

To: Bob White, Director
Redevelopment Authority of the County of Bucks
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**Subject: Summary of Existing Conditions—Natural and Cultural Resources
(Revised)**

This technical memorandum provides an overview of the existing natural and cultural resources in the Bucks County Waterfront Revitalization study area. This is one of several background memos supporting the Bucks County Waterfront Revitalization Plan. The purpose of the study is to provide for improved access to the riverfront and to promote targeted economic development in the study area. The study area includes portions of the following municipalities: Bensalem Township, Bristol Borough, Bristol Township, Falls Township, Morrisville Borough, and Tullytown Borough.

Introduction

The Bucks County Waterfront, which extends approximately 30 miles along the Delaware River from the Philadelphia border to Morrisville Borough, includes an extensive array of industrial and commercial land uses, as well as historic districts, public parks, waterways and wetlands. It is an important habitat for a number of fishes and migratory waterfowl; at the same time, this section of the river is home to high-density urban development.

Historic Resources

Within the study area lie 46 properties eligible for or listed on the National Register of Historic Places, including historic districts, transportation corridors and individual historic structures. The Bristol Historic District contains residential, commercial and industrial architecture dating from the early 18th century. The Delaware Division of the Pennsylvania Canal traverses the study area. The canal was part of early to mid-nineteenth century canal building efforts that helped to develop the anthracite coal industry in the Upper Lehigh Valley. One of more prominent historic resources is Pennsbury Manor, the recreated country home of William Penn, situated on the Delaware River in Falls Township. Appendix A lists the listed and eligible historic resources in the study area, while Appendix B describes the portions of the study area with a high sensitivity to pre-contact archaeological resources.

Water Resources

The Bucks County Waterfront study area contains a number of waterways, parks, and unique natural resources. Chief among them is the Delaware River, which begins in central New York and flows 330 miles before emptying into Delaware Bay and the Atlantic Ocean. The northeastern corner of the study area also marks the point at which the river leaves the piedmont (as evidenced by the falls near Trenton and Morrisville) and enters the Atlantic Coastal Plain. Although not a true estuary, the portion of the river in the study area is influenced by tides, and is often considered part of the Delaware Estuary.

Despite the heavy industrial uses along the waterfront in the study area, the river still seems “largely unaffected by the hand of man. Frequent floods have kept development away from most islands and much of its shore. Hence, the river corridor possesses a surprising degree of natural beauty and provides important wildlife habitat (*Lower Delaware River National Wild & Scenic Study Report, 11*).”

Water quality is an ongoing issue along the Delaware River, which provides drinking water, as well as water for industrial uses. Water quality reached its nadir in the first half of the twentieth century, when

industrial and municipal wastes were dumped untreated into the river. Since then, regulations and technological improvements have improved water quality to the point where it is safe for human contact.

Several streams and unnamed tributaries reach their confluence with the Delaware River within the project boundary. These waterways include Poquessing Creek and Neshaminy Creek, as well as Biles, Mill, Scotts, Black Ditch, and Martin’s Creeks. These stream sections are tidally influenced and are listed by the Pennsylvania Department of Environmental Protection’s (PADEP’s) *Title 25 PA Code Chapter 93: Water Quality Standards* as Warm Water Fisheries (WWF). Neshaminy, Scotts, and Biles Creeks are also listed as waterways utilized by migratory fish.

Van Sciver Lake and Warner Lake, as well as several smaller lakes in the vicinity, were formed by sand and gravel quarrying. These lakes are used for boating, swimming, and fishing. Appendix C contains a more detailed discussion of water resources in the study area.

Parks and Open Space

Parks and Open Space, most commonly defined as land that is free of buildings and impervious areas, are found throughout the study area. Two state parks are located in the Study Area. The Delaware Canal State Park (including Tinicum Park), is a 60-mile linear park extending from Easton to Bristol; Neshaminy State Park, includes 71 acres of rare freshwater tidal marsh communities. Both parks contain Pennsylvania State Natural Areas, which are set aside to provide locations for scientific observation of natural systems, as well as to protect examples of typical and unique plant and animal communities (PADCNR website).

Bristol Marsh and Silver Lake County Park, including Magnolia Park and Delhaas Woods, all enhance the Delaware River’s collection of natural aquatic resources, which have in the past been depleted by industrial, commercial, and residential development. In fact, Silver Lake Park contains rare coastal plain forest and an unglaciated bog, as well as two animals and 20 plants on the Pennsylvania species of special concern list (see Table 1 below). Appendix D contains a more detailed discussion of Parks and Open Space resources in the study area.

Table 1: Animal and Plant Species of Special Concern in Silver Lake County Park

<i>Animal Species</i>			
Redbelly Turtle		Coastal Plain Leopard Frog	
<i>Plant Species</i>			
Bushy Bluestem	Golden Hedge-hyssop	Sweetbay	Maryland Meadow Beauty
New York Aster	American Holly	Fringed Paspalum	Atlantic Blue-Eyed Grass
Button Sedge	Forked Rush	Stout Smartweed	Possumhaw Viburnum
Slender Sea-Oats	Fetterbush	Spotted Smartweed	Coast Violet
Soapwort Gentian	Umbrella Magnolia	Willow Oak	Net-vein Chair-Fern

Natural Resource Planning

Recent projects along the Delaware River waterfront promoting natural resource management have included the Heritage Conservancy’s riparian restoration along Martin’s Creek in Falls Township and the East Coast Greenway Project. The East Coast Greenway Project seeks to develop the nation’s first long-distance, city-to-city, multi-modal transportation corridor for cyclists, hikers, and other non-motorized users, utilizing greenways, parks, abandoned railroads, and canal towpaths. These efforts will be integral to developing partnerships with local agencies and environmental and land planning groups to link potential waterfront interests.

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The attached Appendices include descriptions of various resources found throughout the project corridor. These resources include eligible and listed National Register historic structures, potentially significant precontact and historic archaeological sensitive areas, wetlands, streams, parkland (including open space), and hazardous waste sites. Resources are grouped according to municipality.

Appendix A: National Register of Historic Places Eligible, Listed, and National Historic Landmarks

Study Area-Wide Resources

Delaware Division of the Pennsylvania Canal (NHL)¹

National Historic Landmark built in 1827-1832. The Delaware Canal is the only remaining continuously intact canal of the great towpath canal building era of the early and mid-nineteenth century. The canal today has almost all of its features as they existed during its century of commercial operation.

Through its connection with the Lehigh Navigation Canal at Easton, the Delaware Canal helped to develop the anthracite coal industry in the Upper Lehigh Valley. The canals provided a convenient and economical means of transporting coal to Philadelphia, New York and the eastern seaboard.

Even before the canal was closed to commercial activities, many people used this waterway for recreational purposes. Fishing and canoeing were favorite sports. Since becoming a state park in 1940, many people have flocked to this area each year to hike the towpath, canoe in the canal or picnic along its banks.

Penn Central Line (eligible)

Resources in Bensalem Township

St. Elizabeth's Convent-Sisters of the Blessed Sacrament for Indians and Colored People (Motherhouse) (listed)

St. Elizabeth's Convent was constructed in 1892 by Charles Burns. The Spanish Missionary architectural complex is comprised of five buildings of gray stone with brown columns and red Spanish tile roofs. The convent's historical significance lies within Katherine Drexel's devotion to providing education to Native American and African American children living in the post Civil War Era. Her passion to teach "America's two most deprived races" inspired her and a small group of women to form a Catholic Church called "Sisters of the Blessed Sacrament for Indians and Colored People." Her devotion to education has touched four generations of children, teaching youth from the elementary to the university level.

Andalusia (NHL)

Andalusia is a National Historic Landmark comprised of four large mansions located along the Delaware River in Bensalem Township. Pen Ryn, the noted mansion of the four, was constructed in 1744 as a country seat home for Samuel Bickley. Between 1744 and 1946, numerous owners occupied the mansion, all changing the mansion to represent the times. However, despite the changes, Pen Ryn remains an excellent example of high style Federal and Colonial Revival architecture.

Allen Family Cemetery (eligible)

The Allen Family Cemetery is small cemetery located in Bensalem Township. The Cemetery dates from ca. 1800, and contains about 20 gravestones of rural families from the early-to-mid nineteenth century.

Amtrak Railroad Bridge-Mill Road-AM21 (eligible)

The Amtrak Railroad Bridge, located over Mill Road in Bensalem Township, is a single span plate girder bridge that carries five tracks. Built ca. 1900, the bridge has remained unaltered since its construction and has retained good integrity. The Pennsylvania Railroad between Philadelphia and New York was determined to be an important historical resource for it "connected two major cities which allowed the Pennsylvania Railroad to compete for rail traffic moving west out of New York," and "provided an elevated route out of Philadelphia." Among other bridges in the area, the Mill Road Bridge was determined to be a contributing factor to the overall significance of the Pennsylvania Railroad.

¹ Taken directly from <http://www.dcnr.state.pa.us/stateparks/parks/delawarecanal.aspx#history>

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Amtrak Railroad Bridge-Station Road-AM24 (eligible)

The Amtrak Railroad Bridge, located over Station Road in Bensalem Township, is a single-span plate girder bridge that carries five tracks. Built ca. 1900-1925, the bridge has remained unaltered since its construction, and has retained good integrity. The Pennsylvania Railroad between Philadelphia and New York was determined to be an important historical resource for it “connected two major cities which allowed the Pennsylvania Railroad to compete for rail traffic moving west out of New York,” and “provided an elevated route out of Philadelphia.” Among other bridges in the area, the Station Road Bridge was determined to be a contributing factor to the overall significance of the Pennsylvania Railroad.

Amtrak Railroad Bridge-AM25 (eligible)

The Amtrak Railroad Bridge, located over the Poquessing Creek Tributary in Bensalem Township, is single-span stone arch bridge that carries five tracks. Built ca. 1900, the bridge has remained unaltered since its construction and has retained good integrity. The Pennsylvania Railroad between Philadelphia and New York was determined to be an important historical resource for it “connected two major cities which allowed the Pennsylvania Railroad to compete for rail traffic moving west out of New York,” and “provided an elevated route out of Philadelphia.” Among other bridges in the area, the bridge was determined to be a contributing factor to the overall significance of the Pennsylvania Railroad.

Amtrak Railroad Station-Cornwells Heights Substation (eligible)

The Amtrak Railroad substation is located at Cornwells Heights Station and dates from ca. 1930. Located on a restricted site, the two-large rectangular open frames carry the high voltage wires. Beneath the wires rests the transformers, other electrical equipment, and a one-story control room. The substation is considered to be historically significant due to its association with the Pennsylvania Railroad.

Bensalem Public School #1 (eligible)

Bensalem Public School #1, located at 3462 Bristol Pike in Bensalem Township, was also known as the Bensalem Veterinary Hospital. The building is a two-and-one-half stories, and dates from the mid-nineteenth century.

Eddington Presbyterian Church (eligible)

The Eddington Presbyterian Church is located on the corner of Bristol Pike and Bensalem Boulevard in Bensalem Township. Originally built in 1887, with later additions of a school in 1926 and 1959, the church is a “picturesque” example of Gothic Revival style architecture and possesses good integrity of design, workmanship, and materials.

Holy Ghost Prep School (eligible)

Holy Ghost Prep School is a multi-building complex located in Bensalem Township. The buildings date from ca. 1909-1923, and are excellent examples of Collegiate Gothic architecture, modeled after the architecture of Cambridge and Oxford Universities. The buildings have retained excellent integrity and continue to serve as an educational institution.

St. Elizabeth’s Convent-Farm-3800 Bristol Pike (eligible)

St. Elizabeth’s Farm is located on Bristol Pike in Bensalem Township. The farm house, barn, and garage were built in the late nineteenth century and are associated with St. Elizabeth’s Convent, Sisters of the Blessed Sacrament for Indians and Colored People, a historically significant property.

Stone Tavern/Eddington Presbyterian Church Manse (eligible)

The Stone Tavern is located at the corner of Bristol Pike and Bensalem Boulevard in Bensalem Township. Constructed ca. 1750, the Georgian style structure is one of the few remaining mid-eighteenth century taverns on Bristol Pike, reminiscent of the early turnpike history of the township.

Resources in Bristol Township

White Hall of Bristol College-701-721 Shadyside Avenue (listed)

White Hall of Bristol College is located in Croyden. The hall was constructed in 1834-1835 by master architect Alexander Jackson Davis as instruction rooms and dormitories for Bristol College. White Hall is reminiscent of the high style homes built along the Delaware riverfront, and is the only remaining structure of Bristol College. During the Civil War, the hall was used as a hospital for wounded soldiers, and following the war, acted as the only publicly funded orphanage in Pennsylvania to house the children of African American soldiers killed in the war.

Burlington Bristol Bridge (eligible)²

Constructed 1930-1931. The vertical lift span was considered a modern design when it was built. When the lift span is lifted, it provides a clearance of 138.0 feet, high enough for the tallest vessels of the time to pass. The lifting mechanism is propelled by two 80-horsepower electric motors, hoisting the 540.0-foot-long main span – the longest of its type when it was built (and exceeding the length of the longest lift span by 200.0 feet) – in two minutes. Flanking the lift span are two 200.0-foot-long through-truss side spans, and two approaches measuring approximately 1,500.0 feet long. The bridge, which carries one lane of traffic in each direction on a 24.0-foot-wide roadway, was to be part of a “belt line” highway proposed by the Regional Planning Federation (the forerunner to the Delaware Valley Regional Planning Commission).

Green Lane Railroad Viaduct (eligible)

The railroad viaduct is located in Bristol Township, and spans Green Lane between Route 13, stopping at Wilson Road. The resource consists of a concrete railroad viaduct and dates from 1931. Since the Pennsylvania Railroad between New York City and Philadelphia was determined to be a significant resource, the viaduct is a contributing resource along the rail line.

Shadyside—6934 North Radcliffe Street (eligible)

Shady Side is located at 6934 North Radcliffe Street on the Delaware riverfront in Bristol Township. The original building was constructed ca. 1780 and enlarged ca. 1885 in an Italian Villa style. The property is a historically significant property for its association with wealthy merchant Nathan B. Hellings. Hellings established a fruit preservation business on the estate that had superior capabilities for its time. The estate remains in excellent condition and is architecturally significant.

Resources in Bristol Borough

Bristol Historic District (listed)

The Bristol Historic District is located in the Bristol Borough. The district is roughly bounded by the Delaware River on the southwest, Lincoln Street on the northeast, Pond and Cedar Streets on the northwest, and the rear property lines of the properties fronting onto the southwest side of Mill Street on the southwest. The district contains a varied collection of residential, commercial, and industrial architecture dating from the early eighteenth century to the mid-1930s, all representing the community’s history as a transportation and commercial center.

Bristol Industrial Historic District (listed)

The Bristol Industrial Historic District is located in Bristol Borough. The 13.8-acre historic district is roughly bounded by the former main line of the Pennsylvania Railroad on the southeast, Jefferson Avenue on the northeast, the former bed of the Delaware Division of the Pennsylvania Canal on the northwest, and Beaver Street on the southeast. The district, which is industrial in nature, consists of six factory complexes, comprising a total of 36 buildings and seven structures which are good condition. Most of the significant resources were constructed after 1885 and are located in Grundy Mill Complex, which is an individually listed in the National Register of Historic Places.

² Taken directly from: <http://www.phillyroads.com/crossings/burlington-bristol/>

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The Dorrance Mansion-300 Radcliffe Street (listed)

The Dorrance Mansion is located at 300 Radcliffe Street in Bristol Borough. The Italianate style residence was completed in 1863 and remains in excellent condition. Resting on the Delaware riverfront, the mansion is the only example of Italianate style architecture in the borough. John Dorrance Sr., a notable Bristol resident involved in politics and commerce, commissioned the house, which represents one of the earliest mansions to be built by industrialists living in Bristol.

Grundy Mill Complex/Bristol Worsted Mills (listed)

The Grundy Mill Complex is located in the “Mill District” of Bristol Borough. The complex consists of 13 buildings in good condition that were constructed from 1876 to 1911, thus representing two distinct periods of industrial style: the post Civil War traditional wood and stone mill buildings, and the early twentieth century masonry and reinforced concrete. Joshua Pierce constructed the first buildings and was the founder and first director of the Bristol Improvement Company. Pierce’s Improvement Company was instrumental in the transformation of Bristol from a canal oriented town to a manufacturing center. William H Gundy, a wealthy industrialist and politician, assisted Pierce when he ran into financial difficulty, and was consequently named as the assignee to handle affairs. Upon William Gundy’s sudden death, Joseph R. Gundy obtained sole ownership and continued William H. Gundy and Joshua Pierce’s tradition of industrial expansion.

Harriman Historic District (listed)

The Harriman Historic District is located in Bristol Borough. The 17.0-acre historic district is bounded by West Circle on the southwest, East Circle on the northeast, Farragut Avenue on the southeast, and Trenton Avenue on the northwest. The district includes all portions of Harriman developed by the Emergency Fleet Corporation (EFC) ca. 1907-1921. The integrity of the district is fair but retains strong historical significance due to its association with the mobilization of American industry that occurred during WWI. Harriman Historic District remains the largest single housing project undertaken by the EFC, and represents a period when the Delaware River housed the largest concentration of shipyards in the United States.

Jefferson Avenue School (listed)

The Jefferson Avenue School is located in Bristol Borough. This Georgian Revival style building was constructed in 1908 in response to a growing population due to industrial growth. The school stands today as the only intact original elementary school building in Bristol.

Jefferson Land Association Historic District (listed)

The Jefferson Land Association Historic District is located in Bristol Borough. The 6.0-acre historic district is bounded by Spring Street on the northwest, Jefferson Street on the northeast, Beaver Road on the southwest, and Garden Street on the southeast. The district contains 67 residential buildings and five commercial buildings, all of which contribute to the significance of the district. The district dates from 1917-1918 as a speculative real estate venture by the Jefferson Land Association, an organization comprised of wealthy Bristol businessmen. The district is architecturally significant for its unique response to worker housing, building “uniform, cohesive unit rows,” as opposed to the more common style of single family residences or duplexes.

General Stores and Mold Loft Building/Merchant Shipbuilding Corporation/1414 Radcliffe Street (listed)

Built: ca. 1904-ca. 1962

Bell, Frank House (eligible)

The Bell, Frank House is located at 824 Radcliffe Street in Bristol Borough. The estate is an excellent example of a late Victorian period mansion, with a unique blending of Second Empire, Queen Ann, and Romanesque Revival. The original section of the house was constructed ca. 1875, almost 30 years after the development surge of Bristol. Frank Bell, a local businessman, politician, and architect, purchased the house in 1889 and made numerous alterations while retaining the integrity of the original design.

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Bristol Railroad Station (eligible)

The Bristol Railroad Station is located in the Bristol Borough and was constructed in 1910-1911. The station was designed to reflect the important position Bristol held within the region as a major city within Bucks County. The Bristol Station is the only remaining station of its kind along the track, and, despite recent damage, the station continues to reflect its period of significance.

Bristol U.S. Post Office (eligible)

The Bristol U.S. Post Office is located on the northeast corner of Beaver and Prospect Streets. Constructed in 1914, the Classical Revival style building was designed by Oscar Wendroth for the Department of the Treasury.

Resources in Falls Township

Pennsbury Manor (listed)

Pennsbury Manor is located in Falls Township along the Delaware River. Constructed ca. 1682 and 1939, the manor is a reconstruction of the brick house in a style typical of the William and Mary Period. The house was planned by Penn, who unfortunately was not able to spend much time there due to his return to England in 1684. The estate was home to Penn's family while in America until 1701. Pennsbury Manor was maintained for a few years after, but by 1707 fell victim to neglect, and the property was sold. In 1932, the land was given back to the Commonwealth; a replica was constructed from 1932-1939.

Morrisville Yard (eligible)

Morrisville Yard is located on Lower Morrisville Road in Falls Township. The yard was constructed ca. 1891 and is comprised of three structures; a 1960's yard office, a standard Pennsylvania Railroad engine house constructed ca. 1940-1950, and a coaling tower pre-dating WWII.

Resources in Tullytown Borough

Tullytown Historic District (eligible)

The historic district extends along both sides of Main Street to Wood Street, both sides of Oxford Avenue to the Pennsylvania Railroad tracks on the north and Manor Avenue to the south, along an unnamed alley south of Main Street to River Road and along River Road, and then Mill Lane Road to Main Street. Tullytown Historic District is a good example of well preserved residential homes from the early nineteenth to the early twentieth centuries.

749 Brown Street (eligible)

749 Brown Street is a three-story home located in Tullytown Borough and dates from ca. 1898. The building has been altered substantially, but retains some integrity.

742 Brown Street (eligible)

The two-story residence located at 742 Brown Street in Tullytown Borough dates from ca. 1890 and is oldest house on the block. Although the residence has been substantially altered, it remains a significant historical resource.

755 Brown Street (eligible)

The two-and-one-half story residence, located at 755 Brown Street in Tullytown Borough, dates from ca. 1893. The single dwelling home has been restored to its original appearance, and therefore embodies distinctive characteristics of a period in history.

51 Fallsington Avenue (eligible)

The two-and-one-half story residence located at 51 Fallsington Avenue dates from ca. 1898. Although the residence has been substantially altered, it remains a significant historical resource.

55 Fallsington Avenue (eligible)

The two-and-one-half story residence located at 55 Fallsington Avenue dates from ca. 1898. Although the residence has been substantially altered, it remains a significant historical resource.

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73 Fallsington Avenue & A15.) 75 Fallsington Avenue (eligible)

The residences at 73 and 75 Fallsington Avenue were mostly likely identical when originally built. They are both two-and-one-half stories and date from ca. 1894-1909. Although the residences have been substantially altered, they remain significant historical resources.

100 Fallsington Avenue

The two-story residence located at 100 Fallsington Avenue dates from ca. 1890-1900. Although the residence has been substantially altered, it remains a significant historical resource.

112 Fallsington Avenue

The one-and-one-half story residence located at 112 Fallsington Avenue dates from 1928. Although the residence has been substantially altered, it remains a significant historical resource.

129 Fallsington Avenue (eligible)

The two-story residence located at 129 Fallsington Avenue dates from ca. 1890. Although the residence has been substantially altered, it remains a significant historical resource.

Resources in Morrisville Borough

Gersham, Craft House (listed)

The Gersham, Craft house is located at 105 Barnsley Avenue in Morrisville Borough. The mansion house, carriage house, smoke house, and the remains of Pamona Farm were built ca. 1807 and remain excellent examples of Federal Style architecture found within historic Bucks County. The mansion house retains its integrity as a fine countryside home through the small details, decorations, and proportions found within the estate.

Pennsylvania Railroad Bridge at Trenton over Delaware River (listed)

The railroad bridge spans two states, connecting Morrisville, Pennsylvania with Trenton, New Jersey. Constructed in 1903, the bridge was constructed of rock faced massive Clearfield stone, and is an excellent example of the stone arch bridges built at the turn of the century. The style represents the ability of the Pennsylvania Railroad to adapt to the heavier trains that were being developed.

Trenton City Bridge/Calhoun Street Bridge (listed)

The Trenton City Bridge ran between Trenton, New Jersey and Morrisville, Pennsylvania over the Delaware River. Constructed in 1885, the bridge consists of seven Pratt trusses and four segment iron Phoenix columns. From about 1867 to the late-nineteenth century, Phoenix columns were the most widely used parts for bridge construction, and were made in Phoenixville, Pennsylvania. The Trenton City Bridge was one of the last bridges that utilized the iron columns and one of the only surviving and functional bridges of its type.

Summerseat School/George Clymer House (NHL)

The Summerseat School is a National Historic Landmark located in Morrisville, Bucks County. The Georgian style house was constructed ca. 1770 by Thomas Barclay, a Philadelphia Merchant. In 1806, the home was acquired by George Clymer, a signer of the Pennsylvania Declaration of Independence, who occupied the home until 1813. The home was restored in the 1930s and is used for public school purposes.

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Table A-1: Historic Resources

Name	Map Legend	Status
AM24 Station Road Bridge	A	Eligible
AM23 Amtrak R.R. –Station Road-Cornwells Heights Substation	B	Eligible
Eddington Presbyterian Church	C	Eligible
AM25 Bridge	D	Eligible
AM21 Bridge Mill Road	E	Eligible
St. Elizabeth’s Convent (farm) 3800 Bristol Pike	F	Eligible
Stone Tavern/Eddington Presbyterian Church Manse	G	Eligible
Holy Ghost Prep School	H	Eligible
Allen Family Cemetery Vandergift Lane	I	Eligible
Gersham, Craft House, 105 Barnsley Avenue	J	Listed
Andalusia	K	NHL
Morrisville Yard	L	Eligible
St. Elizabeth’s Convent, Sisters of the Blessed Sacrament for Indians and Colored People (Motherhouse)	M	Listed
Bristol HD	N	Listed
Bristol Industrial HD	O	Listed
The Dorrance Mansion, 300 Radcliffe Street	P	Listed
Grundy Mill Complex/Bristol Worsted Mills	Q	Listed
Harriman HD	R	Listed
Jefferson Avenue School	S	Listed
Jefferson Land Association HD	T	Listed
White Hall of Bristol College 701-721 Shadyside Avenue	U	Listed
Pennsbury Manor	V	Listed
Pennsylvania R.R. Bridge at Trenton over the Delaware River	W	Listed
Trenton City Bridge-Calhoun Street Bridge	X	Listed
Summerseat School, George Clymer House	Y	NHL
General Stores and Mold Loft Building /Merchant Shipbuilding Corporation /1414 Radcliffe Street	Z	Listed
Green Lane R.R. viaduct	A1	Eligible
Bell, Frank House, 824 Radcliffe Street	A2	Eligible
Bristol R.R. Station	A3	Eligible
Bristol US Post Office	A4	Eligible
Burlington Bristol Bridge	A5	Eligible
Shadyside-6934 North Radcliffe Street	A6	Eligible
Bensalem Public School #1	A7	Eligible
Tullytown Historic District	A8	Eligible
749 Brown Street	A9	Eligible
742 Brown Street	A10	Eligible
755 Brown Street	A11	Eligible
51 Fallsington Avenue	A12	Eligible
55 Fallsington Avenue	A13	Eligible
73 Fallsington Avenue	A14	Eligible
75 Fallsington Avenue	A15	Eligible
100 Fallsington Avenue	A16	Eligible
112 Fallsington Avenue	A17	Eligible
129 Fallsington Avenue	A18	Eligible
Delaware Division of the Pennsylvania Canal	Blue	NHL
Penn Central Line	Green	Eligible

Appendix B: Archaeological Sensitivity Area Mapping

Areas that may contain archaeological resources have been delineated on the Existing Conditions map. This mapping includes documented archaeological sites, as well as other sites that may have precontact resources. Information on the location of documented archaeological sites was collected from the Pennsylvania Archaeological Sites Survey (PASS) files at the Pennsylvania Historical and Museum Commission-Bureau of Historic Preservation (PHMC-BHP).

Areas of precontact archaeological sensitivity were identified on the basis of topographic position and degree of obvious prior disturbance. Areas of low disturbance proximate to the Delaware River or tributary streams were designated sensitive to precontact resources.

Areas of historic archaeological sensitivity were defined on the basis of historic maps of the area and the location of National Register-eligible or listed historic structures with the potential to have associated archaeological deposits. Any areas already surveyed and found lacking in archaeological sites were determined to be non-sensitive to archaeological resources.

The sensitivity areas will have to be field verified to determine the presence or absence of archaeological deposits and their potential eligibility for inclusion in the National Register of Historic Places.

Appendix C: Wetlands, Waterways and Habitat

The Delaware River within the study area extends approximately 30 miles, and is included in the Conservation Plan area of the Lower Delaware River Management Plan. In the study area, the river leaves the upper Piedmont area and crosses limestone ridges into the flat Coastal Plain. The Coast Plain is characterized by sands, clays and gravels which have been mined extensively in Falls Township during the creation of Van Sciver and Warner Lakes. At this point, the Delaware River widens to over 500 feet and reaches a depth of 40 feet. This river section is also influenced by tides of up to 8 feet. (*Lower Delaware Wild and Scenic Study Final Report*)

The study area has a few unique water resources, including freshwater tidal wetlands, glaciated bogs, and coastal plain forested wetlands. According to the Delaware Valley Regional Planning Commission (DVRPC) and the Bucks County GIS land use coverages, there are approximately 5,080 acres of wetland in the study area. *Riverine* (Rivers), *Lacustrine* (Lakes), Open Water, and *Palustrine* (areas bounded by uplands or Oceans, Rivers, & Lakes) Forested wetlands comprise the majority of these wetlands. This is due to the prominence of the Delaware River, the large lakes in Falls Township, and the remaining coastal plain forested areas within the study area.

Table A-2: List of Wetlands within the Bucks County Waterfront Corridor.

Cowardin Wetland Classification	Key	Acres	Percentage
Lacustrine Open Water	L1OW	1769.4	34.83
Lacustrine Open Water	L1OWS	4.8	0.09
Lacustrine Forested	L2FL	6.2	0.12
Lacustrine Forested	L2FLS	2.5	0.05
Palustrine Emergent	PEM	43.5	0.86
Palustrine Emergent - Open Water	PEM/OW	42.9	0.84
Palustrine Emergent	PEM/OWR	13.5	0.27
Palustrine Emergent	PEMR	36.0	0.71
Palustrine Forested	PFLS	32.8	0.65
Palustrine Forested - Scrub/Shrub	PFO/SS1	73.6	1.45
Palustrine Forested	PFO1	988.0	19.45
Palustrine Forested - Open Water	PFO1/OW	0.0	0.00
Palustrine Open Water	POW	104.7	2.06
Palustrine Scrub/Shrub	PSS1	154.3	3.04
Palustrine Scrub/Shrub - Emergent	PSS1/EM	74.2	1.46
Palustrine Scrub/Shrub - Emergent	PSS1/EMB	4.1	0.08
Riverine Emergent	R1EM	2.0	0.04
Riverine Emergent	R1EM4R	0.9	0.02
Riverine Forested	R1FL	322.2	6.34
Riverine Open Water	R1OW	1318.1	25.95
Riverine Open Water	R2OW	86.3	1.70
	Total	5079.8	100.00

There are nine streams, one river, and numerous unnamed tributaries that reach their confluence within the Delaware River in the project corridor. According to the Pennsylvania Code Title 25, Chapter 93 Water Quality Standards, these waterways are all listed as warm water fisheries (WWF), and some contain migratory fishes.

Warm Water Fisheries (WWF): Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.

Migratory Fishes (MF): Passage, maintenance, and propagation of anadromous and catadromous fishes and other fishes which ascend to flowing waters to complete their life cycle.

Table A-3: Rivers and Creeks within the Bucks County Waterfront Corridor.

Rivers and Creek	PA Chapter 93 Classification	Length of Creek in Study Area (Miles)
Delaware River	WWF - MF	29.6
Poquessing Creek	WWF	11.0
Assiscunk Creek	WWF	0.0
Bustleton Creek	WWF	0.0
Martin's Creek	WWF	3.8
Mill Creek	WWF	1.2
Neshaminy Creek	WWF-MF	1.8
Rock Run	WWF	1.6
Biles Creek	WWF-MF	2.5
Scotts Creek	WWF-MF	0.8
Unnamed Tributaries	WWF	18.7
Total River & Stream Miles		52.3

These aquatic resources provide not only drinking water, industrial and commercial water use, and recreation, but also provide a range of habitats for flora and fauna in the region. The lakes and ponds provide habitat for amphibians, such as bullfrogs, green frogs, pickerel frogs, and the coastal plain leopard frog, as well as turtles, including the redbelly, eastern painted, snapping, and red-eared. Great-blue herons, green herons, ring-necked ducks, and wood ducks are frequently observed in these ponded areas. Birds of special concern, which use the river corridor regularly in Bucks County, include black vultures, osprey, peregrine falcons, and bald eagles (Rhoads 1999). The Delaware River also provides habitat for species dependent on daily tidal flushing, including nearly extirpated species such as Indian wild rice, Walter's barnyard grass, waterhemp ragweed, and two species of arrowhead.

According to the Bucks County website, Silver Lake Park provides refuge for two Pennsylvania animal Species of Special Concern (the coastal plain leopard frog and redbelly turtle), as well as 20 Pennsylvania plant Species of Special Concern. Species of Special Concern found at the Nature Center include the following:

Bushy Bluestem, New York Aster, Button Sedge, Slender Sea-Oats, Soapwort Gentian, Golden Hedge-hyssop, American Holly, Forked Rush, Fetterbush, Umbrella Magnolia, Sweetbay, Fringed Paspalum, Stout Smartweed, Spotted Smartweed, Willow Oak, Maryland Meadow Beauty, Atlantic Blue-Eyed Grass, Possumhaw Viburnum, Coast Violet, Net-vein Chair-Fern.

Finally, the Natural Areas Inventory for Bucks County listed 23 priority inventory sites within the project corridor that contain unique natural features. These sites also coincided with most of the established state, county, and local parks, and open spaces which are presented on the *Verified Parks and Open Space* map. A few of these sites are on privately owned land and are not indicated on the map. Priority levels are organized by the level of state-wide and county-wide significance (defined as uniqueness and quality of natural features). Priority 1 sites are unique and of exceptional quality, while Priority 4 sites are important, but only at the local level.

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Table A-4: Natural Area Inventory Priority Sites in the Bucks County Waterfront Corridor.		
	Natural Areas Inventory Site Name	Priority Level
1	PenRyn and Biddle Boat Ramp (river access area)	1
2	Neshaminy State Park	1
3	Rohm and Hass woods	1
4	Delhaas Woods	1
5	Money Island	1
6	Head of Estuary – Biles Island and USX tidal Marsh	1
7	Mud Island Tidal Marsh	2
8	Neshaminy Creek tidal marsh (above State Road)	2
9	Neshaminy Creek tidal marsh (below the railroad)	2
10	Bristol Marsh	2
11	Silver Lake County Park	2
12	Black Ditch (3M property)	2
13	Falls Township Riverfront Park	2
14	Van Sciver Lakes/Warner Lakes	2
15	PenRyn – woods between State Road and the Railroad	3
16	Delaware River (tidal marsh along the Burlington Bristol bridge)	3
17	Bristol – between railroad spur and canal	3
18	Tullytown (Franklin) Cove	3
19	Route 13 Wetlands and Woods	3
20	Columbus Country Club	4
21	Croydon – woods at River rd. and Cedar Rd.	4
22	Maple Beach dredge spoil	4
23	Edgely – Paper Mill Village woods and riverbank	4

Appendix D: Parks, Recreation Areas and Open Space

There are 16 parks located in the study area. There are also four sites within the study area containing open space that are listed on the Natural Area Inventory. Of the 16 parks, 12 are owned by the local municipalities, one is owned by the county, and three are owned by the state. The list below shows the map ID number and a brief description of the site. The sites are organized by municipality, and in cases where the parks overlap municipalities, the park is listed in the municipality containing the majority of the property area.

Study Area-Wide

Delaware Canal State Park

The Delaware Canal Park is a 60-mile long towpath running from Easton to Bristol. Approximately one-half mile of the path is located in Bristol Borough, two and a half miles in Bristol Township, one-quarter mile in Tullytown Borough, four miles in the study area portion of Falls Township, and a mile and a half in Morrisville Borough. The path is used by walkers, joggers, bicyclists, cross-country skiers, and bird watchers. The towpath runs through the project area starting in Morrisville and ending in Bristol Borough. Portions of the path are discontinuous—specifically where it crosses the Pennsylvania Turnpike, Levittown Shopping Center, US 13 in Tullytown, and Tyburn Road in Falls Township. The canal also no longer connects to its original terminus in Bristol Township.

Bensalem Township

PenRyn Park and Biddle Boat Ramp

This site is included in the Natural Area Inventory of Bucks County, Pennsylvania, 1999. It is owned by the county and contains a mature coastal plain forest surrounding a historic mansion, which is operated as a banquet and catering facility. The county's river access area occupies the northeast corner of the site.

Echo Beach Playground

This site is a municipal park containing a playground.

Gun Club

A private gun club adjacent to Neshaminy State Park

Neshaminy State Park

Neshaminy State Park is located along the Delaware River in Bensalem and Bristol Townships, and contains 330 acres of land. The park's amenities include 235 boat slips, two boat access areas, two swimming pools, picnic pavilions, hiking trails, fishing, and the Playmasters Theatre Workshop.

Neshaminy Creek Tidal Marsh

This site is included in the Natural Area Inventory of Bucks County, Pennsylvania, 1999. It is owned by the municipality and consists of a large tract of tidal marsh along the north shore of the Neshaminy Creek between the railroad and the marina at the end of Main Street.

Bristol Township

Rohm & Haas Woods

This site is included in the Natural Area Inventory of Bucks County, Pennsylvania, 1999. This wooded tract is approximately 50 to 60 acres, and contains most of the Hog Run Creek Watershed. It consists of coastal plain forest with boggy, forested wetlands along the creek.

Bristol Marsh

This site contains a high quality fresh water tidal marsh. The marsh is protected (owned or under easement) by The Nature Conservancy. Two observation platforms along the upper edge of the marsh provide an opportunity to view the area.

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Silver Lake Park

Silver Lake Park is a 460-acre coastal plain forest that contains a nature center, playgrounds, picnicking areas, hiking trails, fishing, ice skating, and other amenities. The Nature Center allows users to enjoy nature and learn about the environment around them. Approximately 27,000 people visit the Nature Center each year, and it is estimated that 90-100,000 people use the trails and other amenities at the park.

Bristol Borough

There are four municipally-run parks in Bristol Borough:

Riverfront Park

Located on the Delaware River adjacent to Mill Street and Pond Street, Riverfront Park includes walking trails and a gazebo.

Grundy Park

This park is located at the southern terminus of the Delaware Canal, and contains open space, a small pond, and the last half-mile of the canal.

Spurline Park

This park is a former freight rail spur that has been converted into a bicycle/pedestrian path. It begins near the intersection of Mill Street and Pond Street, and extends for about two miles along a band of green space that parallels the Delaware Canal, before turning and following Railroad Avenue toward the River. Plans exist to make a more formal connection to the waterfront in the vicinity of Green Lane and Radcliffe Street.

Bristol Borough ball fields

These parks contain open space, playgrounds, and five ball fields.

Tullytown Borough

Tullytown ball field

This site is a municipal park containing a single ball field.

Tullytown park and ball field

This site is a municipal park containing a playground and a single ball field.

Falls Township

Falls Township Community Park

This site is a municipal park and contains nine multi-purpose fields, a concessions stand, picnic pavilions, a 70 acre lake with a boat ramp, bike/pedestrian paths, a roller hockey court, a basketball court, a volleyball court, a bocce court, horseshoe pits, and a softball field.

Van Sciver Lakes/Warner Lake/Penn Warner Club

This site is included in the Natural Area Inventory of Bucks County, Pennsylvania, 1999. The Van Sciver Lakes site occupies 3,500 acres between Morrisville and Tullytown, and the lakes are the largest in Bucks County. Much of the land is owned by the Waste Management Company. The Penn Warner Club manages open spaces around Van Sciver Lake/Pennsbury Manor.

Pennsbury Manor State Park

Pennsbury Manor is a 43-acre site administered by the Pennsylvania Historical and Museum Commission (PHMC). The site contains the recreated home of William Penn. Approximately 30,000-35,000 people visit this site yearly.

Quaker-Penn Park

Located adjacent to Pennsbury Manor, this park includes a picnic pavilion and three soccer fields.

Morrisville Borough

There are four municipally run parks located within Morrisville Borough:

Williamson Park

Located along the Delaware River between Delmorr Avenue North and Bridge Street, this park includes five ballfields and six tennis courts. Work is underway to construct a riverside path on top of the levee, from the Calhoun Street Bridge to Bridge Street.

Robert Morris Plaza

This small plaza at the corner of Bridge Street and Pennsylvania Avenue will be the site of the Robert Morris statue.

Wellcome Park

This small park is located on the Delaware River, just north of the railroad bridge.

Manor Park South

This is a series of parks in the southern portion of Morrisville, containing a mix of uses, including playgrounds, open space, and ball fields.

References

Bucks County Website:

<http://www.buckscounty.org/departments/parks-recreation/SilverLakePark/silverlakepark.html>

Pennsylvania Department of Conservation and Natural Resources

<http://www.dcnr.state.pa.us/stateparks/natural/naturalareas.aspx>

Rhoads, Ann F., and Block, Timothy A. Natural Areas Inventory of Bucks County, Pa. Submitted to the Bucks County Commissioners, June 30, 1999.