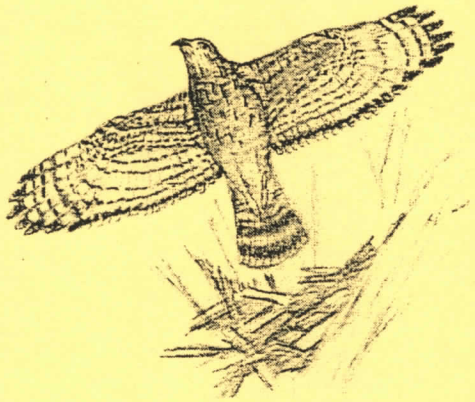
ENVIRONMENTAL ASSESSMENT

LAND EXCHANGE BETWEEN
THE CITY OF VIRGINIA BEACH AND
THE U.S. FISH AND WILDLIFE SERVICE
FOR THE PURPOSE OF IMPROVING AND RE-ALIGNING
THE SANDBRIDGE ROAD CORRIDOR



MARCH 2001

United States Department of the Interior
FISH AND WILDLIFE SERVICE
HADLEY MASSACHUSETTS

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I. PURPOSE AND NEED FOR ACTION

A. Introduction

This Environmental Assessment (EA) will identify and evaluate the environmental and socioeconomic impacts of the United States Fish and Wildlife Service's (Service) proposal to exchange approximately 20 acres within the Back Bay National Wildlife Refuge (Refuge) with the City of Virginia Beach (City) for City properties of similar value. The proposed land exchange will allow the City to re-align and improve the Sandbridge Road corridor thus reducing potentially hazardous road conditions, and improving highway drainage and the quality of the storm water discharged into local waterways. The proposed land exchange will also benefit Service trust resources by adding additional lands to the Refuge. All lands proposed for exchange are located within the current acquisition boundary which was established in 1989. A map of the Refuge is shown in Figure 1. The general study area considered in this EA is shown in Figure 2.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality (CEQ) Regulations, 40 CFR 1500, et seq. The purpose for this EA is to identify whether an Environmental Impact Statement (EIS) will be required for the proposed land exchange (40 CFR 1508.9(a)(1)) and to determine the applicability of a Finding of No Significant Impact (FONSI)(23 CFR 771.119). The EA will provide an analysis of potential impacts to the natural and manmade environment as a result of the land exchange including the construction resulting from the proposed road improvements. This information will allow the Service to make an informed decision on the impacts of the proposal along with presenting the findings to the public for their input. This EA is supported by technical documents which have been prepared separately from this document during the early planning process.

B. Project Area

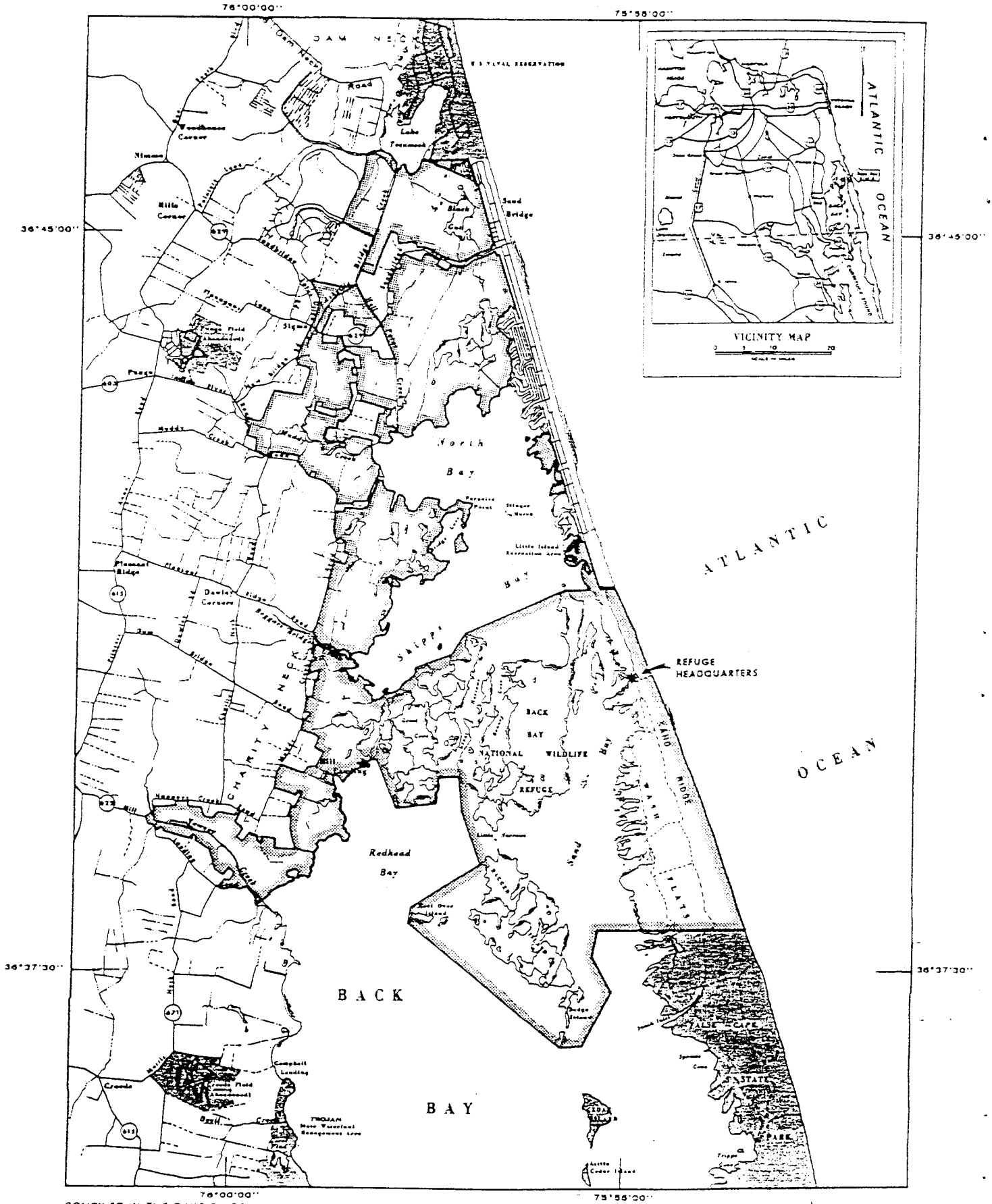
Sandbridge Road is a two lane, unrestricted access, urban collector roadway which extends from the intersection with Princess Anne Road eastward to the intersection with Sandfiddler Road in the Community of Sandbridge. The approximately five and one half mile roadway corridor is characterized by medium density residential, light commercial and agricultural uses development throughout its western portion. The eastern portion of the corridor is characterized by vast environmental features, most importantly, the Back Bay National Wildlife Refuge. Refuge lands designated for exchange with the City are located at various points adjacent to Sandbridge Road. The corridor is primarily forested throughout the project area although a small portion of the project area is open land currently used for agricultural purposes. The topography of the project area is flat from the Atlantic Ocean to Princess Anne Road. Besides handling daily commuter traffic in and out of Sandbridge, the road provides the only access (via City roads) to Sandbridge Beach from the west and, therefore, traffic patterns are influenced by the seasons and weather conditions. Sandbridge Road is designated as one of two hurricane evacuation routes for the Sandbridge Beach area. The other emergency evacuation route is through the Dam Neck Naval Weapons Center to the north of Sandbridge.

BACK BAY NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

CITY OF VIRGINIA BEACH, VIRGINIA

UNITED STATES
FISH AND WILDLIFE SERVICE



COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY U.S.G.S. AND U.S.F.&W.S.

0 4000 8000 12000 16000 FEET

0 1 2 3 4 KILOMETERS

9° MEAN DECLINATION 1980

NEWTON CORNER, MASSACHUSETTS April 1980
REVISED: MARCH 1990

FIGURE 1

SR VA 248

BACK BAY NATIONAL WILDLIFE REFUGE

CITY OF VIRGINIA BEACH, VIRGINIA

Proposed Study Area for the Land Exchange Between the
City of Virginia Beach and the Back Bay National Wildlife Refuge

COMPILED IN THE DIVISION OF REALTY,
CARTOGRAPHY AND SPATIAL DATA SERVICES
FROM SURVEYS BY USFWS AND USGS
ADDITIONAL DATA FROM THE CITY OF VIRGINIA
BEACH, THE LANDMARK DESIGN GROUP, WILEY & WILSON,
JOHNSON, MIRMIRAN & THOMPSON, WOOLPERT
UTM ZONE 18N, NAD 1983, METERS
PHOTO DATE : MARCH 05, 1994
HADLEY, MASSACHUSETTS DECEMBER 2000
REVISED : 03/15/2001

FIGURE 2

SR VA 248

C. Purpose and Need for Action

The purpose of the proposed action is to provide the City of Virginia Beach with adequate land to improve road conditions along Sandbridge Road. The land necessary to complete the road improvements will be made available through a proposed Refuge land exchange with the City.

Sandbridge Road is currently a two lane facility with many less than desirable design and safety issues. Between 1992 and 1994, 104 accidents were recorded along Sandbridge Road. Hazardous road conditions along this road include dangerous curves, limited sight distance, narrow lanes, and minimal shoulders with deep vertical ditches adjacent to the roadway. Owing to the elevation of the existing road, the influences of wind-driven waters from nearby Back Bay, and drainage conditions along the road, there are times when portions of the roadway pavement are covered with standing water. Standing water on the road sometimes exists for several days following a rain or flood event depending on wind direction. These conditions contribute to dangerous road conditions and are not appropriate for this type of roadway, especially one which serves as a hurricane evacuation route.

The City of Virginia Beach's Comprehensive Plan and traffic studies completed in 1997, identified that much of the existing agricultural area in the western portion of the project area is zoned for residential development. Furthermore, residential development within the community of Sandbridge is increasing due to the construction of sewerage treatment facilities which allow for construction of larger homes within Sandbridge. Transportation improvements are needed in the project area to address these changes and future development that will put additional pressure on the existing two-lane Sandbridge Road.

The proposed exchange of Refuge lands and construction associated with improving Sandbridge road will not interfere with the ability of Back Bay Refuge to meet its established management objectives.

D. Background

In August 2000, the City of Virginia Beach (City) approached the Refuge regarding the purchase of land owned by the Lotus Creek Development Co. (Lotus Creek). Lotus Creek had been issued a floodplain variance by the City, but concerns about drainage and flooding problems raised by adjacent property owners made the City look for alternatives to development. The Lotus Creek tract is a forested wetland providing habitat for migratory birds, and although not included within the Refuge's acquisition boundary, it borders the Refuge boundary on two sides. It is also part of a larger block of forested wetlands already part of the Refuge, thus making it suitable for inclusion in the Refuge. However, this parcel of land is situated south of the former Nimmo (Ferrell) Parkway (Parkway) right of way (ROW). If the Parkway were built, it would isolate and fragment the Lotus Creek parcel from adjacent Refuge lands to the north, greatly reducing its wildlife value/potential. To eliminate this possibility, the City offered to sell the ROW to the Refuge as part of the Refuge purchase of Lotus Creek, and has agreed to officially vacate the ROW.

With the elimination of the ROW, it is necessary for the City to plan for the upgrade of the existing Sandbridge Road Corridor to provide safe and modern access to the Community of Sandbridge. An exchange of lands between the Refuge and the City will be necessary in order for the City to complete these improvements. Approximately 20 acres of Refuge lands will be exchanged for lands of equal value from the City. This will initially include the City-owned tract referred to as Lotus Gardens (See Section II. B. Proposed Action for a description of this tract). A Memorandum of Understanding (MOU) was developed between the City and the Refuge to outline the expectations of each party relative to the purchase of the two tracts, and the exchange of lands for the road improvements.

In 1989, the Service evaluated alternative boundary expansions through the public release of both a draft and final version of an EA entitled *Proposal To Expand The Boundary Of The Back Bay National Wildlife Refuge Virginia Beach, Virginia.* However, that EA did not evaluate the impacts to Refuge lands which might be exchanged in order to upgrade Sandbridge Road. This EA builds upon and incorporates that EA and provides a more focused analysis of the impacts of the Sandbridge Road project.

II. ALTERNATIVES

A. No Action Alternative

Under the No Action Alternative, the Service would not go forward with the proposed land exchange and improvements along Sandbridge Road would not be allowed to occur within the Refuge boundary. The No Action Alternative would not meet the City's design plans for improvements to Sandbridge Road. Under the No Action Alternative, the City would need to revise their current design plans and develop road improvements outside the current Refuge boundary. Given that several tracts of Refuge lands are located adjacent to much of the existing road, under the No Action Alternative, Sandbridge Road most likely would remain in its present condition in the near future, resulting in a continuation of hazardous driving conditions.

Furthermore, under the No Action Alternative, the Refuge would not acquire the 24 acres of City property adjacent to existing Refuge ownerships. If those lands are not acquired by the Service or otherwise protected, important wetland wildlife habitat could be altered or destroyed by a variety of land use changes. The City property would also serve to protect the Refuge from development along Lotus Drive and the northern refuge boundary. Loss of this protected area may have adverse impact on Refuge resources and the quality of water entering the Bay.

B. Proposed Action

Under the Proposed Action, the Service would exchange title to approximately 20 acres of Service lands located along Sandbridge Road for 24 acres of City land currently located within the Refuge's approved acquisition boundary. This alternative would allow the City to complete their currently designed road improvements for Sandbridge Road, thereby reducing potentially hazardous driving conditions, and improving highway drainage and the quality of storm water entering the waterways. Under the Proposed Action, the City would improve curve alignment along Sandbridge Road and widen the existing road and shoulders. Road elevation would also be raised where flooding and poor drainage currently exists. Improved storm water management is also planned by the City on lands acquired from the Service through the development of storm water treatment facilities where appropriate.

Under the Proposed Action, the Service will acquire approximately 24 acres of City property currently located within the approved acquisition boundary. The habitat consists of two wetland types: (1) Palustrine, forested , broad-leaved deciduous, with irregular flooding by Ashville Bridge Creek; dominant vegetation is red maple (*Acer rubrum*) and wax myrtle (*Myrica cerifera*); (2) Estuarine emergent, with irregularly flooding by Ashville Bridge Creek; dominant vegetation is wax myrtle, cattails (*Typha latifolia*) and soft rush (*Juncus effusus*). Some bald cypress (*Taxodium distichum*) are also present. The tract is triangular in shape. The north side will become the external boundary of the Refuge, the eastern side fronts on Asheville Bridge Creek, and the western side abuts existing Refuge lands in some areas. The habitat will provide nesting and feeding areas for migratory waterfowl and passerine birds. It will protect Refuge wetlands and waterways from residential development, and serve to meet the Refuge's objective of maintaining and enhancing water quality in the Back Bay watershed. It will also preserve wetlands that assist in flood control through the retention of flood waters.

Under the Proposed Action, the hazardous road conditions currently existing along Sandbridge Road would be minimized. When completed, the road improvements will provide an overall safer and improved scenic road into the Sandbridge community in an aesthetically pleasing setting.

C. Alternatives Rejected From Further Consideration

This EA does not consider alternative traffic routes to redirect traffic into and out of the Sandbridge community. Development of alternative traffic corridors by the City of Virginia Beach is outside the authority of the Service and the scope of the proposed Service action to exchange Refuge lands with the City. At present, the City has no other designated right of way for automobile traffic to the Community of Sandbridge since it has agreed to vacate the Ferrell Parkway right of way. The Service recognizes that future road designs may occur and that some additional NEPA analysis may be warranted by an appropriate federal agency if the City of Virginia Beach seeks federal assistance or requests additional access to National Wildlife Refuge lands.

III. AFFECTED ENVIRONMENT

A. Physical Resources

1. Climate

The climate of the Back Bay area is characterized by mild winters and hot, humid summers. Average winter temperature is 42° F with 33° F being the average daily minimum temperature. In summer, the average temperature is 77° F, and the average daily maximum temperature is 85° F. Annual precipitation averages 45 inches. Of this total, 25 inches, or 56 percent, usually falls in April through September. The area has the longest growing season in Virginia with 237 frost-free days. The average seasonal snowfall is 7.2 inches. The average relative humidity in mid-afternoon is approximately 58 percent. Humidity is higher at night, and the average at dawn is about 78 percent.

The prevailing wind is from the southwest. Average wind speed is highest in March at 10.6 miles per hour. The area is frequented by storms from the northeast during fall, winter, and spring which produce localized flooding. During summer, numerous thunderstorms produce strong winds and heavy rains that can also result in localized flooding. Although the Virginia Beach area is north of the track usually followed by hurricanes and tropical storms, the area has been struck infrequently by tropical storms and hurricanes.

2. Air and Noise Quality

The air quality for the city of Virginia Beach is rated high. Due to the location of Oceana Naval Air Station, noise levels can be excessively high in certain sections of the city.

3. Geology

The Virginia Beach area lies within the Atlantic Coastal Plain Physiographic Province. The area is typical with that of most of the Atlantic seaboard, consisting of gently sloping terrace plains extending seaward from the base of the Appalachian Mountains. The Back Bay area lies above 4,000 feet of unconsolidated sediments that are divided into six stratigraphic units that have been laid down over 146 million years. The most important of these units is Columbia Group which is comprised of clays, silts, and sands deposited during the Pleistocene era (2.5 million years ago to date). This 20 - 50 foot thick layer, which lies just under the surface, is composed of beach deposits, dune, and river sediments.

4. Topography and Soils

The flatness of the lands surrounding Back Bay is a critical topographic characteristic of the watershed. Pungo Ridge, along which Princess Anne Road runs, has the highest land elevations on the west side of the Bay, reaching 15 to 20 feet above mean sea level (msl) at several points. The dune system, along the Atlantic Coast side of the Refuge, also exceeds 20 feet in elevation in several areas.

On the eastern side of this Pungo Ridge lie most of the better drained uplands. Moving eastward the elevations decrease to about five feet above mean sea level (MSL) which appears to be the upper elevation of the floodplain. This is where the principal marshes and swamps of the Bay's edges are found; however, throughout the flood plain there are higher elevations where the soils are inclined to dry out more readily and crops are farmed. Because of the general flatness and low elevation of the land, flooding from wind tides is a frequent problem for the farmers, particularly below three to four feet above MSL.

The Soil Conservation Service (SCS),now re-named the National Conservation Resource Service (NCRS), has mapped the soils within the city of Virginia Beach. The four major soil associations found within the study area include Acredale-Tomotley-Nimmo, State-Tetotum-Augusta, Dragston-Munden-Bojac, and the Backbay-Nawney. The SCS describes these associations as follows:

Acredale-Tomotley-Nimmo Association - This association consists of nearly level soils in broad, flat areas of the study area. The Acredale soils are slowly permeable; Tomotley and Nimmo soils are moderately permeable. This association, of which all of the soils are considered "Prime Farmland" by SCS when drained, are mostly used for cultivated crops, but some areas are in woodland or are used for community development. Much of this association has been cleared and drained; the drained areas have good suitability for cultivated crops. The main limitation for community development is a seasonal high water table. This association covers the majority of the study area.

State-Tetotum-Augusta Association - This association is formed in loamy marine and fluvial deposits. They are all deep soils ranging from somewhat poorly drained to well drained. All of these soils are considered "Prime Farmland" by SCS when drained. These soils have limitations for development, agriculture, and recreation because of high water tables and potential flooding.

Dragston-Munden-Bojac Association - This association consists of deep soils formed on loamy fluvial sediments and vary from poorly drained to well drained. This association generally has less clay.

Backbay-Nawney Association - This association is primarily found in the marshes and swamps of the study area and refuge. It consists of nearly level, frequently flooded soils on the flood plains of Back Bay and its tributaries. Slopes range from 0 to 1 percent. The Backbay soils occur in broad, flat marshes, while the Nawney soils occur in wooded drainages and on flood plains. This association has little suitability for most uses other than as wetland wildlife habitat and for woodland. Flooding is the main limitation.

5. Surface Water Resources and Quality

The study area is within the watershed of North Bay and Greater Back Bay. Numerous drainage ditches, channels, narrows, and guts link Black Gut and Lake Tecumseh with Back Bay. The whole of Back Bay has a surface area of about 39 square miles. The

surrounding uplands and wetlands cover an additional 65 square miles accounting for approximately 104 square miles of watershed land and water resources. The 65 square miles of land which drain into the Bay, control to a large degree the quality of water in the Bay. Major drainage creeks in the study area that feed into the Bay watershed include Hell Point Creek, Ashville Bridge Creek, Black Gut and numerous unnamed ditches and channels that drain surrounding lands.

Most of the Bay is quite shallow with an average depth of less than five feet. The Bay includes fresh to somewhat brackish water. It has one major outlet to the south into Currituck Sound. Water level fluctuations are caused primarily by the wind. Summer winds generally blow from the southwest, while in the winter, winds are more north-easterly. Strong southerly winds of several days duration can force water from Currituck Sound into Back Bay thus flooding the study area via small ditches and channels. Wind setups of three to four feet have been estimated in the northern part of the Bay. Strong northerly or northeasterly winds, over several days, result in the de-watering of northern and eastern coves in the Bay.

The water quality in Back Bay has deteriorated from a number factors. Quality, at times, has been fair to poor at the mouths of the tributaries and within several of the watershed creeks, when subjected to urban and/or agricultural runoff. Pollutant laden urban storm water runoff, which is channeled into Back Bay from the surrounding watershed, adversely affects the water quality of North Bay and its tributaries. Future impacts of an urbanizing watershed could be severe. Agricultural impacts include; the release of concentrations of nitrogen, phosphorous, and chemicals into Back Bay and its tributaries from fertilizer and pesticide applications, releases of liquid waste from livestock waste holding lagoons, and sediment from erodible fields. These pollutants enter Back Bay via the extensive drainage ditch system.

Water quality in the Bay may also be impacted by the large number of septic systems that are located in the study area. Some of these systems are built in poorly drained soils and may either fail to function properly or fail completely. Efforts to protect waterways from siltation during construction projects have not been successful in protecting water quality.

6. Groundwater Resources and Quality

The two primary freshwater aquifers in the Back Bay watershed are the Yorktown and Columbia formations. The Yorktown formation, which averages 310 feet in thickness and lies within 40 feet of the surface in the Back Bay area, is a confined aquifer underlying the Columbia formation which is a shallower, unconfined aquifer lying under the surface. All municipal wells are generally within the confined aquifer, while many domestic wells are within the unconfined aquifer.

All major groundwater quality criteria, with minor exceptions, have been found to be within applicable concentration standards. Saltwater intrusion has been found in deeper groundwater supplies. A small increase in overall nitrate concentrations in groundwater is evident and suggests the impact of agricultural activities. However, for the most part,

nitrate concentrations in the shallow regional aquifer are low in comparison with other agricultural areas. In general, groundwater quality in the Back Bay watershed is good.

B. Biological Resources

1. Vegetation and Habitat

The following is a description of the vegetation within the study area which includes the current refuge lands affected by the Sandbridge Road re-alignment, the parcel proposed for exchange to the Service, and the lands where stormwater basins will be located. Although most of the affected land is classified as upland, there is considerable diversity in vegetation due to past land uses and drainage patterns.

The majority of the above area is primarily forested with an understory of shrub vegetation. Portions of the effected area also include a small portion of an agricultural field, some former fields re-planted to forest types, a former lawn reverting to shrubs, and a portion of emergent wetland south of Sandbridge Road along Ashville Bridge Creek.

Dominant overstory species include red maple, bald cypress, sweet gum (*Liquidambar styraciflua*), and black gum (*Nyssa sylvatica*). Other forest species found on slightly higher lands include loblolly pine (*Pinus taeda*), laurel oak (*Quercus laurifolia*), white oak (*Q. alba*), tulip tree (*Liriodendron tulipifera*), southern magnolia (*Magnolia grandiflora*), black cherry (*Prunus serotina*), and hickory (*Carya spp.*). Understory of these wooded swamps and lowland forests are comprised of wax myrtle, flowering dogwood (*Cornus florida*), Virginia creeper (*Parthenocissus quinquefolia*), and poison ivy (*Rhus radicans*).

The wetland habitat affected by the road re-alignment proposal includes small areas immediately adjacent to Ashville Bridge Creek and Hell's Point Creek. The forested wetland is comprised of red maple, loblolly pine, cypress, and wax myrtle. The marshes adjacent to the creek consist primarily of cattail, and soft rush. The affected Hell's Point Creek wetlands also consist of red maple, wax myrtle, cattail, and some common reed (*Phragmites spp.*). The area east of the creek and south of Sandbridge Road is a portion of Back Bay NWR which has been planted to Atlantic white cedar.

For wetland discussion purposes, this EA will use the G-2 Alignment as delineated in the *Sandbridge Road Improvement Study* (competed in June of 1998). This particular alignment impacts 1.34 acres of wetlands on current refuge lands. This impact will be discussed in detail in the Environmental Consequences later in this document.

2. Waterfowl

Although the Back Bay area in general is noted for its wintering waterfowl populations and its sport fishery, there is significant wildlife use in the backwater areas of the refuge and adjacent lands. The marshes, wooded swamps, forests and adjacent agricultural lands provide a diversity of habitat especially for migratory birds.

Back Bay and the associated marshes and swamps provide important resting and migration habitat for a diverse waterfowl population. Many of these waterfowl species use the backwater areas for feeding and nesting habitat. Species include Canada geese (Branta canadensis), greater snow geese (Chen caerulescens), tundra swans (Cygnus columbianus), and 17 species of ducks. Notable dabbling duck species include Northern pintail (Anas acuta), mallards (A. platyrhynchos), black ducks (A. rubripes), gadwall (A. strepera), and wood ducks (Aix sponsa). Mallards, black ducks, wood ducks, and gadwall also breed on the refuge and study area in limited numbers. Most of the diving duck species utilize the more open and deeper waters of the Back Bay complex.

3. Additional Migratory Species

Over 250 species of birds have been observed on the refuge and study area. Most of the species are migratory and, therefore, may be present only a portion of the year. In addition to the waterfowl species mentioned previously, a variety of shorebirds, marsh and wading birds, water birds, raptors, and passerine birds (many of which are neo-tropical migrants) utilize the types of habitat affected in this proposal. Recently, the nest of an American bald eagle, a federally threatened species, was located on the refuge. This nest is monitored occasionally during the nesting season.

4. Mammals

Besides wintering a diversity of waterfowl, the marshes, swamps, and upland fringe habitats of the refuge and study area provide habitat for many mammals including white-tailed deer (Odocoileus virginianus), raccoon (Procyon lotor), gray fox (Urocyon cinereoargenteus), otter (Lutra canadensis), mink (Mustela vison), muskrat (Ondatra zibethicus), nutria (Myocastor coypus), bobcat (Lynx rufus), and marsh rabbit (Sylvilagus palustris). Many of these species, especially the furbearers, use the two creek corridors as they disperse throughout the area.

5. Fishery Resources

The fishery resource for the North Bay/Back Bay area has over the years reflected a diversity of species. Its importance for both recreational fishing and commercial fishing has fluctuated depending on salinity, turbidity (clarity), aquatic vegetation, and chemical makeup. In the specific proposal area freshwater fish species such as largemouth bass, white perch, crappie, bluegill, carp, catfish, and eels are commonly found in the open water in the vicinity of Asheville Bridge and Hell's Point Creeks

C. Socioeconomic Resources

1. Land Use

The study area is a relatively rural area between the residential beachfront development in Sandbridge and the rapidly expanding residential and commercial development of suburban Virginia Beach. Various land uses are interspersed within this road corridor.

They include agriculture, residential, commercial, and recreational. All of the refuge lands being considered for exchange are undeveloped forested uplands except for a small portion of agricultural field near the corner of Colechester Road and Sandbridge Road. There are also two small acreages of wetlands adjacent to the Ashville Bridge Creek and Hell's Point Creek bridges.

The study area falls within several zoning categories. Zoning south of Sandbridge Road is primarily agriculture and preservation. A strip north of Sandbridge Road is zoned business, while the remainder is zoned for residential uses of varying intensities. In the community of Sandbridge, the zoning is residential. Sandbridge has been developed for high density resort homes over the past two decades. Because of recent installation of a sewer system, build-out of remaining developable lots is expected in 3-4 years.

2. Economy

The economy of the study area is a mix of agriculture, recreational and or seasonally based commercial enterprises. The agriculturally-based economy is being replaced by residential development and commercial business. Agricultural activities are concentrated on the growing of grains, principally winter wheat, field corn, and soy beans while some local farmers operate truck farms providing locally grown fruits and vegetables to the local community.

Sandbridge is a residential/recreational community of about 1450 homes. During the summer months, over one-half of the dwelling units are occupied by non-resident property owners or short-term tenants. Income is derived in Sandbridge from rental of recreational properties or from sale of goods and services. Several businesses in Sandbridge and along Sandbridge Road support this seasonal population as well as the year round residents.

3. Social

The City of Virginia Beach continues to be one of the fastest growing coastal cities of the United States. Because of the high quality and diversity of its environmental resources, the City has long attracted residents and businesses. Its proximity to the naval and maritime facilities of Portsmouth, Norfolk, and Newport News, and specifically as the location of the Oceana Naval Air Station, Camp Pendleton State Military Reservation, Little Creek Naval Amphibious Base, Fort Story Army Post, Dam Neck Naval Weapons Center, and other military installations have made it an attractive location for military and civilian personnel and their families.

The City has undergone a period of phenomenal growth since incorporation in 1962. From 1960 to 1980, the population for all of Virginia Beach nearly tripled from 85,218 to 262,199. Current estimates now total 390,000 which is projected to reach 585,000 by the year 2010, an increase of 50%. Despite the phenomenal growth of the population of the City from 1960 to 1980, the population of the study area has experienced only modest growth during the same time period. With the exception of Sandbridge, the study area

supports a primarily rural population. However, the semi-rural atmosphere of the study area is attracting residents. In addition, once development saturates the northern portion of the City, the study area will absorb a greater percentage of the City's overall growth.

4. Historical and Archaeological Resources

Documented historic settlement of the Ashville Bridge Creek area dates from the second half of the 17th century onward, with several plantations occupying the mainland uplands along the edge of the proposed acquisition area. In the early 18th century, at least some of these had landings at the present wetland edge, and subsidiary plantations on islands within the present Back Bay Refuge. In later years the Sandbridge Road corridor evolved along the higher elevations between the upper, drier mainland and the barrier beach where Sandbridge is now located. There are no historic buildings on the subject lands however, an archaeological review will be undertaken on effected Service lands prior to be any exchange.

5. Recreation

Because of its scenic ocean beaches, marshes and bays, and accessible recreational opportunities, the City of Virginia Beach is a major summer tourist attraction. The beaches are the primary attraction for these tourists. The Back Bay area also provides opportunities for wildlife-oriented recreational activities.

Historically, the Back Bay region was well known for its waterfowl hunting and its fishing opportunities. Because the effected refuge lands within the study area are along the Sandbridge Road corridor, recreational activities are extremely limited. No refuge activities are provided or encouraged within this area. Fishing is one of the few recreational activities occasionally undertaken in the vicinity of Ashville Bridge Creek and Hell's Point Creek. There are no hunting programs on those portions of refuge lands involved in the exchange.

Some canoeing and kayaking activity also originates from launch areas in the vicinity of the Ashville Bridge Creek and Hell's Point Creek bridges. This is a popular area for birders or those interested in wildlife photography.

6. Aesthetics

The expanse of natural resources that characterize the refuge and study area are of immeasurable value. The diversity of habitats such as the beaches, dunes, extensive marshes and islands, bays and streams, swamps, woodlands, and farmlands all contribute to the scenic quality of Back Bay. Probably the most striking quality of the area to the refuge visitor is the long, unbroken beach/dune vista and extensive marshes afforded by the unspoiled coastal barrier. Currently, alterations in the study area are primarily agricultural in nature, with small areas of development. This limited residential and commercial development allows the area along Sandbridge Road to retain a certain degree of rural character.

IV. ENVIRONMENTAL CONSEQUENCES

The following is a brief discussion on the environmental consequences of the No Action and Proposed Action alternatives.

A. Alternative 1 - "No Action"

Under a No Action Alternative, the Service would not exchange existing Refuge lands for property currently owned by the City of Virginia Beach. The lack of a land exchange would reduce the City's flexibility in designing a safe, efficient roadway. In one area, the Refuge owns land on both sides of the existing road, thus making localized improvements very difficult. It should be noted that under the No Action Alternative, all the impacts discussed below would occur only on lands adjacent to the Refuge, not on Refuge lands themselves. Improvements to Sandbridge Road could be limited to minor curve realignment and straightening, widening of the shoulders in some areas, and placement of signs and markers.

Following is a brief discussion on the impacts of the No Action Alternative by the Service on selected environmental factors:

1. Physical Resources

a. Air and Noise Quality

Traffic volumes will continue to increase gradually through the corridor as the Community of Sandbridge completes its full build-out now that sanitary sewer installation has made every lot build able. According to the City of Virginia Beach's Long Term Traffic Study completed in September 1997, Sandbridge Road will meet the City's standards for adequate service through 2020 except for short periods of time during afternoon peak traffic loads. Air quality will show a slight decrease during construction related to minor road improvements as proposed in the Study, and routine maintenance. The principal pollutants would be carbon monoxide, nitrogen dioxide, and hydrocarbons. Dust from soil movement could also occur during construction and maintenance operations.

Without construction, noise will not increase except for that related to increased traffic along the road, and temporary increases as minor road improvements and routine maintenance activities are conducted. The average background noise level from cars, lawn mowers, chain saws, and other home care equipment could be expected to range from between 52 decibels up to 85 decibels. Proper planning so as to leave forested buffer strips can significantly and effectively reduce perceived noise levels. Noise tolerance is very subjective and will vary considerably from one person to another.

b. Soils

Under the No Action alternative disturbance of the hydric soils that dominate the area would be limited to the minor improvements proposed under the Long Term Study such

as curve realignment and shoulder widening. Compaction of soils and a minor increase in impermeability would occur.

c. Hydrology and Water Quality

No further alterations in hydrology would be expected under this alternative. Areas flooded by wind driven tides would continue to be seasonally inundated. Highway related runoff from storm events would continue to cause localized flooding. Untreated storm water will continue to drain directly into the Back Bay watershed carrying sediments, petroleum based products related to automobiles, and residential related nutrients with it.

2. Biological Resources

a. Vegetation and Habitat

Only minor alterations to the existing vegetation would occur under the No Action Alternative. This loss would be limited to those areas where curve realignment and shoulder widening is needed.

b. Wildlife

Wildlife will not be impacted directly by the No Action Alternative so much as by the potential increase in wildlife-auto related collisions as traffic volume on the road increases. The traffic volume increase will occur with or without improvements.

3. Socioeconomic Resources

a. Traffic

As noted above, traffic volume increases in the corridor are unrelated to this action. Full build-out of the Community of Sandbridge, increased tourist-related traffic, etc. will occur under both alternatives. The increases under the No Action Alternative would be expected to cause more delays and accidents due to existing poor road geometry, lack of shoulders, etc. than currently exists at lower traffic volumes, or would occur if improvements are made under the Proposed Action Alternative.

b. Land Use

The current residential/agricultural land use patterns in the Sandbridge Road corridor are not expected to change since City provided utilities are currently not available, and there are no known plans to extend them. The lands are generally below five feet MSL, and the soil types do not lend themselves to extensive development. Since much of this area lies within the 100 year flood plain, new development would probably incur the additional costs of required flood insurance, or incorporating additional engineering design to reduce the impact of flooding.

c. Economy

Lack of road improvements may deter some tourists from traveling to the Community of Sandbridge, but it would be a small number with little or no impact on the local economy.

d. Social

The current quality of life exhibited in southeastern Virginia Beach would not be impacted under this alternative. Existing lands would experience only minor alteration from the short term improvements, and the semi-rural atmosphere would continue unless zoning changes are enacted by the City.

e. Historical and Archaeological Resources

A cultural resources survey of the project area conducted by Coastal Carolina Research, Inc. for the City of Virginia Beach did not identify any historical or archaeological resources that would be impacted by this alternative.

f. Recreation

Under this alternative, there would be no expected changes to existing recreational opportunities, and few new opportunities would be added.

g. Aesthetics

Under the No Action Alternative, the rural, visually appealing nature of the Sandbridge Road corridor would remain relatively unchanged from its current appearance. The Community of Sandbridge would retain its small town, non-commercial character, and continue to appeal to people as an uncrowded place to relax and recreate.

B. Alternative 2- "Proposed Action"

Under the Proposed Action the Service would exchange title to approximately 20 acres of Refuge lands at various locations along Sandbridge Road for 24 acres of City land currently located within the Refuge approved acquisition boundary (Tract 7), and other lands as needed to make an equal value exchange. This alternative would allow the City to complete their current designed road improvements for Sandbridge Road, thereby reducing potentially hazardous driving conditions Under the Proposed Action the City would improve curve alignment along Sandbridge Road, and widen the existing road and shoulders. Road elevation would also be improved where flooding and poor drainage currently exists. Improved storm water management is also planned by the City on those lands acquired from the Service through the development of storm water treatment facilities where appropriate.

1. Physical Resources

a. Air and Noise Quality

Temporary increase in air pollution during construction will result from the operation of heavy equipment, and earth moving operations. Once construction is completed, impacts will be similar to the No Action Alternative since traffic loads will be identical.

Temporary increases in noise will occur during the construction of road improvements. After construction, noise levels will be similar to the No Action Alternative since traffic levels will be similar.

b. Soils

As discussed under Section III, Affected Environment -Soils, the dominant soil types underlying the project area are Tomotley Loam, Nawney Silt Loam, Backbay Mucky Peat, and Dragston Fine Sandy Loam. Most of these are hydric soils and will need to be replaced by imported fill or modified to support the roadbed. Some hydric soils would also be removed in areas where storm water management facilities are planned.

c. Hydrology and Water Quality

Hydrology in the road corridor would be slightly impacted by the replacement or modification of hydric soils to support construction of additional roadbed. Ashville Bridge, Hell Point Creek, and adjacent wetlands will still respond to water fluctuations resulting from rainfall, storm events, and wind tides as they currently do.

Under the proposed action, the road improvements would increase the extent of impervious surfaces in the corridor, and therefore increase the amount of storm water runoff slightly. Under this action however, improved roadside drainage ditches would be incorporated in the design, and the runoff would be treated, i.e. sediments removed and outfall rates controlled and dissipated so that overall there would be an improvement in water quality entering the watershed streams over the No Action Alternative. In addition, the land acquired in the exchange would be protected from development, and continue to function as a wetland with its potential to improve water quality.

2. Biological Resources

a. Vegetation and Habitat

Habitat loss related to approximately 20 acres of Refuge land exchanged for the City owned property will be minor due to the impacts associated with the existing road edge. The Refuge will benefit from the acquisition of Tract 7, which is relatively undisturbed habitat (Palustrine, forested and Estuarine, emergent marsh) when compared to the Refuge lands adjacent to Sandbridge Road.

b. Wildlife

Wildlife values on existing Refuge lands adjacent to Sandbridge Road are limited due to its proximity to the road. A bald eagle's nest is located on the Refuge in the vicinity of the project, but it is over a third of a mile away, and visually screened from the Road. No adverse impacts to the nest from construction related to the Proposed Action are expected. As noted under the No Action Alternative, wildlife-auto collisions will continue because of increased traffic flows in future years, but may be at a lower level for the proposed action due to improved road geometry and sight alignment.

3. Socioeconomic Resources

a. Traffic

Under the proposed action, there will be temporary traffic delays associated with the actual road construction. Once construction is finished, traffic flow and safety should be improved over the No Action Alternative because of improvements to road geometry, sight alignment, drainage and signage. With the road elevated to six feet MSL, there will be less flooding of the road during wind tide events, and it will function better as a hurricane evacuation route.

b. Land Use

Under this alternative, lands that were formerly refuge will be converted to roadbed and right of way. There will be more paved area and therefore more impervious surface. Some of this loss will be offset by restoring unused portions of the existing roadbed to more natural conditions. The balance will be off set by the Refuge acquisition of Tract 7, and other lands as necessary, which will protect these lands from possible future development.

Land use restrictions as discussed under the No Action Alternative would also apply to this Action, so no further land use changes would be expected

c. Economy

An improved Sandbridge Road will in and of itself have little economic impact on the corridor. If amenities are added as described under the Recreation and Aesthetics Sections, it may cause an increase in eco-tourism related visits that could result in economic benefits to the area.

d. Social

The quality of life as described under the No Action Alternative could actually improve under the Proposed Alternative since traffic hazards would be reduced by the road realignment, and traffic flow could improve.

e. Historical and Archaeological Resources

As noted in the No Action alternative, a cultural resources survey of the project area conducted by Coastal Carolina Research, Inc. for the City of Virginia Beach did not identify any historical or archaeological resources that would be impacted by this alternative.

f. Recreation

Under the Proposed Action, bike paths/lanes could be incorporated into the road realignment. The realignment would also make it possible to include pull outs for wildlife observation and education, as well as, canoe and kayak access to Ashville Bridge Creek and Hell Point Creek as part of the City's recently approved Open Space Plan.

g. Aesthetics

An improved Sandbridge Road could be more aesthetically pleasing if such considerations were incorporated into its initial design. Various civic and conservation organizations have proposed Sandbridge Road be designated for Scenic By-way Status which would include conditions and funding for restoration and beautification of the right of way.

4. Cumulative Impacts

"Cumulative" impact is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal and non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Sandbridge Road and the proposed road improvements are components of a regional transportation network of major and secondary roadways in the City of Virginia Beach. Development will continue to occur throughout the region, regardless of the proposed Sandbridge Road improvements. This is due to the fact that existing zoning allows for it, and the area is attractive for residential development for reasons that are not related to the proposed roadway improvements. Although the proposed roadway improvements alone would have no substantive effect on the pace of future development within and around the Sandbridge Community, it has been suggested by the City, that additional roadways may need to be constructed and improved in neighboring areas, if regional growth continues.

The design of the regional road system will need to take into account lands that are protected from development such as properties within the Back Bay NWR. To protect important wildlife habitat and avoid fragmentation of Refuge lands the Refuge is continuing to acquire land within the project area. The Service's purchase of a portion of the vacated Ferrell Parkway right of way from the City and the purchase of the 43-acre Lotus Creek property are examples of Refuge acquisitions that will help decrease the demand for new or expanded roadways because it

preserves an area slated for high density development. The Service has concluded that both of these acquisitions, taken either individually or cumulatively will not have a significant effect on the human environment. Under Service NEPA procedures, these acquisitions qualify for a categorical exclusion, thus, no further environmental analysis is necessary.

When improvements to Sandbridge Road were considered in the Sandbridge Road Corridor Study, the City proposed a new two lane collector in the western part of the study area. As an invited member of the Study Planning Team, the Service offered no objection to a proposal for an additional collector on the western end, but the Refuge made it clear that commenting on roads in that area was beyond the scope of its jurisdiction. Predicting future growth patterns and transportation needs is not possible at this time and ongoing development will most likely be addressed through the City's Master Street and Highway Plan

By reducing hazardous conditions along Sandbridge Road, delays and congestion currently occurring during peak tourist season would be expected to improve. With roadway improvements accessibility between home, work, school, shopping and other destinations outside the immediate Sandbridge community would be enhanced for Sandbridge residents.

The proposed road improvements will have only incremental impacts on aesthetics although improving the existing road may diminish the overall need for a future new access road into the Sandbridge community. To this end, without a major new throughway the small town non-commercial character of Sandbridge should continue. Preserving the community in a residential non-commercial setting has value for many residents while others may view maintaining Sandbridge's residential character as an economic loss. With or without the road improvements it is anticipated that incremental growth of residential homes will continue due to the recent addition of a public waste water treatment facility.

The proposed road improvements will have only small incremental impacts on natural resources including vegetation and wildlife and the impacts tend to be localized. As identified in the previous chapter, overall the Refuge will gain habitat through the land exchange resulting in a net benefit for wildlife. Regulatory requirements mandate that the proposed project comply with federal and state regulations to minimize cumulative and individual impacts to water quality. The road improvements include storm water treatment facilities which will enhance water quality. Noise and air quality impacts are not anticipated although if road improvements reduce congestion and delays there should be some net beneficial impact on both noise and air quality.

V. PREPARERS AND REVIEWERS

Primary Planning Team

Paul Caldwell, Deputy Refuge Manager, U.S. Fish and Wildlife Service, Back Bay National Wildlife Refuge, Virginia Beach, Virginia.

William Archambault, Regional Environmental Coordinator, U.S. Fish and Wildlife Service, Northeast Regional Office, Hadley, Massachusetts

Walt Quist, Compliance and Review Specialist, Division of Realty, U.S. Fish and Wildlife Service, Northeast Regional Office, Hadley, Massachusetts

VI. CONSULTATION AND COORDINATION

During the planning stages of this proposal, the Service was in direct contact with a variety of governmental agencies, conservation organizations, landowners, and interested public. Through this contact early in the planning process, the Service was able to identify the needs and concerns of the affected individuals and organizations.

Listed below are the agencies and organizations contacted during the preparation of this Environmental Assessment:

Federal

Virginia Congressional Delegation
- Honorable John Warner, U.S. Senate
- Honorable George Allen, U. S. Senate
- Honorable George Schrock, House of Representatives

U.S. Fish and Wildlife Service, Virginia Field Office

State

Department of Environmental Quality
Department of Game and Inland Fisheries
False Cape State Park
Natural Heritage Program

City
Mayor
Virginia Beach City Council
City Manager
City Solicitor
Agriculture Director
Environmental Coordinator
Planning Department

Conservation/Civic Organizations

Virginia Beach Chapter - National Audubon Society
Cape Henry Chapter - National Audubon Society
Back Bay Restoration Foundation.
Friends of Back Bay
Sandbridge Civic League
Lago Mar Civic League
The Nature Conservancy
The Conservation Fund

VII. REFERENCES

City of Virginia Beach. 1997. *Comprehensive Plan for the City of Virginia Beach, Virginia*

Cowardin, Lewis M., V. Carter, F.C. Golet, and E.T. LaRoe, 1979 *Classification off Wetlands and Deepwater Habitats of the United States*,

U.S. Fish and Wildlife Service. 1989. *Final Environmental Assessment, Proposal to Expand the Boundary of the Back Bay National Wildlife Refuge, Virginia Beach, Virginia.*

U.S. Department of Agriculture. Soil Conservation Service.1985. *Soil Survey of Virginia Beach, Virginia*

Wiley and Wilson. 1998. *Sandbridge Road Corridor Study, Natural Resources Technical Report*

Wiley and Wilson, 1997. *Sandbridge Road Corridor Study - Long Term Traffic Study.*

APPENDIX

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM
BACK BAY NWR - CITY of VIRGINIA BEACH, VA LAND EXCHANGE

PROJECT TITLE: Sandbridge Road Corridor Improvement Land Exchange Between the City of Virginia Beach and the Back Bay National Wildlife

Originating Person and Station Name: Paul D. Caldwell, Deputy Refuge Manager, Back Bay NWR

Telephone and Facsimile Numbers: 757/721-2412; Fax 757/721-6141

Date: March 19, 2001

I. **Service Activity (Program):** Refuges and Wildlife: Endangered Species

Program: Back Bay National Wildlife Refuge (Back Bay NWR)

II. **Geographic Area Including Name of County/City and State and Specific Project Location**

Southeastern area of the City of Virginia Beach, Virginia, along the Sandbridge Road traffic corridor from its intersection with Atwood Town Road to its terminus at Sandpiper Road.

III. **Proposed Activity:**

Under the proposed activity, the Service would exchange title to approximately 20 acres of Service lands located along Sandbridge Road in exchange for the Service acquiring 24 acres of City lands currently located within the Refuge's approved acquisition boundary. This alternative would allow the City to complete their current designed road improvements for Sandbridge Road, thereby reducing hazardous driving conditions Under the proposed action the City would improve curve alignment along Sandbridge Road, and widen the existing road and shoulders. Road elevation would also be improved where flooding and poor drainage currently exists. Improved storm water management is also planned by the City on lands acquired from the Service through the development of storm water treatment facilities where appropriate.
Provide a detailed description of the proposed project or attach a work plan

IV. **Pertinent Species and Habitat Within Action Area**

A. **Action area:** The approximately 6.5 mile long Sandbridge Road corridor from the intersection with Atwoodtown Road at the west end to the intersection with Sandpiper Road at its eastern terminus would be affected by road improvements. In some areas, the Refuge boundary fronts on the road corridor, and these lands, which would be directly impacted by construction activities related to road improvements, would be exchanged for City owned lands within the Refuge's approved acquisition boundary.

B. Pertinent Species and Habitat Within Action Area

Bald Eagle

V. <u>Determination of Effects</u>

1.03 Explanation of the adverse and beneficial effects of the action on species and/or critical habitat listed above.

The bald eagle nest is located approximately 0.4 miles from the nearest section of the Sandbridge Road corridor subject to construction improvements. The nest is not currently visible from the road, and will remain visually isolated from the road after construction.

B. Explanation of actions to be implemented to reduce adverse effects:

The City, as part of their permitting process, will be required to review potential impacts to endangered species prior to actual construction start-up. Seasonal restrictions to minimize noise impacts during the nesting season could be considered.

VI. <u>Effect Determination and Response Requested</u>

A. Listed species/designated critical habitat:

Field Station Determination	Species Name(s)	Ecological Services Response Requested (check one)
No effect		_____None Needed
Is not likely to adversely affect PDC	**Bald Eagle**	**____XX___Concurrence** KLM
Is likely to adversely affect		_____Formal Consultation

Field Station Determination	Critical Habitat For (list species)	Ecological Services Response Requested (check one)
No effect		_____None Needed
Is not likely to destroy or adversely modify		_____Concurrence
Is likely to destroy or adversely modify		_____Formal Consultation

B. Proposed species/proposed critical habitat/candidate species:

Field Station Determination	Species Name(s)	Ecological Services Response Requested (check one)
No effect		_____None Needed
Is not likely to adversely affect		_____Concurrence
Is likely to jeopardize		_____Conference

Field Station Determination	Critical Habitat For (list species)	Ecological Services Response Requested (initial/check one)
No effect		_____None Needed
Is not likely to adversely affect		_____Concurrence
Is likely to destroy or adversely modify		_____Conference

VII. Reviewing Ecological Services Field Office Evaluation

A. Concurrence____XXX___ Nonconcurrence_____

B. Formal consultation required_____

C. Conference required_____

D. Informal conference required_____

E. Remarks:

__(signed) Karen L. Mayne_____ ___3/20/01_____
Supervisor, Virginia Field Office Date