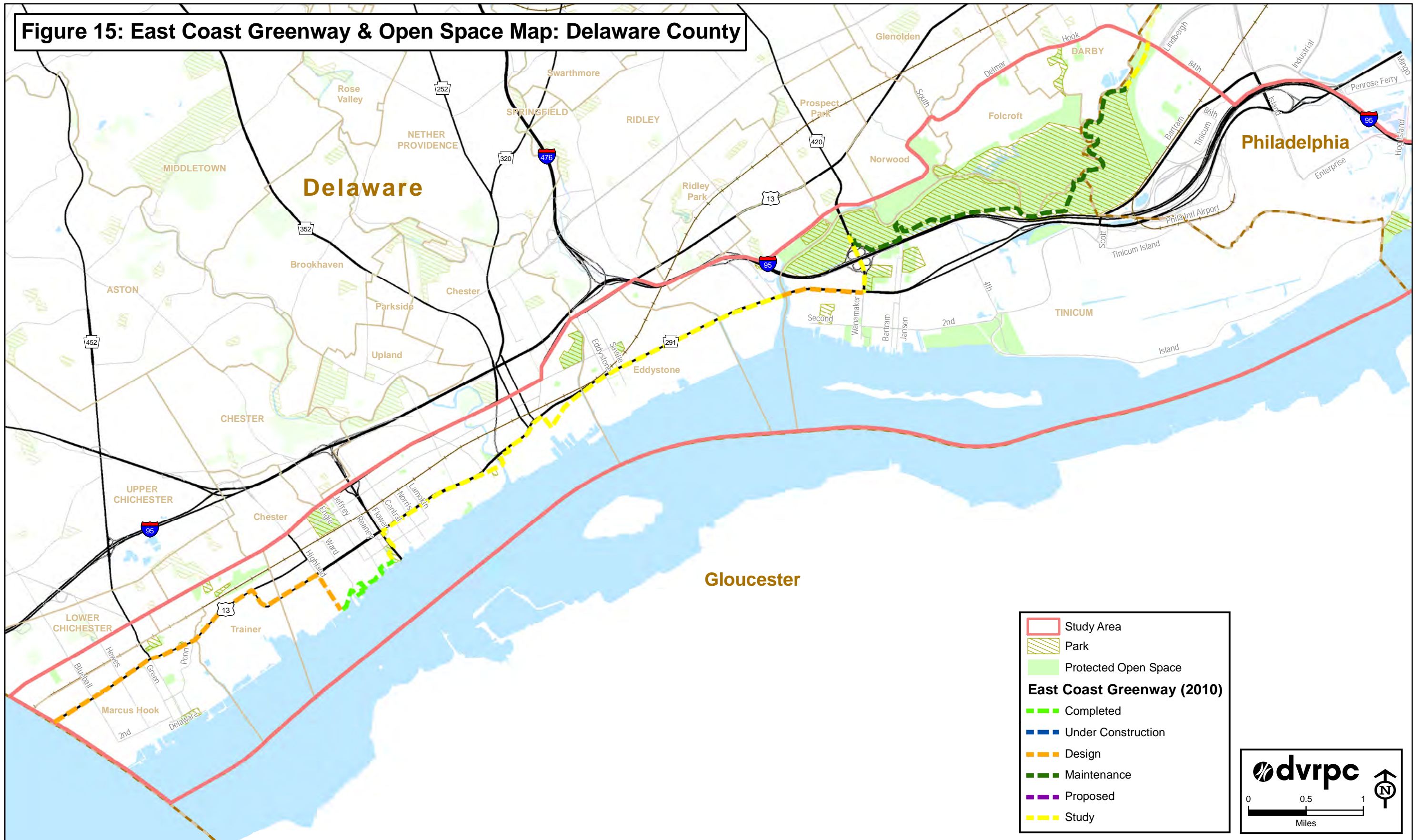


	Study Area
	Park
	Protected Open Space
East Coast Greenway (2010)	
	Completed
	Under Construction
	Design
	Maintenance
	Proposed
	Study

dvrpc

0 0.5 1
Miles

Figure 15: East Coast Greenway & Open Space Map: Delaware County



Legend

- Study Area
- Park
- Protected Open Space
- East Coast Greenway (2010)**
- Completed
- Under Construction
- Design
- Maintenance
- Proposed
- Study

dvrpc

0 0.5 1
Miles

Regional Location Map

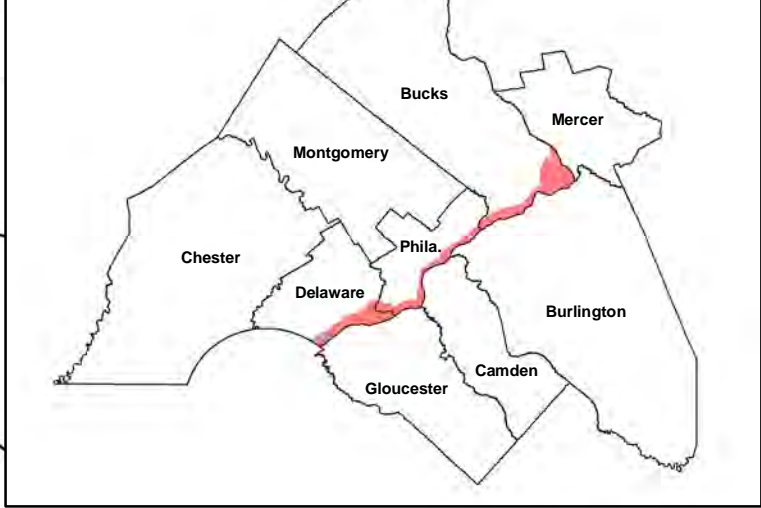
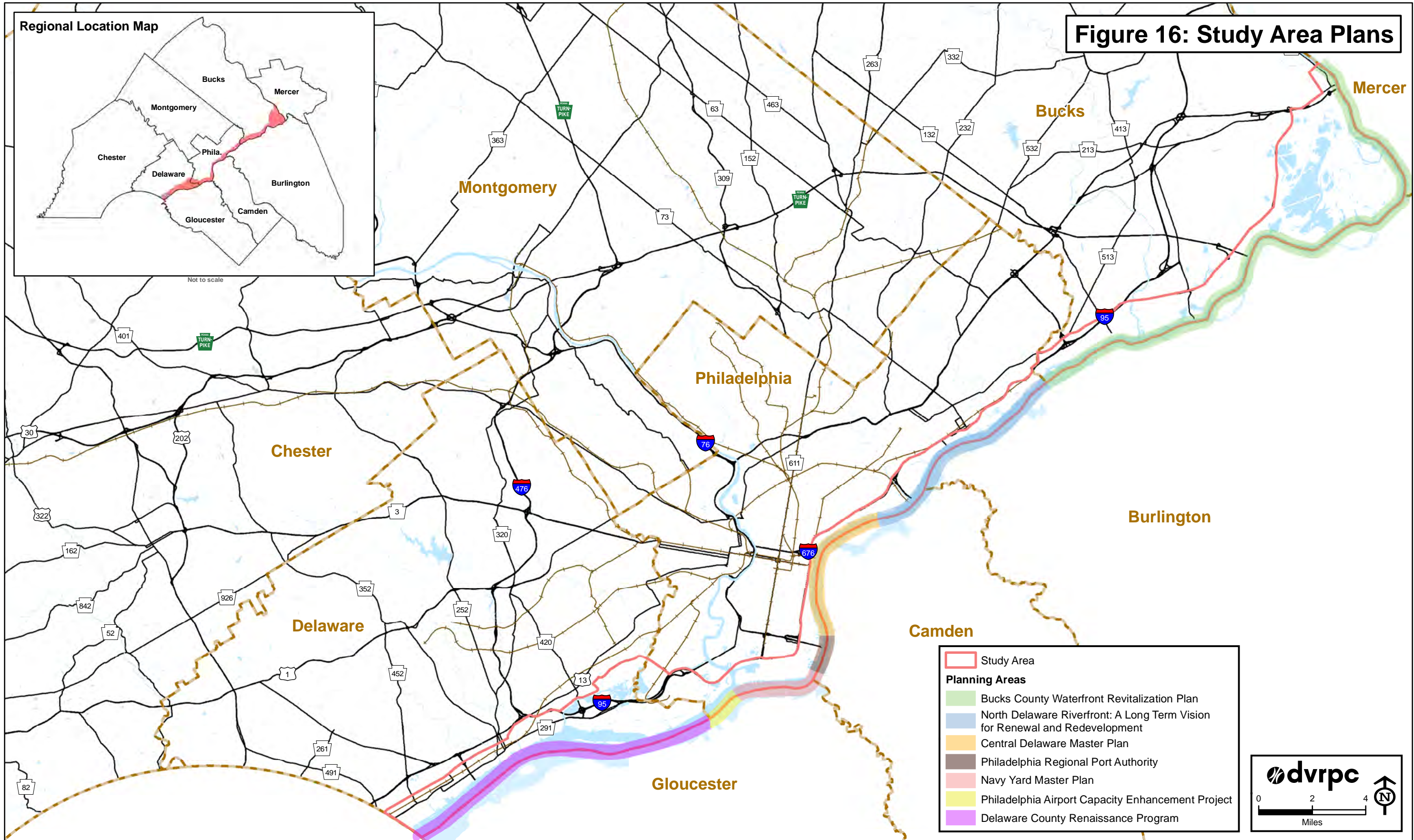


Figure 16: Study Area Plans



Study Area

- Study Area

Planning Areas

- Bucks County Waterfront Revitalization Plan
- North Delaware Riverfront: A Long Term Vision for Renewal and Redevelopment
- Central Delaware Master Plan
- Philadelphia Regional Port Authority
- Navy Yard Master Plan
- Philadelphia Airport Capacity Enhancement Project
- Delaware County Renaissance Program

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0 2 4
Miles

Section Two: Planning and Investment Along the Delaware River

Recent Planning Efforts

A review of recent plans concluded that there are no major planning gaps in the study area. Every stretch of the waterfront is under the jurisdiction of at least one of the plans or under the guidance of a major agency, such as the Philadelphia Regional Port Authority. Each of the plans has identified subareas that are considered priority or opportunity areas. An abbreviated list of plans within the study area is found in Appendix E. Major waterfront plans in the study area are summarized below, and the approximate focus areas of several of these plans are shown in Figure 16.

Major Plans in the Study Area

Regional Plans

Connections 2035: DVRPC's Long Range Plan (2009)

DVRPC's *Connections 2035: The Regional Plan for a Sustainable Future* (2009) uses mapping, planning, analyses, and public input to create a vision for the region's future. The plan's key principles include managing growth and protecting resources, developing livable communities, building an energy-efficient economy, and establishing a modern, multimodal transportation system. The long-range plan identifies appropriate areas for future growth and infrastructure. Regional Indicators track progress toward its goals. Most of the land in the Delaware River study area is identified as "Existing Development" or "Greenspace Network." Only a small portion along the border between Bristol Township and Bristol Borough is identified as "Future Growth," and the area around Van Sciver Lake and Manor Lake in Bucks County is identified as "Rural Conservation Lands."

The plan recommends concentrating growth in recognized centers. There are several centers in the study area, including the metropolitan center (Center City/University City), two core cities (Philadelphia and Chester), several metropolitan subcenters (Philadelphia International Airport and the Navy Yard/Sports Complex), and three town centers (Marcus Hook, Bristol Borough, and Morrisville).

The Bucks County Waterfront

Bucks County Waterfront Revitalization Plan (2005)

Prepared for: Redevelopment Authority of Bucks County, County of Bucks, Bensalem Township, Bristol Borough, Bristol Township, Falls Township, Morrisville Borough, and Tullytown Borough



Center City Philadelphia is a metropolitan center targeted for growth in DVRPC's Long Range Plan.



The Navy Yard, which is home to over 300 historic buildings, is part of the Navy Yard/Sports Complex metropolitan subcenter in DVRPC's Long Range Plan.



Marcus Hook in Delaware County is a town center in DVRPC's Long Range Plan.



Some of the utilities at the Keystone Industrial Port Complex (KIPC) in Falls Township, Bucks County.

If the vision of the Bucks County Waterfront Revitalization Plan is realized, in 2025 the Lower Bucks County Delaware River waterfront will be a “vibrant and accessible waterfront with a public riverwalk flanked by natural areas, stable existing communities complemented by vibrant new businesses and residential uses.” The six key themes of the plan are: 1) Enliven the river’s edge by improving waterfront access; 2) Incorporate design with development to improve the attractiveness of the area and foster its renaissance; 3) Enhance the economy by fostering redevelopment of underutilized lands and buildings; 4) Expand mobility and accessibility to and within the study area; 5) Foster environmental sustainability of the Delaware River and its tributaries; and 6) Reinforce our sense of place and identity by reinforcing key historic and community assets. The four main sections of the plan are: Plan Development, General Recommendations, Primary Opportunity Areas, and Implementation.

Keystone Industrial Port Complex (KIPC)

The Keystone Industrial Port Complex (KIPC) is located on the former U.S. Steel site in Falls Township (which prior to that was an asparagus farm in the 1950s). At the height of U.S. Steel manufacturing operations in the 1980s, before it became a brownfield, the site employed 10,000 people. In 2005, the site received a Keystone Opportunity Improvement Zone (KOIZ) designation, which reduces or eliminates state and local tax burdens through 2018. The six-square-mile site is a “distribution gold mine,” because of its port, private roadways, and 75 miles of private railroad track. It also has its own water, wastewater, and electrical utilities. U.S. Steel’s plans for the site are to continue to generate tax ratable investments, create high-paying manufacturing jobs, reuse the existing infrastructure, and manage the legacy costs associated with the existing environmental contamination.

The Philadelphia Waterfront

North Delaware Riverfront, Philadelphia: A Long-Term Vision for Renewal and Redevelopment (2001)

Prepared for: Philadelphia City Planning Commission (PCPC)

This report was part of an effort to revitalize 10 miles of riverfront along the North Delaware between the Ben Franklin Bridge and the Philadelphia/Bucks County boundary. It notes that I-95, the Northeast Rail Corridor, and many industrial sites “severed” the City and its neighborhoods from the river. The Concept Plan allows for the continuation of healthy businesses and industrial sites but proposes transforming some of the derelict areas into 5,000 new residential units and three million square feet of commercial/office space. If fully implemented, the plan would bring 10,000 new residents to the 3,000-acre study area.

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

Prepared for: Delaware River City Corporation (DRCC)

This report analyzes the possibility of creating an eight-mile-long continuous greenway and trail system in North Philadelphia. The authors analyzed three scenarios—"As Is" Riverfront, "Borrowed Landscape," and "Public Greenway"—and concluded that the Public Greenway option would provide the most public recreation, open space, and economic development benefits. DRCC was established in 2005 to coordinate the implementation of the plan and to subsequently take responsibility for maintenance and operation of the Greenway as sections are completed. This greenway master plan focuses on four neighborhoods—Bridesburg, Wissinoming, Tacony, and Holmesburg—and was endorsed by PCPC in October 2006.

The Civic Vision for the Central Delaware (2007)

Prepared for: Central Delaware Advisory Group

The William Penn Foundation initiated the Central Delaware riverfront planning process in response to the ad hoc, uncoordinated riverfront development that was occurring in Philadelphia. The goal was to create a large-scale, open, transparent civic visioning and planning process for the seven-mile section of the Delaware River between Oregon Avenue and Allegheny Avenue. The Civic Vision aims to create a world-class riverfront by offering a framework for development founded on public riverfront access and urban design excellence. The civic principles that underlie the vision are: 1) Reconnect the city to the river's edge; 2) Honor the river; 3) Design with nature; 4) Strike the right balance; 5) Take the long view; 6) Protect the public good; and 7) Make it real, Philadelphia.

The Central Delaware Action Plan (2008)

Prepared for: Central Delaware Advisory Group

Following the release of the Civic Vision for the Central Delaware, PennPraxis released a ten-step Action Plan to make the Central Delaware a vibrant, open, green, and connected riverfront. The ten actions include: 1) Appoint an open, accountable, effective waterfront manager; 2) Adopt clear zoning, a detailed master plan, and a coordinated regulatory policy; 3) Build a continuous seven-mile trail along the Central Delaware riverfront; 4) Create new parks and improve two existing parks; 5) Guarantee public access to the riverfront and make it easier for residents to walk and bike to the river; 6) Extend transit to the river; 7) Extend key streets to the river; 8) Manage traffic and parking in the central Delaware area; 9) Create a 100-foot greenway along the water's edge; and 10) Create a natural river's edge and restore habitat.



The Race Street Pier, which opened in 2011, is a new waterfront park along the Central Delaware in Philadelphia.

The Master Plan for the Central Delaware (2011)

Prepared for: Delaware River Waterfront Corporation (DRWC)

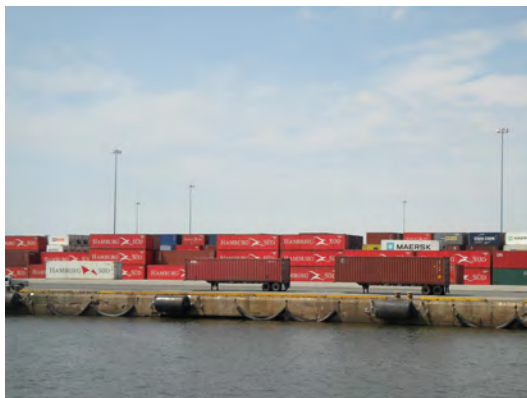
DRWC's *Master Plan for the Central Delaware* is a framework for growth along the Delaware that utilizes the core principles from the Civic Vision and includes actions from the Action Plan. The overall goal is to enhance the value of vacant and underutilized waterfront parcels by investing in public infrastructure that will reconnect the waterfront to the adjacent neighborhoods and the city as a whole. These projects, such as streets, parks, and trails, will create a public realm along the waterfront as well as make essential aesthetic improvements to connector streets between the city's neighborhoods and the Delaware River.

The plan includes parks spaced approximately every ½ mile along the waterfront that are connected by both on- and off-street trails. The plan accommodates diverse land uses, ranging from the working port, light industrial, hotel, commercial, retail, and low to mid-rise residential. The illustrative plan includes recommendations for the creation of 120 acres of waterfront parks, 64 acres of neighborhood parks, 24 acres of recreation under I-95, and 32 acres of multiuse trails (5 miles in length). The multimodal transportation plan includes facilities for transit, automobiles, bicycles, and pedestrians that serve walkable communities and link waterfront destinations. There are currently 72 streets that connect the city neighborhoods to I-95. Of these streets, 47 go over or under I-95, with 34 streets connecting to the waterfront. The street and block plan includes 50 percent development, 30 percent streets and 20 percent open space.

Philadelphia Regional Port Authority (PRPA)

PRPA is an independent agency of the Commonwealth of Pennsylvania charged with managing, maintaining, marketing, and promoting the public port facilities along the Delaware River in Philadelphia. It owns the largest general cargo facilities in the region, including ten terminals (Tioga Marine Terminal, Piers 38–40, Piers 78–80, Pier 74, Pier 82, Pier 84, Piers 96, Pier 98, Pier 98 Annex, and Packer). Philadelphia's port is the #1 perishables port in the United States. It is also an important steel, forest products, and cocoa port.

DVRPC met with PRPA to learn about their future plans and how they relate to access along the Delaware River. Unlike other landlocked ports, Philadelphia's port has room to grow. Because most of the future port growth is expected to be in containers, especially after the expansion of the Panama Canal, the PRPA plans to construct Southport, a 150-acre container terminal on the eastern portion of the Navy Yard property. Construction is estimated to start in 2011, and the facility is anticipated to be completed within five to seven years. It will create approximately 2,000 jobs when fully functional.



Containers at the Philadelphia Regional Port Authority's Packer Avenue Marine Terminal.

Ports are only as good as their inland access. Although many of the outbound shipments from the facility will exit via rail, additional streets are necessary in order to move forward with this project. PRPA is currently working with Urban Engineers and the Philadelphia Streets Department to increase access to the site to more than just a service road.

Navy Yard Master Plan (2004)

Prepared for: Philadelphia Industrial Development Corporation (PIDC), Liberty Property Trust, and Synterra Partners

The Philadelphia Navy Yard, located 3.5 miles south of City Hall, encompasses an area larger than Center City. As of 2004, its 1,200 acres contained 282 existing buildings, of which 233 are historic structures, and seven miles of waterfront. The 2004 Navy Yard Master Plan envisions transforming the Navy Yard into five districts: the Historic Core, the Corporate Center, the Research Park, the Marina District, and the East End. The goal is to create a mixed-use urban community that is active 24 hours a day, 7 days a week.

Greater Philadelphia Innovation Cluster (GPIC)

GPIC is a consortium of academic institutions, federal laboratories, global companies, and regional economic development agencies, who joined forces to apply for a Department of Energy (DOE) grant. The DOE awarded GPIC a \$122 million grant to establish an Energy Innovation Hub for Energy-Efficient Buildings at the Navy Yard. Additional funding came from the Commonwealth of Pennsylvania and other sources. The goals are to improve energy efficiency of new and existing buildings, as well as create jobs in the Greater Philadelphia region. GPIC has five areas of activity: Design Tools; Integrated Technologies; Policy, Markets and Behavior; Education and Workforce Development; and Deployment and Commercialization. The Navy Yard is an ideal laboratory because of the large number of existing buildings that can be used as testing grounds for energy-efficient retrofits and its separate electric distribution grid.

Philadelphia International Airport (PHL) Capacity Enhancement Project (CEP) (2010)

Philadelphia International Airport (PHL), approximately seven miles southwest of Center City Philadelphia, straddling the Philadelphia–Delaware County line, is a 2,370-acre facility that includes four runways and seven terminals.

The Federal Aviation Administration (FAA) identified Philadelphia International Airport as one of several airports causing delays in the National Airspace System. In 2009, PHL was the ninth busiest airport in the United States in terms of total aircraft operations. With 26,812 flights delayed by 15 minutes or more, PHL was also the fourth most congested airport in the country. In addition to capacity problems, another factor contributing to the delays is the airfield’s current con-



As of 2011, there were more than 90 companies with over 7,000 associated employees at the Navy Yard.



Several of the buildings at the Navy Yard will receive energy efficiency upgrades as part of the GPIC’s Energy Innovation Hub for Energy-Efficient Buildings.

Table 9: Annual Tons of Air Cargo
Passing Through Philadelphia International Airport (PHL)

Year	Tons of Air Cargo
2005	582,010
2006	566,761
2007	580,057
2008	531,251
2009	457,113

Source: Philadelphia International Airport, October 2010



Marcus Hook in Delaware County is the southern most town in the Study Area. Sunoco operated a refinery and a polymers plant in Marcus Hook, but abruptly shut down the refinery in December 2011.



The Lazaretto in Essington is the oldest surviving quarantine facility in the Western Hemisphere. It was active in the 1800s. It was also the first seaplane base in Pennsylvania.



PPL Park in Chester City is a 18,500-seat Major League Soccer stadium that is home to the Philadelphia Union team. The stadium, which is located just south of the Commodore Barry Bridge, can also be converted to a 26,000 seat concert venue.

figuration, which is inadequate during poor weather conditions. The FAA prepared an Environmental Impact Statement (EIS) to identify alternatives to the proposed airport expansion and evaluate the impact of each of the alternatives. The EIS recommended an alternative that adds an additional runway, requires filling in a portion of the Delaware River, and relocates Cargo City and the UPS facility into an existing residential neighborhood in Tinicum Township. The estimated cost of this alternative is \$5.35 billion according to the FAA; Philadelphia city estimates the cost at \$6.4 billion, while U.S. Airways estimates the cost as high as \$10.5 billion.

The Delaware County Waterfront

The Delaware County Waterfront Resources Management Plan (1992)

Prepared for: Delaware County Planning Department

Prior to 1980, the Delaware River waterfront in Delaware County experienced decline and deterioration. There was a great deal of subdivision activity in the coastal zone in this area between 1981 and 1992, prompting this study, which addresses public access, economic revitalization, tourism, and other water-dependent activities.

Delaware County Coastal Zone Compendium of Waterfront Provisions (1998)

Prepared for: Delaware County Planning Department

This document provides the basis to promote public access, economic revitalization, tourism, and other water-dependent activities. It is a follow-up to the 1992 above-named plan that assessed the opportunities and constraints of the Delaware County waterfront in terms of historic, cultural, natural, and recreation resources. The document details the process necessary to effectively plan for a waterfront environment.

Delaware County Industrial Heritage Parkway: Route 291/13 Beautification and Greenway Plan (2002)

Prepared for: Delaware County Planning Department

The Route 291/Route 13 corridor is a ten-mile corridor in Delaware County that links waterfront communities between the Philadelphia International Airport and the Delaware/Pennsylvania border. The goal of the plan is to improve the appearance of the corridor in hopes of attracting new, high quality development. The Industrial Heritage Parkway, which will include parts of the East Coast Greenway multi-use trail, will highlight the area's industrial history, waterfront access, and open space resources. This report outlines the status of various trail segments in Pennsylvania and New Jersey.

The Renaissance Program – Planning Area Action Plans (2003)

Prepared for: Delaware County Planning Department

Delaware County's Renaissance Program encourages orderly land development and revitalization while protecting open space. The initiative focuses on 29 municipalities in the eastern and southern parts of the county, where the municipalities face aging infrastructure and declining investment. Through the program, five multi-jurisdictional Action Plans were prepared in areas of similar planning context. Planning Areas 1, 2, and 3 contain waterfront communities. Planning Area 1 includes Lower Chichester Township, Marcus Hook Borough, and Trainer Borough. Planning Area 2 includes the City of Chester, Chester Township, Parkside Borough, and Upland Borough. Planning Area 3 includes Eddystone Borough, Morton Borough, Ridley Park Borough, Ridley Township, Rutledge Borough, and Tinicum Township.

Delaware County Route 291/13 Industrial Heritage Parkway and Greenway Landscape and Signage Guidelines (2005)

Prepared for: Delaware County Planning Department

This study is a follow-up to the 2002 Route 291/13 Beautification and Greenway Plan. To complete the vision of the plan, the landscaping and signage project manual creates a unified graphic identity for the corridor segments and a way to provide clear access to destination points. In addition to background information and maps of study area, the document covers Industrial Heritage Parkway (IHP) and East Coast Greenway (ECG) Coordination, IHP landscape types, ECG landscape types, hardscape guidelines, greenscape guidelines, signage and graphics guidelines, and municipal signage recommendations.

Environmental Justice and Access to the Riverfront

Environmental justice is important in determining access needs. The following analysis demonstrates the need for non-vehicular public access to the Delaware riverfront.

Title VI of the Civil Rights Act of 1964 and the 1994 President's Order on Environmental Justice states that no person or group shall be excluded from participation in or denied the benefits of any program or activity utilizing federal funds. As the Metropolitan Planning Organization (MPO) for the nine-county region, DVRPC is charged with evaluating plans and programs for environmental justice (EJ) sensitivity to historically disadvantaged populations.

In response, DVRPC has developed an environmental justice methodology that quantifies levels of disadvantage within the region for eight potentially disadvantaged groups: non-Hispanic minorities, Hispanic, limited English proficiency (LEP) households, persons with a physical disability, elderly over 75 years of age, carless households, female heads of

household with children, and households in poverty. Census tracts with a population that exceeds the regional average for any of these defined groups are considered EJ-sensitive. Accordingly, census tracts can be characterized as having zero to eight degrees of disadvantage (DOD). Figure 17 displays the degrees of disadvantage for the 83 census tracts that are wholly or partially located within the study area.

Table 10 summarizes the presence of EJ-sensitive populations within each county in the study area. This analysis highlights three major concerns within the study area: the large concentration of potentially disadvantaged populations found in portions of Philadelphia and Delaware counties, the relatively high incidence of carless households in Philadelphia, and persons with physical disabilities in all three counties. Projects recommended in the study area should be evaluated based on the extent to which they impact these sensitive populations.

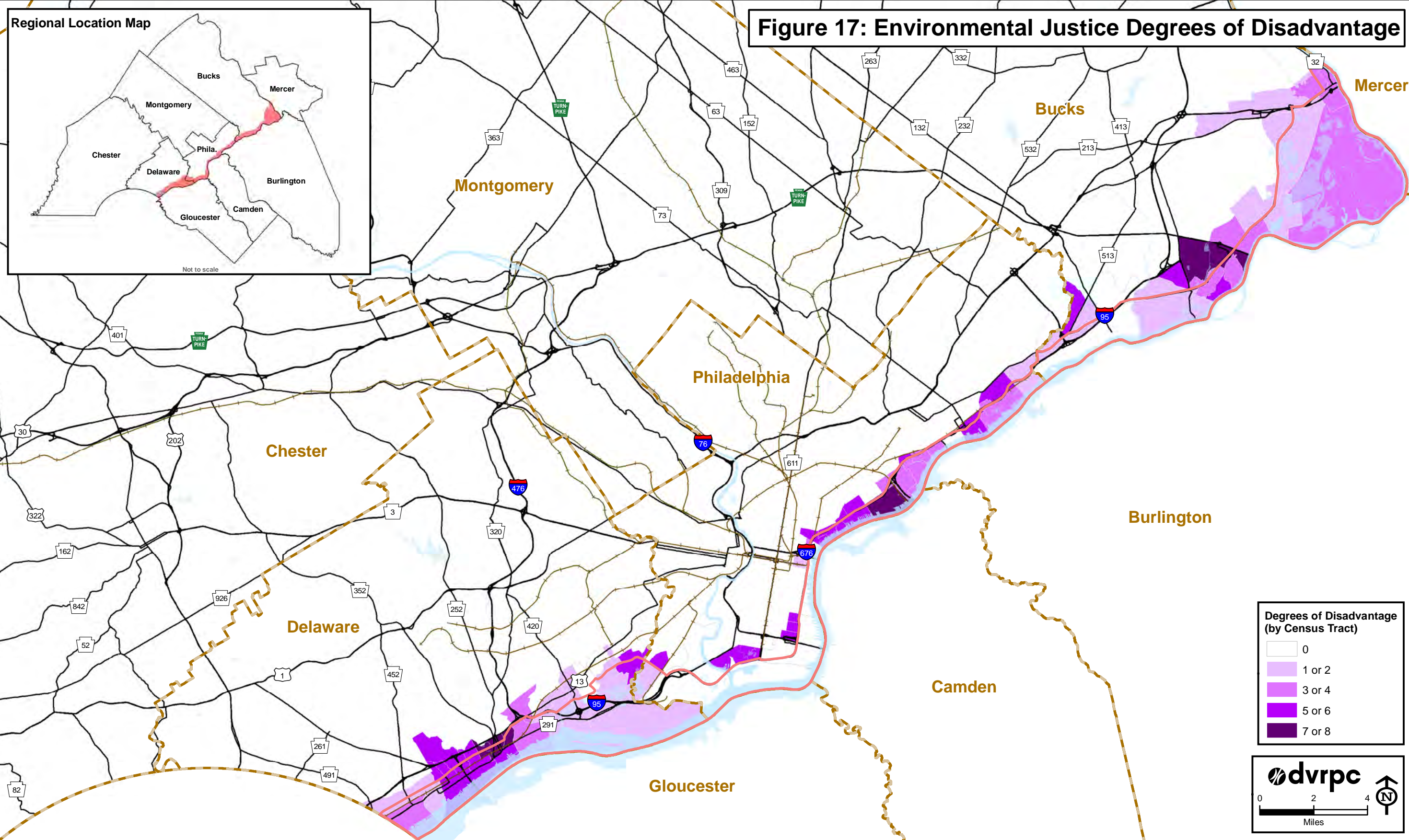
For planning purposes, these population characteristics reinforce the need for affordable, safe, and convenient transportation options throughout the study area. For instance, people with physical disabilities often rely on alternative modes of transportation for all mobility needs, and accessible streets and sidewalks are especially important to their mobility. Mobility concerns are also important for carless households and households in poverty.

Table 10: Number of Census Tracts Exceeding the Regional Threshold for Each Degree of Disadvantage (DOD)

Counties	Bucks	Philadelphia	Delaware	Total
Total number of tracts in the Study Area	21	35	27	83
Degrees of Disadvantage (regional threshold)	Number of tracts per county exceeding the regional threshold for each DOD			
Non-Hispanic Minority (24.9%)	6	7	12	25
Carless Households (16%)	2	22	13	37
Households in Poverty (10.9%)	4	20	17	41
Persons with Physical Disabilities (7.7%)	17	16	22	55
Female Head of Household with Child (7.4%)	10	15	17	42
Hispanic (5.4%)	7	9	5	21
Elderly, 75 and over (6.6%)	6	9	9	24
Limited English Proficiency (2.4%)	5	11	3	19

Source: DVRPC, 2000 Census

Figure 17: Environmental Justice Degrees of Disadvantage



Degrees of Disadvantage (by Census Tract)

0
1 or 2
3 or 4
5 or 6
7 or 8

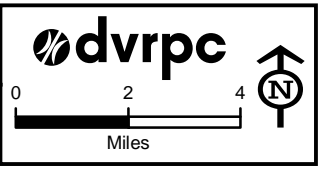








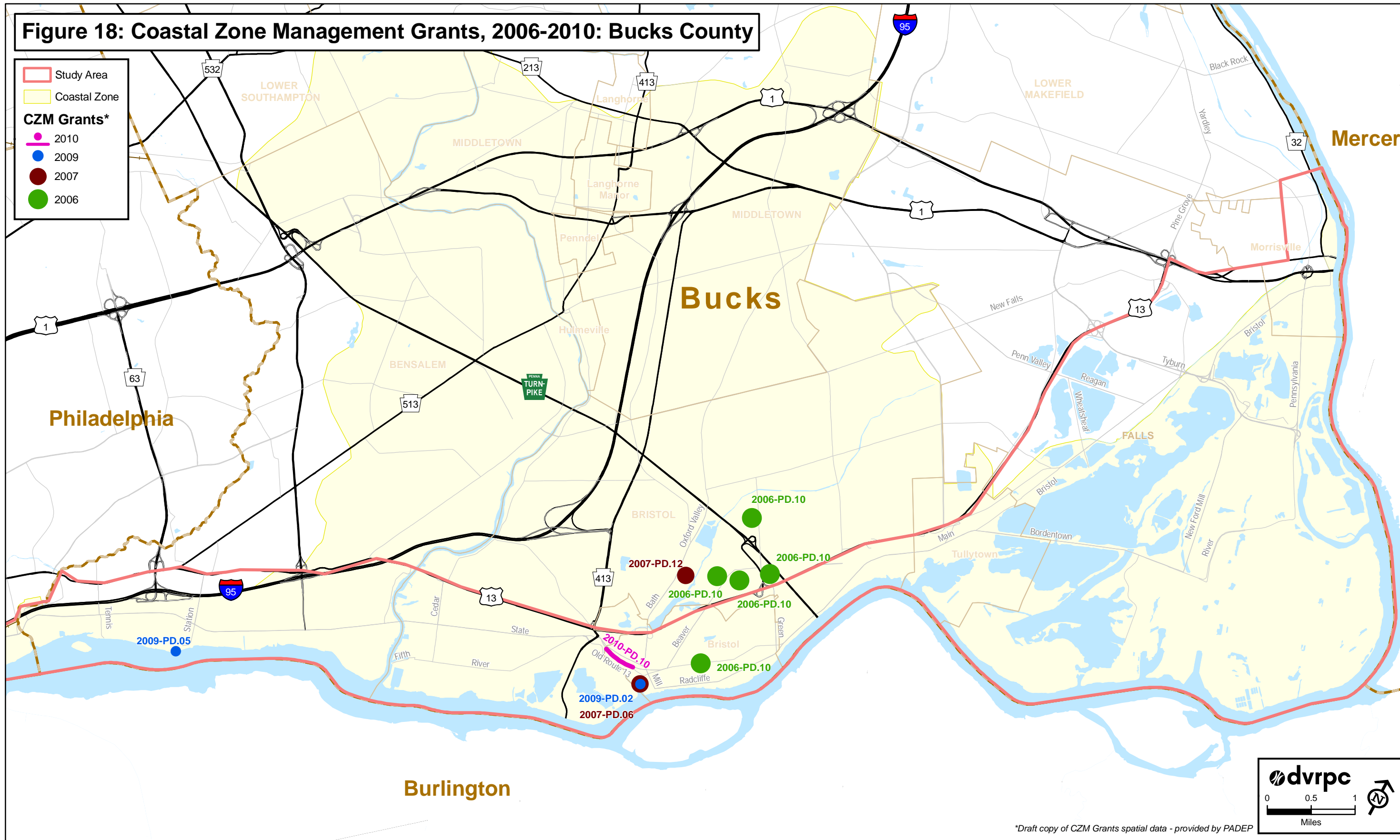
Figure 18: Coastal Zone Management Grants, 2006-2010: Bucks County

Study Area
 Study Area

Coastal Zone
 Coastal Zone


CZM Grants*

-  2010
-  2009
-  2007
-  2006



dvrpc

0 0.5 1
 Miles



*Draft copy of CZM Grants spatial data - provided by PADEP

Figure 19: Coastal Zone Management Grants, 2006-2010: Philadelphia County



*Draft copy of CZM Grants spatial data - provided by PADEP

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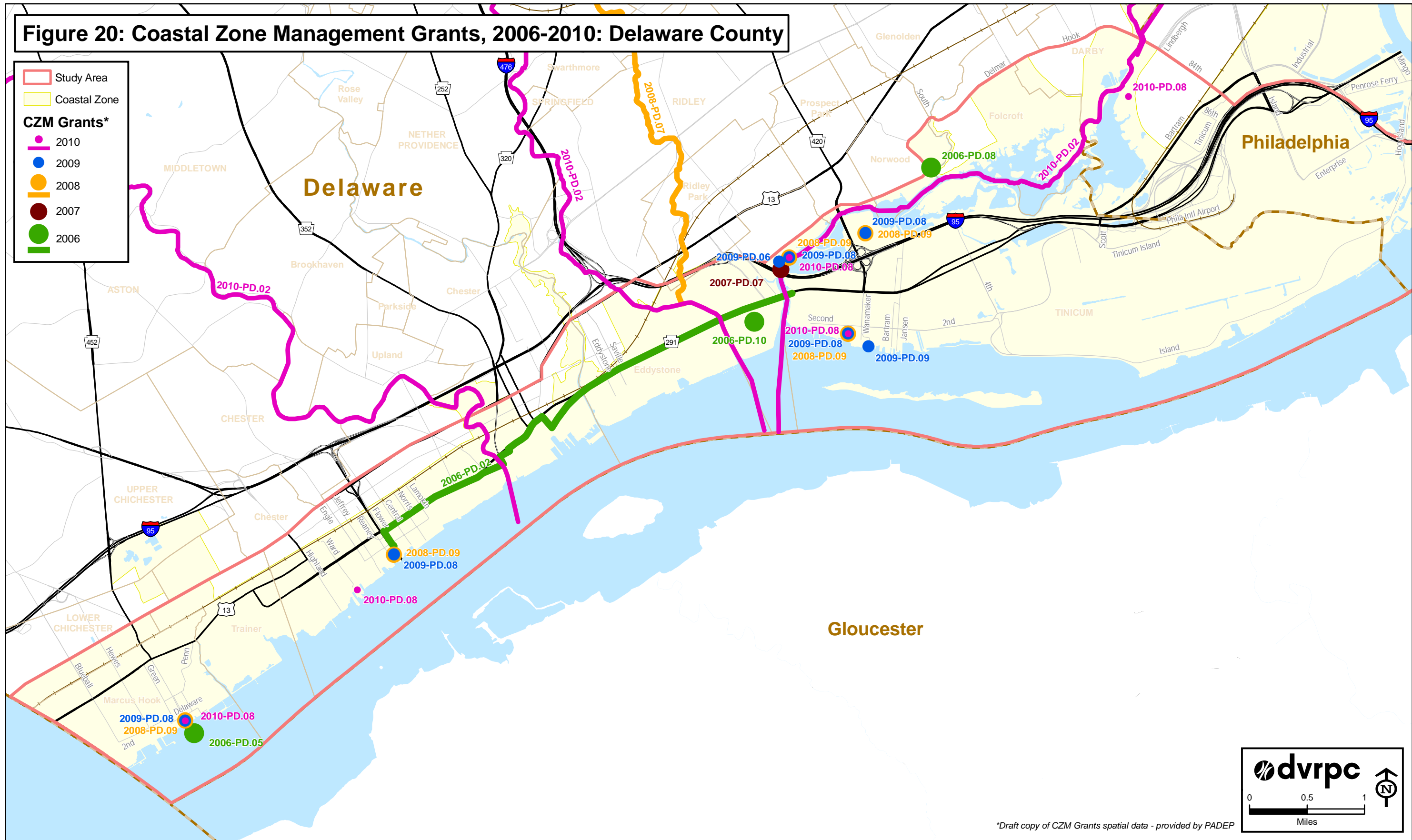
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Figure 20: Coastal Zone Management Grants, 2006-2010: Delaware County

Study Area
 [Red outline] Study Area
 [Yellow fill] Coastal Zone

CZM Grants*

- [Pink dot] 2010
- [Blue dot] 2009
- [Orange dot] 2008
- [Brown dot] 2007
- [Green dot] 2006



dvrpc

0 0.5 1
 Miles

↑ N

*Draft copy of CZM Grants spatial data - provided by PADEP

Recent Funding Efforts and Investments

The following section describes several funding sources and maps the locations where funding or grants have been allocated over the five-year period between 2006 and 2010.

Coastal Zone Management (CZM) Grants

The Coastal Resource Management (CRM) Program, part of PA DEP, awards Coastal Zone Management (CZM) grants to state and local government agencies and incorporated non-profit groups located in or having facilities in the Delaware Estuary or Lake Erie Coastal Zones. Since 1980, the Pennsylvania CRM Program has provided over 50 million dollars in funding for coastal zone projects. Providing public access to the coastal zone has been a priority since the program's inception (see Table 11 and Figures 18–20).

Table 11: CZM Funding in the Delaware River portion of Pennsylvania's CZM Zone, 2006-2010

Grant ID	Project	Recipient	Amount
2010-PD.01	DECZ Coordination and Technical Assistance	DVRPC	\$48,000
2010-PD.02	Freshwater Mussel Recovery for Water Quality and Habitat Improvement	Partnership for the Delaware Estuary	\$47,751
2010-PD.03	Cobbs Creek Connector Trail Conceptual and Final Design	Clean Air Council	\$50,000
2010-PD.04	Southeast PA Coast Day - 2011	Partnership for the Delaware Estuary	\$35,000
2010-PD.05	Grays Ferry Crescent Fishing Pier Design	Schuylkill River Development Corporation	\$38,000
2010-PD.06	Pier 11 Park Construction	City of Philadelphia	\$75,000
2010-PD.07	ICC Coordination, Promotion and Cleanup Events in the Delaware Estuary	PA Cleanways	\$49,966
2010-PD.08	Delaware County Riverfront Resource Environmental Event 2011	Delaware County Planning Department	\$10,000
2010-PD.09	Riparian Buffer Assessment	Heritage Conservancy	\$28,788
2010-PD.10	Old Route 13 Multi-Use Trail Link Plan	Bristol Borough	\$50,000
2010-PD.11	Characterization of Ecological Conditions in the Delaware Shorelines	Temple University	\$49,902
2010-PD.12	Schuylkill Avenue Embankment Landscaping	City of Philadelphia/Fairmount Park	\$49,000
2010-PD.13	Impact Assessment of Land Use Development Patterns in the Pennypack Creek Watershed	Center for Sustainable Communities at Temple University	\$50,000
2010-PD.14	Stormwater Infiltration Effect on Subsurface Coastal Waters	Villanova University	\$50,000
2009-PD.01	DECZ Coordination and Technical Assistance	DVRPC	\$47,000
2009-PD.02	Bristol Marsh Project	Heritage Conservancy	\$32,000
2009-PD.04	Chester City Zoning & Land Development Standards	The City of Chester	\$20,000
2009-PD.05	Plan to Repair Seawall on Delaware Access Area	Bucks County Department of Parks and Recreation	\$17,500
2009-PD.06	Marina Multi-Purpose Facility	Ridley Township	\$30,000
2009-PD.07	Southeast Pennsylvania Coast Day 2009	The Partnership for the Delaware Estuary	\$30,000
2009-PD.08	Delaware County Riverfront Environmental Program	Delaware County Planning Department	\$10,000
2009-PD.09	Tinicum Township Marina	Tinicum Township	\$50,000
2009-PD.10	Watershed Awareness-to-Action Program	Delaware Valley Earth Force	\$40,000
2008-PD.01	DECZ Coordination and Technical Assistance	DVRPC	\$47,000

Grant ID	Project	Recipient	Amount
2008-PD.02	Planning & Design of Schuylkill Trail through Bartram's Garden	Schuylkill River Development Corporation	\$50,000
2008-PD.03	Westinghouse Site Open Space Master Plan	Tinicum Township	\$50,000
2008-PD.04	Composting Restrooms at Schuylkill Banks	Fairmount Park Commission	\$49,000
2008-PD.05	Implementing Stormwater BMPs at Philadelphia Ports	Clean Air Council	\$45,000
2008-PD.06	Watershed Awareness-to-Action Program	Delaware Valley Earth Force	\$40,000
2008-PD.07	Little Crum Creek Assessment & Action Plan Phase II	Ridley Park Borough	\$25,000
2008-PD.08	Southeast Pennsylvania Coast Day 2008	Partnership for the Delaware Estuary	\$32,000
2008-PD.09	Delaware County Riverfront Resource Environmental Event	Delaware County Planning Department	\$10,000
2008-PD.10	Pier 67, 68, 70 Feasibility Study	Pennsylvania Horticultural Society	\$40,000
2007-PD.01	DECZ Coordination and Technical Assistance	DVRPC	\$45,000
2007-PD.02	Implementing Stormwater Best Management Practices at Philadelphia Ports	Clean Air Council	\$33,000
2007-PD.03	School Ship Environmental Education Expansion	Philadelphia City Sail	\$15,000
2007-PD.04	Southeast Pennsylvania Coast Day 2008	Partnership for the Delaware Estuary	\$31,000
2007-PD.05	Delaware Estuary Native Communities Mapping Initiative	Partnership for the Delaware Estuary	\$40,000
2007-PD.06	Bristol Marsh Conservation Plan	Heritage Conservancy	\$16,000
2007-PD.07	Marina Fishing Pier on Darby Creek	Ridley Township	\$45,000
2007-PD.08	Watershed Awareness-to-Action Environmental Education Program	Delaware Valley Earth Force	\$40,000
2007-PD.09	The Banks of Philadelphia: Yesterday, Today and Tomorrow (BOP)	Independence Seaport Museum	\$15,000
2007-PD.11	Tookany Creek Riparian Buffer, Streambank and Habitat Enhancement Project	Cheltenham Township	\$45,000
2007-PD.12	Wetlands and Watershed Initiative at Silver Lake Park	Friends of Silver Lake	\$22,000
2007-PD.13	Bensalem Riverfront Historic Preservation Plan	Heritage Conservancy	\$19,000
2007-PD.14	Riparian Best Management Practices	Keystone Conservation Trust	\$40,000
2006-PD.01	DECZ Coordination and Technical Assistance	DVRPC	\$43,000
2006-PD.02	East Coast Greenway (Delaware County)	Delaware County Planning Department	\$50,000
2006-PD.03	East Coast Greenway (Philadelphia County)	Pennsylvania Environmental Council (PEC)	\$50,000
2006-PD.04	Lazaretto Feasibility Study	Tinicum Township (Delaware County)	\$50,000
2006-PD.05	Market Square Park Marina Study	Borough of Marcus Hook (Delaware County)	\$15,000
2006-PD.06	Tookany Creek Stabilization-Phase 2	Township of Cheltenham (Montgomery County)	\$40,000
2006-PD.07	Lower Schuylkill River Dock Study	Schuylkill River Development Corporation	\$35,000
2006-PD.08	Borough Park Walking Trail	Norwood Borough (Delaware County)	\$27,500
2006-PD.09	Southeast PA Coast Day-2007	Partnership for the Delaware Estuary	\$27,900
2006-PD.10	Tree Vitalize in Philadelphia	Pennsylvania Horticultural Society	\$50,000

Source: DVRPC, 2011

DVRPC's Transportation Improvement Program (TIP) Funds

The Transportation Improvement Program (TIP) is the region's agreed-upon list of priority transportation projects and is required by federal law in order for the region to receive and spend federal transportation funds. The TIP lists all projects that intend to use federal funds, along with non-federally-funded projects that are regionally significant and other state-funded capital projects. The list is multimodal; in addition to the more traditional highway and public transit projects, it includes bicycle, pedestrian, and freight-related projects as well. The TIP also documents the anticipated schedule and cost for each project phase (preliminary engineering, final design, right-of-way acquisition, and construction). Inclusion of a project phase in the TIP means it is seriously expected to be completed during the TIP time period.

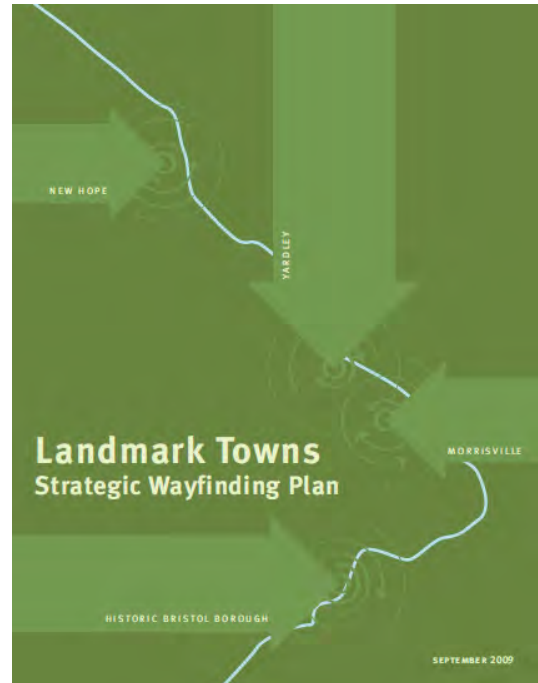
In Pennsylvania, the TIP is updated every other year. It represents funding over four federal fiscal years and operates on a federal fiscal year schedule that begins on October 1 of a given year and ends on September 30 of the following year. The list of projects must be financially constrained to the amount of funds that are expected to be available. In order to add projects to the TIP, others must be deferred. As a result, the TIP is not a wish list; competition between projects for a spot on the TIP clearly exists, as it is authorization to seek funding. A project's presence on the TIP represents a critical step in the authorization of funding to a project. It does not, however, represent a commitment of funds, an obligation to fund, or a grant of funds (see Appendix D for a table of TIP projects and Figures 21–23 for TIP maps).

DVRPC's Transportation and Community Development Initiative (TCDI) Grants

DVRPC's TCDI grants support local development and redevelopment efforts in the region's core cities and developed communities that have experienced disinvestment and decline. The TCDI program seeks to support and leverage state and county programs by providing funding in selected areas to undertake planning, analysis, or design initiatives. (See Figures 24–26 for TCDI maps.)

PennDOT's Pennsylvania Community Transportation Initiative (PCTI) Grants

PennDOT's PCTI is a Smart Transportation initiative that is intended to fund planning and construction projects that demonstrate creative and efficient ways of addressing various transportation challenges through strong local partnerships. The first round of PCTI in 2009 provided \$59.2 million for 50 smart transportation-related projects statewide, which included \$14.2 million for 20 projects in the study area. For



Bristol Township received a \$100,000 TCDI grant in 2007 to create the Landmark Towns Strategic Wayfinding Plan show above.



The Pennsylvania Horticultural Society received a Take Me To The River grant, which they used to partially fund Shad Fest 2010 at Penn Treaty Park.



People enjoy a sunny summer day while browsing the vendor offerings at Shad Fest 2010.

the second round of PCTI funding, PennDOT is providing \$24.7 million statewide, which will fund 41 smart transportation-related projects selected from over 238 applications. Ten of these projects are in the study area. The list of successful candidate projects for this second round of PCTI funding includes planning and construction projects that focus on downtown revitalization efforts, establishing gateways, completing trail connections, as well as traffic calming and multimodal studies. (See Figures 24–26 for PCTI maps.)

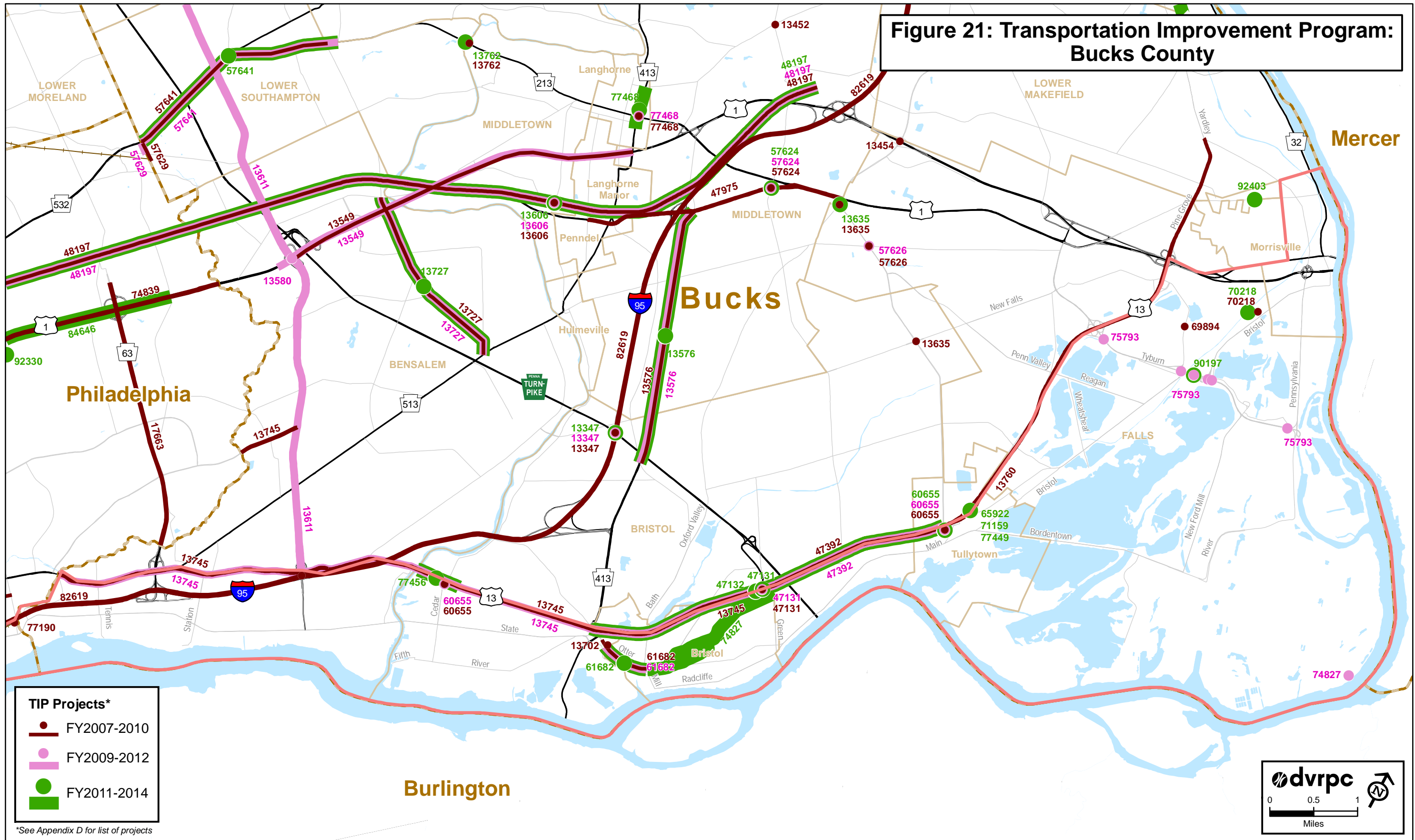
Take Me to the River Grants (TM2R)

Take Me to the River grants, administered by DVRPC and funded by the William Penn Foundation, support planning, programming, and capital projects along the Delaware and Schuylkill rivers in the City of Philadelphia. Eligible projects include, but are not limited to: capital projects, such as riverfront trails or lighting; planning projects, such as feasibility studies and technical assistance to neighborhoods; and programming, including festivals and ecotourism. DVRPC awarded the first 13 recipients of its Take Me to the River grant program in October 2008, seven of which are along the Delaware River. (See Figures 24–26 for TM2R maps. Also, see Table 12 for a list of DVRPC-funded projects along the Delaware riverfront.)

Table 12: DVRPC Funding, 2007-2010

Grant ID	Project	Recipient	Amount
TCDI			
2007-TCDI.01	Landmark Towns Strategic Wayfinding	Bristol Borough	\$100,000
2007-TCDI.09	Highland Avenue Station TOD	Chester City	\$35,000
2007-TCDI.17	Bicycle and Pedestrian Plan (CC, S, LN)	Philadelphia	\$100,000
2007-TCDI.18	Bicycle and Pedestrian Plan (NW & UP)	Philadelphia	\$80,000
2007-TCDI.19	Laying the Foundation (comp plan framework)	Philadelphia	\$100,000
2007-TCDI.20	Broad and Erie Transportation	Philadelphia	\$80,000
2007-TCDI.21	TOD Zoning Classification	Neighborhoods Now	\$75,000
2007-TCDI.22	Logan Square Neighborhood Development Plan	SCRUB	\$45,000
2007-TCDI.24	Center City Congestion Management Study	CC District	\$100,000
2007-TCDI.25	Broad Street Subway Extension	PIDC	\$100,000
2007-TCDI.27	Transit Centered Development (30/40th Market)	UC District	\$80,000
2010-TCDI.01	East Coast Greenway – Bensalem Master Plan	Bensalem Township	\$60,000
2010-TCDI.05	TRID Implementation	Marcus Hook	\$50,000
2010-TCDI.10	Bicycle and Pedestrian Plan (W & SW)	Philadelphia	\$62,000
2010-TCDI.11	Complete Streets Handbook	Philadelphia	\$60,000
2010-TCDI.12	Urban Design/Physical Planning (comp plan)	Philadelphia	\$60,000
2012-TCDI.2	Multi-Modal Improvements	Penndel Borough	\$40,000
2012-TCDI.4	Downtown Pedestrian Connections	Lansdowne Borough	\$30,700
2012-TCDI.5	West Chester Pike Traffic Study	Upper Darby Township	\$71,000
2012-TCDI.6	Pedestrian Connection for City Avenue	Lower Merion Township	\$50,000
2012-TCDI.11	Washington Avenue Streetscape and Design	Philadelphia	\$75,000
2012-TCDI.12	Center City Cycle Track Signal Timing	Philadelphia	\$76,000
2012-TCDI.13	East Kensington Community Development Plan	Philadelphia	\$30,000
2012-TCDI.57	Downtown Improvement Strategy	Chester City	\$68,000
2012-TCDI.58	Transit-Oriented Development - Phase 1	Marcus Hook Borough	\$68,000
2012-TCDI.101	Bicycle and Pedestrian Plan	Swarthmore Borough	\$20,000
2012-TCDI.139	Zoning Ordinance Update	Norwood Borough	\$29,000
2012-TCDI.173	Baltimore Pike Revitalization Project	Springfield Township	\$100,000
PCTI			
2010-PCTI.03	Trenton Avenue Corridor Study	Falls Township	\$90,000
2010-PCTI.17	Race Street Connector	Philadelphia	\$1,100,000
Take Me to the River			
2008-TM2R.01	58th Street Greenway	PEC	\$83,000
2008-TM2R.02	DuPont Crescent Greenway	SRDC	\$100,000
2008-TM2R.03	Lardner's Point Park Pier	DRCC	\$75,000
2008-TM2R.04	Arts and Intrigue Lead to the River	New Kensington CDC	\$100,000
2008-TM2R.05	Schuylkill River Exhibition – Light Drift	Mural Arts Program	\$75,000
2008-TM2R.06	Spring Garden Street Greenway	Northern Liberties NA	\$100,000
2008-TM2R.07	East Coast Greenway Connector	DRCC	\$75,000
2008-TM2R.08	Schuylkill River Pedestrian Bridge	SRDC	\$50,000
2008-TM2R.09	Lardner's Point Park	DRCC	\$49,000
2008-TM2R.10	Schuylkill Trail at Bartram's Garden	John Bartram Association	\$80,000
2008-TM2R.11	Waterfront Wednesdays	New Kensington CDC	\$25,000
2008-TM2R.12	River City Festivals	PHS	\$63,000

**Figure 21: Transportation Improvement Program:
Bucks County**



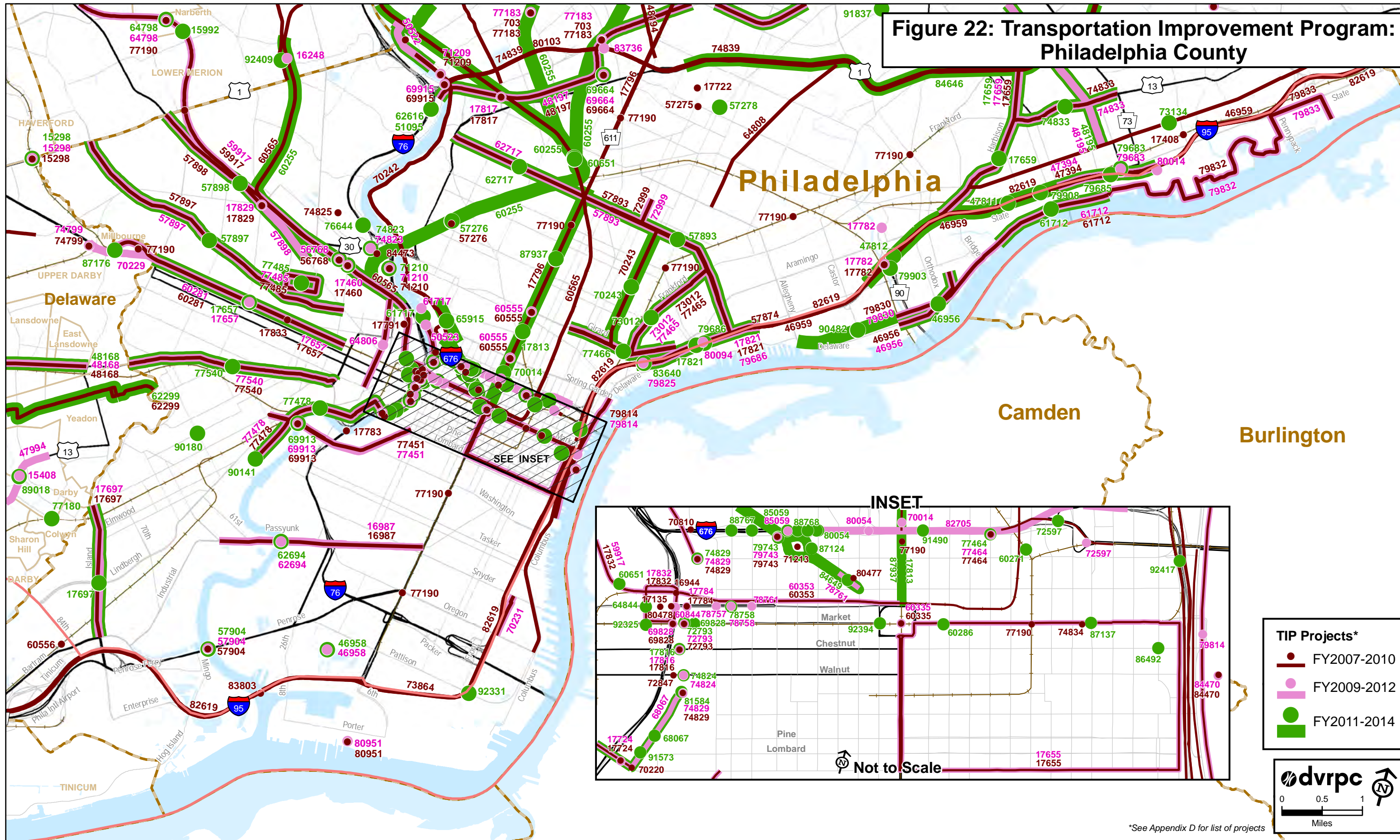
- TIP Projects***
- FY2007-2010
 - FY2009-2012
 - FY2011-2014

*See Appendix D for list of projects

dvrpc

0 0.5 1
Miles

**Figure 22: Transportation Improvement Program:
Philadelphia County**



- TIP Projects***
- FY2007-2010
 - FY2009-2012
 - FY2011-2014

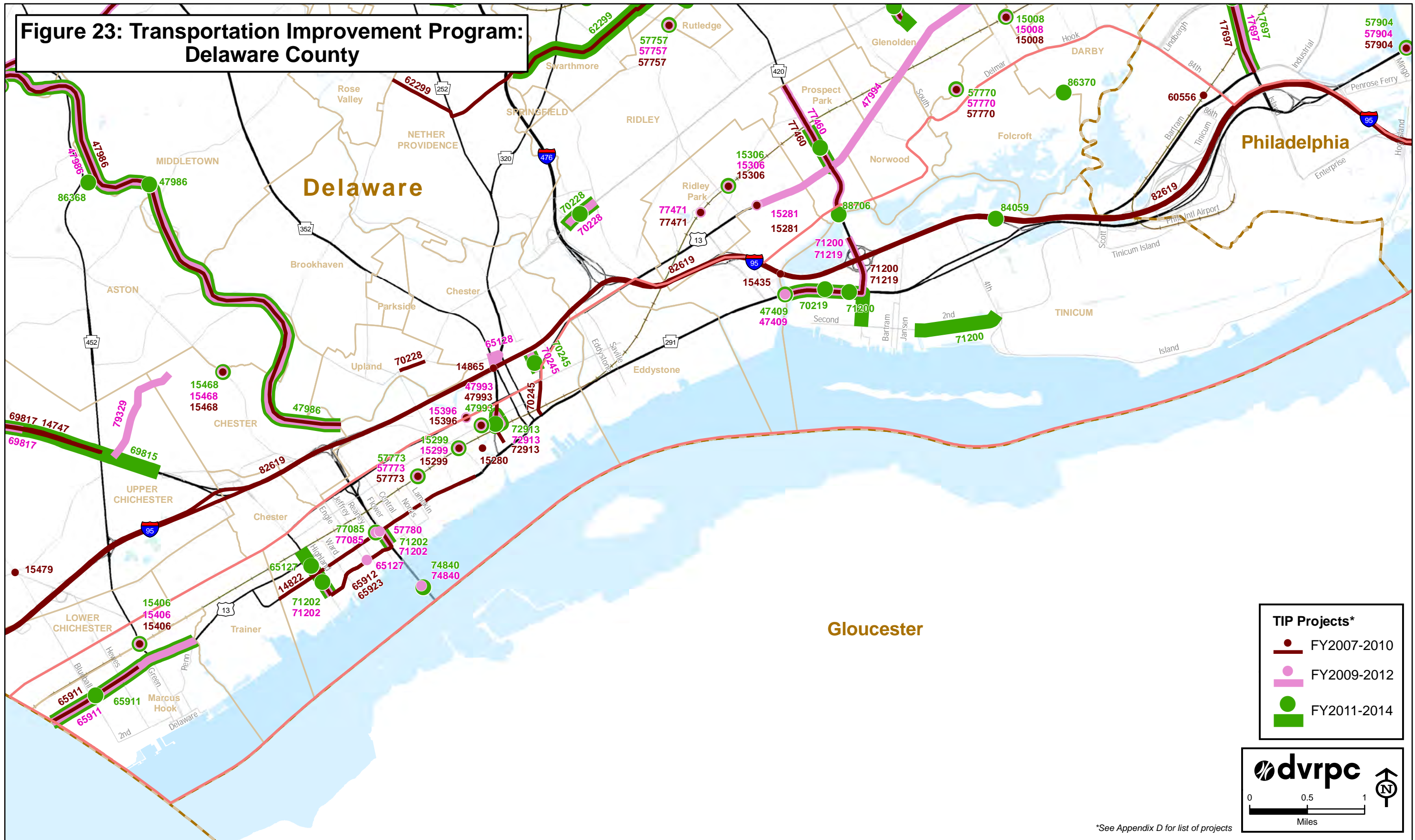
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0 0.5 1
Miles

Not to Scale

*See Appendix D for list of projects

**Figure 23: Transportation Improvement Program:
Delaware County**



TIP Projects*

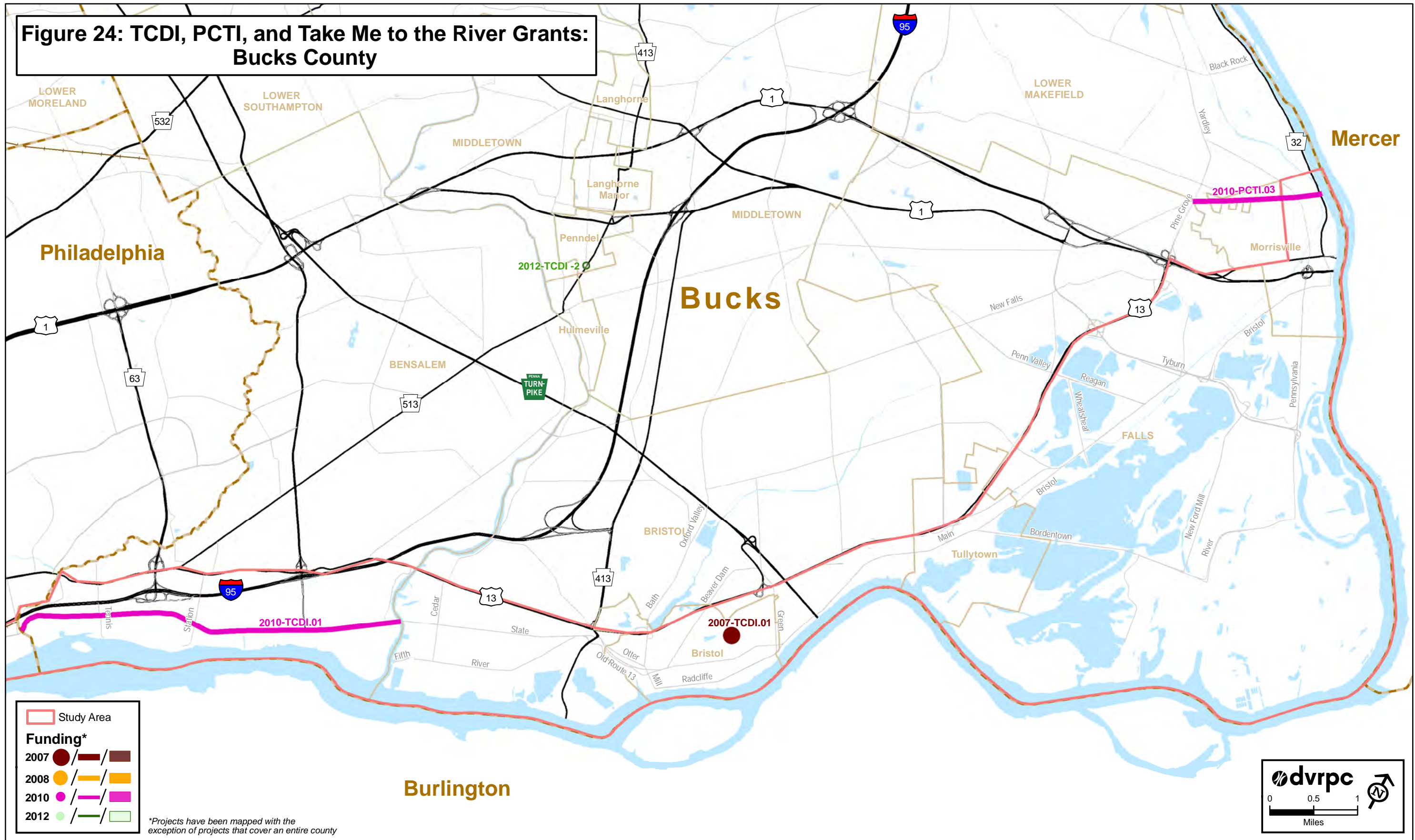
- FY2007-2010
- FY2009-2012
- FY2011-2014

dvrpc

0 0.5 1
Miles

*See Appendix D for list of projects

**Figure 24: TCDI, PCTI, and Take Me to the River Grants:
Bucks County**



Study Area

Funding*

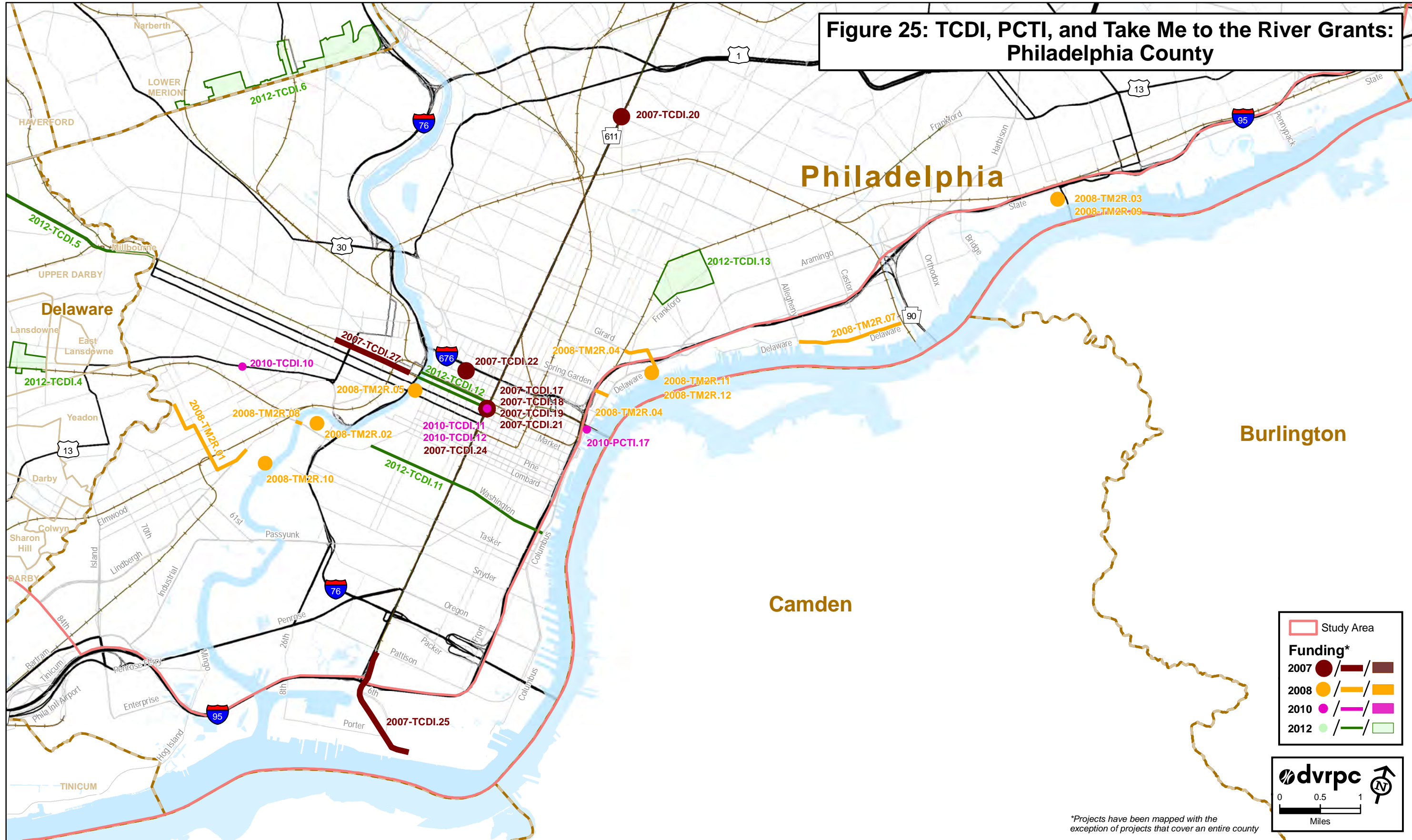
- 2007 ● / — / ■
- 2008 ● / — / ■
- 2010 ● / — / ■
- 2012 ● / — / ■

*Projects have been mapped with the exception of projects that cover an entire county

dvrpc

0 0.5 1 Miles

Figure 25: TCDI, PCTI, and Take Me to the River Grants: Philadelphia County



Study Area

Funding*

2007 ● / — / ■

2008 ● / — / ■

2010 ● / — / ■

2012 ● / — / ■

dvrpc

0 0.5 1 Miles

North Arrow

*Projects have been mapped with the exception of projects that cover an entire county

**Figure 26: TCDI, PCTI and Take Me to the River Grants:
Delaware County**

Study Area

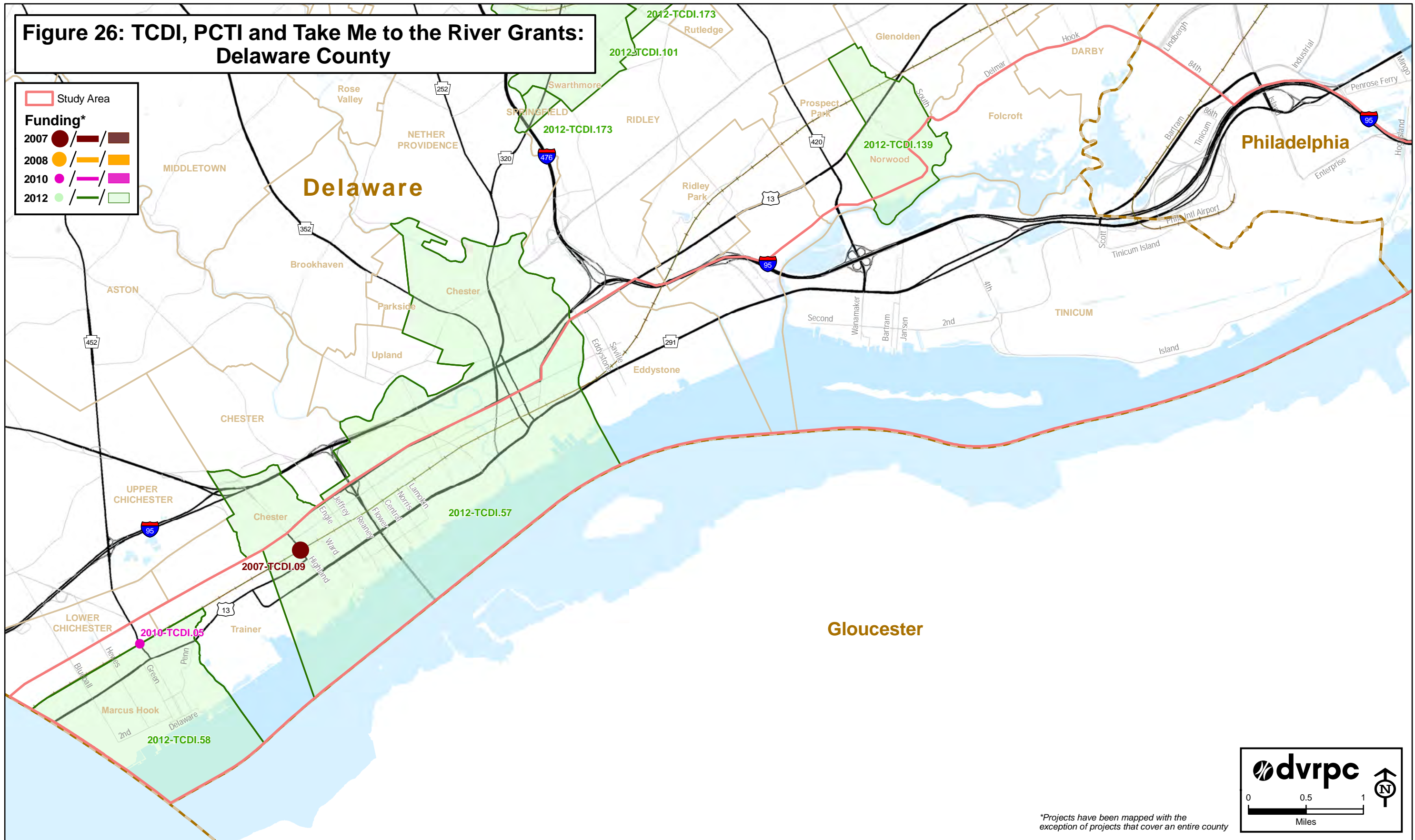
Funding*

2007 ● / — / ■

2008 ● / — / ■

2010 ● / — / ■

2012 ● / — / ■



dvrpc

0 0.5 1

Miles

↑ N

*Projects have been mapped with the exception of projects that cover an entire county

Section Three: Transportation Recommendations

The following transportation recommendations are extracted from the major plans in the study area. These bullet points are not an exhaustive list of recommendations from the plans; instead, they focus on the recommendations related to transportation and access for a variety of modes, including pedestrian, bicycle, automobile, light rail, freight rail, passenger rail, shipping, and airplane. The studies have identified 17 priority opportunity areas in Bucks, Philadelphia, and Delaware counties, as shown in Figure 28.

The Bucks County Waterfront

2005 Bucks County Waterfront Revitalization Plan

Vehicular

- Minimize truck traffic along State Road, River Road, Radcliffe Road, Main Street, and Pennsylvania Avenue.
- Create “Address Streets,” such as Main Street and Fallsington Avenue, which have special paving, continuous sidewalks, pedestrian amenities, wayfinding signage, lighting, minimal curb cuts, and bicycle lanes.
- Extend the street grid to the riverfront.
- Create uniform wayfinding system.
- Limit off-street parking in front of buildings.
- Give Street Road a “boulevard” identity.
- Need new service road in Bensalem Township (parallel to State Road between State Road and I-95).
- Need a gateway at Street Road and I-95.
- Need new public road to connect the Franklin Cove recreation facilities with Bordentown Road.
- Improve overall US 13 through enhanced municipal gateways, landscaping, curbs, medians, and sidewalks. Improve US 13 Intersections at Levittown Parkway, Bristol Pike, Beaver Road (including crossing for Canal/Silver Lake Greenway). Reconfigure US 13/Bath Road intersection. Reconstruct SR 413/US 13 Interchange [underway or in PADOT budget as of 2005]



A pavilion in Bristol Waterfront Park in Bristol Borough in Bucks County. Settled in 1681, Bristol is the oldest town in Bucks County and the third oldest in Pennsylvania. It served as the terminus of the Delaware Canal.



A waterfront park behind the Margaret R. Grundy Memorial Library and Museum in Bristol Borough, Bucks County. Joseph R. Grundy (1863 - 1961) was a businessman from Bristol who served in the U.S. Senate.



View of the Delaware River looking south from Neshaminy State Park in Bucks County.

- Improve Old US 13 by removing rails, improving streetscape and pedestrian amenities [underway or in PADOT budget as of 2005]. Improve intersection of New Rodgers Road, State Road, and Old Route 13 to provide safe and efficient access to the Rohm and Haas Opportunity Area.
- Bristol Pike Improvement Project [design underway in 2005]
- I-95/Street Road Interchange Study [underway or in PADOT budget as of 2005]
- New I-95/PA Turnpike Interchange [underway or in PADOT budget as of 2005]
- SR 413 widening [underway or in PADOT budget as of 2005]

Bridge Repair and Upgrades

- Repair and upgrade Burlington-Bristol Bridge and Otter Creek Bridge Repair [underway or in PADOT budget as of 2005].
- Restore Delaware Canal, locks, and bump bridges to once again make the canal navigable.
- Configure Pennsylvania terminus of Burlington-Bristol Bridge as a regional gateway, with green corridor along Rodgers Road.

Bike and Pedestrian

- Develop a continuous riverwalk along the Delaware River, including the following key stretches:
 - Bensalem Township from Pen Ryn Manor to Neshaminy State Park
 - Tullytown Borough/Falls Township, from the Levittown SEPTA station to Pennsbury Manor via Franklin Cove; and
 - Morrisville Borough/Falls Township trail from Morrisville's northern border to the easternmost point in the study area near the Port of Bucks County
- Develop bicycle lanes and a hiker/biker pathway system along State Road, River Road, Radcliffe Road, Main Street, Bordentown Road, New Ford Mill Road, Tyburn Road, and Pennsylvania Avenue.
- Restore Delaware Canal and Towpath on both sides as it will become part of the East Coast Greenway and PennDOT's Bicycle Route System. Should be a high funding priority.

- Need Adams Hollow Creek corridor to link Silver Lake Park and the canal towpath.
- Mandate a 100-foot riparian buffer around the Delaware River and its tributaries. Buffers should be reserved as public open space and can contain pedestrian/bicycle trails or riverwalks or a riverfront promenade.
- Link historic and cultural resources via the Delaware Canal, Delaware River, and historic roads, including:
 - A linkage of riverfront mansions in Bensalem with Bristol Borough's historic district, using the Delaware River (tour boats, excursions, etc.) or historic stagecoach routes
 - A second linkage from Bristol Borough to Pennsylvania Manor
 - A consistent interpretive signage campaign
- Propose public water access facilities and new linear parks along the riverfront, such as along the Delaware Canal in Bristol Borough linking several pieces of open space, including school athletic fields, existing trails, and other green space. Morrisville and Falls Township also need public water access. A new public park at the terminus of Street Road could serve as a primary public waterfront access point.

Transit

- Promote transit-oriented development (TOD) around SEPTA stations through station-area planning, TOD zoning, pedestrian improvements, and using other TOD tools (fast tracking of permits, density bonuses).
- Enhance pedestrian access to transit stations, especially Levittown SEPTA station.

Boat

- Need 300-slip marina in Bensalem.
- Need permanent floating dock at end of Mill Street to link Bristol Borough to the Delaware River.
- A new park, boat ramp, public marina, and riverwalk would be located on land acquired from Waste Management.

Priority Opportunity Areas:

- Morrisville
- Tullytown Borough
- Green Lane/US 13/I-276 in Bristol Township
- Bristol Borough
- Dow Chemical Site
- Street Road and State Road area in Bensalem



Pen Ryn Mansion in Bensalem was constructed as a country residence for Abraham Bickley, a wealthy shipping merchant. Today, the property is on the National Register of Historic Places and can be rented for events.



The Levittown SEPTA regional rail station is currently not pedestrian friendly.



Delaware Canal State Park in Bristol



The port at the former U.S. Steel site in Fairless Hills, Bucks County. Today it is part of the Keystone Industrial Port Complex.

Keystone Industrial Port Complex's Priorities

- Keep the river dredged to allow for the port to remain open. The channel used to be seven feet deeper.
- Enhance public transportation if a large employer comes on site. Bucks County TMA is invited to be part of the discussion whenever an appropriately sized tenant/owner visits the site. Toll Brothers did run a shuttle for a brief amount of time, down Pennsylvania Avenue.

Priority Opportunity Areas:

- Keystone Industrial Port Complex

The Philadelphia Waterfront

North Delaware Riverfront: A Long-Term Vision for Renewal and Redevelopment

- Open a new public Riverfront Park with recreational and riverfront amenities; such as restaurants, marinas, equestrian center, museums, markets and event spaces, and fishing and boating facilities; with dedicated bike paths, dedicated pedestrian paths, smaller trails, and incorporation of tall masts of the Kensington & Tacony (K & T) corridor.
- Create a new River Road, which would be a leisurely two-lane park road (curved to slow traffic), with no truck access, to serve the new development parcels and to open the City to the Delaware River as its new frontage. This would be a connector street, not a high-capacity street. It would have two separate two-lane corridors in lower Bridesburg, merging into a single two-lane road from Bridge Street all the way to Linden Avenue. Other traffic calming devices would include shorter blocks with more intersections to slow traffic, combined with raised surface treatments and clearly marked pedestrian and bicycle crossings. It would also have permeable surfacing technologies and linked to a swale and wetland system for sustainable stormwater drainage.
- Continue to access existing and future port, industrial, and commercial uses from the State Road and Tacony and Richmond Street corridors.
- Connect neighborhoods directly to the river and renovate pedestrian streetscapes underneath I-95 when bridges and overpasses are renovated. Links and connections to the new River Road ought to be recognized and strengthened. Easy access on and off I-95 is always a goal, while also being sensitive to the local context (see Figure 27).
- Need improvements to the five SEPTA Regional Rail stations (Bridesburg, Wissinoming, Tacony, Holmesburg Junction, Torresdale) to increase visibility, provide more parking, enhance pedestrian connections, and promote a more consistent rail service. SEPTA could consider the addition of shuttle buses that run from adjacent neighborhoods to the regional rail stations.
- Examine the opportunity for a DRPA High-Speed Ferry Service.
- In Bridesburg, recommend major link roads from the neighborhoods to the river are extended and given



View from the Frankford Arsenal Boat Launch along the North Delaware Riverfront.

Figure 27: Pennypack Park on the Delaware Photo Simulation



Top: This image shows the entrance to the Delaware River portion of Pennypack Park in Northeast Philadelphia. Bottom: This simulation shows what the entrance could look like if it were improved for pedestrians, transit riders, and the disabled.

priority through street-tree planting, parking, signage, lighting, and the addition of dedicated bicycle and pedestrian paths. Extend Delaware Avenue through lower Bridesburg as a leisurely, elegant park road with a speed limit of 25 mph. Need relief of current truck traffic on Richmond Street, one of Bridesburg's main streets, through the renovation and redesign of critical I-95 interchanges. Relocate Quickway facility. Expected cost in 2001 dollars (excluding land acquisition and relocation costs) of the above is approximately \$60 million. Develop Philadelphia Coke site into residential development of 18 units per acre, with an average size of 2,100 square feet, and 1.6 garages or parking spaces per unit, with an expected market price of \$250,000 each.

- In Tacony, also need to extend key link roads from the neighborhood to the riverfront, featuring double rows of trees, dedicated bike and pedestrian paths, and perpendicular parking, at a cost of \$70 million (in 2001 dollars, excluding land acquisition and relocation costs).

Priority Opportunity Areas:

- Bridesburg – a new riverfront community
- Tacony – a new urban sector along the river

The Master Plan for the Central Delaware

- The priority connector streets in the plan are those that connect to neighborhood parks. These include South Street, Walnut Street, Chestnut Street, Market Street, and Race Street.
- Several new streets are suggested as part of the redevelopment of the Central Delaware waterfront.
- Reconfigure Columbus Boulevard/Delaware Avenue to include three lanes in each direction, with the curb lanes serving as parking or flex lanes. Landscaping will include a planted median (wide enough to accommodate light rail if it comes in the future) and planted buffers separating pedestrians from the travel lanes. Where the multi-use trail will be on street, the trail will be adjacent to the sidewalk, with a physical barrier between pedestrians and bicyclists. Create a five-mile multi-use trail for the waterfront that will connect with existing bicycle routes. Portions of the trail will run adjacent to Columbus Boulevard/Delaware Avenue, especially in areas that are expected to experience high pedestrian activity, such as Penn's Landing.
- Recommend bus rapid transit (BRT) in the short



Visitors enjoy a sunny afternoon at the Race Street Pier along the Central Delaware in Philadelphia.



Phase I of the Race Street Connector is completed; Phase II will be finished in fall 2012.



The Great Plaza at Penn's Landing along the Central Delaware in Philadelphia will be redesigned to include more greenspace as part of the *Master Plan for the Central Delaware*.

term to connect the city to and along the waterfront. In the long term, light rail may be feasible, and DRPA has studied a potential alignment. Short-term routing could include Washington Avenue, Market Street, and Pier 70 to the Piazza at Schmidt's.

- Recommend water taxis to link various waterfront parks and attractions. There are seven potential stops proposed, with the far south stops being recommended in the long term.
- Increase parking opportunities for recreational areas and parks, especially near Penn Treaty Park.
- Specific transportation projects that will be completed within the first five years include:
 - The Race Street connector will be completed in two phases, with Phase I being completed in summer 2011 and Phase II by fall 2012.
 - Two additional connector projects, the locations of which are yet to be determined, will be designed and constructed with a \$1.2 million pass-through grant.
 - Traffic improvements along Columbus Boulevard/Delaware Avenue including traffic signal timing adjustments and traffic calming. The traffic study is currently underway and improvements are expected to be implemented over the next year.
 - Completion of the waterfront trail between Washington Avenue and Penn Street.
 - Design and construction of the waterfront trail between the Sugar House Casino and Penn Treaty Park and between Penn Treaty Park and Montgomery Avenue/Berks Street.

Priority Opportunity Areas:

- Washington Avenue—waterfront wetland park with a wider trail and possibly a wildlife center.
- Penn's Landing—a civic venue with gathering space, especially between Chestnut and Walnut streets. There are many opportunities for the underutilized basin area, including recreation, restaurants, and residential.
- Spring Garden Street—mixed-use development site with active ground floor space with residential on the floors above.

Philadelphia Regional Port Authority's Priorities

- Dredge the Delaware River to increase the main shipping channel from 40 to 45 feet. This would be a five-year project, with 25 percent of the project funding (\$100 million) coming from PRPA.
- Extend old Delaware Ave to connect to the Navy Yard for access to Southport and Norfolk Southern intermodal yard
- Create truck-only lanes and ramps, which are high-grade for heavier weights and save the city money on repairing other roads and ramps that previously degraded much faster. If truck-only ramps aren't created, expand existing ramps for a larger footprint.
- Create a port zone, with gates for safety and security.
- Reduce conflict areas between railroads and truck traffic, as lessees complain about the railroads blocking Delaware Avenue/Columbus Boulevard, which causes backups for trucks. This problem is particularly acute near Pier 78/80 between 5:30 and 6:00pm.
- Need more parking or better alternative transportation for workers, the majority of whom drive to work.
- PRPA is generally supportive of DRWC plans.

Priority Opportunity Areas:

- Southport

2004 Navy Yard Master Plan

- Create a clear street hierarchy that varies in character in response to the needs of vehicles, pedestrians, and adjacent land uses. Such a hierarchy might be:
 - Collector streets: League Island Boulevard, 26th Street entrance, Mustin Road, Broad Street north of Navy Yard gates
 - Main Streets: Broad Street south of main gate, Kitty Hawk Avenue, proposed Diagonal Boulevard
 - Greenway Streets: link the Corporate Center to Historic Core and extend via Intrepid Avenue to the Reserve Basin and via 11th Street to the Delaware River
 - Secondary Streets: existing streets in historic core or new streets in Marina District



The Philadelphia Regional Port Authority supports the dredging of the Delaware River so that large ships, such as this one, will continue to be able to navigate the Delaware River channel.



This bridge is located between Constitution Avenue and Langley Avenue in the Navy Yard. It leads to the 26th Street entrance to the Navy Yard.



The white buildings in the foreground are former officers' quarters that front on Admiral Peary Way in the Navy Yard, which is proposed to have a broad public waterfront esplanade.



A plane approaches Philadelphia International Airport.

- Waterfront Street: Admiral Peary Way
- Relocate 11th Street 165 feet east of its current location to strengthen the connection between the Corporate Center and the Delaware River.
- Extend Delaware Avenue to the east end of the Navy Yard via a grade-separated four-lane roadway that would connect to Delaware Avenue near Pattison Avenue.
- Create a five-lane cross section on Broad Street at Langley Avenue (two through lanes, one inclusive left-turn lane in each direction for full build-out. Widen Broad Street south of Langley Avenue between Reserve Basin and Marine Parade Ground as traffic increases.
- Create a four-lane cross-section for Langley Avenue and its extension (two through lanes, and separate right- and left-turn lanes). This would require widening.
- Modify existing signals or install signals at the following intersections as conditions dictate:
 - Broad Street and League Island Boulevard
 - Broad Street and Langley Avenue
 - Broad Street and Intrepid Avenue
 - Broad Street and Constitution Avenue
 - Broad Street and Kitty Hawk Avenue
 - League Island Boulevard and Langley Avenue
 - League Island Boulevard and Intrepid Avenue
 - League Island Boulevard and 11th Street
 - League Island Boulevard and Constitution Avenue
 - League Island Boulevard and Diagonal Boulevard
 - Kitty Hawk Avenue and 13th Street
 - Kitty Hawk Avenue and 11th Street
 - Kitty Hawk Avenue and Diagonal Boulevard
- Conduct a feasibility study to address access issues along I-76 and I-95.
- Create a broad public waterfront esplanade along Admiral Peary Way and its extension.
- Provide pleasant, walkable streets with points of interest, connecting open spaces, and direct links to the waterfront. All streets should have sidewalks. Create visual links between existing development and new development.
- Propose a network of bicycle routes both on-street (on Diagonal Boulevard, Kitty Hawk Avenue, and Broad Street) and off-street (waterfront esplanade

and League Island Boulevard).

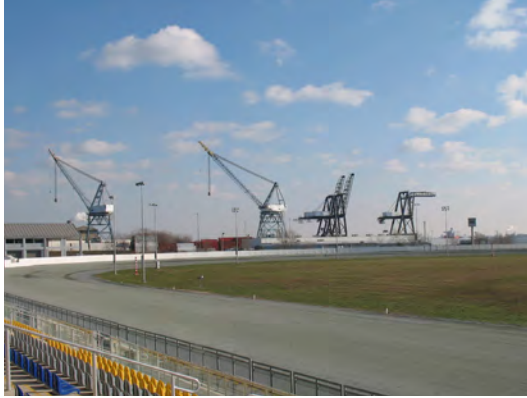
- Extend the Broad Street subway to the Navy Yard. Open to other transit extensions by PATCO.
- Create a shuttle bus system that will provide service for those making internal trips, as well as to the terminus of the Broad Street Subway, and Center City.
- Examine creating a ferry service to the Navy Yard for tourists or employees, with possible park and ride from National Park, New Jersey.

PHL Airport Capacity Enhancement Project (CEP) Alternative A (Priority Area)

- Extend existing Runway 8-26 for 2,000 feet to the east (for a total of 7,000 feet).
- Extend existing Runway 9R-27L for 1,500 feet to the east (for a total of 12,000 feet; renamed runway would be called 9C-27C).
- Construct another runway, 9R-27L, near the Delaware River (creating four parallel east-west runways and one crosswind runway for a total of five runways).
- Upgrade, reconfigure and expand the terminal complex in its current location. The total terminal complex would be eight concourses with 145–150 gates and approximately 3.6 million square feet. Add a new commuter terminal east of Runway 17-35.
- Construct an above and below ground Automated People Mover (APM) to transport passengers between terminals and parking facilities. Connect existing SEPTA regional rail system with APM system.
- Reconfigure the cargo areas and parking areas. Relocate the Air Traffic Control Tower and navigational aids and lights.
- Relocate UPS facility south of the airport to a new site in Tinicum. Relocate freight rail serving US Army Corp of Engineers Fort Mifflin Dredge Disposal Facility. Relocate part of Dredge Disposal Facility to the north.
- Close the Sunoco Hog Island Wharf, and close Hog Island Road.
- Extend the existing Sunoco Fort Mifflin Pier west of its current location.
- Estimated cost for airport improvements: \$5.3 billion.



A ship at the Fort Mifflin/Hog Island port facility in Philadelphia, which is owned by Sunoco. Crude oil is offloaded and transferred through pipes to tank farms for refining. Sunoco is talking about divesting itself of its Marcus Hook and Eagle Point refineries in favor of using existing pipelines to the region instead.



View across the Harrah's Casino racetrack in Chester toward Penn Terminals.



The view from Ethel Waters Park in Chester, looking towards the office buildings of downtown Chester.



Ridley Township Marina on Darby Creek, one of the few publicly accessible marinas in Delaware County.

The Delaware County Waterfront

The Renaissance Program – Planning Area Action Plans (Planning Areas 1-4)

- The boroughs of Aldan, Collingdale, Colwyn, Darby, Folcroft, Glenolden, Norwood, Prospect Park, and Sharon Hill, and Darby Township are fortunate to be situated near numerous recreation areas and have several forms of transit serving the area.
 - Enhance the appearance and functionality of SEPTA Regional Rail, trolley, and bus stations, especially near town centers.
 - Need new or extended bus service in the north/south direction to link Chester Pike and MacDade Boulevard in the area west of the Sharon Hill Trolley. Possible extensions of the route 115 and route 122 buses have been discussed.
 - Improve town center streetscape and traffic calming in Norwood and Prospect Park through sidewalk improvements, installation of pedestrian-scale lighting and street furniture as well as bus stop shelters and wayfinding signage.
 - Improve access to recreational areas. Clear and convenient connections should be possible between parks, residential areas, town centers, historic sites, and the regional amenities including the Tincum Environmental Center and Heinz Wildlife Refuge as well as Darby Creek recreational opportunities.
- Improve the functionality of the existing transportation network in the boroughs of Eddystone, Morton, Ridley Park, and Rutledge and Ridley and Tincum townships.
 - At the Ridley Township Marina, expand Sellers Avenue to the west of the property in order to provide an additional access to the facility, which is the only publicly accessible marina in the area.
 - In Tincum, consider the land along Second Street for open space for recreational use. This area is adjacent to Second Street and the Delaware River and will be a segment of the proposed Industrial Heritage Corridor and the East Coast Greenway.
 - At the FoamEx site, there is a need for safe public access through and around the industrial facilities to the waterfront. Permanent solutions

should be further considered including an easement along Second Street at the Penn Terminals and the environmental assessment of potential access near the ABM Superfund site and York Paper.

- Implement traffic signal system and traffic calming along the Route 291 and Route 13 corridors, as well as Route 420 and MacDade Boulevard. Channel traffic out of the neighborhood areas.
- Implement streetscape projects in the Chester Creek Corridor and the Edgmont Avenue corridor to spur reinvestment in the municipalities of Chester, Upland Borough, Chester Township, and Parkside Borough.
- Establish a network of pedestrian and bicycle trails that link the commercial area, residential neighborhoods, and recreation space to the Marcus Hook rail station. This station serves as the transportation hub for three municipalities (Marcus Hook, Trainer, and Lower Chichester), and the most pressing need of all the communities is to establish linkages and multi-jurisdictional support for this asset.
- Establish a Marcus Hook Creek Greenway that will link Market Square Memorial Park in Marcus Hook to Trainer. This multiuse path will meander along the floodplain of the Marcus Hook Creek and feature environmental improvements to reduce flooding and mitigate runoff.
- Implement Route 13 corridor improvements, including streetscape improvements necessary to implement the East Coast Greenway and County Industrial Heritage Parkway through Marcus Hook and Trainer boroughs.
- Improve Ridge Road corridor, which is the central spine of the roadway network linking the east/west spokes of the Marcus Hook Creek Greenway and the Market Street corridor.
- Complete the Township Line Road/Laughead Avenue pedestrian and bicycle path to connect the Marcus Hook Greenway in Trainer with the streetscape improvements along Market Street in Lower Chichester.

Priority Opportunity Areas

- City of Chester—Improve the pedestrian environment, encourage downtown living, and rehabilitate vacant buildings.



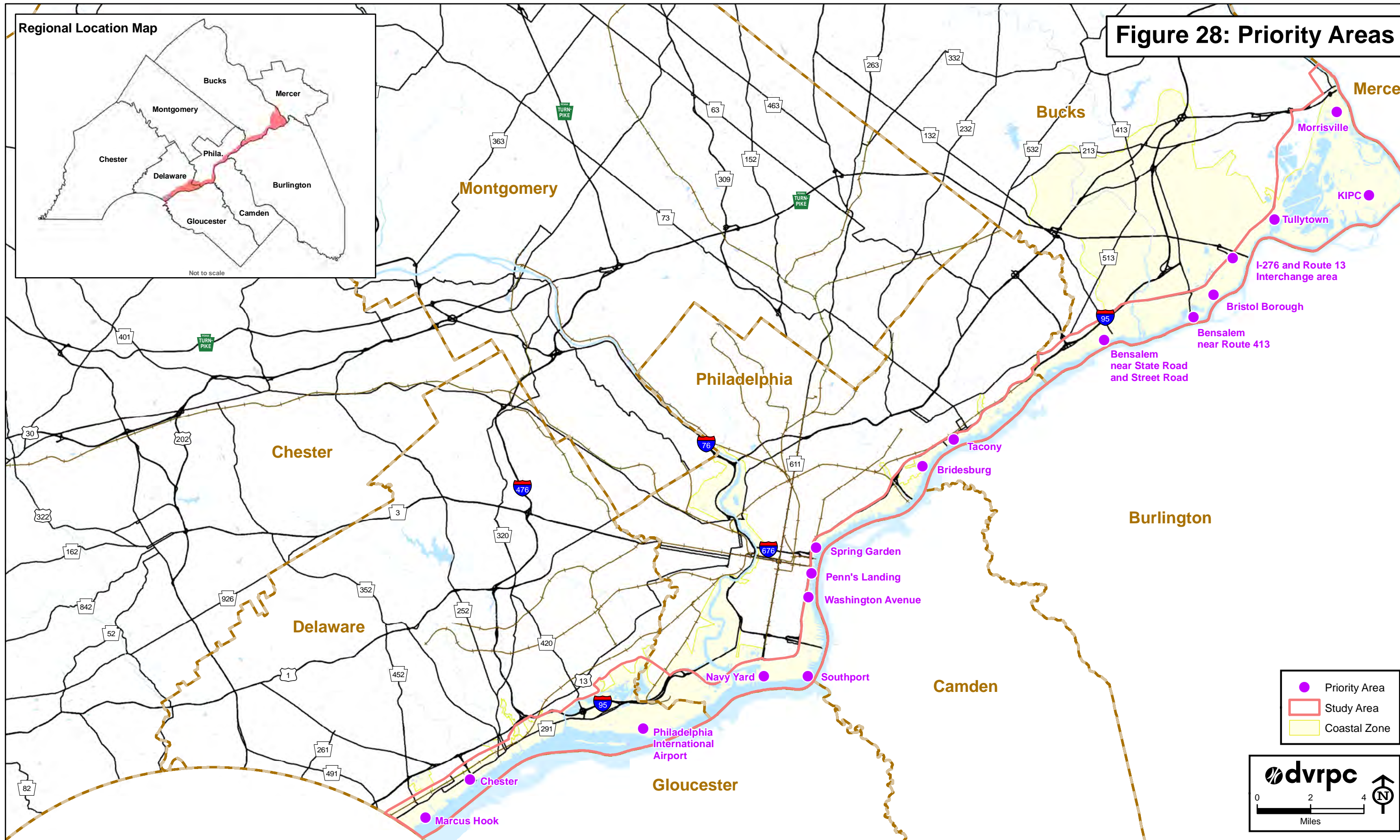
The SEPTA Regional Rail station in Marcus Hook serves as the transportation hub for three municipalities (Marcus Hook, Trainer, and Lower Chichester), and the most pressing need of all the communities is to establish linkages and multi-jurisdictional support for this asset.

- Marcus Hook—Relocate the Marcus Hook rail station to create a modern, mixed-use, multimodal transit facility. Redevelop the FMC Viscose Site and expand the Market Square Memorial Park.

Regional Location Map



Figure 28: Priority Areas



- Priority Area
- Study Area
- Coastal Zone

dvrpc

0 2 4
Miles

Conclusion

One of the most heartening aspects of this study was the realization that there are already many public access sites along the Pennsylvania side of the tidal Delaware River. Conversely, there are not large gaps in access that have not been studied. The following broad and specific recommendations emerged.

General Recommendations

Use a Balanced Approach

There are a variety of users along the Delaware. While providing public access is important, there are still a variety of thriving businesses along the riverfront. Thus, it is important to strike the right balance in a way that allows different users to benefit from the river. This transformation cannot take place overnight and will take time to achieve, but eventually the region will have a waterfront that all of its citizens can access to live, work, and play.

Secure More Open Space Along the Waterfront

As Figure 2 shows, there are a great deal of working waterfront sites and tourism/recreation/heritage sites but decidedly fewer sites for appreciating nature and open space. The region must make progress toward providing more open space along the waterfront. DVRPC's 2035 Land Use Plan shows a nearly continuous greenspace network along the Tidal Delaware by 2035. Synthesizing the environmental resource mapping and planning that has already been done would allow for the identification of priority parcels for preservation for recreational, wildlife protection, and habitat restoration purposes. Land conservation partners could include the Heritage Conservancy and Natural Lands Trust, as well as county and municipal open space programs.

In 2009, the Philadelphia Mayor's Office of Sustainability released the ambitious *Greenworks* plan to make the city the greenest city in America by 2015. The plan includes 15 targets in five areas: Energy, Environment, Equity, Economy, and Engagement. Target nine is to "Provide Park and Recreation Resources Within 10 Minutes of 75 Percent of Residents." In order to achieve this goal, Philadelphia Parks and Recreation and PennPraxis created the Green2015 initiative, which outlines a strategy for adding 500 acres of new publicly accessible green space to the city by 2015. The current Park and Recreation Center Service map shows that several waterfront neighborhoods, including Tacony, Bridesburg, Port Richmond, Kensington, Pennsport, and Marconi Plaza, are particularly underserved by parks and recreation centers. As a result, many of the park opportunities identified in the



Even on a cold winter day, two walkers enjoy a stroll through the open space along the Delaware River in Morrisville, PA.

plan also fall along the waterfront. Creating parks with trees, stormwater management facilities, and trails for walking and biking along the waterfront will also help the city achieve several other targets, including Target 5: Reduce Greenhouse Gas Emissions by 20 Percent, Target 6: Improve Air Quality toward Attainment of Federal Standards, Target 8: Manage Stormwater to Meet Federal Standards, Target 11: Increase Tree Coverage toward 30 Percent in All Neighborhoods by 2025, and Target 12: Reduce Vehicle Miles Traveled by 10 Percent.

Improve Existing Assets First

In addition to opening up access to more of the waterfront, many of the plans recognize that it is extremely crucial to improve access to destinations that already exist, enhance available connections both on land and on water, and create connections where they do not exist. Especially in this era of constrained resources, it is important to maintain existing assets first.

In many cases, the lack of access to the waterfront is a perceived problem. Access points do exist in numerous locations; they are simply hard to find and/or unpleasant to get to. The consultants for the Master Plan for the Central Delaware identified 40 streets that pass under I-95 between Allegheny Avenue and Oregon Avenue in Philadelphia. These streets often simply need better signage, lighting, and minor physical improvements. Twenty of the streets that pass under I-95 will become primary Connector Streets, which will be green, pedestrian-friendly streets that link the city and waterfront. The Delaware River Waterfront Corporation has already overseen the transformation of the Race Street Connector with additional lighting, bike lanes, new sidewalks, and bollards to protect pedestrians. Existing funding programs, such as Transportation and Community Development Initiative (TCDI) and Coastal Zone Management (CZM) grants, could be used to fund similar studies and preliminary design work for improvements at other locations.

Design With Nature and With People in Mind

Regardless of whether a project improves an existing facility or creates a new one, design matters. Facilities must enhance the community and expand mobility and access for all segments of the population, including children, the elderly, the disabled, and the poor. Public access facilities should foster a sense of pride and identity. It is also important to design with nature, improving environmental sustainability and protecting, preserving, and enhancing the vital Delaware River. It would be irresponsible to encourage more waterfront development and waterborne transportation without taking steps to improve the natural environment.

Using green infrastructure to deal with stormwater is one



Decaying piers often provide habitat for fish. The Delaware River Waterfront Corporation designed with nature in mind when they used \$600,000 to create Washington Avenue Green near Pier 53 in Philadelphia. The pier, which is covered with large trees and brush, was not touched in this project.

way to design with nature. The Philadelphia Water Department (PWD), the City agency charged with ensuring compliance with the Federal Clean Water Act, developed Green City, Clean Waters, a 25-year infrastructure management program. It will protect and enhance our region's waterways by managing stormwater runoff with innovative green infrastructure and significantly reducing the city's construction of additional underground infrastructure. The PWD envisions greening at least one-third of the existing impervious cover in Philadelphia's Combined Sewer System drainage areas to filter or store the first inch of rainwater runoff each time it rains. The Green City, Clean Waters plan serves as a model for communities across the nation.

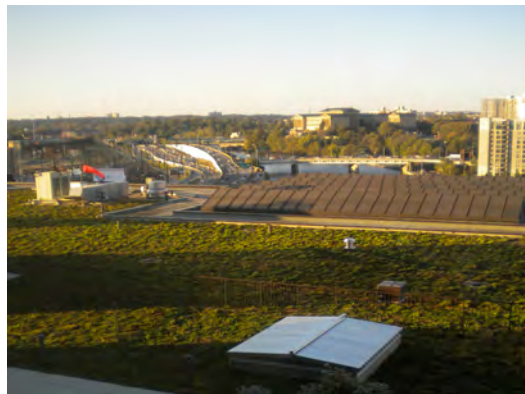
Specific Recommendations

Forge Relationships with Organizations in Neighboring States

While this report focused on the Pennsylvania side of the tidal Delaware River, it should not be forgotten that New Jersey and Delaware also border on the tidal Delaware. There are already many examples of cross-jurisdictional partnerships. In 2011, the City of Camden and the City of Philadelphia coordinated several waterfront events, such as the "Two Cities, One Waterfront" concert and fireworks on the Fourth of July and the "Twice the Fireworks, Twice the Fun" festivities on New Year's Eve. Another large event that brought visitors to both shores of the Delaware was Red Bull's Flugtag during Labor Day weekend 2010. Over 85,000 spectators lined both sides of the river, as well as the walkway along the Benjamin Franklin Bridge. Many also came by boat to be closer to the action.

In addition to events, several multi-jurisdictional partnerships are also working on joint infrastructure projects. In 2010, the Pennsylvania Environmental Council, Bicycle Coalition of Greater Philadelphia, City of Philadelphia, and Camden County Parks Department won \$23 million to fund trails between Philadelphia and Camden through the U.S. Department of Transportation's TIGER (Transportation Investment Generating Economic Recovery) program.

These cross-river partnerships could lay the foundation for other projects in the future, such as a region-wide ferry system. Our region's roads and public transit systems are already congested. Expanding the use of ferries will ease traffic congestion, reduce air pollution, and lower greenhouse gas emissions. The Delaware River Waterfront Corporation owns three water taxis and plans to begin a seasonal north-south service by the spring of 2012. DRWC also plans to work closely with DRPA to examine how the ferry system can be expanded over time to strengthen the connections between various locations in New Jersey and the Central Delaware.



The green roof on the PECO building at 23rd and Market Streets in Philadelphia is an example of green infrastructure that absorbs stormwater.



Thousands of fans gathered along the Delaware River in Camden and Philadelphia to witness Redbull's Flugtag 2010. Source: <http://www.pnewsire.com/news-releases/red-bull-flugtag-flies-through-philadelphia-102230509.html>

An example of a bi-state organization in another region is the Metropolitan Waterfront Alliance (MWA), which is the voice of over 500 organizations with ties to New York and New Jersey's regional waterways. MWA's vision is to ensure that the harbor is clean and accessible, surrounded by places to learn, work, and play, with inviting parks, dependable jobs, and reliable, eco-friendly transportation for all. Started as a project of the Municipal Art Society of New York in 2000, MWA became an independent 501(c)(3) organization in 2007. The organization has succeeded in creating a 5-point Waterfront Action Agenda, hosting regional waterfront conferences, emailing bi-weekly waterfront news, and organizing "City of Water Day," a free annual event that teaches participants about environmental health, social justice, and wise waterfront development.

Pursue National Designation for the Tidal Delaware

The Pennsylvania Environmental Council is campaigning to obtain a National Recreation Area (NRA) designation for the tidal portion of the Delaware River. PEC met with representatives from NRAs from across the nation in July 2010. Several U.S. Congress Members requested the National Park Service (NPS) conduct a Reconnaissance Survey to assess the viability of NPS involvement in the Tidal Delaware River. The Director of NPS approved the request and it will be completed in 2012. PEC should continue to work with the National Park Service and members of Congress to achieve the National Recreation Area designation. This federal designation will encourage collaboration amongst the numerous organizations and agencies that manage the Delaware River's natural and cultural resources.

Compile Better Data on Waterfront Usage

Anecdotal evidence suggests that some of the waterfront public access sites are plagued by overcrowding, while others are severely underutilized. GPTMC has data about the top 20 attractions in Philadelphia and the region, but no comprehensive visitor/usage data for all of the sites along the waterfront is readily available. Such data would help prioritize areas in need of facility upgrades or interpretive enhancements. Students at local universities, such as the University of Pennsylvania's Master of City Planning program or Temple University's School of Tourism and Hospitality Management, could conduct the research.

GPTMC Should Create a "Delaware River Attractions" Page on their Website

According to a May 2011 Partnership for the Delaware Estuary report, the Delaware Estuary watershed is the economic engine of the Delaware Valley, providing over \$10 billion in annual economic activity from recreation, water quality and supply, hunting and fishing, forests, agriculture, and parks.



It is easy to track attendance statistics at places that charge admission, such as the Independence Seaport Museum in Philadelphia, which receives 80,000 visitors per year. It is often harder to track usage data at other waterfront sites with multiple entrances or no paid staff.

Given this, an integrated regional marketing initiative for public access sites along the Delaware would be worthwhile. It would ensure that both visitors from outside the region and residents within the region spend money at attractions along the Delaware River.

Although many sites already market themselves, their efforts are fragmented and piecemeal. Pennsylvania's Tidal Delaware assets are not currently presented to the public in a way that highlights the regional waterfront connection. For example, the Delaware River Waterfront Corporation's website describes seasonal programs, festivals, and special events, but their focus is limited to a small portion of Philadelphia's waterfront. GPTMC's website lists things to do in different categories, such as "Beaches, Lakes, and Boating," "Hunting and Fishing," and "Museums and Attractions," but there is no comprehensive list of activities and sites along the Delaware River.

GPTMC should create a "Delaware River Attractions" page on their website. There are several websites that could be used as models. The Coopers Ferry Development Association (CFDA) in Camden has an excellent website that promotes attractions, events, and things to do on the Camden Waterfront at <http://www.camdenwaterfront.com/>. Waterfront Action is a non-profit group promoting public access to the waterfront in Oakland-Alameda, California; their comprehensive calendar of regional waterfront events is available at <http://www.waterfrontaction.org/events/calendar.htm>.

Municipalities Should Update Zoning Regulations to Allow and Protect Public Access

Municipalities should improve their land use practices to ensure that the river's edge becomes a place where people can congregate and recreate. Changes to zoning ordinances could promote increased community access to the river by allowing for the creation of new riverfront plazas, greenways, footpaths, boat launches, esplanades, beaches, boathouses, docks, fishing piers, and picnic facilities. Municipalities should encourage the extension of the existing street grid to the river and create access points at regular intervals.

The Master Plan for the Central Delaware outlines several zoning recommendations to create a walkable urban waterfront in Philadelphia that minimizes the use of automobiles and maximizes the use of transit and other transportation modes. These recommendations, which will be incorporated into the base zoning, the Waterfront Overlay Zoning District, and design guidelines for the area, include:

- maintaining the existing, thriving port and heavy industrial activities at the north and south ends of the Central Delaware;
- zoning for predominantly residential and mixed-uses along the waterfront;



Visitors enjoy a fun-filled day at Penn's Landing, where the Delaware River Waterfront Corporation offers and successfully markets events throughout all the seasons of the year. Source: J. Smith for GPTMC

- excluding large-format retail, as well as adult entertainment and other incompatible uses;
- requiring active ground-floor uses—such as retail sales, commercial services, restaurants, lobbies of hotels and theaters, libraries, museums, and galleries—to encourage vibrant and thriving street life;
- a maximum of 10,000 square feet per retail establishment, except for food markets;
- requiring a continuous street wall with limited setbacks at street level;
- a minimum of 40 percent open space for lots over 5,000 square feet on the waterfront;
- a minimum building setback of 50 feet from the top of bank of the river, with an additional setback of 50 feet in certain areas;
- a minimum height of one story;
- a maximum height of eight stories and 90 feet;
- requiring parking structures, surface lots, and loading areas to be screened from view;
- minimizing curb cuts on streets that are essential for pedestrian connectivity;
- and locating industrial loading so that it does not negatively affect bicyclists and pedestrians.

While conditions will vary by municipality, the themes can be applied universally. These include: creating a network of distinctive public spaces; promoting walkable, residential neighborhoods; accommodating diverse land uses along the waterfront; encouraging ecological enhancement; and crafting a plan that can be implemented incrementally.



A view of the Delaware River as seen from the railroad bridge just north of Tioga Marine Terminal.

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Abbreviations

CDAG: Central Delaware Advocacy Group
CRM: Coastal Resources Management Program
CZM: Coastal Zone Management

DCNR: Department of Conservation and Natural Resources
DEP: Department of Environmental Protection
DRCC: Delaware River City Corporation
DRPA: Delaware Regional Port Authority
DRWC: Delaware River Waterfront Corporation
DSPC: Diamond State Port Corporation
DVRPC: Delaware Valley Regional Planning Commission

GPIC: Greater Philadelphia Innovation Cluster
GPTMC: Greater Philadelphia Tourism Marketing Corporation

KIPC: Keystone Industrial Port Complex

NOAA: National Oceanic and Atmospheric Administration

PCPC: Philadelphia City Planning Commission
PCTI: Pennsylvania Community Transportation Initiative
PEC: Pennsylvania Environmental Council
PennDOT: Pennsylvania Department of Transportation
PFBC: Pennsylvania Fish and Boat Commission
PIDC: Philadelphia Industrial Development Corporation
PRPA: Philadelphia Regional Port Authority

SJPC: South Jersey Port Corporation

TCDI: Transportation and Community Development Initiative
TIGER: Transportation Investment Generating Economic Recovery
TIP: Transportation Improvement Program

The background features a stylized city skyline in shades of green and yellow. Overlaid on this is a diagram of water flow represented by curved, overlapping bands in shades of blue and green. Dashed white arrows indicate the direction of flow: some point downwards, some upwards, and some horizontally. A central teal circle contains the text 'APPENDIX A'.

APPENDIX A



Case Studies of Successful Waterfronts

CASE STUDY 1: BOSTON, MASSACHUSETTS'S FERRY SERVICE

Many major cities along rivers have commuter ferry services that serve their residents and visitors. New York has the Staten Island ferry as well as several private water taxis. San Francisco has a variety of private ferries, and Washington State's Department of Transportation owns and operates ferries that connect communities along Puget Sound and the San Juan Islands.

Boston offers five different ferry routes operated by the MBTA, serving the inner harbor, the airport, and suburban communities. Average weekday ridership in Fiscal Year 2009 ranged from 136 on the F2 Ferry between Quincy and Logan Airport to 2,314 on the F1 between Hingham and Boston. Total ferry ridership has approximately doubled between 1990 and 2009; in Fiscal Year 1990, total ferry ridership was 777,244, while it was 1,505,817 in Fiscal Year 2009.

Ferry operators are selected by MBTA based on their ability to provide high-quality, cost-effective service. The MBTA sets fares and schedules and maintains the docks and other landside facilities. In addition, the MBTA owns two vessels and the Quincy terminal building. The remaining vessels used in ferry service are owned and maintained by the operators.

In 2011, NJDOT's Office of Maritime Resources commissioned a study looking at potential commuter ferry service across the Delaware in the area between Trenton and southern Philadelphia. Some of the considerations in any ferry feasibility study include:

- market potential
- service alternatives
- travel demand forecasts
- landside infrastructure analysis
- waterside operations analysis
- environmental impacts
- funding
- operating authority
- existing travel conditions/congestion

If done properly, commuter ferries can be an economically sustainable part of the regional transit system.



A MBTA Harbor Express Ferry prepares to leave the dock.



Signage indicating the direction of a ferry terminal along the Boston Harborwalk.



Boston's waterfront, as seen from the John Joseph Moakley United States Courthouse.

CASE STUDY 2: ALEXANDRIA, VIRGINIA'S WATERFRONT WALK

Alexandria, Virginia's Waterfront Walk offers wonderful views of the Potomac River, the new Woodrow Wilson Memorial Bridge, the National Harbor, downtown Washington, and the national monuments.

The Waterfront Walk runs along the waterfront in the Old Town Alexandria portion of the city and connects to the Mount Vernon Trail on both the north and south sides of the city. The Mount Vernon Trail, which winds along the Potomac River's shoreline for nearly 18 miles, actually becomes an on-street route in Alexandria. This trail, which links Mount Vernon to Theodore Roosevelt Island, is a favorite of cyclists.

The Walk meanders through several city parks, which offer both active and passive recreation, and passes by the city marina and the Torpedo Factory Art Center. Numerous shops and restaurants surround the trail in the area between Queen Street and Duke Street of Old Town. The trail links the residential areas and the Potomac River and also connects to the marinas and riverboat ferries. The City Marina offers overnight boat slips plus short-term docking space for both pleasure boats and commercial vessels. Restroom and shower facilities are available for use by boaters. Riverboat ferries also dock in this area, including the Alexandria-National Harbor Ferry.

The Alexandria Waterfront Walk includes wonderful wayfinding signage that illustrates the location of the sign on a map of the waterfront trail and surrounding street network. The Walk is paved in the more landscaped areas, a gravel trail surface in the natural park areas, and boardwalk in areas where the Walk is over the Potomac.

The City of Alexandria realizes that planning for the waterfront is a continual process and is currently working on a Waterfront Small Area Plan. This plan will provide the framework for the future of the waterfront in a way to increase the enjoyment of visitors and Alexandrians alike.



Residents enjoy active and passive recreation along the Waterfront Walk.



The signage along the Waterfront Walk indicates your location along the trail.



The landscaped Waterfront Walk trail at Tide Lock City Park.

CASE STUDY 3: WILMINGTON, DELAWARE'S RIVERWALK

Like Philadelphia, Wilmington is located along two rivers: the Brandywine and the Christina. Since 1995, Delaware's Riverfront Development Corporation has transformed former industrial land into recreational, cultural, retail, and culinary amenities. Such amenities include a wildlife refuge, environmental education center, and, linking them, a riverwalk.

The Russell W. Peterson Wildlife Refuge, a 212-acre urban wildlife refuge, is located 1.5 miles from Wilmington's rail station. The DuPont Environmental Education Center, made possible by a marsh restoration process begun in 1998, opened its doors eleven years later. The indoor portion of the facility is a four-story, 13,500-square-foot building owned by the Riverfront Development Corporation of Delaware and operated by the Delaware Nature Society. Here, visitors can learn about a variety of native plants and animals through interactive exhibits, free tours, and other programs.

One notable feature of the waterfront is how accessible it is. Visitors can arrive by Riverwalk, River Taxi, DART trolley, car, and bicycle. Pedestrians can stroll along the 1.5-mile Riverwalk along the banks of the Christina to the Environmental Education Center, located at the south end of the Riverwalk. One of the five docks of the 36-passenger River Taxi is also within walking distance of the Environmental Education Center. From the Center, passengers can travel to Dravo Plaza, C.W. Harborside, Riverfront Market, Tubman-Garrett Riverfront Park, and Kalmar Nyckel Shipyard. The River Taxi operates Tuesdays through Sundays between June and September, as well as weekends in May and October. The center is also served by the Route 32 Wilmington Trolley, which operates every 15 minutes between 6:30 AM and 6:00 PM on weekdays and every half hour between 7:45 AM and 5:00 PM on Saturdays. There is also ample free parking for cars, as well as several bike racks for cyclists.



Wilmington's Riverwalk as seen from the Environmental Center.



The boardwalk over the marsh at the Russell W. Peterson Wildlife Refuge.



Bicycle racks are available in front of the DuPont Environmental Education Center.



Two bicyclists enjoy the Riverwalk in Wilmington, DE.

CASE STUDY 4: NEW JERSEY'S HUDSON RIVER WALKWAY

Conceived in 1966 and starting to be constructed in the 1980s, the Hudson River Walkway in northern New Jersey has opened up the waterfront to residents by allowing access to the once-industrial areas along the river. The completed walkway will stretch through nine municipalities. As the crow flies, the distance is approximately 18 miles; however, the completed path will be over 40 miles long as it meanders along the piers.

Since 1980, developers who want to build or redevelop projects along the Hudson River waterfront between the George Washington Bridge in Fort Lee and the Bayonne Bridge in Bayonne must build a portion of the walkway “coincident with the shoreline of the development.”

The walkway legislation is grounded in the public trust doctrine, an idea dating back to ancient Rome that contends that tidal waters and shorelines are held for citizens by the states and cannot be sold or given away. In fact, the walkway rules require 24-hour public access. New Jersey’s Department of Environmental Protection issued *The Hudson Waterfront Walkway Plan and Design Guidelines* in 1984 to provide guidance about appropriate and adequate public access, including bicycle access, preservation of views of the waterfront, and development of parks and plazas. In 1988, the state’s previous Waterfront Walkway planning efforts were reinforced with the adoption of NJAC 7:7E-3.48 et seq., which required applicants for a Waterfront Development Permit to provide a thirty-foot easement along the Hudson River’s edge. Though challenged, the provisions were upheld in court. In addition to the local, state, and federal agencies involved with overseeing the walkway, since 1988, a nonprofit called the Hudson River Waterfront Conservancy (HRWC) has monitored the construction and maintenance of the Hudson River Walkway.



A map of the 18.5 mile Hudson River Walkway. The portion in green is constructed. Source: Hudson Walkway Waterfront Conservancy



The Hudson River Walkway near City Place at the Promenade in Edgewater, NJ.



Residents enjoy a stroll along the Hudson River Walkway.

The background features a stylized city skyline in shades of green and yellow. Overlaid on this are several curved, overlapping bands in shades of blue and grey, each containing a series of white arrows pointing in various directions, suggesting water flow or movement. A central teal circle contains the text 'APPENDIX B'.

APPENDIX B

DELAWARE VALLEY
 **dvrpc**
REGIONAL
PLANNING COMMISSION

Case Studies of Waterfront Access Maps

Waterfront Access Maps Case Study

The banks of the Delaware River contain some areas that are open for public use and others that serve industrial port functions; however, many citizens are unaware of the multiple uses of our region's waterfront. One reliable method that cities use to increase awareness of existing waterfront assets is by providing waterfront access maps. This case study highlights best practices by examining four cities with various waterfront conditions and provides recommendations for disseminating such information through waterfront access maps.

Although Seattle's Parks and Shoreline Access Map itself shows limited information about the city's parks, the Port of Seattle website contains a detailed list of the parks' names, locations, and a description of each. These descriptions include the size of the park and information on activities such as exercise, picnicking, and historical points of interest.

Public transit stops are identified on Oakland's Waterfront Public Access Map. This map also clearly denotes the locations of parks, waterfront projects funded through a special bond program, and waterfront commercial mixed-use developments. Although the map provides little information beyond these points, it prompts further study of the relationship between mixed-use development and parks.

Some New York boroughs have produced very detailed maps for the city's Greenways program. This program is unique in that it focuses on the connections between New York City's many parks, some of which are located on a waterfront. The program itself is very large-scale, but when broken down by borough, the maps are able to show individual parks and how they fit into the neighborhood and citywide contexts. As would be expected, level of detail decreases with an increase in scale.

Of the cases studied, Connecticut's Coastal Access Guide is the best example of how to connect geographical information with other useful details, such as those provided on Seattle's website. The Connecticut guide is an interactive Web-based tool provided by the state's Department of Environmental Protection. Coastal areas may be identified by searching for a specific activity or town or by browsing the map. Once an individual site has been located, its detailed description is made available. The website also offers a printable version of the information available for each site, featuring both a site map and full description. This description includes the following:

- Link to a website if available
- Photos
- Location
- Fees
- Directions
- Parking
- Accessibility
- Contact information
- Lists of facilities and attractions
- Environmental characteristics

Although an online guide may be the most efficient way to aggregate detailed information about coastal areas, it would not be the most effective when attempting to reach certain audiences, such as tourists or residents without Internet access. In these cases, a brochure, which could convey a pared-down amount of the detail available online, might be a more viable tool.

Maps are a useful method of describing geographic information, but today's information systems-based tools provide a more comprehensive way of doing so that also allows for descriptive details to be incorporated without the visual clutter that would arise from including everything on a single map.

Port of Seattle Parks and Shoreline Access Map



Oakland Waterfront Public Access Map



Source: <http://www.waterfrontaction.org/map/>

Manhattan Waterfront Greenway Map



Source: http://www.nyc.gov/html/edc/pdf/greenway_mapside.pdf



Coastal Access Home

Connecticut Coastal Access Guide

Explore the Connecticut Shore

About Coastal Access

Lighthouse Point Park

New Haven, Connecticut

[Describe Site](#)

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Site Search

Town Search

Map Search

Select A Site

Public Beach Search

Boating Search

Fishing Search

Swimming Search

Useful Links

Contact Us

Help



Lighthouse Point Park, New Haven

Lighthouse Point Park offers something for everyone. One can view the 70-foot tall Five-Mile Point Lighthouse constructed in the 1840's and also the Southwest Ledge Light, a scenic operating lighthouse. Both car-top and trailered boat access to Long Island Sound. A boat ramp provides saltwater winter boaters with access to New Haven Harbor, but strong northwesterly winter winds make the return trip back to shore tricky. The Park offers canoes and kayaks more protected access to coastal waters at a sandy area near the mouth of Morris Creek, located at the east end of the Park's beach past the bathhouses. Other coastal resources in the park include intertidal flats and rocky shorefront. Stop by the large blue and white pavilion near the lighthouse to see the restored historic carousel (operates summer only). Visit the rangers during warm weather when they offer sea-kayak rental and instruction. For up-to-date information, contact [New Haven Parks and Recreation](#).

[More Photos...](#)

Location




Lighthouse Road
New Haven, Connecticut

Facilities

Access Pier

Boat Launch Ramp

Source: <http://www.lisrc.uconn.edu/coastalaccess/>

 **CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Connecticut Coastal Access Guide

Explore the Connecticut Shore

Lighthouse Point Park



Lighthouse Point Park, New Haven

Site Location

Lighthouse Road, New Haven, Connecticut

Driving Directions

From the East: Take I-95 South to the Frontage Road exit which is exit 51. Stay straight to go onto Frontage Road for 0.7 miles. Turn left onto Route 337/Townsend Avenue 2.2 miles. Turn right onto Lighthouse Road. Follow this road until it which will lead you into the park.

From the West: Take I-95 North to exit 50 to Lighthouse Point, which is Woodward Avenue. Continue onto Main Street. Turn right onto Route 337/Townsend Avenue. 2.2 miles. Turn right onto Lighthouse Road. Follow this road until it leads you into the park.

Parking

Parking Lot

Fees

Yes. Contact City of New Haven for fee schedule.

Site Description

Lighthouse Point Park offers something for everyone. One can view the 70-foot tall Five-Mile Point Lighthouse constructed in the 1840's and also the Southwest Ledge Light, a scenic operating lighthouse. Both car-top and trailered boat access to Long Island Sound. A boat ramp provides saltwater winter boaters with access to New Haven Harbor, but strong northwesterly winter winds make the return trip back to shore tricky. The Park offers canoes and kayaks more protected access to coastal waters at a sandy area near the mouth of Morris Creek, located at the east end of the Park's beach past the bathhouses. Other coastal resources in the park include intertidal flats and rocky shoreline. Stop by the large blue and white pavilion near the lighthouse to see the restored historic carousel (operates summer only). Visit the rangers during warm weather when they offer sea-kayak rental and instruction. For up-to-date information, contact [New Haven Parks and Recreation](#).

Accessibility

Parts of the site offering views of the water are wheelchair accessible. Some facilities/uses listed may not be fully accessible to the mobility-impaired.

Facilities

Access Pier, Boat Launch Ramp, Car-top Boat Access, Food Concession, Handicapped Access, Picnic Area, Sanitary Facilities (seasonal)

Activities

Bird and Wildlife, Fishing, Historic, Cultural Interest, Lighthouse, Supervised Swimming, Trails, Walkways

Environment

Harbor Setting, Fronting Long Island Sound, Rocky Shore, Sandy Beach, Tidal Wetland

Source: <http://www.lisrc.uconn.edu/coastalaccess/>



APPENDIX C



Funding Opportunities

POTENTIAL FUNDING SOURCES

A selection of grants and programs that might be helpful for projects and programs in the study area is included below. This list is not intended to be exhaustive. See DVRPC's *Municipal Resource Guide* for more information.

General

Coastal Zone Management (CZM) Grants

Eligibility: State and local government agencies and incorporated nonprofit groups located in or having facilities in Pennsylvania's Delaware Estuary or Lake Erie Coastal Zones.

Purpose: Funding for coastal zone projects. Primary Focus Areas: Coastal hazard areas, wetlands, public access for recreation, intergovernmental coordination, ocean resources/biodiversity, and coastal non-point source-pollution program. Additional Program Focus Areas: Dredging and spoil disposal, fisheries management, historic sites and structures, port activities, energy facilities siting, and public involvement.

Terms: Generally, a \$50,000 grant limit is imposed on any single project and must be equally matched through cash or eligible in-kind sources. Construction and acquisition project proposals can be submitted only by a government entity. Projects involving construction must provide a relevant relationship to the "land/water interface" of coastal resources. Simply being located within the coastal zone does not make a project eligible for funding.

Contact: PA DEP Pennsylvania Coastal Resources Management (CRM) Program

Phone: 717-772-4785

Web: www.dep.state.pa.us/river/grants/crmgrants/crmgrants.htm

Infill and Brownfields

Assessment Grants

Eligibility: State, local, and tribal governments; land clearance authorities, quasi-governmental entities, regional councils, and redevelopment agencies

Purpose: Support site inventories and assessment for brownfield reclamation activities

Terms: Grants up to \$200,000 for site assessments; additional funding may be secured if hazardous substances are present on the site

Deadline: Varies

Contact: U.S. Environmental Protection Agency

Phone: 202-566-2758

Web: www.epa.gov/brownfields

Brownfield Inventory Grants

Eligibility: Pennsylvania municipalities, counties, and economic development agencies

Purpose: To gather information about properties available for redevelopment including information about existing infrastructure, suspected or confirmed contamination and other information

Terms: \$1000 per site with a maximum of \$50,000 per grantee

Deadline: Varies

Contact: PA DEP

Phone: 717-783-7816

Web: www.dep.state.pa.us

Brownfield Economic Development Initiative

Eligibility: Pennsylvania low to moderate income municipalities

Purpose: Intended to stimulate economic development in cities

Terms: Maximum grant of \$2 million; can be used with Section 108 housing loans

Deadline: Annual

Contact: U.S. Department of Housing and Economic Development

Phone: 215-656-0500

Web: www.hud.gov

Cleanup Grants

Eligibility: State, local, and tribal governments, land clearance authorities, and redevelopment agencies

Purpose: To provide cleanup activities at brownfield sites

Terms: Maximum grants for \$1 million for clean up of more than five sites; 20 percent match is required

Deadline: Varies

Contact: U.S. Environmental Protection Agency

Phone: 202-566-2758

Public Works and Economic Development Program

Eligibility: Economic Development Districts, states, municipalities, and tribal governments, and institutions of higher learning

Purpose: Supports brownfield redevelopment

Terms: Vary

Deadline: Open

Contact: U.S. Department of Commerce

Phone: 215-597-7883

Revolving Loan Fund Grants

Eligibility: State, local, and tribal governments; land clearance authorities, quasi-governmental entities, regional councils, and redevelopment agencies

Purpose: To capitalize revolving loan funds that support brownfield clean up activities

Terms: At least 60 percent of the funds must be used to implement a revolving loan fund in order to provide low interest or no-interest loans for brownfield clean up; a 20 percent match is required.

Deadline: Varies

Contact: U.S. Environmental Protection Agency

Phone: 202-566-2758

Web: www.epa.gov/brownfields

Targeted Brownfield Assessments (TBAs)

Eligibility: States, tribal governments, and municipalities

Purpose: Grants and technical assistance for environmental assessment at brownfield sites

Terms: EPA will not fund TBAs at properties where the owner is responsible for the contamination

Deadline: Varies

Contact: U.S. Environmental Protection Agency

Phone: (215) 814-3129

Web: www.epa.gov/reg3hwmd/bf-lr/index.htm

Smart Growth

Business in Our Sites

Eligibility: Pennsylvania municipalities, municipal authorities, redevelopment/industrial development agencies, private developers

Purpose: To empower communities to attract businesses by helping them build an inventory of ready sites

Terms: Grants may not exceed 50 percent of the total amount of financing provided or \$5 million (whichever is less). Site must be previously utilized property or undeveloped property that is planned and zoned for development. Private developers are only eligible for loans, not grants.

Deadline: Open

Contact: Pennsylvania Department of Community and Economic Development

Phone: 800-379-7448

Web: www.newpa.com

Community Revitalization Program

Eligibility: Pennsylvania local governments, redevelopment authorities, redevelopment agencies, non-profits

Purpose: To support local initiatives that promote the stability of communities

Terms: Grants of \$5,000–\$25,000

Deadline: Three rounds per fiscal year
Contact: Pennsylvania Department of Community and Economic Development
Phone: 866-466-3972
Web: www.newpa.com

Conservation/Sound Land Use Grants

Eligibility: PA Local Governments
Purpose: To encourage conservation planning and sound land use planning
Terms: Grant funding for 50 percent of project cost
Deadline: Varies
Contact: Pennsylvania Department of Community and Economic Development
Phone: 866-466-3927

Certified Local Governments Grant Program (CLG)

Eligibility: Limited to Pennsylvania Certified Local Governments
Purpose: To promote and protect historic properties and planning for historic districts
Terms: Grants up to 60 percent of project costs
Deadline: Annual
Contact: Pennsylvania Bureau of Historic Preservation
Phone: 717-787-0771
Web: www.artsnet.org

Community Development Block Grant (CDBG)

Eligibility: Pennsylvania local governments, non-profits, and for-profit developers.
Purpose: Grants and technical assistance for federal designated municipalities for any type of community development
Terms: 70 percent of each grant must be used for activities that benefit low-moderate income persons. Competitive
Program - \$500,000 maximum
Deadline: Quarterly
Contact: Pennsylvania Department of Community and Economic Development
Phone: 866-466-3972
Web: www.newpa.com

Community Revitalization Program

Eligibility: Pennsylvania local governments, redevelopment authorities, industrial development agencies, and nonprofits
Purpose: To support local initiatives that promote the stability of communities
Terms: Grants of \$5,000-\$25,000
Deadline: Three funding rounds during fiscal year
Contact: Pennsylvania Department of Community and Economic Development
Phone: 866-466-3972
Web: www.newpa.com

Delaware County Revitalization Program

Eligibility: Targeted areas in Delaware County
Purpose: To invest and stabilize older boroughs and townships in Delaware County
Terms: Varies
Deadline: Annual. Renaissance Action plans must be completed prior to grant funding.
Contact: Delaware County Office of Housing and Community Development
Phone: 610-891-5131
Web: www.co.delaware.pa.us/hcd

Economic Adjustment Program (Title IX)

Eligibility: Pennsylvania local governments, states, counties, municipal authorities or Indian tribes

Purpose: To assist local interests to design and implement strategies to bring change to the local economy

Terms: Vary

Deadline: Open

Contact: Pennsylvania Department of Commerce

Phone: 215-597-4603

Web: www.doc.gov

Economic Development Administration Assistance Programs

Eligibility: Varies with program

Purpose: Provides funds needed infrastructure improvements to spur redevelopment

Terms: Varies

Deadline: Annual

Contact: U.S. Department of Commerce

Phone: 215-597-4603

Web: www.eda.gov

Elm Street Program

Eligibility: Pennsylvania local governments, redevelopment authorities, nonprofit economic development organizations, other non-profits, BIDs, neighborhood improvement districts (Elm Street)

Purpose: Grants for planning and improvements to mixed-use areas in proximity to central business districts

Terms: Maximum \$50,000 for administrative grants; maximum \$250,000 for development projects and loans.

Deadline: Open

Contact: Pennsylvania Department of Community and Economic Development

Phone: 866-466-3972

Web: www.newpa.com

Industrial Sites Reuse Program (ISRP)

Eligibility: Pennsylvania local governments, counties, redevelopment authorities, economic development agencies, private companies and developers

Purpose: To provide grants and low-interest loans for environmental assessments and remediation

Terms: Assessment: 75 percent of total cost or \$200,000, whichever is less; Remediation: 75 percent of total cost or \$1 million, whichever is less; Industrial Sites Reuse: Loans at 2 percent interest for 5 years for assessments and 15 years for remediation

Deadline: Varies

Contact: Pennsylvania Department of Community and Economic Development

Web: www.newpa.com

Keystone Historic Preservation Grant Program

Eligibility: Pennsylvania local governments and nonprofits

Purpose: Provides funding for preservation, restoration, and rehabilitation projects of historic resources listed or eligible for the National Register of Historic Places

Terms: Grants are funded at 50 percent

Deadline: Varies

Contact: Keystone Historic Preservation

Phone: 800-201-3231

Web: pa.gov/portal/server.pt/community/grants/3794

Land Use Planning and Technical Assistance Program (LUPTAP)

Eligibility: Pennsylvania cities, boroughs, townships, counties or multi municipal entities

Purpose: For the purpose of developing and strengthening community planning and management capabilities

Terms: 50 percent of total costs; \$100,000 maximum grant per fiscal year

Deadline: Open

Contact: Pennsylvania Department of Community and Economic Development
Phone: 215-560-2256
Web: www.landuseinpa.com

Local Municipal Resources and Development Program (LMRDP)

Eligibility: Pennsylvania local governments and non-profits
Purpose: Provides grants to municipalities for improving the quality of life within the community
Terms: No maximum or minimum
Deadline: Open
Contact: Pennsylvania Department of Community and Economic Development
Phone: 800-379-7448
Web: www.newpa.com

Main Street Program

Eligibility: Pennsylvania municipalities and downtowns
Purpose: Provides funds for administrative costs associated with Main Street Manager positions and offices, physical improvements, and acquisition costs
Terms: \$115,000 over a five-year period. Downtown Reinvestment and Anchor Building components: up to \$250,000 or not to exceed 30 percent of project costs
Deadline: Varies
Contact: Pennsylvania Department of Community and Economic Development
Phone: 866-466-3972
Web: www.newpa.com

Infrastructure

Infrastructure Development Program (IDP)

Eligibility: Pennsylvania municipalities, counties, industrial development authorities, redevelopment authorities, local development districts
Purpose: For specific infrastructure improvements that complement capital investments by private development
Terms: Grant maximum: \$1.25 million for public improvements; Loan maximum: \$1.25 for private investment
Deadline: Varies
Contact: Pennsylvania Department of Community and Economic Development
Phone: 717-787-7120
Web: www.newpa.com

Pennsylvania Fishing and Boating Commission's Boating Facility Grant Program

Eligibility: Counties, municipalities, land trusts, conservancies, and watershed associations. Schools and other nonprofit organizations can apply to the program through their local municipality.
Purpose: Funding for the planning, acquisition, development, expansion, and rehabilitation of public boating facilities. These facilities are not owned by the Commission when completed.
Terms: Grants can be used for acquisition, easements, site design, engineering, development, expansion, and rehabilitation of sites. Payment to cover routine operation and maintenance is not permitted. A 25 percent match is required and the property must remain open for public access for 25 years. Funding for this program comes from the Boat Fund.
Contact: Pennsylvania Fishing and Boating Commission
Phone: 717-705-7800
Web: fishandboat.com/grants.htm

Public Works and Development Facilities Program (Title I)

Eligibility: Pennsylvania municipalities, political subdivisions, municipal authorities, or Indian tribes
Purpose: To revitalize, expand, and upgrade physical infrastructure to attract new development
Terms: Varies
Deadline: Varies

Contact: Pennsylvania Department of Commerce
Phone: 215-597-4603
Web: www.doc.gov

Transportation

Bikes Belong Coalition

Eligibility: Federal, state, regional, county, and municipal agencies, non-profits, organizations whose mission is expressly related to bicycle advocacy

Purpose: To fund bicycle facilities and paths that encourage facility, education, and capacity building

Terms: \$10,000 or less

Deadline: Quarterly

Contact: Bikes Belong Coalition

Phone: 617 -734-2111

Web: www.bikesbelong.org

Community Transportation Development Fund (CTDF)

Eligibility: Nonprofit transit providers, public agencies, local and state governments and community organizations

Purpose: To promote better transportation options

Terms: Low-interest loans of up to \$150,000 per recipient and 75 percent of the total project cost

Deadline: Varies

Contact: Community Transportation Association of America

Phone: 202-661-0210

Web: www.ctaa.org

Competitive Congestion Mitigation and Air Quality Program (CMAQ)

Eligibility: Public agencies, incorporated private firms, nonprofits, local and county governments

Purpose: For projects that contribute to the attainment of the Clean Air Act standards by reducing emissions

Terms: 80 percent of costs

Deadline: April 2012

Contact: Delaware Valley Regional Planning Commission (DVRPC)

Phone: 215-592-1800

Web: www.dvrpc.org/cmaq

Home Town Streets/Safe Routes to School (HTS/SRS)

Eligibility: Federal or state agencies, Pennsylvania county or local governments, school districts, nonprofits

Purpose: To encourage the reinvestment in and redevelopment of downtowns

Terms: 80 percent of total costs. Projects must be included in the 12-year Transportation Improvement Program (TIP)

Deadline: Varies

Contact: Delaware Valley Regional Planning Commission (DVRPC)

Phone: 215-592-1800

Web: www.dvrpc.org

Municipal Bus Shelters

Eligibility: Delaware County local governments and businesses

Purpose: To assist municipalities in the provision of safe bus shelters

Terms: Contact County Transportation Management Association

Deadline: Open

Contact: Delaware County Transportation Management Association

Phone: 610-892-9440

Web: www.delcotma.org

Pennsylvania Infrastructure Bank

Eligibility: Pennsylvania local governments and contractors

Purpose: To provide low-cost financing to municipalities and contractors for eligible transportation improvements

Terms: Low-interest loans from \$50,000 to \$3.9 million through a revolving loan fund for implementation

Deadline: Open

Contact: Pennsylvania Department of Transportation (PennDOT)

Phone: 717-772-1772

Web: www.dot.state.pa.us

Transit Research and Demonstration Program

Eligibility: Pennsylvania local governments, transit operators, university, and transit organizations

Purpose: To fund innovative projects that improve the attractiveness of public transit

Terms: Grants for 80 percent of funding with a 20 percent local match

Deadline: Open

Contact: Pennsylvania Department of Transportation

Phone: 717-705-1493

Web: www.dot.state.pa.us

Transit Revitalization Investment District (TRID)

Eligibility: Pennsylvania local governments, counties, transportation authorities, and public transit agencies

Purpose: To encourage private sector investment and revitalization of areas adjacent to transit stations

Terms: 25 percent match for TRID planning study

Deadline: Open

Contact: Pennsylvania Department of Community and Economic Development

Phone: 717-783-1132

Web: www.newpa.com

Transportation and Community Development Initiative (TCDI)

Eligibility: Eligible municipalities

Purpose: Support local planning projects to improve transportation and encourage redevelopment

Terms: Grants up to \$100,000 for single projects and \$125,000 for multi-municipal projects; 20 percent local match required

Deadline: Every two years

Contact: Delaware Valley Regional Planning Commission (DVRPC)

Phone: 215-592-1800

Web: www.dvrpc.org

Transportation Enhancements Program (TE) - Pennsylvania

Eligibility: Pennsylvania local governments, counties, state or federal agencies, non-profits

Purpose: Funds non-traditional projects designed to enhance the transportation experience, to mitigate the impact of transportation facilities on communities and the environment, and to enhance community character

Terms: 80 percent to 90 percent of costs can be funded

Deadline: Varies

Contact: Delaware Valley Regional Planning Commission (DVRPC)

Phone: 215-592-1800

Web: www.dvrpc.org

Environmental

Coldwater Heritage Partnership Grants (CHP)

Eligibility: Pennsylvania local governments, counties, and municipal authorities

Purpose: To prepare preliminary watershed assessments

Terms: Grants up to \$5,000

Deadline: Varies

Contact: Pennsylvania Department of Conservation and Natural Resources
Phone: 717-787-2316
Web: www.dcnr.state.pa.us

Floodplain Land Use Assistance Program

Eligibility: Pennsylvania local governments
Purpose: Provides grants and technical assistance to encourage the proper use of land and the management of floodplain lands within Pennsylvania
Terms: 50 percent of the eligible costs
Deadline: Varies
Contact: Pennsylvania Governor's Center for Local Government Services
Phone: 888-223-6837
Web: www.newpa.com

Growing Greener Grants

Eligibility: Pennsylvania municipality, authority, or private entity that is eligible under PENNVEST
Purpose: Infrastructure improvements such as drinking water, wastewater, or stormwater
Terms: Vary
Deadline: Varies
Contact: Pennsylvania Infrastructure Investment Authority
Phone: 717-783-6798
Web: www.pennvest.state.pa.us

Growing Greener II

Eligibility: Pennsylvania local governments and nonprofits
Purpose: Provides redevelopment grants to municipalities and nonprofits to help a community's downtown redevelopment effort, focusing on the improvement of downtown sites and buildings
Terms: No minimum or maximum; typical grants average between \$250,000 and \$500,000
Deadline: Varies
Contact: Pennsylvania Department of Community and Economic Development
Phone: 866-466-3972
Web: www.newpa.com

Municipal Challenge Grant

Eligibility: Pennsylvania local governments
Purpose: Supports municipal tree inventories, tree planting, and tree care
Terms: Grant range from \$1,000–\$5,000; in-kind match required
Deadline: Annual
Contact: Pennsylvania Department of Community and Natural Resources
Phone: 717-727-2757
Web: www.dcnr.state.pa.us

PECO Green Regions

Eligibility: Municipalities in Bucks, Chester, Delaware, Montgomery and Philadelphia counties
Purpose: To protect, acquire, and enhance open space
Terms: Grants of up to \$10,000
Deadline: Spring and fall
Contact: Natural Lands Trust
Phone: 610-353-5597
Web: www.natlands.org

Pennsylvania Fishing and Boating Commission's Cooperative Habitat Improvement Program (CHIP)

Eligibility: Organizations and individuals willing to enhance and restore particular waterways that would benefit from riparian and aquatic improvement projects. Waterways through public and private lands are eligible.

Purpose: These projects may include the installation of fish habitat improvement structures and vegetative management.

Terms: This program takes place on streams through the Adopt-a-Stream program and on lakes through the Adopt-a-Lake program.

Contact: Pennsylvania Fishing and Boating Commission

Phone: 717-705-7800

Web: fishandboat.com/grants.htm

Recreational Trails Program

Eligibility: Pennsylvania county and municipal governments, state and federal agencies, private organizations

Purpose: Provide grants for developing and maintaining recreational trails and trail-related facilities

Terms: Local match of 50 percent is required

Deadline: Annual

Contact: Pennsylvania Department of Conservation and Natural Resources

Phone: 888-727-2757

Web: www.dcnr.state.pa.us

Society of Women Environmental Professionals (SWEP)

Eligibility: Nonprofit organizations, education centers, youth groups, and individuals.

Purpose: Grants intended to help fund organizations or programs that creatively enhance, restore, or protect the natural environment or provide environmental awareness through educational sessions with particular emphasis on encouraging girls and/or women in the sciences, engineering, or environmental fields.

Terms: Applicants and projects must be located within southeast Pennsylvania or northern Delaware.

Deadline: Annual

Contact: SWEP

Web: www.swepweb.com

Source Water Protection (SWP) Watershed Protection Grants

Eligibility: Pennsylvania local governments and community water systems

Purpose: To fund watershed activities

Terms: One-time grants up to \$200,000; 10 percent local match is required

Deadline: Varies

Contact: Pennsylvania Department of Environmental Protection

Phone: 717-705-5400

Web: dep.state.pa.us

TreeVitalize

Eligibility: County and local governments in Southeastern Pennsylvania

Purpose: To develop private–public partnerships to address tree coverage in Southeastern Pennsylvania. This program funds the plantings trees along streets, in parks and open space, and in riparian buffers.

Terms: Grants and technical assistance

Deadline: Varies

Contact: Pennsylvania Horticultural Society

Phone: 215-988-8874

Web: www.treevitalize.net

The background features a stylized city skyline in shades of green and yellow. In the foreground, there are curved roadways with dashed white arrows indicating traffic flow. A central blue circle contains the text 'APPENDIX D'.

APPENDIX D



Transportation Improvement Program

MPMS	Project	Program	County	Year	In Study Area
703	Wayne Junction (State of Good Repair - Station Projects)	Transit	Philadelphia	2007-2010	
703	Queen Lane (State of Good Repair - Station Projects)	Transit	Philadelphia	2007-2010	
13347	I-95/PA Turnpike Interchange and portions of I-95	Highway	Bucks	2007-2010	
13347	I-95/PA Turnpike Interchange and portions of I-95	Highway	Bucks	2009-2012	
13347	I-95, PA Turnpike Interchange (TPK)	Highway	Bucks	2011-2014	
13452	Woodbourne Road Intersection Improvement, Turning Lanes	Highway	Bucks	2007-2010	
13454	Oxford Valley Road	Highway	Bucks	2007-2010	
13549	US 1 Bridge Deck Rehabilitation	Highway	Bucks	2007-2010	
13549	US 1 (Bridges)	Highway	Bucks	2009-2012	
13576	PA 413, New Rodgers Road Corridor Improvement	Highway	Bucks	2007-2010	
13576	PA 413, New Rodgers Road (Turn Lane)	Highway	Bucks	2009-2012	
13576	PA 413, New Rodgers Road (Turn Lane)	Highway	Bucks	2011-2014	
13576	PA 413, New Rodgers Road (Turn Lane)	Highway	Bucks	2011-2014	
13580	PA 132/Street Rd., US 1-State Rd.	Highway	Bucks	2009-2012	
13606	Hulmeville Avenue (Bridge) Bridge Replacement	Highway	Bucks	2007-2010	
13606	Hulmeville Avenue (Bridge) Bridge Replacement	Highway	Bucks	2009-2012	
13606	Hulmeville Avenue Bridge Over Conrail	Highway	Bucks	2011-2014	
13611	Street Rd: Bristol to William Penn	Highway	Bucks	2009-2012	
13635	Oxford Valley Road	Highway	Bucks	2007-2010	
13635	Oxford Valley Road	Highway	Bucks	2007-2010	
13635	Oxford Valley Road/Lincoln Highway Intersection Improvements	Highway	Bucks	2011-2014	
13702	Otter Road (Bridge) Bridge Replacement	Highway	Bucks	2007-2010	Yes
13727	Bristol Road Intersection Improvements	Highway	Bucks	2007-2010	
13727	Bristol Road Intersection Improvements	Highway	Bucks	2009-2012	
13727	Bristol Road Intersection Improvements	Highway	Bucks	2011-2014	
13727	Bristol Road Intersection Improvements	Highway	Bucks	2011-2014	
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2007-2010	
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2007-2010	
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2007-2010	Yes
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2009-2012	Yes
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2009-2012	
13760	US 13, Bristol Pike	Highway	Bucks	2007-2010	Yes
13762	West Maple Avenue Bridge Replacement	Highway	Bucks	2007-2010	
13762	West Maple Avenue Bridge Over Neshaminy Creek	Highway	Bucks	2011-2014	
14747	US 322, Conchester Road Corridor Improvements	Highway	Delaware	2007-2010	
14822	PA 291, Industrial Highway	Highway	Delaware	2007-2010	Yes
14865	I-95, Delaware Expressway (SB)	Highway	Delaware	2007-2010	
15008	Folcroft Avenue (Bridge)	Highway	Delaware	2007-2010	
15008	Folcroft Avenue (Bridge)	Highway	Delaware	2007-2010	
15008	Folcroft Avenue Bridge Over Amtrak/SEPTA R2 Rail Line	Highway	Delaware	2009-2012	
15008	Folcroft Avenue Bridge Over Amtrak/SEPTA R2 Rail Line	Highway	Delaware	2011-2014	

MPMS	Project	Program	County	Year	In Study Area
15280	W Fifth Street Bridge	Highway	Delaware	2007-2010	Yes
15281	Chester Pike Bridge (US 13) Pedestrian Walkway or Bridge Replacement	Highway	Delaware	2007-2010	
15281	Chester Pike Bridge (US 13)	Highway	Delaware	2007-2010	
15281	Chester Pike Bridge (US 13)	Highway	Delaware	2009-2012	
15298	Township Line Road Bridge (US 1)	Highway	Delaware	2007-2010	
15298	Township Line Road Bridge (US 1)	Highway	Delaware	2009-2012	
15298	US 1, Township Line Road Bridge Over SEPTA Route 100 Rail Line	Highway	Delaware	2011-2014	
15299	Concord Road Bridge	Highway	Delaware	2007-2010	Yes
15299	Concord Road Bridge	Highway	Delaware	2009-2012	Yes
15299	Concord Road Bridge Over SEPTA Chester Creek Branch Line	Highway	Delaware	2011-2014	Yes
15306	Sellers Avenue Bridge	Highway	Delaware	2007-2010	
15306	Sellers Avenue Bridge	Highway	Delaware	2009-2012	
15306	Sellers Avenue Bridge Over Amtrak and SEPTA R2 Rail Line	Highway	Delaware	2011-2014	
15396	US 13, 9th Street Bridge Replacement	Highway	Delaware	2007-2010	Yes
15396	US 13, 9th Street Bridge Replacement	Highway	Delaware	2009-2012	Yes
15406	PA 452, Market Street (Bridge)	Highway	Delaware	2007-2010	Yes
15406	PA 452, Market Street (Bridge)	Highway	Delaware	2009-2012	Yes
15406	PA 452, Market Street Bridge Over Amtrak/SEPTA R-2 Rail Line	Highway	Delaware	2011-2014	Yes
15408	US 13 Macdade Boulevard (Bridge)	Highway	Delaware	2009-2012	
15435	I-95, Delaware Expressway (Bridge)	Highway	Delaware	2007-2010	Yes
15468	Concord Road (Bridge), over Baldwin Run	Highway	Delaware	2007-2010	
15468	Concord Road (Bridge), over Baldwin Run	Highway	Delaware	2009-2012	
15468	Concord Road Bridge Over Baldwin Run	Highway	Delaware	2011-2014	
15479	Chichester Ave. at Meetinghouse Rd.	Highway	Delaware	2007-2010	
15992	Rockland Avenue Bridge Over Amtrak's Harrisburg Line (Removal)	Highway	Delaware	2011-2014	
16248	Union Avenue (Bridge)	Highway	Montgomery	2009-2012	
16944	29 ST BRG/AMTRAK	Highway	Philadelphia	2007-2010	
16987	Passyunk Avenue(Signals) Signal Modernization	Highway	Philadelphia	2007-2010	
16987	Passyunk Avenue (Signals)	Highway	Philadelphia	2009-2012	
17135	30th St. Station Intermodal Gateway	Highway	Philadelphia	2007-2010	
17408	Rhawn Street (Bridge)	Highway	Philadelphia	2007-2010	
17460	40th Street Bridge Replacement	Highway	Philadelphia	2007-2010	
17460	41st Street Bridge Replacement	Highway	Philadelphia	2009-2012	
17460	40th Street Bridge Over Amtrak/SEPTA	Highway	Montgomery	2011-2014	
17652	PA 611, N. Broad Street (Signals) Corridor Improvements	Highway	Philadelphia	2007-2010	
17655	Center City Traffic Systems II	Highway	Philadelphia	2007-2010	
17655	Center City Traffic Systems II	Highway	Philadelphia	2009-2012	
17657	Market Street Signal and Pedestrian Improvements	Highway	Philadelphia	2007-2010	
17657	Market Street Signal and Pedestrian Improvements	Highway	Philadelphia	2009-2012	
17657	Market Street Signal and Pedestrian Improvements	Highway	Philadelphia	2009-2012	

MPMS	Project	Program	County	Year	In Study Area
17657	Market Street Signal and Pedestrian Improvements	Highway	Philadelphia	2011-2014	
17657	Market Street Signal and Pedestrian Improvements	Highway	Philadelphia	2011-2014	
17659	Harbison Ave./Aramingo Ave. (C048) Signal and Corridor Improvements	Highway	Philadelphia	2007-2010	
17659	Harbison Ave./Aramingo Ave. (C048)	Highway	Philadelphia	2009-2012	
17659	Harbison Ave./Aramingo Ave. (C048)	Highway	Philadelphia	2011-2014	
17659	Harbison Ave./Aramingo Ave. (C048)	Highway	Philadelphia	2011-2014	
17663	PA 63, Woodhaven Road	Highway	Philadelphia	2007-2010	
17697	Island Ave. (Signals) Signal Improvements	Highway	Philadelphia	2007-2010	
17697	Island Ave. (Signals) Signal Improvements	Highway	Philadelphia	2007-2010	
17697	Island Ave. (Signals)	Highway	Philadelphia	2009-2012	
17697	Island Ave. (Signals)	Highway	Philadelphia	2009-2012	
17697	Island Ave. (Signals)	Highway	Philadelphia	2011-2014	
17697	Island Ave. (Signals)	Highway	Philadelphia	2011-2014	
17722	Cayuga St. (Bridge) 5th Hunting Park Bridge Removal	Highway	Philadelphia	2007-2010	
17724	South Street Bridges (3 Structures)	Highway	Philadelphia	2007-2010	
17724	South Street Bridges (3 Structures)	Highway	Philadelphia	2009-2012	
17782	I-95 & Aramingo Ave. (Adams Ave Connector) Construct New Roadway	Highway	Philadelphia	2007-2010	Yes
17782	I-95 & Aramingo Ave., Adams Ave. Connector	Highway	Philadelphia	2009-2012	Yes
17782	I-95 & Aramingo Ave., Adams Ave. Connector	Highway	Philadelphia	2009-2012	
17783	Schuylkill Expressway Bridge (Sec. PBP)	Highway	Philadelphia	2007-2010	
17784	JFK Boulevard Bridge Superstructure Rehabilitation/Deck	Highway	Philadelphia	2007-2010	
17784	JFK Boulevard Bridge Superstructure Rehabilitation/Deck	Highway	Philadelphia	2009-2012	
17791	West Bank Greenway (C004)	Highway	Philadelphia	2007-2010	
17796	PA 611, Broad Street @ I-95 Arterial Improvements Associated with I-95	Highway	Philadelphia	2007-2010	
17813	North Broad St./Avenue of the Arts	Highway	Philadelphia	2011-2014	
17813	North Broad St./Avenue of the Arts	Highway	Philadelphia	2011-2014	
17816	Chestnut Street at 30th Street (Bridge)	Highway	Philadelphia	2007-2010	
17816	Chestnut Street at 30th Street (Bridge)	Highway	Philadelphia	2009-2012	
17816	Chestnut Street Bridges (4) at 30th Street	Highway	Philadelphia	2011-2014	
17817	Henry Ave. Bridge over SEPTA Bridge Rehabilitation	Highway	Philadelphia	2007-2010	
17817	Henry Ave. Bridge over SEPTA Bridge Rehabilitation	Highway	Philadelphia	2009-2012	
17821	I-95, Shackamaxon St. to Ann St. (Sec. GIR)	Highway	Philadelphia	2007-2010	
17821	I-95, Shackamaxon St. to Ann St. (Sec. GIR)	Highway	Philadelphia	2009-2012	
17821	I-95, Shackamaxon St. to Ann St. (Sec. GIR)	Highway	Philadelphia	2011-2014	
17821	I-95, Shackamaxon St. to Ann St. (Sec. GIR)	Highway	Philadelphia	2011-2014	
17822	City Ace O/RR	Highway	Philadelphia	2007-2010	
17829	52nd/Lancaster Ave. Enhancements (Streetscape)	Highway	Philadelphia	2007-2010	
17829	52nd/Lancaster Ave. Enhancements (Streetscape)	Highway	Philadelphia	2009-2012	
17832	30th Street Gateway Streetscape	Highway	Philadelphia	2007-2010	

MPMS	Project	Program	County	Year	In Study Area
17832	30th Street Gateway	Highway	Philadelphia	2009-2012	
17833	46th/Market Transportation System	Highway	Philadelphia	2007-2010	
46948	I-95 Interchange at Street Road	Highway	Bucks	2007-2010	Yes
46956	North Delaware Ave. Extension	Highway	Philadelphia	2007-2010	Yes
46956	North Delaware Ave. Extension	Highway	Philadelphia	2009-2012	Yes
46956	North Delaware Ave. Extension	Highway	Philadelphia	2011-2014	Yes
46956	North Delaware Ave. Extension	Highway	Philadelphia	2011-2014	Yes
46958	Philadelphia Naval Shipyard Access	Highway	Philadelphia	2009-2012	
46958	Philadelphia Naval Shipyard Access	Highway	Philadelphia	2011-2014	
46959	I-95 Design Review Manager	Highway	Philadelphia	2007-2010	
46959	I-95 Design Review Manager	Highway	Philadelphia	2007-2010	
47131	PA Turnpike Safety Improvements	Highway	Bucks	2007-2010	Yes
47131	PA Turnpike Safety Improvements	Highway	Bucks	2009-2012	Yes
47131	PA 13/PA Turnpike/Green Lane Road Interchange and Safety Improvements	Highway	Philadelphia	2011-2014	Yes
47392	Bristol Pike/Route 13, PA 413 to Levittown	Highway	Bucks	2007-2010	Yes
47392	Bristol Pike/Route 13, PA 413 to Levittown	Highway	Bucks	2009-2012	Yes
47392	Bristol Pike/Route 13, PA 413 to Levittown	Highway	Bucks	2011-2014	Yes
47392	Route 13/Bristol Pike, PA 413 to Levittown Parkway Restoration	Highway	Bucks	2011-2014	
47394	I-95, Levick St. to Bleigh Ave. (Sec. CPR)	Highway	Philadelphia	2007-2010	
47394	I-95, Levick St. to Bleigh Ave. (Sec. CPR)	Highway	Philadelphia	2009-2012	
47409	Rt. 291/Gov. Printz Blvd./Essington (Bridge)	Highway	Delaware	2009-2012	Yes
47409	Route 291, Governor Printz Boulevard Bridge Over Darby Creek (Essington Bridge)	Highway	Bucks	2011-2014	Yes
47811	I-95, Orthodox St. to Levick St. (Sec. BSR)	Highway	Philadelphia	2007-2010	
47811	I-95, Orthodox Street to Levick Street (BSR) - Design(IMP)	Highway	Philadelphia	2011-2014	
47811	I-95, Orthodox Street to Levick Street (BSR) - Design(IMP)	Highway	Philadelphia	2011-2014	Yes
47812	I-95, Betsy Ross Interchange (Sec. BRI)	Highway	Philadelphia	2007-2010	
47812	I-95, Betsy Ross Interchange (BRI) - Design(IMP)	Highway	Philadelphia	2011-2014	
47812	I-95, Betsy Ross Interchange (BRI) - Design(IMP)	Highway	Philadelphia	2011-2014	Yes
47813	I-95, Ann St. to Wheatshoof Lane (Sec. BRI)	Highway	Philadelphia	2007-2010	
47975	US 1, Business	Highway	Bucks	2007-2010	
47986	Chester Creek Bicycle/Pedestrian Trail	Highway	Delaware	2007-2010	
47986	Chester Creek Bicycle/Pedestrian Trail	Highway	Delaware	2009-2012	
47986	Chester Creek Bicycle/Pedestrian Trail	Highway	Delaware	2011-2014	
47986	Chester Creek Bicycle/Pedestrian Trail	Highway	Delaware	2011-2014	
47993	7th St. (Bridge) Bridge Rehabilitation	Highway	Delaware	2007-2010	Yes
47993	7th St. (Bridge) Bridge Rehabilitation	Highway	Delaware	2009-2012	Yes
47993	7th Street Bridge Over Chester Creek	Highway	Delaware	2011-2014	Yes
47994	US 13, Chester Pike/MacDade Blvd.	Highway	Delaware	2009-2012	

MPMS	Project	Program	County	Year	In Study Area
47994	US 13, Chester Pike/MacDade Blvd.	Highway	Delaware	2009-2012	
48168	Baltimore Pike Traffic Signal Interconnection	Highway	Delaware	2007-2010	
48168	Baltimore Pike Signal Project	Highway	Delaware	2009-2012	
48168	Baltimore Pike Signal Project	Highway	Delaware	2011-2014	
48180	Conshohocken State Road	Highway	Montgomery	2007-2010	
48194	Belfield Ave. (Signals)	Highway	Philadelphia	2007-2010	
48195	Tyson Ave. (Signals)	Highway	Philadelphia	2009-2012	
48195	Tyson Ave. (Signals)	Highway	Philadelphia	2011-2014	
48195	Tyson Ave. (Signals)	Highway	Philadelphia	2011-2014	
48197	CSX Trenton Line	Highway	Various	2011-2014	
48197	CSX Trenton Line	Highway	Various	2011-2014	
48197	CSX Trenton Line	Highway	Various	2007-2010	
48197	CSX Trenton Line	Highway	Various	2007-2010	
48197	CSX Trenton Line	Highway	Various	2009-2012	
48197	CSX Trenton Line	Highway	Various	2009-2012	
50522	Manayunk Rec. Path - Phase II/Fairmount Bikeway	Highway	Philadelphia	2009-2012	
50522	Manayunk Rec. Path - Phase II/Fairmount Bikeway	Highway	Philadelphia	2011-2014	
50523	Westbank Greenway - Phase 2	Highway	Philadelphia	2009-2012	
50931	I-76/ US 1 (Bridge) (Sec. GUS)	Highway	Philadelphia	2007-2010	
56768	41st Street Bridge Bridge Replacement	Highway	Philadelphia	2007-2010	
56768	41st Street Bridge Bridge Replacement	Highway	Philadelphia	2009-2012	
56768	41st Street Bridge Over Amtrak's Harrisburg Line (CB)	Highway	Bucks	2011-2014	
57275	Hunting Park Avenue (Bridge)	Highway	Philadelphia	2007-2010	
57276	Montgomery Avenue (Bridge) Bridge Replacement	Highway	Philadelphia	2007-2010	
57276	Montgomery Avenue Bridge over Amtrak at 30th Street (CB)	Highway	Bucks	2011-2014	
57278	Rising Sun Avenue Over Conrail at 2nd Street (CB) (Removal)	Highway	Bucks	2011-2014	
57624	Woodbourne Road and Lincoln Highway Intersection Improvements	Highway	Bucks	2007-2010	
57624	Woodbourne Road and Lincoln Highway Intersection Improvements	Highway	Bucks	2009-2012	
57624	Woodbourne Road/Lincoln Highway Intersection Improvements	Highway	Bucks	2011-2014	
57626	Trenton Road Intersection Improvements	Highway	Bucks	2007-2010	
57626	Trenton Road Intersection Improvements	Highway	Bucks	2009-2012	
57629	County Line Road Extension	Highway	Bucks	2007-2010	
57629	County Line Road Extension	Highway	Bucks	2009-2012	
57641	Bridgetown Pike	Highway	Bucks	2007-2010	
57641	Bridgetown Pike	Highway	Bucks	2009-2012	
57641	Bridgetown Pike	Highway	Bucks	2011-2014	
57641	Bridgetown Pike	Highway	Bucks	2011-2014	
57756	State Rd. from Rt. 3, West Chester Pike	Highway	Delaware	2007-2010	
57757	Morton Ave.	Highway	Delaware	2007-2010	
57757	Morton Ave.	Highway	Delaware	2009-2012	

MPMS	Project	Program	County	Year	In Study Area
57757	Morton Avenue Intersection Improvements	Highway	Delaware	2011-2014	
57770	Grant Ave. (Bridge)	Highway	Delaware	2007-2010	
57770	Grant Ave. (Bridge)	Highway	Delaware	2009-2012	
57770	Grant Avenue Bridge Over Muckinipates Creek	Highway	Delaware	2011-2014	
57773	Lloyd St. (Bridge)	Highway	Delaware	2007-2010	Yes
57773	Lloyd St. (Bridge)	Highway	Delaware	2009-2012	Yes
57773	Lloyd Street Bridge Over Amtrak/SEPTA R2 Rail Line (CB)	Highway	Delaware	2011-2014	Yes
57780	Rt. 322/Comm Barry Bridge/I-95 2nd St. Interchange	Highway	Delaware	2009-2012	Yes
57874	I-95, Vine Street Interchange (Sec.RVS)	Highway	Philadelphia	2007-2010	
57893	Lehigh Ave. East (signals) Signal Modernization	Highway	Philadelphia	2007-2010	
57893	Lehigh Ave. East (signals) Signal Modernization	Highway	Philadelphia	2009-2012	
57893	Lehigh Ave. East (signals) Signal Modernization	Highway	Philadelphia	2011-2014	
57893	Lehigh Ave. East (signals) Signal Modernization	Highway	Philadelphia	2011-2014	
57897	Haverford Ave. (Signals) Signal Modernization	Highway	Philadelphia	2007-2010	
57897	Haverford Ave. (Signals)	Highway	Philadelphia	2009-2012	
57897	Haverford Ave. (Signals)	Highway	Philadelphia	2011-2014	
57897	Haverford Ave. (Signals)	Highway	Philadelphia	2011-2014	
57898	Lancaster Ave. (Signals)	Highway	Philadelphia	2007-2010	
57898	Lancaster Ave. (Signals)	Highway	Philadelphia	2009-2012	
57898	Lancaster Ave. (Signals)	Highway	Philadelphia	2011-2014	
57898	Lancaster Ave. (Signals)	Highway	Philadelphia	2011-2014	
57901	Lincoln Drive (3R)	Highway	Philadelphia	2011-2014	
57904	PA 291, Platt Bridge	Highway	Philadelphia	2007-2010	
57904	PA 291, Platt Bridge	Highway	Philadelphia	2007-2010	
57904	PA 291, Platt Bridge	Highway	Philadelphia	2009-2012	
57904	PA 291, Platt Bridge	Highway	Philadelphia	2009-2012	
57904	PA 291, Platt Bridge Over Schuylkill River	Highway	Philadelphia	2009-2012	
57904	PA 291, Platt Bridge Over Schuylkill River	Highway	Philadelphia	2011-2014	
59917	Harrisburg/SEPTA R5 Paoli Rail Line Improvements	Transit	Various	2007-2010	
59917	Harrisburg/SEPTA R5 Paoli Rail Line Improvements	Transit	Various	2009-2012	
60255	Regional Rail Signal Modernization Program	Transit	Various	2011-2014	
60255	Regional Rail Signal Modernization Program	Transit	Various	2011-2014	
60271	Station Accessibility Program - ADA Compliance	Transit	Various	2011-2014	
60281	Market St. Elevated Reconstruction Program	Transit	Philadelphia	2007-2010	
60281	Market St. Elevated Reconstruction Program	Transit	Philadelphia	2009-2012	
60286	SEPTA Bus Purchase Program - 40'	Transit	Various	2011-2014	
60335	City Hall Station	Transit	Philadelphia	2007-2010	
60335	City Hall Station	Transit	Philadelphia	2009-2012	
60353	30th Street to Suburban Station	Transit	Philadelphia	2007-2010	
60353	30th Street to Suburban Station	Transit	Philadelphia	2009-2012	

MPMS	Project	Program	County	Year	In Study Area
60555	Broad Street Subway Station Improvements	Transit	Philadelphia	2007-2010	
60555	Broad Street Subway Station Improvements	Transit	Philadelphia	2007-2010	
60555	Broad Street Subway Station Improvements	Transit	Philadelphia	2009-2012	
60555	Broad Street Subway Station Improvements	Transit	Philadelphia	2009-2012	
60556	Eastwick Transportation Center	Transit	Philadelphia	2007-2010	Yes
60556	Eastwick Transportation Center	Transit	Philadelphia	2007-2010	Yes
60565	Schuylkill Valley Metro	Transit	Various	2007-2010	
60636	Elwyn To Wawa Rail Improvements	Transit	Delaware	2007-2010	
60636	Elwyn To Wawa Rail Improvements	Transit	Delaware	2009-2012	
60651	Regional Rail Substation Improvement Program	Transit	Various	2011-2014	
60651	Regional Rail Substation Improvement Program	Transit	Various	2011-2014	
60655	Intermodal Facility Improvements (B)	Transit	Bucks	2007-2010	Yes
60655	Intermodal Facility Improvements (B)	Transit	Bucks	2007-2010	Yes
60655	Intermodal Facility Improvements (B)	Transit	Bucks	2009-2012	Yes
60655	Intermodal Facility Improvements (B)	Transit	Bucks	2009-2012	Yes
60655	Levittown Intermodal Facility Improvements (B)	Transit	Various	2011-2014	Yes
61682	Old Route 13 Improvement Project	Highway	Bucks	2007-2010	Yes
61682	Old Route 13 Improvement Project	Highway	Bucks	2009-2012	Yes
61682	Old Route 13 Improvement Project	Highway	Bucks	2011-2014	Yes
61682	Old Route 13 Pedestrian Improvements (TE)	Highway	Bucks	2011-2014	Yes
61712	North Delaware Riverfront Greenway project, Sec. 2	Highway	Philadelphia	2007-2010	Yes
61712	North Delaware Riverfront Greenway project, Sec. 2	Highway	Philadelphia	2009-2012	Yes
61712	North Delaware Riverfront Greenway project, Sec. 2	Highway	Philadelphia	2011-2014	Yes
61712	North Delaware Riverfront Greenway project, Sec. 2	Highway	Philadelphia	2011-2014	Yes
61717	Fairmount Water Works Dock	Highway	Philadelphia	2009-2012	
61717	Fairmount Water Works Dock (TE)	Highway	Philadelphia	2011-2014	
62299	Bicyclists' Baltimore Pike	Highway	Delaware	2007-2010	
62299	Bicyclists' Baltimore Pike	Highway	Delaware	2007-2010	
62299	Bicyclists' Baltimore Pike	Highway	Delaware	2011-2014	
62299	Bicyclists' Baltimore Pike	Highway	Delaware	2011-2014	
62616	I-76 Parallel Transportation System Management - Phase 3	Highway	Delaware	2011-2014	
62694	Passyunk Avenue Drawbridge	Highway	Delaware	2009-2012	
62694	Passyunk Avenue Drawbridge Over the Schuylkill River	Highway	Delaware	2011-2014	
62717	Lehigh Ave. West (signals) Signal Modernization	Highway	Philadelphia	2007-2010	
62717	Lehigh Ave. West (signals) Signal Modernization	Highway	Philadelphia	2009-2012	
62717	Lehigh Ave. West (signals) Signal Modernization	Highway	Philadelphia	2011-2014	
62717	Lehigh Ave. West (signals) Signal Modernization	Highway	Philadelphia	2011-2014	
64798	North Narberth Ave. (Bridge)	Highway	Montgomery	2007-2010	
64798	North Narberth Ave. (Bridge)	Highway	Montgomery	2009-2012	
64798	North Narberth Avenue Bridge Over Amtrak/SEPTA (CB)	Highway	Delaware	2011-2014	

MPMS	Project	Program	County	Year	In Study Area
64804	Delaware Avenue (Signals) Signal Improvement	Highway	Philadelphia	2007-2010	Yes
64806	34th Street (Signals) Signal Improvement	Highway	Philadelphia	2007-2010	
64806	34th Street (Signals)	Highway	Philadelphia	2009-2012	
64806	34th Street (Signals)	Highway	Philadelphia	2009-2012	
64808	Whitaker Avenue/B Street (Signals) Signal Improvement	Highway	Philadelphia	2007-2010	
64844	30th Street Ramp (Bridge) - 3 Structures	Highway	Philadelphia	2009-2012	
64844	30th Street Bridges (6) Over Amtrak's Northeast Corridor Rail Lines	Highway	Delaware	2011-2014	
65127	Chester Waterfront Development/ Streetscape	Highway	Delaware	2009-2012	Yes
65127	Chester Waterfront Development/ Streetscape	Highway	Delaware	2011-2014	Yes
65127	Chester Waterfront Development/ Streetscape	Highway	Delaware	2011-2014	Yes
65128	Chester Exit 6 (I-95), Streetscape Improvements	Highway	Delaware	2009-2012	
65911	Marcus Hook Streetscape	Highway	Delaware	2007-2010	Yes
65911	Marcus Hook Streetscape	Highway	Delaware	2009-2012	Yes
65911	Marcus Hook Streetscape	Highway	Delaware	2011-2014	Yes
65911	Marcus Hook Streetscape	Highway	Delaware	2011-2014	Yes
65912	Chester City Riverwalk	Highway	Delaware	2007-2010	Yes
65915	Pennsylvania Ave. Improvements	Highway	Philadelphia	2011-2014	
65915	Pennsylvania Ave. Improvements	Highway	Philadelphia	2011-2014	
65922	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2007-2010	
65922	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2009-2012	
65922	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2011-2014	
65922	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2011-2014	
65923	Chester City East Coast Greenway	Highway	Delaware	2007-2010	Yes
68067	Tidal Schuylkill River Greenway & Trail	Highway	Philadelphia	2009-2012	
68067	Tidal Schuylkill River Greenway & Trail/Boardwalk (TIGER)	Highway	Philadelphia	2011-2014	
68067	Tidal Schuylkill River Greenway & Trail/Boardwalk (TIGER)	Highway	Philadelphia	2011-2014	
69664	Clarrissa Street (Bridge)	Highway	Philadelphia	2007-2010	
69664	Clarrissa Street (Bridge)	Highway	Philadelphia	2009-2012	
69664	Clarrissa Street Bridge over Conrail	Highway	Philadelphia	2011-2014	
69815	US 322, Environmental Mitigation (MIT)	Highway	Delaware	2011-2014	
69816	US 322:US1 TO FEATHERBD LA	Highway	Delaware	2007-2010	
69817	US 322:FEATHERBD - CHERRY TR	Highway	Delaware	2007-2010	
69817	US 322, Featherbed Lane to I-95 (Cherry Tree Road)	Highway	Delaware	2009-2012	
69817	US 322, Featherbed Lane to I-95 (Cherry Tree Road)	Highway	Delaware	2011-2014	
69828	Market Street (2 Structures)	Highway	Philadelphia	2007-2010	
69828	Market Street (2 Structures)	Highway	Philadelphia	2009-2012	
69828	Market Street Bridges (2) Over Schuylkill River and CSX Railroad (MSB)	Highway	Delaware	2011-2014	
69894	Newbold Road Grade Crossing	Highway	Bucks	2007-2010	Yes
69913	Grays Ferry Ave. (Bridge)	Highway	Philadelphia	2007-2010	
69913	Grays Ferry Ave. (Bridge)	Highway	Philadelphia	2009-2012	

MPMS	Project	Program	County	Year	In Study Area
69913	Grays Ferry Avenue Bridge Over Schuylkill River	Highway	Delaware	2011-2014	
69915	Roosevelt Expressway (Twin Bridge) Parapets	Highway	Philadelphia	2007-2010	
69915	Roosevelt Expressway (Twin Bridge) Parapets	Highway	Philadelphia	2009-2012	
70014	Center City Signal Improvement Project, Phase 3	Highway	Philadelphia	2009-2012	
70014	Center City Signal Improvements (North) - Phase 3	Highway	Delaware	2011-2014	
70218	Delaware Canal Tunnel Pedestrian Tunnel	Highway	Bucks	2007-2010	Yes
70218	Delaware Canal Pedestrian Tunnel	Highway	Delaware	2011-2014	Yes
70219	291/East Coast Greenway	Highway	Delaware	2007-2010	Yes
70219	291/East Coast Greenway	Highway	Delaware	2009-2012	Yes
70219	291/East Coast Greenway	Highway	Delaware	2011-2014	Yes
70219	291/East Coast Greenway	Highway	Delaware	2011-2014	Yes
70220	Schuylkill River Park Ramp	Highway	Philadelphia	2007-2010	
70228	MacDade Boulevard (SR 206)/I-476 Ramp Intersection Improvements	Highway	Delaware	2007-2010	
70228	MacDade Boulevard/I-476 Ramp	Highway	Delaware	2009-2012	
70228	MacDade Boulevard/I-476 Ramp	Highway	Delaware	2011-2014	
70228	MacDade Boulevard/I-476 Ramp	Highway	Delaware	2011-2014	
70229	West Chester Pike and Market Street	Highway	Delaware	2009-2012	
70231	Swanson Street Reconstruction	Highway	Philadelphia	2007-2010	Yes
70231	Swanson Street Reconstruction	Highway	Philadelphia	2009-2012	Yes
70242	Kelly Drive Rehabilitation	Highway	Philadelphia	2007-2010	
70243	American Street Streetscape	Highway	Philadelphia	2007-2010	
70243	American Street Streetscape	Highway	Philadelphia	2011-2014	
70243	American Street Streetscape	Highway	Philadelphia	2011-2014	
70245	Chester City Access Improvements II Access Improvements	Highway	Delaware	2007-2010	Yes
70245	Chester City Access Improvements II	Highway	Delaware	2009-2012	
70245	Chester City Access Improvements II	Highway	Delaware	2011-2014	
70245	Chester City Access Improvements II	Highway	Delaware	2011-2014	
70810	Schuylkill Riv. Park/ 23 St. Connector Bike and Pedestrian Path	Highway	Philadelphia	2007-2010	
71159	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2007-2010	
71159	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2009-2012	
71159	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2011-2014	
71159	Ped/Bike Bridge, Route 13, East Coast Greenway	Highway	Bucks	2011-2014	
71200	East Coast Greenway/Industrial Heritage Highway	Highway	Delaware	2007-2010	Yes
71200	East Coast Greenway/Industrial Heritage Highway	Highway	Delaware	2009-2012	Yes
71200	East Coast Greenway/Industrial Heritage Highway	Highway	Delaware	2011-2014	Yes
71200	East Coast Greenway/Industrial Heritage Highway	Highway	Delaware	2011-2014	Yes
71202	E. Coast Greenway/ Chester Riverfront, Phase II	Highway	Delaware	2007-2010	Yes
71202	E. Coast Greenway/ Chester Riverfront, Phase II	Highway	Delaware	2007-2010	Yes
71202	E. Coast Greenway/ Chester Riverfront, Phase II	Highway	Delaware	2009-2012	Yes
71202	E. Coast Greenway/ Chester Riverfront, Phase II	Highway	Delaware	2009-2012	Yes

MPMS	Project	Program	County	Year	In Study Area
71202	E. Coast Greenway/ Chester Riverfront, Phase II	Highway	Delaware	2011-2014	Yes
71202	E. Coast Greenway/ Chester Riverfront, Phase II	Highway	Delaware	2011-2014	Yes
71202	E. Coast Greenway/ Chester Riverfront, Phase II	Highway	Delaware	2011-2014	Yes
71209	East Falls Reconnects to River, Phase I	Highway	Philadelphia	2007-2010	
71209	East Falls Reconnects to River, Phase I	Highway	Philadelphia	2009-2012	
71210	West Bank Greenway/Philadelphia Zoo	Highway	Philadelphia	2007-2010	
71210	West Bank Greenway/Philadelphia Zoo	Highway	Philadelphia	2009-2012	
71210	West Bank Greenway/Philadelphia Zoo Multipurpose Trail (TE)	Highway	Delaware	2011-2014	
71213	Logan Square Landscaping Improvements	Highway	Philadelphia	2007-2010	
72597	Ben Franklin Bridge Phila. Operational Improvements	Highway	Philadelphia	2007-2010	
72597	Ben Franklin Bridge Phila. Operational Improvement	Highway	Philadelphia	2009-2012	
72597	Ben Franklin Bridge Philadelphia Operational Improvement	Highway	Delaware	2011-2014	
72793	Market Street Bridge Enhancement	Highway	Philadelphia	2007-2010	
72793	Market Street Bridge Enhancement	Highway	Philadelphia	2009-2012	
72793	Market Street Bridge Over Schuylkill River Enhancement (TE)	Highway	Delaware	2011-2014	
72847	South Street Bridge Detour Advanced Contract	Highway	Philadelphia	2007-2010	
72913	Chester Commercial Business District HTSSRS	Highway	Delaware	2007-2010	Yes
72913	Chester Commercial Business District HTSSRS	Highway	Delaware	2009-2012	Yes
72913	Chester Commercial Business District HTSSRS	Highway	Delaware	2011-2014	Yes
72913	Chester Commercial Business District HTSSRS	Highway	Delaware	2011-2014	Yes
72999	EI Centro de Oro Streetscape HTSSRS	Highway	Philadelphia	2007-2010	
72999	EI Centro de Oro Streetscape HTSSRS	Highway	Philadelphia	2009-2012	
73012	Frankford Ave. Improvement HTSSRS	Highway	Philadelphia	2007-2010	
73012	Frankford Ave. Improvement HTSSRS	Highway	Philadelphia	2009-2012	
73012	Frankford Ave. Improvement HTSSRS	Highway	Philadelphia	2011-2014	
73012	Frankford Ave. Improvement HTSSRS	Highway	Philadelphia	2011-2014	
73134	Gateway Revitalization/Torresdale Av Strscope Im Pr	Highway	Philadelphia	2007-2010	
73134	Gateway Revitalization/Torresdale Av Strscope Im Pr	Highway	Philadelphia	2007-2010	
73864	I-95, Girard Pt. Bridge - Girard Ave. Mod. Resurf.	Highway	Philadelphia	2007-2010	
74799	Upper Darby Market St. Elevated Parking Facility	Highway	Delaware	2007-2010	
74799	Upper Darby Market St. Elevated Parking Facility	Highway	Delaware	2009-2012	
74823	Philadelphia Zoo Intermodal Transportation Center	Highway	Philadelphia	2009-2012	
74823	Philadelphia Zoo Intermodal Transportation Center	Highway	Montgomery	2011-2014	
74824	Walnut St Gateway Project	Highway	Philadelphia	2009-2012	
74824	Walnut Street Gateway Improvements (TIGER)	Highway	Montgomery	2011-2014	
74825	Please Touch Museum Access Project	Highway	Philadelphia	2007-2010	
74827	Delaware Canal Enhance	Highway	Bucks	2009-2012	Yes
74827	Delaware Canal Enhance	Highway	Bucks	2011-2014	
74827	Delaware Canal Enhance	Highway	Bucks	2011-2014	Yes
74829	Schuylkill River Park Rail Crossings	Highway	Philadelphia	2007-2010	

MPMS	Project	Program	County	Year	In Study Area
74829	Schuylkill River Park Rail Crossings	Highway	Philadelphia	2007-2010	
74829	Schuylkill River Park Rail Crossings	Highway	Philadelphia	2009-2012	
74829	Schuylkill River Park Rail Crossings	Highway	Philadelphia	2009-2012	
74829	Schuylkill River Park Rail Crossings	Highway	Bucks	2011-2014	
74833	Frankford Avenue-Mayfair	Highway	Philadelphia	2007-2010	
74833	Frankford Avenue-Mayfair	Highway	Philadelphia	2009-2012	
74833	Frankford Avenue-Mayfair	Highway	Philadelphia	2011-2014	
74833	Frankford Avenue-Mayfair	Highway	Philadelphia	2011-2014	
74834	Independence National Historic Park President's House	Highway	Philadelphia	2007-2010	
74839	Roosevelt Boulevard Safety Improvements	Highway	Philadelphia	2007-2010	
74839	Roosevelt Boulevard Safety Improvements	Highway	Philadelphia	2007-2010	
74840	Commodore Barry Bridge Security Improvements	Highway	Delaware	2009-2012	Yes
74840	Commodore Barry Bridge Security Improvements - DRPA	Highway	Philadelphia	2011-2014	Yes
75793	Tyburn Rd Bridges (6)	Highway	Bucks	2009-2012	Yes
75793	Tyburn Rd Bridges (6)	Highway	Bucks	2009-2012	Yes
75793	Tyburn Rd Bridges (6)	Highway	Bucks	2009-2012	Yes
75793	Tyburn Rd Bridges (6)	Highway	Bucks	2009-2012	Yes
75793	Tyburn Rd Bridges (6)	Highway	Bucks	2009-2012	Yes
75793	Tyburn Rd Bridges (6)	Highway	Bucks	2009-2012	Yes
77085	Ruth Bennett House	Highway	Delaware	2009-2012	Yes
77085	Ruth Bennett House	Highway	Montgomery	2011-2014	Yes
77180	State of Good Repair	Highway	Montgomery	2011-2014	
77183	Wayne Junction (State of Good Repair - Station Projects)	Highway	Philadelphia	2007-2010	
77183	Queen Lane (State of Good Repair - Station Projects)	Highway	Philadelphia	2007-2010	
77183	Wayne Junction (State of Good Repair - Station Projects)	Transit	Philadelphia	2009-2012	
77183	Queen Lane (State of Good Repair - Station Projects)	Transit	Philadelphia	2009-2012	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	Yes
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77190	Station and Loop Renewal (ISRP)	Highway	Philadelphia	2007-2010	
77449	Route 13 Pedestrian Bridge-Tullytown Bucks County	Highway	Bucks	2007-2010	Yes
77449	Route 13 Pedestrian Bridge-Tullytown Bucks County	Highway	Bucks	2009-2012	

MPMS	Project	Program	County	Year	In Study Area
77449	Route 13 Pedestrian Bridge-Tullytown Bucks County	Highway	Bucks	2011-2014	
77449	Route 13, East Coast Greenway Bicycle/Pedestrian Bridge (South) - Phase 2 (TE)	Highway	Bucks	2011-2014	
77451	Grays Ferry Avenue Streetscape	Highway	Philadelphia	2007-2010	
77451	Grays Ferry Avenue Streetscape	Highway	Philadelphia	2009-2012	
77456	Route 13 Redevelopment Project	Highway	Bucks	2007-2010	Yes
77456	Route 13 Redevelopment Project	Highway	Bucks	2009-2012	Yes
77456	Route 13 Redevelopment Project	Highway	Bucks	2011-2014	Yes
77456	Route 13, Redevelopment Project, Croydon (TE)	Highway	Bucks	2011-2014	Yes
77460	Lincoln Avenue Renaissance Project	Highway	Delaware	2007-2010	Yes
77460	Lincoln Avenue Renaissance Project	Highway	Delaware	2009-2012	Yes
77460	Lincoln Avenue Renaissance Project	Highway	Delaware	2011-2014	
77460	Lincoln Avenue Renaissance Project	Highway	Delaware	2011-2014	
77464	Chinatown Plaza Revitalization-10th & Vine Streets	Highway	Philadelphia	2007-2010	
77464	Chinatown Plaza Revitalization-10th & Vine Streets	Highway	Philadelphia	2009-2012	
77464	Chinatown Plaza Revitalization (TE)	Highway	Montgomery	2011-2014	
77465	Frankford Avenue Improvement Plan	Highway	Philadelphia	2007-2010	
77465	Frankford Avenue Improvement Plan	Highway	Philadelphia	2009-2012	
77466	Mid-East Girard Avenue Streetscape Project	Highway	Philadelphia	2007-2010	
77466	Mid-East Girard Avenue Streetscape Project	Highway	Philadelphia	2009-2012	
77466	Mid-East Girard Avenue Streetscape Project	Highway	Philadelphia	2011-2014	
77466	Mid-East Girard Avenue Streetscape Project	Highway	Philadelphia	2011-2014	
77468	SR 413 -Langhorne Borough Streetscape, Phase I	Highway	Bucks	2007-2010	
77468	SR 413 -Langhorne Borough Streetscape, Phase I	Highway	Bucks	2009-2012	
77468	PA 413, Langhorne Borough Streetscape - Phase I (HTSSRS)	Highway	Bucks	2011-2014	
77468	PA 413, Langhorne Borough Streetscape - Phase I (HTSSRS)	Highway	Bucks	2011-2014	
77471	Amtrak Footbridge -Rosemont and Hinckley Aves.	Highway	Delaware	2007-2010	
77471	Amtrak Footbridge -Rosemont and Hinckley Aves.	Highway	Delaware	2009-2012	
77472	Knowles Avenue Side Walk/Underpass Project	Highway	Delaware	2007-2010	
77472	Knowles Avenue Side Walk/Underpass Project	Highway	Delaware	2009-2012	
77472	Knowles Avenue Side Walk/Underpass Project	Highway	Delaware	2011-2014	
77472	Knowles Avenue Side Walk/Underpass Project	Highway	Delaware	2011-2014	
77477	Schuylkill River Park & Trail-Phase IIIB-North	Highway	Philadelphia	2007-2010	
77477	Schuylkill River Park & Trail-Phase IIIB-North	Highway	Philadelphia	2009-2012	
77478	Schuylkill Trails-Bicycle & Pedestrian Trail	Highway	Philadelphia	2007-2010	
77478	Schuylkill Trails-Bicycle & Pedestrian Trail	Highway	Philadelphia	2009-2012	
77478	Schuylkill Trails-Bicycle & Pedestrian Trail	Highway	Philadelphia	2011-2014	
77478	Schuylkill Trails-Bicycle & Pedestrian Trail	Highway	Philadelphia	2011-2014	
77485	Mill Creek Safe Routes to School	Highway	Philadelphia	2007-2010	
77485	Mill Creek Safe Routes to School	Highway	Philadelphia	2009-2012	

MPMS	Project	Program	County	Year	In Study Area
77485	Mill Creek Safe Routes to School	Highway	Philadelphia	2011-2014	
77485	Mill Creek Safe Routes to School	Highway	Philadelphia	2011-2014	
77540	Baltimore Avenue Pedestrian Lighting	Highway	Philadelphia	2007-2010	
77540	Baltimore Avenue Pedestrian Lighting	Highway	Philadelphia	2009-2012	
77540	Baltimore Avenue Pedestrian Lighting	Highway	Philadelphia	2011-2014	
77540	Baltimore Avenue Pedestrian Lighting	Highway	Philadelphia	2011-2014	
78757	JFK Blvd O/23rd St	Highway	Philadelphia	2009-2012	
78758	JFK Blvd O/22nd St	Highway	Philadelphia	2009-2012	
78758	JFK Boulevard Bridges (3) Over 21st/22nd/23rd Streets	Highway	Montgomery	2011-2014	
78761	JFK Blvd O/21st St	Highway	Philadelphia	2009-2012	
79329	Bridgewater Rd Ext	Highway	Delaware	2009-2012	
79683	Cottman-Princeton Local St Ramp (CP1)	Highway	Philadelphia	2009-2012	
79683	Cottman-Princeton Local Street Improvements/ Ramps (CP1)(IMP)	Highway	Montgomery	2011-2014	
79685	I-95, Cottman-Princeton Main Line and Ramps (CP2) (IMP)	Highway	Philadelphia	2011-2014	
79685	I-95, Cottman-Princeton Main Line and Ramps (CP2) (IMP)	Highway	Philadelphia	2011-2014	Yes
79686	I-95: Columbia - Ann	Highway	Philadelphia	2009-2012	
79686	I-95, Columbia Street to Ann Street (GR1)	Highway	Philadelphia	2011-2014	
79686	I-95, Columbia Street to Ann Street (GR1)	Highway	Philadelphia	2011-2014	
79743	Logan Square, 20th Street Parkway	Highway	Philadelphia	2007-2010	
79743	Logan Square, 20th Street Parkway	Highway	Philadelphia	2009-2012	
79743	Logan Square, 20th/Winter/Parkway Improvements	Highway	Philadelphia	2011-2014	
79814	Penn's Landing Water Shuttle Ramp Infrastructure	Highway	Philadelphia	2007-2010	Yes
79814	Penn's Landing Water Shuttle Ramp Infrastructure	Highway	Philadelphia	2009-2012	Yes
79814	Penn's Landing Water Shuttle Ramp Infrastructure	Transit	Philadelphia	2009-2012	Yes
79825	I-95: Shckmxon - Columbia (GR2)	Highway	Philadelphia	2009-2012	Yes
79825	I-95: Shckmxon - Columbia	Highway	Philadelphia	2009-2012	Yes
79830	North Delaware Riverfront Greenway project, Sec. 1	Highway	Philadelphia	2007-2010	Yes
79830	North Delaware Riverfront Greenway project, Sec. 1	Highway	Philadelphia	2009-2012	Yes
79832	North Delaware Riverfront Greenway project, Sec. 3	Highway	Philadelphia	2007-2010	Yes
79832	North Delaware Riverfront Greenway project, Sec. 3	Highway	Philadelphia	2009-2012	Yes
79833	North Delaware Riverfront Greenway project, Sec. 4	Highway	Philadelphia	2007-2010	Yes
79833	North Delaware Riverfront Greenway project, Sec. 4	Highway	Philadelphia	2009-2012	Yes
79903	I-95, Betsy Ross Bridge Ramps Construction (BR0) (IMP)	Highway	Montgomery	2011-2014	Yes
79908	I-95, North of Bridge Street Interchange Construction (BS1) (IMP)	Highway	Philadelphia	2011-2014	
79908	I-95, North of Bridge Street Interchange Construction (BS1) (IMP)	Highway	Philadelphia	2011-2014	Yes
80014	I-95, Utility Relocation & Surface Sts (CPU)	Highway	Philadelphia	2009-2012	Yes
80054	Vine St Expy (7) Brgs	Highway	Philadelphia	2009-2012	
80054	Vine Street Expressway Bridges (7) Over I-676 Expressway (PAB) - Part 2	Highway	Montgomery	2011-2014	
80094	Temp I-95 Off-Ramp (GR0)	Highway	Philadelphia	2009-2012	
80103	US 1, Roosevelt Expressway Extension	Highway	Philadelphia	2007-2010	

MPMS	Project	Program	County	Year	In Study Area
703	Wayne Junction (State of Good Repair - Station Projects)	Transit	Philadelphia	2007-2010	
703	Queen Lane (State of Good Repair - Station Projects)	Transit	Philadelphia	2007-2010	
13347	I-95/PA Turnpike Interchange and portions of I-95	Highway	Bucks	2007-2010	
13347	I-95/PA Turnpike Interchange and portions of I-95	Highway	Bucks	2009-2012	
13347	I-95, PA Turnpike Interchange (TPK)	Highway	Bucks	2011-2014	
13452	Woodbourne Road Intersection Improvement, Turning Lanes	Highway	Bucks	2007-2010	
13454	Oxford Valley Road	Highway	Bucks	2007-2010	
13549	US 1 Bridge Deck Rehabilitation	Highway	Bucks	2007-2010	
13549	US 1 (Bridges)	Highway	Bucks	2009-2012	
13576	PA 413, New Rodgers Road Corridor Improvement	Highway	Bucks	2007-2010	
13576	PA 413, New Rodgers Road (Turn Lane)	Highway	Bucks	2009-2012	
13576	PA 413, New Rodgers Road (Turn Lane)	Highway	Bucks	2011-2014	
13576	PA 413, New Rodgers Road (Turn Lane)	Highway	Bucks	2011-2014	
13580	PA 132/Street Rd., US 1-State Rd.	Highway	Bucks	2009-2012	
13606	Hulmeville Avenue (Bridge) Bridge Replacement	Highway	Bucks	2007-2010	
13606	Hulmeville Avenue (Bridge) Bridge Replacement	Highway	Bucks	2009-2012	
13606	Hulmeville Avenue Bridge Over Conrail	Highway	Bucks	2011-2014	
13611	Street Rd: Bristol to William Penn	Highway	Bucks	2009-2012	
13635	Oxford Valley Road	Highway	Bucks	2007-2010	
13635	Oxford Valley Road	Highway	Bucks	2007-2010	
13635	Oxford Valley Road/Lincoln Highway Intersection Improvements	Highway	Bucks	2011-2014	
13702	Otter Road (Bridge) Bridge Replacements	Highway	Bucks	2007-2010	Yes
13727	Bristol Road Intersection Improvements	Highway	Bucks	2007-2010	
13727	Bristol Road Intersection Improvements	Highway	Bucks	2009-2012	
13727	Bristol Road Intersection Improvements	Highway	Bucks	2011-2014	
13727	Bristol Road Intersection Improvements	Highway	Bucks	2011-2014	
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2007-2010	
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2007-2010	
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2007-2010	Yes
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2009-2012	Yes
13745	US 13, Bristol Pike (Signals)	Highway	Bucks	2009-2012	
13760	US 13, Bristol Pike	Highway	Bucks	2007-2010	Yes
13762	West Maple Avenue Bridge Replacement	Highway	Bucks	2007-2010	
13762	West Maple Avenue Bridge Over Neshaminy Creek	Highway	Bucks	2011-2014	
14747	US 322, Conchester Road Corridor Improvements	Highway	Delaware	2007-2010	
14822	PA 291, Industrial Highway	Highway	Delaware	2007-2010	Yes
14865	I-95, Delaware Expressway (SB)	Highway	Delaware	2007-2010	
15008	Folcroft Avenue (Bridge)	Highway	Delaware	2007-2010	
15008	Folcroft Avenue (Bridge)	Highway	Delaware	2009-2012	
15008	Folcroft Avenue Bridge Over Amtrak/SEPTA R2 Rail Line	Highway	Delaware	2011-2014	

MPMS	Project	Program	County	Year	In Study Area
90180	Stone Arch Rehab, Group F	Highway	Philadelphia	2011-2014	
90197	Stone Arch Rehab, Group F	Highway	Philadelphia	2011-2014	Yes
90482	North Delaware Riverfront Greenway (TIGER)	Highway	Philadelphia	2011-2014	Yes
90482	North Delaware Riverfront Greenway (TIGER)	Highway	Philadelphia	2011-2014	Yes
91490	Expressway Service Patrol - Philadelphia	Highway	Philadelphia	2011-2014	
91837	City Wide Resurfacing (# 103B)	Highway	Philadelphia	2011-2014	

Source: DVRPC, 2012

The background features a stylized city skyline in shades of green and yellow. Overlaid on this are several curved, overlapping bands in shades of blue and grey. These bands contain dashed white arrows pointing in various directions, suggesting a flow or movement. A central teal circle contains the text 'APPENDIX E'.

APPENDIX E

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

Waterfront Plans & Studies

Title	Date	Prepared For	Prepared By	Link (if available)
Master Plan for the Central Delaware	2011	Delaware River Waterfront Corporation		http://www.plancentraldelaware.com/
Food Plan for the Delaware River Waterfront	2010		Food Trust	http://www.thefoodtrust.org/catalog/download.php?product_id=173
Pennsylvania's Fishing and Boating Access Strategy	2010		Fish & Boat Commission (PFBC), DCNR, PEC	http://www.fishandboat.com/accessplan.htm
Penn Treaty Park Master Plan	2010	Friends of Penn Treaty Park	Studio Bryan Hanes	
Generating Recovery by Enhancing Transportation Mid-Atlantic	2010	U.S. Department of Transportation TIGER II Grant Application	Pennsylvania Environmental Council, Bicycle Coalition of Greater Philadelphia, City of Philadelphia, Camden County Parks Department	
Generating Recovery by Enhancing Transportation in Pennsylvania and New Jersey (GREAT PA/NJ)	2010	U.S. Department of Transportation TIGER Grant Application	Pennsylvania Environmental Council, Bicycle Coalition of Greater Philadelphia, City of Philadelphia, Camden County Parks Department	http://www.pecpa.org/files/TIGER_Grant_GREAT_PA_NJ_May_2010.pdf
Philadelphia Waterfront Transit Expansion Alternatives Analysis	2010	Delaware River Port Authority; PATCO	Parsons Brinckerhoff	http://patcopaexpansion.com/finalreport.html
River Values: The Value of a Clean and Healthy Delaware River	2010		Delaware Riverkeeper Network	http://www.delaweriverkeeper.org/resources/Reports/River_Values_Report.pdf

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Bristol Delaware Riverfront Greenway	2010		Pennsylvania Environmental Council	www.pecpa.org/ecg/bucks
Delaware County Bicycle Plan	2009		Delaware County Planning Department	http://www.co.delaware.pa.us/planning/transportation/bikeplan.html
East Coast Greenway Trail Feasibility Study: Darby Creek to Flower Street, Delaware County	2009	Delaware County Planning Department	Ray Ott & Associates	
East Coast Greenway Pennsylvania and Delaware: A Guide to Bicycling and Walking	2009		East Coast Greenway Alliance	http://www.greenway.org/pdf/pade_guide.pdf
North Delaware Riverfront Greenway Gaps Feasibility Study	2009	Delaware River City Corporation, Pennsylvania Environmental Council	Pennoni Associates	http://www.drcc-phila.org/reports/Gap%20Study/Gap%20Study.pdf
North Delaware Riverfront Greenway Design Guidelines	2009	Delaware River City Corporation		http://www.drcc-phila.org/reports/NorthDelawareRiverfrontGreenwayDesign%20Guidelines_Final.pdf
An Action Plan for the Central Delaware	2008		PennPraxis	http://planphilly.com/actionplan
Historic Bristol Borough Freshwater Tidal Marsh Conservation Plan	2008		Heritage Conservancy	https://www.heritageconservancy.org/images/stories/bristol-marsh.pdf
North Delaware Riverfront Rail Stations Urban Design Study	2008	Philadelphia City Planning Commission	Interface Studio & Consultant Team	http://www.philaplanning.org/plans/ndelrailsum.pdf

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The Tidal Delaware: Summary of Partnership Workshops and Recommended Action Plan	2008		GreenSpace Alliance, Keystone Conservation Trust, Pennsylvania Environmental Council	
New Kensington Community Development Corporation Riverfront Plan	2008	New Kensington Community Development Corporation (NKCDC)	Wallace Roberts & Todd	http://www.nkcdc.org/NKCDC_Riverfront_Plan.pdf
Broad Street Line Extension Feasibility Study	2008			http://www.navyyard.org/files/newsletters/Final_BSL_Exec_Sum_LR.pdf
Historic Bristol Borough Waterfront Facilities Master Plan		Redevelopment Authority of Bucks County	Langan Engineering and Environmental Services	
Northern Liberties Waterfront Plan	2007	Northern Liberties Neighbors Association	Interface Studio LLC and Orth-Rodgers & Associates Inc.	http://www.nlina.org/images/NLINA_WaterfrontPlan_Web.pdf
Civic Vision for the Central Delaware	2007	Central Delaware Advisory Group	PennPraxis, WRT, William Penn Foundation	http://issuu.com/pennpraxis/docs/civic-vision-for-the-central-delaware
A Feasibility Study for Improving Pedestrian and Bicycle Access to the John Heinz National Wildlife Refuge	2007	The Clean Air Council	Campbell Thomas & Co.	http://www.cleanair.org/Transportation/PDFs/Final%20Report-%20Heinz%20Refuge%20Access%20Study.pdf
Central Delaware Riverfront Plan Working Papers	2007		Philadelphia City Planning Commission	http://www.philaplanning.org/plans/cdrp/cdrp.html

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North Delaware Riverfront Greenway: Master Plan and Cost Benefit Analysis	2006 (revised May 2010)		Pennsylvania Environmental Council, Greenways Incorporated, Econsult Corporation, Scheiter & Associates	http://www.drfcc-phila.org/plans.htm
Bucks County Waterfront Revitalization Plan	2005	Redevelopment Authority of Bucks County, County of Bucks, Bensalem Twp, Bristol Borough, Bristol Twp, Falls Twp, Morrisville Twp, Tullytown Twp	HNTB Corporation	http://www.bcrda.com/waterfront-x-sd.html
Delaware County Route 291/13 Industrial Heritage Parkway and Greenway Landscaping and Signage Guidelines	2005	Delaware County Planning Department	Menke & Menke; Mitchel Environmental Graphic Design; Kise, Straw & Kolodner	
Detailed Feasibility Study- Tincum-Fort Mifflin Trail, Fort Mifflin to Essington Trail Segment	2005		Campbell Thomas & Co.	http://www.cleanair.org/Transportation/tfmtrail.html
Delaware County Route 291/13 Darby Creek Bridge Feasibility Study	2005	Delaware County Planning Department	Vollmer Associates	
River Greenway Design Guidelines	2005		Philadelphia City Planning Commission	
Shaping the D&L Drive	2004		Heritage Conservancy	https://www.heritageconservancy.org/images/stories/dandl-drive.pdf

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Navy Yard Master Plan	2004	Philadelphia Industrial Development Corporation (PIDC), Liberty Property Trust, Synterra Partners	Robert A.M. Stern Architects	http://www.navyyard.org/uploads/files/FinalReport.pdf
Regional Greenspace Priorities Project	2004 (revised 2006)		GreenSpace Alliance	http://www.greenspacealliance.org/home/publications.asp?id=107
Renaissance Program Planning Area 1-5 Action Plan	2003	Delaware County Council	Delaware County Planning Department	http://www.co.delaware.pa.us/planning/sidebarpages/Publications.pdf
Chester City Ramp Access Study	2003	PennDOT, DRPA	DVRPC	http://www.dvrpc.org/reports/03003.pdf
A Trail Development Study for the Tincum-Fort Mifflin Trail	2003	Fort Mifflin on the Delaware	Campbell Thomas & Co.	http://www.cleanair.org/Transportation/tfmtrail.html
Tidal Schuylkill River Master Plan: Creating A New Vision	2003	Schuylkill River Development Corporation	EDAW	http://www.schuylkillbanks.org/sites/72.27.230.230/files/SRDC%20Master%20Plan.pdf
Delaware River Heritage Trail: State of the Trail Report	2003		Delaware River Greenway Partnership	http://www.bcec.us/uploads/State_of_Trail_Report.pdf
Delaware County Industrial Heritage Parkway Route 291/13 Beautification and Greenway Plan	2002	Delaware County Planning Department		
East Coast Greenway Master Plan and Needs Assessment	2001			http://www.cleanair.org/Transportation/ecg/ECGpa.html

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North Delaware Riverfront, Philadelphia: A Long Term Vision for Renewal and Redevelopment	2001	Philadelphia City Planning Commission	Field Operations	
Botanic Trail Development Study	1999		Campbell Thomas & Co.	
Delaware County Coastal Zone Compendium of Waterfront Provisions	1998		Delaware County Planning Department	
Rivers Conservation Plan	1997	Ridley Creek	Greenspace Alliance, PEC, Chester-Ridley-Crum Watersheds Association	
Planning for Public Access to Pennsylvania's Coasts: An Inventory of Existing Conditions	1997	PA DEP, PA Coastal Zone Management Program	DVRPC	
Management Action Plan: The Schuylkill Heritage Corridor	1995		Schuylkill River Greenway Association	
Delaware and Lehigh Canal National Heritage Corridor and State Heritage Park Management Action Plan	1993		Delaware & Lehigh Canal National Heritage Corridor Commission	http://www.delawareandlehigh.org/images/library/DLNHC_Mngmt_Action_Plan.pdf

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Delaware River Waterfront Transportation Needs Assessment: Travel Demand Management Issue And Program Identification Report	1992		DVRPC	http://www.dvrpc.org/asp/pubs/publicationabstract.asp?pub_id=92013
Delaware County Waterfront Resources Management Plan	1992		Delaware County Planning Department	
Tinicum Waterfront Vision for Year 2000 (Part I Action Plan and Part 2 Background I)	1989	Tinicum Township	RDC Institute, Inc.	
Plan for Philadelphia Riverfronts	1985		Philadelphia City Planning Commission	
The Bristol - Delaware River Strategy: Actions for Riverfront Revitalization	1985			
North Delaware District Plan	1982		Philadelphia City Planning Commission	

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Abstract: The purpose of *Accessing the Tidal Delaware: Pennsylvania* is to further the revitalization of Pennsylvania's tidal Delaware River waterfront communities by identifying multimodal transportation projects to improve access to the waterfront. Its intent is not to duplicate the endeavors of the numerous high quality waterfront plans that have come before. Rather, it seeks to raise awareness about the existing efforts in Philadelphia, Bucks, and Delaware counties. This study builds on the existing waterfront plans and activities by: identifying gaps in Bucks, Delaware, and Philadelphia counties where access to the waterfront has not been addressed and/or recommendations not determined; highlighting locations of recent transportation investment and grant program funding; and examining the specific multimodal transportation improvements still needed to realize the waterfront plans. The study examines what we mean by access, both public and private, formal and informal, and what some of the barriers to access are. It looks at the different users of the waterfront and some of their competing concerns. Threats to access, such as sea level rise, are also examined. Recent waterfront plans in the three counties are reviewed, along with their transportation recommendations. The report concludes with both broad and specific recommendations to improve access to the Delaware. Appendices include case studies of successful waterfronts, waterfront access maps, funding opportunities, and points of interest.

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