ENVIRONMENTAL ASSESSMENT

Yonkers Avenue, Village of Tuckahoe, New York
Section 14
Emergency Stream-bank Protection

Prepared By:

US Army Corps of Engineers
New York District

July 2010

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

The Army Corps of Engineers (ACOE), New York District, is proposing to perform emergency stream-bank protection measures along Yonkers Avenue in the Village of Tuckahoe, New York. This study has been authorized under Section 14 of the Flood Control Act of 1946, as amended, to study and construct emergency stream-bank protection measures for public works and non-profit public services. The purpose of the project is to provide long term protection for a 240 foot length of Yonkers Avenue presently undergoing severe erosion with areas of imminent collapse.

The project site is located along the eastern bank of the Bronx River. Yonkers Avenue, a major thoroughfare and emergency route has been eroded due to the continuous impacts of Bronx River flow during storm events. Historically, this reach of the Bronx River had been channelized with flow patterns created that direct the river towards the foundation of Yonkers Avenue. There is concern that the road may be closed to non-local traffic if further structural damage leading to collapse occurs.

Project alternatives to repair and stabilize the stream-bank include:

- No Federal Action
- Alternative No. 1 – Sheet Piling and Riprap apron
- Alternative No 2 – Road Relocation
- Alternative No 3 – Reinforced Concrete Retaining Wall. Steel Combination Wall and Steel Sheet Pile Scour Protection Wall

Alternative 3 was chosen as the preferred plan. The plan consists of a reinforced concrete wall for the first 80 feet of stream-bank (due to the slope instability along the rock ledge), followed by a combination wall and sheet pile scour protection wall. The footprint of the new combination wall will remain identical to existing stone retaining wall. The final element, the sheet pile scour protection wall was designed due to the concern that the majority of the existing stone retaining wall at river bend would collapse during the construction of the steel combination wall. The sheet pile is to be placed at the Ordinary High Water Mark, with 15 cubic yards of concrete fill placed at the base.

No significant impacts to the environment are anticipated. My determination of a FONSI is based on the Environmental Assessment and the following considerations:

- The project will not negatively impact the quality of the human environment.
- The project will result in the placement of approximately 15 cubic yards of concrete fill into the Waters of the United States.
- The project is not expected to have significant long-term impact on fish, essential fish habitat or endangered State and Federal species.
- Construction will result in a localized, short-term increase in the suspended sediment load to the Bronx River. Employing standard erosion control techniques will minimize excess sedimentation to the Bronx River.

- The proposed project will cause mostly temporary impacts to the existing near shore aquatic habitat and community along approximately 240 feet of shoreline

- No archaeological or historical resources listed on or eligible for listing on the National Register of Historic Places will be affected by this project.
- The project will not adversely impact air quality.

Based on my review and evaluation of the environmental effects as presented in the Environmental Assessment, I have determined that the Yonkers Avenue at Tuckahoe Section 14 Stream-bank Protection Project is not a major federal action significantly affecting the quality of the human environment. Therefore, I have determined that this project is exempt from the requirement to prepare an Environmental Impact Statement.

26 July 10

Date

John R. Boulé II
Colonel, District Engineer

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Environmental Assessment
Yonkers Avenue, Tuckahoe, N.Y.
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1.0 Purpose and Need

The U.S. Army Corps of Engineers, New York District (District), is proposing to perform emergency streambank protection measures along the Bronx River at Yonkers Avenue in Tuckahoe, in partnership with the Village of Tuckahoe. This investigation is conducted under the Continuing Authorities Program, Section 14 of the 1946 Flood Control Act (33 U.S.C. 701r), as amended. The purpose of the Section 14 authority is to protect public works and non-profit public services from stream-bank and shoreline erosion.

The project site is located along Yonkers Avenue between Main Street and Elm Street within the Township of Tuckahoe, Westchester County, NY (Figure 1 – Location Map and Figure 2- Aerial Photograph). The bank erosion on the Bronx River extends for approximately 240 feet south downstream of Main Street, threatening to undermine Yonkers Avenue, which contains vital public infrastructure and serves as the only emergency route between Tuckahoe and Yonkers.

This portion of the Bronx River is channeled between the stone wall support of Yonkers Avenue and the supports of a parking lot on the opposite bank of the river. The river also makes a ninety degree bend at the base of the Yonkers Avenue support wall. The increased velocity as a product of the channelization and the river bend at this location has resulted in the loosening of the stones on the wall, effectively undermining the Yonkers Avenue support wall.

1.1 Proposed Action

The bank stabilization will be achieved through the construction of a combination of elements including: a new reinforced concrete retaining wall, a steel sheet pile/king pile combination wall, and a steel sheet pile bulkhead for scour protection along the 240 feet of failing streambank and the vulnerable river bend.

2.0 Plan Formulation

Several alternatives consistent with both Federal objectives and desires of the community were developed. The alternative that best met the economic, environmental and technical criteria for this project site was selected as the proposed action. The alternatives considered in detail in this Environmental Assessment include No-Action and three action alternatives. Criteria used in selecting the preferred alternative include:

- Provide long-term protection to the stream-bank
- Provide an economically efficient solution
- Constructability
- Minimization of environmental impacts

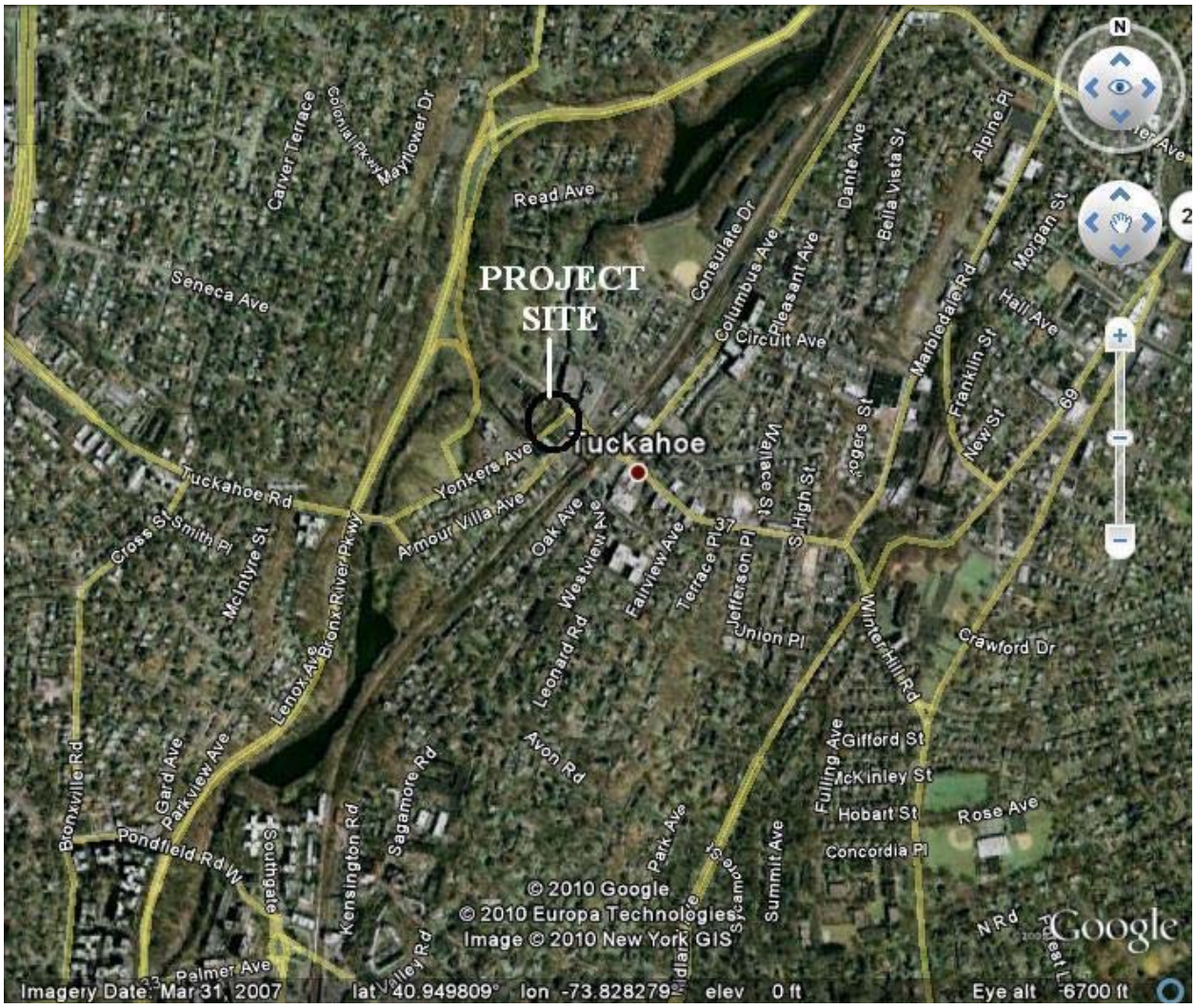


Figure 1: Location of Study Area for the Yonkers Avenue at Tuckahoe Section 14 Project, Village of Tuckahoe, New York

Figure 2: Close-Up Aerial Photo of Project Site Location for the Yonkers Avenue at Tuckahoe Section 14 Project, Village of Tuckahoe, New York

2.1 No Federal Action

Analysis of the No-Action Alternative is prescribed by the National Environmental Policy Act and serves as the baseline against which the environmental and socioeconomic effects of the Proposed Action and other reasonable alternatives can be evaluated. Under the No Action plan, there would be the sustained collapse of the existing bank stabilization features leading to the collapse of portions of Yonkers Avenue, rendering the avenue closed to commercial traffic and use as an emergency route.

2.2 Alternative 1: Steel sheet piling & rip-rap apron

This alternative entails the placement of steel sheet piling along the length of the failing bank (a length of approximately 240 feet and height of 30 feet). A riprap apron is to be placed at the toe of the wall, for a length of 240 feet, as well as at the river bend for an additional length of 45 feet. This alternative was eliminated from further consideration due to the fill required to be placed below the ordinary high water line in the construction of the riprap apron. This alternative

would have constituted a “major action” and required substantial regulatory coordination and potential mitigation actions to offset potential in-stream impacts.

2.3 Alternative 2: Road Relocation

Road relocation would consist of the relocation of at least 350 ft of Yonkers Avenue to the east away from the Bronx River. This alternative was eliminated from further consideration due to the substantial logistical challenges and costs associated with the needed real estate buy-outs and construction of a new road bed. Costs for this alternative were at least four times the costs of the other alternatives.

2.3 Alternative 3: Reinforced Concrete Retaining Wall, Steel Combination Wall and Steel Sheet Pile Scour Protection Wall

This alternative consisted of a reinforced concrete retaining wall for the first segment (80 feet) followed by a steel combination wall for an additional 105 feet. The river bend is to be protected by a steel sheet pile scour protection wall

2.4 Selected Alternative

Alternative 3, which consisted of the reinforced concrete retaining wall, steel combination wall and steel sheet pile scour protection wall was selected as the preferred alternative.

The reinforced concrete wall was chosen for the first 80 feet of stream-bank due to the slope instability along the rock ledge. As the bedrock elevation is close to the riverbed elevation sheet piles could not be driven to sufficient design depths to allow a cantilevered bulkhead design. Therefore, a combination of rock bolts and reinforced concrete wall are to be utilized.

A combination wall will continue for a length of approximately 105 feet. Combination wall systems are composed of both a king pile section and steel sheet pile section, which runs between each set of king piles. The king piles typically consist of either heavy HZ sections or pipe piles. The new combination wall will be driven landward of the existing concrete curb. It is anticipated that portions of the existing stone retaining wall will need to be demolished and removed in order to construct the new combination wall. Lastly, along the length of the new combination wall any existing riprap slope protection that has already collapsed or collapses due to construction of the new combination wall will be rebuilt in-kind using existing material found on site. The footprint of the new combination wall will remain identical to existing stone retaining wall.

The final element, the sheet pile scour protection wall was designed due to the concern that the majority of the existing stone retaining wall at river bend would collapse during the construction of the steel combination wall. The sheet pile is to be placed at the Ordinary High Water Mark, with 15 cubic yards of concrete fill placed at the base.

3.0 Affected Environment

3.1 Topography and Soils

The current topography at the site is very steep to sheer vertical walls on both sides of the river. The soils in the project area include udorthents wet substratum, and urban land. Udorthents consist of very deep soils in urban areas that have been disturbed by cutting or filling. These soils are common on glacial till plains, outwash plains, and, as in the case of this site, flood plains. They are somewhat poorly drained soils that consist of gravelly loam to very gravelly loam (USDA NRCS, 2004). Urban land includes soils in which a large portion of the area has been filled with sufficient material so as to make it impossible to identify the parent soil. In most cases the natural soil layers have been altered or mixed with manufactured materials such as brick, concrete or cinders.

3.2 Water Resources

The Bronx River Basin is a part of the New York-New Jersey Harbor Estuary. This estuary as a whole, including the Bronx River, as defined by its hydrologic unit code (HUC # 02030102), has been categorized as a Category 1 watershed in both 1999 and 2000 in the New York State Department Environmental Conservation (NYSDEC) Unified Watershed Assessment. Category 1 watersheds do not now meet, or face imminent threat of not meeting, clean water and other natural resources goals.

The Bronx River is approximately 24 miles long, of which approximately 15 mile flows through Westchester County in a south and southwesterly direction. The Bronx River watershed consists of 19 sub-watersheds listed in Table 1 (USACE, 2008). The water quality of the river at any given reach is a function of the land use of the contributing sub-watershed as well as the physical and chemical parameters of the receiving waters. The Yonkers Avenue project site falls into the Middle Bronx Direct sub-watershed of the Bronx River. This sub-watershed is characterized by 29.4% impervious cover. Schuler and Holland (2000) in *The Practice of Watershed Protection* report that significant impacts in the water quality of a watershed become apparent when impervious cover reaches 10-20% of the watershed area.

It is therefore not surprising that the water quality of this reach is of concern, the freshwater portion of the Bronx River, which includes the project reach, was listed on the Priority Waterbodies List (PWL) for public bathing, aquatic life, recreation and aesthetics (NYSDEC, 2008). It was identified for total maximum daily load (TMDL) development and subsequently appeared on the NYSDEC's 2008 Final Section 303(d) list Part 1- High Priority for TMDL development (NYSDEC, 2004). The Upper Bronx River (Westchester County) was placed on the list for oxygen demand in 2002 and for pathogens in 2004.

The length of the Bronx River within Westchester County, including this reach is designated as Standard C (NYSDEC). According to the NYSDEC, "The best usage of Class C waters is fishing. These waters shall be suitable for primary and secondary recreation, although other factors may limit the use for these purposes." (NYSDEC, 2004).

Table 2 summarizes the water quality standards associated with aquatic life and human health established by NYSDEC (NYSDEC, 2004).

Table 1. Subwatersheds within the Bronx River Drainage Basin

Subwatershed	Area (acres)	Area (square miles)
Westchester County		
Bronx River Gardens/Zoo		
Bronx River Lower Direct Drainage	2,084	3.3
Bronx River Middle Direct Drainage	3,252	5.1
Bronx River Upper Direct Drainage	3,213	5
Clove Brook	848	1.3
Davis Brook	1,373	2.1
Estuary		
Fox Meadow Brook	928	1.4
Fulton Brook	628	1
Grassy Sprain Brook	3,120	4.9
Grassy Sprain Brook Direct Drainage	1,263	2
Hartsdale Brook	772	1.2
Kensico Reservoir	7,948	12.4
Manhattan Park Brook	2,118	3.3
Parkland		
Sprain Brook	1,088	1.7
Troublesome Brook	1,725	2.7
West Farms		
White Plains Reservoirs	576	0.9
Total Area in Westchester County	30,932	48.3

Table 2. NYSDEC Numeric Water Quality Standards

NYSDEC Class	Dissolved Oxygen	Total Coliform Bacteria	Fecal Coliform Bacteria
Freshwater B,C	5.0 mg/L minimum daily average. Never less than 4.0 mg/L	Monthly median <2,400 mL. 80%<5,000/100mL	Monthly geometric mean<200/100mL.
Saline I	>4.0 mg/L	Monthly geometric mean 10,000/100mL	Monthly geometric mean <2,000/100mL
SB, SC	.5.0 mg/L	Monthly median <2,400 mL. 80%<5,000/100mL	Monthly geometric mean<200/100mL.

3.3 Vegetation

3.3.1 Wetlands

The Bronx River has been severely channelized in this reach. The bank slopes are extremely steep (near vertical wall on the west bank and a steep, almost 1:1, slope on the east bank) which preclude the development of wetlands contiguous to the river. There are no wetlands within project boundaries.

3.3.2 Uplands

This site is dominated by a mix of native and non-native herbaceous species with very few trees. The steep banks are largely covered by vines, shrubs and saplings with the dominant species being poison ivy (*Toxicodendron radicans),* honeysuckle (*Lonicera spp*) and catbrier (*Smilax rotundifolia*). The few tree species found around the site location, largely up the stream-bank include the native American elm *(Ulmus americanus),* as well as the non-native invasive Tree of Heaven (*Ailanthus altissima*), and Paper mulberry *(Broussonettia papyrifera*).

3.4 Fish and Wildlife

A site specific characterization was not conducted for this project. However, Bronx River wide assessments of fish and wildlife use have been conducted, and comparisons to sites within the general assessments have been made.

3.4.1 Fish

Fish sampling conducted as part of the Use Standards and Attainment Study (Hydroqual, 2003) and by Lehman College (Rachlin et al, 2003) revealed the following species utilize portions of the Bronx River: Atlantic herring (*Clupea hartengus*), Atlantic menhaden (*Brevoortia tyrannus*), bay anchovy (*Anchoa mitchilli*), black sea bass (*Centropristis striata*), bluefish (*Promatomus saltatrix*), leopard sea robin (*Prionotus* spp.), North American sea robin (*Prionotus carolinus),* striped bass (*Morone saxatilis*), summer flounder (*Paralichthys dentatus*), winter flounder (*Pseudopleuronectes americanus*), butterfish (*Peprilus triacanthus*), naked goby (*Gobiosoma bosci*), seabord goby(*Gobiosoma ginsburgi*), red hake (*Urophycis chuss*), spotted hake (*Urophycis regia*), gizzard shad (*Dorosoma cepedianum*), hickory shad (*Pomolobus cepadianum*), weakfish (*Cynoscion regalis*), pipefish (*Sygnathus* spp.), banded killifish (*Fundulud diaphanous)* and mummichog (*Fundulus heteroclidus*). However, most of these species utilize only the estuarine tidal portion of the Bronx River. Several species whose habitat needs may be met by the freshwater portion of the Bronx River, such as the gizzard and hickory shads, striped bass and weakfish are prevented from ascending to this upstream reach by several dams in the tidal section of the Bronx River which present an obstacle to fish passage.

It is likely that fish species found within the river upstream and downstream of this reach during recent sampling events (USACE, 2006) traverse this reach as they travel to reaches with greater habitat value. These species include the largemouth bass (*Micropterus salmoides*), banded sunfish (*Enneacanthus obesus*), tessellated darter (*Etheostoma olmstedi),* white perch (*Morone americana*), white sucker (*Catostomus commersoni*), banded killifish (*Fundulus diaphanous),*

blacknose dace (*Rhinichthys* aatratulus) and pumpkinseed (*Lepomis gibbosus*). As this river reach is characterized by a lack of in-channel habitat, little shade, and an urbanized surrounding it is unlikely that a substantial resident fish community utilizes its limited resources.

3.4.2 Benthic Resources

The benthic community throughout the Bronx River in Westchester County has been characterized as moderately to severely impacted (USACE, 2006) and dominated by pollutant tolerant species.

3.4.3 Reptiles and Amphibians

Reptilian species observed within the Bronx River corridor and likely to occur within the project site include the garter snake (*Thamnophis sirtalis sirtalis*), snapping turtle (*Chelydra serpentine*), and painted turtle (*Chrysemys picta*) (USFWS, 2010).

Amphibian species observed within the Bronx River corridor with potential to occur within the project site include the grey tree frog (*Hyla versicolor)*, wood frog (*Rana sylvatica*), and red-back salamander (*Plethodon cinereus*) (USFWS, 2010). These species prefer aquatic habitats with overhanging vegetation and/or adjacent woodland habitat and leaf litter.

3.4.4 Birds

Commonly occurring bird species in the urbanized portions of the Bronx river corridor, such as this project site include include red-winged blackbird (*Agelaius phoeniceus*), blue jay (*Cyanocitta cristata*), American robin (*Turdus migratorius*), house sparrow (*Passer domesticus*), American goldfinch (*Carduelis tristis*), American crow (*Corvus brachyrhynchos*), European Starling (*Sturnus vulgaris*), Black-capped Chickadee (*Poesile atricapillus*), Common Grackle (*Quiscalus quiscula*) Canada Goose (*Branta canadensis*), Song Sparrow (*Melospiza melodia*), Northern Cardinal (*Cardinalis cardinalis*), Northern Mockingbird (*Mimus polyglottos*), and Mourning dove (*Zenaida macroura*) (USFWS, 1997). Waterfowl and waterbirds in the area may include mallard (*Anas platyrhynchos*), black duck (*Anas rubribes*), herring gull *(Larus argentatus),* and snowy egret.

3.4.5 Mammals

Mammals found within similar reaches along the Bronx River and expected to be present within this reach are those typically found in urbanized settings. These species include raccoon *(Procyon lotor)*, Eastern grey squirrel *(Sciurus carolinensis)*, red squirrel *(Tamiasciurus hudsonicus)*, norway rat (*Rattus norvegicus*), opossum *(Didelphs virginiana)*, muskrat *(Ondatra zibethica)*, and eastern cottontail *(Sylvilagus floridanus)*.

3.5 Areas of Special Concern and/or Management

The Bronx River was nominated as an American Heritage River. In addition, the Bronx River culminates in the East River, which feeds into the Long Island Sound. The Sound is a significant habitat and habitat complex of the NY Bight by the USFWS (USFWS, 1997).

3.6 Threatened and Endangered Species

3.6.1 Federal Species of Concern

The following Federally listed threatened or endangered species are known to occur within Westchester County: Bog turtle (*Clemmys muhlenbergii*) and Bald eagle (*Haliaeetus leucocephalus*). However, recent site surveys have not shown indications of these species' presence within the project area, nor is the appropriate habitat present at the project site.

3.6.2 State Species of Concern

State listed animals and plants within Westchester County include amphibian, reptile, and bird species all of which have not been sighted, and are unlikely to be found at the site. Vegetation of special concern is limited to the stiff leaf goldenrod (*Solidago rigida*). In addition, Table 3 summarizes the Federal, State and locally listed threatened and endangered species.

Table 3. Federal and State Listed Threatened, Endangered, and Species of Concern Known to Occur in Westchester County, NY

Common Name	Scientific Name	Federal Status	State Status
Reptiles and Amphibians			
Bog turtle	*Clemmys muhlenbergii*	T	E
Wood turtle	*Clemmys insculpta*		SC
Timber rattlesnake	*Crotalus horridas*		T
Spotted turtle	*Clemmys guttata*		SC
Eastern box turtle	*Terrapene carolina*		SC
Northern fence lizard	*Sceloponis sceloporus*		T
Blue-spotted salamander	*Ambystoma laterale*		SC
Worm snake	*Carphophis amoenus*		SC
Birds			
Bald Eagle	*Haliaeetus leucocephalus*	T	T
Cerulean warbler	*Dendroica cerulea*		SC
Cooper's hawk	*Accipiter cooperii*		SC
Grasshopper sparrow	*Ammodramus savannarum*		SC
Henslow sparrow	*Ammodramus henslowii*		T
King rail	*Rallus elegans*		T
Northern goshawk	*Accipiter gentiles*		SC
Osprey	*Panion haliaetus*		SC
Peregrine falcon	*Falco peregrinus*		E
Red-shouldered hawk	*Buteo lineatus*		SC
Red-headed woodpecker	*Melanerpes eryhrocephalus*		SC

Table 3 continued. Federal, and State Listed Threatened, Endangered and Species of Concern Known to Occur in Westchester County, New York (continued)

Common Name	Scientific Name	Federal Status	State Status
Seaside sparrow	*Ammodramus maritimus*		SC
Vesper sparrow	*Pooecetes gramineus*		SC
Yellow-breasted chat	*Icteria virens*		SC
Whip-poor-will	*Caprimulgus voviferus*		SC

3.7 Socioeconomics

The project area is located within Westchester County with a total population of 923,459. Median per capita income is $36,726 and the median age of the population is 38 years. The racial makeup of Westchester is 71.35% white, 15.61% Hispanic, 14.2% African- American and 4.48% Asian. The employment sector makeup is 45.6% management, professional, and related occupations, 26.2% sales and office occupations, and 14.3% service occupation (US Census, 2000).

The project area is located within the Village of Tuckahoe with a population of 6,211. The median income for a household in the village is $60,744, and the median income for a family is $78,188. Median per capita income is $31,819. About 5.7% of families and 7.2% of the population are below the poverty line, including 5.6% of those under age 18 year and 9.1% of those aged 65 year or over. The median age of the population is 36 years.

The racial makeup of Tuckahoe is 73.98% white, 8.84% Hispanic or Latino, 10.11% African-American and 9.76% Asian. Employment sector makeup is 45.5% management, professional, and related occupations, 29.3% sales and office occupations, and 12.3% service occupation.

3.8 Cultural Resources

A review of previous cultural resources surveys and documented archaeological sites at the NYSOPRHP indicated that no National Register of Historic Places (NRHP) eligible or listed historic properties are located within the project area. However, the project is adjacent to the National Register-listed Bronx River Parkway Reservation. Three prehistoric sites, two potential occupation sites and one burial, have been identified within one mile of the project area. A geotechnical survey conducted in 2009, which consisted of two cores taken from Yonkers Avenue, indicate the area contains fill from the construction and repeated repair of the road and retaining wall.

The Village of Tuckahoe was established as early as the late 17th century. By the early 19th century, mills and factories were being constructed along the Bronx River. Just upstream of the project area, the restored Old Stone Mill is one of the oldest cotton mills in the area. Marble quarries were established to the north of the project area and were operated until the early 20th century. According to historic maps, the Hodgeman Rubber Company occupied the land to the

north and west of the project area from the 1850s through the early 20th century. These structures have been replaced by the existing modern office buildings and assisted living units.

3.9 Hazardous Toxic and Radioactive Waste

Recent sampling at the project site revealed levels that were either undetectable or below threshold limits as defined by the NYSDEC Regulations 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives, for the eight RCRA metals: arsenic, barium, cadmium, chromium, lead, total mercury, selenium and silver. Health risk from exposure to the soil at this location should be little to none.

3.10 Air Quality and Noise

Air Quality

Federal law designates six air pollutants as *criteria pollutants* requiring special measures to limit presence in the nation's air. The six criteria air pollutants are carbon monoxide, sulfur dioxide, respirable particulate matter, lead, nitrogen dioxide, and ozone. Based on these measurements of air quality, the US Environmental Protection Agency (EPA) designates attainment areas and non-attainment areas nationwide. Non-attainment areas are designated in areas where air pollution levels persistently exceed the national ambient air quality standards (NAAQS). State Implementation Plans (SIPs) designate control strategies to reduce air pollution in nonattainment areas. EPA requires states to adopt SIPs for all nonattainment areas, and to periodically evaluate the effectiveness of these plans' management strategies.

Westchester County is located in the New York Air Quality Control Region II. Based on the National Ambient Air Quality Standards (NAAQS) six primary pollutants, Westchester County is an attainment area for sulfur dioxide, lead, nitrogen oxide, and respirable particulate matter (PM10), a maintenance zone for carbon monoxide, and a non-attainment area for 8-hour ozone and respirable particulate matter (PM2.5)

Noise

Noise is generally defined as unwanted sound. The primary source of noise in the project area is vehicular traffic on local roadways and local construction projects that may be underway.

4. Environmental Affects of Alternatives

4.1 Topography and Soils

No significant impacts to topography or geology will result form the implementation of the preferred alternative. Soils at the project site have largely been disturbed due to past filling actions. The proposed actions should not result in further fill placed at the area. The proposed construction of the sheet pile should not significantly change the steep slopes that presently characterize the project stream-banks.

4.2 Water Resources

The preferred plan is not expected to adversely impact surface or groundwater resources. The proposed project should not significantly change the water quality of the project area as it will not permanently impact the temperature or chemical composition of the stream. Temporary disturbance to water quality, such as increased turbidity, may occur during active construction. However, the use of soil erosion and sediment control best management practices should minimize this temporary impact as well.

4.3 Vegetation

4.3.1 Wetlands

As wetland vegetation does not exist at the site no adverse impacts to said vegetation is possible.

4.3.2 Uplands

The preferred plan will require minimal stream-bank clearing. As the vegetation presently on the slopes is largely of an invasive nature, such clearing should not result in permanent impacts. A soil erosion and sediment control plan will include seeding, and/or replanting of the banks immediately post construction. This should minimize the temporary impacts and ensure a stabilized stream-bank as quickly as possible.

4.4 Fish and Wildlife

The site specific characteristics, narrow channelized stream and steep stream banks with significant hard structures along the stream channel, significantly limit the present wildlife and fisheries utilization of the site. These site specific characteristics will remain unchanged. There should be no permanent impacts to fish, bird, amphibian, reptile or mammalian habitat due to implementation of the preferred plan.

4.4.1 Fish

During active construction a temporary increase in turbidity in the water column is likely to reduce fish utilization in the immediate area. However, as fish are mobile they will be able move up or downstream during the course of construction. It is likely that fish utilization of the site will remain unchanged in the long term.

4.4.2 Benthic Resources

The preferred project has almost no footprint within the surface water. A temporary increase in sediment load may adversely impact sessile organisms within the immediate area. However, the minor impact will be temporary as these organisms are expected to recolonize from nearby communities to a similar pre-construction community. The character of the benthic community, one which is already moderately to severely impacted, is unlikely to change. Given the small

project size in relation to the Bronx River none of the impacts are expected to be long term or significant.

4.4.3 Reptiles and Amphibians

The preferred alternative should not adversely affect the **lo**cal amphibian or reptile population. During construction, heavy machinery and increased noise levels may cause the disruption of the limited amphibian and reptile population. However, as these animals are mobile they should avoid mortality form construction activities.

4.4.4 Birds

During construction of the preferred alternative increased noise levels and earth moving activities may cause displacement of individual birds. However as the local avian species are highly mobile they are expected to avoid direct mortality. Significant long term impacts to bird species from project implementation are not anticipated.

4.4.5 Mammals

The preferred alternative should not adversely affect the **l**ocal mammalian population. Similar to the effects of active construction on the reptile population increased noise levels may cause some disruption. However, as these animals are mobile they should avoid mortality form construction activities.

4.5 Threatened and Endangered Species

Due to the lack of appropriate habitat, there is an extreme low probability of the presence of any threatened or endangered species at the site. No significant impacts to threatened or endangered species are anticipated.

4.6 Socioeconomics

A temporary increase in the local working population during the construction phase of the project is an anticipated and positive temporary impact. The construction workers may provide a temporary boost to the local economy through the increased purchases of food, supplies and overnight accommodations. As no permanent jobs should be created, no long term impacts are expected to the local economy and income levels.

4.6.1 Environmental Justice

Executive Order 12898, Federal Actions to address Environmental Justice in Minority and Low Income Populations mandates that each federal agency will identify and address potential disproportionately high and adverse human health or environmental effects of its activities on minority populations and low income populations.

No significant environmental impacts on the human population are anticipated as a result of the proposed action. The selected plan will not result in any significant adverse impacts to the

surrounding community, therefore a disproportionate negative impact on minority or low-income groups in the community is not anticipated.

4.7 Cultural Resources

There are no identified properties either listed on or eligible for listing on the National Register of Historic Places within or immediately adjacent top the project area that will be adversely impacted by the project. In addition, it is not anticipated that significant archaeological sites are located within the project area given the extreme slopes along the streambank and the disturbance related to the construction of Yonkers Avenue and the current streambank stabilization features. The structures identified on the historic maps as within the project area have been replaced by the existing modern office buildings and assisted living units. As soils within the project area are largely fill, it is anticipated that no significant impacts to historic properties will occur due to implementation of the preferred alternative.

A letter report was provided to the NYSOPRHP in November 2009 with the determination that the project would not have an adverse effect on historic properties (Appendix C). The NYSOPRHP concurred with this determination (Appendix C).

4.8 Hazardous, Toxic and Radioactive Waste (HTRW)

Soil testing at the site show the levels of RCRA listed parameters are well below threshold levels. Construction at the site should not result in disturbance of hazardous, toxic or radioactive material and should not present a health hazard to workers at the site or nearby residences.

4.9 Air Quality and Noise

Air Quality

Heavy equipment used during construction may contribute minor amounts of carbon monoxide and particulate matter in the immediate vicinity of the project. Emissions calculations based upon the equipment inventory anticipated to be used in the construction of the project demonstrate that the emissions resulting from the project remain under the NAAQS criteria threshold. A draft Record of Non-Applicability and associated calculations are provided in Appendix D.

Noise

There will be a temporary minor increase in noise levels in the immediate vicinity of the project area during the operation of the construction equipment. There are no anticipated long-term or significant impacts to noise levels.

4.10 Cumulative Impacts

The Yonkers Avenue project has been assessed within the context of the region to evaluate potential cumulative impacts. Included in this assessment are other planning and/or construction projects that are currently being undertaken in the vicinity of Yonkers Avenue, or having the

potential to impact the natural resources of the upper Bronx River. A brief summary of these efforts is listed below:

4.10.1 Other Federal Projects

HRE Overall Study. The Hudson River Estuary is situated within a 25 mile radius of the Statue of Liberty. The HRE study includes the following 8 planning regions: 1) Jamaica Bay, 2) Lower bay, 3) Lower Raritan River, 4) Arthur Kill/Kill Van Kull, 5) Newark Bay, Hackensack River and Passaic River, 6) Lower Hudson River, 7) Harlem River, East River and Western Long Island Sound, and 8) Upper Bay. The study purpose is to identify water resources problems, existing conditions and factors contributing to the degradation of the Hudson River Estuary in order to develop potential ecosystem restoration solutions.

Bronx River Ecosystem Restoration Study. This study encompasses the 55 square mile Bronx River watershed which lies in Westchester and Bronx Counties, NY. The communities either partially or wholly included in this study consist of the municipalities of North Castle, White Plains, Elmsford, Greenburgh Scarsdale, Eastchester, Yonkers, Bronxville, and Mount Vernon. This study examines the flooding, habitat and environmental degradation that have occurred within the Bronx River Watershed.

Westchester County Streambank Stabilization Study. This study focuses on under 2,000 linear feet of streambank erosion near the Westchester County Center within the city of White Plains, NY. Proposed streambank stabilization actions maximize the use of plant materials (biostabilization) with the minimal use of hard structures, such as rip-rap, in combination with vegetation at those locations that require stronger stabilization measures, such as bridge abutments.

Soundview Park Restoration Study. This study focuses on a 3.0 acre site located along the lower Bronx River within Soundview Park in Bronx County, New York. The study proposes the restoration of a remnant salt marsh and coastal maritime grassland as a means to improve the 205 acre park.

4.10.2 Local Projects

Westchester County Center Stream-bank Stabilization. The bank stabilization plan for the Westchester County Center site has been considered in the context of other projects in the Bronx River area. The expected cumulative effect of the restoration projects will be to enhance existing opportunities for improved water quality, fish and wildlife habitat. The cumulative effect of the bank stabilization projects, due to their emphasis on bio-stabilization along presently vegetated stream-banks, and hard structure where the stream-banks are presently hardened should result in little to no cumulative impacts to the Bronx River riparian corridor and stream channel.

5.0 Coordination

This Draft Environmental Assessment will be coordinated with the public and involved agencies through targeted mailings, and by advertisement of the document's availability. USACE will prepare a Final Environmental Assessment and FONSI to address all received comments.

The Draft Fish and Wildlife Coordination Act Section 2(b) Report in Appendix B and the letter report to and response from from the NYSOPRHP in Appendix C reflect the coordination that has been ongoing with the Service and with NYSOPRHP. A conditional Water Quality Certificate has been issued by the NYSDEC. Applicable laws and regulations are summarized in Table 4.

Table 4. Summary of Primary Laws and Regulations Applicable to the Proposed Project

Legislative Title	U.S. Code/Other	Compliance
Clean Air Act	42 U.S.C. 7401-7671g	An air quality analysis was completed for the project. The results verify that the emissions from the project are considered to have an insignificant impact on regional air quality and according to CFR 93. 153 (f) and (g) the proposed project is presumed to conform to the SIP. A record of Non-Applicability is located in Appendix D.
Clean Water Act	33 U.S.C. 1251 et seq.	A water quality permit has been received from NYSDEC in fulfillment of the requirements of Section 404 of this act (Appendix H). In addition, Appendix A includes the 404(b) Review.
Endangered Species Act of 1973	16 U.S.C. 153 et seq.	Information provided by the USFWS indicate that there are no threatened or endangered species within the project area.
Fish and Wildlife Coordination Act	16 U.S.C. 661 et seq.	USACE has coordinated with USFWS. See Appendix B for copy of the Draft Coordination Act Report.
National Environmental Policy Act of 1989	42 U.S.C. 4321-4347	Circulation of this DEA fulfills the requirements of this act.
National Historic Preservation Act of 1966	16 U.S.C. 470 et seq.	Appendix C reflects the required coordination with the State Historic Preservation Office (NYSOPRHP).
Executive Order 13045,	April 21, 1997	Implementation of this project

Protection of Children From Environmental Health Risks and Safety Risks		will not increase environmental health risks.

6.0 Measures to Minimize/Avoid Impacts

The following measures have been taken during design, and will be taken during construction, to minimize and/or avoid adverse environmental impacts:

- The riprap apron has been replaced with a steel sheet pile scour protection wall, which minimizes the fill material placed beneath the Ordinary High Water Mark
- Development and implementation of an erosion control and sediment control plan. Turbidity curtains and hay bales will be installed along the length of the project construction elements to prevent introduction of sediment into the Bronx River.
- An Environmental Protection Plan, to protect existing vegetation and natural resources, will be developed and implemented during construction.

7.0 Conclusions

The selected plan will provide long term stream-bank stabilization along Yonkers Avenue in the Village of Tuckahoe, thereby protecting an important thoroughfare and emergency route in Westchester County. Without the project Yonkers Avenue would be undermined. Adverse economic, environmental and life/safety impacts could result should Yonkers Avenue collapse, and portions enter the Bronx River. Measures to minimize adverse environmental impacts include implementing both erosion and sediment control plans and Environmental Protection Plans.

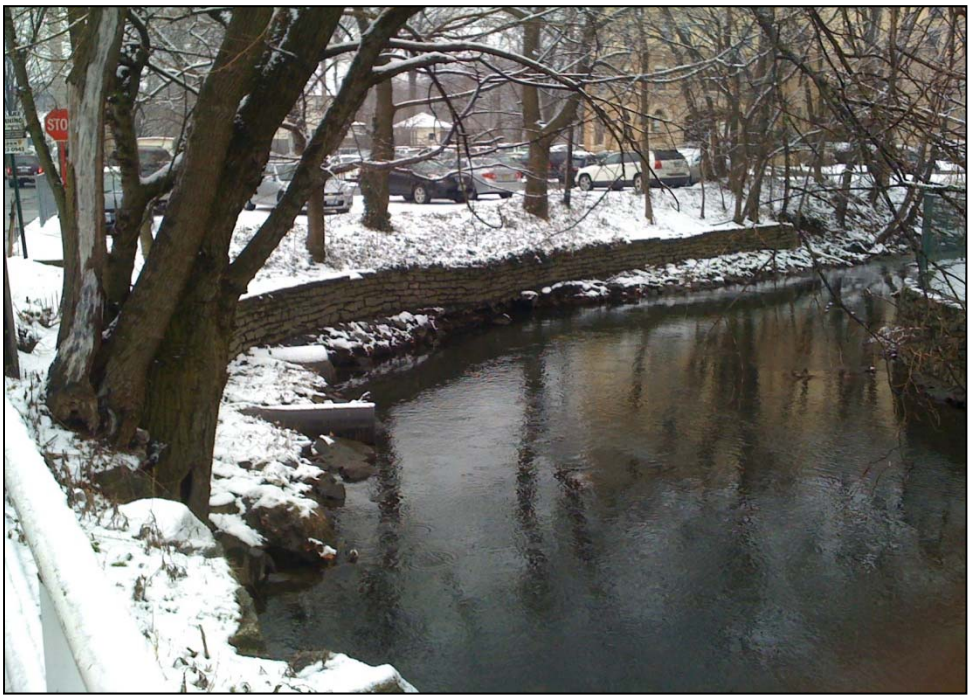
Therefore, the proposed emergency stream-bank stabilization project along Yonkers Avenue in the Village of Tuckahoe is not anticipated to have significant adverse impacts on the environment and would therefore result in a finding of No Significant Impact (FONSI) following the public comment period for this DEA.

8.0 Project Area Photographs

Yonkers Avenue Facing South

Yonkers Avenue Facing North

Bronx River facing upstream (Yonkers Avenue facing North)



River bend facing downstream (South)

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10.0 List of Preparers

Rena Weichenberg, Project Botanist, US Army Corps of Engineers, NY District

Carissa Scarpa, Project Archaeologist, US Army Corps of Engineers, NY District

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