



# United States Department of the Interior

OFFICE OF THE SECRETARY

WASHINGTON, D.C. 20240

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Dr. John H. Zirschky  
Acting Assistant Secretary (Civil Works)  
Department of the Army  
Washington, D.C. 20310

Dear Dr. Zirschky:

In accordance with the provisions of the December 21, 1992, Clean Water Act Section 404(q) Memorandum of Agreement (MOA) between the Department of the Interior and the Department of the Army (Army), I am requesting your review of the U.S. Army Corps of Engineers, New York District (District) Engineer's decision to issue a Section 404 permit for the project described in Public Notice No. 93-09170-RS.

This decision would modify Army Permit 16093, issued on May 16, 1991, and would authorize the applicant, Hartz Mountain Development Corporation, to discharge fill in wetlands for the purpose of constructing a 2,000-unit housing development in the Hackensack Meadowlands, Town of Secaucus, Hudson County, New Jersey. The proposed project, known as the Villages at Mill Creek, would result in the direct loss of 68 acres of estuarine emergent wetlands. Compensatory mitigation for the proposed project would involve enhancement of 124 acres of existing wetlands through re-grading and planting, enhancement of tidal flushing of 47.7 acres of wetlands, and preservation of 72.2 acres of existing wetlands.

On September 1, 1994, the Fish and Wildlife Service (Service) received the District Engineer's notice of intent to proceed with issuance of the modified permit. After a thorough review of background information on the project, I have determined that this case warrants elevation in accordance with the criteria found in Part IV of the 1992 MOA (Elevation of Individual Permit Decisions). Specifically, I have concluded that the proposed project will have substantial and unacceptable adverse effects on aquatic resources of national importance.

The District Engineer's proposed permit decision will allow filling of wetlands within the Hackensack Meadowlands that would lead to substantial direct and cumulative adverse impacts on nationally significant waterfowl, wading bird, and shorebird populations. The Department of the Interior, acting through the Service, is vested with the authority and obligation to protect, conserve, and enhance the Nation's fish and wildlife resources. These matters fall within our jurisdiction under the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 et seq.), Section 404(m) of the Clean Water Act, the Fish and Wildlife Act of 1956 (70 Stat. 1119; 16 U.S.C. 742), and the Migratory Bird Treaty Act (40 Stat. 755; 16 U.S.C. 703-712) as amended, to implement international treaties regarding the conservation of migratory bird populations.

Significant among these international agreements is the North American Waterfowl Management Plan, a joint agreement between the United States and Canada to protect and enhance waterfowl habitat. The North American Waterfowl Management Plan of 1986 identifies the Hackensack Meadowlands as "priority habitat" for North American waterfowl and places the Hackensack Meadowlands within a "key priority habitat range"

along the Atlantic coast. The North American Waterfowl Management Plan was established to reverse the decline of waterfowl by establishing goals for conserving wetland habitat for waterfowl and other wetland-dependent wildlife. The loss and degradation of waterfowl habitat has been identified as the major waterfowl management problem in North America.

The Hackensack Meadowlands currently function as an important corridor for migratory birds. In general, New Jersey is widely recognized as an important migratory bird concentration area. Geologic features such as the Delaware and Hudson rivers, Atlantic Coast, and Kittatinny Ridge provide natural navigational corridors for migratory birds. Additionally, the diversity of physiographic regions and vegetative cover types in New Jersey provides essential habitat for a wide variety of migratory and resident bird species. The State's coastal and freshwater wetlands are particularly important to migratory shorebirds, waterfowl, and wading birds. While the southern portion of New Jersey supports extensive areas of estuarine wetlands, the Hackensack Meadowlands are the only significant area of remaining estuarine emergent wetlands in New Jersey north of the Raritan Bay, representing over ninety percent of the remaining estuarine emergent wetlands in northern New Jersey. The survival of migrating birds depends on the availability of suitable habitat throughout the Atlantic flyway. The Hackensack Meadowlands have already lost over 12,000 of wetlands due to human encroachment (over 60 percent of the historic wetland resources of the area). Therefore, the role of the remaining wetland resources of the Hackensack Meadowlands in providing suitable habitat for wetland dependent migratory birds in northern New Jersey is all the more important.

The proposed project would result in a net loss of estuarine wetland acreage that currently provides high quality migratory bird habitat, and would contribute to the continuing loss of wetland area and value in the Hackensack Meadowlands. This loss of wetland acreage and value is unacceptable in light of the cumulative loss of wetlands that has already occurred and that may occur from other reasonably foreseeable future development proposals in the Hackensack Meadowlands. Moreover, the decision documents do not adequately evaluate these cumulative impacts or even provide any documentation of their scope. Additionally, the type of compensatory mitigation proposed by the applicant (wetland enhancement) would merely convert one type of high quality habitat to another, and would not result in the substantial increase in overall habitat value necessary to offset the adverse impacts of the proposed project. Therefore, the many species that are already fully utilizing the existing wetlands on the project site would not benefit. Further, the proposed project would result in a net loss of wetland acreage, to the detriment of species that require large contiguous blocks of wetland habitat to satisfy their life requisites.

The adverse impacts to aquatic resource of national importance and nationally significant fish and wildlife resources that would result from this proposed project are also unacceptable in light of the applicant's failure to demonstrate that less environmentally damaging practicable alternatives are not available for this non-water dependent project. Specifically, the applicant has not presented adequate documentation to support the position that the minimum viable size for a housing project that would meet the basic project purpose is 2,000 units. Additionally, the applicant's alternatives analysis only considered sites consisting of large contiguous blocks of vacant land, and did not consider sites with redevelopment potential or the possibility of constructing the proposed project

on a number of smaller parcels. Further, the criteria used by the applicant to evaluate alternative sites were biased to favor the applicant's preferred site.

As you know, the Department of the Interior previously requested higher level review of this proposed project in April 1989, and the Headquarters of the Army Corps of Engineers (HQUSACE) issued findings regarding this case on July 25, 1989. As noted in the August 17, 1989, memorandum from the Assistant Secretary of the Army (Civil Works) to the Director of Civil Works, the guidance and information contained in the HQUSACE findings regarding the alternatives analysis and mitigation provisions of the Section 404(b)(1) Guidelines is applicable to all Section 404 permit applications. In fact, the HQUSACE findings in the original Hartz Mountain Section 404(q) elevation have helped shape national policy on issues concerning the practicable alternatives and mitigation provisions of the Section 404(b)(1) Guidelines for over five years. Therefore, I am concerned that the District Engineer appears to have reached a permit decision contrary to the HQUSACE guidance.

Based on the high values of the project site wetlands, the extensive cumulative loss of wetlands in the Meadowlands, and the documented availability of alternative project sites, I request that the District be directed to deny issuance of the permit modification for the Villages at Mill Creek project, and not grant any extension to the May 1991 permit issued to the applicant.

If a permit is ultimately issued for this project, the District should require the applicant to develop a revised plan that provides compensatory mitigation for all adverse impacts associated with the proposed project, including replacement of those wetland functions associated with the loss of wetland area.

The Service remains available to assist the District in conducting any additional studies that may be necessary to accurately quantify the impacts of the proposed project and to *determine appropriate mitigative measures.*

Enclosed is additional information addressing these and other issues relating to the proposed permit decision. Please do not hesitate to contact me if you have any questions.

Sincerely,

/sgn/ George T. Frampton Jr.

George T. Frampton, Jr.  
Assistant Secretary for Fish  
and Wildlife and Parks

Enclosure

**ASSISTANT SECRETARY FOR FISH AND WILDLIFE AND PARKS  
EVALUATION AND REQUEST FOR REVIEW**

**HARTZ MOUNTAIN DEVELOPMENT CORPORATION  
*Villages at Mill Creek***

**PROJECT DESCRIPTION**

The Hartz Mountain Development Corporation (Hartz Mountain) proposes to fill 68 acres of estuarine intertidal emergent wetlands for the purpose of constructing a 2,000-unit, large-scale, high density, housing development (the Villages at Mill Creek) adjacent to Mill Creek in the Hackensack Meadowlands, Town of Secaucus, Hudson County, New Jersey. The applicant proposes to compensate for wetland losses by enhancing 124.6 acres of wetlands, increasing tidal flow to 47.7 acres of wetlands, and preserving 72.2 acres of existing wetlands within the Hackensack Meadowlands.

The New York District Corps of Engineers (District) proposed to issue a permit in 1989 for the Hartz Mountain development. However, the Department of Interior (Interior) and Environmental Protection Agency (EPA) referred the permit decision to the Department of Army for higher level review. Army, through Corps Headquarters, subsequently referred the matter back to the District with additional guidance for reevaluating the permit decision. The District issued the permit in 1991, at which time the EPA initiated a 404(c) action to prohibit the discharge of fill material at the site. The EPA discontinued the 404(c) process in 1993 contingent upon the applicant reducing the area of fill to 68 acres and increasing the amount of compensatory mitigation. The current project is a modification to the 1991 Corps permit, and reflects the results of EPA's negotiations with the applicant.

**AQUATIC RESOURCES OF NATIONAL IMPORTANCE**

Regional Resources

The Hackensack Meadowlands comprise a 32-square-mile area in the floodplain of the Hackensack River in Bergen and Hudson Counties, New Jersey. Approximately 12,000 acres of the original wetland resources of the Meadowlands have been filled for solid waste landfills, and for industrial, commercial, residential, and transportation uses, as well as for other purposes. Approximately 8,200 acres of estuarine and palustrine wetlands remain in the Hackensack Meadowlands, making it the largest remaining brackish wetland complex in northern New Jersey. The National Wetlands Inventory (Tiner, 1985) estimates that the Meadowlands comprise 91.9% of the remaining estuarine wetlands in the four counties of northeastern New Jersey.

The dominant vegetation in over half of the wetlands in the Hackensack Meadowlands is common reed (*Phragmites australis*). Contrary to the widely-held belief that all wetlands dominated by common reed provide low value habitat for fish and wildlife, the common reed wetlands of the Hackensack Meadowlands support diverse and abundant fish and wildlife populations. This is due in part to the fact that the Hackensack Meadowlands represent the last significant block of estuarine habitat in northern New Jersey. Additionally, the stands of common reed in the Hackensack Meadowlands are interspersed with many small tributaries, small channels and pockets of open water and mudflats. This interspersed open water and mudflat with the dense cover provided by the common reed provides essential feeding, resting and breeding habitat for many species of migratory birds, including passerines, waterfowl, shorebirds, wading birds, and raptors. The dense cover provided by the common reed also provides protection from wind and predators for migrating and wintering waterfowl.

The habitat quality of the Hackensack Meadowlands is already high, and recent advances in sewage treatment and stormwater and solid waste management, are resulting in improved water and habitat quality. This trend is expected to continue for the foreseeable future, and will result in the steady long-term improvement in the productivity of the Hackensack Meadowlands ecosystem, provided that the ecosystem's wetland base is not reduced in size by further development.

In general, New Jersey is widely recognized as an important migratory bird concentration area. Geologic features such as the Delaware and Hudson Rivers, Atlantic Coast, and Kittatinny Ridge provide natural navigational corridors for migratory birds. Additionally, the diversity of physiographic regions and vegetative cover types in New Jersey provides essential habitat for a wide variety migratory and resident bird species. The State's coastal and freshwater wetlands are particularly important to migratory shorebirds, waterfowl, and wading birds.

While the southern portion of New Jersey supports extensive areas of estuarine wetlands, the Hackensack Meadowlands represent the only significant area of remaining estuarine wetlands in New Jersey north of the Raritan Bay. The Meadowlands currently function as an important corridor for migratory birds, and have been designated as one of New Jersey's Key Migratory Bird Corridors by the New Jersey Audubon Society, due to the significance of the Meadowlands in terms of their geographic location and the quality of their wetland habitat (Dunne et al., 1989).

The size and quality of the Hackensack Meadowlands, along with their location, make these wetlands especially valuable to migratory waterfowl of the Atlantic Flyway. The international importance of the Meadowlands is underscored in the North American Waterfowl Management Plan, produced jointly by the United States and Canada in 1986. This plan identifies the Hackensack Meadowlands as "priority habitat" for North American waterfowl and places them within a "key priority habitat range" along the Atlantic coast. The North American Waterfowl Management Plan was established to reverse the decline of waterfowl

by establishing goals for conserving wetland habitat and restoring waterfowl populations. The loss and degradation of waterfowl habitat has been identified as the major waterfowl management problem in North America.

The Meadowlands currently provide important migratory and wintering habitat for over 20 species of waterfowl, 40 species of shorebirds, and 10 species of raptors. Overall, the Hackensack Meadowlands Development Commission (HMDC) lists 253 species of birds as occurring in the Meadowlands, including 64 species that are known to nest in these wetlands (Appendix A). State-listed threatened and endangered migratory bird species that satisfy some or all of their life requisites in the Meadowlands include pied-billed grebe (*Podilymbus podiceps*), northern harrier (*Circus cyaneus*), yellow-crowned night heron (*Nycticorax violaceus*), American bittern (*Botaurus lentiginosus*), savannah sparrow (*Passerculus sandwichensis*), grasshopper sparrow (*Ammodramus savannarum*), sedge wren (*Cistothorus platensis*), and bobolink (*Dolichonyx oryzivorus*).

Many species of migratory birds have experienced population declines in recent decades, largely due to loss of habitat. In response to this growing concern, the Fish and Wildlife Service (Service) has developed a list of migratory bird species that breed in New Jersey and that have experienced significant population declines at the State, regional, or national level (Appendix B). Of the 79 species on this list, 67 species (85%) are known to occur in the Hackensack Meadowlands, and 28 species (35%) are known to breed in the Meadowlands. Of the 29 species identified as wetlands dependent on the Service's list, 24 species (83%) are known to occur in the Meadowlands and 13 species (45%) are known to breed in the Meadowlands.

The federally-listed endangered peregrine falcon (*Falco peregrinus*) is known to nest on bridges and other structures near the Meadowlands, and often feeds in the Meadowlands. The northern diamondback terrapin (*Malaclemys terrapin terrapin*) (a federal candidate species) also inhabits the wetlands of the Hackensack Meadowlands.

The Hackensack Meadowlands support 54 species of fish, and provides important nursery habitat for anadromous species such as alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), and striped bass (*Morone saxatilis*).

In recognition of the value of the natural resources of the Hackensack Meadowlands to the Nation, the EPA has designated the Hackensack Meadowlands as a National Priority Wetland Site. The EPA Priority Wetland list identifies the most important and vulnerable wetlands in the Nation, and is intended to focus attention on critical wetland resources requiring protection.

The District acknowledged the national significance of the Hackensack Meadowlands when it joined the EPA, National Oceanic and Atmospheric Administration (NOAA), New Jersey Department of Environmental Protection (NJDEP), and the Hackensack Meadowlands Development Commission (HMDC) in preparing a Special Area Management Plan (SAMP) for the Meadowlands. The 1988

Memorandum of Understanding for the development of the SAMP, signed by the above agencies, states: "the [Hackensack Meadowlands] District is a geographic area of special sensitivity requiring special attention and management as demonstrated by the State of New Jersey's establishment of the HMDC and, more recently, the joint effort by the EPA and the Corps to implement an Advanced Identification process in the District."

The Advanced Identification study was an interagency effort led by the District and the EPA to assess the functions and values of the Hackensack Meadowlands wetlands. The Service participated on an interagency team that used the Wetland Evaluation Technique (WET) as a basis for the Advanced Identification of the Hackensack Meadowlands. The Advanced Identification study, completed in 1992, classified 6,823 acres (89.5%) of the wetlands of the Hackensack Meadowlands as "generally unsuitable" for future fill; 122 acres (1.6%) were classified as "potentially suitable" for future fill; and 677 acres (8.9%) were classified as indeterminate. The Hartz Mountain "Villages at Mill Creek" project site was identified as generally unsuitable for fill.

Additionally, the February 2, 1994, draft of the Environmental Improvement Plan, prepared by HMDC as a component of the SAMP, states:

"This rare urban estuary is important not only on the local level, but also from a regional, national and global perspective. It contains vital breeding and migration habitat for hundreds of species of birds, fish, and other forms of wildlife. The health of this environment depends upon the countless numbers of plants, invertebrates, and micro-organisms which form the foundation of the ecosystem."

Based on the high habitat value of the wetlands for migratory birds and anadromous fish, and their recognized importance at the regional, national, and international levels, the Department concludes that the Hackensack Meadowlands wetlands are aquatic resources of national importance.

#### Site Specific Resources

The proposed project site (the IR-2 site) is a 131-acre wetland tract located adjacent to Mill Creek, a tributary to the Hackensack River. Much of the site is inundated by daily and/or monthly high tides. The vegetative cover of the IR-2 site consist of stands of common reed, interspersed with numerous pockets of salt marsh fleabane (*Pluchea purpurascens*), dwarf spike-rush (*Eleocharis parvula*), water smartweed (*Polygonum punctatum*), open water, and mud flats. Additionally, there are a number of small channels ranging from five to fifteen feet in width and approximately four feet in depth at high tide. These small channels are largely exposed at low tide. Remnant stumps of Atlantic white-cedar are visible in the deeper ditches, and provide structural diversity to the open water and intertidal mudflats.

As is true of the other common reed wetlands of the Hackensack Meadowlands, the interspersed creeks, small channels, and open water pockets among the stands of common reed greatly enhance the value of the project site wetlands to fish and wildlife. During high tides small fish retreat into the small creeks and channels to escape from larger predatory fish. During visits to the IR-2 site, Service biologists have observed that wading birds such as snowy egrets and great egrets congregate at the mouths of these creeks and channels as the tide falls to feed on the small fish forced out of the wetlands. The common reed wetlands also provide nesting habitat for species that are well suited to dense cover such as marsh wrens, swamp sparrows, common moorhens, and clapper rails. Additionally, migrating and wintering waterfowl congregate in the creeks, channels and open water areas because of the shelter from winter winds and predators provided by the tall common reed.

The emergent wetlands and open water areas on the IR-2 site are documented as providing valuable habitat for a large variety of fish and wildlife species. Site-specific studies of the IR-2 site support the evidence of habitat value gathered by Service biologists. An October 1992 ecological survey of the site conducted for the EPA by Gannett Fleming, Incorporated, entitled, "Site Survey Report, Ecological Studies, Hartz Mountain Development Corporation, Villages at Mill Creek" (hereafter referred to as the Gannett Fleming study) recorded 52 species of birds on the IR-2 site. This study also compared bird use of the IR-2 site to that of the adjacent *Spartina alterniflora* marsh created by the applicant as compensation for the Harmon Meadow development. While the number of individual birds observed during the spring and summer were reported to be higher for the *Spartina* marsh than the IR-2 site, the number of species observed during the spring and summer were similar, as were the number of species and the number of individuals of species observed during the fall migration and winter.

Fish species documented as using the IR-2 site by the Gannett Fleming study included important forage species such as mummichogs (*Fundulus heteroclitus*), banded killifish (*Fundulus diaphanus*), and inland silverside (*Mendidia beryllina*), and anadromous striped bass. A January 1990 study prepared by TAMS Consultants, Incorporated, for the applicant also reported the migratory fish species blueback herring and American eel (*Anguilla rostrata*) from Mill Creek. Overall, these studies support the conclusion that the IR-2 site currently provides valuable habitat for a wide variety of fish and wildlife.

The wetlands on the IR-2 site are an integral part of the Hackensack Meadowlands, and are virtually indistinguishable from other reed-dominated wetlands in the Meadowlands in terms of fish and wildlife habitat value and other wetland functions and values. The high value of the site's wetlands to migratory birds of the Atlantic Flyway and anadromous fish, together with their functioning as an integral part of the Meadowlands wetlands complex, has led the Department to conclude that the wetlands of the project site are also aquatic resources of national importance.



## **SUBSTANTIAL AND UNACCEPTABLE ADVERSE IMPACTS**

The project will result in substantial and unacceptable adverse impacts to fish and wildlife through direct habitat loss, and the cumulative loss of habitat when considered with the effects of other projects. These losses will not be fully compensated by proposed wetland enhancement and preservation.

### **Direct Habitat Loss**

The proposed project, including the proposed mitigation, would result in the direct loss of 68 acres of wetlands and open waters that provide important nesting, feeding, and resting habitat for many species of fish and wildlife, particularly migratory waterfowl, wading birds, and passerine birds. The elimination of all fish and wildlife values on 68 acres of wetlands is a substantial adverse impact, as is the loss of 68 acres of wetlands area, given the scarcity of large blocks of estuarine marshes in the northern New Jersey area, and the fragmentation of the Meadowlands.

### **Cumulative Habitat Loss**

The adverse impacts of the proposed project must also be considered in the context of past development-related wetland losses and reasonably foreseeable future losses. Approximately 60 percent (12,000 acres) of the historic wetland base of the Hackensack Meadowlands has already been lost due to human encroachment. The HMDC estimates that over 1,600 acres of wetlands have been filled for sanitary landfills - most of these prior to 1972. More recently, approximately 525 acres have been filled for various development projects, including over 150 acres as a result of projects constructed by the applicant. Additionally, 92 acres were filled for the construction of the New Jersey Turnpike, and 148 acres were filled for the construction of the Meadowlands Sports Complex. In the foreseeable future, the proposed SAMP would facilitate filling an additional 787 acres of wetlands in the Hackensack Meadowlands for various residential, commercial, office, and transportation projects.

It is evident that the proposed Villages at Mill Creek project would contribute to the already significant cumulative loss of wetlands that has occurred, and that will likely continue to occur due to non-water dependent development. The loss of another 68 acres of wetlands will contribute to the continuing decline of available habitat for, and cumulative impacts on, migratory waterfowl in the Hackensack Meadowlands, and would be contrary to the goals of the North American Waterfowl Management Plan. Additionally, continued loss of wetland acreage in the Hackensack Meadowlands would adversely affect species such as northern harrier that require large blocks of contiguous wetland habitat to fulfill their life requisites.

### **Adequacy of Proposed Mitigation**

As compensatory mitigation for the loss of 68 acres of wetlands associated with this proposed project, Hartz Mountain proposes to enhance 124.6 acres of existing wetlands, increase tidal flow over 47.7 acres of wetlands, and preserve 72.2 acres of wetlands. As discussed below, the proposed

compensation would not reduce project impacts below the "substantial and unacceptable" threshold.

This compensatory mitigation would occur on-site and at three off-site locations: the Anderson Creek, South Secaucus, and Meadowlark sites. The Anderson Creek site is very similar to the IR-2 site. It is dominated by common reed but exhibits more structural diversity due to the presence of more abundant pocket water and channels. The dominant vegetation on the South Secaucus site also is common reed, although there is a salt meadow hay (*Spartina patens*) understory on this site. The Service has not inspected the Meadowlark mitigation site, but understands that the habitat characteristics of the site are similar to the other mitigation sites and the IR-2 site.

The Service is concerned that 1) the proposed compensatory mitigation will be carried out on sites already of high value to fish and wildlife; 2) the proposed enhancement will yield little gain in value; 3) there will still be a significant net loss in wetland area; and 4) there are risks associated with the proposed enhancements.

**High Existing Habitat Values.** Throughout the review of this proposed project the Service, EPA, and National Marine Fisheries Service (NMFS) have consistently maintained that the proposed project and mitigation sites currently provide high quality habitat to a variety of fish and wildlife species, including many federal trust resource species, and that the sites perform other important wetland functions. These conclusions are supported by the results of Advanced Identification study, which classified the IR-2 site, Anderson Creek site, South Secaucus Site, and portions of the Meadowlark site as "generally unsuitable for future fill." These classifications were based in part on the high ratings these sites received in the WET study for effectiveness in providing habitat for State-listed threatened and endangered species, waterfowl, and fish and wildlife in general.

The Gannett Fleming study was based on independent surveys of water quality, benthic and epibenthic macroinvertebrates, fish, and birds on the IR-2 site, South Secaucus site, Anderson Creek site, and an existing mitigation site known as the Western Brackish Marsh. This study further supports the conclusion that the existing wetlands on the IR-2 site, and the proposed mitigation sites currently provide valuable fish and wildlife habitat.

**Ineffectiveness of Enhancement Measures.** The proposed wetland enhancements would merely convert one valuable wetland type to another. In addition, anticipated long-term improvements in water quality in the Hackensack Meadowlands are expected to continue to gradually increase habitat quality. Moreover, the long-term trend in the Meadowlands shows the conversion from the historic freshwater system to the current brackish system, eventually leading to a more estuarine environment. For example, many areas of the Meadowlands are already beginning to change from marshes dominated by common reed to *Spartina* marshes even without the applicant's proposed enhancement measures. The failure of the District to adequately assess the existing values of the proposed development and mitigation sites, and their failure to consider reasonably foreseeable natural changes in the habitat character of these sites, has resulted in an over-estimation of the anticipated benefits of the

compensatory mitigation program. Based on the information available, the Department concludes that the value of the existing wetlands on the IR-2 site and the proposed mitigation sites is considerably higher than reflected in the District's decision documents, and that the proposed compensatory mitigation would not result in a long-term increase in wetland values sufficient to offset project-related adverse impacts.

**Net Loss of Wetland Acres.** The type of compensatory mitigation proposed by Hartz Mountain (wetland enhancement) would result in a net loss of wetland acreage. Wetland enhancement would not benefit species (such as northern harrier) that require large contiguous blocks of habitat to satisfy their life requisites, nor species that are sensitive to human disturbance. Further, species such as marsh wrens, swamp sparrows, red-winged blackbirds, common moorhens, snowy egrets, and clapper rails are already making extensive use of the existing wetlands on the mitigation sites, and therefore would not benefit from conversion of these wetlands to a different type of wetland.

**Risk of Failure of Mitigation.** The TAMS reports did not indicate that the 63-acre Western Brackish Marsh mitigation site was only a portion of a total 151-acre mitigation project required by a 1983 Department of the Army permit issued to the applicant. This mitigation project is similar to the applicant's mitigation plans for the IR-2, South Secaucus, and Anderson Creek sites. The remainder of this mitigation project is located on Cromakill Creek, which was to be converted from common reed dominated wetlands to a mosaic of salt marsh cordgrass wetlands, open water, and uplands. Initial grading of the site has been completed; however, to date, attempts to establish salt marsh cordgrass on the site have been unsuccessful. Therefore, the success of the proposed wetland enhancement is far from assured. Although the District has included special conditions specifying that grading of the mitigation sites must precede filling of wetlands on the project site, and that the applicant post a bond to guarantee completion of the work at the mitigation sites, experience at the Cromakill Creek mitigation site suggests that successful completion of site grading does not ensure success of the compensatory mitigation, or that there will not be a considerable time period required for the desired vegetation to become established.

## RELATED CONCERNS

### Alternatives Analysis

The Service provided comments to the New York District regarding the most recent alternatives analysis for this proposed project in a letter dated May 8, 1990. This alternatives analysis is contained in two reports. The first report was prepared by Burchell and Listokin, Associates, dated November 1, 1989, entitled: *"Definition of Large Scale, High Density Housing Development and the Overall Housing Need in the Northeast New Jersey Housing Region 1."* This report concluded that a large scale, high density housing development in northeast New Jersey Housing Region 1 must have a minimum of 2,000 units at a density of 20 to 35 units per acre. The study also documented the need for all types of housing in the region.

The second report was an alternatives analysis prepared by Harvey S. Moskowitz in March 1990, entitled: *"Planner's Report - Section 404, Permit Program, Practicable Alternative Sites Analysis."* The study area for this alternatives analysis included the Region 1 Housing Area (Bergen, Hudson, and Passaic Counties), Hudson River Waterfront Region (Edgewater, West New York, Weehawken, Hoboken, and Jersey City), and municipalities adjacent to Region 1 including Nutley, Belleville, Bloomfield, Glen Ridge, East Orange, Irvington, and Newark. The report evaluated 63 sites, including the IR-2 site, that could potentially support a 2,000-unit housing development with 20-35 units per acre. The report concluded that there were no practicable alternatives to the applicant's proposed project site.

The Service noted in the May 8, 1990, letter that the New York District had relied heavily on reports prepared by the applicant. In reviewing these reports the Service noted that Hartz Mountain had supplied limited information to support their conclusion that the minimum viable size for the proposed project was 2,000 housing units. The selection of a 2,000-unit minimum project size limited the number of potential alternative sites for the proposed project. Additionally, the Service noted that Hartz Mountain had not investigated sites with redevelopment potential, nor did they consider the possibility of constructing the proposed project on more than one contiguous site. The Service's comments also noted that the criteria used to evaluate potential alternative sites weighed land use restrictions such as zoning more heavily than environmental considerations, and that wetland impacts were given more consideration on sites located outside the Hackensack Meadowlands than on sites located within the Meadowlands.

The conclusions of the Service regarding the alternatives analysis are supported by an October 1992 report prepared by Gannett Fleming, Incorporated, entitled: *"Planning / Alternatives Report, 404 Permit Review Land Use Evaluation, Hartz Mountain Development Corporation, Villages at Mill Creek."* This report noted that the applicant provided limited and inadequate justification for defining a large scale, high density, housing development as having a minimum size of 2,000 units. Additionally, the Gannett Fleming alternatives report found that the applicant's alternatives analysis did not fully explore the feasibility of meeting the project purpose through reconstruction or rehabilitation of existing or abandoned structures.

The Gannett Fleming alternatives report also concluded that the criteria used by the applicant to evaluate alternative sites were biased in order to favor the applicant's proposed site and to exclude potentially viable alternatives. For example, criteria related to zoning and land use were given undue deference in the site evaluation process, resulting in the elimination of otherwise practicable alternatives. Further, wetlands were not treated equally for sites located within the Hackensack Meadowlands and sites located outside the Hackensack Meadowlands. In the rating system used in the applicant's alternatives analysis, deductions were given to sites located outside the Hackensack Meadowlands if wetlands were present. No such deductions were applied to sites located within the Hackensack Meadowlands. In fact, Gannett Fleming stated in the alternatives report: "If the development potential of the IR-2 site was based on deducting wetlands, its development potential would be zero, since the site is 100% wetlands." When

the Gannett Fleming alternatives study corrected the biases in the applicant's alternatives analysis and re-evaluated the 63 sites, two were found to be potentially viable, less environmentally damaging, practicable alternatives to the IR-2 site.

This information was presented to the New York District for incorporation into the administrative record. Unfortunately, the District's August 1994 decision document makes scant reference to the findings of the Gannett Fleming alternatives report. In the only substantive reference to this report (pages 11 and 12 of the Memorandum for Record) the District defends the applicant's deference to local zoning restrictions over environmental concerns. The District's decision document contains the following statement:

"The Hartz Mountain Development Corporation requested Dr. Moskowitz review and comment on the Gannett Fleming report, and that he update his previous comment on the use of the two sites. Dr. Moskowitz stated that the two sites would be unlikely to receive zoning variances due to legal and practical considerations."

The District's August 1994 decision document does not indicate whether Hartz Mountain attempted to obtain zoning variances for these sites. The Service notes that the IR-2 site required numerous zoning variances, which were sought and received by Hartz Mountain, in order to accommodate the applicant's proposed project. Additionally, the District's August 1994 decision document does not address Service and Gannett Fleming concerns that the applicant's alternatives analysis: 1) did not provide adequate justification for establishing the minimum viable project size as 2,000 units; 2) did not investigate sites with re-development potential; and, 3) did not address the possibility of constructing the project on more than one contiguous site.

Based on the above, the Service concludes that the information accompanying the August 1994 draft permit does not demonstrate that the applicant has been able to rebut the presumption that less environmentally damaging practicable alternatives to the IR-2 site are available.

#### Cumulative Impacts Assessment

The District's decision documents make no reference to the 12,000 acres of wetlands that have already been lost from the Hackensack Meadowlands ecosystem (approximately 60 percent of the original wetland resources of the area). Moreover, the decision documents do not adequately evaluate the cumulative impacts of this proposed project in light of other reasonably foreseeable future development proposals. The proposed SAMP, of which the Villages at Mill Creek project is a component, would facilitate the filling of an additional 787 acres of wetlands for non-water-dependent housing, office, commercial, and transportation purposes. While the decision document does make several references to cumulative impacts associated with this proposed project, none of these statements provide any documentation of the scope of cumulative impacts considered.

The primary evidence that the District uses to support its conclusion that the proposed project, when considered in conjunction with past development and foreseeable future development proposals, would not result in significant cumulative impacts on the Hackensack Meadowlands ecosystem is that the proposed project is consistent with the Master Plan of the HMDC, the local zoning authority. The District concludes that projects in the Hackensack Meadowlands which conform to the HMDC Master Plan should have minimal cumulative adverse impacts.

The Service can find no supporting evidence for the assertion that the HMDC Master Plan prevents cumulative adverse environmental impacts. The current HMDC Master Plan, if fully implemented, would result in the loss of up to 3,300 acres of wetlands. The Service notes that the inconsistency between the current HMDC Master Plan and the requirements of the Section 404(b)(1) Guidelines was a driving force behind the initiation of the SAMP. Therefore, it is inappropriate to use approval of the proposed project by the HMDC as a substitute for a thorough consideration of cumulative impacts. The District should consider the cumulative impacts of the Villages at Mill Creek project in the context of historic wetland losses in the Hackensack Meadowlands, and the reasonably foreseeable future projects currently proposed via the SAMP.

## **RECOMMENDATIONS**

Based on the high values of the project site wetlands, the extensive cumulative loss of wetlands in the Meadowlands, and the documented availability of alternative project sites, I request that the District be directed to deny issuance of the permit modification for the Villages at Mill Creek project, and not grant any extension to the May 1991 permit issued to the applicant.

If a permit is ultimately issued for this project, the District should require the applicant to develop a revised plan that provides compensatory mitigation for all adverse impacts associated with the proposed project, including replacement of those wetland functions associated with the loss of wetland area.

The Service remains available to assist the District in conducting any additional studies that may be necessary to accurately quantify the impacts of the proposed project and to determine appropriate mitigative measures.

APPENDIX A

AVIAN SPECIES DOCUMENTED TO OCCUR IN THE  
HACKENSACK MEADOWLANDS

<u>Scientific Name</u>	<u>Common Name</u>
<u>Gaviidae - Loons</u>	
<i>Gavia immer</i>	Common Loon
<i>G. stellata</i>	Red-throated Loon
<u>Podicipedidae - Grebes</u>	
<i>Podiceps auritus</i>	Horned Grebe
<i>Podilymbus podiceps*</i>	Pied-billed Grebe
<u>Phalacrocoracidae - Cormorants</u>	
<i>Phalacrocorax auritus</i>	Double-crested Cormorant
<u>Anatidae - Waterfowl</u>	
<i>Cygnus olor*</i>	Mute Swan
<i>Olor columbianus</i>	Whistling Swan
<i>Branta canadensis*</i>	Canada Goose
<i>B. bernicla</i>	Brant
<i>Chen caerulescens</i>	Snow Goose
<i>Dendrocygna bicolor</i>	Fulvous whistling-duck
<i>Anas platyrhynchos*</i>	Mallard
<i>A. rubripes*</i>	American Black Duck
<i>A. strepera*</i>	Gadwall
<i>A. acuta</i>	Northern Pintail
<i>A. carolinensis*</i>	Green-winged Teal
<i>A. discors*</i>	Blue-winged Teal
<i>A. americana</i>	American Wigeon
<i>Spatula clypeata</i>	Northern Shoveler
<i>Aix sponsa*</i>	Wood Duck
<i>Aythya americana</i>	Redhead
<i>A. collaris</i>	Ring-necked Duck
<i>A. valisineria</i>	Canvasback
<i>A. marila</i>	Greater Scaup
<i>A. affinis</i>	Lesser Scaup
<i>Bucephala clangula</i>	Common Goldeneye
<i>B. albeola</i>	Bufflehead
<i>Clangula hyemalis</i>	Oldsquaw
<i>Melanitta fusca</i>	White-winged Scoter
<i>M. perspicillata</i>	Surf Scoter
<i>Oxyura jamaicensis*</i>	Ruddy Duck
<i>Lophodytes cucullatus</i>	Hooded Merganser
<i>Mergus merganser</i>	Common Merganser
<i>M. serrator</i>	Red-breasted Merganser
<u>Cathartidae - Vultures</u>	
<i>Cathartes aura</i>	Turkey Vulture

Appendix A. Continued.

<u>Scientific Name</u>	<u>Common Name</u>
<u>Accipitrinae - Kites, Hawks, Eagles</u>	
Accipiter gentilis	Northern Goshawk
A. striatus	Sharp-shinned Hawk
A. cooperii*	Cooper's Hawk
Buteo jamaicensis	Red-tailed Hawk
B. lineatus†	Red-shouldered Hawk
B. platypterus	Broad-winged Hawk
B. lagopus	Rough-legged Hawk
Haliaeetus leucocephalus	Bald Eagle
Circus cyaneus* <sup>b</sup>	Northern Harrier
<u>Pandioninae - Ospreys</u>	
Pandion haliaetus†	Osprey
<u>Falconidae - Falcons</u>	
Falco peregrinus#*	Peregrine Falcon
F. columbarius†	Merlin
F. sparverius*	American Kestrel
<u>Phasianidae - Pheasants</u>	
Phasianus colchicus*	Ring-necked Pheasant
<u>Ardeidae - Herons, Bitterns</u>	
Ardea herodias†	Great Blue Heron
Butorides striatus*	Green-backed Heron
Florida caerulea	Little Blue Heron
Bubulcus ibis	Cattle Egret
Casmerodius albus	Great Egret
Egretta thula	Snowy Egret
E. tricolor	Louisiana Heron
Nycticorax nycticorax*	Black-crowned Night-Heron
N. violaceus*†	Yellow-crowned Night-Heron
Ixobrychus exilis*	Least Bittern
Botaurus lentiginosus*	American Bittern
<u>Threskiornithidae - Ibises</u>	
Plegadis falcinellus	Glossy Ibis
<u>Rallidae - Rails, Coots</u>	
Rallus elegans	King Rail
R. longirostris*	Clapper Rail
R. limicola	Virginia Rail
Porzana carolina	Sora
Coturnicops noveboracensis	Yellow Rail
Gallinula chloropus*	Common Moorhen
Fulica americana*	American Coot



Appendix A. Continued.

<u>Scientific Name</u>	<u>Common Name</u>
<u>Charadriidae - Plovers</u>	
<i>Charadrius semipalmatus</i>	Semipalmated Plover
<i>C. vociferus*</i>	Killdeer
<i>Pluvialis dominica</i>	Lesser Golden-Plover
<i>Squatarola squatarola</i>	Black-bellied Plover
<u>Scolopacidae - Sandpipers</u>	
<i>Arenaria interpres</i>	Ruddy Turnstone
<i>Scolopax minor*</i>	American Woodcock
<i>Capella gallinago</i>	Common snipe
<i>Numenius phaeopus</i>	Whimbrel
<i>Bartramia longicauda*</i>	Upland Sandpiper
<i>Actitis macularia*</i>	Spotted Sandpiper
<i>Tringa solitaria</i>	Solitary Sandpiper
<i>T. melanoleucus</i>	Greater Yellowlegs
<i>T. flavipes</i>	Lesser Yellowlegs
<i>Catoptrophorus semipalmatus</i>	Willet
<i>Calidris canutus</i>	Red Knot
<i>C. melanotos</i>	Pectoral Sandpiper
<i>C. fuscicollis</i>	White-rumped Sandpiper
<i>C. bairdii</i>	Baird's Sandpiper
<i>C. minutilla</i>	Least Sandpiper
<i>C. ferruginea</i>	Curlew Sandpiper
<i>C. alpina</i>	Dunlin
<i>C. himantopus</i>	Stilt Sandpiper
<i>C. pusilla</i>	Semipalmated Sandpiper
<i>C. mauri</i>	Western Sandpiper
<i>C. alba</i>	Sanderling
<i>Limnodromus griseus</i>	Short-billed Dowitcher
<i>L. scolopaceus</i>	Long-billed Dowitcher
<i>Tryngites subruficollis</i>	Buff-breasted Sandpiper
<i>Limosa fedoa</i>	Marbled Godwit
<i>L. haemastica</i>	Hudsonian Godwit
<i>Philomachus pugnax</i>	Ruff
<u>Recurvirostridae - Avocets and Stilts</u>	
<i>Recurvirostra americana</i>	American Avocet
<i>Himantopus mexicanus</i>	Black-necked Stilt
<i>Phalaropus fulicarius</i>	Red Phalarope
<i>Phalaropus tricolor</i>	Wilson's Phalarope
<i>Phalaropus lobatus</i>	Northern Phalarope

Appendix A. Continued.

<u>Scientific Name</u>	<u>Common Name</u>
<u>Laridae - Gulls, Terns</u>	
Larus hyperboreus	Glaucous Gull
L. glaucoides	Iceland Gull
L. marinus	Great Black-backed Gull
L. fuscus	Lesser Black-backed Gull
L. argentatus	Herring Gull
L. delawarensis	Ring-billed Gull
L. ridibundus	Common Black-headed Gull
L. atricilla	Laughing Gull
L. philadelphia	Bonaparte's Gull
Sterna nilotica	Gull-billed Tern
S. forsteri	Forster's Tern
S. hirundo	Common Tern
S. dougallii <sup>a</sup>	Roseate Tern
S. albifrons <sup>a</sup>	Least Tern
S. maxima	Royal Tern
S. caspia	Caspian Tern
Chlidonias niger	Black Tern
Rynchops niger <sup>a</sup>	Black Skimmer
<u>Columbidae - Pigeons, Doves</u>	
Columba livia <sup>a</sup>	Rock Dove
Zenaida macroura <sup>a</sup>	Mourning Dove
<u>Cuculidae - Cuckoos</u>	
Coccyzus americanus	Yellow-billed Cuckoo
C. erythrophthalmus	Black-billed Cuckoo
<u>Tytonidae - Barn Owls</u>	
Tyto alba <sup>a</sup>	Barn Owl
<u>Strigidae - Owls</u>	
Otus asio <sup>a</sup>	Eastern Screech-Owl
Bubo virginianus	Great Horned Owl
Nyctea scandiaca	Snowy Owl
Asio otus	Long-eared Owl
A. flammeus <sup>b</sup>	Short-eared Owl
<u>Caprimulgidae - Goatsuckers</u>	
Chordeiles minor <sup>a</sup>	Common Nighthawk
<u>Apodidae - Swifts</u>	
Chaetura pelagica	Chimney Swift

Appendix A. Continued.

<u>Scientific Name</u>	<u>Common Name</u>
<b><u>Trochilidae - Hummingbirds</u></b>	
Archilochus colubris	Ruby-throated Hummingbird
<b><u>Alcedinidae - Kingfishers</u></b>	
Ceryle alcyon*	Belted Kingfisher
<b><u>Picidae - Woodpeckers</u></b>	
Colaptes auratus*	Northern Flicker
Melanerpes erythrocephalus†	Red-headed Woodpecker
Sphyrapicus varius	Yellow-bellied Sapsucker
Picoides villosus*	Hairy Woodpecker
P. pubescens*	Downy Woodpecker
<b><u>Tyrannidae - Flycatchers</u></b>	
Tyrannus tyrannus	Eastern Kingbird
T. verticalis	Western Kingbird
Myiarchus crinitus	Great Crested Flycatcher
Sayornis phoebe*	Eastern Phoebe
Empidonax flaviventris	Yellow-bellied Flycatcher
E. traillii*	Willow Flycatcher
E. minimus	Least Flycatcher
Contopus virens	Eastern Wood-Pewee
<b><u>Alaudidae - Larks</u></b>	
Eremophila alpestris*	Horned Lark
<b><u>Hirundinidae - Swallows</u></b>	
Tachycineta bicolor	Tree Swallow
Riparia riparia	Bank Swallow
Stelgidopteryx serripennis*	Northern Rough-winged Swallow
Hirundo rustica*	Barn Swallow
H. pyrrhonota <sup>b</sup>	Cliff Swallow
Progne subis	Purple Martin
<b><u>Corvidae - Jays, Crows</u></b>	
Cyanocitta cristata	Blue Jay
Corvus ossifragus*	Fish Crow
C. brachyrhynchos*	Common Crow
<b><u>Paridae - Chickadees</u></b>	
Parus atricapillus	Black-capped Chickadee
P. bicolor	Tufted Titmouse
<b><u>Sittidae - Nuthatches</u></b>	
Sitta carolinensis*	White-breasted Nuthatch
S. canadensis	Red-breasted Nuthatch

Appendix A. Continued.

<u>Scientific Name</u>	<u>Common Name</u>
<b><u>Certhiidae - Creepers</u></b>	
<i>Certhia americana</i>	Brown Creeper
<b><u>Troglodytidae - Wrens</u></b>	
<i>Troglodytes aedon*</i>	House Wren
<i>T. troglodytes</i>	Winter Wren
<i>Thryothorus ludovicianus</i>	Carolina Wren
<i>Cistothorus palustris*</i>	Marsh Wren
<i>Cistothorus platensis*</i>	Sedge Wren
<b><u>Mimidae - Mockingbirds, Thrashers</u></b>	
<i>Mimus polyglottos*</i>	Northern Mockingbird
<i>Dumetella carolinensis*</i>	Gray Catbird
<i>Toxostoma rufum*</i>	Brown Thrasher
<b><u>Turdinae - Thrushes</u></b>	
<i>Turdus migratorius*</i>	American Robin
<i>Hylocichla mustelina</i>	Wood Thrush
<i>Catharus guttata</i>	Hermit Thrush
<i>Catharus ustulatus</i>	Swainson's Thrush
<i>C. minimus</i>	Gray-cheeked Thrush
<i>C. fuscescens</i>	Veery
<b><u>Sylviinae - Gnatcatchers, Kinglets</u></b>	
<i>Polioptila caerulea</i>	Blue-gray Gnatcatcher
<i>Regulus satrapa</i>	Golden-crowned Kinglet
<i>R. calendula</i>	Ruby-crowned Kinglet
<b><u>Motacillidae - Pipits</u></b>	
<i>Acthus spinoletta</i>	Water Pipit
<b><u>Bombycillidae - Waxwings</u></b>	
<i>Bombycilla cedrorum</i>	Cedar Waxwing
<b><u>Laniidae - Shrikes</u></b>	
<i>Lanius ludovicianus</i>	Loggerhead Shrike
<b><u>Sturnidae - Starlings</u></b>	
<i>Sturnus vulgaris*</i>	Starling

Appendix A. Continued.

<u>Scientific Name</u>	<u>Common Name</u>
<u>Vireonidae - Vireos</u>	
<i>Vireo griseus</i>	White-eyed Vireo
<i>V. flavifrons</i>	Yellow-throated Vireo
<i>V. solitarius*</i>	Solitary Vireo
<i>V. olivaceus*</i>	Red-eyed Vireo
<i>V. gilvus</i>	Warbling Vireo
<u>Parulinae - Wood Warblers</u>	
<i>Mniotilta varia</i>	Black-and-white Warbler
<i>Vermivora pinus</i>	Blue-winged Warbler
<i>V. peregrina</i>	Tennessee Warbler
<i>V. celata</i>	Orange-crowned Warbler
<i>V. ruficapilla</i>	Nashville Warbler
<i>Parula americana</i>	Northern Parula
<i>Dendroica petechia*</i>	Yellow Warbler
<i>D. magnolia</i>	Magnolia Warbler
<i>D. tigrina</i>	Cape May Warbler
<i>D. caerulescens</i>	Black-throated Blue Warbler
<i>D. coronata</i>	Yellow pumped Warbler
<i>D. virens</i>	Black-throated Green Warbler
<i>D. fusca</i>	Blackburnian Warbler
<i>D. pensylvanica</i>	Chestnut-sided Warbler
<i>D. castanea</i>	Bay-breasted Warbler
<i>D. striata</i>	Blackpoll Warbler
<i>D. discolor</i>	Prairie Warbler
<i>D. palmarum</i>	Palm Warbler
<i>Seiurus aurocapillus</i>	Ovenbird
<i>S. noveboracensis</i>	Northern Waterthrush
<i>S. motacilla</i>	Louisiana Waterthrush
<i>Oporornis agilis</i>	Connecticut Warbler
<i>Geothlypis trichas*</i>	Common Yellowthroat
<i>Wilsonia pusilla</i>	Wilson's Warbler
<i>W. canadensis</i>	Canada Warbler
<i>Setophaga ruticilla</i>	American Redstart
<u>Passeridae - Old World Sparrows</u>	
<i>Passer domesticus*</i>	House Sparrow
<u>Icterinae - Blackbirds, Orioles</u>	
<i>Dolichonyx oryzivorus†</i>	Bobolink
<i>Sturnella magna</i>	Eastern Meadowlark
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird
<i>Agelaius phoeniceus*</i>	Red-winged Blackbird
<i>Icterus galbula*</i>	Northern Oriole
<i>Euphagus carolinus</i>	Rusty Blackbird
<i>Quiscalus quiscula</i>	Common Grackle
<i>Molothrus ater</i>	Brown-headed Cowbird

Appendix A. Continued.

<u>Scientific Name</u>	<u>Common Name</u>
<u>Thraupinae - Tanagers</u>	
<i>Piranga olivacea</i>	Scarlet Tanager
<u>Cardinalinae - Cardinals, and Grosbeaks</u>	
<i>Cardinalis cardinalis</i> *	Northern Cardinal
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak
<i>Guiraca caerulea</i> *	Blue Grosbeak
<i>Passerina cyanea</i> *	Indigo Bunting
<i>Spiza americana</i>	Dickcissel
<u>Carduelinae - Cardueline Finches</u>	
<i>Carpodacus purpureus</i>	Purple Finch
<i>C. mexicanus</i> *	House Finch
<i>Carduelis flammea</i>	Common Redpoll
<i>C. pinus</i>	Pine Siskin
<i>C. tristis</i>	American Goldfinch
<u>Emberizinae - American Sparrows and Towhees</u>	
<i>Pipilo erythrophthalmus</i>	Rufous-sided Towhee
<i>Passerculus sandwichensis</i> *t	Savannah Sparrow
<i>Ammodramus caudacutus</i> *	Sharp-tailed Sparrow
<i>A. maritimus</i> *	Seaside Sparrow
<i>Poocetes gramineus</i> <sup>b</sup>	Vesper Sparrow
<i>Junco hyemalis</i>	Dark-eyed Junco
<i>Spizella arborea</i>	American Tree Sparrow
<i>S. passerina</i>	Chipping Sparrow
<i>S. pusilla</i>	Field Sparrow
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow
<i>Z. albicollis</i>	White-throated Sparrow
<i>Passerella iliaca</i>	Fox Sparrow
<i>Melospiza lincolni</i>	Lincoln's Sparrow
<i>M. georgiana</i> *	Swamp Sparrow
<i>M. melodia</i> *	Song Sparrow
<i>Calcarius lapponicus</i>	Lapland Longspur
<i>Plectrophenax nivalis</i>	Snow Bunting

\* = Nests in Meadowlands; e = Endangered status NJ; t = Threatened status NJ  
 # = Federal endangered status b = Breeding population endangered

From Endangered and Threatened Wildlife in New Jersey. List revised May 6, 1985. NJDEPE - Division of Fish, Game and Wildlife.

Source: Hackensack Meadowlands Development Commission. 1987. Species lists of organisms found in the Hackensack Meadowlands: vascular plants - mammals. Hackensack Meadowlands Development Commission, Lyndhurst, New Jersey.

## APPENDIX B

### BREEDING BIRDS OF CONCERN TO THE U.S. FISH AND WILDLIFE SERVICE IN NEW JERSEY

#### CRITERIA

Concern for breeding migratory bird species by the U.S. Fish and Wildlife Service's (Service) New Jersey Field Office (NJFO), focuses upon species that regularly breed in New Jersey and whose populations are declining nationally, regionally, or within New Jersey. Species whose populations are stable in New Jersey, but are declining throughout major portions of the Northeastern United States or the United States, are of concern to the Service in order to avoid similar local population declines. Only species that breed in New Jersey are included on the list because the taking of nests and eggs, but usually not adult birds, can occur during the construction of land and water alteration projects.

#### SOURCES OF INFORMATION

Most of the information on avian population trends has been derived from Breeding Bird Survey (BBS) routes. The BBS system is valuable for detecting changes in bird populations because BBS's have been conducted since 1966 for most of the United States. However, the BBS system does have some shortcomings. For instance, some states are inadequately surveyed, roadless areas are not surveyed, and several hard-to-observe species (rails and owls) are not well represented. Therefore, other sources of information, such as State lists and The National Audubon Society's Blue List, were used in conjunction with the BBS data.

#### Sources Documenting Avian Population Trends for the Nation

1. North American Breeding Bird Survey Annual Summary, 1988 - This report summarizes long-term (1966 to 1987) population trends of birds detected on BBS routes in the United States and Canada. Species with significant ( $P \leq 0.05$ ) yearly declines that were observed on  $\geq 50$  routes were included in the NJFO list, provided they were not increasing in New Jersey.
2. Federal Threatened and Endangered Species in New Jersey - Bird species that are federally threatened, endangered, or candidate species were included in the NJFO list.
3. Migratory Nongame Birds of Management Concern in the United States: The 1987 List - This report lists 20 species for which there is management concern in significant portions of their range. Species nominations for the 1987 List were based upon BBS data, State Endangered / Threatened / Other lists, The National Audubon Society's Blue List, and qualitative sources. Based on their presence in New Jersey, fourteen of the species on the 1987 List were included in the NJFO list.

#### Sources Documenting Avian Population Trends for the Northeast Region

1. North American Breeding Bird Survey for the U.S. Fish and Wildlife Service, Region 5 - This unpublished report documents trends in bird populations between years 1966 to 1987, for BBS routes conducted in Service' Region 5. Species with significant ( $P \leq 0.05$ ) yearly declines that were observed on  $\geq 25$  routes were included in the NJFO list provided they were not increasing in New Jersey.

2. The National Audubon Society Blue List for 1982 - The Blue List was designed to identify patterns of impending or ongoing avian population or range reductions. This source includes information for species population declines at national and regional levels. Species on the Blue List are clearly experiencing recent population declines over all or a major portion of their range. Their population declines have been confirmed through systematic approaches such as BBS routes and Christmas Bird Counts. A second group of species, Species of Special Concern, are previously Blue-Listed species that appear to be recovering from past declines. A third group of species, Local Problem Species, are birds for which population declines can not be confirmed and which do not occupy a large contiguous area. Included in the NJFO list were Blue-Listed species, Species of Special Concern, and Local Problem Species for which declines have been noted in the Hudson-Delaware Region (New Jersey, Delaware, eastern Pennsylvania, and New York).

Sources Documenting Avian Population Trends for New Jersey

1. North American Breeding Bird Survey for New Jersey - This unpublished report documents trends in bird populations, between years 1966 to 1989, and 1980 to 1989, for BBS routes conducted in New Jersey. Species with significant ( $P \leq 0.05$ ) yearly declines that were observed on  $\geq 10$  routes, during the 1966 to 1989 time period were included in the NJFO list.
2. Endangered Species List and Status List of Nongame Wildlife Species of New Jersey - Bird species that are State endangered, State threatened, or listed as declining in the State were included in the NJFO's list.



BREEDING BIRDS OF CONCERN TO THE U.S. FISH AND WILDLIFE SERVICE IN NEW JERSEY

Species of Concern	Habitat				
	Wetland Dependent	Habitat Specific <sup>b</sup>	Neotrop. Area Migrant	Forest <sup>d</sup>	Wetland Fields Old Field <sup>e</sup>
Pied-billed Grebe	X				X
American Bittern	X		X		X
Least Bittern	X				X
Great Blue Heron	X	X			X
Little Blue Heron	X	X			X
Green-backed Heron	X	X			X
Black-crowned Night Heron	X	X			X
Yellow-crowned Night Héron	X	X			X
Glossy Ibis	X	X			X
American Black Duck	X	X			X
Osprey	X	X	X		X
Bald Eagle	X	X			X
Northern Harrier	X	X			X
Sharp-shinned Hawk	X	X	X	X	
Coopers Hawk	X	X	X	X	
Northern Goshawk	X	X	X	X	
Red-shouldered Hawk	X	X	X	X	
Peregrine Falcon	X	X	X	X	
Northern Bobwhite	X	X	X	X	
Black Rail	X	X			X
King Rail	X	X			X
Piping Plover	X	X			X
Upland Sandpiper	X	X	X		
Spotted Sandpiper	X	X	X		
Gull-billed Tern	X	X	X		
Least Tern	X	X	X		
Common Tern	X	X	X		

BREEDING BIRDS OF CONCERN TO THE U.S. FISH AND WILDLIFE SERVICE IN NEW JERSEY (continued)

Species of Concern	Habitat						
	Wetland Dependent <sup>a</sup>	Habitat Specific <sup>b</sup>	Neotrop. Migrant	Area Sensitive <sup>c</sup>	Forest <sup>d</sup>	Wetland Fields	Old Field <sup>e</sup>
Black Skimmer	X	X	X			X	
Black-billed Cuckoo			X	X	X		
Yellow-billed Cuckoo			X	X	X		
Common Barn Owl		X				X	
Barred Owl	X	X		X	X		
Long-eared Owl		X		X	X		
Short-eared Owl		X					
Common Nighthawk		X	X			X	X
Ruby-throated Hummingbird			X				
Red-headed Woodpecker		X			X		
Hairy Woodpecker		X		X	X		
Northern Flicker		X		X	X		X
Eastern Wood-Pewee				X	X		
Least Flycatcher				X	X		
Great Crested Flycatcher		X		X	X		
Eastern Phoebe				X		X	X
Eastern Kingbird			X			X	X
Horned Lark							
Purple Martin		X			X	X	
Blue Jay				X	X		
Carolina Chickadee				X	X		
Marsh Wren	X	X					
Sedge Wren	X	X			X	X	
Eastern Bluebird		X					X
Wood Thrush		X					
Northern Mockingbird			X	X	X		X
Brown Thrasher			X	X			X
White-eyed Vireo			X				X
Blue-winged Warbler			X				X

BREEDING BIRDS OF CONCERN TO THE U.S. FISH AND WILDLIFE SERVICE IN NEW JERSEY (continued)

Species of Concern	Habitat						
	Wetland Dependent <sup>a</sup>	Habitat Specific <sup>b</sup>	Neotrop. Migrant	Area Sensitive <sup>c</sup>	Forest <sup>d</sup>	Wetland Fields	Old Field <sup>e</sup>
Golden-winged Warbler			X				X
Yellow Warbler			X			X	X
Cerulean Warbler	X	X	X	X			
Hooded Warbler	X	X	X	X			
Canada Warbler			X	X			
Common Yellowthroat	X				X		X
Chestnut-sided Warbler			X				X
Yellow-breasted Chat		X	X				X
Indigo Bunting			X	X			X
Rufous-sided Towhee							X
Field Sparrow							
Vesper Sparrow						X	
Savannah Sparrow					X	X	
Henslow's Sparrow		X			X	X	
Swamp Sparrow	X	X			X		
Song Sparrow							X
Grasshopper Sparrow						X	
Bobolink			X			X	
Eastern Meadowlark			X			X	
Northern Oriole			X	X		X	
Orchard Oriole			X	X		X	
Purple Finch				X			
American Goldfinch							X
Percent	36	51	34	19	42	13	28

<sup>a</sup> Includes obligate and facultative-wet species (Brooks and Croonquist 1990).

<sup>b</sup> Includes species requiring tree cavities, undisturbed forest, and species that are affected by changes in land use (Brooks and Croonquist 1990).

<sup>c</sup> Includes species whose probability of occurrence increases with forest area (Robbins 1979, Robbins et al. 1989).

<sup>d</sup> Includes species found in forest and forest edge.

<sup>e</sup> Includes species found in old fields, thickets, and mixed uplands.

Literature Cited

Brooks, R.P., and M.J. Croonquist. 1990. Wetland, habitat, and trophic response guilds for wildlife species in Pennsylvania. J. Pennsylvania Acad. Sci. 64:1-18.

Robbins, C.S. 1979. Effects of forest fragmentation on bird populations. Pages 198-213 in R.M. De Graaf and K.E. Evans, eds. Management of northcentral and northeastern forests for nongame birds. U.S. For. Serv. Gen Tech. Rep. NC-51.

\_\_\_\_\_, D.L. Dawson, and B.A. Dowell. 1989. Habitat area requirements of breeding birds of the Middle Atlantic states. Wildl. Mono. 103:1-34.