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Draft Environmental Impact Statement on the Special Area Management Plan for the Hackensack Meadowlands District, NJ

Executive Summary

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Executive Summary

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Executive Summary

This Executive Summary (ES) provides a synopsis of the Hackensack Meadowlands District Special Area Management Plan/Environmental Impact Statement (SAMP/EIS). The SAMP is a comprehensive plan providing for natural resource protection, remediation of pollution, and reasonable economic growth in the District. It presents a comprehensive statement of policies and criteria to guide future land use and environmental management in the District, including preservation, restoration, and enhancement of the District's natural resources. More specifically, the SAMP proposes a balanced plan for managing the District's environmental resources and meeting economic and social needs.

In preparing this Executive Summary, the information presented in the Draft SAMP/EIS has been reorganized, as follows:

> Chapter 1 of this ES condenses the findings of Section 1 and Section 2 of the SAMP/EIS. Section 1 of the SAMP/EIS describes the need to prepare a SAMP/EIS in the Hackensack Meadowlands District, and identifies the objectives of the SAMP/EIS. In Section 2 of the SAMP/EIS the need for environmental improvement in the District is presented, together with a program, proposed by HMDC, for extensive environmental improvements in the District.
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> Chapter 2 of this ES summarizes the results of Section 4 of the SAMP/EIS. In Section 4 of the SAMP/EIS a range of land management alternatives for the District are compared, and other alternatives, including out-of-District growth, are examined. Section 4 of the SAMP/EIS concludes with the identification of a Preferred Alternative plan for the District.
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> Chapter 3 of this ES highlights the findings of Section 3 and Section 5 of the SAMP/EIS. In Section 5 of the SAMP/EIS the environmental effects of the Preferred Alternative are evaluated. The current environmental conditions in the Hackensack Meadowlands are reviewed in Section 3.
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> Chapter 4 of this ES outlines the recommendations of Section 6 of the SAMP/EIS. Section 6 of the SAMP/EIS presents the mechanisms for implementation of the SAMP and the proposed regulatory enhancements that result from the SAMP.

For additional information the reader is directed to the Draft SAMP/EIS, and Appendices A-V that accompany the SAMP/EIS. (The Appendices provide supporting technical information about the evaluations and analyses that were conducted for the EIS.)

Chapter 1
Purpose and Need for the Proposed Action

1.1 Description of EPA/CORPS of Engineers Action

The "action" addressed in this Environmental Impact Statement (EIS) is the development and implementation of a Special Area Management Plan (SAMP) for the Hackensack Meadowlands District. The SAMP is a comprehensive plan providing for natural resource protection, remediation of pollution, and reasonable economic growth in the District. It presents a comprehensive statement of policies and criteria to guide future land use and environmental management in the District, including preservation, restoration, and enhancement of the District's natural resources. The SAMP also fosters compliance of future development with environmental laws and regulations, including the Clean Water Act Section 404(b)(1) Guidelines.

Implementation of the SAMP is expected to result in changes to regulatory processes for fill and construction activities under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. These regulations are administered by the US Army Corps of Engineers (ACE) as the permitting authority and the Environmental Protection Agency (EPA) as the Section 404 oversight agency. Because of the potentially significant environmental consequences of the SAMP, ACE and EPA agreed to prepare an Environmental Impact Statement (EIS) for the SAMP. The process adopted by EPA and USACE to prepare a programmatic EIS on the SAMP is consistent with the federal regulations of the Council on Environmental Quality as well as the regulations of each of the lead federal agencies for an EIS.

1.2 Memorandum of Understanding

In recognition of the environmental and economic needs of the District, and the need for additional coordination of regional planning and regulatory process, EPA and USACE entered into a Memorandum of Understanding (MOU) on September 14, 1988 with HMDC, the New Jersey Department of Environmental Protection (NJDEP), and the National Oceanic and Atmospheric Administration (NOAA) that calls for the preparation and implementation of a SAMP for the Hackensack Meadowlands District. The purpose of the SAMP is to facilitate compliance of future development activities with applicable environmental statutes and regulations.

1.3 Special Area Management Plans (SAMPs)

The Hackensack Meadowlands District is located within New Jersey's Coastal Zone. The 1980 Amendments to the Coastal Zone Management Act define a Special Area Management Plan as a "comprehensive plan providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies, standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographical areas within the coastal zone".

A SAMP provides predictability to development interests, and environmental interests are assured that individual and cumulative impacts are analyzed in the context of broad ecosystem needs. A SAMP also establishes an area-wide basis for regulatory actions, founded on an understanding of the cumulative effects of changes in the environment. A SAMP can conclude with definitive regulatory products that include streamlined permit processing procedures and Section 404(c) restrictions for undesirable activities.

Consistent with the Regulatory Guidance Letter and the MOU, regulatory products that guide land use management in the Hackensack Meadowlands District will be implemented pursuant to SAMP/EIS process:

- appropriate local/state approvals, and ACE general permit (GP) and/or abbreviated processing procedure (APP) for activities in specifically defined situations; and,
- local/state restrictions and EPA 404(c) restrictions for undesirable activities.

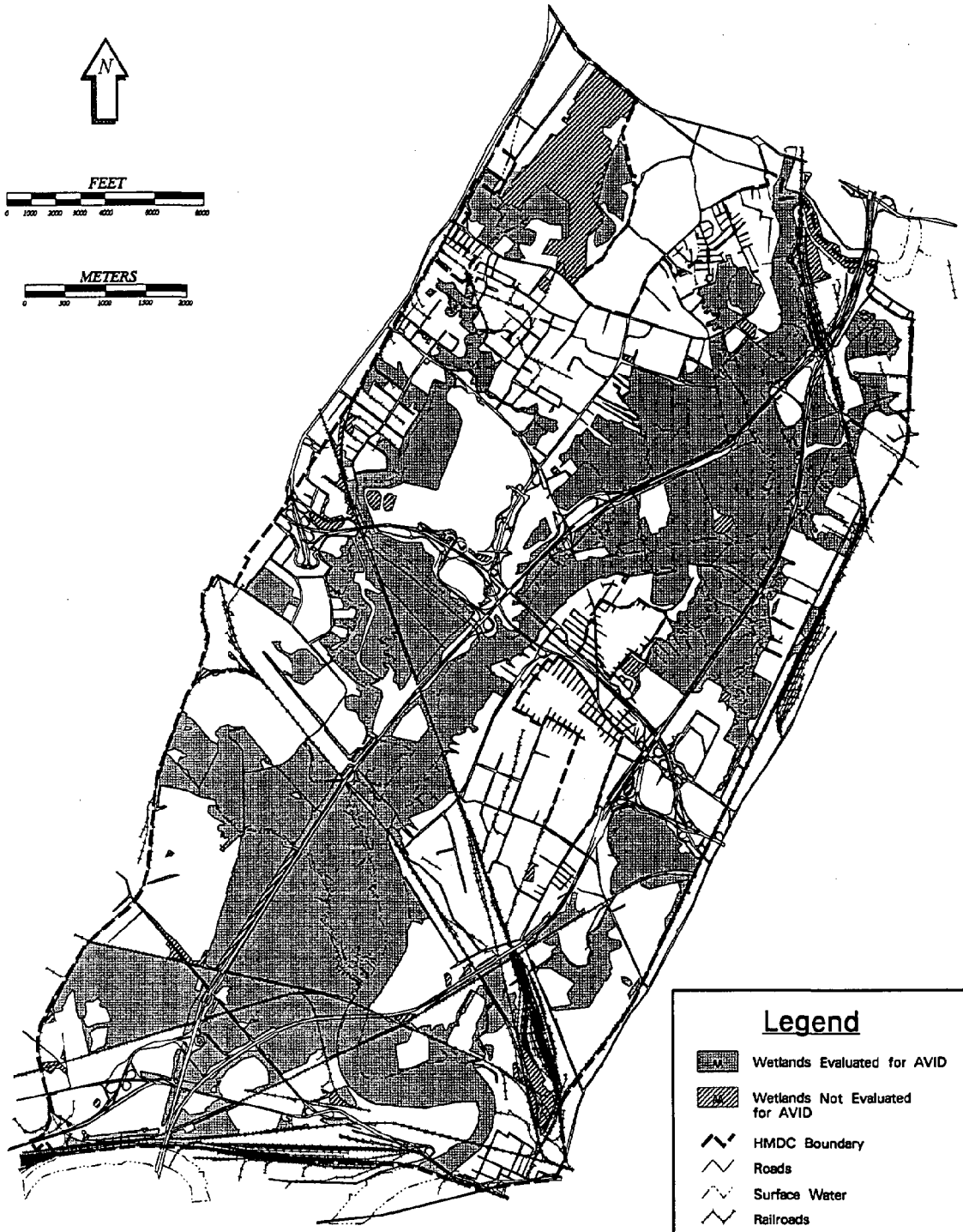
Individual permit reviews are available for activities that do not fall into either category and are inconsistent with the SAMP. SAMP implementation actions and regulatory enhancements selected for the Hackensack Meadowlands SAMP are discussed in Section 6 - Implementation of the SAMP.

1.4 Description of the Hackensack Meadowlands District

The Hackensack Meadowlands District (District) is a 32 square mile area located in Bergen and Hudson Counties in New Jersey, less than five miles from New York City. The Hackensack River, which is tidal in this area, travels through the middle of the District in a north-south direction, roughly dividing the District in half. The District includes portions of 14 municipalities, ten in Bergen County and four in Hudson County. Covering almost 20,000 acres, the District contains approximately 11,500 acres of upland, and 8,500 acres of wetland. The wetlands in the Meadowlands District are mapped in Figure ES-1. Most of the upland areas are developed, and the principal land uses in the uplands are industrial, institutional, and commercial. Undeveloped areas within the District are largely wetlands, and these areas are under intense development pressure.

The District is a governmental jurisdiction, within which the Hackensack Meadowlands Development Commission (HMDC) is responsible for land use planning, zoning, issuance of building permits, regional solid waste management, and protection of the environment. HMDC is one of only two planning and environmental management agencies in NJ with regional authority. The existing HMDC Master Plan, used by HMDC to make development decisions, was adopted by the State of New Jersey in 1972—prior to the enactment and implementation of various environmental statutes, including Section 404 of the CWA. As part of the SAMP effort, HMDC is revising its Master Plan and the regulations regarding land use in the District, in accordance with applicable environmental statutes.

The District is the cross-roads for several major turnpikes and highways, carrying vehicles to destinations throughout New Jersey, New York, and New England. Both the eastern and western spurs of the NJ Turnpike cross the District, as do NJ Route 3, Route 17, and Route 7.



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Source: USEPA. Functional Assessment Report. 1990.

February 21, 1995

Figure ES-1
Wetland Assessment Areas

CDM
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Hackensack Meadowlands SAMP/EIS

Because of the proximity of sizable vacant tracts in the District to major highway and rail systems, and because of the nearness of these lands to New York City and major residential and employment centers in northern New Jersey, the economic value of vacant and redevelopable lands is very high. The population and employment growth projected for the region indicates a need for additional housing and work spaces in the District.

A broad range of problems affecting the quality of the air, water, and land are present throughout the District. These problems significantly affect the ability of the District's environment to sustain wildlife, and also affect the potential for economic growth. The unregulated use of the District lands as disposal sites for solid and industrial waste for more than 150 years led to the use of over 2,500 acres of land as landfill in 1969. (Only one 20-acre landfill is operating today.) Many of these landfills were never properly closed, and the ongoing decomposition of wastes within the landfills results in the release of millions of gallons of leachates to the environment. Water quality continues to be impacted by the uncontrolled leachate discharges—leachates with typical "landfill" pollutants (e.g., BOD, COD) and hazardous pollutants that affect both water quality and aquatic life. These orphan landfills also discharge significant volumes of methane into the atmosphere. The historical dumping practiced in the District has resulted in the creation of over 200 contaminated sites within the District that require hazardous waste remediation. While existing federal wetland regulations direct growth to upland locations, the wildlife habitats in these terrestrial sites are becoming increasingly scarce in the District, reducing the diversity of habitat in the District. These long-standing environmental problems in the District are, for the most part, beyond the scope of existing regulatory programs. The SAMP provides an opportunity to identify specific mechanisms and actions that will improve the natural environment of the District.

1.5 Need for Environmental Improvement in the Meadowlands District

As noted above, the environmental problems facing the District today result from centuries of modifications to the environment. Such modifications have resulted from natural processes (such as sea level rise and sediment erosion and transport), and from man-induced changes (such as impoundment of the Hackensack River for water supply purposes, a long history of use of marsh areas for waste disposal, and changes related to early attempts to settle the Meadowlands, during which extensive diking and ditching occurred).

The cedar swamps were the prevailing habitat type in the Meadowlands until Dutch and English colonists decimated the forest using land reclamation projects, fire, lumbering, diking, and ditching. In the mid-nineteenth century, land companies drained the marshes in the north, particularly in the areas around Berrys Creek. In the early twentieth century, the local mosquito control agencies diked and drained the remaining areas of cedar bog and emergent marsh, and put in tide gates. By the 1920's, common reed (*Phragmites australis*) dominated the remaining marshes once covered by Atlantic white cedar (EPA, 1989). The Atlantic white cedar wetland ecosystem is no longer present in the Meadowlands.

The wetland systems that exist today have also evolved in response to hydrologic alterations over time. The construction of the Oradell dam across the Hackensack River (upstream of the District) in 1922 impeded fresh water flow, and advanced tidal influence.

By 1969 (the year HMDC was formed), the 32-square mile Meadowlands region lay substantially degraded. The development and ecological preservation potential of this area was visibly and regularly undermined. The fact that the area was constantly encroached upon is indicative of then-prevailing attitudes toward and perception of wetlands. Transportation arteries of all types were laid out haphazardly, without consideration of the District's environmental resources; the need to connect two points external to the Meadowlands by the shortest possible route was the controlling highway and rail planning strategy.

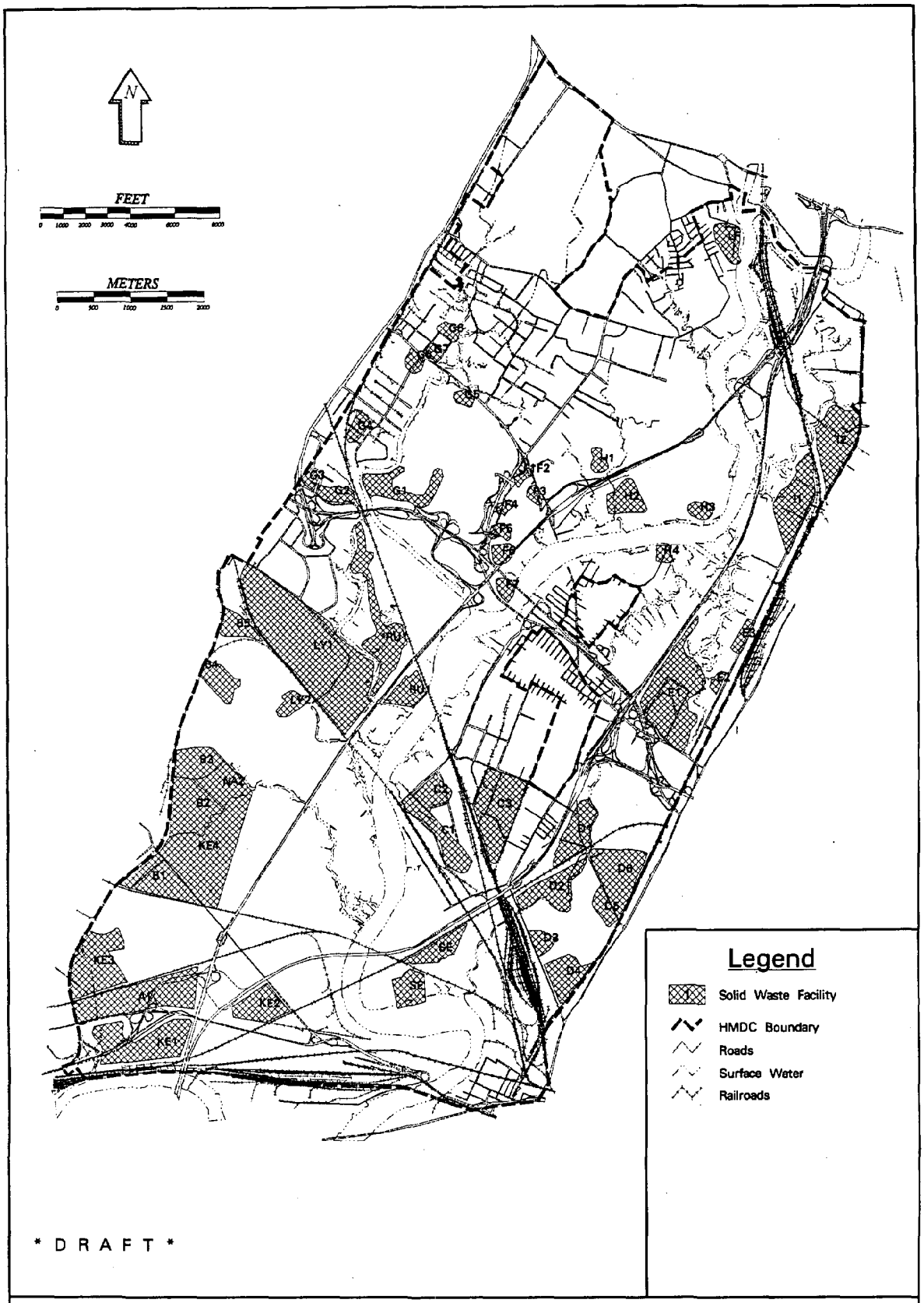
Most municipalities within a radius of 50 miles or more (some out of State), as well as regional industries, relied on the Meadowlands to serve as the dumping grounds for their waste. The Hackensack Meadowlands, before the intensification of environmental regulation in the late 1960's, contained scores of active landfills. Random, unregulated disposal of waste products was commonplace. The low-lying marshland that characterized the area served as an open invitation for continued abuse. Vacant areas were filled sporadically for low-intensity uses—predominantly goods distribution. The result was a rapid quantitative and qualitative erosion of some of the most significant tidal wetlands in the Metropolitan region. The 1969 action of the New Jersey State Legislature, creating the Hackensack Meadowlands Development Commission, was recognition that this situation represented an ecological and economic disaster.

Over the years 1,600 acres of wetlands were filled as a result of sanitary landfilling practices, mostly prior to 1972 (see Figure ES-2). Additionally, 148 acres were filled by the New Jersey Sports and Exposition Authority and 92 acres by the New Jersey Turnpike Authority, both outside the jurisdiction of HMDC. In addition, approximately 525 acres have been filled as a result of more recent development activity.

The long history of industrial and household waste disposal (dumping) activities in the District have caused significant soil and water contamination in the lower Hackensack River Basin. HMDC inventories indicate over 200 waste discharge and disposal sites in need of investigation, remediation, and/or management. The pollution and environmental degradation, together with hydrologic alteration, have compromised the quality of the extensive freshwater wetland environments historically present in the District. Environmental losses in the District, for the most part, were brought under control for the first time with the creation of the Hackensack Meadowlands Development Commission in 1969.

Current water quality impacts to both the Hackensack River and adjacent wetlands result from: discharges from five sewage treatment plants with varying levels of treatment; approximately 50 permitted industrial sources; cooling water from three major power plants; non-point source runoff (including runoff from three Superfund sites and six hazardous waste sites); raw sewage and storm water from 10 combined sewer overflows; and runoff and leachate from approximately 1,000 acres of (mostly abandoned) landfills which have not been properly closed.

In order to restore and enhance the existing environment of the District, HMDC, with input from the state and federal SAMP agencies, has developed an Environmental Improvement Program (EIP). The EIP is an integral component of the SAMP and the revised HMDC Master Plan, and would provide a centrally-managed approach to environmental remediation and



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February 21, 1995

Figure ES-2
Historic Solid Waste Activities (before 1970)

Hackensack Meadowlands SAMP/EIS

CDM
environmental engineers, scientists, planners & management consultants

natural resource protection projects throughout the District. The EIP proposes specific environmental objectives and improvements, remediation programs, and enhancements that will have a significantly positive impact not only on the District's environment, but on surrounding regions as well. The components of the EIP include solid waste management, water resource protection, environmental enforcement, air and land quality improvements, natural resource management, and development of park, educational, and recreational opportunities. To accomplish the goal of remediating past environmental impacts and managing an urban estuary of national significance, the various program elements must be implemented in concert. Each piece is integral, and together they provide a dynamic opportunity for restoration of District environments.

The Environmental Improvement Program establishes and implements state-of-the-art management techniques for cleanup and/or prevention of pollution of the air, water, and soil. Coordination of programs affecting all Meadowlands District environments, together with vigorous monitoring and enforcement are key to success. Environmental research and monitoring provides for the systematic appraisal of the extent of pollution and the information and technical basis for environmental management decisions. Priorities of the EIP will be formally established and revised annually by a SAMP-appointed committee (the EIP Advisory Committee) as tasks are completed, new funding sources are identified, or additional opportunities for environmental improvements arise.

Implementation of the EIP will include the following mechanisms:

- coordinating implementation of the numerous proposed environmental improvement projects, thereby maximizing environmental benefit,
- collecting and targeting funding to pay for District-sponsored environmental improvements,
- developing monitoring programs to measure attainment of SAMP environmental goals,
- inspecting critical environmental resources in the District, preventing degradation, and identifying parties responsible for impacts, and,
- applying and coordinating existing regulations and laws relating to environmental protection innovatively to increase effectiveness, and to reduce delay and overlap.

However, the substantial cost of environmental remediation has not been within the resources of HMDC, nor is it projected to be under existing funding mechanisms. Funding mechanisms are proposed in the SAMP that rely on the enhanced value of projects that are consistent with the SAMP/HMDC Master Plan (see following section).

1.6 Need for Growth in the Meadowlands District

One of HMDC's legislated goals is to "promote orderly, comprehensive economic development" within the District. To fulfill this goal, HMDC has conducted an extensive analysis of the developmental needs of the District.

Need for Residential Growth in the Meadowlands District

Sustainable growth is being planned by HMDC to meet basic social needs for housing, employment opportunity, environmental protection, and recreation. Regional growth promotes the principles of enhancing individual welfare, opportunity, and equity. HMDC has addressed the need for housing from a social perspective—proceeding toward a goal of meeting at least part of the housing need expressed by all income groups.

The growth in the number of households and the growth in jobs that is projected for the region and District create a need for housing, because new workers that are employed in the region, and new households that are formed, require a place of residence. To serve this need, opportunities must be made available to add to the housing stock. The need for residential growth is also a function of replacement of obsolescent housing, and the need to maintain appropriate vacancy rates.

A six-county region has been identified that generally represents a commuting range between the Meadowlands District and out-of-District jobs and housing, and includes Bergen, Essex, Hudson, Passaic, Union and the northern portion of Middlesex Counties. A review of land use patterns in the six-county region indicates that most of the existing land has been developed. The principal exception to this rule is in the periphery of the region, where efforts have been underway by many local governments and the Office of State Planning to maintain the less developed character of such locations, and to discourage extension of infrastructure to exurban areas.

The analyses conducted for this EIS indicate a housing need in the Meadowlands District for at least 14,000 residential housing units, based on fulfillment of low/moderate income housing needs and regional need for new housing opportunity.

Need for Office Growth in the Meadowlands District

The need for additional office development in the District is a function of: (1) the need to provide space to accommodate anticipated employment growth, and (2) the need to fund environmental improvements in the District. Public policy articulated in the State Development and Redevelopment Plan directs growth to areas of the state with existing infrastructure, and recommends growth occur in "centers" that feature mixed land uses. Center-based development, found to be the most efficient form of growth in recent HMDC planning studies for the District, reduces auto dependence and related air emissions and maximizes use of existing infrastructure capacity in built areas.

Another significant need for office growth in the District is the need to provide a funding source and system for environmental remediation and natural resource preservation programs in the District, only a small part of which is fundable under existing government programs. (Please note that wetland mitigation performed as compensation for projects that may receive permit approvals in the future is separate from, and not included in, the identified need for environmental improvement in the District.)

Planning for the future of the District must provide for the creation of funding mechanisms to remediate the long-standing and cumulative environmental degradation of the District. The office growth projected in the District has been identified as one of the major sources of funding for environmental improvements. The total cost of the EIP, implemented over the planning period, has been estimated to be approximately $1 billion.

Need for Commercial Sector Growth in the Meadowlands District

As increases in population, households, and employment occur in the region, and as the needs of area businesses expand, demand is exerted for goods and services to support household, recreational, and economic activities. The need for commercial facilities results from these growth-related demand factors, and the need to integrate commercial activity with other growth, in fulfillment of HMDC's Master Plan policy of mixed use centers. Regional, community, and neighborhood commercial centers are essential components of economic and population growth within a region.

The total demand for regional commercial space in the District is based on the following components: (1) the unfulfilled commercial needs of the existing regional population, (2) the needs of the existing (1990) in-District employment base of 72,000, (3) the needs of the projected primary and secondary employment increase of 100,000 workers, and (4) the needs of a projected increase of 40,000 new residents in the District.

Summary of Growth Needs in the District

The needs for growth in the District are summarized in Table ES-1, below. The need for growth is based on analyses conducted by HMDC for the EIS, as discussed in the preceding sections.

TABLE ES-1
HMDC DEVELOPMENT NEEDS

DEVELOPMENT TYPE	NEED
Residential	14,000 units
Primary Office	18 million square feet
Secondary Office	6.3 million square feet
Warehouse/Distribution	9 million square feet
Commercial	2.5 million square feet

1.7 Need for Transportation System Improvements

The existing transportation system was started in the early 1900's and was built largely to traverse, but not necessarily to service, the District. This system has not kept pace with growth, in the region or the District. Today, traffic exceeds the capacity of roadways and taxes rail and

bus transit operations. Seven commuter rail lines traverse the District, including New Jersey Transit routes and Amtrak's Northeast Corridor line. Yet, there are only three rail stations in the District, two serviced by one limited line and one serviced by three northeast lines. Direct rail access from central and southern New Jersey is non-existent. Direct access by Amtrak or PATH service is also not provided. Bus lines cross the District, the majority on major State highways destined to New York City. Local bus service is often limited and time-consuming. Arterial roads to the District approach capacity daily. A 1976 survey of morning rush hour traffic indicated virtually every Interstate and State road in the area was at or was marginally close to capacity. Traffic continues to increase 1.5% to 2% each year, and highway capacity is often exceeded on Routes 3, 17, 46, 1&9, and I-495.

Chapter 2
Analysis of Alternatives

The analysis of alternatives as part of the EIS for the SAMP derives from the need to examine reasonable alternatives to the proposed action (including the no action alternative and alternatives not within the jurisdiction of the lead agency), as described in the Council on Environmental Quality (CEQ) Regulations on Implementing the National Environmental Policy Act (NEPA)[1]. In addition, the SAMP MOU specifically provides for the consideration of out-of-District alternatives in the EIS.

The alternatives analysis addresses three groups of alternatives that must be assessed to understand possible alternatives to the SAMP. Each group of alternatives consists of a number of specific alternatives that have been analyzed.

1. *Out-of-District alternatives analysis.* This analysis evaluates the degree to which upland locations—presumed to have lesser environmental impacts—may be available outside the District boundaries that would accommodate the growth anticipated in the District, and allow HMDC to meet the goals of the SAMP. The potential to redirect market forces for development that are present in the District to out-of-District upland locations in a six-county metropolitan region is assessed.

2. *In-District alternatives analysis.* This analysis assesses the comparative environmental effects of five representative land management scenarios within the District (and a No Action alternative, as described below); and concludes with the creation of a hybrid alternative for growth and environmental management. This hybrid alternative combines growth elements from the five representative land management scenarios (so as to minimize impacts to wetlands and aquatic resources), and includes transportation improvements in the District. The No Action alternative is also defined and reviewed. The No Action alternative is defined as a "No SAMP" alternative. In other words, if a SAMP and new Master Plan are not implemented for the District, the growth pressures and patterns traditionally present in the District are projected to continue, per the zoning created under the 1970 District Master Plan.

3. *Environmental Improvement Program alternatives.* The EIP is a key element of the SAMP, and provides (1) coordination of environmental remediation and enhancement in the District, and (2) a plan for implementing a full range of specific environmental improvements. Alternatives to the EIP are considered, specifically (a) No Action, and (b) partial implementation.

The alternatives analysis will allow projects that are consistent with the SAMP to be eligible for streamlined permitting processes, in part because alternatives for projects consistent with the SAMP will have been addressed by this analysis.

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[1] CEQ Regulations on Implementing NEPA (40 CFR 1500-1508)

The availability of alternative sites, both within and outside the District, was best evaluated, given the programmatic nature of the EIS, by assessing representative locations that exhibit high potential to function as alternative locations for growth. Sites have been selected for review that are representative of the forms of growth and the scale of growth anticipated to occur in the District, and that address project needs.

A central principle of the Section 404(b)(1) Guidelines is that:

> No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

Note, however, that non-aquatic environmental impacts are also taken into account. If an alternative that is less damaging to the aquatic ecosystem would have other significant adverse environmental consequences, then the Section 404 discharge may be allowed despite the existence of a practicable alternative. These other significant adverse environmental consequences of alternatives are of particular importance in the Meadowlands, because of the need to repair the extensive damage to the natural environment that has occurred in the District as a result of historical land use and waste disposal practices, and the need to implement environmental controls to reduce discharges of pollutants (such as landfill leachates) to the District's waters from historical waste disposal practices.

The pollution and environmental degradation, together with the hydrologic alteration, have compromised the quality of the extensive wetland environments present in the District. More importantly, many of these sources of pollution will continue to degrade the aquatic ecosystem, aquatic food web, and possibly human health if they remain unaddressed. Substantial environmental improvements are proposed in the Environmental Improvement Program to offset the significant pollution, environmental degradation, and hydrologic alteration that has resulted from past land use practices. Consequently, any alternative that does not include mechanisms to implement these components of the EIP would not meet the environmental needs of the District, and would result in continued, cumulative degradation to the District.

Inability to implement the EIP would result in net environmental loss, because leachate and pollutants will continue to contaminate the District's wetlands and waterways, as well as the air, soils, and wildlife. Consequently, alternatives that do not allow implementation of these critical components of the EIP, or alternatives that reduce EIP funding for these components are likely to have other significant adverse environmental consequences in the District, resulting in greater impacts than actions proposed under the SAMP.

2.1 Out-of-District Alternatives Analysis

Methodologies for analysis of out-of-District alternatives have been applied that are appropriate at the regional scale, and that are appropriate for supporting "program-level" decisions, in this case involving selection of land management plans, environmental management plans, and regulatory enhancements for the District that best meet the goals of the SAMP and MOU. The

out-of-District alternatives analysis is conceptually equivalent to a "no build" alternative for the District, because meeting social, economic, and environmental needs outside the District would supplant the need for such activities in the District.

The analysis of out-of-District alternatives focuses on sites outside the District that are comparable to those in the HMDC-identified Planning Areas. Representative out-of-District locations were selected for additional consideration based on a site's potential to accommodate growth, its ability to accommodate projects of comparable scale, and the general availability of infrastructure and transportation/transit systems.

The criteria used to select representative out-of-District sites for analysis reflect the concepts advanced in the State Plan, which are intended to steer New Jersey toward less sprawling forms of development. The State Plan advocates that growth be directed to "centers" that have high levels of accessibility, provide a diversity of land uses and varying intensities of land use, enhance the efficient delivery of public services, and contribute to a perceived sense of place. In this analysis, preference is given to sites that share with in-District locations the ability to accommodate both housing and employment (i.e., mixed uses), providing adequate and affordable housing sufficiently adjacent to places of employment to minimize travel needs.

Accordingly, sites are preferred that offer the potential for achieving synergistic effects in meeting different needs. Mixed-use development can provide for economic activity, delivery of public services, living space, and environmental protection, all in a coordinated way that encourages interaction and mutual support among all these facets of the community. Such synergism is necessary for the built environment to achieve what the state plan calls "communities of place"--that is, communities that are dynamic, diverse, compact, and efficient.

The preliminary screening of potential out-of-District alternative sites reveals that within the closer-in areas of the SAMP region, cities such as Jersey City, Newark, and Elizabeth appear to offer the most substantial space for growth and also have the potential to promote the urban redevelopment goals of the N. J. Development and Redevelopment Plan. After their losses of population and business, these cities have land available for redevelopment. They actively seek creative forms of development, which the suburbs generally do not. This is because urban centers, such as Jersey City and Newark, have more flexible land use regulations that permit development with the desired diversity of use and density. Also, because the major rail lines were built to serve the cities, growth in these locations offers the greatest potential for shifting the balance in northern New Jersey toward more public transportation and less private automobile use. These cities are also focal points of the regional highway network, although connector routes may be congested. During the preliminary site screening a number of potential locations in Jersey City, Newark, Elizabeth, and Paterson were reviewed, as discussed below.

The suburban areas, in contrast, are likely to continue to apply restrictive land use controls that segregate land uses and discourage the SAMP objective of combining residential and commercial growth at any one location. The older suburban towns seek to maintain their suburban character, and generally discourage further urbanization. The suburban areas generally have not suffered industrial and population losses, and so do not have the sites available for redevelopment that the larger cities have. Nor do large tracts of virgin land remain,

as exist in exurban areas. While the region could probably physically accommodate much of the projected demand for growth without using the Meadowlands sites, it could only do so in fragments, scattered over many unrelated sites in the metropolitan region. Such scattered growth would increase the undesirable patterns of segregated land uses and sprawling development that erode the strength of established cities, place unnecessary burdens on public services, and lead to the loss of scarce natural areas in suburban locations. In addition, the service infrastructure of many suburban areas does not have sufficient surplus capacity to accommodate major new development without significant public investment.

From the sites/locations reviewed in the preliminary screening, four sites were selected for additional analysis. They are (1) Hudson Exchange in Jersey City, (2) a constellation of sites in Newark, (3) the Toombs site in Wayne, and (4) the Ramapo Ridge and International Crossroads sites in Mahwah. These sites/locations were selected because they best met the previously established screening criteria: mixed uses are permitted; each could accommodate growth of a general scale that is comparable to in-District sites; each is located in a potential regional center, and each offers potential for synergistic effects in meeting divergent social and economic needs. The four sites/locations were then subjected to a preliminary evaluation of potential environmental impact, conducted at a programmatic level-of-analysis.

Ability of Out-of-District Alternatives to Fulfill Growth Needs

This analysis considers the real estate market to be a significant factor in determining the ability of various locations to fulfill the housing and office development needs of the region. Market demand strongly influences decisions to construct new housing and employment centers. Criteria that guide development decisions typically include "hard" factors such as land cost, construction cost, and infrastructure availability, and "soft" factors such as marketability and location.

The following sections review both suburban and urban out-of-District growth potential, and conclude that differing market forces in urban, suburban, and Meadowlands intraregional areas result in land use preferences which generally do not compete among these areas. These differences in market forces are not expected to change over the next 20 years. As a result, the growth projected for, and needed in, the District cannot be effectively relocated out of the District, as discussed below. Real estate professionals in the region anticipate that if the proposed growth in the SAMP is not accommodated in the District, the development will be lost to the region. If this occurs, the region's housing and employment needs will not be met.

Although locations have been identified out of the District that would accommodate single use needs, such as development of homes or office buildings, growth dispersed throughout suburban locations (such as Mahwah and Wayne) would contribute to the patterns of sprawl that is discouraged in the adopted N.J. State Development and Redevelopment Plan. Development of the Ramapo Ridge sites in Mahwah will result in loss of forested upland in the NJ Highlands, with the attendant loss of wildlife habitat, open space, and increased segregation of residential and non-residential land uses (requiring additional dependence on automobile travel), in an area that serves as an important source of water supply for major population centers in northern New Jersey. The Wayne site has greater potential for mixed use

development, however, as is the case for many large tracts that have remained undeveloped through the years, the site has significant wetland acreage that precludes implementation of a large mixed use project, and thus is not superior to in-District sites.

Growth in urban locations is consistent with the State Master Plan. However, the nature of the housing and office market was found to be substantially different than the market existing in the Meadowlands District, and urban centers were not found to be alternative locations for most of the forms of investment and growth that are exhibited in the Meadowlands District.

Ability of Out-of-District Alternatives to Achieve Project Purpose

The approach to SAMP implementation agreed upon in the MOU, and proposed by HMDC for their future District planning, is based on the interdependency between future land uses and environmental restoration, and linkage between future land uses and achievement of environmental management goals and social needs (i.e., housing and employment opportunity). The future ability to manage the complex environment of the District is founded on:

- achievement of mixed development centers in the District with strong linkages to surrounding business services;
- convergence of Federal, State, and local public policy objectives with regard to the environment, transportation, housing, and economic development;
- creation of a Federal/State partnership that can efficiently and comprehensively address the "package" of problems and needs in the District;
- imposition of development exactions and mitigation to finance environmental rehabilitation, infrastructure, and environmental management and monitoring systems.

Fulfilling the goals of the SAMP, in particular the EIP, is fundamentally dependent upon implementing SAMP mechanisms that are integrally linked, so as to achieve *comprehensive* District-wide planning and environmental management goals. The cost and regulatory complexity of realizing land and environmental management goals are significant for the District. Directing growth out of the District, to urban or suburban locations elsewhere in metropolitan New Jersey, cannot contribute to the project purpose of implementing a SAMP with an effective EIP, because it would make the implementation tools that are essential for environmental improvement (such as exactions, TDR, and mitigation/restoration projects) unavailable to HMDC. Hence, the integrity and effectiveness of the SAMP in achieving environmental and economic goals would be undermined by shifting a majority of the anticipated growth out of the District. Finally, out-of-District growth, to the degree that it substantially detracts from in-District growth needs and environmental improvement goals, is inconsistent with HMDC's planning purposes and environmental goals.

2.2 In-District Alternatives Analysis

Screening Analysis of In-District Alternatives

The in-District alternatives screening can be described as an environmental analysis that compares the relative efficiency of land use and resource protection associated with a series of alternative spatial arrangements for future growth in the District. The Land Management Alternatives to be screened consist of five in-District alternatives, as well as the No Action alternative. The alternatives that have been developed are representative of spatial arrangements associated with typical growth patterns in the NY Metropolitan region.

The in-District alternatives that have been evaluated include:

No Action Alternative

In-District Alternatives

- Upland Growth
- Redevelopment
- Highway Corridors
- Dispersed Development Areas
- Growth Centers

The in-District alternatives analysis was conducted in several steps. Before a preferred alternative could be identified for the District, it was first necessary to determine whether there were spatial arrangements for growth in the District that had higher land use efficiencies, identifying such spatial arrangements, and then evaluating the environmental effects only for those forms of growth that best meet the objectives of the SAMP. With this in mind, this section of the alternatives analysis consists of an alternatives screening process to evaluate, on a relative basis, the general environmental effects of alternative In-District forms of growth.

The in-District alternatives were screened to reveal the comparative land use efficiency and the environmental effects of their spatial arrangements and planning approaches. Thus, all the alternatives have been developed so that, to the maximum extent feasible, they similarly fulfill HMDC-identified social, economic, and environmental needs.

The alternatives screening is designed to compare the land use efficiency of spatial arrangements growth in the District, applying a common and relatively equal set of assumptions. The screening process produces a ranking of alternatives. The rank of each alternative is determined by its environmental impacts and its relative environmental efficiency regarding land use. It should be noted that the impact assessment methodologies were selected, and the impact assessments were conducted, at a screening level-of-analysis, designed primarily to reveal differences among alternatives. The impacts of the six in-District alternatives are based

on preliminary assumptions regarding land disturbance associated with each alternative form of growth, and that the impacts of growth in satellite growth areas and from transportation improvements are held constant during the alternatives screening.

Land Management Alternatives

No Action Alternative. The No Action Alternative, by definition, does not result in the creation and implementation of a Special Area Management Plan (SAMP) for the District, as defined in the Memorandum of Understanding. The central assumption is that the existing HMDC Master Plan and Zoning ordinance would continue to be implemented.

Upland Growth Alternative. This alternative assumes that growth occurs only on vacant land in the District that is not wetland. This alternative requires the development of all natural terrestrial habitats currently existing in the District.

Redevelopment Alternative. Redevelopment locations included in this alternative are generally consistent with standard blight criteria of under-utilization and deteriorating conditions. The redevelopment sites shown under this alternative involve redevelopment and conversion of lots on which existing or remnant structures are present into residential, office, commercial or warehousing uses.

Highway Corridor Alternative. This alternative has been developed based on the assumption that private market real estate pressures will result in growth along existing highway corridors, specifically the high-visibility highly-traveled Route 3 corridor. This form of growth is typical in the NY/NJ Metropolitan region, as development interests are attracted to highway corridors.

Dispersed Development Areas. The Dispersed Development Areas alternative assumes that a pattern of functionally unrelated and decentralized growth is likely to result from market pressures and demand; growth being located in small areas of development scattered throughout the District.

Growth Centers Alternative. The Growth Centers Alternative involves growth occurring principally in major nodes within the Meadowlands District. This alternative emphasizes large scale mixed-use community designs that seek to integrate housing, employment, and retail activity in common locations.

Alternatives were compared and ranked based on their relative potential for environmental impact. For each category of potential impact, a numerical measure of impact has been determined. The ranks are indicators of how the potential impacts of each alternative compare to the minimum and maximum potential impacts. To evaluate the in-District alternatives, at a screening level, the relative ranks for the eight assessed environmental impact categories discussed above were combined to identify the alternatives that exhibited lower overall potential environmental impact. Ranking was performed to facilitate environmental screening of the alternatives.

The Land Mangement Alternatives rank as follows, from highest to lowest composite estimated impacts (for all eight environmental impact categories). Please note that this analysis is comparative. These impacts are relative impacts, not absolute impacts.

No Action (7.0 - greatest composite impact)
Highway Corridors (4.2)
Dispersed Development (3.2)
Growth Centers (2.3)
Upland (2.0)
Redevelopment (1.0 - lowest composite impact)

2.3 Hybrid Alternative Analysis

The Alternatives Screening Analysis indicated that the Upland, Redevelopment, and Growth Centers alternatives exhibited the lowest environmental impacts among the Land Management Alternatives. Thus, land parcels from these alternatives resulted in the lowest environmental impacts. However, some land parcels and configurations from other Land Management Alternatives, taken individually, exhibited potential to further reduce the impacts of growth. In addition, two Land Management Alternatives included residential densities that were extremely high, this being necessary because available land was scarce under the Upland Growth and Redevelopment alternatives. It was recognized that a realistic plan for the District would need to reflect current and historical development densities in the District and projected market acceptability of extremely high densities. (Housing densities of over 100 dwelling units per acre and floor area ratios (FARs) of 1.0 to 5.0 were utilized in the Alternatives Screening Analysis because of the scarcity of qualifying parcels.) For this reason each of the parcels in each of the Land Management Alternatives was re-examined as part of a second level Hybrid Analysis, and a Preferred Alternative was identified that was a hybrid of the sites from the Land Management Alternatives.

The principal objective of the Hybrid Analysis was to meet economic and social needs, and fulfill comprehensive planning objectives for the District, by consolidating selected Planning Areas from the several Land Management Alternatives, while concurrently addressing the Clean Water Act Section 404(b)(1) Guidelines. Thus, a guiding factor in conducting this rigorous analysis was also to avoid the use of wetlands to the greatest extent possible in meeting the growth and development needs of the District. This planning analysis establishes and applies criteria intended to address the cost, logistics, and technology parameters of the Clean Water Act Section 404(b)(1) Guidelines. This may include using selected parcels in each of the alternatives in order to make any necessary adjustments that can ensure a balanced distribution of needs. The Hybrid Analysis has determined which of the Planning Areas will be used in the preferred alternative.

Through this analysis, the suitability of Planning Areas to comprise the principal land use classifications has been determined, in the context of preparing a comprehensive plan for the District. This determination was based on the application of exclusionary and planning criteria, as described below. The Hybrid Analysis applies each of the exclusionary and limiting planning

criteria to the Planning Areas in each Land Management Alternative, to determine the suitability of the Planning Area to be included in the Hybrid Plan.

A hierarchy of three levels (tiers) of planning criteria were applied to each site. Assessing a site against the criteria in the first tier generally indicates whether a Planning Area should be excluded from consideration as part of the Hybrid Alternative. The second and third tiers generally indicate that a site has limited potential to achieve HMDC Master Plan goals for Planning Areas, and should be excluded, or its use is limited, as a Planning Area (although the site may be appropriate as a Satellite Area).

> **Tier I - Exclusionary Criteria** are factors or circumstances which are of such significance that they would eliminate the Planning Area from any further consideration (as a Planning Area, Satellite Area, or other use). Specifically, Tier I Criteria relate to site availability, contamination, and ownership or jurisdictional issues.[2]
>
> **Tier II - Potential Cost, Logistics, and Technology Exclusionary Criteria** are factors, that when present, can eliminate a Planning Area from further consideration, can change the proposed land use, or can alter the proposed use to that of a Satellite Area. Tier II criteria also are intended to address Section 404(b)(1) Guidelines with regard to activities in wetlands.
>
> **Tier III - Limiting Planning Criteria** demonstrate the ability of the Planning Area to be responsive to comprehensive planning principles and HMDC developmental needs. If present, the Tier III Criteria indicate limited potential for a Planning Area to achieve Master Plan goals. Tier III criteria also help to define the specific land use types—either primary (primary office, residential, or commercial) or secondary (secondary office, light industry, or warehousing)—to be implemented in the Planning Area.

As part of this analysis recommendations were made about the feasibility of including each potential Planning Area in the Hybrid Plan, keeping in mind the comprehensive planning principles that are used by HMDC to guide future growth. Individual Planning Areas were assessed to determine if they met Tier I, II, or III of the exclusionary and limiting planning criteria.

Contaminated lands and Superfund sites have been extensively reviewed. Where remediation plans exist that may allow the site to become available within the 20 year planning period, the site has been included in the Hybrid Plan. However, many of the known hazardous waste sites (where no public program for remediation exists), were eliminated based on costs, logistics, and technology constraints that make their reuse impractical.

The total development potential of these Planning Areas generally meets the development objectives and needs of HMDC. The hybrid plan has a total of 15 Planning Areas and 39 Satellite

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[2] Tier I and Tier II criteria were developed to address the Costs, Logistics, and Technology parameters of the Clean Water Act Section 404(b)(1) Guidelines.

Areas. The land acreage required by the Planning Areas for the Hybrid Alternative totals 931 acres, of which 510 acres are considered to be wetlands. The Hybrid land use projections based on this acreage equate to 17.7 million sq. ft. of office space, 2.7 million sq. ft. of commercial space and 13,920 residential units. Table ES-2 identifies each Planning Area selected for the Hybrid Alternative and provides information about the type and amount of growth assigned to each of the Areas. Table ES-3 provides similar information for the Satellite Areas. Figure ES-3 illustrates the locations of the Planning and Satellite Areas in the Hybrid Plan. (The numbering of the Hybrid Areas is discontinuous because areas were eliminated during the review process.)

Satellite Areas are locations where the needs for secondary office/warehouse uses can be met. The secondary office/warehouse land use category provides much of the support service for the primary uses, but also provides for the storage, distribution, and assembly of a wide variety of goods both manufactured and imported into the region. Secondary office uses provide the administrative function for the distribution network and in most cases, are located within close proximity to the distribution / assembly functions. The land area for Satellite Area development totals 768 acres, potentially hosting 15.3 million sq. ft. of secondary office/warehouse space at 39 locations. The total wetland impact for the Satellite Areas is 248.9 acres.

2.4 Environmental Improvement Program Alternatives

Alternatives for achievement of environmental improvement goals for the District have been assessed as part of this analysis. The alternatives for environmental improvement in the District range from no action (no implementation of environmental improvements under the SAMP, beyond those programs currently in place), to partial implementation of environmental improvement goals using a subset of available mechanisms, to full implementation of environmental improvement goals for the District (through HMDC's Environmental Improvement Program, EIP).

Alternative mechanisms for implementing environmental improvements in the District include:

- relying on public funding sources to realize environmentally beneficial projects;
- creating new private funding sources to implement environmental improvements;
- implementing environmental management and regulatory enhancements (in addition to minimum compensation requirements related to project impacts);
- coordinating environmental projects that are now administered by a range of governmental agencies; and,
- applying a variant of transferable development rights within the District to achieve conservation objectives.

All the above mechanisms will contribute to achievement of environmental improvement goals in the District. In fact, all the above mechanisms are proposed as part of HMDC's EIP, which is an integral component of the Preferred Alternative for the SAMP.

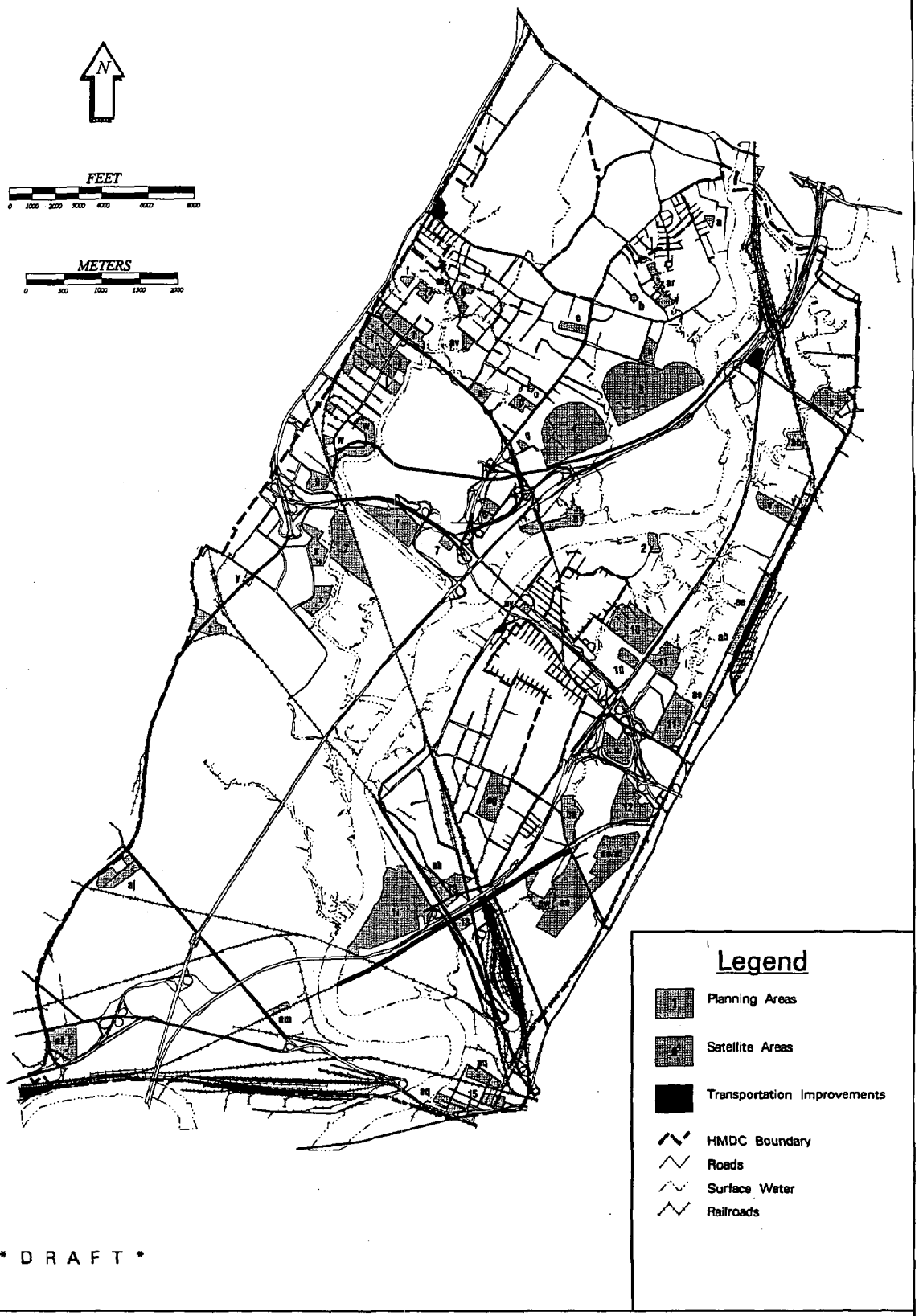
Table ES-2

PLANNING AREAS

Area	Location	Acreage	FAR/ Density *	Office (sq. ft.)	Commercial (sq. ft.)	Residential (dwelling units)	Wetland Fill (acres)
HYBRID 1	Carls/E. Ruth	40.0	0.50		871,200		2.3
HYBRID 2	Secaucus	7.0	15.00			105	
HYBRID 3	Carlstadt	96.0	40.00			3,840	95.0
		70.0	20.00			1,400	70.0
HYBRID 4	Carlstadt	92.0	0.75	3,005,640			87.6
		32.0	1.00		1,393,920		32.0
HYBRID 5	Carls/E. Ruth	14.0	15.00			210	5.0
		10.0	40.00			400	10.0
		7.0	15.00			105	
HYBRID 6	E. Ruth	12.0	1.00	522,720			
HYBRID 7	E. Ruth.	115.0	0.75	3,757,050			72.7
HYBRID 8	Rutherford	0.0	40.00			0	0.0
HYBRID 9	E. Ruth	15.0	1.00	653,400			0.0
HYBRID 10	Secaucus	10.0	1.00	435,600			
		65.0	31.00			2,015	65.1
HYBRID 11	Secaucus	30.0	0.75	980,100			
		20.0	0.50		435,600		
		30.0	0.75	980,100			
HYBRID 12	North Bergen	50.0	0.75	1,633,500			49.7
HYBRID 13	Secaucus	20.0	5.40	4,704,480			9.1
		33.0	0.75	1,078,110			
HYBRID 14	Secaucus	15.0	15.00			225	
		15.0	20.00			300	
		122.0	40.00			4,880	
HYBRID 15	Jersey City	11.0	40.00			440	

PLANNING AREA SUBTOTAL	931.0	AC.	17,750,700	2,700,720	13,920	498.5	AC.
SATELLITE AREA SUBTOTAL	757.9	AC.	See table 4-21			251.3	AC.
PLANNING AND SATELLITE TOTAL	1688.9	AC.				749.8	AC.

* FAR = Floor Area Ratio for office & commercial use. Density is in dwelling units per acre for residential use.



February 21, 1995

Figure ES-3
Preferred Alternative

CDM
environmental engineers, scientists, planners & management consultants

Hackensack Meadowlands SAMP/EIS

Table ES-3

SATELLITE AREAS

Area	Municipality	Proposed for Development (acres)	Projected Facility Size 0.5 FAR (sq. ft.)	Wetland Fill (acres)
a	LITTLE FERRY	3.0	65,340	0.0
b	MOONACHIE	2.0	43,560	0.0
c	CARLSTADT	9.7	211,266	0.0
e	CARLSTADT	12.4	270,072	0.0
f	CARLSTADT	13.0	283,140	7.1
h	CARLSTADT	10.2	222,156	7.8
i	E RUTHERFORD	30.8	670,824	0.0
j	E RUTHERFORD	49.1	1,069,398	37.5
k	CARLSTADT	12.1	263,538	5.6
o	CARLSTADT	1.7	37,026	0.0
p	CARLSTADT	10.2	222,156	6.5
q	CARLSTADT	3.1	67,518	1.8
v	N. BERGEN	30.3	659,934	23.3
w	E.RUTHERFORD	39.7	864,666	35.0
x	LYNDHURST	46.2	1,006,236	35.9
y	LYNDHURST	4.0	87,120	0.0
aa	N.BERGEN	13.2	287,496	9.5
ab	N.BERGEN	7.5	163,350	0.0
ac	N.BERGEN	4.4	95,832	2.9
ah	SECAUCUS	8.1	176,418	0.0
am	KEARNY	5.0	108,900	0.0
ar	MOONACHIE	14.9	324,522	0.0
as*	JERSEY CITY	81.5	392,040	64.4
at	CARLSTADT	1.7	37,026	0.0
av	CARLSTADT	5.3	115,434	2.5
aw	SECAUCUS	18.3	398,574	0.0
bb	N.BERGEN	11.5	250,470	11.5
	SUBTOTAL	448.9	8,394,012	251.3

PLANNING AREAS RETAINED AS SATELLITE AREAS

AREA	Municipality	Proposed for Development (acres)	Projected Facility Size 0.5 FAR (sq. ft.)	Wetland Fill (acres)
n	CARLSTADT (upland area N)	10.0	217,800	0.0
s	N. BERGEN (upland area A)	30.7	668,646	0.0
z	LYNDHURST (upland area H)	20.8	453,024	0.0
ae/af	N. BERGEN (upland area L)	60.8	1,324,224	0.0
ag	SECAUCUS (upland area K)	36.5	794,970	0.0
aj	KEARNY (upland area P)	27.1	590,238	0.0
ak	KEARNY (redevelopment I)	32.3	703,494	0.0
aq	JERSEY CITY (redevelopment J)	30.8	670,824	0.0
ay	SECAUCUS (redevelopment E)	3.0	65,340	0.0
az	SEC/N.BERGEN (redevelopment F)	30.6	666,468	0.0
ba	SECAUCUS (redevelopment G)	26.4	574,992	0.0
	SUBTOTAL	309.0	6,730,020	0.0
	SATELLITE AREA SUBTOTAL	757.9	15,124,032	251.3
	PLANNING AREA SUBTOTAL	931.0		498.50
	PLANNING AND SATELLITE **TOTAL**	1688.9		749.80

* represents the development of an intermodal rail facility with associated warehouse space.

Although several environmental improvement projects are ongoing in the District under various authorities (e.g., hazardous waste remediation via Superfund, landfill closure for a subset of landfills for which closure funds were established, sewage treatment plant improvements), a number of proposed programs that are very important in the District (wetland protection and enhancement, water quality improvement, closure of orphan landfills) cannot proceed because there are only very few programs that have been created to target such non-permit-related actions (with sources of funding that are sufficient to address the extensive environmental remediation needed in the District).

The alternatives to the EIP consist of:

(1) no implementation of the EIP,

(2) partial implementation of the EIP (only a subset of improvement actions are implemented), or,

(3) full implementation of the EIP.

Full implementation of the EIP, as proposed by HMDC, was selected as the SAMP Preferred Alternative. Implementing environmental improvement in the District requires proactive management (especially for areas not covered under existing environmental programs), using new dedicated sources of environmental improvement funding. Critical environmental improvements needed in the District can be realized only through full implementation of the EIP, in the context of SAMP implementation. As discussed under the No Action alternative, there are a number of important EIP projects and programs that are essential to realizing wetland, wildlife habitat, and water quality improvement in the District, but such projects are not eligible under available regulatory or management programs. Full implementation of the EIP and SAMP will allow implementation of wetland protection, landfill closure, and air and water quality improvement projects (i.e., including funding for projects/programs that otherwise have no funding available).

2.5 Preferred Alternative

The SAMP Preferred Alternative was created during the planning and environmental study process that was conducted for the EIS. The MOU for the SAMP called for the implementation of specific products pursuant to the SAMP/EIS process: a General Permit and Abbreviated Permit Process for projects consistent with the SAMP; a revised HMDC Master Plan for the District; restrictions on development in specific areas; and application of best management practices for storm water runoff. In accordance with this list of objectives for the SAMP, the SAMP Preferred Alternative consists of the following principal components:

- Adoption of a specific future Land Use Plan and Transportation Improvements Plan for the District, to be included in the revised HMDC Master Plan and Zoning Regulations (see Section 6.1 of the EIS),

- Full implementation of an Environmental Improvement Program for the District, that comprises a comprehensive series of environmental programs and projects to remediate historic environmental degradation in the District (see Section 2 of the EIS),

- Requirements for Environmental Mitigation (including mitigation review and monitoring), especially wetland mitigation required for wetland impacts (specific mitigation requirement are presented in Section 5, and mitigation oversight is described in Section 6),

- Adoption of SAMP Implementation Mechanisms, including streamlining of the regulatory review process (see Section 6.2 of the EIS), mechanisms for conservation and for funding environmental improvements (see Section 2 and 6.1 of the EIS), SAMP oversight processes, and revisions those elements of the NJ Coastal Management Plan that relate to the District.

The SAMP Preferred Alternative represents a comprehensive plan for the future of the District. The future land use plan constitutes the development component of the Preferred Alternative, and represents growth anticipated over the 20-year SAMP study period. (The growth anticipated over the 20-year planning period represents virtually all growth anticipated for the long-term future of the District; the District will reach its buildable limit during the planning period). The land use plan yields an alternative that meets the planning and management goals of HMDC, and the economic development and social needs of the District, while also addressing environmental criteria established through the Clean Water Act (i.e., avoidance, and costs, logistics, and technology criteria associated with the use of specific land areas).

The proposed future land use plan would allow for the construction of 13,920 new homes in the District, in planned locations, and will allow specific office and related development that will accommodate an estimated 100,000 jobs in the District, over the 20-year planning period for the SAMP. The land use plan proposed in the Preferred Alternative will result in the addition of 17.8 million square feet of primary office space, 2.7 million square feet of commercial space, 13,920 residential housing units, and 15.3 million square feet of secondary office/distribution space in the District. The total land disturbance associated with the Planning and Satellite Areas, as set forth in the Preferred Alternative, calls for the utilization of approximately 1,700 acres of land in the District. The proposed Transportation Improvements call for the additional utilization of about 160 acres of land in the District. The proposed Planning and Satellite Areas were listed in Tables ES-2 and ES-3; proposed Transportation Improvements are listed in Table ES-4.[3]

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[3] Only minor transportation improvements to existing transportation facilities in the District were determined to have no available alternatives, because the low level of impact in the existing location could not be reduced in an alternative location. Alternatives analysis has <u>not</u> been conducted for major transportation improvements (either new or existing facilities) for this EIS.

Table ES-4

TRANSPORTATION IMPROVEMENTS INCLUDED IN THE PREFERRED ALTERNATIVE

From Maps, Plans, and Tables Received from HMDC

Project#	Description	Project Area (Outside P/SAs) (acres)	Wetland Fill (w/o Open Water) (acres)
1	Extend Sea View Ave, south to NE Corridor, replacing Bergen Line.	4.6	0.0
2	Widen County Ave, from Secaucus Rd to County Ave/Rd.	7.4	0.0
4	Widen New County Rd, from County Ave/Rd to southern terminus.	2.6	0.0
5	Realign ramps at Rt 3 and Meadowlands Parkway.	4.0	0.0
6	Widen Paterson Plank Rd, from E.Spur NJ Tpk Bridge to West Side Ave.	7.4	0.0
7	Widen and extend Bergen Ave, from District Boundary to Newark-Jersey City Tpk.	4.9	0.0
8	Extend Meadowlands Parkway, north to Paterson Plank Rd.	4.1	0.0
9	Connect/widen Paterson Plank Rd, from W.Spur NJ Tpk across river to existing road.	4.3	0.2
10	New road (Bergen Arches Extension), along existing Bergen Line, from NJ Tpk Interchange at Secaucus Transfer (see #28) to Tonnelle Ave.	11.5	2.0
12	Widen Belleville Tpk, from Sellers Street (District boundary) to Newark-Jersey City Tpk.	28.1	5.4
13	Widen Castle Rd, from Meadowlands Parkway Extension to New County Rd (entire length).	5.7	0.0
16	Widen Redneck Ave from Moonachie Ave to Liberty St (entire length).	8.1	0.0

Table 4-22 (continued)

TRANSPORTATION IMPROVEMENTS INCLUDED IN THE PREFERRED ALTERNATIVE

Project#	Description	Project Area (Outside P/SAs) (acres)	Wetland Fill (w/o Open Water) (acres)
17	Construction of Park & Ride on approx 7 acres at Moonachie Ave/Railroad St/Industrial Ave.	7.5	0.0
20	New ramp from W. Spur NJ Tpk northbound at 18W to Rt 120.	7.0	1.8
21	New road east of Brendan Byrne Arena (Rt 120).	42.3	5.0
22	Widen Paterson Plank Rd, from Rt 17 to Washington Ave.	15.4	0.0
25	Widen Moonachie Ave, from Rt 17 to Washington Ave/Moonachie Rd.	14.2	0.0
26	Rt 17 South Extension, from Rt 3 to Rt 280 (along existing Kingsland Line).	57.5	6.4
27	New rail line from Bergen Line, adjacent to widened NE Corridor (see #40) to NYS&W/West Shore rail (at Rt 3).	4.0	2.9
28	E.Spur NJ Tpk Interchange at Secaucus Transfer.	31.7	16.8
29	New rail line connecting Main Line to Bergen Line, west of Meadowlands Parkway.	6.9	1.6
30	Widen Main Line from connection from Bergen Line (see #29) to NE Corridor.	20.8	0.7
31	Waterfront Corridor Transit Rail, along District boundary from 50th Street to Vince Lombardi P&R (see #38).	38.4	7.3
32	Widen Newark-Jersey City Tpk, from District boundary to Belleville Tpk.	20.4	0.4
33	Realign/grade separation of Secaucus Rd at NYS&W/West Shore rail and post office access road.	4.2	0.1

Table 4-22 (continued)

TRANSPORTATION IMPROVEMENTS INCLUDED IN THE PREFERRED ALTERNATIVE

Project#	Description	Project Area (Outside P/SAs) (acres)	Wetland Fill (w/o Open Water) (acres)
34	Ramps at intersection of West Side Ave and Paterson Plank Rd, and realignment of West Side Ave.	1.0	0.1
35	Widen Washington Ave, from Paterson Plank Rd to Moonachie Ave.	13.1	0.0
36	Widen Secaucus Rd, from E.Spur NJ Tpk to new alignment at West Shore rail (see #33).	2.8	0.0
37b	Widen Rt 3, from Rt 20 to Berry's Creek bridge.	17.5	0.0
38	Expansion of Vince Lombardi Park & Ride, approx 10.7 acres.	10.7	0.0
39	Secaucus Transfer Station, between Planning Area "13", new Turnpike Interchange (see #28), Penhorn Creek, widened Mail Line (#30), and widened NE Corridor (see #40).	3.0	0.0
40	Widen NE Corridor Line, from Hackensack River to Secaucus Rd.	43.6	11.0
41	Widen County Rd from New County Rd/County Ave to Tonnelle Ave.	10.9	1.0
42	West Shore Line Commuter Rail (between Vince Lombardi P&R—#38 and Meadowlands Sports Complex).	50.0	29.1
	Total	515.6	91.8

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The implementation of the Environmental Improvement Program is anticipated to lead to significant restoration of the District's natural environment, an environment that was seriously degraded as a result of historic activities.

The Preferred Alternative was compared with the six alternatives examined during the alternatives screening analysis. The comparison of overall environmental impacts shows that the Preferred Alternative ranks second in its overall environmental impacts, behind the Redevelopment alternative. However, as discussed above, the Redevelopment alternative applies unreasonably high development densities to fulfill the development needs, because only limited acreage of redevelopment land exists in the District. If the redevelopment alternative is excluded from consideration because of implementation constraints, the Preferred Alternative exhibits the lowest overall environmental impact.

Chapter 3
Environmental Impacts of the Preferred Alternative

The Preferred Alternative has been assessed using impact assessment methods relevant to regional environmental analysis, to identify (at a programmatic level) effects of the Preferred Alternative on environmental resources. This EIS focuses on regional and cumulative environmental impacts from the Preferred Alternative, Because this EIS is being conducted at a regional scale (i.e., District-wide, over a 20-year planning period), all of the impacts discussed in this EIS are evaluated as cumulative impacts. The analyses selected to assess impacts from the Preferred Alternative were chosen because they are appropriate at a regional scale, and, to the extent possible, they reflect cumulative effects. As an example, impacts to aquatic resources are discussed in terms of the amount of primary productivity lost (cumulatively) to the entire Meadowlands ecosystem. Cumulative impacts are also often felt "across" different environmental media. For example, impacts to aquatic biology may occur because of decreases in water quality. To the extent possible, these "cross-media" cumulative impacts have been evaluated.

Impacts have been assessed for 18 different environmental or socio-economic topics that are important in the Meadowlands. These topics include biological resources (e.g., wetland and upland habitats for both plants and animals), other natural resources (e.g., water quality, hydrology, air quality, and noise), socio-economic resources (e.g., community facilities, transportation, and local government services), and cultural resources.

If an identified environmental impact is significant, planned and/or appropriate actions to be taken to mitigate adverse impacts have been identified. In some cases (e.g., wetland resources or water quality) mitigation actions are required by law. But in many cases (e.g., terrestrial habitat or community facility impacts), mitigation for projected impacts is not required by law. In these cases, appropriate mitigative actions are presented in order to minimize the cumulative environmental impacts of the Preferred Alternative. In many cases, the anticipated mitigation actions, in concert with implementation of the Environmental Improvement Program, result in improved environmental quality in the District.

Wetlands Impacts

Implementation of the Preferred Alternative will result in impacts to wetland resources in the District. The hybridization process used to identify the Preferred Alternative included review of all feasible upland and redevelopment areas within the District to avoid, where possible, wetland impacts. In addition, development densities (e.g., housing units per acre, square feet of office space per acre, etc.) were maximized to reduce wetland impacts to the greatest feasible extent.

Impact Method. In order to assess impacts to wetlands in the District, the indicator value assessment (IVA) method was used. The IVA is an indexing system developed for the SAMP that uses chemical, physical, and biological wetland indicators to identify the effects of potential

changes to wetlands in the District. The IVA method provides a semi-quantitative measure of wetland indicators currently present in the District (relative to other District wetlands), and allows for measurement of potential impacts caused by predicted changes to these indicators. The method being used to evaluate wetland impacts (the IVA method) is based on the WET and AVID (EPA, 1985) previously conducted in the District.

Potential impacts to wetlands are assessed in this EIS by using the IVA method to track wetland indicators (and changes to the indicators) for three wetland attributes: (1) water quality improvement (WQ), (2) wildlife habitat (WH), and (3) social significance (SS). The IVA method operates by assigning a numerical importance rank to a broad range of wetland indicators (including features such as water depth, vegetation type, wildlife presence, tidal influence, etc.) as they relate to these three wetland attributes. The IVA provides a numerical score for each wetland (for each attribute) on a scale of 0 to 100. The score for each attribute is then multiplied by the area of the wetland (in acres) to arrive at a final "indicator value" for the AA for each of the three attributes.

In support of this EIS, a field study of the IVA method and its application in the District was conducted. One important conclusion of the field study was that the IVA method resulted in measurements of wetland value comparable to the best professional judgement of five wetland professionals.

Direct Impacts. The impact analysis considered two types of wetland impacts using the IVA method: direct impacts and indirect impacts. Direct wetland impacts are those impacts directly associated with the filling of wetlands. The IVA tracks direct impacts by assuming that a wetland that is within a development area is filled and loses all of its wetland indicators. For the Preferred Alternative, approximately 842 acres of wetlands are projected to be filled over the 20-year planning period. This is approximately 10 percent of the existing wetlands and aquatic habitat now present in the District. The results of the IVA analysis shows that this direct impact represents between 8% and 12%[4] of the value of existing wetlands in the District.

Indirect Impacts. When development occurs adjacent to (or upstream from) a wetland, that wetland is likely to experience secondary impacts from the new development. Because these impacts are not caused by "direct" activity in the wetland area, they are termed "indirect" impacts. Indirect impacts (e.g., uncontrolled culverted storm water runoff, hydrologic disturbances and non-point source runoff) lead to a lowering of the wetland value for the indirectly impacted wetlands, but not a complete loss. Indirect impacts to wetlands are measured by evaluating potential changes to the wetland indicators of all wetlands that are either adjacent to, or downstream of developed land. These indirect impacts are initially calculated by assuming that no management or minimization actions would occur to reduce indirect impacts. If none of these management or minimization actions are taken, the Preferred

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[4] The IVA method actually reports impacts for each of the three wetland attributes. In this summary, impacts are discussed in terms of the range among the three attributes. Additionally, impacts are presented as a percentage of the existing ("baseline") conditions.

Alternative could indirectly impact an additional 1,945 acres, further reducing the value of the District's wetlands by between 3% and 12%.

SAMP Management. However, these potential "maximum" indirect wetland impacts will be reduced through requirements in the SAMP for structural and site planning techniques, or "best management practices" (BMPs) to reduce (by avoiding and/or minimizing) indirect impacts to the remaining wetlands. Thus, requirements for BMPs, within the SAMP, will result in a reduction of indirect impacts. By implementing appropriate BMPs, the indirect impact of the Preferred Alternative would be reduced to 1,217 acres, resulting in an indirect impact of between 2% and 5% of the values of existing wetlands.

Direct and Indirect Impact. Thus, by using BMPs, the total impact (including both direct and indirect) of the Preferred Alternative would result in the filling of 842 acres of wetlands, and the reduced functioning of an additional 1,217 acres. The results of the IVA analysis shows that the total impact will be between 11 and 14 percent of the value of the District's existing wetlands.

Wetland Mitigation. Subsequent to taking avoidance and minimization actions regarding wetlands impacts, a mitigation plan is required under the Clean Water Act to mitigate direct and indirect impacts. A programmatic-level mitigation plan has been identified to compensate for wetland functions and values lost as a result of fill activity and indirect effects. The mitigation plan identifies a portion of the required mitigation to replace certain wetland indicators lost due to indirect impacts, and then identifies wetlands enhancement and creation actions throughout the entire District. Creation of 45 acres of wetlands and enhancement of 3,360 acres of wetlands will provide the remaining mitigation for the unavoidable wetland impacts of the Preferred Alternative. Figure ES-4 shows locations of anticipated wetland fill under the Preferred Alternative, and proposed wetland mitigation (creation and enhancement) areas. Examples of the proposed wetland enhancement techniques include: re-establishing or improving tidal flow; creating meandering channels (with pools and riffles where appropriate); and replacing monotypic stands of phragmites with a diversity of wetland plants.

The IVA method was used to predict the gain in wetland value associated with the various mitigation, creation, and enhancement actions identified in the plan. The results of the IVA analysis show that the proposed mitigation plan will result in "no net loss of wetland values" in the District, for all of the three wetland attributes[5].

EIP Impacts. In contrast to the development aspects of the Preferred Alternative, the EIP will have a significant positive impact on the wetland resources in the District, by establishing a program to enhance and manage the wetlands in the District. Goals of the EIP include the enhancement, restoration, and management of the wetland resources in the District, by increasing the biological diversity, health, and functioning of those wetlands. The EIP also sets forth the blueprint for the creation of a wetlands mitigation bank, to coordinate and foster wetland mitigation and enhancement efforts throughout the District.

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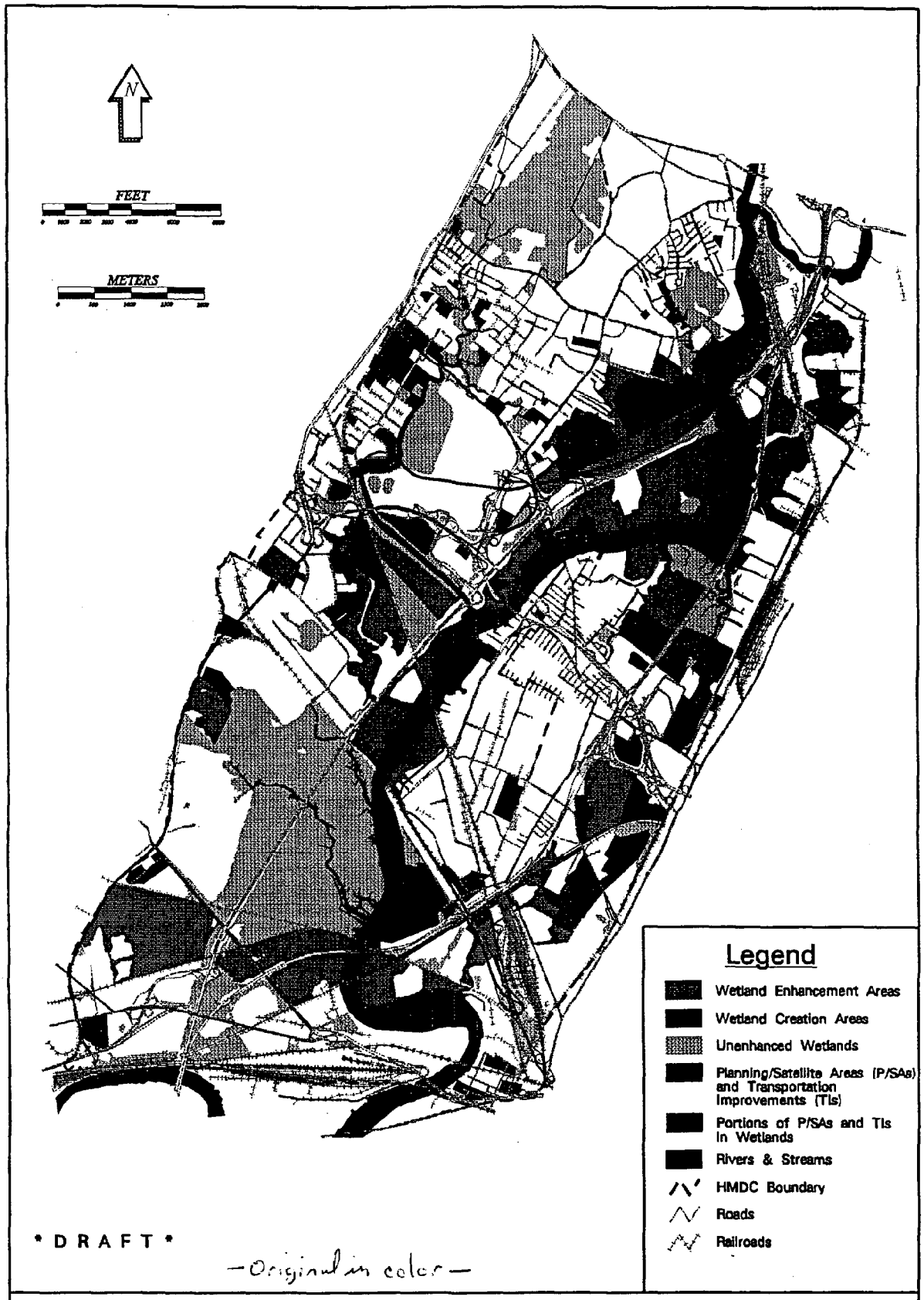
[5] The proposed SAMP mitigation plan will result in no net loss in wetland values for the Water Quality attribute, and will result in a net gain in wetland values for the Wildlife Habitat and Social Significance attributes.



February 21, 1995

Figure ES-4

Potential Wetland Fill and Mitigation for Preferred Alternative

CDM
environmental engineers, scientists, planners & management consultants

Hackensack Meadowlands SAMP/EIS

Threatened and Endangered (T/E) Species Habitats Impacts

Several species among the state and federally listed endangered or threatened species have been reported to be present within District. State and federal laws seek to preserve the habitats of the threatened or endangered species. Impacts to threatened or endangered (T/E) species habitats were assessed by measuring direct loss of, or indirect effects on these important habitats. The analysis was conducted regionally for the District, and relies principally on the resource inventories conducted for the AVID, and those available from NJDEP. In addition, a federal biological assessment (BA) was conducted to identify potential impacts to existing federally-listed threatened or endangered species (Peregrine Falcon).

Habitat areas, as identified from federal, state, and HMDC sources, generally cover broad expanses of territory, in which some localized use, or uses, have been observed. Thus, the impact analysis for T/E species uses the term "potential" impact, because impacts to specific areas of nesting/breeding/feeding within the broad areas of use will need to be conducted in the future once specific site designs, and hence potential for disturbance, are known.

Using this generalized data on potential T/E habitat areas, the Preferred Alternative has the *potential* to impact, to some extent, general habitat locations for all of the avian and floral threatened and endangered species reported in the District. Actual impacts may be substantially lower than those presented here, due to the uncertainty of habitat locations. The wetland mitigation actions taken will avoid disturbance to existing nesting sites, or other actions which might destroy existing habitats for both federal and state T/E species. It should be noted, however, that one of the goals of the wetlands mitigation is to improve existing habitats such that the existing T/E habitats in the District will expand.

Peregrine Falcon. For the only federally-listed T/E species reported in the District, Peregrine Falcon (*Falco peregrinus*), no direct impact is projected, because no proposed activities would cause direct mortality of any of these birds, and no nesting sites will be destroyed[6]. The principal indirect impacts to Peregrine Falcon consists principally of elimination of potential feeding habitat, which in turn might reduce the diversity and abundance of available prey. It is unlikely that size of food supply is a limiting factor for peregrines in the Meadowlands region, as this species readily utilizes prey species associated with heavily developed habitats. However, the fact that peregrines are known to regularly utilize the District suggests that the environment and food supply provided by this area represent an important resource.

Of the total area proposed to be developed in the Preferred Alternative, approximately 600 acres of wetland and 150 acres of upland have been classified in the BA as Average or better feeding habitat for Peregrine Falcon. Without compensating mitigation, the total impact would represent more than 10% of the total wetland habitat in the District and 30% of the undeveloped upland habitat, and the loss of this amount of foraging habitat could slightly reduce the carrying capacity of the Meadowlands system for this species, although this reduction would be unlikely to adversely affect the stability of the regional population. Effective mitigation of these losses,

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[6] No Peregrine Falcon nests are known to exist in the District.

however, would offset this small adverse impact and may possibly provide net benefits to Peregrine Falcon.

In addition to impacts from the proposed development, impacts to Peregrine Falcon might occur if changes are made to wetlands in order to mitigate for wetland impacts (see discussion of wetlands impacts above). To ensure that actions taken for wetlands mitigation will not adversely impact T/E habitats, the BA conducted for this project also identified habitats for federal T/E species within areas identified in the wetlands mitigation plan. The proposed SAMP wetland mitigation plan is designed to improve overall habitat diversity and wildlife habitat value in the District. By allowing the District to support larger populations of birds (and other wildlife), and possibly a greater diversity of species, such mitigation will increase the prey base available to raptors, and thus would have a substantial positive indirect impact on the peregrines that utilize the District. The cumulative positive impact of the wetlands mitigation plan, in fact, would probably be more than the sum of the individual mitigation projects. Because the overall plan includes numerous hydrological enhancements (new, improved, or re-established connections between various elements), and greatly increased vegetation diversity, it would probably improve the functioning of virtually the entire wetland system in the District. This, along with the proposed wildlife habitat enhancements in uplands (as part of the EIP), could enable the system to support a greatly increased prey base for Peregrine Falcon, and thus the system could potentially support more individual falcons, contributing to the conservation of the Eastern population. Because wetland mitigation is a required element of the SAMP, and because the benefits provided by the wetland mitigation will far outweigh the current habitat value of the development and transportation sites, the cumulative impact of the SAMP (including development, wetland mitigation, and the EIP) will be highly positive.

Other State-listed T/E Species. The Preferred Alternative has the potential to impact, to some extent, other species listed as threatened or endangered by NJDEP. The principal potential habitat impacted are the wetlands and uplands around lower Berry's Creek. This area is listed as a potential habitat for Salt Marsh Bulrush (a NJ-endangered plant); Northern Harrier and Pied-billed Grebe (birds whose breeding habitat is listed by NJDEP as endangered); Bobolink and Savannah Sparrow (NJ-threatened birds); and American Bittern (a bird whose breeding habitat is listed by NJDEP as threatened). However, as stated above, the actual habitat areas for these species is not know. Thus, site-specific identification of actual T/E habitats will need to be performed at the time of project proposal for projects in locations that have been identified as potential T/E habitats.

T/E Mitigation. Avoidance of direct impacts on T/E species habitats was a factor in the development of the Preferred Alternative by reducing to the extent feasible the amount of habitat that would be directly or indirectly affected by the build-out of the Preferred Alternative. However, site-specific identification of actual T/E habitats will need to be performed for projects that include areas that have been identified as potential T/E habitats. If actual T/E habitats are located adjacent to a project, mitigation of indirect impacts can be accomplished by implementing appropriate site planning and construction measures (e.g., adjusting locations of high-intensity land uses away from important habitats, and scheduling construction to avoid important breeding or migrating seasons) during site-specific development. In addition, the wetlands enhancement plan and the Environmental Improvement Program should increase

potential habitat for threatened and endangered species. In particular, suitable nesting sites for least tern can be created, and osprey platforms can be constructed.

For additional enhancement of the District to protect Peregrine Falcon, the BA identified specific conservation measures that could be taken to protect and increase the use of the District by Peregrine Falcon. In consultation with the NJ Endangered and Nongame Species Program and the US Fish and Wildlife Service (USFWS), peregrine nest platforms could be installed on tall buildings, bridges, towers, elevated highways and other structures in the District. If the Meadowlands system has additional carrying capacity for breeding birds, such a program could help to further expand the peregrine population of the Mid-Atlantic Coast region. The existence of known nest sites in accessible locations could facilitate research on productivity, current pollutant loads, and other aspects of the biology of urban peregrines.

EIP Impacts. The Environmental Improvement Program, by remediating water quality impacts from landfill leachate, controlling non-point source pollution, and improving flood control and storm water management, is likely to result in substantial improvements to water quality in the District. This will enhance the functioning of the Meadowlands ecosystem starting at the bottom of the food chain, and ultimately could benefit all T/E species. It could also reduce pollutant loads ingested by T/E species. Proposed reclamation of landfills for wildlife habitat values will expand the prey base for carnivores, such as Peregrine Falcon, by increasing the diversity of birds and other wildlife inhabiting the District. The Program's natural-resource management goals of improving the preservation, control, enhancement, management, and maintenance of the District's wetlands will provide similar benefits. Furthermore, there is a significant opportunity for implementation of additional conservation measures in the District to promote use of the District by all T/E species. The BA recommended that the signatory agencies to the SAMP Memorandum of Understanding (MOU) enter into a Memorandum of Agreement (MOA) with US Fish and Wildlife Service (USFWS) for the investigation and implementation of conservation measures as part of the SAMP. This conservation MOA will help assure that conservation measures will be realized through the SAMP.

Other Aquatic Resources Impacts

Indirect impacts to aquatic resources may occur as a result of the loss of estuarine wetlands, which provide a source of primary productivity for the aquatic food chain. The Preferred Alternative impacts approximately 380 acres of estuarine wetlands. This represents a 6 percent reduction in the 6,583 acres of existing estuarine wetlands in the District. Assuming that all estuarine wetlands in the District provide similar amounts of primary productivity, this means that approximately 6 percent of the existing primary productivity provided by estuarine wetlands would be lost. This reduction in estuarine wetland acreage may result in the slight reduction of an important source of primary productivity to the aquatic food chain. Additional indirect impacts to the aquatic ecosystem may occur from new bridges over existing channels, by potentially creating additional shading and localized alterations in stream flow. However, only a small number of new bridges are proposed (two over the Hackensack River, as well as a few small bridges over minor streams and channels).

Mitigation for the indirect impacts would be included with, and accomplished through wetland enhancement under the wetland mitigation plan. By creating or enhancing 3,400 acres of wetlands, and improving the circulation in and communication with open water areas, the predicted reduction in estuarine wetland acreage would be more than compensated for by increased functioning, and a correspondent increase in productivity of the remaining wetlands.

Indirect impacts from the EIP will consist of benefits to the aquatic food chain by reducing pollution from landfill leachate, from hazardous waste sites, and from other non-point sources. All of these actions serve to improve water quality in the District, which will improve the aquatic ecosystem.

Terrestrial Ecosystems Impacts

The Preferred Alternative impacts a substantial percentage of the existing "vacant" upland acreage, which is the predominant terrestrial habitat in the District. The major terrestrial resources in the District (except for the remnant and unique habitats) are habitats on open vegetated areas in the District that have evolved on portions of wetlands filled in the past for solid waste disposal. These vegetated filled areas provide both a habitat for numerous terrestrial species that have moved in when nearby vacant uplands (outside the District) were built on, and provide a habitat for species that use both wetlands and uplands. Because the majority of the terrestrial habitats that would potentially be impacted under the Preferred Alternative are located on areas that were filled over the last century, there are virtually no impacted upland habitats that can be considered indigenous. Many open spaces have also been subject to continuous disturbances, such as vehicular traffic and fire, which have slowed the natural process of succession.

Those areas not in wetlands that were characterized by HMDC as "vacant" land use were used as the basis for assessing potential impacts of the Preferred Alternative on terrestrial resources. The Preferred Alternative will potentially impact approximately 680 acres of upland habitat. This represents approximately 31 percent of the existing 2,176 acres of vacant uplands in the District. The remaining vacant upland habitat consists primarily of historic landfills and contaminated sites. All of these upland areas are approximately equal in importance to the wildlife ecosystems in the Meadowlands, except for the upland areas that are identified as habitats for threatened or endangered species, or that are considered remnant or unique (discussed below).

As part of the solid waste improvements included in the EIP, abandoned or closed landfills will be reclaimed as upland habitats for plants and animals. There are approximately 900 acres of historic, closed or abandoned landfills in the District identified in the EIP for habitat reclamation. As part of the EIP, clusters of desirable native plantings will be established on select areas on the landfills. These "planting islands" will function as seed sources which will be naturally dispersed by wind, animals, and insects to vegetate the landfill. This newly created habitat will serve as a valuable refuge for birds, mammals, and insects that require upland ecosystems. To the degree possible, new terrestrial habitats will be designed to serve as replacements for the habitat lost due to development of the Preferred Alternative. Thus, the EIP will provide a

positive impact to terrestrial resources by creating or enhancing approximately 900 acres of upland habitat in the District.

R/U Habitat Impacts

Remnant habitats are those which were more common in the past but which have since dwindled to remnants of their former areal range. Unique habitats are those that developed under unusual circumstances and now provide valuable habitat. Remnant habitats provide scientists with an opportunity to study and understand the mechanisms that led to the reduction of these habitats. Remnant and unique habitats in the Meadowlands provide a local diversity of plants and animals which may supply the stock to recolonize other areas of the Meadowlands at some future time. The four remnant or unique habitats found in the District include: High Salt Marsh, Fresh Water Meadows, Forested Wetlands, and Rock Outcroppings.

The Preferred Alternative has the potential to impact, to a minimal extent, two of the four remnant and unique (R/U) habitats identified in the District:

- Transportation improvements of the Preferred Alternative (widening of the Northeast Corridor) has the potential to impact approximately four acres of the unique "High Salt Marsh" habitat. Because this is a widening of existing rail lines, the impacts on the high salt marsh habitat will be significantly less than that which would be associated with construction of a new roadway.

- Development of the Preferred Alternative has the potential to directly impact 70 acres (12 percent) of the remnant "Fresh Water Meadows" habitat, primarily along Moonachie Creek, but also along the edges of Kearny and Kingsland Marshes.

The EIP, in addition to enhancing, managing, and protecting the general wetland resources of the District, will establish a program to enhance and manage remnant and unique (R/U) plant and animal habitats in the District. The program will address over 225 acres of R/U habitats, including Little Snake Hill, Losen Slote Creek, and the Teterboro woodlands. The current lack of management and control over many of the District's remnant habitats could potentially lead to degradation and ultimately to the loss of these habitats from vandalism and neglect. Protection of these sites can reduce the threat of vandalism; management and enhancement can prevent and reverse the trend of neglect.

Anticipated enhancement efforts include the establishment of indigenous plant species which represent the native community structure thus increasing wildlife diversity; restoration of endangered plant species; and the preservation of unique, physical site features.

Water Quality Impacts

There are three sources of potential impact to water quality from the Preferred Alternative: increased discharges from wastewater treatment plants that serve the growth areas in the District (point sources); increases in storm water runoff to the Hackensack River and its

tributaries as a result of an increase in impervious surfaces (non-point sources); and temporary construction activities (both point and non-point sources).

Wastewater Discharges. There are four separate authorities that collect and provide secondary-level treatment for wastewater generated in the District. The Bergen County Utilities Authority (BCUA) operates the largest facility in the District, with a design capacity of 100 million gallons per day (mgd). BCUA currently discharges approximately 70 mgd of secondary-level treated wastewater into the Hackensack River. BCUA serves the municipalities west of the Hackensack River and north of Route 3 and Ridgefield. Wastewater generated in the municipalities west of the Hackensack River and south of Route 3 is now pumped to the 330-mgd capacity treatment plant in Newark operated by the Passaic Valley Sewerage Commissioners (PVSC), where it is treated and discharged to the Passaic River.

Wastewater generated in North Bergen and Secaucus flows to the treatment plants operated by each of these towns. North Bergen Municipal Utilities Authority (NBMUA) operates a 10-mgd capacity treatment plant, and currently discharges approximately 5 mgd to Chromakill Creek. Secaucus Municipal Utilities Authority (SMUA) operates a 5.1-mgd capacity treatment plant, and currently discharges approximately 3 mgd to Mill Creek.

Wastewater flows are projected to increase by 6.1 mgd for the growth anticipated under the Preferred Alternative. Wastewater flows are projected to increase by 2.7 mgd to the BCUA treatment plant, by 0.5 mgd to the NBMUA treatment plant, by 2.6 mgd to the SMUA treatment plant, and by 0.3 mgd to the PVSC treatment plant. Except for SMUA, the existing wastewater treatment facilities appear capable of accommodating projected growth within their current design capacity and permit requirements. The lack of available capacity at the SMUA facility can be solved by either expanding the existing plant, constructing a new treatment facility, or pumping the excess flows to another treatment facility.

BCUA has completed a major study of the impact of their discharge on the water quality of the Hackensack River. This study showed that, under existing conditions, the dissolved oxygen (DO) standard (4.0 mg/l) was violated 19 percent of the time during the summer period (June through September) in the "critical reach" of the Hackensack River. The BCUA study also predicted that, if all three of the treatment plants that discharge to the Hackensack River were discharging at their respective capacities, the DO standard would be violated 21 percent of the time in the critical reach during the summer. Because the additional flows to the three treatment plants would be less than what is required to bring them to capacity, the water quality impact of the Preferred Alternative would be less than the minor change predicted in the BCUA study.

The SAMP embraces the ongoing water quality improvement efforts being taken by the two principal point source dischargers into the lower Hackensack River—BCUA and PSE&G. Based on current information, the most likely future scenario would involve relocation of BCUA's outfall to near Berrys Creek, along with a 50 to 60 percent reduction in thermal discharge from PSE&G (through re-powering of their plants). Based on BCUA's analysis of water quality in the District, this scenario would reduce DO violations during the summer from an existing 19 percent of the time to between 0.8 and 5.5 percent of the time.

Storm water Runoff. Storm water runoff would increase from the Planning/Satellite Areas as a result of the creation of additional impervious surfaces in the District. The potential impact of storm water discharges on water quality in the District was assessed by estimating the impacts of specific pollutants to be discharged from the proposed development areas.

The Preferred Alternative has the potential to increase loadings of contaminants by between 1 and 3 percent of the existing storm water loadings to the system. This translates to an overall increase in contaminant loading to the lower Hackensack River of less than 0.15 percent[7]. Of the seven contaminants modeled, only three—suspended solids, copper and zinc—have the potential to be present in storm water discharge from the Planning/Satellite Areas at concentrations greater than measured ambient concentrations in the District, or above EPA's Gold Book standards where ambient concentrations are not available. Standard storm water detention controls are recommended (and will be required by the SAMP) to reduce copper, zinc and suspended sediment discharges. Thus, the water quality impacts from the Planning/ Satellite Areas should be minimal.

Construction Activities. Implementation of the Preferred Alternative will include construction activities in the Planning/Satellite Areas and along the transportation improvement corridors. These construction activities may have temporary and localized impacts on water quality. The primary impact will be from the disturbance of soils, which will lead to increased sediment discharges into nearby streams, creeks, or wetlands. The impacts will cease once final site grading and landscaping is completed. These temporary localized impacts should have no significant long-term impacts on the water quality in the District.

EIP Impacts. The EIP will have a positive impact on water quality in the District by bringing about a reduction in landfill leachates, cleanup of hazardous waste sites, and a reduction in the non-permitted releases of pollutants.

Mitigation. Although non-point source loadings may have a slight negative impact on the existing low water quality in the District (providing storm water detention is employed to aid in the removal of urban runoff pollutants), other efforts are likely to improve water quality in the District. The SAMP embraces on-going water quality improvement efforts being undertaken by major point source discharges to the lower Hackensack River. The conclusion of the water quality analyses described above is that these water quality improvement efforts, together with the storm water management controls (BMPs), and the other water quality improvements effected by the EIP, will result in a significant improvement in water quality in the District.

Standard storm water detention controls are recommended (and will be required by the SAMP) to reduce lead, zinc, copper and suspended sediment discharges, particularly for the smaller Planning/Satellite Areas, where there is less chance for filtration and settling that occur during overland flow to remove contaminants from the storm water.

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[7] The BCUA modeling concluded that storm water contributes less than five percent of the total loadings to the Hackensack River.

Soils Impacts

The combined impacts on soils from the Preferred Alternative would primarily consist of the potential disturbance of 842 acres of tidal marsh soils and 1,363 acres of udorthents and urban land soils. Mitigation of these impacts will include implementation of soil erosion and sedimentation control and soil conservation measures.

Surface Water Hydrology Impacts

Approximately 13,288 acres of the District are included within the federally delineated (FEMA) 100-year floodplain. The Preferred Alternative will result in development of approximately 1,257 acres of the floodplain. However, the Meadowlands District is affected principally by tidal, not fluvial, flooding, whereby flooding is caused principally by the elevation of offshore tidal surges, related to storm effects, wind, and tidal change. The impacts of growth in the District on tidal flooding events, which are the predominant flood type in the District, would be negligible. Using simple calculations related to the volume and surface area of the 100-year floodplain it is estimated that development in the Planning/Satellite Areas has the potential to increase the water surface elevation of the 100-year flood, which is currently about elevation 8.5 feet, by approximately 3 to 6 inches, as a result of floodplain displacement in a fluvial flood event. The effects of development under a tidal flood event are significantly lower, but cannot be quantified without complex ocean modeling.

The EIP proposes to conduct several studies related to flooding in the District, including a regional flood study, and specific studies to determine possible solutions to flooding in particular areas in the District. Based on the results of these studies, flood control measures such as tide gates may be constructed to reduce the effects of existing flooding problems. In addition to structural controls such as tide gates, levees, pumps, and flood walls, implementation of the EIP will reduce flooding by increasing the effectiveness of existing wetlands (in some cases, by removing existing fill material to increase flood storage capacity) in the District to store flood waters.

The Preferred Alternative will affect the surface water hydrology by altering the existing hydrology of certain wetlands in the District. To mitigate for the potential localized alteration of surface water hydrology from Planning/Satellite Area development, site planning will emphasize reconnecting isolated wetlands to the hydrologic network of the District. As was discussed above, specific mitigation methods include: installation of culverts under roads or railroads, maintenance of existing storm water peak flows, and maintenance of existing flow patterns through Planning/Satellite Areas. Site planning approaches will be overseen by HMDC through site plan review authority; NJDEP, as related to water quality certification, and federal agencies when federal permits are necessary.

Groundwater Impacts

Because most of the District lies within the lower elevations of a river valley, most locations are groundwater discharge zones. While the Planning/Satellite Areas and Transportation

Improvements will result in only negligible changes to groundwater discharge and recharge, the EIP will result in substantial control of landfill pollutants currently being discharged to the surface water system.

Land Use and Zoning Impacts

Implementation of the Preferred Alternative will expand residential, office, commercial/retail, and industrial land uses in the District. Based on a 1990 land use assessment, the Preferred Alternative would increase the area devoted to primary and secondary office space from 144 to 766 acres, residential uses would increase from 330 acres to 746 acres, commercial/retail uses would increase from 342 acres to 391 acres, and industrial uses (including warehousing) would increase from 3,179 to 3,327 acres. Most of the increase in active land uses—residential, office, commercial/retail, and industrial—would occur within the 6,542 acres of land currently classified as vacant (including undeveloped uplands, some of the District's wetlands, abandoned industrial sites, and historic landfill areas) within the District. Some of the new land uses would replace blighted and under-utilized industrial properties.

The adoption of the SAMP will provide a framework for HMDC's revision of its Master Plan, and adjustments to the Zoning Ordinance. The new HMDC Master Plan will reflect the emphasis of balanced growth and environmental protection developed during the SAMP process. After adoption of a new Master Plan, a new Zoning Ordinance will be adopted to implement the Master Plan and the SAMP, allowing growth and development to proceed more predictably within the framework of the SAMP. The Zoning Ordinance, and Site Plan Review regulations will contain environmental performance standards that require, for example, provision of open space/recreation in Planning Areas, and provision of Best Management Practices for storm water control as related to development.

On balance, the SAMP and related zoning changes would result in reductions in the areal extent of development allowed by the 1972 Master Plan and Zoning Ordinance. The central downtown growth model envisioned in the 1972 Master Plan would be replaced by a growth center model that is more sensitive to the ecological needs of the District's environment. Implementation of the EIP will increase the amount of dedicated open space by reclaiming historic landfills and converting the landfills to upland wildlife habitat and by creating additional parks and recreation areas.

Financing of Local Government Services Impacts

The growth anticipated under the SAMP and new District Master Plan in the Planning/Satellite Areas will increase the sources of property tax revenue available to the municipalities within the District. The development of land that is currently vacant or under-utilized and proposed for office, industrial, commercial, or residential growth will double the total assessed value of property within the District from $4.5 billion in 1991 to an estimated $9.4 billion. Property tax revenues to the municipalities (after county taxes) are projected to grow from $56.1 million to $136.2 million, assuming the revised Master Plan is fully realized over the 20-year planning period.

The increased tax revenue from growth will be reduced, to a minor degree, by public acquisition of approximately 500 acres of wetland properties to be preserved under the transfer of development rights (TDR) program.

The SAMP and new HMDC Master Plan would provide for population and employment growth in the District, balanced with conservation and enhancement of valuable environmental resources. Growth will be implemented at comparatively high densities, allowing economic benefit to the region while minimizing the environmental and economic costs of sprawl inherent in most contemporary suburban growth. High quality, planned growth in combination with wetlands restoration and conservation is predicted to increase land values, both within the District and beyond its borders—a result of encouraging more spatially-efficient economic use of private property.

There will be additional costs incurred by the municipalities in order to provide services to new residents and employees. One of the primary additional costs will be schooling costs for a projected increase of 5,500 children in the District (at build-out). The majority of the increased demand for educational services will occur in Secaucus and Carlstadt. Costs for other governmental services—such as police, fire protection, emergency medical services, and public works—will also increase. Fiscal impacts at the municipal level will be determined, and issues resolved, during the HMDC site plan review of individual projects. Project-related service standards are too detailed to address at the regional scale.

The land targeted for transportation improvement will become public property and thus will be removed from the municipal tax rolls. However, the resulting loss in municipal tax revenues will be more than offset by the property tax revenues from anticipated growth. Furthermore, it is anticipated that developer contributions will fund a portion of the new service needs (e.g., active recreation facilities, fire and emergency response equipment, community meeting space) pursuant to the HMDC site plan approval process.

Utility Infrastructure Impacts

Wastewater. The growth anticipated in the District under the SAMP is projected to increase wastewater flows to the wastewater treatment plants serving the District, with the greatest new flows directed to the Bergen County Utilities Authority (BCUA) and the Secaucus Municipal Utilities Authority (SMUA) facilities. As discussed in above, projected flows to the SMUA treatment plant are above the plant's current available capacity. To provide treatment for the additional wastewater, either the plant will need to be expanded, additional facilities constructed, or some of the wastewater from the Preferred Alternative that would normally be directed to SMUA will need to be redirected to other local treatment plants (such as PVSC via Jersey City).

Water. Most of the Planning/Satellite Areas are within the in-District service areas of the Hackensack Water Company. Planning/Satellite areas within Kearny and Jersey City would be served by Jersey City Water Company, and those within Kearny would be served by Kearny MUA. Based on Hackensack Water Company water use factors, the anticipated homes and workplaces would require an estimated average daily water supply of 8.3 mgd. The

Hackensack Water Company has indicated that the company has adequate supply and treatment facilities to serve the projected growth in the District. There is also projected to be no supply problems for Kearny MUA or Jersey City Water Company, as similar conditions exist in their service areas.

Mitigation. With the exception of the need for additional wastewater treatment capacity in Secaucus, no significant adverse utility impacts are predicted; no mitigation measures appear to be necessary.

Population and Employment Impacts

Realization of the Preferred Alternative over the 20-year planning period will add a total of 13,920 dwelling units to the District, housing a population of 33,408 persons. The 13,920 housing units proposed for the Meadowlands under the Preferred Alternative would come on the market gradually, in response to existing demand. Ranging from luxury to affordable units, the housing would attract people from a wide range of income types and geographic locations. The creation of new housing opportunity, including affordable housing, is a major positive impact of the proposed plan.

Development of new primary and secondary office, commercial, light industrial, and warehousing in the Planning/Satellite Areas will create many new employment opportunities. The total potential increase in permanent employment in the District under the SAMP amounts to approximately 112,000 new jobs. The creation of new employment opportunity, both construction-related and permanent, is a significant positive impact of the proposed plan.

The range of prospective office, retail, and manufacturing jobs, together with the planned housing, is designed (and expected) to attract many people to both live and work in the District, reducing commutation requirements. The Preferred Alternative will provide for the District's growth needs by creating an integrated home, work, and recreation environment, with a relatively high land use efficiency.

Community Facilities Impacts

An increase of 33,400 residents (about 5,500 of which are projected to be children) and 112,000 workers in the District over the 20-year SAMP planning period will require the support of many new and expanded community facilities. These community facilities will be provided both via the development application review and approval process (as carried out by HMDC) and by expanding existing municipal services. The distribution of financial responsibility is usually negotiated among the host municipality, the project applicant, and the planning review agency, and occurs at the individual project review level.

Education. The new expanded housing stock could add about 5,500 school-age children to the District's population over the planning period. An increase in the capacity of the local educational facilities will be required to accommodate this increased student population. At an average of 25 pupils per classroom, the school districts in the affected communities will need approximately 220 new classrooms. The school systems principally affected will be those of

Secaucus and Carlstadt, where the majority of the new residences will be located. The HMDC development review process requires the dedication of space for school facilities by sponsors of large projects.

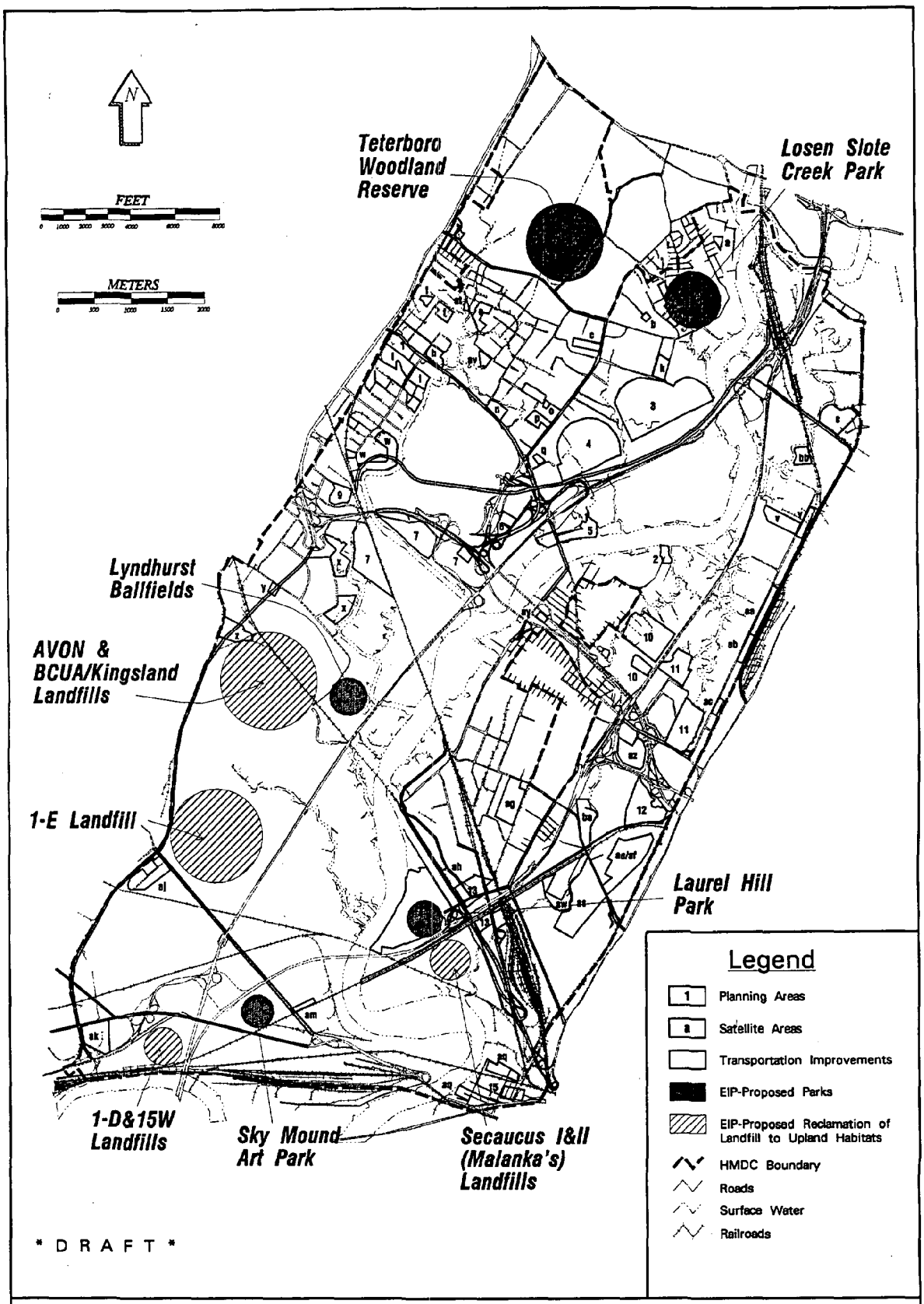
Health Care. The approximately 33,000 new residents and approximately 112,000 new employees in the District would increase the use of regional health care facilities, including hospitals. There are now 2,593 hospital beds in Hudson County and 2,775 beds in Bergen County. The prospective population growth in the Meadowlands could be accommodated by the currently under-utilized hospitals in the region without physical expansion.

Police. The 1990 estimated District population of 15,154 is projected to grow by more than 33,000 people. Using standard service multipliers, this growth could necessitate an increase in police protection by 2.01 officers per 1,000 residents. The total population requiring police services could approach 145,000 residents and workers. New police stations, officers, vehicles, and equipment would be added to the existing police operations already present throughout the District, as needed.

Fire. The future population and density of development in the District will require additional fire protection staff and facilities to achieve appropriate levels of fire protection. Using standard service multipliers, the expansion of the resident population by more than 33,000 could require an additional 1.64 firefighters per 1,000 new residents. Non-residential developmental in the District will also require increased fire protection. However, fire safety services should be based on an analysis (in order of priority) of response time, staffing, and equipment available at the time specific development projects are proposed.

EIP Impacts. The EIP proposes the creation of "an urban oasis of wetlands, parks, and reclaimed/restored open space in the District." The HMDC parks and preserves program will result in the transformation of District landfills and degraded wetlands into parkland, using state-of-the-art landfill closure improvements. The general locations of parks and preserves proposed under the EIP are shown in Figure ES-5. The Hackensack River is the central open space corridor in the District and serves as the centerpiece for park development. Implementation of the SAMP and EIP would provide parks and preserves capable of accommodating the recreational needs of the District's future population.

Mitigation. Mitigation for community facility impacts (expressed as increased service needs) consists of the provision of additional community facilities, in accordance with current service standards and maximum acceptable response times. Local government will be responsible for financing the police force, fire protection, and educational facilities. In addition, it is anticipated that developer contributions will provide land, facilities, and equipment to meet some portion of the local service needs. The wide range of projects proposed under the EIP will provide extensive parks and recreation facilities for the new residents and workforce, and HMDC's planning review powers will require dedication of land for schools and other public facilities.



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February 21, 1995

Figure ES-5
General Locations of EIP-Proposed Parks and Preserves

Hackensack Meadowlands SAMP/EIS

CDM
environmental engineers, scientists, planners & management consultants

Transportation Impacts

Transportation system performance of the Preferred Alternative was evaluated using the existing Hackensack Meadowlands Transportation Model (HMTM) that was separately developed. The HMT Model is a computer-based planning tool that can be used to project future travel patterns and volumes based on assumptions regarding future land development patterns, future transportation system improvements and future travel behavior characteristics.

The Preferred Alternative performs better, for all evaluation parameters, than the No-Action alternative. This means that, without a coordinated planning effort, transportation conditions will continue to deteriorate. Particularly of note are improvements in vehicle miles of travel (VMT), hours of delay and modal split (percent transit use). These measures deal with both the supply and demand sides of the equation which is a key consideration in ISTEA mandated congestion management initiatives.

- The average speed for the Preferred Alternative is 5.3 percent higher than for the No-Action alternative.
- The vehicle-miles of travel (VMT) for the Preferred Alternative is 2.2 percent lower than that of the No-Action alternative.
- The Preferred Alternative results in 6.9 percent less vehicle-hours of travel (VHT) than the No-Action alternative.
- There are 11.8 percent less hours of delay resulting from the Preferred Alternative than for the No-Action alternative.
- The volume-to-capacity (V/C) ratio for the Preferred Alternative showed a 2.2 percent improvement from the No-Action alternative.
- The transit modal split for the Preferred Alternative is 3.3 percent higher than the No-Action alternative.
- For the baseline, 149 links were congested. The No-Action alternative had 285 congested links in the Year 2010 while the Preferred Alternative had 261, a reduction of about eight percent. This measure is an important one because it directly impacts the air quality analysis and indicates those areas that may provide a higher contribution to total area-wide emissions.

Air Quality Impacts

Approximately 100 million vehicle-miles of travel occurs each day throughout the north Jersey metropolitan area. Much of this mileage is attributable to "through" trips, with origins and destinations outside the boundaries of the planning area. The North Jersey Transportation Coordinating Council (NJTCC) is the Metropolitan Planning Organization (MPO) responsible for air quality conformity throughout the region. The Hackensack Meadowlands District is a

subplanning district within the NJTCC, and, as a special planning district of the NJTCC, represents only a portion of the total regional emissions contributing to air quality impacts within the north Jersey planning region.

For the majority of the Hackensack Meadowlands District, the most demonstrable emissions reductions are largely embodied in decreasing mobile source emissions estimates for horizon years as a result of fleet turnover, enhanced inspection and maintenance programs, and anti-tampering programs, etc. For the Preferred Alternative versus the No Action alternative, carbon monoxide (CO) is reduced from an estimated 113,562 lbs/AM peak hr to approximately 106,421 lbs/AM peak hr, a 6.3% improvement in CO emissions; oxides of nitrogen (NOx) are reduced from an estimated 12,669 to approximately 12,350 lbs/AM peak hr, an improvement in NOx emissions of approximately 2.5%, and volatile organic compounds (VOC) are reduced from an estimated 10,388 to approximately 9,757 lbs/AM peak hr, an improvement of approximately 6.1%. Consistent with the CAAA requirement of a conformity finding for the Preferred Alternative, CO, NOx, and VOC emissions are also reduced relative to the Baseline alternative.

Estimates of the representative changes in future background concentrations likely to occur within the District were derived using EPA procedures. Results indicate that the Preferred Alternative would result in a 5% reduction of background CO concentrations within the District. The No Action alternative would provide no additional offsets relative to the Baseline background CO concentration because no reduction is estimated to occur. Both the No Action and Preferred Alternatives would result in a reduction in NOx of 24% relative to the Baseline background concentration. The estimated VOC background concentration would be reduced approximately 27% for the No Action alternative while the future background concentration of the Preferred Alternative would be reduced approximately 29%.

Comparative analysis of the Preferred and No Action Alternatives to Baseline conditions indicates the Preferred Alternative would provide equivalent or enhanced benefits toward the future reduction of mobile source background concentrations within the District. The estimated results of the background concentrations analysis are conditionally based upon regional travel results obtained with the HMTM and emission factors obtained with the EPA MOBILE5a Mobile Source Emissions Factor model.

Noise Impacts

The area-wide noise impacts that could be associated with the Preferred Alternative (including associated transportation improvements) are expected to increase average sound levels in the District by less than 3 dBA, a negligible increase. Recommended mitigation for this impact includes siting of noise-sensitive uses away from major noise sources and use of development-specific measures to address site-specific noise concerns.

Cultural Resources Impacts

A Stage 1A cultural resources survey was conducted to determine the potential cultural resources impacts from the various components of the Preferred Alternative. The specific goal of Phase 2 of this expanded basin-wide archaeological and historical evaluation is to provide an

appropriate planning tool to finalize, as needed, the parcel-specific Stage 1A cultural resource sensitivity study of known and potential prehistoric and historic localities in accordance with Federal Section 106 compliance procedures for each of the proposed development impact categories within the Hackensack Meadowlands study area.

Field reconnaissance and air photo based impact analysis resulted in the definition of a small set of potential archaeologically sensitive parcels which had little or no identifiable disturbance, and which therefore warrant additional investigation through detailed parcel-specific sensitivity studies and/or presence and/or absence testing. As a result of this historic impact analysis, a concrete set of criteria were developed and multiple lines of evidence were formulated for identifying development areas with possible prehistoric and/or historic sensitivity, which, at the same time, demonstrated a potential for survival of artifacts. This process has resulted in the identification of 8 P/SAs that warrant additional archaeological evaluation, 2 wetland mitigation areas that warrant further archaeological assessment, and 25 transportation improvements that warrant further work, due to the extent and diversity of the prehistoric and historic resources either adjacent to or in immediate proximity to the study areas. Of the 8 selected P/SA parcels, 2 are recommended for Stage 1B testing only, and 6 have been recommended for both detailed parcel-specific Stage IA sensitivity and Stage 1B presence and/or absence subsurface testing. The two mitigation areas warranting further investigation are prompted by the potential presence of a 19th century mill near one of the wetlands, and the potential for surviving historic elements relating to the Paterson Plank Road and the historic Paterson bridge within another wetland.

In addition to the need for subsequent archaeological evaluation of these historic parcels, the wetlands mitigation actions may potentially disturb wetlands that may contain undisturbed pollen sequences or records. These pollen sequences in these wetlands may provide information on the changing prehistoric and/or historic environmental and human ecological record within the Hackensack Meadowlands. To assure that this information is not lost due to wetland mitigation, 5 discrete parcels have been identified to be investigated and documented through the use of controlled, radiocarbon dated pollen core samples prior to being subjected to any change, including mitigation work.

Coordination of, and methods for, future cultural resource study in the District (for SAMP-related projects) will be formalized in a Programmatic Memorandum of Agreement (MOA) between EPA, ACE, and NJDEP. This MOA will detail the future Section 106 (National Historic Preservation Act) compliance process to be followed by the SAMP partners.

The EIP will result in development of a comprehensive cultural resource management process, development of procedures to incorporate cultural resource issues into the land use review process, and implementation of a historic preservation ordinance. Each of these efforts will benefit the preservation of and the sensitivity to cultural resource issues in the District. The EIP also proposes wetland enhancement that may disturb cultural resources.

Solid Waste

Implementation of the Preferred Alternative will result in an approximately 75 percent increase in overall solid waste generation in the District. Because there are currently so few households in the District, and because solid waste generation from office uses is relatively low, the Preferred Alternative land uses result in a large percentage increase in a solid waste generation over existing levels. Given that the increase will be gradual, as build-out occurs, the increase is not expected to have a significant adverse impact on the capacity of the solid waste system to manage this waste through a combination of recycling, composting, incineration, and landfilling methods. The solid waste generation in the District under the Preferred Alternative (117,000 tons/year) represents an increase of approximately 5 percent in the total solid waste generation (before recycling) of Bergen County (1.2 million tons/year) and Hudson County (910,000 tons/year).

Some of the areas identified for development in the Preferred Alternative overlie known and/or historic solid waste disposal locations. Development in locations in which solid waste has been disposed of is an advantage insofar as such sites often provide non-wetland growth locations that exhibit fewer effects on natural resources. However, such locations require additional site engineering to provide stable foundations and control of leachates and gases.

The solid waste disposal locations that underlie proposed Planning/Satellite Areas are not anticipated to preclude use of those sites. The best available information for Planning/Satellite Area locations indicates that the type of solid waste to be encountered in these areas is predominantly construction debris, and that disturbance of waste disposal locations that may exist within the Planning/Satellite Areas will not result in uncontrollable discharges of leachates or gases, primarily because of previous successes in controlling such discharges.

In addition to the reclamation of landfills for upland wildlife habitat, the EIP will establish a program to remediate many of the solid waste impacts that have occurred in the District in the past. This will have a large positive impact on the general environment of the District.

The program to be established by the EIP will use state-of-the-art landfill closure and remediation designs, including the control of leachate and landfill gas emissions from the currently unmanaged landfills in the District. Where possible, the closed landfills will be made available to the general public for passive and potentially active recreation activities.

Hazardous Waste Remediation

The process to develop the Preferred Alternative generally avoided use of sites known to be heavily contaminated by hazardous wastes, except two locations that are being remediated under existing state and federal remediation programs, and that are included in the Preferred Alternative. Thus, the combined impacts to hazardous waste remediation in the District from the Preferred Alternative are not expected to be significant, assuming many sites will benefit from expedited remediation under the Environmental Improvement Program, and other sites will be properly controlled where construction disturbances may occur. Therefore, no major

program for mitigation of impacts that might arise from disturbance of sites suspected of containing hazardous materials is necessary at the programmatic level.

Through the "Hazardous Sites Initiatives," the EIP will have a positive impact on hazardous waste management in the District. The EIP will establish a program to improve the cleanup procedures and other regulatory efforts regarding hazardous waste activities within the District. The EIP initiatives will aid in hazardous waste cleanup by prioritizing sites within the District and coordinating activities with appropriate government agencies. In addition, the EIP will establish a program to determine the feasibility of developing remediated hazardous waste sites in the District, while incorporating natural resource improvements as a condition of development.

Chapter 4
Implementation of the SAMP

In accordance with the goals of the MOU, the SAMP/EIS recommends implementation of several major regulatory and planning products. The regulatory and planning products include changes to regulations and project review procedures in the District, and changes in the administration of such regulations and review procedures. The principal regulatory products of the SAMP are:

- Adoption of a new Master Plan and Zoning Regulations for the District by HMDC. (The MOU calls for the creation of a revised Master Plan for the District that "uses the EIS ... to plan a land use configuration that, in addition to meeting HMDC's planning purposes in the District, will satisfy the requirements of the 404(b)(1) Guidelines and the Corps' public interest review regulations".)

- Implementation of new site design and environmental requirements for projects submitted to HMDC for planning approval, including, for specified activities, requirements for best management practices for stormwater management, open space preservation, and maximum lot coverage allowances.

- Streamlined wetlands permitting, under Section 404 of the federal Clean Water Act. (The MOU calls for implementation of a General Permit for specified activities consistent with the SAMP, as authorized under Section 404(e) of the Clean Water Act, and "restrictions on development ... in agreed-upon areas of the District through ... land use designation in the revised Master Plan and zoning amendments". The MOU further calls for a joint processing agreement between ACE, EPA, and HMDC that "individual development proposals consistent with the revised Master Plan would not be subjected to additional project-by-project analyses of alternative sites"... with conditions.)

- Establishment of a comprehensive Environmental Improvement Program for the District, with HMDC as the lead implementing agency. (The MOU cites "the parties' commitment, through the SAMP process, ... to ensure positive environmental gains for the District".)

- Changes in the permit review process for NJ environmental permits, to streamline the review process. Proposed changes will be developed and implemented cooperatively between NJDEP and HMDC, and will consistent with NJ's Coastal Management Program.

Fundamentally, the SAMP is a Plan—a set of interlinked actions (involving federal, state, and local agencies) to effect environmental enhancements in the District, while allowing a specific agreed-upon level of economic growth. The SAMP proposes specific future land uses for the undeveloped properties (and many developed properties) in the District, ranging from conservation, to remediation, to transportation improvement, to economic development.

With respect to land development proposals, two basic project review tracks will be created. The first review track is available to projects that are consistent with the SAMP, and the second for those that are not. Only projects that are consistent with the SAMP will be eligible for streamlined federal, state, and local project review processes.

The agency that will have the first line of responsibility for determining whether projects are consistent with the SAMP will be HMDC. The initial review will consider whether the project is consistent with: the SAMP; the revised HMDC Master Plan; and the revised Zoning Map for the District. Review for SAMP consistency will include an identification of the relevant regulations that are expected to apply to a project so that the extent of permitting requirements are known to the sponsor of a project.

Projects that are not consistent with the SAMP will need to comply with standard permit application processes, and are not eligible for the streamlined review process available for projects consistent with the SAMP/HMDC Master Plan. (The streamlined review process is available only to projects consistent with the SAMP because extensive studies regarding need, alternatives, environmental impacts, and mandatory mitigation have been performed for actions included in the SAMP.)

It is anticipated that projects that are not consistent with the SAMP will be difficult to implement if they require HMDC, State, and federal permit approvals. Because the revised HMDC Master Plan will replace the existing Master Plan as an element of the NJ Coastal Management Program, projects that are inconsistent with the revised Master Plan will, by definition, be inconsistent with the Coastal Management Program for NJ. Only projects that are consistent with the Coastal Management Program are typically eligible for federal or state agency permit approvals.

Activities not consistent with the SAMP will be regulated and/or precluded under existing regulatory authorities, such as (1) revised zoning and development review regulations being implemented by HMDC, (2) authorities exercised by the NJDEP through review of consistency of the project with the NJ Coastal Management Program (under Section 307 of the Coastal Zone Management Act), (3) individual permit application review by ACE, and (4) potential future 404(c) actions by EPA where valuable aquatic sites are threatened.

4.1 Special Area Management Plan Components

The SAMP for the Hackensack Meadowlands consists of several components, as described below.

SAMP Components

1. **Future Land Use Plan.** A future land use plan has been identified, showing general locations eligible for conservation, environmental improvement, and development in the District. The future land use plan will be a component of HMDC's revised Master Plan for the District, which will mirror the SAMP. The Land Use element of the Master Plan will identify general land use classifications and the areal location and extent of development activity. The SAMP/HMDC Master Plan planning period

extends to the year 2010, but it is anticipated that the land use plan developed in the SAMP constitutes the entire permittable build-out of the District. The revised Master Plan will guide the development of a new Zoning Map and Zoning Regulations for the District. The Master Plan and Zoning Regulations are products of HMDC's planning authority in the District. The Master Plan will incorporate a new program for implementation of Transfer of Development Rights in the District (described in Section 6.1.4). A map showing the components of the Preferred Alternatives is presented as Figure ES-6.

2. **Transportation Improvement Projects.** Proposed projects include road widening, railroad, and highway extension projects that maintain mobility in and through the District, and that seek to achieve air quality objectives for the region by reducing congestion and increasing availability of transit systems. There are 34 transportation improvement projects anticipated in the SAMP, ranging from road widenings to new rail lines.

3. **Mitigation Requirements for Unavoidable Impacts.** Mitigation is required to compensate for regulated activities, especially those that will adversely impact wetlands. Specific mitigation recommendations are included in this EIS, and will also be required pursuant to HMDC's revised Zoning Regulations and Environmental Performance Standards. Several environmental mitigation issues will receive special attention:

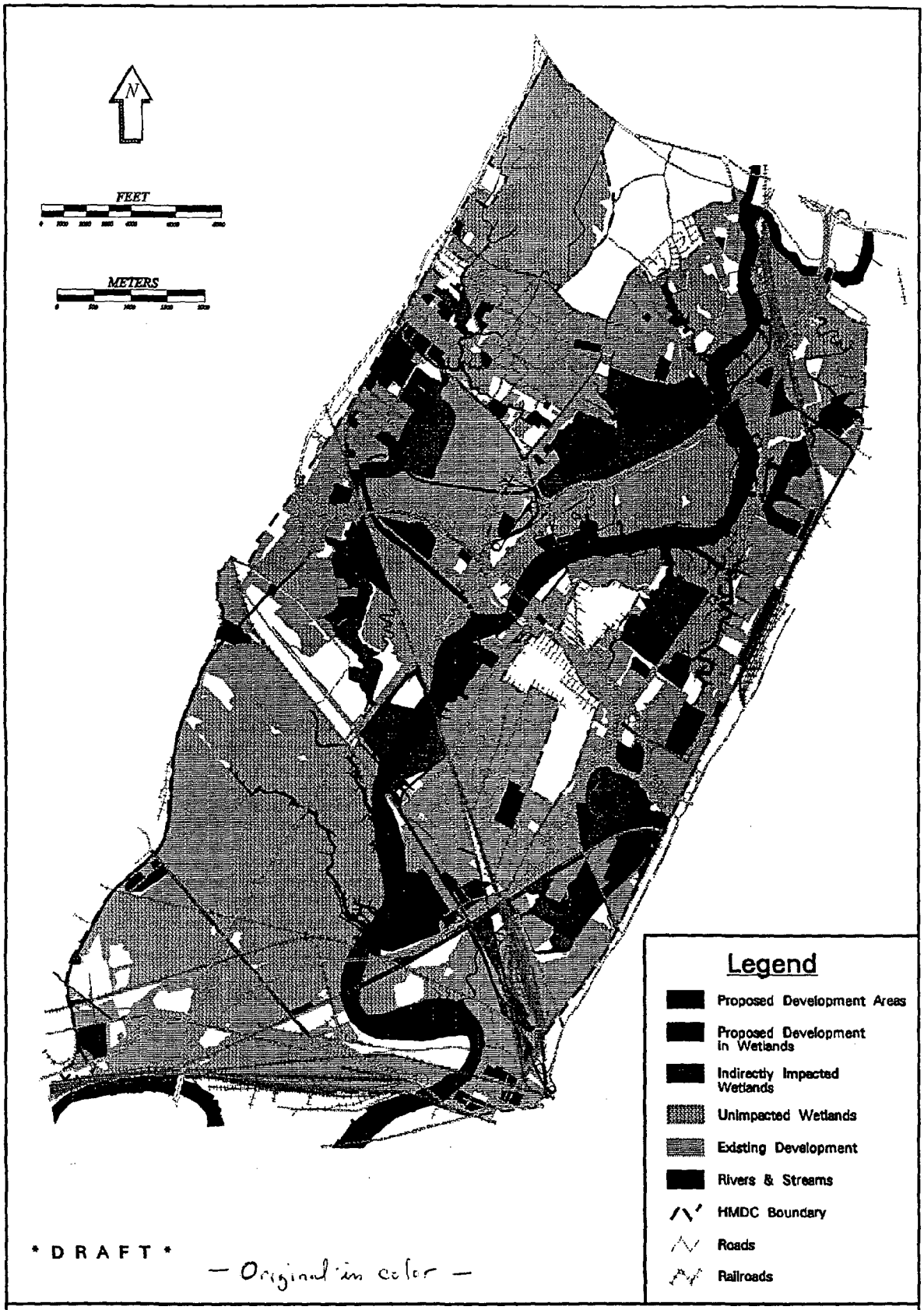
   (a) Wetland mitigation will be implemented pursuant to an Interagency Compensatory Wetland Mitigation Agreement. Participation will be invited from ACE, EPA, NJDEP, HMDC, NOAA, and USFWS, and will include specific provision for implementation of wetland mitigation banking in the District (see Section 6.2.2);

   (b) Mitigation for non-point source runoff from projects in the District must be performed in accordance with the requirements of the EPA and NOAA Section 6217 Coastal Nonpoint Program (see Table ES-5), and relevant NJDEP regulations;

   (c) Impact assessment and mitigation with respect to compliance with the National Historic Preservation Act will be conducted in accordance with a Memorandum of Agreement that will be negotiated among EPA, ACE, NJDEP, and HMDC; and

   (d) Special measures to advance the conservation of Peregrine Falcon are proposed in accordance with Section 7a(1) of the Endangered Species Act, to be implemented pursuant to a Memorandum of Agreement proposed between EPA, ACE, USFWS, and HMDC.

4. **Environmental Improvements Program (EIP).** An extensive portfolio of projects to restore and improve the District's natural environment is proposed by HMDC, with



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— Original in color —

February 21, 1995

Figure ES-6
Land Uses Under the Preferred Alternative

Hackensack Meadowlands SAMP/EIS

CDM
environmental engineers, scientists, planners & management consultants

TABLE ES-5
EXAMPLE MANAGEMENT MEASURES FOR
SOURCES OF NONPOINT POLLUTION

I. Management Measures For Urban Areas

Reduce Runoff from New Development. Reduce suspended solids levels to no greater than predevelopment levels. Peak runoff rate not to exceed predevelopment levels.

Watershed Protection. Avoid conversion of erodible areas, preserve areas providing water quality benefits, and protect the natural integrity of waterbodies and natural drainage systems.

Site Development. Design sites to protect areas that provide important water quality benefits, limit increases in impervious area, and limit land disturbance activities.

Construction Site Erosion and Sediment Control. Reduce erosion and retain sediment onsite during and after construction.

Existing Development. Identify watershed pollutant reduction opportunities, and enhance buffers along surface waterways.

Pollution Prevention. Reduce discharge of pollutants into storm drains, and prevent improper storage, use, and disposal of household hazardous chemicals.

Road, Highway, and Bridge Runoff Systems. Implement controls for non-point pollutants.

II. Management Measures for Hydromodification

Instream and Riparian Habitat Restoration. Minimize the effects of channel modification on instream and riparian habitats to reduce undesirable impacts.

Management of Eroding Streambanks and Shorelines. Stabilize streambank and shoreline erosion, and protect streambanks and shorelines from erosion.

III. Management Measures for Wetlands and Riparian Areas

Protect Wetlands and Riparian Areas. Protect wetlands and riparian areas that serve a significant NPS abatement function, while protecting the other existing functions.

Restore Wetlands and Riparian Areas. Promote the restoration of the preexisting functions in damaged and destroyed wetlands and riparian systems.

IV. Monitoring of Management Measures

Monitoring to Assess Implementation, Operation, and Maintenance of Management Measures. Initiate sampling, data analysis, and the interpretation of results to assess the success of measures implemented to reduce pollution loads and improve water quality.

(Source: Guidance Specifying Management Measures for Sources of Nonpoint Pollution, EPA, 1993)

correct decades of historic environment degradation that occurred in the District before the creation of HMDC in 1968. The EIP proposes a set of comprehensive environmental management and restoration efforts, including management of about 7,000 acres of wetlands, creation of six major new parks, implementation of transportation management programs, closure of 8 landfills with landfill gas recovery, District-wide water quality monitoring, education programs and enforcement programs. (See Section 2 and Section 6.1.6 for additional information on the EIP.)

5. **EIP Funding Mechanisms.** Various mechanisms to fund the EIP are proposed, including exactions on growth, assessments on buildings, environmental linkage fees, and coordination of government funding programs. (See Section 2 for additional information.)

6. **Streamlining of Regulatory Review Process.** General Permits and Abbreviated Permit Processing will be implemented for projects that are consistent with the SAMP/revised HMDC Master Plan, and that involve wetland fill. Projects consistent with the SAMP will have in place approved alternatives analysis, insofar as such analyses have been prepared for this EIS. Impact and mitigation analyses (in addition to those performed for the EIS) may be required for projects using GP or APP. Such analyses will be tiered on the work performed for this EIS. In addition, streamlined permit review between HMDC and NJDEP will be implemented for projects consistent with the SAMP.

7. **Pilot Program to Test Redirecting Growth Out-of-District.** HMDC will work to create and package various administrative support and existing NJ funding mechanisms designed to evaluate approaches to redirect development proposals to urban areas, as an alternative to growth in wetlands in the District.

8. **Monitoring and Review Process for SAMP Components.** Progress in achieving SAMP goals will be assessed to assure balance between projects that impact, and projects that improve, the environment. An Oversight Committee will be created by the SAMP partners, and, in addition to the SAMP partners, may include interested parties, to review progress in achieving SAMP goals, to assure that the streamlined regulatory review process is being implemented appropriately, and to recommend adjustments in the implementation of the SAMP to assure that the principles of the SAMP MOU are met.

4.2 Revisions to HMDC Plans, Policies, and Procedures

HMDC Master Plan Revisions

The Master Plan for the District will contain the recommended future land use plan, specifying those locations recommended for economic growth and those areas recommended for conservation and environmental improvement. The Master Plan will include the following sections: Land Use Plan, Environmental (Mitigation) Plan, Open Space and Recreation Plan,

Transportation Plan, Housing Plan, Infrastructure Plan, and a Capital Improvement and Financial Plan. The Master Plan will also identify locations where conservation and environmental improvement are proposed within the District. Conservation and environmental improvement locations recommended within the Master Plan will be consistent with those recommended in the SAMP/EIS. The revised HMDC Master Plan will provide for conservation areas in the SAMP through a number of mechanisms, i.e., zoning changes, transfer of development rights, requirements for open space, etc.

Revisions to HMDC Zoning Regulations

The revised zoning regulations for the District (which will follow the adoption of a revised Master Plan for the District) will establish zoned areas that allow land uses and activities that are consistent with the SAMP. A range of zoning approaches will be employed under the SAMP to conserve wetlands in the District that are not already protected under existing conservation mechanisms (27% of the District wetlands are already protected as dedicated open space and by deed restriction). HMDC proposes to increase the percentage of land that is preserved to 88% of the District's wetlands using a range of mechanisms. Five types of wetland preservation actions are proposed by HMDC, as follows:

1. **Marshland Preservation Zoning.** HMDC proposes to expand the Marshland Preservation zone to include a majority of the wetlands within the District. Wetlands under public and quasi-public ownership will be zoned as marshland preservation areas (by amending the existing Zoning Regulations). The vast majority of such land will be designated for preservation purposes in the zoning regulations and zoning plan, resulting in designation of approximately 1,150 additional acres of land within the Marshland Preservation zone. Although the SAMP involves no fill in major open waters (e.g., rivers and major tributaries) in the District, HMDC also proposes to conserve major open waters using Marshland Preservation zoning authority, making such areas ineligible for development under HMDC regulations.

2. **Open Space Requirements.** Open space requirements, mandated under revised HMDC Zoning Regulations, will result in the preservation of wetlands where projects are extensively bordered by wetlands. Developers will be responsible for deed restricting such areas from future development, or dedicating them to land trust organizations. Approximately 770 acres of wetland will be preserved in this manner.

3. **Lot coverage/FAR restrictions.** Wetlands on properties that are now partially developed are and will continue to be protected through zoning and site plan regulation. Maximum lot coverage and floor area ratio (FAR) criteria will determine the maximum extent of development permitted on individual sites, thereby protecting the balance of the site open space areas from future development. Approximately 1,500 acres will be protected in this manner.

4. **Transfer of Development Rights.** Transfer of Development Rights (TDR) will be utilized to preserve approximately 500 acres of unprotected private wetland property through the issuance of development credits to private property owners in the District.

The owners of designated TDR preserved wetlands will be assigned development credits to sell on the open market to land owners whose properties have been designated for Satellite Area development (consistent with the SAMP and Master Plan). Under the TDR program, designated owners of wetland property planned for development will be required to purchase development rights from owners of property designated to be open space.

5. **Wetland acquisition planned under EIP Program.** HMDC's Environmental Improvement Program (EIP) proposes acquisition of approximately 250 acres of wetland, located primarily along the Hackensack River and consisting of scattered, privately held properties.

Table ES-6 lists the acreage of the wetlands in the District at present, as defined and delineated during the ACE/EPA Advanced Identification (AVID) of Wetlands in the Hackensack Meadowlands (December 10, 1992). The criteria for the AVID focused on the protection of water quality, wildlife and fisheries habitat, and recreation and educational use. For this reason, and for hydrologic reasons, the wetland boundaries included, in many instances, substantial areas of open water (such as segments of the Hackensack River). The 8,530 acres delineated as wetland Assessment Areas for the AVID included 1,640 acres of open water, interconnected with 6,890 acres of wetland.

Table ES-6 also lists the acreages protected by each of the proposed zoning and other controls. Of the 6,890 acres of non-open water wetland in the District, approximately 12% (842 acres) will be converted to upland as part of the economic development anticipated by HMDC in the Planning Area, Satellite Area, and Transportation Improvement locations, approximately 27% (1,865 acres) are currently protected by conservation mechanisms (i.e., dedicated open space or deed restricted), and approximately 61% (4,170 acres) will be protected using the five conservation mechanisms described above. Thus, by the conclusion of the SAMP planning period (year 2010), it is proposed that an estimated 88% (6,035 acres) of the wetlands that are now present in the District will be protected and managed. The objective of the SAMP is to provide protection to these wetlands in perpetuity.

As can be seen from Table ES-6, zoning mechanisms will be used to protect the largest share of wetland area. However, zoning controls do not provide the same assurance of permanent protection as does acquisition (because zoning regulations can be revised). Nevertheless, NJ planning law requires that the Zoning Regulations be consistent with the adopted Master Plan, and the Master Plan will clearly present HMDC's goal of preserving, in perpetuity, all remaining wetlands by the conclusion of the SAMP.

Changes to the HMDC Development Review Process

HMDC will revise its development review process to better realize SAMP environmental goals. Revision of the development review process involves changes to HMDC's zoning regulations, development review regulations, site plan design standards, and environmental performance standards. The development review regulations will be expanded to specifically require Best Management Practices for all new development with non-point source discharges (e.g., storm

TABLE ES-6

District Wetland Resources and SAMP Wetland Conservation Actions

District Wetland Resources	Acres	Line
Total area of aquatic sites[1] (AVID Assessment Areas) in the District	8,530	1
Total area of open water within aquatic site boundaries	1,640	2
Total wetland area now present in the District (line 1 - line 2)	6,890	3
Wetland area to be converted to upland for P/SAs & TIs	842	4
Wetland area in District at conclusion of SAMP (line 3 - line 4 plus 45 acres of wetland created as part of mitigation requirements)	6,093	5
Wetland Conservation		
Existing Wetland Conservation Mechanisms		
Wetland already protected through deed restrictions, etc.	1,865	6
Proposed SAMP Wetland Conservation Mechanisms		
1. Wetland protected by Marshland Preservation zoning	1,163	7
2. Open Space requirements per Zoning Regulation	770	8
3. Lot coverage/FAR restrictions per Zoning Regulation	1,500	9
4. Transfer of Development Rights	500	10
5. Wetland acquisition planned under EIP Program	250	11
Total additional conserved wetland area (sum lines 7 - 11)	4,183	12
Total protected wetland at conclusion of SAMP (line 6 + line 12 plus 45 acres of wetland created as part of mitigation requirements)	6,093	13
Total protected wetland and regulated open water at the conclusion of the SAMP (line 2 + line 13)	7,733	14

[1] Aquatic sites (assessment areas) were delineated for the 1992 ACE/EPA Advanced Identification (AVID) for the Hackensack Meadowlands, December 1992, and include important open water habitat adjacent to wetlands.

P/SA = Planning/Satellite Area; TI=Transportation Improvement

water runoff), to meet the requirements of the Section 6217 Coastal Nonpoint Program to be adopted by NJDEP pursuant to the 1990 amendments to the Coastal Zone Management Act.

Wetland Mitigation Actions by HMDC

Requirements for wetland mitigation will be included in the proposed changes in HMDC's Zoning Regulations and plan review process. However, ACE has the principal authority for review and approval of wetland mitigation under Section 404 of the Clean Water Act. Thus, while provision for wetland mitigation will be incorporated into project review by HMDC as part of the planning process for the District, permission to implement wetland mitigation, and establishment of specific requirements for mitigation, proceeds mainly under federal law for the District. Nevertheless, to the maximum degree feasible under existing law, requirements for wetland mitigation, performance guarantees, maintenance, and monitoring will be incorporated into HMDC's Zoning and Development Review regulations. HMDC will promulgate and adopt requirements for wetland mitigation as part of its development review process.

Environmental Improvement Program

There is a need for substantial environmental remediation in the Hackensack Meadowlands District. The pollution and environmental destruction from previous decades of solid waste disposal within or adjacent to these wetlands must be remediated. Planning for the future of the District must recognize the remediation costs of long-standing and continuing cumulative impacts to wetlands and upland areas.

As noted earlier, HMDC, in concert with state and federal SAMP partner agencies, proposes to implement an EIP in the District. The components of the EIP include solid waste management, surface and groundwater resource protection, environmental enforcement, air and land quality improvements, natural resource management and development of park, educational and recreational opportunities.

Out-of-District Development Program

The out-of-District analysis concluded that no practicable alternative existed within the six county study region that would achieve SAMP goals. However, HMDC recognizes the need to assist in the revitalization of urban centers, especially in light of the fact that one of the HMDC member municipalities is an urban center (Jersey City). Moreover, the formulation of the out-of-District component of the SAMP provides a meaningful opportunity to test whether development can be redirected away from wetland areas that are under great development pressure in the District. If mechanisms to redirect some of the District's growth can be implemented, it is possible that out-of-District growth could achieve some of the in-District need for housing and employment. With this in mind, HMDC has agreed to create a pilot program as part of the SAMP to develop and test mechanisms that would redirect some growth to out-of-District urban locations.

NOAA Approval of Revised HMDC Master Plan and Zoning Regulations

Because the revised HMDC Master Plan will replace the existing Master Plan as the coastal program element for the District, once the HMDC Master Plan and Zoning Regulations have been revised to incorporate the SAMP and the relevant NJDEP regulations, NJDEP will submit a program change request to NOAA for approval. Depending on whether the proposed revision is determined to be a substantial change to the enforceable policies or authorities of the NJ Coastal Management Program, it may be necessary to conduct a National Environmental Policy Act (NEPA) review on the program change request. HMDC will be able to use the revised Master Plan as the coastal program for the District for federal consistency purposes once NJDEP has published notice of NOAA's approval of the program change. If any future revisions to the HMDC Master Plan and Zoning Regulations, or changes to the permitting structure, are needed subsequent to the SAMP-related Master Plan and permitting revisions, they will also be required to be submitted to NOAA as program changes.

4.3 SAMP Regulatory Products

The principal regulatory products of the Hackensack Meadowlands SAMP are Section 404 General Permits, Abbreviated Permitting Procedures, and a revised HMDC Master Plan and Zoning Regulations for the District (changes to the planning process are described in Section 6.1). Concurrent with the regulatory changes listed above, a revised system is proposed for local (HMDC) and state (NJDEP) review and approval of projects consistent with the SAMP. Several other supporting regulatory products will be implemented, as related to wetland mitigation and wetland mitigation banking.

Section 404 Regulatory Products

Several regulatory changes are proposed by the SAMP that will improve the review process for projects that involve wetland fill in the District, and that are consistent with the SAMP. HMDC's SAMP Development Plan proposes to allow the development of 52 Planning and Satellite parcels and 34 Transportation Improvements (for a total of about 1,860 development acres) over the next 20 years. Of these parcels, 22 of the Planning and Satellite Areas contain wetlands (potentially associated with a maximum of 750 acres of wetlands fill), and 17 of the Transportation Improvement locations contain wetlands (potentially associated with a maximum of 92 acres of wetland fill).

The SAMP/EIS has evaluated the need for economic growth and environmental improvement in the District, analyzed alternatives to fulfill those needs, identified a Preferred Alternative, and studied the environmental impacts associated with the Preferred Alternative. Projects that are consistent with the SAMP have been shown, through the studies conducted for this EIS, to have no practicable alternatives with lesser overall environmental impact. Because alternatives evaluations have been performed as part of this EIS for activities that are part of the SAMP Preferred Alternative, they will not need to be repeated in the future for projects that are consistent with the SAMP. Based on these studies and evaluations ACE and EPA have determined that projects consistent with the SAMP, and that meet other requirements (described below) will be eligible for streamlined federal permit review using two mechanisms:

- General Permits (GP)
- Abbreviated Permit Processing (APP)

Conditions of eligibility for projects seeking GP's and APP's are described below:

General Permits

- Proposed wetland fills that cumulatively total not more than 15 acres for P/SAs included in the Preferred Alternative and that are consistent with the approved SAMP/revised HMDC Master Plan will be eligible for a GP. The GP applies only to projects in Planning Areas and Satellite Areas which alone, or in conjunction with other developers within the area, incur not more than 15 acres of fill, regardless of the current distribution of lot ownership within the Planning/Satellite Area boundary. Projects not eligible for a GP may be eligible for APP (see below).

- In addition, proposed wetland fills of no more than one acre, associated with identified minor Transportation Improvements to existing transportation facilities in the District, and that are consistent with the approved SAMP/revised HMDC Master Plan, will be eligible for a GP.

- Projects for restoration and enhancement of wetlands in the District that are required for development activities authorized by the proposed SAMP GP, or projects for implementation of Mitigation Banks in the District that are consistent with the SAMP will quality for a GP. Such projects must be located in areas identified for mitigation in the SAMP/EIS.

- The project must not result in significant adverse impacts to federal or state threatened or endangered species. (The SAMP/EIS has addressed the requirements for current federally-listed species. Presence of and use by State-listed species will be determined at the time of submittal of the GP application, as required by the conditions of the Water Quality Certificate proposed to be authorized for the GP.)

- The project must not result in significant adverse impacts to cultural resources, and otherwise complies with the provisions of NHPA. (The SAMP/EIS has identified sensitive locations requiring further survey/study work.)

It is anticipated that the GP will be determined to be consistent with the NJ CMP. Similarly, it is expected that NJDEP will issue a 401 Water Quality Certificate for the GP. Based on the studies conducted for the SAMP/EIS, NJDEP proposes to issue WQC's for projects authorized by the GP, conditioned to require, at minimum, additional investigation for state endangered, threatened, and rare species at the time of the requested use of the GP. With the above in mind, projects that proceed under the GP will not require a separate CMP review or WQC. ACE's proposed GP is presented in Appendix O of this EIS. It provides additional information on the requirements and mechanics of the proposed federal GP process.

Abbreviated Permit Processing

- Proposed wetland fills that cumulatively total more than 15 acres within a Planning or Satellite Area and that are consistent with the SAMP would be eligible for APP.

Given that projects not eligible for the proposed GP involve greater wetland impact, and because of the programmatic nature of the SAMP/EIS, applicants proceeding under APP will be required to collect additional site specific data under the APP, including information regarding the presence of State threatened and endangered species, cultural resources, and additional site specific information about the characteristics of and wildlife use of potentially impacted wetlands. Such information will be used to reach a permit decision, and will be used to better specify mitigation requirements (including wetland mitigation) associated with a permit approval.

Projects not consistent with the SAMP and HMDC's revised Master Plan will undergo the individual Section 404 permit process, including preparation of an alternatives analysis, as appropriate and relevant. However, as noted earlier in this chapter, projects that are not consistent with the SAMP are likely to be difficult to implement if they require state and/or federal permit approvals. Because the revised HMDC Master Plan will replace the existing Master Plan as the component of the NJ CMP applicable to the District, projects that are not consistent with the Master Plan will, by definition, not be consistent with the NJ CMP. Only projects that are consistent with the NJ CMP are typically eligible for federal or state agency permit approvals, notwithstanding the rights of project sponsors to apply for such permits.[8]

Procedures for Wetland Mitigation

The SAMP partners propose to implement an Interagency Compensatory Wetland Mitigation Agreement that will define the process for determining acceptable wetland mitigation under the SAMP. The Interagency Compensatory Wetland Mitigation Agreement, a SAMP regulatory product, will establish the Meadowlands Interagency Mitigation Advisory Committee (MIMAC). It is proposed that MIMAC include one wetland mitigation specialist from each of the following agencies: U.S. Army Corps of Engineers, U.S. Environmental Protection Agency; N.J. Dept. of Environmental Protection; Hackensack Meadowlands Development Commission; National Oceanic & Atmospheric Administration; U.S. Fish and Wildlife Service.

Under the proposed agreement, MIMAC will be responsible for developing guidance for wetland mitigation projects, including mitigation banks. MIMAC responsibilities include recommending mitigation actions for projects that are eligible for GP's and APP's. The components of the guidance for wetland mitigation will include: site selection criteria; performance standards for conducting mitigation, including mitigation performed for mitigation banks; methodologies for assessing site success; criteria for the valuation and exchange of

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[8] It is not possible for the SAMP to anticipate all projects that may be valuable or needed in the future of the District. However, as noted herein, projects that are not consistent with the SAMP Preferred Alternative will have a more extensive local, state, and federal review process, because they have not been subject to the advance studies performed as part of this EIS.

mitigation credits and debits; and monitoring requirements for wetland mitigation projects, including mitigation banks.

The MIMAC will meet to review individual wetland mitigation project proposals and wetland mitigation bank proposals. Proposals for individual wetland mitigation projects and for banking sites will be submitted to the MIMAC, including documentation of the need for the mitigation or banking site, evaluation of existing site conditions; and analysis of the feasibility of mitigation at the proposed location. MIMAC will make recommendations to ACE regarding the acceptability of: wetland mitigation site locations; wetland mitigation development plans (including restoration, creation, and enhancement); and wetland mitigation site selection, site designs, and operation and maintenance procedures.

Project sponsors applying for HMDC site plan approval will be required to implement wetland mitigation consistent with MIMAC procedures and determinations. Successful implementation of the mitigation project will be a permit condition, determined by fulfillment of site-specific criteria established for each mitigation site. To assure fulfillment of permit conditions, post-mitigation maintenance (as needed) and monitoring of the wetland mitigation project will be required, including preparation and submission of a monitoring report to the MIMAC and federal resource agencies for not less than 5 years after the mitigation project is complete.

For the SAMP, it is proposed that wetland mitigation banking be authorized under a GP, to encourage early implementation of wetland mitigation efforts using banking systems.

Changes to Permit Responsibilities between HMDC and NJDEP

As part of the SAMP, specific permit review and approval responsibilities will be revised between HMDC and NJDEP. To effect this change, several NJDEP regulatory products will be pursued following the SAMP/EIS Record of Decision, as discussed below. For projects consistent with the SAMP, the goal is to create a review process whereby compliance with HMDC development review requirements will result in de facto compliance with relevant state requirements.

In order to streamline the permit review process, it is proposed that HMDC become the lead agency for permit review in the District[9]. To accomplish this, amendments would be made to the HMDC Master Plan and Zoning Regulations, NJDEP's Rules on Coastal Zone Management, and New Jersey's Federally-approved CMP.

Upon issuance of the SAMP/EIS Record of Decision, HMDC would revise its Master Plan and Zoning Regulations to reflect the SAMP, and (working with NJDEP and NOAA) incorporate the appropriate Rules on Coastal Zone Management. Once the necessary revisions have been made, the revised Master Plan and Zoning Regulations will be submitted to NOAA as a change to the NJ CMP.

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[9] Under the State's Federally-approved Coastal Zone Management Plan, three types of approvals may be needed before an applicant undertakes development projects in the District. They are a Waterfront Development Permit, a Water Quality Certificate, and a Federal Consistency Determination.

During the period between the SAMP/EIS Record of Decision and NOAA's approval of the revised Master Plan and Zoning Regulations as the coastal program for the District, a temporary, partial moratorium would be implemented by HMDC, contingent upon the approval of the Commission, in order for HMDC to prepare and adopt a revised Master Plan and Zoning Regulations. The moratorium would cover all new development proposed to be located on wetlands parcels, Planning Areas and Satellite Areas, with certain exceptions.

In the second phase, permit applications for projects in the District would be reviewed by HMDC staff using the revised Master Plan and Zoning Regulations, which would include the relevant Rules on Coastal Zone Management as standards. The mechanism to initiate this process will be a Memorandum of Agreement between NJDEP and HMDC. HMDC's recommendations on permit decisions would be forwarded to NJDEP for approval, denial, or modification.

In the third phase of the permit review consolidation, a Programmatic General Permit for the District would be developed and adopted, after NJDEP receives NOAA's approval of the revisions to the Master Plan and Zoning Regulations. The Programmatic General Permit is intended to allow those activities described in the SAMP and now adopted as amendments to the Master Plan to go forward without the need for additional project specific permits from NJDEP. The Programmatic General Permit will require revisions to the NJ CMP, which is initiated through a rule proposal by NJDEP. This further revision to the permitting process also must be submitted to NOAA for approval as a change to the NJ CMP. Once the Programmatic General Permit is approved by NJDEP and NOAA, HMDC will become the lead agency for permit review in the District.

4.4 General Schedule for Implementation Actions

The SAMP will be implemented in a series of steps, with a logical sequence of regulatory changes occurring over approximately a one year period. SAMP implementation will be initiated upon the filing of the Record of Decision by the lead federal agencies for the EIS. The Record of Decision will identify a specific SAMP alternative for the District (which is likely to include numerous components) as well as approve the proposed General Permit for activities consistent with the SAMP. The Record of Decision will indicate that the SAMP is consistent with the Coastal Management Plan for NJ.

The following sequence of SAMP implementation steps are anticipated:

Immediate Actions

The SAMP partners and appropriate resource agencies finalize and approve the Interagency Compensatory Wetland Mitigation Agreement. The Meadowlands Interagency Mitigation Advisory Committee is created.

Federal agencies and SAMP partners finalize APP procedures.

A SAMP Oversight Committee is established, to include representatives from the SAMP partners.

Contingent upon the approval of the Hackensack Meadowlands Development Commission, a temporary, partial moratorium would be implemented for all new development (as described in the SAMP Preferred Alternative) that is proposed to be located on wetland parcels, or Planning Areas or Satellite Areas, for a specified period of time (to be determined).

HMDC creates an EIP Advisory Committee.

Within One Year

HMDC revises and adopts a new Master Plan and Zoning Regulations for the District. NJDEP reviews the revised Master Plan and submits it to NOAA as a program change to the NJ CMP. NOAA reviews the revised Master Plan as a program change. Upon approval of the changes to the NJ CMP, the temporary moratorium on development is lifted.

HMDC and NJDEP approve permit processing procedures for the District. (HMDC prepares project permit reviews and submits same to NJDEP for NJDEP action on permit applications.)

HMDC and NJDEP reach agreement on a General Programmatic Permit, that will allow HMDC to conduct streamlined permit reviews, with proper notice to NJDEP.

Following adoption of a new Master Plan and Zoning Regulations for the District by HMDC, HMDC implements a Wetland Bank, a Transfer of Development Rights System, and changes in the Development Review and Approval Process.

HMDC begins implementation of the Environmental Improvement Program.

HMDC initiates the pilot program for testing potential to redirect in-District growth to urban centers.

ACE, EPA, NJDEP, and HMDC enter into a Memorandum of Agreement regarding future cultural resources investigative efforts in the District.

ACE, EPA, and HMDC enter into a Memorandum of Agreement regarding conservation actions to be implemented for the Peregrine Falcon to enhance the District's ability to support this species.

In accordance with the goals of Section 7a(1) of the Endangered Species Act, specific conservation measures to enhance use of the District by Peregrine Falcons are developed and implemented.

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