

Rahway River Basin, New Jersey
Coastal Storm Risk Management Feasibility Study

Appendix A.4
Case Report and Programmatic Agreement

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I. Introduction

The U.S. Army Corps of Engineers, New York District (District) is currently undertaking a feasibility study to evaluate federal interest in coastal storm risk management for coastal and inland areas within the tidally affected portion of the Rahway River Basin in New Jersey (Figure 1). Tidal flooding on the Rahway River has been a problem in the study area for some time. During flooding events access through low-lying areas is limited. Portions of the New Jersey Turnpike, Routes 1 and 9 and the New Jersey Transit rail lines are affected, blocking transit. Numerous local roads are also subject to tidal inundation. This study has been authorized under the Disaster Relief Appropriations Act of 2013. This coastal storm risk management study in the Rahway River Basin was initiated by separating coastal storm risk management from the existing and ongoing fluvial flood risk management study for the Rahway River Basin, New Jersey. The District has been evaluating the feasibility of a number of alternatives consisting of such measures as floodwalls, levees, tide gates, and non-structural measures including buy-outs, elevations, ring walls, and flood-proofing.

As an agency of the federal government, the U.S. Army Corps of Engineers has certain responsibilities concerning the protection and preservation of historic properties. Section 106 of the National Historic Preservation Act of 1966, as amended, and its

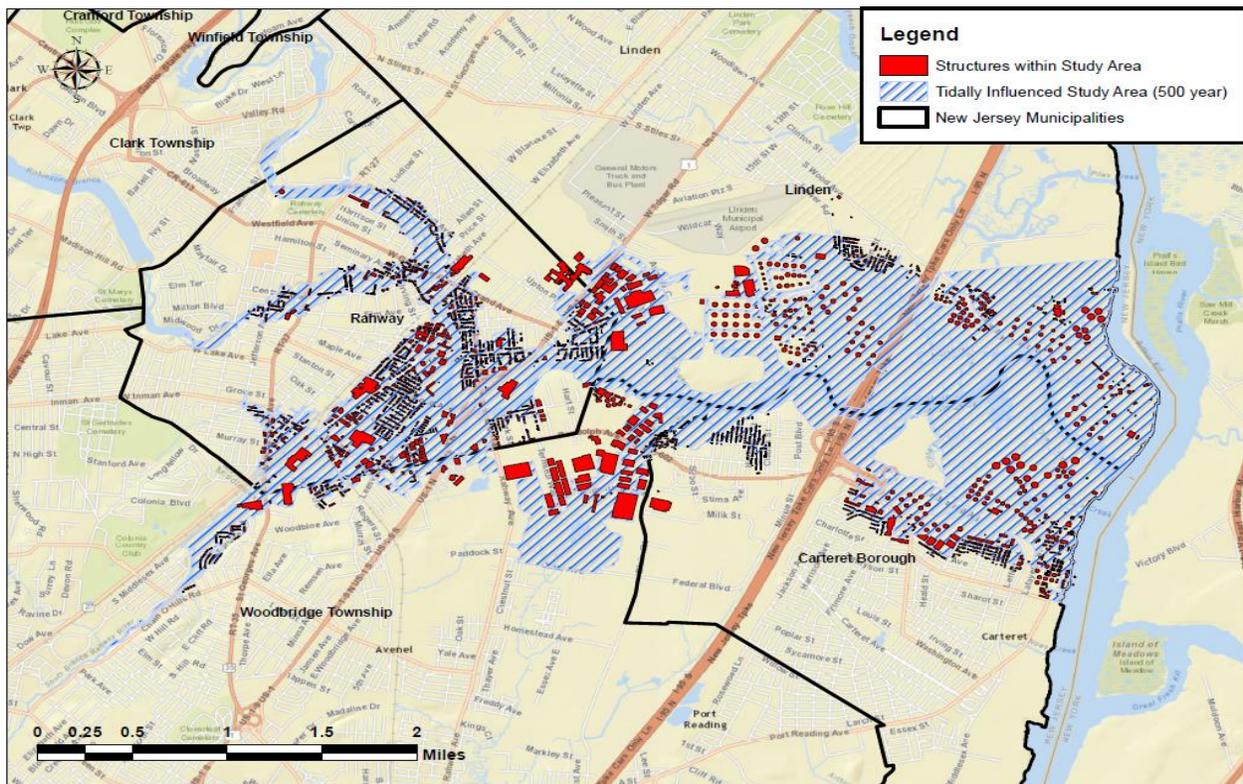


Figure 1 – Rahway River Coastal Storm Risk Management Project Study Area

implementing regulations, the Advisory Council on Historic Preservation's Procedures for the Protection of Historic and Cultural Properties (36 CFR 800), and Executive Order 11593 direct federal agencies to take into account the effect of any undertaking on historic properties included on, or eligible for, the National Register of Historic Places (NRHP). The National Environmental Policy Act (NEPA) requires that federal agencies consider whether an action will have significant environmental effects including effects to historic and cultural resources. In particular, under NEPA, environmental review includes a description of the human environment and the environmental consequences of the proposed action on that environment, which includes aesthetic, historic, and cultural resources. The American Indian Religious Freedom Act (1978), the Presidential Memorandum "Government to Government Relations with Native American Tribal Government (1994), the Native American Graves Protection and Repatriation Act (1990), and Executive Order 13175 "Consultation and Coordination with Tribal Governments" (2000) direct federal agencies to consult and to consider the effects of any proposed undertaking on the tribes.

To ensure this study is in compliance with these regulations the District prepared a preliminary case report and coordinated with the New Jersey State Historic Preservation Office (SHPO), federally recognized tribes, and local interested parties. The District held a public information meeting in May of 2015 in order to inform regulatory agencies and the public of the feasibility study and to solicit feedback. The Project Archaeologist also met with members of the Merchant and Drovers Museum of Rahway, NJ in November of 2016 to discuss the project alternatives. A draft of this Preliminary Case Report was also made available to the public and coordinated with interested parties as part of the draft Feasibility Report and Environmental Assessment in May of 2017.

The work undertaken for this phase of the project represents only partial identification of significant resources and determination of adverse effects under the National Environmental Policy Act. The current investigation included a review of previously completed survey reports and historic properties on file at the NJSHPO, historic maps and local histories located at the Rahway, Linden and Woodbridge Libraries, and archaeological site files held at the New Jersey State Museum. Cultural resources investigation reports were reviewed to collect background information for the study area and were referenced when identifying historic properties, determining archaeological sensitivity for the study area and identifying areas that have not been surveyed in the past. Histories of the Middlesex and Union Counties and of the municipalities were reviewed as well to provide historical context during the alternative development and impacts assessment phases of the study. Field reconnaissance consisted of a series of site visits through the study area to become familiar with the project area, to determine the current status of certain historic properties, and to determine the need for architectural and archaeological sensitivity assessments in the next phase of the project when the plan is further developed.

II. Study Area

The Rahway River Basin is located in northeastern New Jersey. It consists of the main stem of the Rahway River and four branches. The West Branch flows south from Verona through South Mountain Reservation and downtown Millburn. The East Branch originates in West Orange and Montclair and travels through South Orange and Maplewood. These two branches converge near Route 78 in Springfield to form the Rahway River which flows through the municipalities of Springfield, Union, Cranford and Clark. The Rahway River then travels through Rahway, entering Clark at Rahway River Park. The River receives the waters of Robinsons Branch at Elizabeth Avenue between West Grand Avenue and West Main Street and the waters of the South Branch at East Hazelwood Avenue and Leesville Avenue. Finally the River leaves Rahway to enter the city limits of Linden and Carteret before flowing into the Arthur Kill (Figure 2).

The study area is the tidally influenced portion of the Rahway River. The study area encompasses portions of the Cities of Linden and Rahway in Union County and the Borough of Carteret and Woodbridge Township in Middlesex County. The tidal influence on the Rahway River extends roughly five miles from the Arthur Kill into the City of Rahway (see Figure 1). There are riverine parks located along the Rahway River and the Robinsons Branch at the northern or upstream end of the study area but most of the study area is heavily developed containing a combination of residential, commercial, and industrial structures within the floodplain. The study area is largely suburban and urban and is convenient to major population centers through a network of modern highways and railways. Routes 1 and 9, the Garden State Parkway, and the New Jersey Turnpike cross through the study area and the area is also served by the busy Northeast Corridor and North Jersey Coast New Jersey Transit rail lines, linking Rahway with Newark, Manhattan, Trenton and the Jersey Shore. A significant part of the tidal portion of the Rahway River is navigable by small boat. The U.S. Army Corps of Engineers completed construction on a flood risk management project within the City of Rahway on 31 August 1966. The project consists of 2,040 feet of protective levee, 1,740 feet of closure levee and one wall, two aluminum stop log structures, two pump stations, miscellaneous interior drainage facilities, land fill and road raising. The project elements are still in place today and run along the right bank of the River from Monroe Street to East Hazelwood Avenue (Figure 3).

Rahway River Basin Overview

Legend

-  River
-  Waterbody
-  Watershed Huc14
-  RWY Basin Floodplains
-  Municipalities

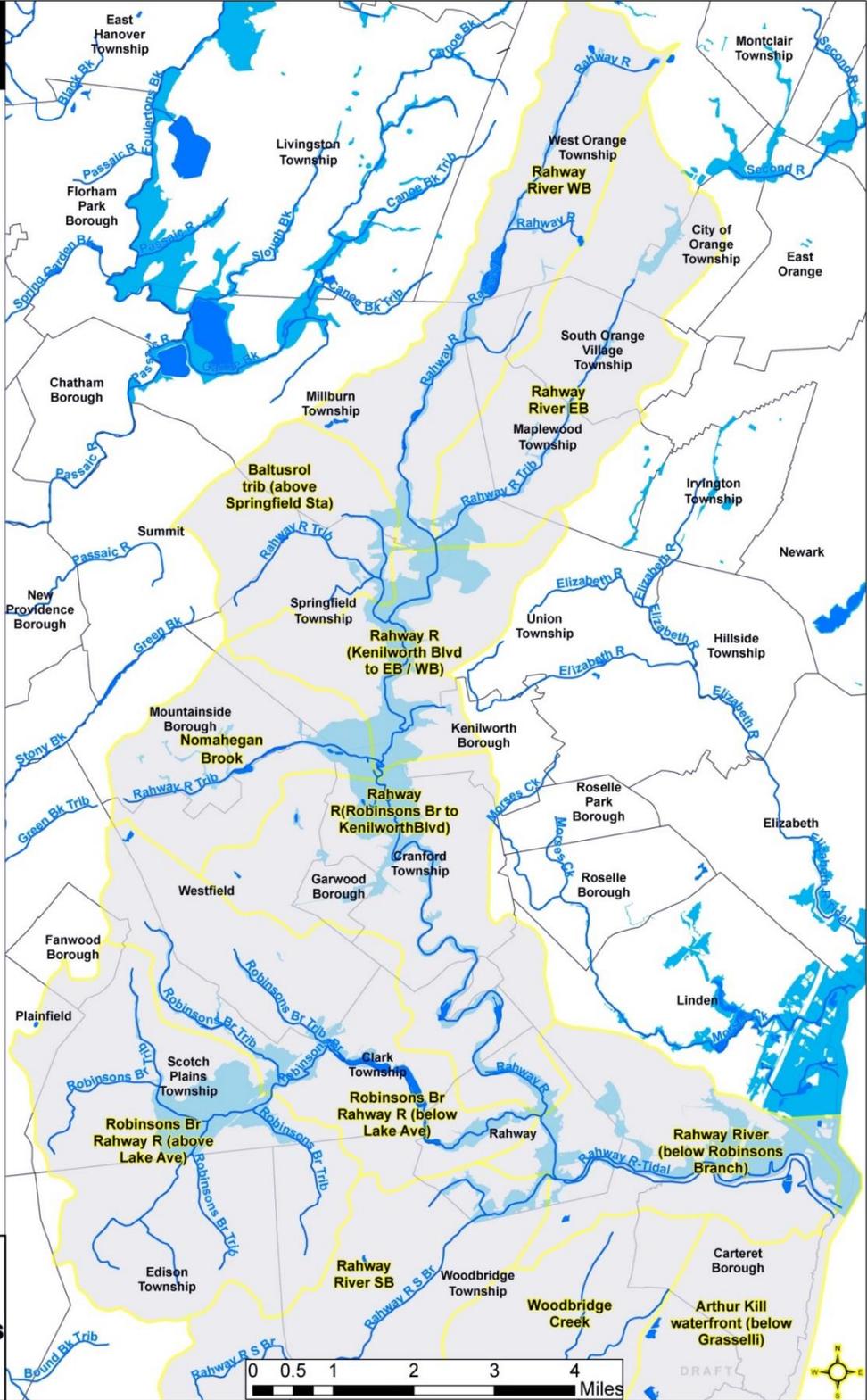


Figure 2: Rahway River Basin



Figure 3 – Existing Levee System, Rahway River, City of Rahway

III. Existing Conditions

Prehistory of Study Area

The prehistory of northeastern North America is marked by three major periods spanning approximately 14,000 years. The Paleo-Indian period (12,000 BC to 8000 BC), the Archaic period (8000 BC to 1000 BC) and the Woodland period (1000 BC to European contact).

The Paleo-Indian cultures, adapted to the tundra environment characteristic of the late Pleistocene, were highly mobile people who traveled long distances to obtain resources such as food and lithic raw material. In 12,000 BC New Jersey was a mosaic of tundra and forests that were predominantly pine, spruce, and fir, which over time, with the retreat of the glaciers, gave way to birch and oak. The emergence of oak stands and subsequent increase in resource availability allowed greater human population density toward the end of the period (Marshall 1982:17; Funk 1972:10; Salwen 1975).

Early Paleo-Indian chipped stone artifacts, including fluted points, are rare in the region but several examples can be found from sites in Middlesex and Somerset Counties (Marshall 1982:13). Fluted points gradually decreased in size as larger game animals moved north or became extinct (Kraft 1986:47). Fluted points were eventually replaced during the late Paleo-Indian/Early Archaic transition (8000-6000 BC) with unfluted triangular points, stemmed points and Plano points. The last are lanceolate-shaped points without flutes. In Monmouth County, New Jersey, late Paleo-Indian artifacts, including unfluted triangular points and Hardaway Dalton points, were found at the Turkey Swamp site (Marshall 1982:33).

Beginning after 8000 BC, the Archaic period developed from the Paleo-Indian period. Between 8000 and 6000 BC, the hills and mountains were overgrown with pine, hemlock and oak while forests in the coastal areas were populated with chestnut and oak (Kraft and Mounier 1982a:59). The retreating glacier caused a continuing rise in sea levels forcing prehistoric people to move inland away from the coast. Aside from occasional technological changes and gradual environmental transformation, life continued much the same as it had in the previous period. People still lived in small territorial bands that hunted, fished, and gathered plant foods. With the exception of the dog, they had no domestic animals (Kraft 1986:51). People of the Early Archaic subsisted on fish, shellfish, berries, roots, tubers, eggs, nuts, and deer (Kraft 1986:51) and likely moved when food supplies dwindled (Kraft and Mounier 1982a:76).

By 5000 BC the climate was warm and moist, and water levels continued to rise, forcing groups to move farther inland. Oak, chestnut, beech, and elm dominated the landscape causing animal populations to increase in the forests because of the abundance of mast foods produced by the trees. People of the Middle Archaic subsisted on chestnuts, acorns, fish, as well as the abundant forest animals. Heavy woodworking tools, along with netsinkers, and fish remains found on archaeological sites suggest a riverine adaptation (Kraft 1986).

During the Late Archaic (4000-2000 BC), hunting, fishing, and gathering were still the principal daily activities, although greater emphasis was placed on small game, shellfish, nuts and wild cereal grains like *Chenopodium*. This shift in subsistence strategies coincided with higher population densities. As populations increased, camps became larger and more numerous. Moving seasonally or when resources dwindled, Late Archaic groups may have congregated occasionally for exchange and socialization. Houses of this period may have been circular and oval measuring 36 to 66 feet (11 to 20 meters) in diameter with overlapping entrances.

Archaeologists distinguish the period between 2000 BC and 1000 BC as the Terminal Archaic as a result of the accumulated cultural changes during the Late Archaic. During this period, nut-bearing trees like oak, hickory, chestnut, and beech dominated the eastern forests. Sea levels continued to rise, causing increased salinity in estuaries, including the lower Hudson River (Kraft 1986; Snow 1980). People subsisted on deer, black bears, small mammals, wild turkeys, pigeons, shellfish, fruits, roots, nuts, and fish.

The introduction of pottery marks the beginning of the Woodland period. The Early Woodland period lasted from 1000 BC to 1 BC. Several different cultures have been recognized in the Early Woodland period based on, among other characteristics, their unique toolkits and burial rituals. These cultures are the Orient, Meadowood, and Adena-Middlesex, and the Bushkill (overlapping with the early Middle Woodland period, 560 BC-AD 35). The Middle Woodland period (AD 1-900) was characterized by four major phases: Tocks Island, Fox Creek, Point Peninsula, and Hunters Home.

In the Late Woodland period (AD 900-1600) two distinct linguistic groups emerged: Proto-Munsee speaking people who generally lived in northern New Jersey, north of the Raritan River, and Proto-Unami speakers who generally lived south of the Raritan River. These groups are known by differences in ceramics and burial style in addition to their linguistic differences (Kraft 1986:120). The project area lies in east-central New Jersey, which was between the two groups. Historical sources report that the Unami Lenape inhabited the Rahway basin at the time of Contact (Philhower 1923; Snyder 1969).

In northern New Jersey, the first major phase of the Late Woodland period is the Pahaquarra/Owasco phase (AD 1000-1350) and this was followed by the Minisink phase (AD 1350-1650). Over the course of the Late Woodland period, the subsistence system shifted emphasis from the gathering of wild foods to the growing of domesticated plants. This change was made possible sometime between AD 500 and 1000 by the development of Northern Flint corn, a cold-resistant strain that diffused broadly after its first appearance, probably in the Midwest (Fritz 1990).

The introduction of corn horticulture was accompanied by sporadic population growth, settled village life, an enriched religious and ceremonial life, and warfare. This is characteristic of some Late Woodland cultures, such as the Haudenosaunee/Iroquois in New York. The occurrence of similar developments for cultures in central New Jersey is not known. However, since fortified Late Woodland village sites have not been documented by archaeologists in this region, such large, aggregated communities were most likely not often established by the local Native American groups or their ancestors. It seems likely that the late prehistoric peoples of the Piedmont and Inner Coastal Plain lived in small, unfortified, dispersed farmsteads or hamlets, in similar fashion to many of the New England Indians (Bender and Curtin 1990; Cronon 1984; Handsman 1990; Kraft 1986).

History of the Study Area

The Dutch were the first Europeans to settle in eastern New Jersey. The Dutch claim to the region rested on the 1609 voyage of Henry Hudson, an English mariner in the service of the Dutch East India Company. Seeking a shorter route to the Spice Islands and India, Hudson, with his ship the Halve Maen, reconnoitered along the coast of what would become New Jersey and up the river that Hudson named "Mauritius" and Dutch cartographers labeled "North" (i.e., Hudson River). During his reconnaissance, Hudson

and his crew exchanged goods with Native Americans in Sandy Hook Bay, but not without incident—one sailor was killed and two others were wounded when Native Americans attacked Hudson's ship. Subsequent voyages by Dutch captains served to establish outposts in this portion of North America to advance the commercial interests of the United Provinces of the Netherlands (Ellis et al. 1967; Gehring and Starna 1988; Burke 1991; Goddard 1978).

In 1621, twelve years after Hudson's first expedition in the region, Staten Generaal (the States General) of the United Provinces organized the Dutch West India Company and granted the company a monopoly to trade along the shores of the Americas for 24 years. The center of Dutch operations in North America was New Netherland, a thin band of sparsely settled territory stretched along the North River which connected New Amsterdam at the lower tip of Manhattan Island with the frontier outpost of Fort Orange, the present City of Albany, New York, and its satellite at Schenectady. From their base in New Netherland, the Dutch prosecuted the prized beaver trade, competing with the English in the Connecticut River valley and the Swedes in the Delaware River valley (Ellis et al. 1967; Gehring and Starna 1988; Burke 1991).

The Dutch established several small short-lived communities in the 1620s and 1630s, including Pavonia (in the area of Hoboken and Jersey City), Staten Island, and Burlington Island (in the Delaware River), and more permanent settlements in the 1640s in the Hudson Valley (Burke 1991). Just four years after founding New Jersey at Bergen (later, Jersey City) in 1660, however, Dutch proprietorship over New Netherland was abruptly terminated when forces loyal to Prince James, Duke of York and Albany, captured the colony during the Second Anglo-Dutch War. New Netherland was renamed New York and the prince was given control over all land west of the Connecticut River and east of the Delaware River. Colonel Richard Nicolls, military governor of New York and commander of the fleet that had ousted the Dutch, called the land lying between the Hudson and Delaware rivers "Albania." Later, as a gift to two courtiers who had served King Charles II during the English Civil War and his subsequent exile in France, James (who was Charles' brother and would succeed him as king) awarded Albania to John, Lord Berkeley, and Sir George Carteret naming it Nova Caesarea which is translated as New Jersey (Wacker 1982; Kim 1978; Divine et al. 1995; Halsey 1882; Stansfield 1998; Ellis et al. 1967; Pomfret 1964).

Present-day Carteret was once part of the landmass comprising Woodbridge Township. The first three settlers in Woodbridge—named Bailey, Watson, and Denton—actually arrived from New England in 1664 and offered the Lenape natives trade goods in exchange for clear title to the land. With the installation of Sir Philip Carteret as the Governor of East New Jersey, the men signed the title for their land over to Carteret in 1665. In 1669 Governor Carteret granted a charter to formally establish the "Towne of Woodbridge" within the new British colony. The boundaries established in the charter included the present-day communities of Carteret, Rahway, Oak Tree, New Dover, Bonhamtown, Metuchen, Menlo Park, the eastern portion of Edison Township and all of Woodbridge Township (Wolk 1970).

For the most part, residents in Woodbridge Township settled into an agrarian way of life throughout the eighteenth and nineteenth centuries. During the American War for Independence, Woodbridge Township and Spanktown (present-day Rahway) residents endured repeated raids by both British and American forces, armed skirmishes, and even kidnappings between 1776 and 1782 (Munn 1976). When the war ended with the Treaty of Paris, a peaceful way of life returned to Woodbridge, allowing its residents to return to farming.

Along Rahway Road, the rich alluvial soil and salt marshes between the road and the Rahway River offered farmer's an excellent medium for raising crops and grazing cattle. Pioneer families in this area included English, Dutch, Swedes and Scots. As the farms developed, a wider range of crops became available, including fruits, vegetables, poultry, and cattle. A portion of the area that comprises present-day Carteret became known as Rahway Neck and 15 to 20 families farmed the land.

The Rahway River served in the seventeenth century as a physical boundary line for the northern edge of Woodbridge when Governor Carteret signed the articles of agreement for the Lords-proprietors with the inhabitants of Woodbridge and Piscataway (Dailey 1873). The Rahway River was the highway of choice for moving agricultural produce to market (Borough of Carteret website). A 1778 map depicts several landings that were established on the Rahway River by that time (Figure 4).

Farming families likely shipped produce from these landings and, perhaps, also received shipments of manure and marl in the spring for the farm fields. By the 1830s, boats of 80 tons burthen-weight could travel up the creek to the village of Rahway (Gordon 1834). In December 1833, a great storm swept through the area with gale-force winds. Damage was widespread all along the Rahway River. A newspaper account of the storm noted, "Along the entire line of shore of Rahway Neck and Woodbridge vast damage was done to minor bridges, lumber yards, outhouses, fences, &c." (New-York Spectator 1833).

With the rise of industry along its banks, the Rahway River served as corridor of commerce for coal and bricks (Chief of Engineers 1892). The brick traffic began early in the nineteenth century as Thomas Gordon notes in his 1834 gazetteer: "On the river, there is some of the best brick clay of the United States; and the manufacture of bricks was, at one period, so great here, as to employ steadily about 40 sloops in the transport to New York. Owing to the scarcity of fuel, this manufacture has declined (Gordon 1834).

By the mid-twentieth century, gas oil and distillate fuel oil, motor fuel and gasoline, and sand, gravel, and crushed rock had completely supplanted the bricks and coal of the late nineteenth century with sand, gravel, and crushed rock comprising the largest tonnage on the river: a total of almost 183,000 short tons (Chief of Engineers 1951). Today, silting and the lack of dredging preclude virtually all commercial traffic from moving along the river. Only pleasure craft from the Rahway Yacht Club and occasional other boating sojourners now slice through the Rahway River's waters.

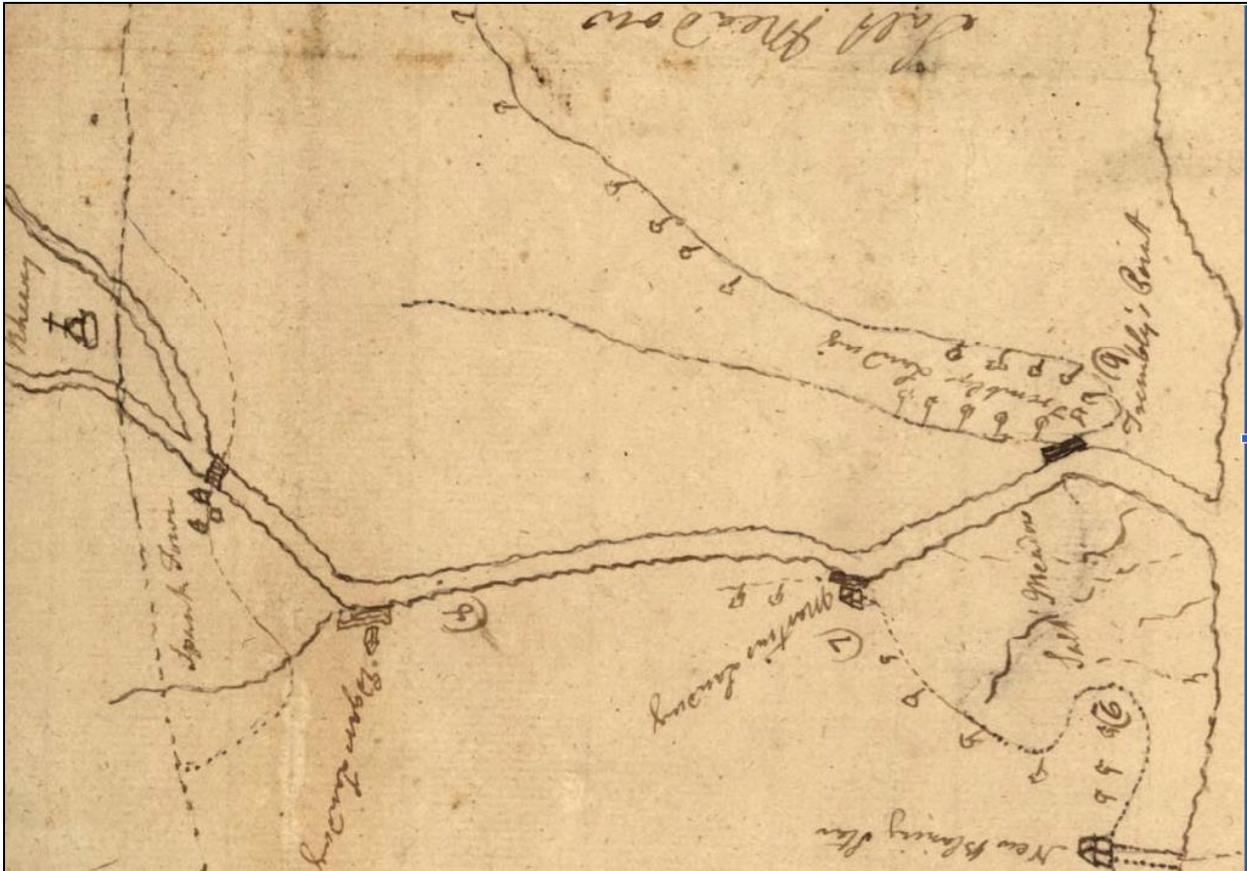


Figure 4: Project Area and Vicinity 1778 (Peter Force Collection).

The 1850 Middlesex County map depicts several farmsteads near the current project APE. One belonged to a “Mrs. Martin,” another to a “W. Moore,” and a third and fourth to “A. Shotwell” and Everitt” (Figure 5). In an 1876 map the Martin and Moore families appear to have remained but the Shotwell and Everitt homesteads are replaced by one G. Zink who appears to own both farmsteads (Figure 6).

In 1906, the electorate living in the communities of Rahway Neck (also known as East Rahway), Chrome, and Carteret, in what was then Woodridge Township, approved a referendum to establish a new municipality. The new municipality was named Roosevelt Borough until November of 1922, when the state legislature approved a bill to replace the name Roosevelt Borough with Carteret Borough (Snyder 1969). During the twentieth-century, the borough’s waterfront along the Arthur Kill became highly industrialized, served by rail service from the Pennsylvania Railroad and the Central Railroad of New Jersey, via the New York and Long Branch Railroad; and the Reading Company via the Delaware and Bound Brook and the Port Reading Branch, all of which date to the nineteenth century. During the 1950s, the New Jersey Turnpike Authority constructed its modern limited-access highway through Carteret, crossing the Rahway River next to the New York and Long Branch tracks. The new roadway created a physical barrier in the municipality, allowing for a more visual division between the informal locations of Carteret and West Carteret.



Figure 5: Project Area and Vicinity in 1850 (Otley and Keily)

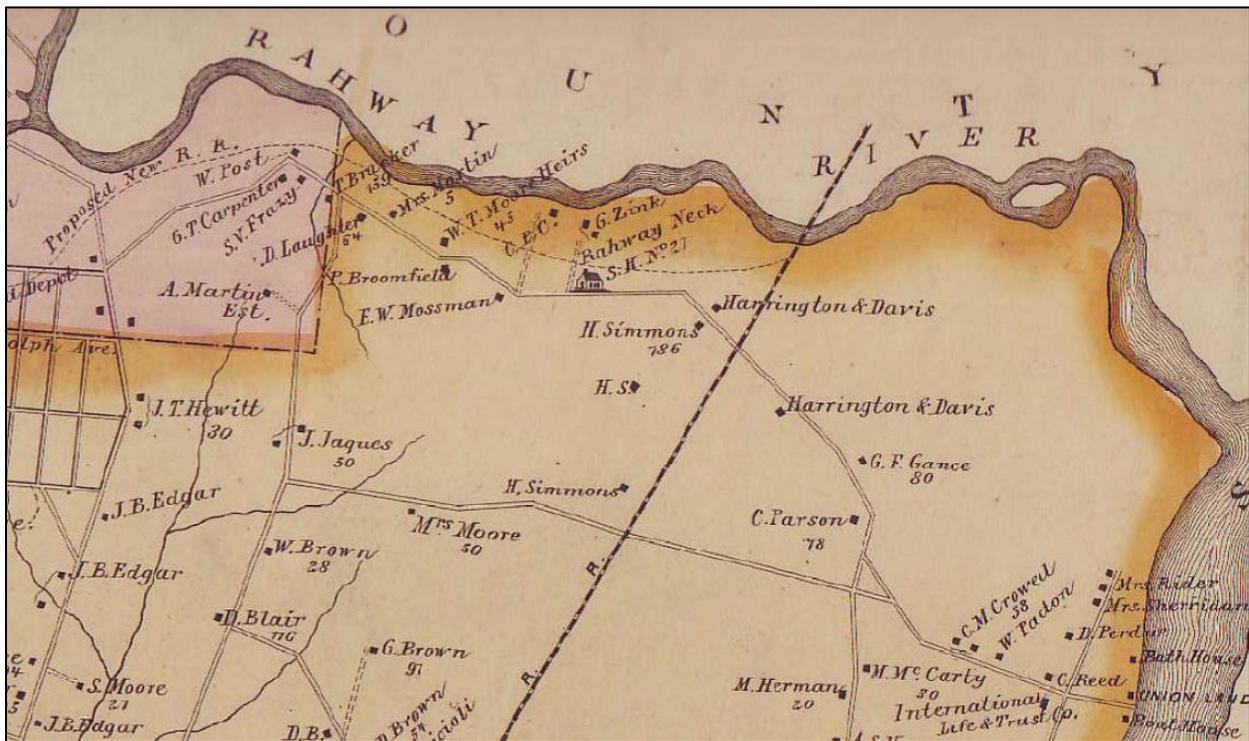


Figure 6: Project Area and Vicinity 1876 (Everts and Stewart).

The area where the Martin and the Moore farms stood retained most of its rural nature along the south bank of the Rahway River with a few dirt roadways cut into the landscape by 1931. In 1935, WOR radio in New York constructed a new broadcast tower complex north of Roosevelt Avenue in an area that acquired the name “West Carteret.” On the eve of the Second World War in 1940, suburban development began to occur north of Roosevelt Avenue (HistoricAerials.com website). Real suburban growth occurred immediately following World War II, when returning G.I.s received a new form of weapon: the veteran mortgage guarantee. Suddenly the area north of Roosevelt Avenue exploded with residential development during the late 1940s and into the early 1950s (HistoricAerials.com website). The WOR antenna array remained in service until the operating company relocated its broadcast antenna to Lyndhurst in 1967 (bostonradio.org website). Sometime between 1972 and 1979, the antenna was razed and the county began developing a park on the land (HistoricAerials.com website). Initially called Liberty Park, Carteret prevailed upon the county to rename the 83-acre park in honor of Joseph Medwick, a native son of the community who made a career in major league baseball.

Previously Documented Historic Properties

A review of the study area, defined as the tidally affected portion (500 year level) was carried out as project alternatives were formulated to identify previously documented historic properties and archaeological sites that should be considered and to determine the need for additional surveys in the next phase of the project. Cultural resources surveys and site records were reviewed at the New Jersey State Historic Preservation Office and the New Jersey State Museum. Local histories and historic maps were reviewed at the Rahway, Linden and Woodbridge Libraries. Approximately 35 cultural resources investigations have been carried out within the study area. Survey reports provided useful background data and were referenced when identifying historic resources and determining archaeological sensitivity for the study area (See Appendix A).

There are seven archaeological sites documented within the study area, three contained pre-contact materials but all seven contained a historic component as well (See Table 1). Nine historic districts have been documented within the study area: 1) the Upper Rahway Historic District; 2) the Rahway River Parkway Historic District; 3) the Union County Park System Historic District; 4) the Lower Rahway/Main Street Historic District; 5) the Regina Historic District; 6) the Pennsylvania Railroad New York to Philadelphia Historic District; 7) the Perth Amboy and Elizabethport Branch of the Central Railroad of New Jersey Historic District; 8) the Sound Shore Railroad Historic District; and 9) the Inches Line Linear Multistate Historic District (See Figure 7)

Table 1: Archaeological Sites in the Study Area

Site #	Site Name	Muni.	Period	Source
28-UN-13	Edgar Farm Site	Rahway	19 th Cent. and Prehistoric	NJDOT, 1984
28-UN-38	River View Manor, historically known as the Dolbier-Housman House	Rahway	1800's	Maser Consulting, 2006
28-UN-51	King's Creek	Linden	Pre-contact and Post-contact	PAL, Inc., 2011
28-UN-53	Tremley Site	Linden	Middle to Late Woodland and early-mid twentieth century	PAL, Inc. 2011
28-UN-40	Rahway City Hall-Municipal Building Historic Site	Rahway	1800-20 th Century	CRCG, 2007
28-UN-41	Historic House Site Lot 3	Rahway	1800-20 th Century	CRCG, 2007
28-UN-42	The Peace Tavern-Woodruff Historic House Site	Rahway	1800-20 th Century	CRCG, 2007

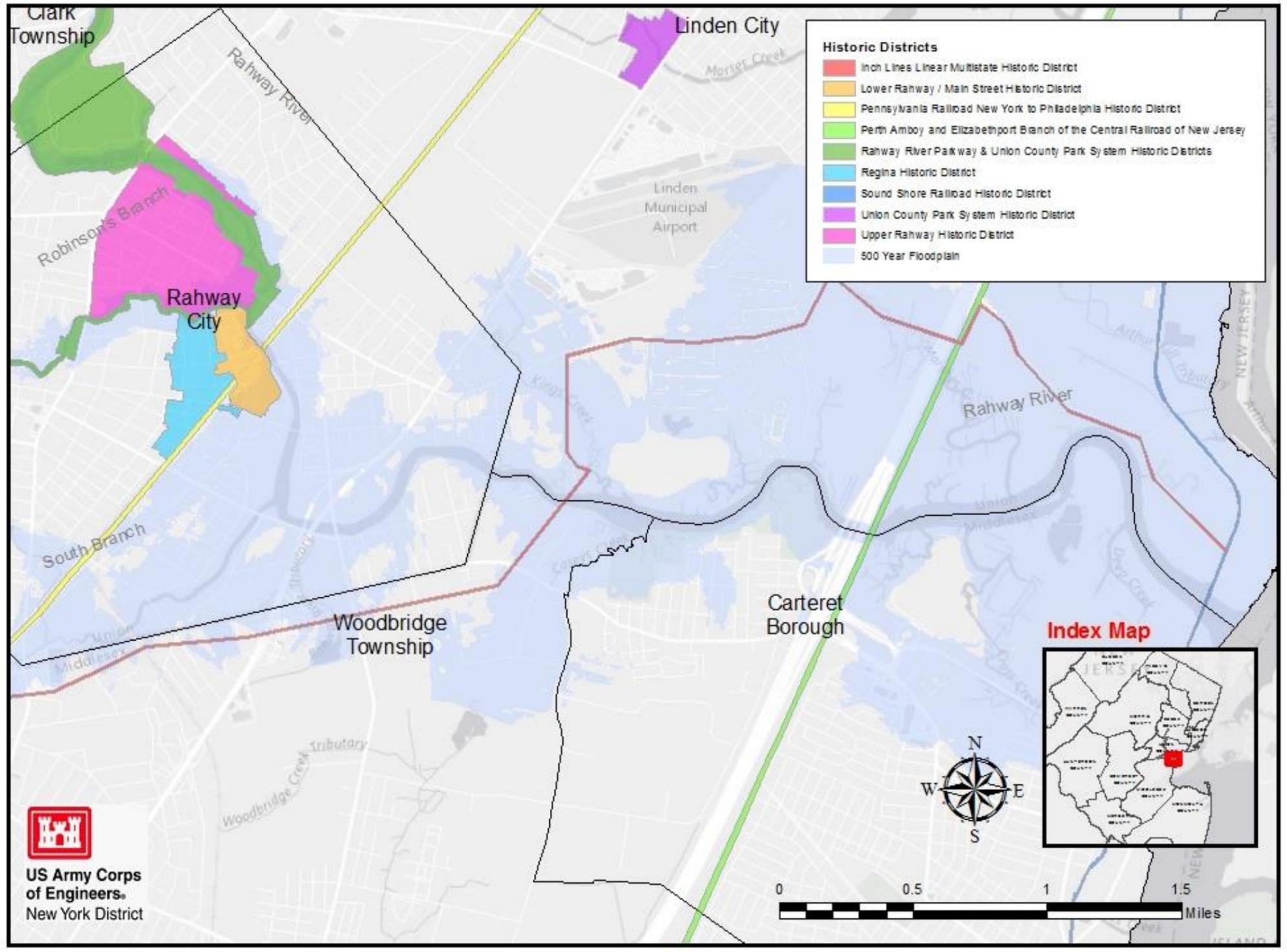


Figure 7: Historic Districts in the Study Area

The **Upper Rahway Historic District** is comprised of approximately 30 blocks and more than 600 eighteenth-century and nineteenth-century structures. The district lies within the City of Rahway east and south of St. Georges Avenue stretching to the Rahway River and the Robinsons Branch. Although much of the district is comprised of residential buildings the district also contains six churches, a nineteenth-century firehouse, the original Rahway Library, three stone arch bridges, a number of early concrete bridges, and the Rahway River Scenic Trail (Mc Teague 1982; Nolte et. al. 2013).

The **Rahway River Parkway Historic District (RRPHD)** is a riverine greenway designed by the Olmstead Brothers Landscape Architects for the Union County Parks Commission. The district borders the Rahway River and the Robinsons Branch having its upstream boundary at Springfield Avenue in Springfield Township and continuing uninterrupted through Cranford and the City of Rahway and then following the Robinson's Branch upstream to Madison Hill Road (Tingey 2002). The RRPHD is a contributing element to the **Union County Parks System Historic District**. The district includes many historic bridges and parks that are located within the study area including Rahway River Park, the Rahway River Scenic Trail, Wheatena Park and Begeza Park/Union/Allen Conservation Area, and Milton Lake Park. Additional documented district elements within the study area are Veteran's Memorial Field, Rahway Kiwanis Park, and Berzinec Park (Nolte et. al. 2013).

The **Lower Rahway/Main Street Historic District** is located south of the Upper Rahway Historic District abutting the Rahway River. It is considered the commercial center of the City of Rahway. The portion of the district that joins with the southern edge of the Upper Rahway Historic District and the eastern edge of the Regina Historic District forms the "Arts District." This section includes Irving Street, Main Street, and all of Coach Street. The centerpiece of the Arts District is the NRL Rahway Theater (PRN 51; ID #2714; NR #86001509), now the Union County Arts Center (Shiple 1982a; Nolte et. al 2013).

The **Regina Historic District** is a nineteenth century manufacturing and residential district bounded on the north by the Upper Rahway Historic District, the east by the Lower Rahway/Main Street Historic District and the south by the Pennsylvania Railroad New York to Philadelphia Historic District. Its western boundary roughly follows Jacques Avenue. The district contains nearly 200 structures including several churches, schools and civic buildings (Shiple 1982b; Nolte et. al. 2013).

The **Pennsylvania Railroad New York to Philadelphia Historic District** intersects the study area at Grand Avenue and Clarkson Place where it crosses the Rahway River. It is a linear district that crosses through many counties and municipalities in New Jersey and includes multiple individually eligible components including the Overhead Contact System which is located within the study area along the upstream portion of the South Branch. The district includes many historic bridges including the bridge between Grand Avenue and Clarkson Place where it crosses the Rahway River (Walsh 2002; Nolte et. al. 2013).

The **Perth Amboy and Elizabethport Branch of the Central Railroad of New Jersey Historic District** intersects the study area in the vicinity of the New Jersey Turnpike. This linear district follows the Turnpike alignment on its east side within the study area.

The **Sound Shore Railroad Historic District** (ID#5427) intersects the study area near the mouth of the Rahway River at the easternmost limit of the study area.

The **Inches Line Linear Multistate Historic District** is a linear district that intersects with the study area in the vicinity of Joseph Medwick Park in the City of Carteret. The district runs from Longview, Texas to Linden, New Jersey and includes the pipeline itself as well as a number of above-ground World War II-era structures including pump houses, garages, well houses, and crude oil sample houses among others (Berger 1998; 2000). Originally referred to as the Big and Little Inch Pipeline, the historic district is now a natural gas pipeline that has been in use since its construction in 1942-1943 for the transport of crude oil and refined petroleum products from the Gulf Coast to refining and distribution areas near New York City and Philadelphia. The linear district touches upon four counties and 12 municipalities in New Jersey. Linden Station (Station 27), is located within the study area in Linden, NJ. The pipeline crosses under the Rahway River and the project area on its course from southwest to northeast.

IV. Alternatives Analysis

The following alternatives were analyzed during the feasibility phase of the study (See Appendix B for Alternative Layouts):

- No Action (Without Project)
- Alternative #1: Levees and Floodwalls - a combination of four levee/floodwall segments, two closure gates, road raisings, interior drainage structures, and channel modification. The improvements are located in the City of Rahway, Clark, Carteret, and Linden Townships.
- Alternative #2: Surge Barrier - a surge barrier consisting of tide gates and a pumping station upstream of the New Jersey Turnpike Bridge. Includes approximately 2,000 feet of channel modification, levee tie-ins on the left and right banks and a pumping station. Also includes a 3,090 ft. long, 13 ft. high floodwall along New Jersey Turnpike northbound side between the Turnpike and the railroad.
- Alternative #3a & 3b: Nonstructural Measures - Two nonstructural alternatives were considered with a 2% and 10% chance of annual exceedance (50-yr and 10-

yr) within the study area. These alternatives included wet and dry flood proofing, structure elevation, demolition and reconstruction, and ring walls.

- Alternative #4: Nonstructural treatment to a subset of structures within the 10% ACE floodplain (149 structures) and levee segment D from Alternative #1. Included 7 ring walls.
- Alternative #4a: Nonstructural plan found in Alternative #4 in combination with levee segment D from Alternative #1, without ringwalls.

V. The Recommended Plan

The Recommended Plan is Alternative #4a which consists of combination levee and floodwall (Segment D from Alternative #1) and the nonstructural plan from Alternative #4 with the ringwalls and associated structures removed. The optimized plan now also includes raising a 1,308 foot section of Englehardt Avenue will (Table 2 and Figure 8).

The levee sections extend approximately 2,520 feet and the floodwall sections extend approximately 1,968 feet. The levee has a 12 ft. top width and one vertical to three horizontal (1:3) side slopes. The average height of the levee is 10.2 feet. The levee/floodwall is located near the right bank of the Rahway River, approximately 1.2 miles downstream of the confluence with the South Branch. The upstream end is located at the industrial/commercial area by Ardmore Avenue, continuing downstream to Dorothy Street.

Approximately 112 structures will be treated with nonstructural measures to manage flood risk (Table 2). Nonstructural measures include wet and dry flood proofing, elevation and buyouts. The majority, approximately 85% of the structures, will be elevated. The number of structures receiving nonstructural flood proofing measures may be revised by further design development as the study progresses.

Table 2: Summary of the Recommended Plan – Nonstructural Treatments

Nonstructural Flood Proofing Measure	10% ACE Combination Plan		
	Residential	Non-Residential	Total
Dry Flood Proofing	0	0	0
Wet Flood Proofing	7	2	9
Elevation	89	2	91
Buyout	10	2	12
Total of Structures	106	6	112

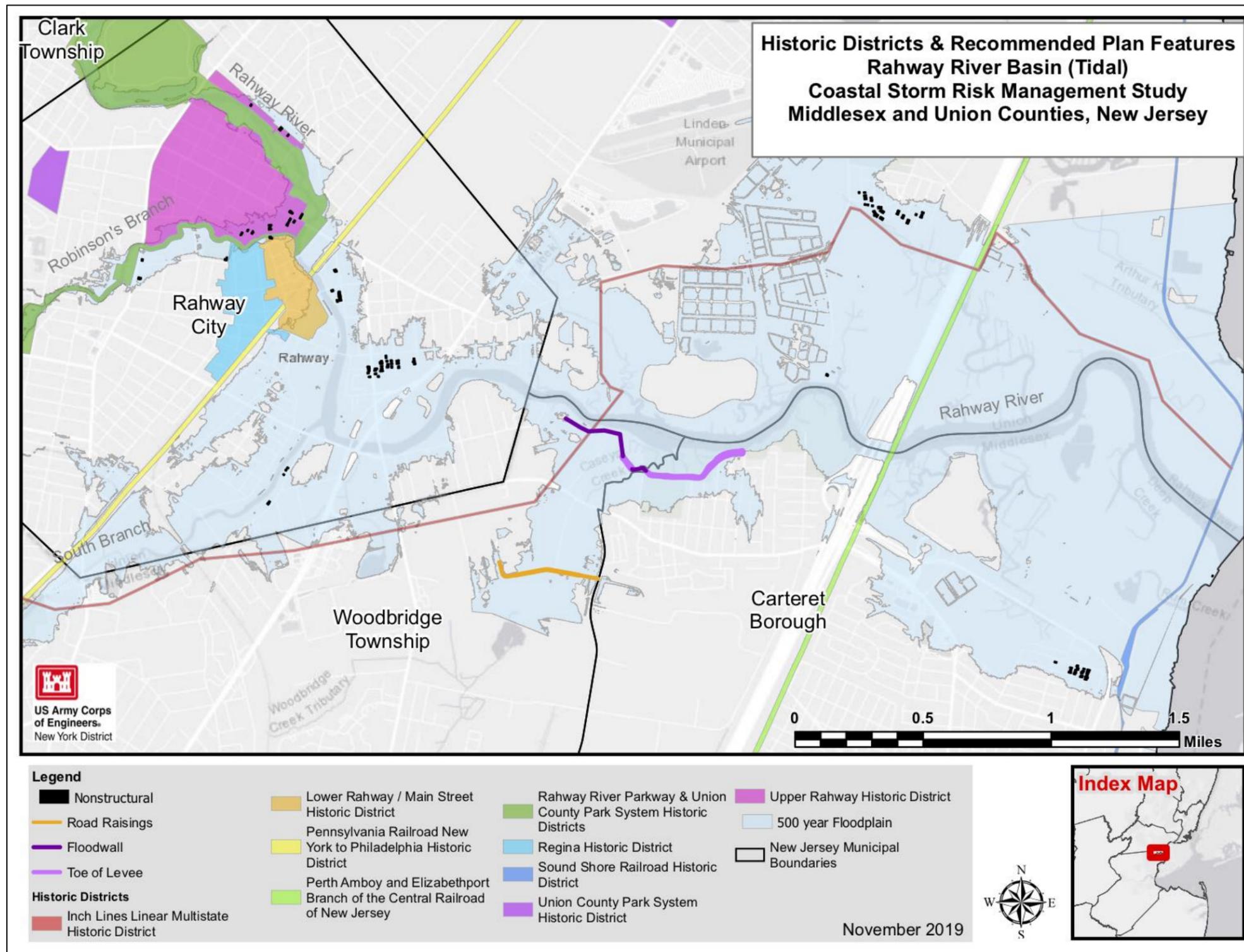


Figure 8: The Recommended Plan, Alternative 4A

VI. Potential for Adverse Effects

Section 106 of the National Preservation Act of 1966 (NHPA), as amended, requires that all federal agencies consider the effects of proposed undertakings on historic properties. The National Environmental Policy Act (NEPA) requires that federal agencies consider whether an action will have significant environmental effects including effects to historic and cultural resources. The Area of Potential Effect (APE) is the geographic extent to which an undertaking may directly or indirectly cause changes in the character or use of historic properties (NHPA, 36 CFR 800.16[d]).

A. The Area of Potential Effect

The Area of Potential Effect (APE) for the Recommended Plan is defined at this time based on the current level of the design. The APE is currently defined, therefore, as the 112 structures receiving non-structural measures and their immediate vicinity, the proposed levee/floodwall alignment, the segment of Englehardt Avenue that will be raised and all staging, easement, and mitigation areas which are to be determined during the next phase of the project, the Project Engineering and Design (PED) phase.

B. Identification of Resources Within the APE

1. Non-Structural Measures

There are no documented archaeological sites within the APE for non-structural measures associated with the proposed undertaking. Four historic districts are identified within or adjacent to the APE for non-structural measures. These are the Rahway River Parkway Historic District, the Lower Rahway/Main Street Historic District, the Union County Parks System Historic District and the Upper Rahway Historic District (McTeague 1982, Tingey 2002). As described above, the Upper Rahway Historic District is comprised of approximately 30 blocks and more than 600 eighteenth-century and nineteenth-century structures (Nolte et. al. 2013). Of the structures identified for treatments, thirteen have been documented as part of the Upper Rahway Historic District (Figure 8) and one is within the Lower Rahway/Main Street Historic District. Those fourteen structures are listed in Table 3 below along with their recorded eligibility status as documented on the NJ CRGIS Online Viewer.

The Rahway River Parkway Historic District is contained within the boundaries of the Union County Parks System Historic District. Certain structures identified for nonstructural measures are located within a short distance from the district boundaries in what is potentially part of the historic viewshed of the Rahway River Parkway and Union County Parks System Historic Districts (Nolte et. al. 2013). The structures located along River Road, West Grand Avenue, and Irving Street are most likely to lie within the viewshed.

Table 3: Structures within Historic Districts

Property Name	Treatment	Status (NJ CRGIS)
188 West Grand Avenue	Elevate	Non-contributing element of the Upper Rahway Historic District
204 West Grand Avenue	Elevate	Non-contributing element of the Upper Rahway Historic District
206 West Grand Avenue	Elevate	Unknown, within the Upper Rahway Historic District
211 West Grand Avenue, St. Jons Russian Orthodox Church	Wet Floodproofing	Non-Contributing element of the Upper Rahway Historic District
173 West Grand Avenue	Elevate	Contributing element to the Upper Rahway Historic District
433 River Road	Elevate	Non-Contributing element of the Upper Rahway Historic District
629 River Road	Elevate	Contributing element of the Upper Rahway Historic District
1667 Irving Street	Elevate	Contributing element of the Upper Rahway Historic District
2001 Oliver Street	Wet Flood proofing	Unknown, within the Upper Rahway Historic District
209-19 West Main Street, Former American Hotel	Buyout	Contributing element to the Lower Rahway/Main Street Historic District
1657 & 1659 Irving Street	Buyout	Contributing element of the Upper Rahway Historic District
St. Mark's Church and Rectory - 287 Hamilton Street	Wet Flood proofing	Contributing element of the Upper Rahway Historic District
309 Hamilton Street	Elevate	Contributing element of the Upper Rahway Historic District
318 Hamilton Street	Elevate	Non-Contributing element to the Upper Rahway Historic District

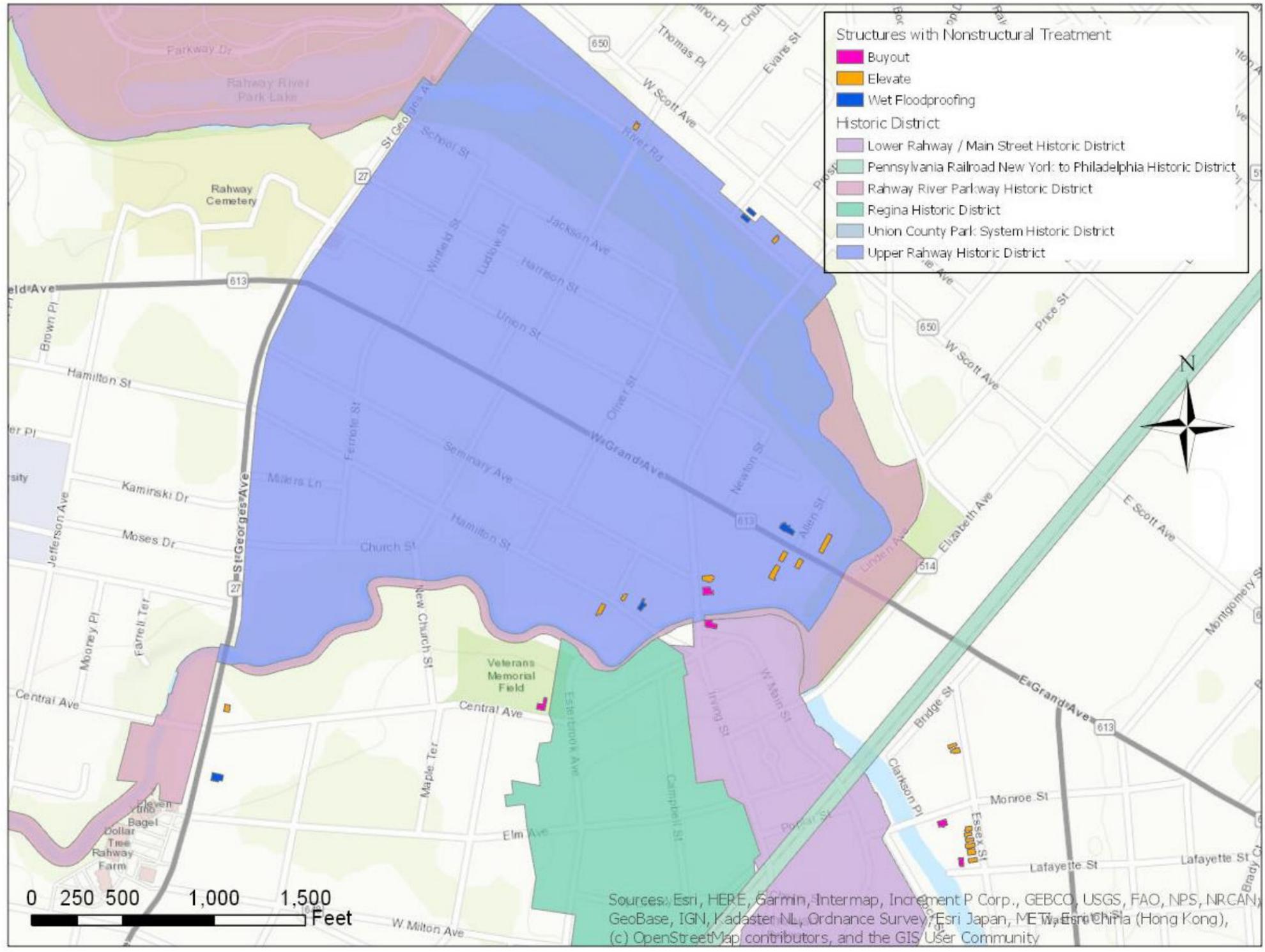


Figure 9: Location of Structures in relation to Historic Districts

2. Levee/Floodwall and Roadraising

The alignment for the proposed levee and floodwall runs along the right side of the Rahway River separating the River from nearby residential and commercial properties and certain Joseph Medwick Park facilities within the Borough of Carteret and the Township of Woodbridge. There is one historic property recorded within the APE for the levee/floodwall, the Inch Lines Linear Multistate Historic District (Figure 9). The pipeline, which is underground, is a contributing element to the district. There are no additional archaeological sites or historic properties documented within the APE for the levee.

A review of survey reports, including an 1998 inventory of the pipeline confirmed that there are no above-ground contributing elements to the historic district located within the APE. The closest above-ground element is the Linden Station (Station 27), located in Linden, NJ, approximately 1 mile northeast of the proposed levee (Berger 1998). The elements of the historic district that are expected to be encountered within the APE are the pipeline itself and associated components lying underground.

The 1998 inventory survey posited that large portions of the pipeline in the east have been replaced over the years as segments wore out or became damaged (Berger 1998). However, an archaeological monitoring survey completed in 2013 for replacement of a section of the pipeline in Linden, NJ referenced schematic maps provided by FERC that showed much of the pipeline was actually original (PAL). Confirmation of the status of the pipeline in that particular location was achieved through monitoring. In the end, the archaeologist performing the monitoring found that much of the pipeline and components had not been replaced and were, in fact, original. The results of the monitoring work in Linden suggests that there is potential for original below-ground pipeline and associated components to exist within the current APE.

There is also potential for deeply buried prehistoric archaeological remains within the APE for the levee as well as moderate potential for historic archaeological sites to exist based on the historical record and documentation from archaeological sites in the area. However, development of Joseph Medwick Park is likely to have significantly disturbed historic and prehistoric deposits if they exist within the APE. Archaeological testing in 2010 along a portion of the levee alignment in association with park development revealed areas with high levels of disturbance within the first two feet to four feet (Maser Consulting 2010).

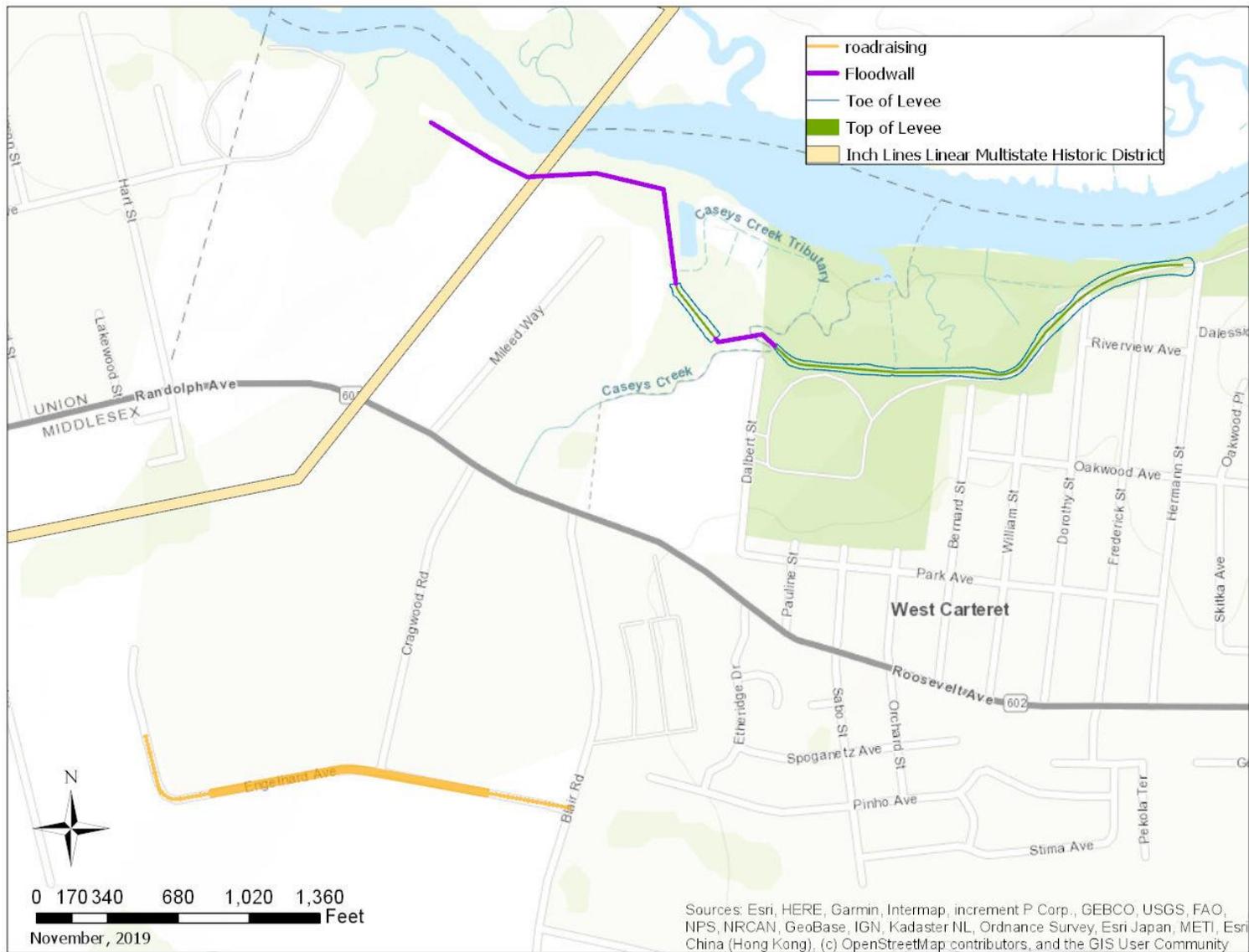


Figure 10: Levee/Floodwall Alignment and the Inch Lines Linear Multistate Historic District

C. Potential for Adverse Effects

1. Non-Structural Measures

Elevations and Floodproofing of structures has the potential to cause adverse effects to the structures as well as to associated outbuildings and archaeological sites that may exist within the APE. Impacts to historic districts are also possible should the non-structural measures result in the loss of contributing resources or alter the historic character of a neighborhood.

There are no documented archaeological sites within the APE for non-structural measures associated with the proposed undertaking, however, information collected from archaeological sites recorded within the study area and from cultural resources surveys indicates that the study area possesses a rich past with both Native American and later Euro-American communities who have heavily utilized the River for transportation and power (CRCG 2006, 2007a&b, 2008 and Nolte et. al. 2013). Evidence suggests that although development has led to loss of some resources within these communities and disturbances to the ground within the APE, much of the study area along the River may be sensitive for prehistoric and historic archaeological sites. Portions of the study area designated as historic districts should be considered particularly sensitive to impacts. There is also potential for archaeological sites associated with both the Upper Rahway Historic District and the Rahway River Parkway Historic District to exist within the APE. Historic maps show that a number of structures have been removed over the years as part of a century-long effort to acquire land along the River for development of the Parkway.

Additional structures identified for nonstructural measures may also be eligible for the National Register of Historic Places but have not been subject to architectural survey. Many of the documented historic structures were last evaluated in the 1980's and should be evaluated again to determine whether they have retained their qualifying characteristics or have been significantly altered or demolished in the intervening time resulting in a loss of integrity. The Upper Rahway Historic District and the Rahway River Parkway Historic District should be re-evaluated as well to determine the status of their contributing resources and to better define their physical and viewshed boundaries within the APE

2. Levee/Floodwall/Road raising

Construction of the levee/floodwall and road raising has the potential to cause adverse effects to the Inch Lines Linear Multistate Historic District as well as to potentially deeply-buried archaeological sites. However, the extent of adverse effects is not known at this time. Most of the APE has not been subject to archaeological and architectural survey. Surveys will help to identify previously undocumented historic

properties and archaeological sites and will be critical in determining the extent of the adverse effect to the Inch Lines Linear Multistate Historic District.

VII. Conclusions

Architectural and archaeological investigations will be necessary to complete identification of significant resources within the APE for the proposed undertaking. The historic districts may have to be evaluated to update their resource inventories and their boundaries. Additional investigations will be required to determine the level of adverse effect the levee may have upon the Inch Lines Multistate Historic District.

In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended and its implementing regulations, 36 CFR 800, a Programmatic Agreement (PA) was prepared as part of the Draft Integrated Feasibility Report and Environmental Assessment that is a binding agreement between the NJHPO and the District that outlines the activities and tasks that must be carried out to conclude identification of significant resources, determine adverse effects, and mitigate for those adverse effects. These activities include carrying out additional archaeological and architectural investigations based on the locations of project elements, coordination and consultation with the NJHPO, interested parties and federally recognized Tribes and preparation of National Register of Historic Places nomination forms. The PA also stipulates that, depending upon the results of surveys, treatment plans or a standard mitigation agreement will be prepared to outline the specific mitigation measures that will be taken to address adverse effects on structures and archaeological sites that cannot be avoided. Treatment plans or mitigation agreements would include but not be limited to specialized design guidelines for historic structures to ensure that flood protection measures are consistent with the historic fabric of the buildings, the design of the project elements along the River to fit the character of the historic districts, and data recovery for archaeological sites that cannot be avoided.

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Appendix B – Alternatives

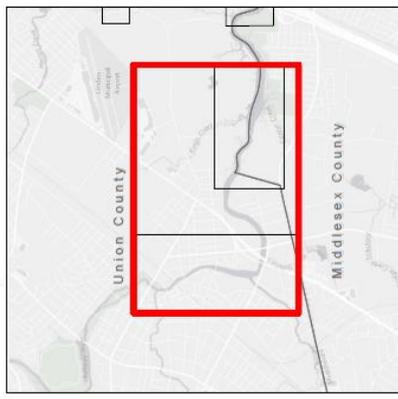


US Army Corps
of Engineers

Rahway River Coastal Flood Risk Management Project

Alternative 1 - Channel Modification, Levees and Floodwalls Index Map

Component: Alternative #1

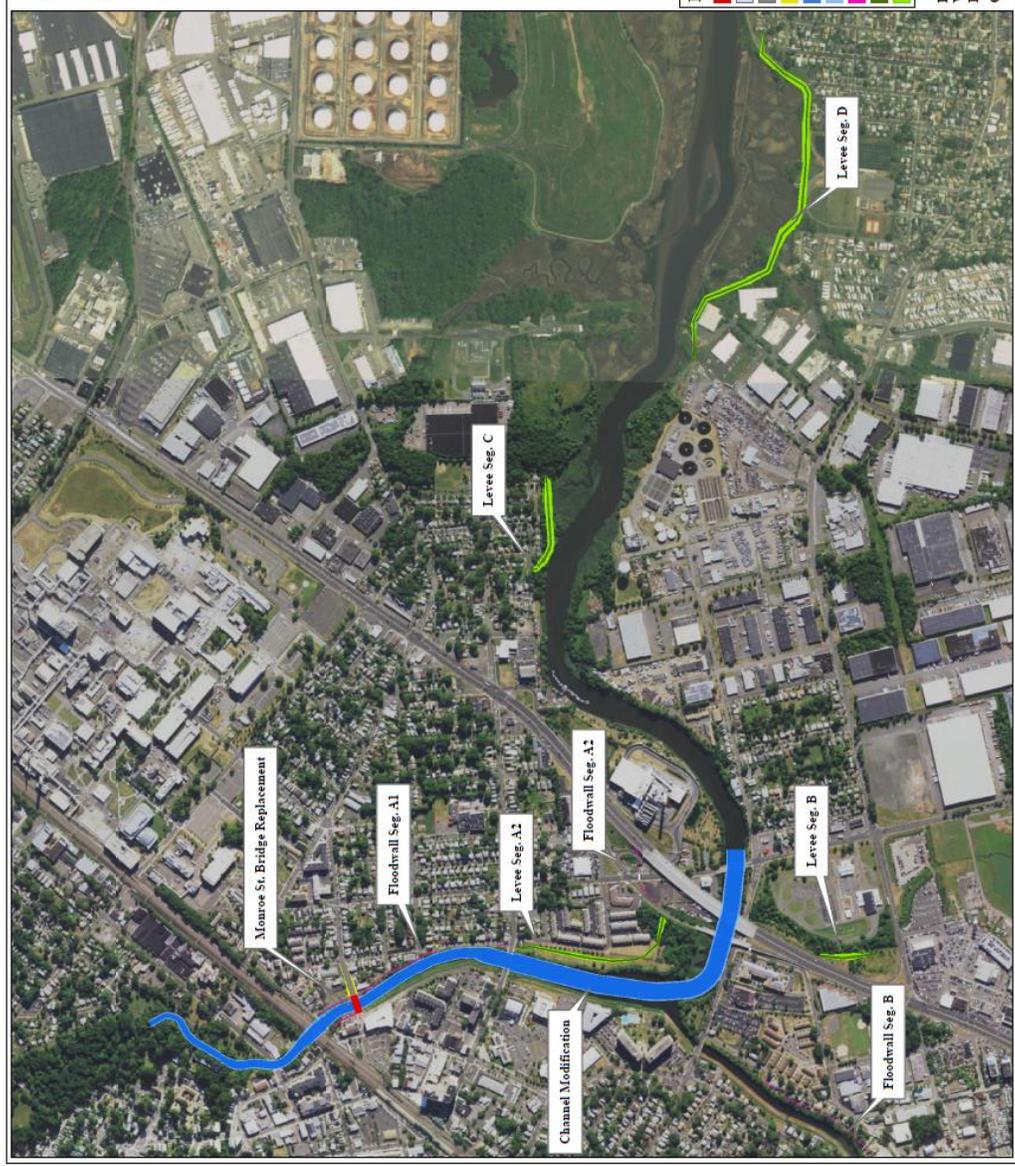


Legend

Red	Bridge Replacement
Light Blue	Road Closure Gate
Grey	Road
Yellow	Road Raise
Blue	Channel Modification
Light Blue	Channel Mod Banks
Pink	Floodwall
Light Green	Levee Top/Width
Dark Green	Levee



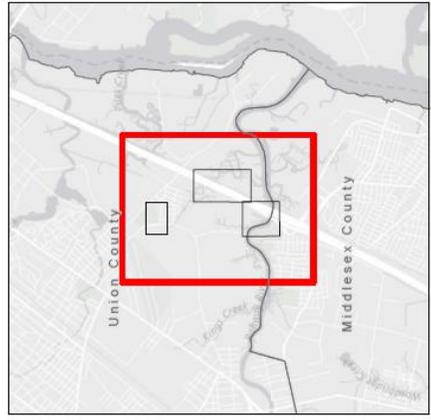
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October 2016





Rahway River Coastal Flood Risk Management Project
Alternative 2 - Surge Barrier

Index Map



- Legend**
- Surge Barrier
 - Levee
 - Floodwall
 - New Channel Banks
 - New Channel Bottom

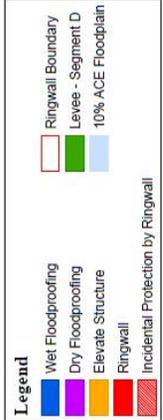
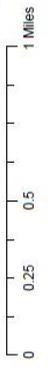
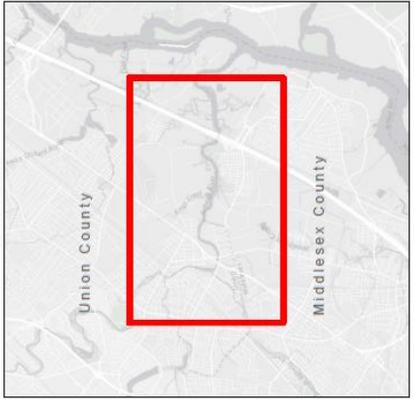
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Vertical || NAD88
Horizontal || NAD83 State Plane New Jersey
August 2016



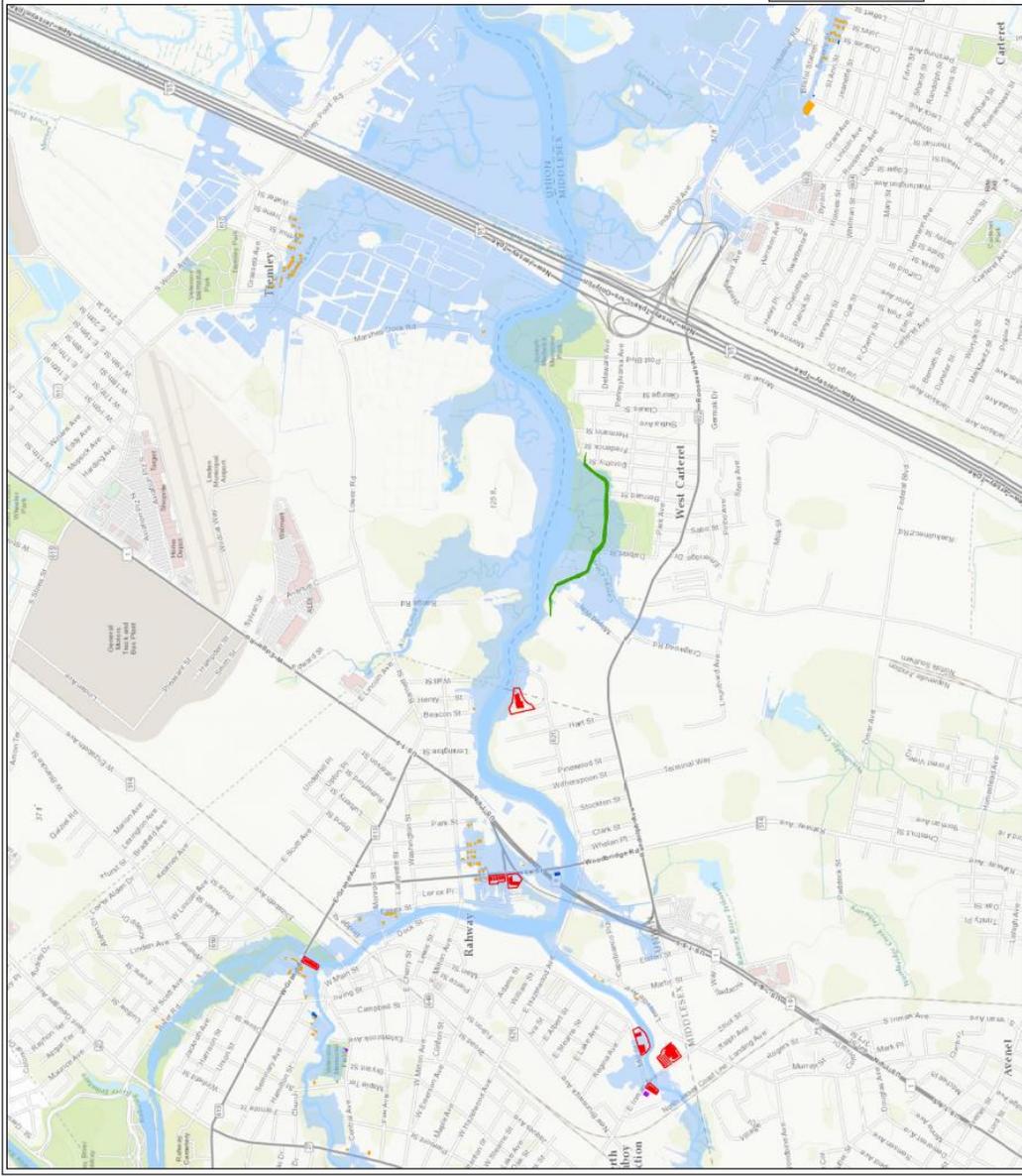
Nonstructural Flood Proofing Measure	Alt #3a: 10% Percent Floodplain			Alt #3b: 2% Percent Floodplain		
	Residential	Non- Residential	Total	Residential	Non- Residential	Total
Dry Flood proofing	0	2	2	12	34	46
Dry Flood Proofing with Tank Anchoring	0	0	0	0	3	3
Wet Flood Proofing	10	1	11	66	1	67
Pump Replacement	0	3	3	0	3	3
Elevation	138	3	141	292	4	296
Ringwalls	47	53	100	92	90	182
Total of Structures	195	62	257	462	135	597

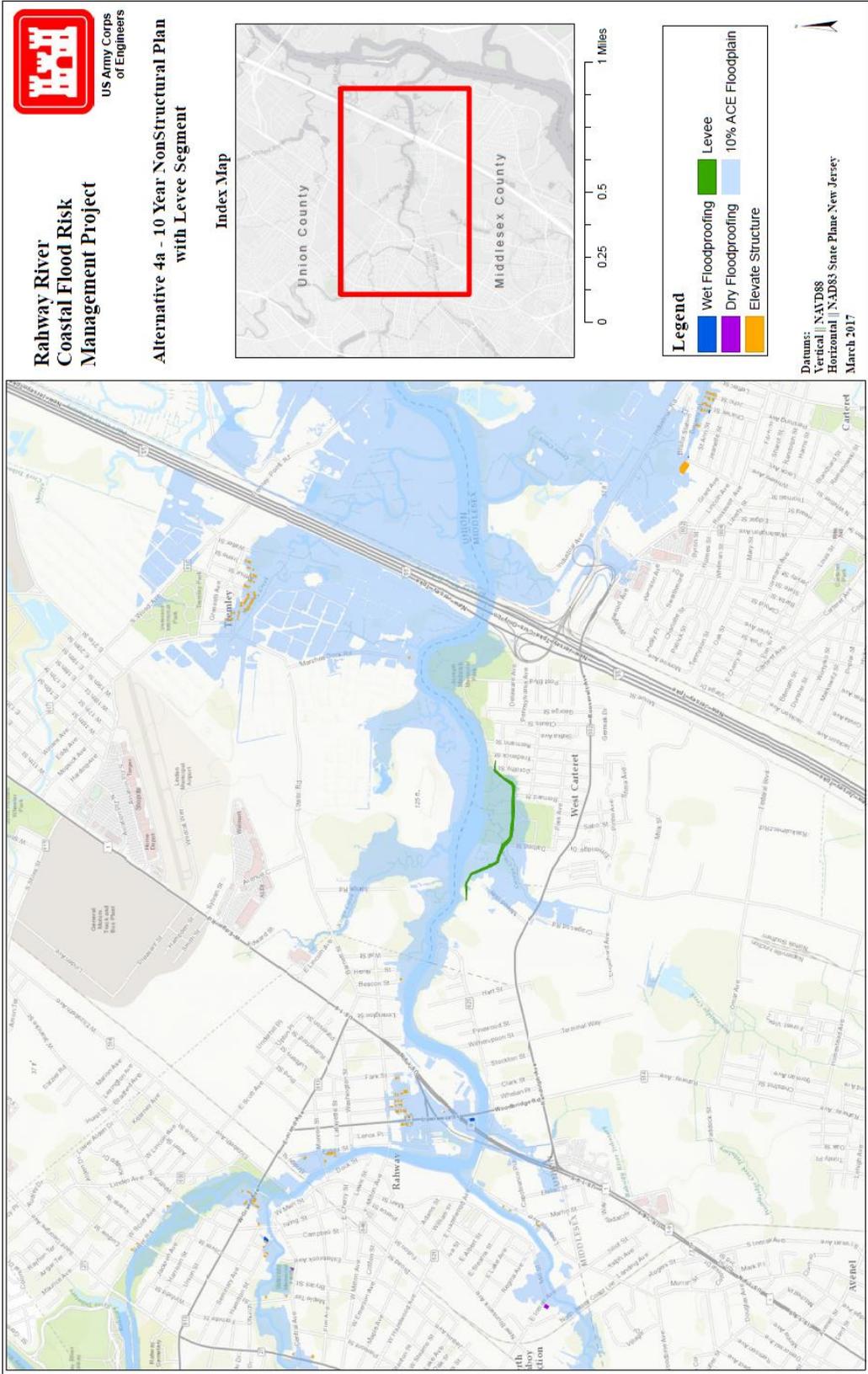
Alternative 4 - 10 Year NonStructural Combination Plan

Index Map



Datum: Vertical | NAD83
 Horizontal | NAD83 State Plane New Jersey
 January, 2017





Appendix C – Project Area Images



The Rahway from the Grand Avenue Bridge over the Rahway River, just northeast of the confluence with Robinson's Branch, facing southwest (Nolte et. al. 2013).



The Rahway River Scenic Trail section of the Rahway River Parkway Historic District, northwest of the intersection of River Road and Whittier Street (Nolte et. al. 2013)



Bezega Park / Union-Allen Conservation Area, part of the Rahway River Parkway Historic District, northeast of Grand Avenue, facing northeast (Nolte et. al. 2013).



The confluence of Robinson's Branch and the Rahway within the Rahway River Parkway Historic District, facing northwest (Nolte et. al. 2014).



View facing southeast along Hamilton Street showing a recently constructed large building on the southwest side of the road, within the Upper Rahway Historic District (Nolte et. al. 2013).



Bridge Street Pedestrian Bridge and Pennsylvania Railroad Bridge view north from Monroe Street Bridge (Scarpa 2014).



Rahway River from Monroe Street Bridge, note levee along the west bank of the River, view south (Scarpa 2014).



Joseph Medwick Park Trail in the vicinity of the proposed levee, view northwest (Scarpa 2014).



Joseph Medwick Memorial Park, levee alignment location, view northeast (Scarpa 2014).

Appendix D – Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
AND
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE
REGARDING
THE RAHWAY RIVER COASTAL STORM RISK MANAGEMENT PROJECT
UNION COUNTY AND MIDDLESEX COUNTY, NEW JERSEY

WHEREAS, the U.S. Army Corps of Engineers, New York District, (New York District) plans to carry out the Rahway River Coastal Storm Risk Management Project (Undertaking) pursuant to the U.S. House of Representatives Resolution Docket 2548, adopted 24 March 1998; and the Disaster Relief Appropriations Act of 2013; and

WHEREAS, the Undertaking was initiated by separating coastal storm risk management from the existing and ongoing flood risk management study for the Rahway River Basin; and

WHEREAS, the Undertaking consists of nonstructural measures including flood-proofing, elevation, and buyout of approximately 112 structures, construction of a 3,360-foot long levee and floodwall along the right bank of the Rahway River, and roughly 1,300 feet of road raising along Engelhardt Avenue (Attachment 1); and

WHEREAS, the New York District has defined the "Area of Potential Effect" (APE) for this Undertaking as the structures receiving nonstructural treatments and their immediate vicinity as well as the levee/floodwall and road raising footprint. The APE also includes construction staging areas and mitigation areas, the location of which will be determined at a later date; and

WHEREAS, the New York District is applying the National Register of Historic Places (NRHP) Criteria to properties identified within the APE on a phased basis, and to date has completed a baseline survey within the APE with the recognition that additional identifications and evaluations are required for project actions which have not yet been finalized; and

WHEREAS, the APE for nonstructural measures overlaps with portions of the Upper Rahway Historic District and Lower Rahway/Main Street Historic District and may be within the view shed boundaries for the Rahway River Parkway Historic District, which is an element of the Union County Park System Historic District (see Attachment 1 and 2); and

WHEREAS; the alignment of the proposed levee intersects with the Inch Lines Linear Multistate Historic District (Attachment 3); and

WHEREAS, the New York District has not carried out all surveys necessary to conclude identification of historic properties for the entire project APE such as archaeological investigations and architectural surveys; and

WHEREAS, the New York District has determined that the Undertaking has the potential to have an adverse effect on the as yet unidentified historic properties and districts within the APE; and

WHEREAS, the New York District has notified the Advisory Council on Historic Preservation (ACHP) of the potential for the Undertaking to affect historic properties and invited the ACHP to participate in the programmatic agreement and the ACHP has opted not to participate in the agreement; and

WHEREAS, the New York District has consulted and will continue to consult with the NJSHPO, the Delaware Nation, The Delaware Tribe of Indians, the Eastern Shawnee Tribe and the Shawnee Tribe of Oklahoma, municipal and county historic societies, and other appropriate consulting parties to define and implement the process for taking into consideration the effects of the Undertaking on historic properties (Attachment 4); and

WHEREAS, the Delaware Nation, The Delaware Tribe of Indians, the Eastern Shawnee Tribe and the Shawnee Tribe of Oklahoma were invited to be concurring parties to the agreement and only one tribe, the Delaware Nation, has chosen to sign the PA as a concurring party; and

WHEREAS the New York District involved the general public through public scoping meetings (May 2015) and review periods (May 31 through June 30, 2017) for the Draft Environmental Assessment prepared under the National Environmental Policy Act which affords all persons, organizations, and government agencies the right to review and comment on proposed major federal actions that are evaluated by a NEPA document and participate in public meetings during the review of the feasibility report; and

WHEREAS, the Delaware Tribe of Indians has requested that the New York District include the Delaware Tribe of Indians Policy for Treatment and Disposition of Human Remains and Cultural Items That May Be Discovered Inadvertently During Planned Activities in this Programmatic Agreement (Attachment 5); and

WHEREAS, the New York District shall implement the provisions of this PA as funding for the Undertaking is appropriated in future years; and

WHEREAS, in accordance with 36 CFR Part 800.14, the New York District and the NJSHPO have determined that execution of this PA will establish alternative procedures to streamline the coordination of the Project as plans are developed and the project moves forward; and

NOW, THEREFORE, the New York District and the NJSHPO agree that the Undertaking shall be administered in accordance with the following stipulations to satisfy the New York District's Section 106 responsibilities for all individual actions of the Undertaking.

Stipulations

The New York District shall ensure that the following measures are carried out:

I. IDENTIFICATION AND EVALUATION

A. During the Project Engineering and Design (PED) phase of the project the New York District, in consultation with the NJSHPO, and identified consulting parties will design and carry out surveys to complete the identification of historic properties and archaeological sites within the APE. The survey design will be informed by the most recent archaeological and architectural documentation that is available including reports on file at the NJSHPO, NJ State Museum, and additional local and regional repositories that house relevant documentation.

1. Archaeological Sites

- a. The New York District shall ensure that archaeological surveys within the uninvestigated portions of the APE are conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification (48 FR 44720-23) and the New Jersey Historic Preservation Office Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources (N.J.A.C. 7:4-8.4).
- b. All phases of survey reporting will be in keeping with the New Jersey Historic Preservation Office Requirements for Archaeological Survey Reports – Standards for Report Sufficiency (N.J.A.C. 7:4-8.5) and will be submitted to the NJSHPO and other consulting parties for review and consultation.

2. Traditional Cultural Properties

- a. The New York District will ensure that future surveys within the APE include procedures to identify Traditional Cultural Properties and to consult with Federally Recognized Tribes and other affected parties in accordance with the guidelines provided by National Park Service Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties.

- b. In the event that a Federally Recognized Tribe or affected group contacts the New York District regarding its recognition of a Traditional Cultural Property located within the APE, the New York District will notify the NJSHPO to initiate discussions to evaluate whether the property is a Traditional Cultural Property that meets the Criteria.

3. Buildings and Structures

- a. The New York District will ensure that architectural surveys are conducted for all buildings and structures within the APE in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification (48 FR 44720-23) and which takes into account the statewide historic contexts developed by the NJSHPO. The survey will be conducted following consultation with the NJSHPO and other consulting parties, and a report of the survey, consistent with the NJSHPO's Guidelines for Architectural Survey, will be submitted to the NJSHPO and all other consulting parties for review and consultation.
- b. The New York District, in consultation with the NJSHPO and consulting parties, will identify and evaluate buildings and structures that are located adjacent to listed or eligible historic districts to determine whether such properties should be considered as part of the historic district or an expanded District.

4. Historic Landscapes and Viewsheds

- a. The New York District will consult with the NJSHPO and participating historical societies to identify and evaluate historic landscapes and viewsheds located within the APE. The New York District will consult National Park Service Bulletins 18, How to Evaluate and Nominate Designed Historic Landscapes, and 30 Guidelines for Evaluating and Documenting Rural Historic Landscapes, National Park Service Preservation Brief 36, Protecting Cultural Landscapes, and other publications and materials made available by the NJSHPO to assist in defining the criteria that should be applied to such properties.
 - b. The objective in conducting the surveys is to identify NRHP listed or potentially eligible historic landscapes and affected viewsheds within the project area that may be adversely affected by the Undertaking, and to determine whether they meet the NRHP criteria set forth in 36 CFR Part 60.4.
- B. The New York District will ensure that qualified professionals meeting the National Park Service professional qualifications for the appropriate discipline [National Park Service Professional Qualification Standards, Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44738-39)] are used to complete all identification and evaluation efforts related to

this undertaking, to include geomorphological, palynological, and archaeological surveys and testing, and architectural survey.

- C. The New York District and the NJSHPO shall consider the views of the public and consulting parties in completing its identification and evaluation responsibilities. See Stipulation VIII, below, for review periods.

II. EVALUATION AND EFFECTS DETERMINATION

- A. Application of Criteria: The New York District, in consultation with the NJSHPO, shall evaluate historic properties using the Criteria established for the NRHP [36 CFR 800.4(c)(1)]:

1. If the New York District and the NJSHPO agree that the Criteria apply or do not apply, in evaluating the NRHP eligibility of a property, the property shall be treated accordingly for purposes of this PA.
2. If the New York District and the NJSHPO disagree regarding NRHP eligibility, or if the ACHP so requests, prior to the start of any project-related work at the site or in the vicinity of the property, the New York District shall obtain a formal Determination of Eligibility (DOE) from the Keeper of the National Register (Keeper), National Park Service, whose determination shall be final.

2. The New York District shall ensure that the identification and evaluation of historic properties that may be affected by each phase of the Undertaking is completed prior to the initiation of any formal action by the Corps including rehabilitation, relocation, demolition, etc.

3. Disagreements on effect determinations. Should the New York District and NJHPO disagree as to whether the criteria of adverse effect apply to the effects of the Undertaking on particular historic properties, the New York District will request the ACHP to review the finding and request their written opinion within 30 days, in accordance with 36 CFR 800.5(c). The New York District will take the ACHP's opinion into account when reaching a final decision.

4. The New York District shall maintain records of all decisions it makes related to the NRHP eligibility and determination of effects on properties.

III. TREATMENT OF HISTORIC PROPERTIES

- A. The New York District, in consultation with the NJSHPO and consulting parties, shall develop appropriate treatment plans for NRHP-eligible historic properties identified within the APE which may be affected by the Undertaking. Unless the NJSHPO and consulting parties object within 30 days of receipt of any plan, the

New York District shall ensure that treatment plans are implemented by the New York District or its representative(s). The New York District shall revise Plans to address comments and recommendations provided by the NJSHPO and consulting parties.

- B. The New York District shall ensure that qualified professionals meeting the NPS professional qualifications for the appropriate discipline, National Park Service Professional Qualification Standards and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44738-39) are used to develop and implement all treatment plans.
- C. The New York District will adhere to the following treatment strategies in order to avoid or reduce adverse effects to historic properties that have been determined eligible for the NRHP.
1. Avoidance. The preferred treatment is avoidance of effects to historic properties. The New York District will, to the extent feasible, avoid historic properties that have been determine eligible for the NRHP either through project design changes, use of temporary fencing or barricades, realignments, landscaping, or other measures that will protect historic properties. The New York District, the NJSHPO, and participating historical societies shall consult to develop plans for avoiding effects to historic properties. The New York District shall incorporate feasible avoidance measures into project activities as part of the implementation of the Undertaking. If avoidance is determined to be infeasible, the New York District will develop and implement treatment/mitigation plans. Unless the NJSHPO and other consulting parties object within 30 days of receipt of any plan, the New York District will ensure that treatment plans are implemented by the New York District or its representative(s). The New York District will revise plans to address comments and recommendations provided by the NJSHPO and other consulting parties.
 2. Minimization. When the New York District, the NJSHPO, and participating historical societies agree that complete avoidance of historic properties is infeasible, the New York District will explore preservation in place, if appropriate. Preservation in place may entail partial avoidance or protection of historic properties against project-related activities in proximity to the property. The New York District will preserve properties in place through project design, i.e incorporating color, texture, scale, and/or materials which are compatible with the architectural or historic character of the historic property; use of fencing, berms or barricades; and/or preservation of vegetation including mature trees, landscaping and planting which screen the property.
 3. Mitigation. If the New York District, in consultation with the NJSHPO and other consulting parties, determines that preservation in place is infeasible,

the New York District shall develop and implement mitigation plans consistent with Stipulation IV of this PA.

IV. RESOLUTION OF ADVERSE EFFECTS

- A. When the New York District, in consultation with the NJSHPO and other consulting parties, determines that the Undertaking-related activities cannot adhere to treatment plans developed in accordance with Stipulation III or would otherwise have an adverse effect, the New York District shall:
1. Develop a Standard Mitigation Agreement (SMA) in coordination with the NJSHPO and other consulting parties; or
 2. Consult with the ACHP to develop a Memorandum of Agreement (MOA) in accordance with 36 CFR Part 800.6 (c).
- B. The New York District will invite the ACHP to participate in consultation when:
1. The New York District and NJSHPO determine that an agreement or a SMA cannot be reached;
 2. a National Historic Landmark is involved;
 3. human remains have been identified; or
 4. there is widespread public interest in a historic property or properties.
- C. Development of Standard Mitigation Agreements (SMA).
1. The New York District, in consultation with the NJSHPO and other consulting parties, as appropriate, will develop SMAs for NRHP-eligible or listed historic properties that will be adversely affected by the Undertaking. The New York District will submit the SMA to the NJSHPO and consulting parties for review and approval by certified mail. The NJSHPO shall have 30 days from receipt of adequate information in which to review and comment on the SMA(s). If the NJSHPO fails to respond within 30 days, or if there is disagreement, the New York District shall notify the ACHP and consult to develop the proposed SMA into an MOA and submit copies of background information and the proposed SMA to facilitate consultation to develop an MOA in accordance with 36 CFR Part 800. After signing by the New York District, the NJSHPO, and other PA signatories as appropriate, the New York District shall file all SMAs with the ACHP.
 2. SMAs developed between the New York District, the NJSHPO, and other consulting parties, may include one or more of the following stipulations which

address routine adverse effects that may occur to historic properties as a result of project implementation. This is not a complete list of potential mitigation stipulations, methods of mitigation should be tailored to the Undertaking and the individual resources impacted:

- a. Recordation. The New York District will consult with the NJSHPO or Historic American Building Survey/Historic American Engineering Record (HABS/HAER) to determine the appropriate level and type of recordation for affected resources. For historic properties with state and/or local significance, recordation will be consistent with the requirements and standards of the Department of the Interior (April 2003). All documentation must be submitted to NJSHPO and HABS/HAER for acceptance, prior to the initiation of project activities, unless otherwise agreed to by the NJSHPO.
- b. Salvage and Donation of Significant Architectural Elements. Prior to demolition, partial demolition, or substantial alteration of historic properties, the New York District, in consultation with the NJSHPO and participating historical societies, will develop a salvage and donation plan to identify appropriate parties willing and capable of receiving and preserving the salvaged significant architectural elements. The New York District shall submit the plans to the NJSHPO and consulting parties for review and approval.
- c. Alternative Treatments or Design Plan which meet the Standards. Prior to demolition, partial demolition, or substantial alteration of historic properties, the New York District, in consultation with the NJSHPO and participating historical societies, will identify protocols treatment guidelines and/or design standards for new construction within historic districts that is in keeping with the Secretary's Standards. The New York District will submit the plans to the NJSHPO and the consulting parties for review and approval.

- d. Data recovery for archaeological sites eligible under Criterion D and others and data recovery and treatment of archaeological sites where data recovery will not result in a finding of no adverse effect. The New York District will conduct data recovery on archaeological sites following agreement on the prospective data recovery and treatment plans between the New York District, the NJSHPO, and other consulting parties as appropriate, when the archaeological sites are eligible for National Register inclusion under additional Criteria than Criterion D (for the information which they contain) or when the full informational value of the site cannot be substantially preserved through the conduct of appropriate research to professional standards and guidelines. To the maximum extent feasible, data recovery and treatment plans will be developed prior to construction to take into account and mitigate for the fullest range of archaeological site values and significance. The New York District will submit the plans to the NJSHPO and other consulting parties for review and approval.

V. DISCOVERY

- A. If previously unidentified properties are discovered during Undertaking implementation, the New York District shall cease all work in the vicinity of the discovered property until it can be evaluated pursuant to the guidelines in Stipulation I of this PA. If the property is determined to be eligible, the New York District will consult with the NJSHPO, and other consulting parties to develop a treatment plan or SMA in accordance with Stipulations III and IV of this PA.
- B. The New York District shall implement the treatment plan or SMA once approved by the NJSHPO and consulting parties.

VI. TREATMENT OF HUMAN REMAINS:

- A. If any human remains and/or grave-associated artifacts are encountered, the New York District, the NJSHPO, other consulting parties, and Tribes as appropriate shall consult to develop a treatment plan that is responsive to the ACHP's "Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects" (February 23, 2007), the Native American Grave Protection and Repatriation Act, As Amended (PL 101-601, 25 U.S.C. 3001 et seq.) and the U.S. Army Corps of Engineers, Tribal Consultation Policy (October 2013).
- B. Human remains must be treated with the utmost respect and dignity. All work must stop in the vicinity of the find and the site will be secured.
- C. The medical examiner/coroner, local law enforcement, the NJSHPO, and Tribes will be notified. The coroner and local law enforcement will determine if the remains are forensic or archaeological in nature.

- D. If the remains are determined to be archaeological in nature a physical anthropologist will be employed to investigate the site to determine whether the remains are Native American or of some other origin.
- E. If the human remains are determined to be Native American they shall be left in place and protected from further disturbance until a treatment plan has been developed and approved by the New York District, NJSHPO and Tribes.
- F. If human remains are determined to be non-Native American, the remains will be left in place and protected from further disturbance until a plan for avoidance or removal is developed and approved by the New York District, NJSHPO, Federally Recognized Tribes and other parties, as appropriate.
- G. Avoidance of human remains is the preferred treatment. At the Tribe's request, the District has included the Delaware Tribe of Indians' Policy for Treatment and Disposition of Human Remains and Cultural Items That May be Discovered Inadvertently during Planned Activities to this document (Enclosure 5).

VII. CURATION AND DISSEMINATION OF INFORMATION

- A. The New York District shall maintain all decision records on identification, evaluation, effects determination and mitigation of historic properties for this Undertaking.
- B. The New York District or its designee, in consultation with the NJSHPO shall ensure that all materials and records resulting from the survey, evaluation, and data recovery conducted for the Undertaking will be curated in accordance with 36 CFR Part 79 "Curation of Federally-Owned and Administered Archaeological Collections" and ER 1130-2- 433 "Project Operations: Collections Management and Curation of Archaeological and Historical Data." All material and records recovered from non-Federally owned land shall be maintained in accordance with 36 CFR Part 79 until their analysis is complete and, if necessary, are returned to their owner(s).

VIII. COORDINATION OF REVIEWS FOR STUDY ACTIVITIES

- A. All plans, documents, reports, and materials shall be submitted by the New York District to the NJSHPO and other consulting parties as appropriate by certified mail, for a 30 day review period unless otherwise stipulated in this PA. If the NJHPO and other consulting parties fail to comment within the specified time the New York District shall assume the agencies' concurrence. As appropriate, the New York District shall submit the comments of consulting parties to the NJSHPO to facilitate further consultation.
- B. Should the activities relating to the undertaking change in any way following review by the NJSHPO and other consulting parties the New York District shall

submit new plans, documents, reports, and materials to allow the NJSHPO and other consulting parties an opportunity to comment within a 30 day review period on the revisions.

- C. If after consulting with the NJSHPO and other consulting parties for a period of 90 days on any action or activity provided for in this PA, the New York District or NJSHPO concludes there is no progress in developing treatment/mitigation plans or other documents required by this PA, the New York District or NJSHPO may notify the ACHP and request its involvement to expedite completion of the consultation process.
- D. The New York District shall ensure that all submissions to the NJSHPO, consulting parties, and the ACHP include all relevant information to facilitate their review. The New York District shall provide all additional information requested by NJSHPO, consulting parties, or ACHP within a timely manner unless the signatories to this PA agree otherwise.
- E. The New York District shall ensure that all draft and final reports resulting from actions pursuant to the Stipulations of this PA will be provided to the NJSHPO, all other consulting parties to this PA, and will identify the Principal Investigator responsible for the report. All reports will be responsive to contemporary standards, and as appropriate to the Department of the Interior's Format Standards for Final Reports of Data Recovery Programs (42 FR 5377-79) and HPO report standards. Precise locational data may be provided only in a separate appendix if it appears that its release could jeopardize archaeological sites consistent with National Register Bulletin Number 29, Guidelines for Restricting Information about Historic and Prehistoric Resources.
- F. If the District proposes revisions or addenda to approved treatment/mitigation plans or other documents, the New York District, the NJSHPO, and other participating parties shall consult to determine whether additional conditions or mitigation measures are appropriate.
- G. The New York District shall certify in writing that all requirements for identification and evaluation, and the implementation of treatment/mitigation plans have been satisfactorily completed prior to the initiation of construction activities for a specified portion of the navigation improvements recommended in the Study. The New York District shall submit a copy of this certification to the NJSHPO and all other consulting parties by certified mail. The NJSHPO and other consulting parties shall have 30 days to object to the certification based on a finding of incomplete compliance or inadequate compliance with the terms of this PA. If the NJSHPO or consulting parties do not object, the District may proceed with construction for the specified segment of the Study.

IX. ADMINISTRATIVE TERMS

A. DISPUTE RESOLUTION

1. The New York District will attempt to resolve any disagreement arising from implementation of this PA. If there is a determination that the disagreement cannot be resolved, the New York District will request the ACHP's recommendations or request the comments of the ACHP in accordance with 36 CFR Part 800.6(b).
2. Any ACHP recommendations or comments provided in response will be considered in accordance with 36 CFR Part 800.6(b), with reference only to the subject of the dispute. The New York District will respond to ACHP recommendations or comments indicating how the New York District has taken the ACHP's recommendations or comments into account and complied with same prior to proceeding with undertaking's activities that are subject to dispute. Responsibility to carry out all other actions under this PA that are not the subject of the dispute will remain unchanged.
3. If the ACHP does not provide its advice regarding the dispute within the thirty (30) calendar day time period, the New York District may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the New York District will prepare a written response that takes into account any timely comments regarding the dispute from the consulting parties to the MOA, and provide them and the ACHP with a copy of such written response.

B. Public Involvement

1. In consultation with the NJSHPO and other consulting parties, the New York District will inform potential interested parties of the existence of this Agreement, and the New York District's plan for meeting the terms of this PA. Copies of this Agreement and relevant documentation prepared pursuant to the terms of this PA shall be made available for public inspection (information regarding the locations of archaeological sites will be withheld in accordance with the Freedom of Information Act and National Register Bulletin 29, if it appears that this information could jeopardize archaeological sites). Any comments received from the public under this Agreement shall be taken into account by the New York District.
2. Public Objections. The New York District will review and resolve timely substantive public objections. Public objections shall be considered timely when they are provided within the review periods specified in this PA. The New York District shall consult with the NJSHPO and other participating historical societies or Tribes, and as appropriate with the ACHP, to resolve

objections. Study actions which are not the subject of the objection may proceed while the consultation is conducted.

C. Monitoring

1. The New York District will prepare annual reports summarizing the status of compliance with the terms of this PA and a summary of the completed activities and the exempt activities for the past year and proposed activities for the next fiscal year. Reports shall be submitted by January 31 of every year. The Annual Reports shall be provided to the ACHP, the NJSHPO, and all other consulting parties until the Study-related activities are complete.
2. The ACHP, the NJSHPO, and other consulting parties may request a site visit to follow up on information in the annual report or to monitor activities carried out pursuant to this PA. The ACHP, the NJSHPO, or other consulting parties will provide the New York District with 30 days written notice when requesting a site visit unless otherwise agreed. The New York District may also schedule a site visit with the NJSHPO, other consulting parties, and the ACHP at its discretion.

D. Amendments

Any signatory to this PA may request that it be amended, whereupon all the parties will consult in accordance with 36 CFR Part 800.6(b) to consider such amendment.

E. Termination

Any signatory to this PA may terminate it by providing thirty (30) days' notice to the signatories, provided that the signatories will consult during the period prior to termination by certified mail to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the New York District will comply with 36 CFR Parts 800.4 through 800.6 with regard to individual Undertaking actions covered by this Agreement.

F. Sunset Clause

This PA will continue in full force and effect until the construction of the Undertaking is complete and all terms of this PA are met. After a period of seven (7) years from execution of the PA, unless the Project has been terminated or authorization rescinded, the consulting parties will coordinate to decide whether to extend the agreement as it is written or to update it provided all signatories concur.

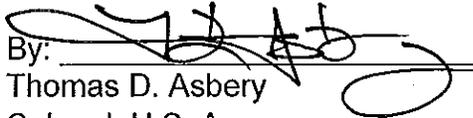
G. Anti-Deficiency Act

All requirements set forth in this PA requiring expenditure of funds by the New York District are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. 1341). No obligation undertaken by the New York District under the terms of this PA shall require or be interpreted to require a commitment to extend funds not appropriated for a particular purpose. If the New York District cannot perform any obligation set forth in this PA because of unavailability of funds, that obligation must be renegotiated among the New York District and the consulting parties as necessary.

Execution and implementation of this PA evidences that the New York District has satisfied its Section 106 responsibilities for all individual Undertakings of the Project, and that the New York District has afforded the ACHP an opportunity to comment on the undertaking and its effects on historic properties.

PROGRAMMATIC AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
AND
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE
REGARDING
THE RAHWAY RIVER COASTAL STORM RISK MANAGEMENT PROJECT
UNION COUNTY AND MIDDLESEX COUNTY, NEW JERSEY

U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT

By: 
Thomas D. Asbery
Colonel, U.S. Army
District Engineer

Date: 20200129

PROGRAMMATIC AGREEMENT
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UNION COUNTY AND MIDDLESEX COUNTY, NEW JERSEY

NEW JERSEY STATE HISTORIC PRESERVATION OFFICE

By: Katherine J Marcopul Date: 3/26/2020
Katherine Marcopul
Deputy State Historic Preservation Officer
New Jersey State Historic Preservation Office

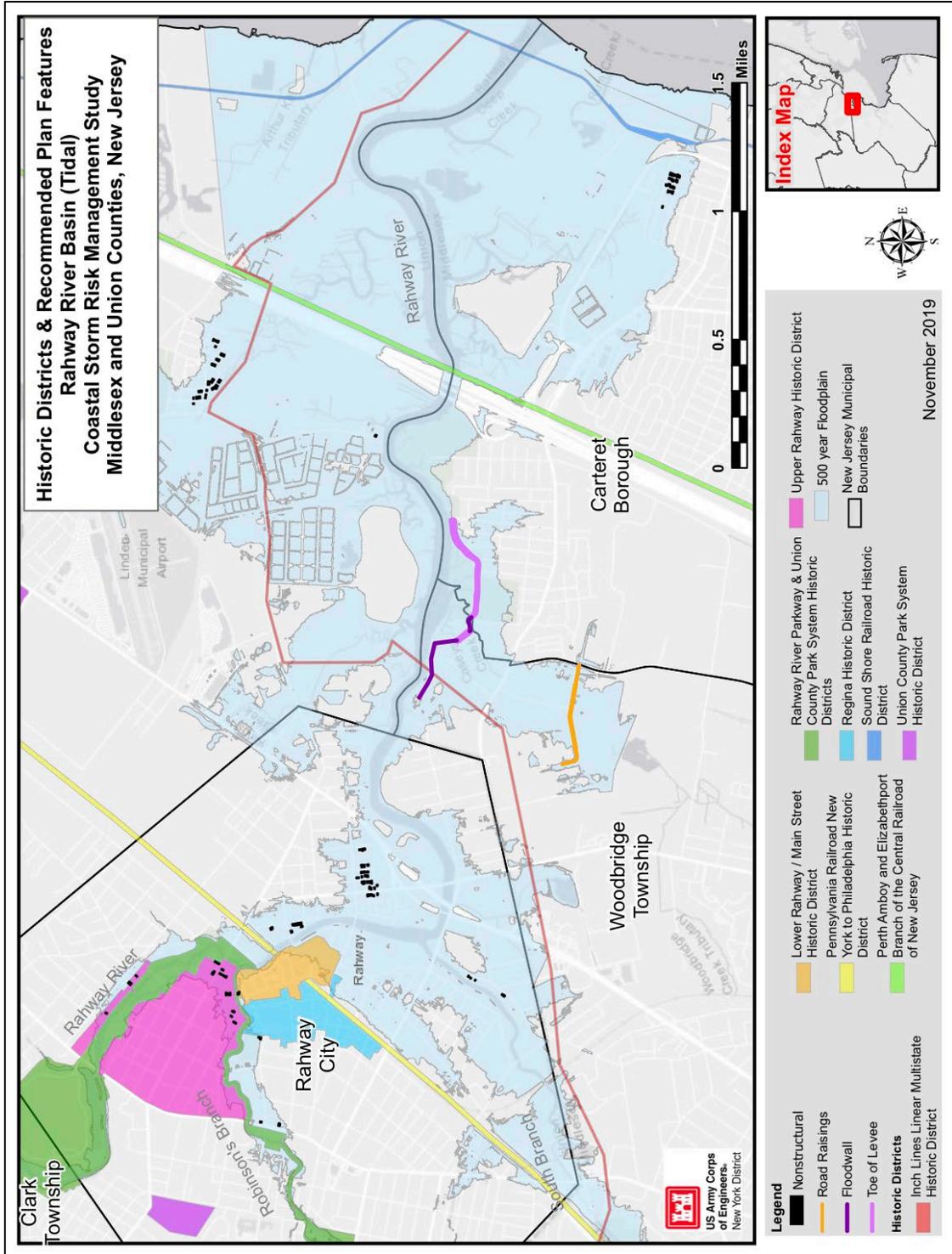
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UNION COUNTY AND MIDDLESEX COUNTY, NEW JERSEY

CONCURRING PARTY:

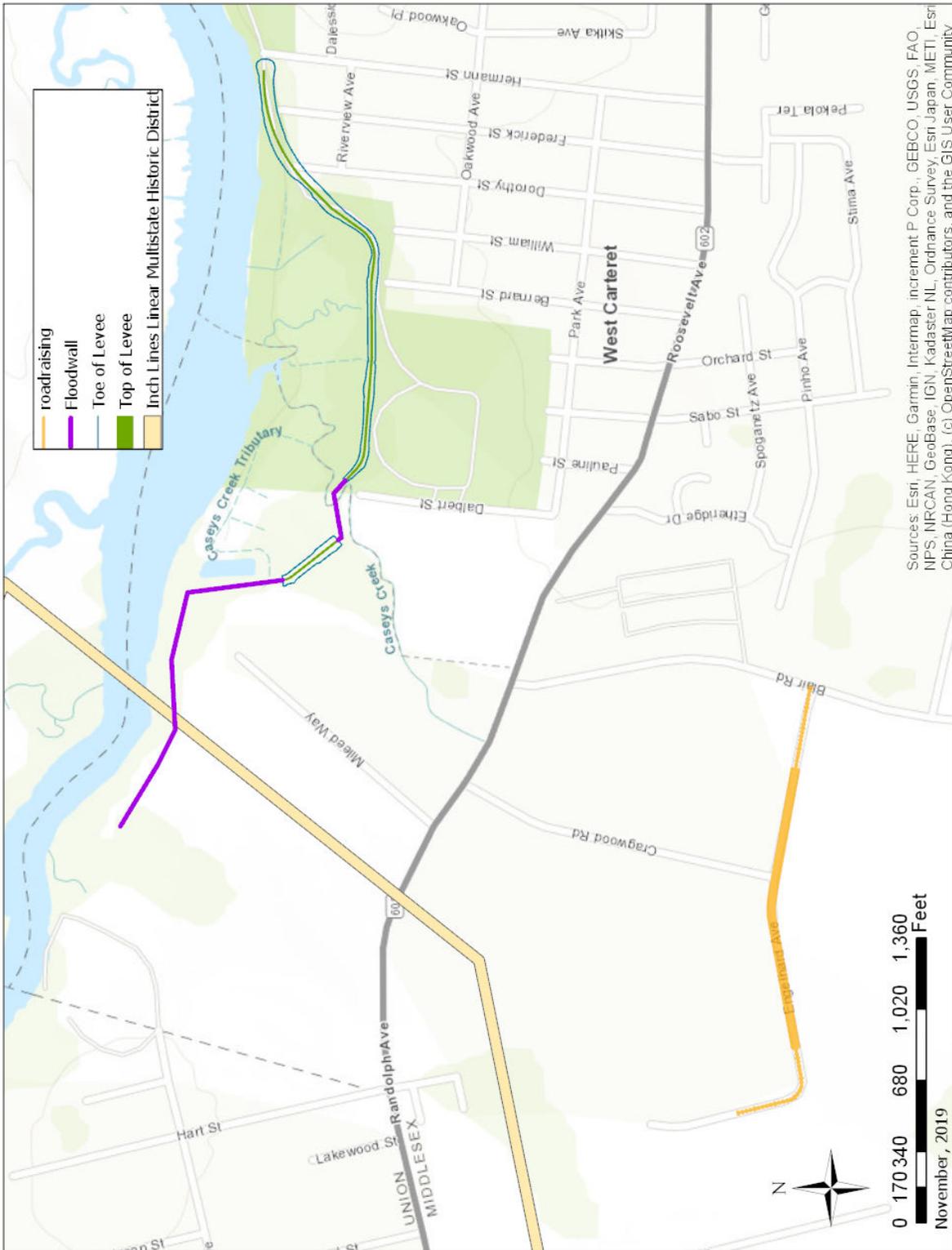
DELAWARE NATION

By: _____ Date: _____

Attachment 1: Rahway River Coastal Storm Risk Management Plan and Historic Districts



Attachment 3: Inch Lines Linear Multistate Historic District



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Attachment 4 – Parties Consulted

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Linden Society for Historic Preservation
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Enclosure 5

Delaware Tribe of Indians Policy for Treatment and Disposition of Human Remains and Cultural Items That May be Discovered Inadvertently during Planned Activities

Purpose:

The purpose of this policy is to describe the procedures that will be followed by all federal agencies, in the event there is an inadvertent discovery of human remains.

Treatment and Disposition of Human Remains and Cultural Items:

1. The federal agency shall contact the Delaware Tribe of Indians' headquarters at 918-337-6590 or the Delaware Tribe Historic Preservation Representatives at 610-761-7452, as soon as possible, but no later than three (3) days, after the discovery.
2. Place tobacco with the remains and funeral objects.
3. Cover remains and funeral objects with a natural fiber cloth such as cotton or muslin when possible.
4. No photographs are to be taken.
5. The preferred treatment of inadvertently discovered human remains and cultural items is to leave human remains and cultural items in-situ and protect them from further disturbance.
6. No destructive "in-field" documentation of the remains and cultural items will be carried out in consultation with the Tribe, who may stipulate the appropriateness of certain methods of documentation.
7. If the remains and cultural items are left in-situ, no disposition takes place and the requirements of 43 CFR 10 Section 10.4-10.6 will have been fulfilled.
8. The specific locations of discovery shall be withheld from disclosure (with exception of local law officials and tribal officials as described above) and protected to the fullest extent by federal law.
9. If remains and funeral objects are to be removed from the site consultation will begin between the Delaware Tribe of Indians and the federal agency.