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The Master Plan is the primary planning document for the New Jersey Meadowlands Commission (NJMC). It presents a cohesive set of planning principles and standards adopted by the NJMC to guide future development while protecting the resources of the Meadowlands District. The result is a policy framework to promote the careful balancing of environmental and economic development needs throughout the District. The policies and principles of the Master Plan will be effectuated through the NJMC's regulations, codified at N.J.A.C. 19:3-1.1 *et seq.*

The document is composed of three sections and their corresponding chapters, followed by a series of maps:

SECTION I: VISION STATEMENT

Chapter 1. A Vision for the Meadowlands District

This section and its chapter describe the purposes of the NJMC; its original master plan, the Hackensack Meadowlands Comprehensive Land Use Plan; the NJMC's vision statement and goals for the Meadowlands District; and the features of the Master Plan that contribute to an innovative and valuable planning document.

SECTION II: HISTORICAL AND CURRENT CONDITIONS

The chapters of Section II include basic background information that is beneficial to the development of the comprehensive plan. They describe existing conditions and emerging patterns in the Meadowlands District:

- Chapter 2. History and Baseline Data**
- Chapter 3. Land Use**
- Chapter 4. Housing**
- Chapter 5. Environmental Preservation and Enhancement**
- Chapter 6. Circulation**
- Chapter 7. Community Facilities**
- Chapter 8. Economic Vitality**
- Chapter 9. Historic Preservation**

Major conditions and trends are identified in a summary of "Key Conditions" at the conclusion of each chapter.

SECTION III: MEADOWLANDS DISTRICT PLAN

The chapters of Section III present the comprehensive plan:

Chapter 10. Systems Plans

Systems plans reflect strategies that affect more than one planning area within the District, generally the District as a whole. Systems include these six functional areas: natural environment, economic development, transportation, housing, community facilities, and historic and archeological heritage.

Chapter 11. Area Plans

Area plans present strategies for each of the planning areas that compose the Meadowlands District.

Chapter 12. Plan Implementation

The chapter describes how the NJMC will carry out the plan. It begins with comparisons of the Master Plan's vision and strategies to master plans of the District's constituent municipalities and counties, the New Jersey State Development and Redevelopment Plan, and other pertinent plans.

The chapter also describes how the NJMC will carry out the plan. The "Sustainable Meadowlands" initiative will provide a framework for tracking the sustainability of the District through a baseline assessment of the District, a series of technical studies necessary to implement the plan's strategies, and an ongoing monitoring process. Monitoring will ensure that actions are implemented, assess their impacts, and assist with guiding change. A mechanism for revising the plan is included to address changing circumstances.

GLOSSARY

The glossary includes definitions of technical terms used throughout the document.

MAPS

The series of maps visually depict the existing conditions described in chapters 1 through 9 and the land use plan of Chapter 11:

- 1 Regional Location
- 2 District Municipalities
- 3 Existing Land Use
- 4 Redevelopment Areas
- 5 Waterways & Sub-Watershed Areas
- 6 Flood Hazard Areas
- 7 Wetlands & Waterways
- 8 Roadway Network
- 9 Rail System—Passenger & Freight
- 10 Bus Routes & Park-and-Ride Facilities
- 11 Community Facilities
- 12 Utility Service Areas
- 13 Historic Resources
- 14 Green Map
- 15 Land Use Plan

CHAPTER 1

A VISION FOR THE MEADOWLANDS DISTRICT

ORGANIZING PRINCIPLES

This Master Plan creates an overall vision for the Meadowlands District through the delineation of cohesive goals, principles, standards, and strategies. The vision statement and the accompanying set of broad goals presented in this chapter provide a general framework for the plan. Together they serve as an expression of the purpose of the Meadowlands District and the role of the New Jersey Meadowlands Commission (NJMC).

The NJMC is charged with environmental protection and stewardship, promoting orderly development, and providing for the solid waste needs of the region. The 30.4 square-mile District is located approximately five miles west of New York City in northern New Jersey. The District encompasses portions of fourteen municipalities in two counties: Carlstadt, East Rutherford, Little Ferry, Lyndhurst, Moonachie, North Arlington, Ridgefield, Rutherford, South Hackensack, and Teterboro in Bergen County and Jersey City, Kearny, North Bergen, and Secaucus in Hudson County. The District is bordered by Route 46 on the north, Routes 1 and 9 (Tonnelles Avenue) and the freight rail line owned by Norfolk Southern and CSX Corp. (the former Conrail main line) on the east, the Port Authority Trans Hudson (PATH) commuter rail lines and Pulaski Skyway on the south, and Route 17, the Pascack Valley rail line, and the Kingsland rail line on the west. The District's geographic location is presented as Map 1 in the map section at the end of this document. Map 2 identifies the boundaries of the political jurisdictions within the District.

The Hackensack Meadowlands Reclamation and Development Act (N.J.S.A. 13:17-1 *et seq.*), effective January 13, 1969, recognized the meadowlands of the lower Hackensack River as “a land resource of incalculable opportunity for new jobs, homes and recreational sites.” The Act cited “their strategic location in the heart of a vast metropolitan area with urgent needs for more space for industrial, commercial, residential, and public recreational and other uses . . .” The objectives of the Act include:

- The preservation of the delicate balance of nature;
- The provision of special protection from air and water pollution and a special provision for solid waste disposal; and
- The orderly, comprehensive development of the Hackensack Meadowlands in order to provide more space for industrial, commercial, residential, public recreational, and other uses.

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The Act also created the Hackensack Meadowlands Development Commission (HMDC) and authorized the preparation and adoption of a master plan for the physical development of the district. The HMDC was renamed the New Jersey Meadowlands Commission on August 27, 2001, to better reflect its role in the region as a State agency.

This Master Plan is the first major revision to the original Hackensack Meadowlands Comprehensive Land Use Plan of October 1970, although there have been a number of planning initiatives by the NJMC since that time. “Stage I” of the original Comprehensive Plan, published in November 1969, set the groundwork for the 1970 Land Use Plan by describing the following barriers to the Meadowlands realizing its potential:

- Difficult physical features;
- The complexity of devising a plan;
- The absence in the past of a sound governmental vehicle for carrying out the plan;
- The uncertainty of title and land holdings; and
- The environmental degradation of the area.

In fact, the environmental degradation and other issues necessitated bold and creative vision for the Meadowlands District. The original Comprehensive Plan rose to this challenge, as evidenced by the following passage describing the District of the future:

It will be a proving ground where New Jersey can attain the goals of a healthful environment, protection of wildlife and open space, sensible use of land, creation of balanced communities, economic growth, efficient disposal of waste materials, control over dangerous pollutants, rapid mobility of people and goods and imaginative use of modern design and technology.

The Comprehensive Plan brought order to the District with respect to designating an appropriate array of land uses, reversing environmental degradation, and managing landfill operations. It did so while striving to achieve a balance between the pressures for economic growth, recreational areas, and open space preservation. Parks and recreation areas were proposed for landfill sites. Conservation and wildlife reserve areas were proposed at various locations along the Hackensack River, particularly the Saw Mill Creek Wildlife Management Area in Lyndhurst and Kearny.

The Plan also identified several large tracts of lands as Special Use Areas where “regional facilities” would be encouraged as significant contributors to development. Among the suggested uses were sports facilities, cultural centers, and higher educational institutions. These Special Use Areas would incorporate creative design techniques and state-of-the-art technologies. The Meadowlands Sports Complex stands as the key example of this development genre.

Other major achievements of the original plan include the protection of fragile wetlands; the closing of landfills; the creation of recreational space; the Harmon Cove residential community in Secaucus; extensive warehousing and industrial development; and the Frank R. Lautenberg Station at Secaucus Junction. Secaucus Junction connects virtually all NJ Transit rail lines serving northern New Jersey, enabling commuters to transfer from the Main, Bergen, Port

Jervis and Pascack Valley Lines to all Northeast Corridor (NEC), North Jersey Coast Line, and MidTOWN DIRECT trains.

The Plan’s overall vision continues to be valid today after the passage of more than three decades. Nevertheless, certain aspects must be reconsidered in light of current planning philosophies and legal mandates:

- The 1970 Plan was adopted prior to passage of significant federal and State legislation (e.g., Clean Water Act and Clean Air Act) and the births of the US Environmental Protection Agency (USEPA) and the New Jersey Department of Environmental Protection.

FIGURE 1.1 *The area now designated Richard W. DeKorte Park was the focal point of the recreation component of the original Comprehensive Plan. A major stop along the Atlantic Flyway, the site was, historically, a tidally flowed mudflat. The site presents a literal barrier against the continued destruction of marshland by landfilling.*



FIGURE 1.2 *Another major achievement of the original Plan, the Frank R. Lautenberg Station at Secaucus Junction. The station unifies 11 of NJ Transit’s 12 rail lines. It also creates a foundation for the next generation of transportation improvements, including bi-level rail cars, expanded parking throughout the system, and the construction of new rail tunnels beneath the Hudson River. Source: Courtesy of New Jersey Transit*



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- The original Plan called for over 2,000 acres of wetlands fill; the emphasis is now on redevelopment.
- New urban wildlife estuary and conservation areas are in critical need.
- The encouragement of mass transit and roadway system maintenance have replaced new construction as transportation priorities.
- Evolving economic conditions have created pressures for changes in land uses.
- Market and economic conditions require development of technologically “smart” office buildings and distribution facilities.
- Brownfield legislation and regulations provide development opportunities not available previously, alleviating pressure to develop on wetland sites.

VISION STATEMENT

This Master Plan is an expression of the overall vision of a regreened Meadowlands and a revitalized urban landscape. It is also a commitment by the New Jersey Meadowlands Commission, in exercising its authority under the Hackensack Meadowlands Reclamation and Development Act, to continue to serve as trustee of the natural resources of the Meadowlands District and to foster a sustainable regional economy. The Plan recognizes the Meadowlands as a large but fragile expanse of waterways, marshes, and meadows that are home to a wide variety of wildlife species, including several threatened or endangered species. The Plan also recognizes that the Meadowlands contains a cultural and economic landscape shaped by centuries of human habitation. Consequently, a comprehensive plan for the District must consider its environmental, economic, and societal needs, i.e., jobs and businesses, the natural surroundings, and the quality of life.

The overall vision of a regreened Meadowlands and a revitalized urban landscape will be achieved through:

- The protection, preservation, and enhancement of wetlands culminating in the preservation of 8,400 acres;
- The thoughtful balancing of planned redevelopment and new development on upland sites;
- An integrated multi-modal transportation network; and
- The retention and growth of commercial, industrial, and financial enterprises and jobs.

Redevelopment of underutilized or poorly utilized areas, some of which may include “brownfields,” is critical to the future of the District. New investment and selected redevelopment will be both orderly and environmentally compatible. New development will take into consideration the capacity of the transportation system, the availability of public services, and the impact on the natural environment. Although it is often difficult to balance the rights of individual property owners and the public benefit, there will be greater balance between needs for planned development and the environment. The District will meet the needs of the present without compromising the ability of future generations to meet their own needs. To that end,

this Master Plan incorporates the themes of smart growth and a sustainable course of action by designating certain areas for economic growth, with other areas targeted for environmental enhancement and protection.

Smart growth provides a framework for making decisions about how and where to grow in the District. It reflects the rising national concern that “sprawl” or inefficient, greatly dispersed patterns of development, are not in the best interest of our cities, suburbs, towns, and rural and wilderness areas. Sprawl results when new development takes place in undeveloped areas, removed from existing infrastructure. It causes a loss of open space, farmland, and critical environmental areas. Environmental and fiscal concerns have spurred the smart growth movement.

FIGURE 1.3 *An architectural rendering of a residential island cluster from the original Comprehensive Land Use Plan of 1970. The residential areas shown on the Land Use Plan would have resulted in the development of 70,000 residential units and a new population of approximately 185,000 for the Meadowlands District. In 2000, the District included a total of 4,649 residential units and a population of 10,635.*



FIGURE 1.4 *Berry’s Creek Center as envisioned by the original plan. The Center was intended to depict the charm of Venice’s San Marco Plaza and serve as a focal point of the Meadowlands’ changed identity. The site was recently purchased by the NJMC to be preserved as open space.*



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In 1996, the US Environmental Protection Agency and several other government and non-profit agencies joined to form the Smart Growth Network (SGN). Network partners have pooled their experiences to identify the common denominators that contribute to smart growth successes. The resulting ten principles provide impetus to the development of action strategies in this Master Plan:

1. Mix land uses.
2. Take advantage of compact building design.
3. Create a range of housing opportunities and choices.
4. Create walkable neighborhoods.
5. Foster distinctive, attractive communities with a strong sense of place.
6. Preserve open space, farmland, natural beauty, and critical environmental areas.
7. Strengthen and direct development towards existing communities.
8. Provide a variety of transportation choices.
9. Make development decisions predictable, fair and cost effective.
10. Encourage community and stakeholder collaboration in development decisions.

The concept of sustainable development is also essential to the long-term vitality of the District. The term was brought into widespread use by the 1987 report, “Our Common Future,” released by the United Nations’ World Commission on Environment and Development. The report defined sustainable development as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs.” The key concept of the report is that our “economic future is linked to the integrity of natural systems.”

The President’s Council on Sustainable Development offers this nationally focused definition of sustainability: “A sustainable United States will have a growing economy that provides equitable opportunities for satisfying livelihoods and a safe, healthy, high quality of life for current & future generations.” The Council was established in June 1993 to develop “bold, new approaches to achieve our economic, environmental, and equity goals.” Its goals collectively express the understanding that economic prosperity, environmental protection, and social equity must be sought together.

One of New Jersey’s most comprehensive undertakings to achieve sustainable development is the State Development and Redevelopment Plan. The initial State Plan was adopted in 1992; the current State Plan was adopted in March 2001. The new State Plan identifies a set of critical indicators and targets that relate to economic, environmental, infrastructure, community life and intergovernmental coordination areas. It includes 27 additional indicators that can be used for further monitoring. Although the State Plan does not include its jurisdiction, the NJMC seeks to develop a Memorandum of Understanding with the State Planning Commission regarding the shared goals of Smart Growth in accordance with current State initiatives.

The approach common to the United Nation’s World Council, the President’s Council, and the State Plan is the selection of core indicators to measure quality of life and sustainability. Using existing data, each entity adopted several indicators of economic vitality, as well as quality of life indicators in the social and environmental realms. Each set of indicators can be used to produce a statement regarding progress toward sustainability.

The Hackensack Meadowlands Reclamation and Redevelopment Act recognized that the District's economy, society and environment interrelate to shape the quality of life for its residents, workers, visitors and future generations. Sustainability requires each of these three systems to function harmoniously. Consequently, the concept of sustainability is an integral component of the new plan.

Through the "Sustainable Meadowlands" initiative, the NJMC will develop a framework to track the sustainability of the District. By paralleling other sustainability initiatives, the framework will include a set of indicators connected to issues identified in the Master Plan. Sustainable Meadowlands reinforces the NJMC's dual commitment to serve as trustee of the natural resources of the Meadowlands District and to foster a sustainable regional economy. The District will meet the needs of the present without compromising the ability of future generations to meet their own needs.

Planning can produce the most favorable results through a comprehensive assessment of the Meadowlands District. Coordination of planning and corresponding implementation strategies shall take place among the NJMC and its constituent municipalities. Compatible land uses that cross municipal borders and shared services shall be pursued where feasible. Also, the NJMC must continue to forge effective partnerships with environmental representatives, commerce, industry, and other public interest entities.

Planning strategies must permit sufficient flexibility to allow for inevitable rapid changes, with particular attention to technological changes. Scientific methodologies must be used to devise better means of data collection to measure our progress in achieving environmental protection, restoration, and remediation.

GOALS

The NJMC has set these goals as a general framework for the Master Plan:

- To preserve and enhance wetlands and other valuable natural resources, open space, energy resources, and the historical heritage of the Meadowlands District;
- To promote a suitable array of land uses which encourage economic vitality with job creation and support the public health, safety, and general welfare;
- To prevent urban sprawl and degradation of the environment through improper use of land;
- To cultivate a strong sense of place in a desirable visual environment through creative development and design techniques;
- To foster the availability of various efficient transportation choices with emphasis on mass transit and the improvement of existing transportation facilities;
- To encourage the development of a balanced mix of housing types and costs within the limits of available infrastructure and community facilities of the District's municipalities; and
- To strengthen communication and coordination among the various public and private stakeholders shaping land use.

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PLAN FEATURES

The Master Plan incorporates a number of features that contribute to a unique and dynamic planning document. These features are categorized by the concepts on which the plan is based, its form, the collaborations necessary to prepare and implement the plan, and its intended outcomes:

Concepts

- **Vision statement and goals.** The vision statement and goals presented in the last two sections emphasize the aspirations of the District. They are dynamic, unlimited by conditions that exist in the District.
- **Smart growth principles.** The Master Plan is a guide to achieving a unique sense of place for the District
- **Sustainable course of action.** The plan values the long-term sustainability of the District over short-term, isolated actions.
- **Fair and just treatment of citizens.**
 1. The Master Plan promotes environmental justice. No population, regardless of race, color, income or national origin, should bear a disproportionate amount of adverse health and environmental effects.
 2. All populations should share in the benefits of implementing the plan.
 3. The physical design of the District should support the public's access to information, services, jobs, and housing opportunities.

Form

- **Integrated.** Traditional comprehensive plans generally consist of separate plans to address individual planning topics, such as land use and transportation. The NJMC Master Plan instead presents a series of planning strategies designed to reinforce each other in an integrated plan.
- **Acknowledges social and economic inter-relationships with the physical environment.** Although the plan places the traditional emphasis upon the physical environment, it does not neglect social and economic factors.
- **Based on District's physical or functional features.** The plan is organized around strategies for specific planning areas and functional systems, such as the natural environment, transportation, and economic development.

Collaborative Effort

- **Reflects stakeholder engagement.** Collaboration among citizens, other governmental entities at all levels, nonprofit agencies, private developers, and other stakeholders is essential to successful plan development and implementation.
- **Seeks consistency with pertinent plans.** The plan makes comparisons between the NJMC Master Plan and the pertinent planning documents of the District's constituent municipalities, Bergen and Hudson counties, and other entities. It seeks to resolve any incompatibilities identified.
- **Coordinates with available programs and financial resources** that support its vision and planning strategies.

Outcomes

- **Achievable set of strategies.** While vision-driven, the plan's strategies present a realistic, achievable course of actions for a ten-year planning horizon. The plan's impacts will endure beyond that point to the benefit of future generations.
- **Guidance.** The plan communicates NJMC policy in a manner that can be used by the Commission, its constituent municipalities, developers, citizens, and other entities with interests in the District.
- **Regulatory provisions.** The plan's policies and principles will be effectuated through the NJMC's regulations, codified at N.J.A.C. 19:3-1.1 *et seq.*
- **Environmental education and awareness.** The NJMC will build upon the successes of its educational programs and facilities. Tools include additional programs for school-age children and the general public, promoting the public's role in environmental stewardship, research through the Meadowlands Environmental Research Institute and other higher educational institutions, and sharing results of long-term monitoring for indicators of sustainability.
- **Monitoring process.** The plan describes a process that will ensure strategies are implemented and assess their impacts. The monitoring process will incorporate selected indicators of sustainability.
- **Revision mechanism.** A mechanism for periodic revision will give the plan the necessary flexibility to evolve in the face of changing conditions, attitudes, and monitoring outcomes.

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All photos and other visual images, unless otherwise noted, are the property of the New Jersey Meadowlands Commission.

CHAPTER 2

HISTORY AND BASELINE DATA

BASIS AND STRUCTURE

Although planning strategies should not be restricted in scope by existing conditions, the District's historical record and trends establish the setting for preparing the comprehensive plan. This chapter begins with a brief historical account of the Meadowlands. It continues with an overview of land use planning in the District, beginning with the 1896 publication of the first comprehensive plan by the engineer C.C. Vermeule. The final sections establish general baseline conditions through an analysis of basic demographic information.

HISTORY

Pre-Historic Conditions

The creation of the Meadowlands and its environs resulted from the natural processes of volcanic and glacial activity approximately 17,000 years ago.

At the time of the earliest known human presence in the Mid-Atlantic region 10,500 years ago, sea level was approximately 80 feet lower than today. The Atlantic shoreline was 40 miles to the east of its present location. The Meadowlands was a broad, forested valley crossed by numerous, meandering, freshwater streams.

From about 8,000 to 3,000 years ago, a warmer climate changed the biotic community of the Meadowlands. The Meadowlands was covered by forests of American larch and black spruce. Native Americans became less nomadic and gradually established permanent settlements in the upland regions bordering the Meadowlands estuary, rather than the marshy areas. Food and clothing were obtained by hunting, fishing, and gathering. Reeds, clay, and forest provided the basic materials needed to make baskets, mats, nets, pottery, and canoes. Archeologists seem to agree that the Meadowlands was used significantly in the prehistoric period, although scant evidence has been recovered. Although Native Americans farmed and hunted, their low intensity use of the Meadowlands did not significantly alter its appearance or physical condition.

The forested valley of mixed hardwoods was inundated about 1,000 years ago when sea level rose to near present-day levels following the retreat of the last glacier in the Wisconsin age. The Meadowlands was flooded, and the Atlantic white cedar replaced the larch and spruce. The cedar swamps were the prevailing habitat type until deforestation by the Dutch and English colonists through land reclamation projects, fire, lumbering, diking, and ditching.

History and Baseline Data

Studies of dated pollen cores found in peat have established the Meadowlands as a constantly changing environment. Modern marsh grasses have been found in the area for only a few hundred years.

Additional pre-historic background establishes current environmental conditions in Chapter 5, Environmental Preservation and Enhancement.

Historic Period

The historic period, beginning with the European settlement of the area in the seventeenth century, has centered on two interrelated land use themes:

1) **Exploitation through resource extraction.** The appearance of Europeans resulted in attempts to alter the Meadowlands through land reclamation and fixed development.

2) **The development of transportation networks.** From the seventeenth century, the Meadowlands has been a significant part of the major transportation networks that brought resources from the country's interior to the international ports lining New York Harbor. Beginning with the early turnpikes and railroads which led to ferries on the Hudson River and continuing with today's interstate highways leading to international airports and through tunnels to New York City, the culture and history of the Meadowlands have been intimately tied to developments in local and regional transportation systems.

Seventeenth and Eighteenth Centuries

The early Dutch and English settlements were concentrated along the Hudson River to the east of the District, and Newark Bay and the Raritan River to the south. The first areas of European settlement in the immediate vicinity of the District were Bergen and Paulus Hook, colonized in the 1620's and 1630's and now part of Jersey City. Conflicts between the Native Americans and the European settlers resulted in the destruction of some Dutch settlements and harsh reprisals against the Native Americans. As a result of the Dutch and Indian wars, the fortified Town of Bergen was settled in 1655 and incorporated in 1668. The citizens of Bergen are believed to have controlled huge plantations that extended into the meadows, the beginnings of attempts to exploit land in the District through agriculture.

The Meadowlands was originally part of several land patents. Among these patents were the following:

- the New Barbados Patent, purchased by William Sanford in 1668, included 10,000 acres of meadow in the current towns of Kearny, Lyndhurst, North Arlington, and Rutherford;
- the Berry Patent, purchased in 1669, included the areas of East Rutherford, Carlstadt, Moonachie, and Little Ferry; and
- the Secaucus Patent, purchased in 1663 by Governor Stuyvesant.

The subdividing of these early patents in the late seventeenth and eighteenth centuries resulted in settlement taking place in the higher ground surrounding the Hackensack River basin. Early towns included Bergen (Jersey City), Hackensack, Newark and Acquackanonk (Passaic). These towns were settled primarily by Dutch from Manhattan and Long Island, except for Newark, which was settled by English from Connecticut.

The growth of these small towns resulted in the exploitation of the natural resources in the valley below, along the shores of the Hackensack River. A continued series of land grants and subdivisions extended from the earlier lots near Penhorn Creek north to Cromakill Creek along the eastern edge of the District. The Europeans constructed permanent human settlements, harvested crops, grazed livestock, and built roads and bridges. The early economic activities of fishing, hunting, farming and harvesting of salt hay, marsh grass and cedar trees slowly gave way to industrial and manufacturing uses such as milling, copper mining, clay mining for brick production, and tanning.

Boats likely provided the main form of transportation in the early years of European settlement, due to the location of settlements along the major rivers and the difficulty in crossing the meadows. Improved Indian trails provided some overland routes.



FIGURES 2.1 and 2.2 *“During the late 1600’s, throughout the 1700’s, and into the late 1800’s, small scale wetland industries were operated in the vicinity of Secaucus. Living trees of white cedar and submerged logs were used in ship building, to construct plank roads, and for the manufacture of lumber and shingles; cattails and large marsh grasses were collected for thatch and to make chairmats and other items; and meadow cordgrass was mowed frequently to provide bedding for animals and insulation for ice that was cut during the winter.”*

— Elizabeth Righter, historian, ca. 1978

Nineteenth Century

The nineteenth century was marked by the introduction of road and rail networks across the Meadowlands, the establishment of historic settlements on high ground, the operation of mills and clay mines, and land reclamation activities. Meadowlands communities continued to grow throughout the 19th century as more jobs were created and communities around the Meadow-

History and Baseline Data

lands developed into centers of commerce. The mid 1800's saw residential development in present day Carlstadt, Little Ferry, North Arlington and municipalities surrounding the Meadowlands. Little Ferry was developed as a ferry crossing along the route from Hackensack to Bergen. The construction of the Bergen Turnpike in 1804 resulted in the eventual replacement of the ferry crossing with a bridge in 1828.

The Morris Canal opened in 1831, providing a transportation route from the Delaware River to the Passaic River. By 1836, the canal was extended to the Hudson River. In the vicinity of the Meadowlands, the canal followed the course of the Newark Turnpike across the marsh at what is now Kearny before heading south.

Much of the historic development in the Meadowlands has been a product of the turnpikes constructed in the first quarter of the 19th century. The roads, along with water transport, were a vital link in the colonization of the area by allowing farm produce, lumber, copper, brick and other locally produced products to reach the New York and European markets. The roads to Schuyler's mine and to Newark were improved during this time and became the Belleville and Newark Turnpikes, respectively. Paterson Plank Road was laid across the marsh at this time, providing a direct route from Paterson to Jersey City via Acquackanonk. Paterson Plank Road was considered a product of the "plank road fever" of the mid-nineteenth century. These roads were constructed of cedar planks about three inches thick, laid side-by-side to a width of approximately eight or nine feet. The "plank road fever" was eventually quieted by high maintenance costs and competition from more cost efficient canals and railroads. Some of these dirt and cedar plank roads have remained in their original locations, becoming the present-day's Paterson Plank Road and the Belleville, Newark-Jersey City, and Bergen turnpikes.

Population growth in Meadowlands communities, together with the technological advances of the industrial revolution, fueled the development of passenger rail service through the District. Rail service, in turn, allowed people to live farther away from their places of employment. The rail lines, originally used to transport freight, included such present day lines as the West Shore, Main, Boonton, and Morris and Essex lines. The lower land costs and proximity to New York City led to the development of several rail yards in the Meadowlands.

The nineteenth century brought considerable development to Secaucus, particularly its southern terminus, Snake Hill. The Snake Hill area covers 152 acres in Secaucus, bordering the east bank of the Hackensack River. According to some accounts, the area was named by early colonists, because the bordering marshland was infested with black water snakes, many twelve to fifteen feet long. Snake Hill may have been named after Jacob Schneck, its owner in the 1860's.

There are historic accounts of Native American occupation on or adjacent to the hill. Snake Hill was part of the Pinhorne Plantation, which was the center of the village of Secaucus from about 1680 into the nineteenth century. Penhorn Creek, at the eastern boundary of Secaucus, was named after William Pinhorne, with few aware of the original, correct spelling of the name. The site was later used as an encampment and lookout during the Revolutionary War and served as the location for various public institutions from the Civil War era to the beginning of

the 20th century: in 1863, the site of the area's first alms house; in 1870, a penitentiary; in 1873, an asylum for the insane, and in 1910 a new alms house and a school.

In the 1890's, an advertising agent passing by Snake Hill in a passenger train was inspired by the outcropping hill of rock. Soon photographs of the Rock of Gibraltar, which had a similar profile, were being used in advertisements for the Prudential Insurance Company of America. The image of the rock remains synonymous with Prudential to this day. Since the early 1900's, the area has more commonly been referred to as Laurel Hill.

Throughout the nineteenth century, efforts at land reclamation took the form of early dikes, sluiceways, and networks of drainage ditches throughout the District. Few of these cultural resources, however, have been documented according to current State or Federal standards. The earliest recorded attempt to "reclaim" the Meadowlands actually dates back to the end of the seventeenth century, when Major Nathaniel Kingsland drained part of the marshlands in the vicinity of Kearny and Harrison by means of a sluice gate. Presumably placed across the mouth of Kingsland Creek, the sluice gate produced land for grazing.

FIGURE 2.3 *"Much of the rock that was quarried from Snake Hill was used to form the embankments of the railroads that ran through the Meadowlands. These early attempts to create an artificial or altered surface, foreshadowed the massive efforts at land filling and reclamation which would become characteristic of the 20th century."*

— Grossman and Associates, Inc.
June 1992



The Swartwout Brothers attempted the first large-scale reclamation project in 1816 by draining and diking some 4,200 acres in Hudson County. The project succeeded in embanking 1,300 acres that produced vegetables, flax, and hemp. Damage from high tides and muskrat burrowing soon resulted in the flooding of the reclaimed land. The Swartwout's abandoned their attempt by the 1840's.

In 1867, Spenser Driggs and Samuel Pike devised a reclamation plan that involved building stronger, iron-cored or plated dikes to prevent damage from the tides and the muskrat population. Several miles of these dikes were constructed in the meadows, including locations along Sawmill and Kingsland creeks. Although the project was successful in diking nearly 4,000 acres, the crops grown on the land reportedly failed. Partly as a result of an agricultural depression in the 1870's, financial support was withdrawn following Pike's death in 1872.

After the failures of the various land reclamation projects, the Meadowlands remained a vast, largely vacant tract of land between the urban New York City and the developed, but more sub-

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urban areas to the north and west. Individual pockets of settlements generally centered around one particular industry located at the edge of the meadows.

Twentieth Century

Developments in transportation have had significant impacts on the District in the twentieth century. The invention of the internal combustion engine and the subsequent development of the automobile and trucking industries served as catalysts for development throughout the region at the turn of the century. Arable land that was once used for agriculture was redeveloped for new buildings and roadways and the expansion of rail yards.

The most notable road network to be constructed with impacts on the District is the New Jersey Turnpike, extending the length of the District along two corridors on either side of the Hackensack River. Several State highways also stretch across the Meadowlands, including the east-west Route 3 and the north-south Routes 1 and 9. The Pulaski Skyway (1930-32), a raised roadway which extends across the Hackensack and Passaic rivers into Jersey City, cuts through the southeast corner of the District.

The proximity of the rail yards to vast tracts of inexpensive, and developable land within the Meadowlands led to the growth of the warehouse and distribution industries. The Meadowlands experienced employment and population growth on a level unseen since the land reclamation period. By World War II, most upland areas surrounding the meadows were fully developed.

Attempts at land reclamation resumed early in the twentieth century under the Mosquito Control Commission, mandated to improve the public health and invite investment by making the Meadowlands unsuitable for mosquitoes. The Mosquito Commission's subsequent draining of 17,000 acres of meadows, mainly through the construction of ditches, fostered additional land uses and transformed the landscape of the area. Lands previously used for grazing and the harvesting of salt hay from the time of the first Dutch settlers became islands of industrial and suburban growth, transportation corridors, and extensive landfills. Development has left a cultural heritage of early to mid-twentieth century factories, houses, bridges, roadways, and dikes.

The century also witnessed extensive blasting of Snake Hill. The Hudson County Board of Freeholders awarded a contract for the demolition of 34 buildings in 1958. In 1962, a separate contract was awarded for the demolition of Snake Hill to the height of ten feet above sea level. Most of the rock blasting was completed; only a portion remains.

The Advent of Comprehensive Planning

The development of the Meadowlands occurred simultaneously with, although not in concert with, the publication of the first truly comprehensive plan for the Meadowlands by C.C. Vermeule in 1896. Vermeule, an engineering consultant to the publication "Annual Report of the State Geologist for 1896," declared in his plan that commerce and business were more reason-



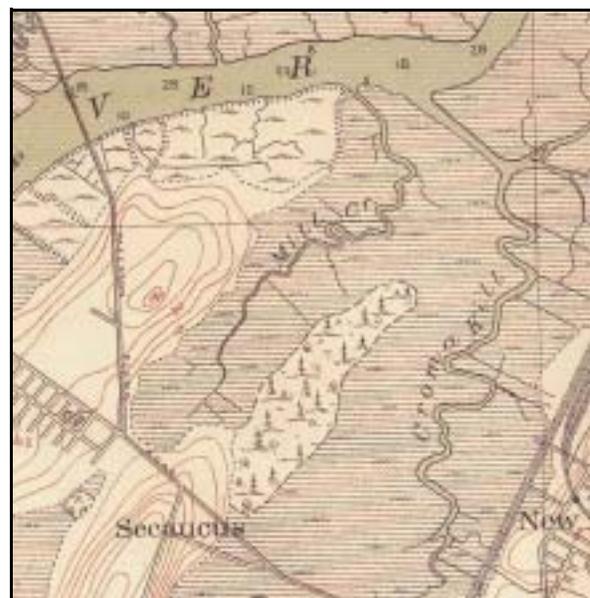
FIGURE 2.4 *The land reclamation activities of the Mosquito Control Commission and other interests transformed the landscape of the Meadowlands. Source: Scientific American, July 29, 1868*

able and profitable economic uses for the Meadowlands than agriculture. His plan advanced the concept of a centralized agency to be responsible for its implementation, as well as for the private sector to construct infrastructure as demand dictated. Although Vermeule's plan was not directly implemented, its creation was the beginning of comprehensive planning for the Meadowlands region.

In spite of Vermeule's vision, the unplanned growth of the early 20th century resulted in the continued environmental degradation of the Meadowlands. Because the meadows were still popularly considered to be nothing more than vacant, unusable land, more than 2,500 acres became depositories for solid waste.

Nevertheless, the concept of comprehensive planning for the Meadowlands managed to survive. In 1926, the ideas of Vermeule were revisited when the New Jersey Highways and Waterways Improvement Association, a transportation group, requested the Legislature to authorize the Board of Commerce and Navigation to create a comprehensive plan for reclamation to address

FIGURE 2.5 *Detail from C.C. Vermeule's 1896 topographic map of the Secaucus area. Note the depiction of Paterson Plank Road; eastern tributaries to the Hackensack, including Mill Creek and Cromakill Creek; the upland areas of Secaucus; the wooded cedar swamp near the map's center; and additional marshy areas along the waterways. Vermeule's plans for new industry and commerce in the Hackensack Meadowlands set the stage for landfilling and industrial development in the 20th century.*



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various industrial, residential and recreational development issues. In the early 1930's, the State Meadows Reclamation Commission and the New York Regional Plan Association both recognized the need for a single agency to be responsible for comprehensive zoning and development of the Meadowlands. Both organizations published plans with recommendations for land uses, mechanisms by which financing could be obtained, and the creation of a political entity. The Reclamation Commission's plan was targeted at industrial uses with little concern for residential areas. The Regional Plan Association incorporated architectural, engineering and cultural elements.

The Great Depression and World War II prevented the implementation of either plan. The plans were also thwarted from becoming reality because of the unique factors that limited development in the Meadowlands: soils composition, flood control, property access, fragmented fiscal systems and land use controls, the absence of organized local sponsorship, and the lack of jurisdiction to implement regionally oriented plans. The large regional entities that created these plans had neither the time nor the advantage of local knowledge to focus on the small area that constituted the Meadowlands.

During the 1950's and 1960's, local business owners and State and local authorities started to organize in new ways. Industrial development and an expanding work force caused the municipalities surrounding the Meadowlands to grow quickly. The area served as a gateway to the

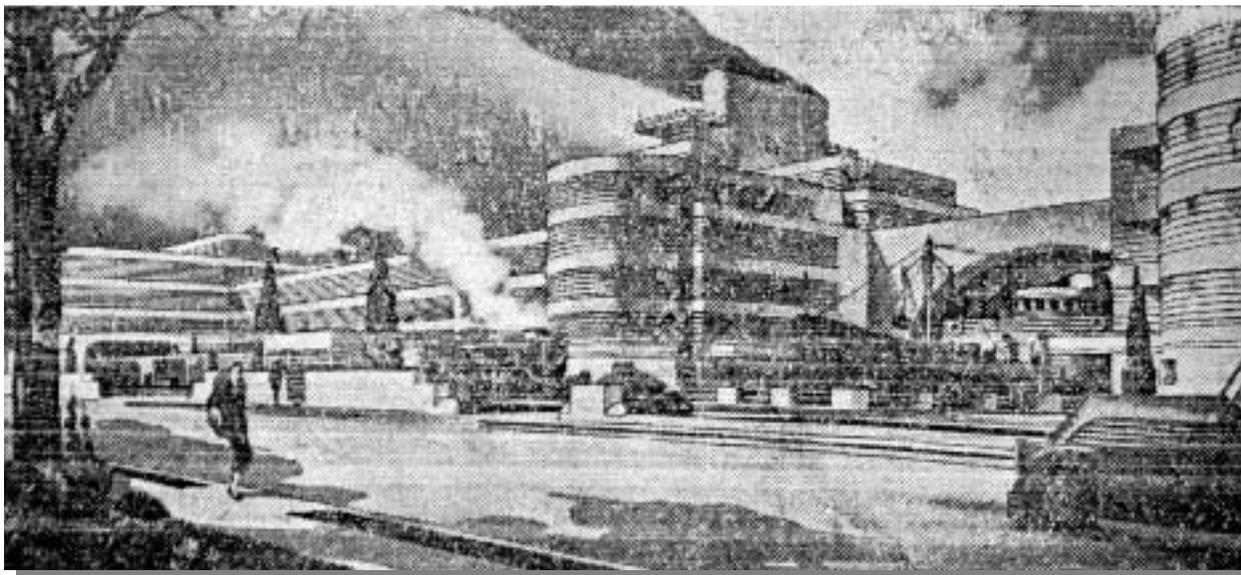


FIGURE 2.6 *An article from an unidentified December 1930 publication described the New York Regional Plan Association's proposals for the area known as the Hackensack Meadows. This concept drawing appeared with the following caption: "Railroads, ships, and highways, converging on the reclaimed areas devoted to manufacturing, would help to make this the ideal industrial city envisioned by the Regional Plan of New York." Along with these industrial cities, the Regional Plan called for "a unified system of highways, railroad trunk lines, rapid transit lines and waterways" and "a balanced apportionment of land uses," including "a park half again as large as Central Park."*

Hudson River waterfront and Manhattan. It was soon crisscrossed by new rail lines and became home to many rail yards. As the railroads continued to expand, the trucking and automobile industries unfolded. These industries created development pressures for more roads and warehouse and distribution facilities in the district. Consequently, rail and road development played a fundamental role in the evolution of the Meadowlands.

In 1955, the Meadowlands Regional Planning Board (MRPB) was established as the first regional planning board in New Jersey, pursuant to the New Jersey County and Regional Planning Act. The statute creating the Board was adopted by five Meadowlands communities: Carlstadt, East Rutherford, Rutherford, Lyndhurst, and North Arlington. The MRPB's focus was the transportation and land use needs of its five member municipalities.

In 1960, the MRPB was replaced by the Meadowlands Regional Development Agency (MRDA). The MRDA was proposed by the New Jersey Department of Conservation and Economic Development. It included a total of ten municipalities: the five member municipalities of the former MRPB, as well as Kearny, Moonachie, North Bergen, Secaucus and Teterboro.

The Hackensack Meadowlands Development and Reclamation Act, passed by the New Jersey Legislature in 1968 and enacted in 1969, created the Hackensack Meadowlands Development Commission. The Act added the four municipalities of Little Ferry, Ridgefield, South Hackensack, and Jersey City to the ten municipalities of the MRPB. The Commission was renamed the New Jersey Meadowlands Commission (NJMC) on August 27, 2001. The change better reflects the broad mission to protect and enhance the Meadowlands, while ensuring that development be both orderly and environmentally compatible. The inclusion of the word "development" in the former HMDC name created the misconception that the Commission facilitated development at the expense of the environment. The next section describes the NJMC's legal authorization and mission.

LEGAL AUTHORITY

The multi-jurisdictional Meadowlands finally came under the autonomous control of a State agency with the enactment of the Hackensack Meadowlands Reclamation and Development Act (N.J.S.A. 13:17-1 et seq.) in 1969. The Act created the Hackensack Meadowlands Development Commission, now known as the NJMC, to fulfill its mandates. The Act recognized the area as an "incalculable resource" that would provide jobs and housing to the Meadowlands communities. The intent was to overcome three main obstacles to development: governmental fragmentation, local planning and land use controls, and competition for ratables. The NJMC's jurisdiction was defined to encompass approximately 19,485 acres in portions of fourteen municipalities. Figure 2.7 on the following page shows the total acreage of each municipality and the portion within the Meadowlands District.

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FIGURE 2.7			
Land in District Compared to Total			
<i>Municipalities of the Meadowlands District</i>			
MUNICIPALITY	TOTAL ACRES	—IN DISTRICT—	
		ACRES	PERCENT
<u>Bergen County:</u>			
Carlstadt	2,784	2,315	83.2%
East Rutherford	2,596	1,938	74.7%
Little Ferry	1,033	428	41.4%
Lyndhurst	3,214	1,901	59.1%
Moonachie	1,034	827	80.0%
North Arlington	1,576	488	31.0%
Ridgefield	1,823	983	53.9%
Rutherford	1,858	567	30.5%
South Hackensack	508	86	16.9%
Teterboro	734	492	67.0%
<u>Hudson County:</u>			
Jersey City	13,592	959	7.1%
Kearny	6,499	3,419	52.6%
North Bergen	3,581	1,330	37.1%
Secaucus	4,196	3,752	89.4%
Meadowlands District Total		19,485 acres	
Sources: NJDEP GIS Digital Data, October 1996 NJMC Geographic Information Systems Parcel Map, June 2002			

The Commission is in, but not of, the New Jersey Department of Community Affairs (NJDCA). It consists of seven members:

- The Commissioner of the NJDCA, ex officio, or his/her alternate, traditionally serving as chairman; and
- Six citizens from Bergen and Hudson counties appointed by the Governor with the advice and consent of the State Senate.

The Executive Director of the NJMC, appointed by the Commission, is responsible for day to day operations and the implementation of Commission policies. He/she also serves as Secretary to the Commission.

The responsibilities and powers of the Commission (N.J.S.A. 13:17-6 *et seq.*) include the following:

1. To develop, adopt, and promulgate a master plan for the physical development of the lands within the District;
2. To adopt codes and standards to carry out the master plan;
3. To issue negotiable bonds and notes for any corporate purpose;
4. To exercise the power of condemnation to acquire land;
5. To enter into cooperative agreements with other governmental agencies for the reclamation of the Meadowlands, to determine the existence of renewal areas, and to undertake redevelopment projects;
6. To function as a local planning agency by undertaking projects necessary to reclaim, develop, redevelop and improve land within the District;
7. To establish engineering standards for reclamation and construction;
8. To form improvement districts within the District in order to levy special assessments against real estate in proportion to the benefits conferred by public improvements;
9. To review and regulate all subdivisions within the District;
10. To operate an inter-municipal tax sharing account in order that the financial benefits of the District are clearly and equitably distributed among all the constituent municipalities;
11. To provide solid waste facilities; and
12. To exercise all authorized powers of the Commission deemed for a public purpose, including the acquisition of any property for public use deemed superior to the public use of any municipality, county, school district, or the local corporate body with corporate succession.

The NJMC's permitting function is a valuable tool to assist with carrying out its responsibilities. The Commission conducts site plan and subdivision reviews to evaluate consistency with its regulations. A zoning certificate must be obtained prior to the improvement or filling of a site and/or the construction of or addition to any structure. Additionally, the NJMC issues occupancy certification prior to any change of tenancy in the District to certify the proposed use or occupancy complies with the applicable regulations. In cases where proposed development or occupancy does not comply with NJMC regulations, variance approvals must be sought. Prior to the start of any new construction or alterations to existing structures, the NJMC conducts a construction plan review in accordance with the State building code. The municipalities are, however, responsible for issuing construction permits upon approval by the Commission.

Other valuable tools are the NJMC's powers of acquisition, generally used to obtain land for preservation and/or redevelopment, and redevelopment, discussed in Chapter 3, Land Use.

In recognition of the need to maintain public input and interaction with local governments, the Hackensack Meadowlands Reclamation and Development Act also created the Hackensack Meadowlands Municipal Committee (HMMC). The HMMC consists of the chief executive of each constituent municipality or his/her alternate. The Committee is charged with reviewing all proposed codes and standards, master plans or amendments, development and redevelopment or improvement plans or other major decisions of the NJMC. It has the authority to veto proposed master plans, amendments, and redevelopment plans. The NJMC has the right to override any such veto with a 5/7 vote.

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EXISTING CONDITIONS AND TRENDS

The background information in this section contributes to a baseline from which planning strategies can be devised to guide the future of the Meadowlands District. Established land use patterns and the demographic fundamentals of population, housing, and employment are key components of the baseline condition. Changes in these demographic areas create pressures for changes in land use and contribute towards the development of a framework for the future. Where data specific to the District is not available, it is presented at the municipal, county, or regional level.

Population Characteristics

The Census 2000 reports that there were approximately 448,585 residents in the fourteen constituent municipalities of the District, an increase of 8.3 percent from the 1990 level of 414,070. The increase can be attributed to increased immigration, the revitalization of urban areas, and sustained economic expansion in the region. It reverses a period of decline from 1970 to 1990, in which District municipalities lost a total of 10.3 percent of the resident population. From 1990 to 2000, District municipalities in Bergen County largely regained the population lost in the prior two decades, while those in Hudson County realized a slight gain from the 1970 level. Total population levels for the District municipalities in 2000 were restored to 97 percent of the 1970 level. The municipalities' population residing within the District has increased 23.6 percent from 1980 to 2000, although the population level has stabilized in recent years. The in-District portion of the District municipalities' total population stood at 2.4 percent in 2000. Population data are shown in Figure 2.8.

	Total 2000	In- District 1980	In- District 1990	In- District 2000
Bergen Municipalities	93,994	2,687	2,736	2,609
Hudson Municipalities	354,591	5,920	7,690	8,026
Total District Municipalities	448,585	8,607	10,426	10,635

Sources: US Census 2000 as compiled by the New Jersey Department of Labor, Division of Labor Market & Demographic Research; Borough of Teterboro; US Census 1970, 1980 and 1990 as compiled by the Hackensack Meadowlands Data Book, 1996

The District's municipalities also experienced a decrease in the average household size from 1970 to 2000. The US Census Bureau defines a household as a person or group of people who occupy a housing unit. The District's municipalities had an average household size of 2.68 in 2000, identical to the State's average and significantly lower than the 2.97 persons per household in 1970. Figure 2.9 shows the overall shift in household size for the District's municipalities from 1970 to 2000. These shifts are attributed to reduced birth rates and an aging population.

FIGURE 2.9				
Average Household Size in District Municipalities				
	1970	1980	1990	2000
Bergen Municipalities	2.97	2.66	2.54	2.50
Hudson Municipalities	2.96	2.73	2.73	2.74
Total District Municipalities	2.97	2.71	2.69	2.68

Sources: US Census 2000 as compiled by the New Jersey Department of Labor, Division of Labor Market & Demographic Research; Borough of Teterboro; US Census 1970, 1980 and 1990 as compiled by the Hackensack Meadowlands Data Book, 1996

The number of households in District municipalities, including areas outside the District, appears in Figure 2.10. The total increased 7.4 percent from 1970 to 2000. The number had decreased slightly from 1970 to 1990, but recovered with an increase of 8.6 percent from 1990 to 2000.

FIGURE 2.10				
Number of Households in Meadowlands District Municipalities				
	1970	1980	1990	2000
Bergen Municipalities	34,510	35,595	34,773	37,620
Hudson Municipalities	121,187	117,394	119,213	129,621
Total District Municipalities	155,697	152,989	153,986	167,241

Sources: US Census 2000 as compiled by the New Jersey Department of Labor, Division of Labor Market & Demographic Research; Borough of Teterboro; US Census 1970, 1980 and 1990 as compiled by the Hackensack Meadowlands Data Book, 1996

A data snapshot of households and families in the District’s municipalities appears as Figure 2.11 on the following page. A profound transformation in household size and composition began in the 1970’s and is still taking place. These are the main observations:

- As of 2000, just under two-thirds of the households in the District’s fourteen municipalities consisted of families. The US Bureau of the Census defines a family as a group of two or more people residing together and related by birth, marriage, or adoption.
- The remaining nonfamily households consist of a householder living alone or sharing the home exclusively with people to whom he or she is not related.
- Married couple families compose about 43 percent of households in District municipalities.
- Female-headed households account for about one in six households.
- Three in ten households include children under the age of 18.
- Approximately 28 percent of householders live alone.
- About one in ten households consists of a householder age 65 or more living alone.

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The overall trends for the past three decades are fewer married couples and families with children and more female-headed households, persons living alone, and elderly households.

FIGURE 2.11				
Households and Families, Year 2000				
	District Municipalities			New Jersey
	All District	Bergen	Hudson	
Total households	167,226	37,605	129,621	3,064,645
Percent of total households:				
Family households	64.9%	66.0%	64.5%	70.3%
Married couple family	43.3%	52.4%	40.6%	53.5%
Female householder, no husband present	16.3%	10.6%	18.0%	12.6%
With own children under 18 years	30.4%	27.1%	31.4%	33.5%
Nonfamily households	35.1%	34.0%	35.5%	29.7%
Householder living alone	28.4%	28.9%	28.3%	24.5%
Householder living alone age 65 years and over	9.5%	11.5%	9.0%	9.8%
<i>Source: Census 2000 Supplementary Survey</i>				

Income information regarding New Jersey households is available from the Census 2000 Supplementary Survey. The Supplementary Survey collected demographic, social, economic, and housing data from a sample of 700,000 households nationwide. The Census 2000 Supplementary Survey reported that the State ranks first in terms of median household income, at an estimated \$54,226 a year. Selected income characteristics for Bergen and Hudson County households are compared to those for New Jersey as a whole in Figure 2.12.

FIGURE 2.12			
Household Income Profile, Year 2000			
	Bergen County	Hudson County	New Jersey
Median household income	\$61,925	\$37,189	\$54,226
Per capita income	\$33,725	\$20,093	\$27,311
<i>Source: Census 2000 Supplementary Survey</i>			

Housing

The Census 2000 reports that the District's municipalities contain a total of 174,498 housing units, of which 4,649 are located within the District. From 1980 to 2000, the number of in-

District units increased 21.3 percent. Secaucus experienced a near-doubling of its housing inventory during that time. The creation of new housing slowed during the 1990's as most suitable, available land became developed. Low vacancy rates in the year 2000 are indicative of a housing shortage in the region. Data appear in Figure 2.13.

FIGURE 2.13						
Housing Units in District Municipalities						
	-----Housing Units-----					
	Total 2000	In- District 1980	In- District 1990	In- District 2000	Vacant 2000	% Vacant 2000
Bergen Municipalities	38,584	999	1,136	1,050	43	4.1%
Hudson Municipalities	135,914	2,833	3,746	3,599	114	3.2%
Total District Municipalities	174,498	3,832	4,882	4,649	157	3.4%
<i>Sources: US Census 2000 as compiled by the New Jersey Department of Labor, Division of Labor Market & Demographic Research; Borough of Teterboro; US Census 1970, 1980 & 1990 as compiled by the Hackensack Meadowlands Data Book, 1996</i>						
<i>Note: The total number of in-District units in 1990 is indicated as greater than the number in 2000 for both Bergen and Hudson counties. The 1990 numbers were derived from estimating techniques and were apparently overstated. It was necessary to estimate the number of housing units in 1990, due to the Census block groups and the Meadowlands District not having coterminous boundaries at that time. Boundaries are shared as of the Census 2000.</i>						

Employment

The region encompassing Bergen and Hudson counties offers an educated, competitive labor force. Figure 2.14 shows the percentages of county residents that have attained various educational levels, with several favorable comparisons to the State and the Nation. For instance, Bergen and Hudson counties have higher percentages of residents that have attained a bachelor's degree or higher than the United States.

FIGURE 2.14			
Educational Attainment			
<i>Percent of Residents at Specific Level or Higher</i>			
Jurisdiction	High school graduate or higher	Bachelor's degree or higher	Graduate/ professional degree
Bergen County	87.3%	39.9%	14.1%
Hudson County	75.6%	27.2%	9.0%
State of New Jersey	83.5%	31.1%	11.3%
United States	81.6%	25.1%	9.0%
<i>Source: US Bureau of the Census, Census 2000 Supplementary Survey</i>			

History and Baseline Data

Data sorted by the North American Industry Classification System (NAICS) code are available to show employment within the District. The NAICS is a classification system developed by the United States, Canada, and Mexico to provide comparable industrial production statistics in the three countries. Year 2001 data within the District are included as Figure 2.15. In 2001, employment within the District stood at a total of 80,057 jobs. Manufacturing and wholesale trade are the dominant employment types. Transportation and warehousing, as well as retail trade, also employ significant numbers.

The total employment for 2001 compares to 72,308 jobs in 1991, reported under the Standard Industrial Classification (SIC) code. The SIC system, used to ensure that data about the US economy published by governmental agencies are uniform, has largely been replaced by the NAICS.

FIGURE 2.15
Employees within the Meadowlands District by NAICS Code

<u>NAICS Code and Description:</u>	<u>Number of Employees</u>		
	<u>Bergen Portion</u>	<u>Hudson Portion</u>	<u>District Total</u>
Agriculture, Forestry, Fishing & Hunting	15	0	15
Mining	0	4	4
Utilities	32	198	230
Construction	1,239	1,062	2,301
Manufacturing	16,083	5,736	21,819
Wholesale Trade	5,876	8,091	13,967
Retail Trade	1,213	5,642	6,855
Transportation and Warehousing	2,621	6,971	9,592
Information	1,130	2,707	3,837
Finance and Insurance	1,237	1,489	2,726
Real Estate, Rental & Leasing	561	633	1,194
Professional, Scientific, & Technical Services	2,047	2,190	4,237
Management of Companies and Enterprises	2	40	42
Administrative Support/ Waste Mgmt/Remediation Serv	1,751	1,043	2,794
Educational Services	386	130	516
Health Care & Social Assistance	2,943	509	3,452
Arts, Entertainment & Recreation	1,634	173	1,807
Accommodation & Food Services	1,673	1,415	3,088
Other Services (except public administration)	578	440	1,018
Public Administration	167	396	563
TOTAL EMPLOYEES	41,188	38,869	80,057

Source: *Dun and Bradstreet, December 2001*

Note: *Information was obtained from impartial third-party sources and may not be all-inclusive.*

KEY CONDITIONS

Several key conditions and trends emerge from the data presented in this chapter:

- The District's municipalities, as well as Bergen and Hudson counties, are home to a relatively stable, educated population.
- The high median income for householders in Bergen and Hudson counties indicates strong consumer buying potential to support the regional economy.
- Housing is in high demand, with just 3.4 percent of all residential units vacant in 2000.
- Employment is available in a wide range of industries, evidence of a well-diversified economy.

These and other trends are explored more fully in the following chapters, which encompass the various functional areas that make the District work. An understanding of the District's land use patterns serves as the starting point.

History and Baseline Data

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All photos and other visual images, unless otherwise noted, are the property of the New Jersey Meadowlands Commission.

CHAPTER 3

LAND USE

BASIS AND STRUCTURE

The Land Use element of the Master Plan is an analysis of the overall arrangement and intensity of land uses existing in the Meadowlands District. The analysis consists of a description of the current physical form of the District, including its overall patterns of development and their distribution. Observations will contribute to the shaping of the Land Use Plan presented in Chapter 11, Area Plans. The Land Use Plan, in turn, will provide a basis for the development of regulations and area redevelopment plans to further the vision of the Master Plan.

EXISTING LAND USES

Land uses in the District reflect development existing prior to 1970 and those developed under the NJMC's regulations. Historic indiscriminate dumping and unregulated landfilling practices have heavily influenced the location, type, and intensity of use. Figure 3.1, the Aerial Photo Map of the Meadowlands District appearing on page 3-4, gives a general perspective of development patterns in the District. District properties are classified into fourteen general land use categories:

Wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support vegetation adapted for life in saturated soil conditions.

Water includes all areas periodically water covered, except areas in an obvious state of flood. Examples are streams, rivers, creeks, canals and other linear water bodies; lakes (both artificial and natural); reservoirs; bays; estuaries; and other tidal waters.

Transportation includes transportation routes, railroad facilities, bus and truck terminals, airports, and port facilities.

Industrial uses are comprised of land uses where manufacturing, assembly or processing of products, or warehousing takes place. Light industrial, heavy industrial, and power generation are included.

Land Use

Industrial & Commercial Complexes include those industrial and commercial land uses that typically occur together or in close proximity. Industrial and commercial uses are both present. Found here are light manufacturing; administration offices; research and development facilities; computer systems companies; and facilities for warehousing, wholesaling, retailing and distributing. No heavy industries are present.

Commercial Retail contains structures predominantly used for the direct sale of products and services to the consumer. The main building, secondary structures and supporting areas such as parking lots, driveways, and landscaped areas are also included. This category is separate from these additional commercial categories defined below:

- When a mix of commercial retail and **commercial offices** exist, the dominant use is applied.
- Although they meet the basic definition of commercial retail, **hotels and motels** are classified as a separate category, due to their dominance as retail uses in the District.
- Commercial and industrial land uses that typically occur together or in close proximity are classified as **industrial and commercial complexes**.

Examples of commercial uses are downtown centers, commercial retail strip development, isolated retail establishments, shopping centers, and theaters.

Commercial Offices house administrative and support staff for large corporations or smaller businesses. They do not provide goods and services for direct consumer use. Commercial office parks, consisting of several commercial office buildings that exist together and share common driveways, parking lots and lawns, are included in this category. Buildings consist of single buildings or clusters of buildings that are not part of a commercial strip or a well-defined central business district.

Hotels and Motels contain over-night accommodations. They may also contain related amenities, such as dining facilities, services and recreational activities. Amenities such as tennis courts and pools are included with the hotel or motel category since they are private and not accessible to non-paying guests; these uses are not categorized separately as recreational land.

Residential includes single-family residences, multiple-unit dwellings, mobile homes, and miscellaneous residential types. Residential areas that are integral but minor parts of other land uses are included in the dominant land use category.

Recreational Land consists of areas that have been specifically developed for recreational activities open to the general public. This use includes golf courses, picnic areas, marina and boat launches, community recreation areas, parks, swimming pools and beaches, formal lawns, arboretums and landscaped areas, stadiums, cultural centers, zoos and the Meadowlands Sports Complex area under the jurisdiction of the New Jersey Sports and Exposition Authority. Such uses that are not open to the general public are included as commercial uses.

Public/Quasi-Public Services are owned by governmental agencies or quasi-public entities. Uses are intended to serve the public and include post offices, public and private educational institutions at all levels, municipal buildings and other government centers, hospital and other major health institutions providing direct health care to the public, correctional institutions,

military installations, religious institutions, research facilities, social clubs associated with established organizations, and cemeteries. Transportation, communication, utility, and recreational facilities are excluded, even where the owner is a public or quasi-public entity.

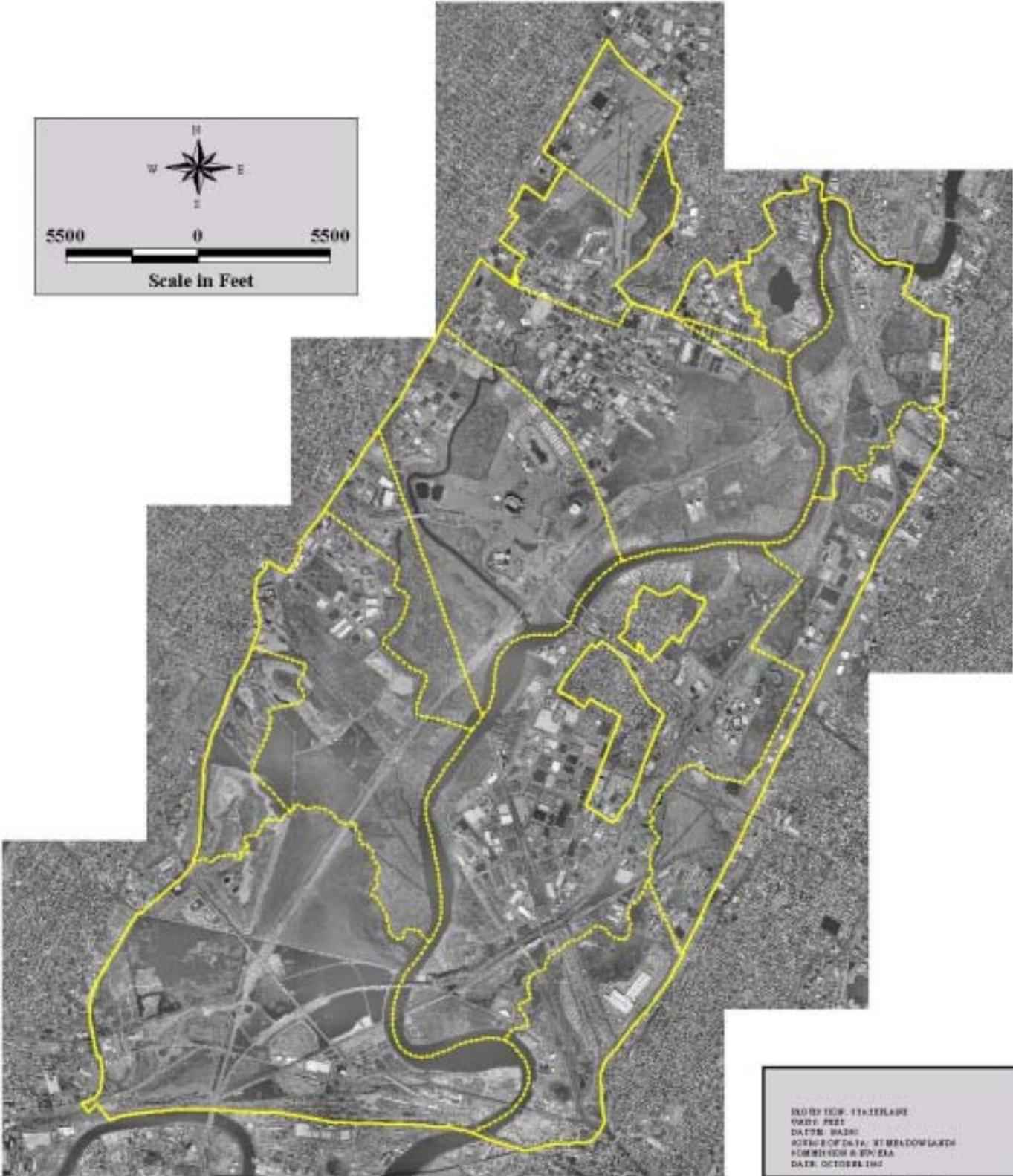
Altered Land includes areas that have been changed due to these human activities: solid waste disposal areas, dredge material disposal, stone quarries, sand and gravel pits, other extractive mining, and abandoned mining sites.

Communication & Utilities include power stations; the course of transmission lines; water treatment facilities; sewage treatment facilities; radio, radar, and television antennas; microwave stations; power lines; power substations; and water towers. Towers include the land enclosed by guide wires. If the use does not meet the minimum mappable size, it is considered part of the land use in which it occurs. For example, a parcel with a radio tower in wetlands would be considered wetlands if the map scale does not enable the tower to be identified practically as a separate use.

Vacant Land consists of undeveloped, open areas that are not associated with active commercial, industrial, service, transportation, communications, or utility facilities. Lands have no indication of past activities, no apparent site preparation, and no active development. Open areas that do not fall into any of the other thirteen land use categories appear in this category.

Each of the fourteen categories is indicated by acreage and its percent of the District's total land area in Figure 3.2. The land uses are presented in the order in which they prevail in the District. Locations are shown on Map 3, Existing Land Use.

FIGURE 3.1 Aerial Photo Map of the Meadowlands District



PROJECT: STATEMAP
ORIG. FILE
DATE: 8/20/00
SOURCE OF DATA: ST MEADOWLANDS
COMMISSION & ENGINEER
DATE: OCTOBER 1992

— DISTRICT BOUNDARY
— MUNICIPAL BOUNDARY



Geographic Information
Systems

FIGURE 3.2 Existing Land Uses in the Meadowlands District		
CATEGORY	ACRES	PERCENT
Wetlands	5,783.6	29.5%
Transportation	4,018.4	20.5%
Industrial	2,793.3	14.3%
Water	1,869.7	9.6%
Altered Land	1,444.0	7.4%
Public/Quasi Public Services	965.0	4.9%
Recreational Land	756.6	3.9%
Industrial & Commercial Complexes	419.7	2.1%
Vacant Land	360.4	1.8%
Residential	291.4	1.5%
Communication & Utilities	261.5	1.3%
Commercial Retail	231.4	1.2%
Commercial Offices	209.8	1.1%
Hotels and Motels	80.7	0.4%
TOTAL ACRES	19,485.4	100%
<i>Sources: NJMC Geographic Information Systems and staff field inspections, 2002</i>		

These general observations can be made from the land use data:

- Approximately 39 percent of the District consists of water and wetlands according to the table. The actual total is higher, because some properties classified as belonging to other categories include wetland areas.
- Less than 2 percent of the District is vacant land according to the definition.
- Approximately 1 in 5 acres relates to transportation. With its prime location in the New York-Northern New Jersey metropolitan area, the District includes a number of major roadways and transit lines, including portions of the New Jersey Turnpike, Route 3 and the Northeast Corridor rail line.
- Industrial uses, including those occurring with commercial complexes, constitute the primary type of site development.
- Residential uses are not prevalent in the District. Although the District’s population has increased by 23.6 percent from 1980 to 2000, residential uses continue to play a minor role in land use.

The analysis of existing land uses continues with a more detailed review of the fourteen land use categories.

Land Use

Wetlands

At the end of the nineteenth century, the area known as the Hackensack marshes included over 20,000 acres. This area included today's Meadowlands District and adjacent land. Following many decades of destruction or degradation of wetland habitats due to development, dredging, draining, mosquito control, landfilling, and industrial pollution, approximately 8,400 acres of wetlands and waterways remain in the District. Of these 8,400 acres, a total of 5,784 acres are classified here. Wetlands covering a relatively minor portion of each property are classified according to the primary use. Waterways are included in the following category.

Many properties containing wetlands are privately owned. The NJMC has acquired approximately 1,800 acres of wetlands for preservation and pursues the acquisition of additional sites as they become available. Enhancement activities are underway for degraded portions of these wetlands. Efforts are designed to restore wetland functioning to areas that no longer provide quality fisheries and wildlife habitat, passive recreation opportunities, and water purification. The NJMC also has management rights without ownership of almost 1,600 acres of wetlands in the District. Management rights are awarded by the Bureau of Tidelands in the New Jersey Department of Environmental Protection. The Bureau is the keeper of the riparian trust for the State of New Jersey, which claims an interest in all properties that are currently or formerly flowed by tidal waters. The importance of wetlands activities in the District is discussed more fully in Chapter 5, Environmental Protection and Enhancement.

Water

The key water attribute is the Hackensack River, which separates the eastern and western portions of the Meadowlands District. The river's primary function is to provide hydrologic support to the adjoining wetland areas, preserving wetlands and their diverse flora and fauna. Tidal fluctuations and seasonal water events permit flooding of adjacent wetland areas. Additionally, the opportunity exists for observation, education, and scientific activities relative to the environment and the quality of the river. The river also provides for commercial and recreational uses. The District's waterways cover approximately 1,870 acres and are controlled by the State of New Jersey.

Transportation

The Meadowlands District is the beneficiary of an extensive transportation network that has considerable influence on present and potential development. Transportation-related land uses, including roadways, access ramps, rights-of-way, and rail lines account for approximately 4,018 acres in the District. Major roadways traversing the District and located in close proximity to its boundaries include:

- Major arterials: New Jersey Turnpike I-95, I-495, Route 3, Route 17, Route 46, Route 120, Route 280, and Routes 1 & 9.

- Minor arterials: Paterson Plank Road, Moonachie Avenue, Washington Avenue, County Avenue, New County Road, County Road, Secaucus Road, Meadowland Parkway, Belleville Turnpike (Route 7), and Harrison Avenue/Newark-Jersey City Turnpike.

The District also contains nine rail lines serving commuters, long-distance passengers, and freight companies. The rail lines that traverse the District include the following:

- Main Line
- Bergen Rail Line (connected to Main Line in Secaucus)
- Pascack Valley Rail Line
- Northeast Corridor Line (Amtrak & NJ Transit)
- Morris and Essex Lines
- West Shore/Northern Branch
- Kingsland Line (inactive)
- Boonton Line (rerouted in Montclair)
- New York Susquehanna & Western (NYS & W)
- Port Authority Trans Hudson (PATH) Line

Intermodal transport can be generally defined as the transfer of cargo from one mode of transportation to another. In-district intermodal facilities include the Little Ferry Yard (Ridgefield), Resources (North Bergen), Croxton Yard (Jersey City/Secaucus), and Kearny Yard (Kearny). The North Bergen Yard is mainly located outside the District along the eastern boundary line. These facilities provide storage and transfer, as well as repair and maintenance yards.

Truck terminals are buildings that have cross docks to allow trucks to load and unload cargo and/or, where cargo is stored on a regular basis. Truck terminals are located in Carlstadt, Kearny, Jersey City, North Bergen and Secaucus. Many major interstate carriers have facilities in the District. Several factors have spurred the development of truck terminals in the District, including roadway access, location near ports and major markets, and intermodal facilities.

Teterboro Airport is located in the northwestern section of the District, encompassing approximately 827 acres in the municipalities of Teterboro and Moonachie. It primarily serves corporate clients with both passenger service and freight delivery. Teterboro Airport is owned and operated by the Port Authority of New York and New Jersey (PANYNJ) with management assistance by American Port Services, Inc.

Transportation is presented more fully in Chapter 6.

Industrial

Early industrial development took place in practically all Meadowlands communities. These industries primarily consisted of heavy manufacturing, storage tanks, and chemical processing facilities. During the late 1960's, this pattern of heavy industrial use began to move toward lighter uses such

Land Use

as light assembly and manufacturing and more warehousing and distribution. While some heavy industrial usage remains in the District, it is no longer dominant.

Industrial development is currently the largest development use in the District, representing almost 2,800 acres. Industry first developed in Carlstadt, Jersey City and Kearny, while newer development has occurred in Moonachie, East Rutherford, Secaucus and North Bergen. All municipalities within the District except for North Arlington have some industrial development.

Industry in the District consists of light industry, warehousing, heavy industry, truck terminals, rail yards, and intermodal facilities. The District is home to a number of facilities that support the freight industry. This can be attributed to the District's substantial transportation network consisting of a number of rail lines and major highways within the District, as well as its proximity to Ports Newark and Elizabeth, Newark Airport, and New York City. Recent developments, such as the absorption of Conrail by freight rail corporations CSX and Norfolk-Southern, and the merger of shipping corporations Maersk, Inc. and Sealand Service, Inc., have increased the volume of freight being moved in the northeast part of the nation. There are two main types of industrial uses in the District:

Light industry and warehousing primarily consist of warehouse and distribution facilities without commercial land uses in close proximity, but also include light assembly, manufacturing, and research and development facilities. The largest group of industrial uses exists in Carlstadt, mostly consisting of light industrial and trucking facilities. The eastern fringe of the District, specifically North Bergen (warehousing) and Ridgefield (light industry/warehouse mix), is also representative of this land use class.

Heavy industry is no longer prevalent in the District. Sites of former heavy industrial activity in the District include Koppers Coke and Diamond Head Oil Refinery Division in the southeastern portion of Kearny along the Hackensack River, Universal Oil Products (UOP) adjacent to Route 17 North in East Rutherford, and Scientific Chemical Processing (SCP) along Paterson Plank Road in Carlstadt. UOP and SCP have benefited from remediation funding under the federal Superfund program. Diamond Head Oil was added to EPA's Superfund National Priorities List in 2002.

Current heavy industrial uses are located in Kearny, Jersey City, Lyndhurst, and North Bergen. They generally include heavy manufacturing, chemical storage and processing facilities.

Industrial & Commercial Complexes

A concentration of industrial and commercial complexes is found in the Secaucus Outlet Center, located in the County Avenue and Meadowlands Parkway area of Secaucus. The area is known for its warehouse retail outlets, which are separated from the established retail malls. Although warehouse uses dominate, outlet retail space is permitted up to ten percent of the total floor area of a building's warehouse floor area. Retail is considered an accessory use in this instance. Industrial & commercial complexes constitute approximately 420 acres District-wide.

Commercial Retail

Prior to the inception of the NJMC, the land that was to become the Meadowlands District contained only 101 acres developed for commercial retail land uses. Today, commercial uses constitute approximately 312 acres. Hotels and motels, classified as a separate land use category, include approximately 81 additional acres. In spite of this three-fold increase over the last three decades, commercial uses comprise just 1.6 percent of the total land area of the District. Municipalities of the District continue, however, to host widespread commercial development in traditional downtown areas outside the District's boundaries.

Commercial retail development in the District can be further categorized into three main types: strip/highway, neighborhood, and mixed use/planned:

Strip/highway commercial development is prevalent along the major highways and arterial roads throughout the District. Many highways traverse the Meadowlands District, making it a prime location for this type of development. The main entrances are oriented toward highway users, and primary access ways are directly from the arterial or a service road. Strip/highway commercial development commonly consists of a principal structure(s) internally subdivided into storefronts, which are leased individually. Characteristics include common signage and design materials, and tenants typically include national franchises. The heaviest concentration of strip/highway commercial development in the District is located along the Route 3 corridor in Secaucus. While this type of commercial use usually targets a regional market, most strip development in the Meadowlands District has a more limited market area.

Neighborhood commercial development includes smaller-sized shops and restaurants, the sale of specialty goods, local ownership, and on-street parking. Streetscapes often share common attributes, such as banners, street furniture, and lighting. The target market includes local residents and employees or those looking for a unique shopping experience.

Mixed use commercial development consists of retail along with any combination of other uses. Retail and other commercial uses are often accessory to a principal use, such as office or residential development. For example, the Copper Ridge office complex in Lyndhurst contains offices with commercial uses at the ground level. For the purposes of land use classification, however, these accessory commercial uses are not calculated as part of commercial retail, but considered a part of the primary land use. The purpose of these developments is to provide a combination of complementary uses where users of the site can have certain needs met in a contained area.

Commercial uses, predominantly in the form of retail and hotels, have flourished along the Route 3 corridor in Secaucus. The largest scale commercial retail development in the District is located north of Route 3 at Harmon Meadow Plaza and the Mall at Mill Creek in Secaucus. Harmon Meadow Plaza is a commercial development containing office, hotel and retail space. The retail portion includes restaurants, movie theaters, and boutiques located along a central plaza. The Mall at Mill Creek, located adjacent to Harmon Meadow, contains a variety of retail stores characteristic of strip/highway development. Big box retail stores are also located adjacent to the Route 3 corridor.

Land Use

Commercial Offices

Early office development in the District consisted mainly of ancillary office space associated with industrial or warehouse uses. Largely in response to a decline in the industrial sector accompanied by an increase in the service-oriented sector, office development has also become an independent land use. Primary office use in the District currently totals approximately 210 acres.

The development of primary office space in the District has mostly occurred in East Rutherford, Secaucus, and Lyndhurst, within 2,000 feet of the Route 3 corridor. Office development has spurred ancillary development, where large office complex structures are commonly grouped with secondary hotel, restaurant and shopping facilities.

Office space is typically classified as Class A, B, or C. Class A describes premium office space in a prime location, containing newer or renovated facilities and various amenities. They are well maintained and capable of handling the technological and communications demands of the modern office. Class A facilities command the highest lease rates and have the ability to accommodate users requiring larger floor plates with more space between columns. Class B describes office facilities in good condition, well-maintained, with average rents. They are generally well-located, with proximity to major highways and sometimes offering technological upgrades. Class C office space consists of smaller office spaces with lower rents. Class C office users typically require less space than Class A and B users and accept more modest amenities. The space is generally of older stock, with fewer available technological advancements.

In addition to primary office space, office areas continue to exist in conjunction with warehouse and industrial development, but data concerning their locations and sizes are not generally available. Also, research distribution facilities are a type of mixed use office facility that are prevalent throughout the District. Their functions are similar to office usage in the District, however, they include primary storage areas and processing and distribution functions not commonly associated with typical office space. An example of a research distribution facility in the District is the Meadowlands Corporate Park in Lyndhurst.

Hotels and Motels

There are currently twenty-four hotels/motels in the District with a total of 3,843 rooms. The Paterson Plank Road corridor in Carlstadt and East Rutherford, adjacent to the Meadowlands Sports Complex, has hosted an influx of hotel development. Many of these hotels contain ancillary restaurants, conference facilities, banquet facilities and other amenities. The hotels also serve tourists and business users in the greater metropolitan area.

The NJMC recently issued a Zoning Certificate authorizing a hotel in Rutherford with 216 rooms. According to the Meadowlands Chamber of Commerce, current interest suggests the potential for almost 3,000 more rooms being constructed in the District.

Residential

The highway network that developed in the early 20th century made portions of the District amenable to residential development. The majority of housing in the District was built prior to 1950, consistent with the construction of the neighboring housing stock. Single family and duplex dwellings are the predominant housing types. Residential uses continue to represent a small percentage of the total land use in the District, accounting for approximately 291 acres with 4,649 housing units. From 1980 to 2000, the total number of units increased approximately 21 percent. Secaucus experienced a near-doubling of its housing inventory during that time. The creation of new housing slowed during the 1990's as the land available and suitable for housing was largely developed. The majority of housing within the District is located in these four municipalities:

Jersey City. A neighborhood located in the vicinity of the St. Paul's Avenue corridor contains some of the District's oldest housing. Rowhouses and small lot sizes are evidence of an older land use pattern. Units are commonly situated on lots with frontages of 25 to 50 feet and depths of 100 feet. Single-family units are most prevalent, but duplex and multi-family units also exist. Industrial units are interspersed throughout the neighborhood and constitute the primary land use in the immediate area.

Little Ferry. Single-family, detached units are located in the northern portion of the District, adjacent to Losen Slote Park and an industrial area.

Moonachie. Housing is located along Moonachie Avenue south of Teterboro Airport, consisting of two mobile home parks with approximately 426 units of manufactured homes. Another neighborhood at the end of Moonachie Road includes some of the housing relocated during the construction of Teterboro Airport.

Secaucus. There are four primary housing locations in the District portion of Secaucus. The Riverside area, adjacent to Secaucus High School, contains mostly single-family dwellings. Harmon Cove, a high rise and townhouse development with 1329 units, accounts for approximately 27 percent of the District's dwelling units. This relatively upscale housing, located between the Hackensack River and Meadowlands Parkway, is the only multi-family development of any significance approved by the NJMC. The Route 3 corridor contains neighborhoods to the south of Route 3 and to the west of Mill Creek Mall. A variety of housing types exist here, including detached single family, duplex, condominium, and multi-family. A development with 212 townhouse units is under construction at the north end of Meadowlands Parkway. Finally, a variety of housing types are located in the East Secaucus area, located between County Avenue and the eastern spur of the New Jersey Turnpike and surrounded by industrial uses. The Township also includes land surrounded by the District that is developed with established neighborhoods of one- and two-family dwellings.

The types of housing in District municipalities, including areas outside the District, are summarized in Figure 3.3. Single and two-family homes are the dominant housing types for the District's fourteen municipalities.

Land Use

Additional information regarding housing type, condition, and affordability is included in Chapter 4, Housing.

FIGURE 3.3			
Types of Housing in District Municipalities			
	Bergen (10 municipalities)	Hudson (4 municipalities)	All District Municipalities
1-unit detached	15,516	17,545	33,061
1-unit attached	977	8,928	9,905
2 units	11,265	36,442	47,707
3 to 9 units	4,585	33,046	37,631
10 or more units	5,817	39,649	45,466
Mobile homes, boats, and other types	423	261	684
TOTAL HOUSING UNITS	38,583	135,871	174,454
<i>Sources: US Census Bureau, Census 2000 as obtained through the New Jersey Department of Labor; Borough of Teterboro</i>			

Recreational Land

The District boasts a wide array of recreational opportunities covering approximately 757 acres. Waterways and wetlands, classified separately, add almost 7,700 acres to the recreational and open space areas of the District. Key recreational attributes include:

- **Richard W. DeKorte Park**, the cornerstone of the park system, offering both active and passive recreation and educational activities. Significant features include the Meadowlands Environment Center, Kingsland Impoundment, Kingsland Overlook, North Arlington Scenic Overlook, Transco Trail, Marsh Discovery Trail, Lyndhurst Nature Reserve, Harrier Meadow, and the Sawmill Creek Wildlife Management Area.
- The **Hudson County Park at Laurel Hill**, the County's first park since 1934. Amenities at the 40-acre facility include a boat launch dedicated in October 1995, a riverfront walkway, ball-fields, and a playground.
- **Meadows Path**, a pedestrian trail system that currently includes seven miles of trails, including the Valley Brook Avenue Greenway, a 1.5 mile pedestrian walkway providing linkage between DeKorte Park and the Meadowlands Corporate Center. Future plans are to lengthen Meadows Path to include a total of 25.5 miles that will follow the western bank of the Hackensack River from Losen Slote Creek Park in Little Ferry to West Hudson Park in Kearny. Currently the Saw Mill Creek Trail, constructed on a PSE&G utility service road, provides the sole pedestrian link from DeKorte Park to future trails planned in Kearny.
- The **Secaucus Greenway**, a planned 15-mile waterfront greenway on the eastern portion of the District. Completion of this trail will allow public access along the river while providing a continuous pedestrian trail linking Secaucus retail, office, commercial and residential

districts. Significant portions of the Greenway that are completed include trails in the Hudson County Park at Laurel Hill and the 1.5-mile Mill Creek Marsh Trail.

- **Mill Creek Point** in Secaucus is being developed as an environmental interpretive center for the general public.

Recreational facilities are described more fully in Chapter 5, Environmental Preservation and Enhancement.

Public/Quasi-Public Services

Public and quasi-public services total approximately 965 acres. Major facilities include two bulk mail facilities located in Kearny and Jersey City, a motor vehicle inspection station, the Meadowlands Hospital and Medical Center, the NJMC complex in Lyndhurst; and park & ride facilities in North Bergen, Ridgefield, East Rutherford and Harmon Cove. Numerous smaller service entities are located throughout the constituent municipalities of the District. Chapter 7, Community Facilities, expands upon public facilities that host various services.

Altered Land

The most noteworthy altered lands in the District are solid waste disposal areas, which provide for the collection and disposal of commercial, industrial, and domestic waste; soil fill; and construction and demolition debris. Facilities and operations include landfill operations, transfer stations, landfill closure, and leachate and gas collection. This use accounts for 1,444 acres in the District.

Most of the landfills in existence prior to NJMC jurisdiction were privately operated and resulted in the extensive filling of wetlands. Illegal dumping occurred outside designated waste disposal locations, especially in wetlands and vacant areas. Although landfilling operations within the Meadowlands have significantly decreased over the years, the NJMC continues to play a significant role in the provision of regional solid waste facilities.

Private developers have shown considerable interest in redeveloping some landfilled areas, since large, undeveloped parcels in the District are a scarce commodity and are in high demand. This demand may facilitate the closure of several “orphan” landfills for redevelopment projects. These so-called orphan landfills ceased operations prior to January 1, 1982, which circumvented a State requirement that they establish an escrow fund to be used to finance landfill closure (N.J.S.A. 7:26-2A.9(d)).

Communication and Utilities

Communication uses consist of radio towers and their ancillary support buildings. Generally located on large sites, these radio towers are situated throughout the District, but predominantly in

Land Use

Lyndhurst, East Rutherford, Rutherford, Kearny, Secaucus and Carlstadt. Television and radio studios have also located in the District in recent years. Secaucus has especially benefited from this influx with studios such as MSNBC cable television and WWOR TV (UPN 9) locating within its jurisdiction. The District has become attractive to businesses seeking lower costs, adequately-sized vacant properties, and proximity to New York City.

Utilities include two power generating facilities, several power substations, three sewerage treatment plants, a natural gas storage facility and a methane gas recovery operation. The two power generating facilities, located in Ridgefield and Jersey City, are owned and operated by Public Service Enterprise Group (PSEG). They supply power to municipalities in Bergen and Hudson counties and to New York in emergency situations. Three sewerage treatment facilities provide service both in and out of the District; they are owned and operated by the Bergen County Utilities Authority (BCUA), the Secaucus Municipal Utilities Authority (SMUA), and the North Bergen treatment facility (NBMUA). Transcontinental Gas & Pipeline Corp. (Transco), a subsidiary of the Williams Companies, Inc., owns and operates the natural gas storage facility located in Carlstadt. Additional information regarding utilities in the District is presented in Chapter 7, Community Facilities.

Together, the District's communication and utilities constitute approximately 262 acres.

Vacant Land

Vacant land serves as a backdrop to the other land uses of the Meadowlands. It consists of approximately 360 acres including cemeteries.

REDEVELOPMENT

Given the extensive history of environmental degradation within the Meadowlands, it is not surprising that certain properties remain idle or underutilized. These sites may contain factories, warehouses, landfills, former service stations, or other facilities. Several sites throughout the District are listed under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund, administered by the US Environmental Protection Agency (USEPA)) or various databases of known contaminated sites maintained by the New Jersey Department of Environmental Protection (NJDEP). Remediation actions are to be implemented under the supervision of the USEPA or the NJDEP. Remediation is intended to provide permanent protection of public health and the environment from releases of hazardous substances and to facilitate redevelopment.

The District also contains sites that are not included in any State or Federal database of contaminated properties, although they can be considered brownfields. The USEPA defines brownfields as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.” Other developed sites in the District can be considered grayfields, declining in use but with no contamination. The locations of brownfield and grayfield properties in the District have not been fully determined.

When sites remain idle or underutilized, owners suffer from depressed property values and insufficient return from the property. Neighbors are also affected by reduced property values and potential environmental concerns. Owners of contaminated sites face the possibilities of lawsuits due to the contamination and enforcement actions by government regulatory agencies. Developers avoid contaminated sites and grayfields, creating negative pressures to develop greenfield sites and wetlands or other limited, undeveloped land while furthering undesirable sprawl.

The original enabling legislation granted the NJMC broad powers for redevelopment of blighted areas in the Meadowlands District. The Commission undertook its first redevelopment project in 1994. The proposal to evaluate a site for redevelopment stems from a variety of sources including NJMC staff, a constituent municipality, or a property owner or third party. The redevelopment planning process consists of two phases:

- An area must be deemed “in need of redevelopment” in accordance with NJMC regulations. After a site analysis is conducted, a report is prepared to establish the reasons for the redevelopment investigation and findings.
- If the Commission agrees that the site is in need of redevelopment, defined as a renewal area in the NJMC enabling legislation, it may authorize a redevelopment plan to be prepared. The redevelopment plan is subject to the Commission’s adoption and the approval of the Hackensack Meadowlands Municipal Committee.

Both phases include public participation and commenting opportunities. The existing redevelopment areas appear in Figure 3.4 on the following page and Map 4, Redevelopment Areas.

FIGURE 3.4 Redevelopment Areas in the Meadowlands District *

NAME/LOCATION	SIZE (approx. acres)	STATUS	RECOMMENDED USES	REDEVELOPMENT CHALLENGES
Belleville Turnpike/ Kearny	79	2/96-Adopted redevelopment plan ; 6/02-Amended	Warehouse distribution facility	Infrastructure (roads, sanitary sewers). Drainage/flooding.
Vincent Place/ Teterboro	2.5	4/97-Adopted redevelopment plan	Medium density housing	Locating housing adjacent to airport.
Meadowlands Golf Course/Rutherford, Lyndhurst, North Arlington, Kearny	1350	2/01-Adopted redevelopment plan; 9/01, 7/02, 2/03-Amended Redeveloper: Encap	Golf course, other commercial recreation, hotel/resort, office, accessory retail, marina, active adult housing	Six landfills slated for development will need to be evaluated for structural and safety issues. Improve vehicular access. Minimize wetland disturbance and incorporate wetlands into design.
Highland Cross/ Rutherford	35	11/98-Adopted redevelopment plan; 3/01-Amended; Redeveloper: Lincoln Equities	Mixed use commercial including office, hotel, restaurant and accessory retail	Traffic circulation. Limited wetlands. Former sewage treatment plant. Possible contaminants.
Laurel Hill/ Secaucus	285	5/99-Adopted redevelopment plan Currently being reevaluated for potential as a transit village.	Convention center complex, mixed use, and communications/production	Limited access to western portion. Generally poor circulation for vehicles and pedestrians. Rail lines bisect site. Wetlands present. Utilities available but not distributed.
16th Street/ North Bergen	54	1/99-Adopted redevelopment plan; 10/99, 2/01, 5/01-Amended; Redeveloper: National Retail Systems Affiliates	Intermodal operations, warehouse/truck terminal, combination of both	Wetlands on site and required infrastructure improvements
Kearny/ Kearny	860	5/00-Adopted redevelopment plan 3/02-Amended	Light industrial center, heavy industrial center, office, retail space exceptions	Approx. 375 acres of wetlands, including Kearny Freshwater Marsh. Substandard infrastructure. Roadways low-lying and in disrepair. Landfills cover most of redevelopment area.

FIGURE 3.4 Redevelopment Areas in the Meadowlands District (Cont.) *

NAME/LOCATION	SIZE (approx. acres)	STATUS	RECOMMENDED USES	REDEVELOPMENT CHALLENGES
Paterson Plank Road Corridor/ Carlstadt, E. Rutherford	305	1/99-Portion determined "In Need of Redevelopment" 9/03-Adopted redevelopment plan for majority of area 10/03-Determined additional area along Washington Avenue "In Need of Redevelopment"	Mixed use development including commercial, office warehousing, light industrial; passive recreation; and open space	Known contamination. Nonconforming buildings existing prior to NJMC regulations. Flooding. Active railroad line.
Route 3 East Service Road/East Rutherford	42.85	10/03-Determined "In Need of Redevelopment"	To be determined	Wetlands. Roadway access.
Wall Street West/ Lyndhurst	6.16	9/03-Determined "In Need of Redevelopment"	To be determined	Flooding. Hazardous access, due to small property with streets on all sides.

* Reflects actions taken by Commission through October 2003.

Land Use

FIGURES 3.5 (right) and 3.6 (below)

The Meadowlands Golf Course Redevelopment Plan slates the redevelopment of approximately 1350 acres of former landfills and contaminated sites in Hudson and southern Bergen counties. It will remediate old “orphaned” landfills and permanently preserve land previously designated for development. As the largest brownfield to greenfield project in New Jersey, the transformation will also result in a world-class golf course complex, with habitat enhancements and related amenities.

FIGURE 3.5 *An aerial photograph delineates the redevelopment areas with red boundary lines. Municipal boundaries are indicated in yellow. The project encompasses portions of Lyndhurst, Rutherford, North Arlington, and Kearny.*

FIGURE 3.6 *A conceptual drawing hints at the panoramic views envisioned by the redevelopment plan. Disturbance of the approximately 380 acres of wetlands will be minimized to implement the golf course/mixed use development. Source: Courtesy of Thomas Schaller*



KEY CONDITIONS

Most suitable land in the Meadowlands District has been developed.

- Industrial uses, including those occurring with commercial complexes, constitute the primary type of site development (16.4 percent of total land).
- Transportation uses consume approximately 1 in 5 acres (20.5 percent of total land).
- Certain developed properties lie idle or underutilized, due to the presence of real or perceived contamination. Other developed properties are declining and underutilized, even without contamination. The NJMC has devised and makes use of a planning mechanism to facilitate the redevelopment of such properties.

The District's undeveloped areas are environmentally sensitive and unsuitable for development.

- Water, wetlands, and vacant land constitute the District's primary land uses, a total of approximately 41 percent when applying the land use categories as defined in this chapter. The actual total for these three uses is somewhat higher, because properties containing wetlands as the secondary land use are categorized by their primary land use.

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CHAPTER 4

HOUSING

BASIS AND STRUCTURE

Residential uses occupy approximately 291 acres, or 1.5 percent of the District's land area. The balance of existing development in the Meadowlands District is primarily employment-generating, including industrial, public and quasi-public, commercial, and transportation-related uses. There is little transitional or vacant land that is available and suitable for the development of additional housing. Most housing originally proposed in the District was to be located in wetland areas no longer deemed suitable for development. Recognizing these restraints, this chapter will review basic housing characteristics of the District's fourteen municipalities and the region and inventory the existing housing stock.

HOUSING CHARACTERISTICS

Overview

Chapters 2 and 3 included certain baseline data concerning both the resident population and housing. The primary housing-related characteristics include:

- An in-District population of 10,635 in 2000, a slight 2 percent increase from 1990.
- Total of 4,649 housing units within the District in 2000 with a vacancy rate of 3.4 percent.
- Average household size of District municipalities at 2.68 in 2000, a decline from 2.97 in 1970. The shift is attributed to a profound household transformation over the past three decades resulting in fewer married couples and families with children and more female-headed households, persons living alone, and elderly households.
- Median household income in 2000 of \$61,925 for Bergen County and \$37,189 for Hudson County (In-District income figures are not available.). These figures compare to \$54,226 for the State of New Jersey, which ranks first among the 50 states in terms of median household income.
- An older housing stock, with the majority of housing built prior to 1950. Most of the District's housing is located in Jersey City, Little Ferry, Moonachie, and Secaucus.
- A variety of housing types. Single family (both detached and condominium) and two-family housing are the dominant types in District municipalities, at 41.2 percent and 18.9 percent of all housing units respectively. The relative mix of housing types is influenced by the composition of Jersey City's housing stock, which is mainly located out-of-District. If Jersey City were removed from the calculations, single-family residences would increase to 46.1 percent of the total.

Housing



FIGURE 4.1 (above) *Single-family houses border Mill Creek in Secaucus. The Town includes a full three-fourths of the District's residential units.*



FIGURE 4.2 (left) *Townhouse development at Harmon Cove in Secaucus represents the District's most up-scale housing. Harmon Cove includes a total of 1,329 townhouse and high-rise units. The residential community stands as a major achievement of the original 1970 Hackensack Meadowlands Comprehensive Land Use Plan.*



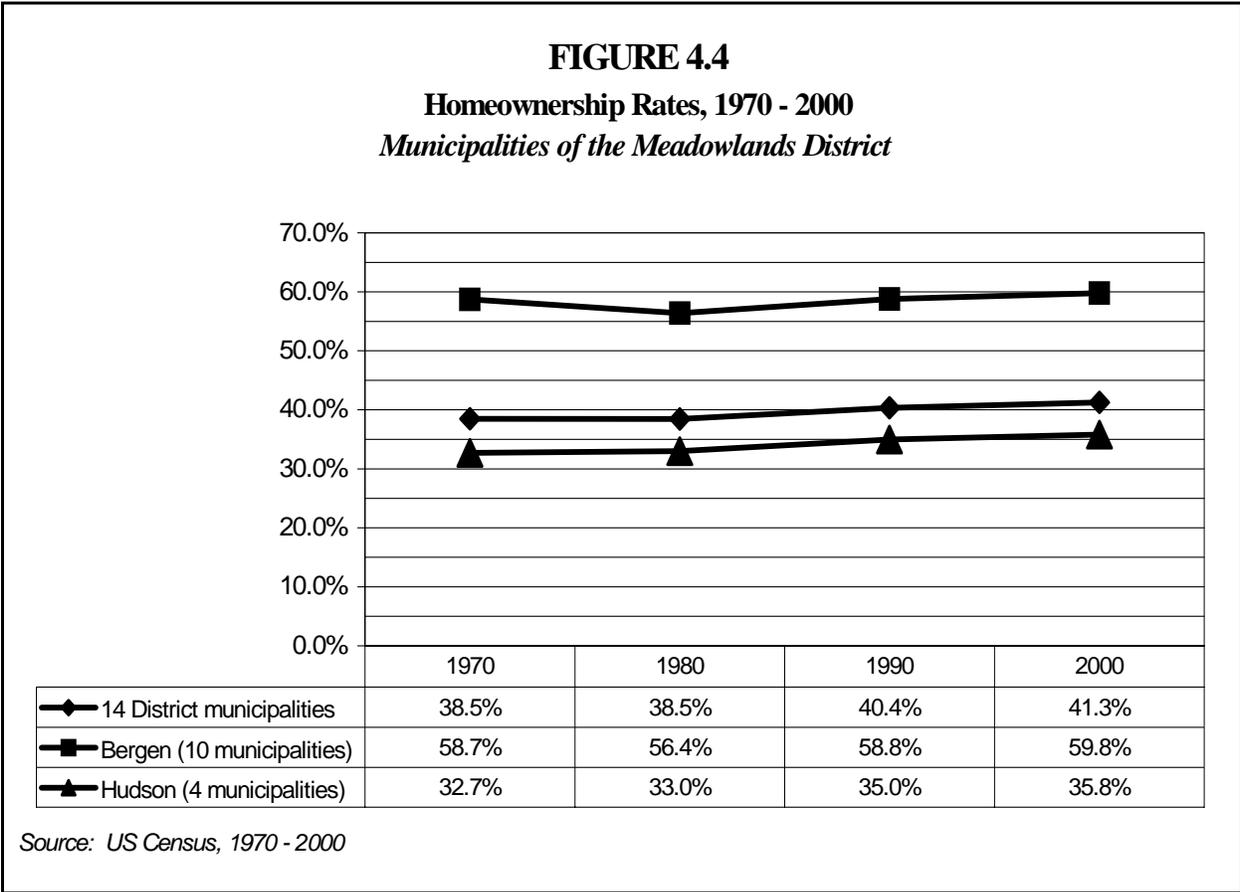
FIGURE 4.3 *The former site of Teterboro's Department of Public Works facilities was redeveloped in 1999 with twelve townhouse units (inset), five of which are designated as affordable. The Borough's low population had caused problems staffing municipal boards. Teterboro's redevelopment of the site was based on the results of an NJMC investigation of the site and its redevelopment potential. The townhouses are located in close proximity to employment opportunities, major highways, and public transportation. The redevelopment project has brought new housing into a traditionally industrial community.*

Housing Tenure and Values

Residents of District municipalities are homeowners at a somewhat lower rate than those of the State and the nation. In 2000, 41.3 percent of housing units were owner-occupied, compared to 66.5 percent Statewide and 67.5 percent nationally. As with housing type, the high number of multi-family housing units in Jersey City skews the data somewhat, although District municipalities in Bergen County also showed a lower rate, just under 60 percent. Figure 4.4 shows homeownership rates from 1970 to 2000.

The fourteen municipalities of the Meadowlands District experienced a modest gain of 2.6 percent in homeownership from 1970 to 2000. The gain by District municipalities was likely moderated by regional factors that resulted in slight declines to the homeownership rates in Bergen and Hudson counties as a whole during the 1990’s:

- The construction of rental apartments along the Hudson River waterfront; and
- The influx of immigrants, most entering the housing market as renters. Over time, these immigrants will likely become homeowners in about the same proportion as US-born populations with similar economic characteristics.



Housing

The aging of the baby boomers, the generation born from 1946 to 1964, should also promote higher ownership rates, as ownership rates tend to increase with the head of household's age. Affordable mortgages and the overall strength of the economy are also key variables in the homeowner equation for the future.

Housing values in the region continue to be relatively high. In 2000, New Jersey's median housing value of \$171,988 was 43 percent higher than the national median and ranked fourth among the fifty states. Hudson County's median value for an owner-occupied unit was somewhat lower at \$154,460, while Bergen County's median value stood significantly higher at \$245,538.

Figure 4.5 assesses housing affordability at the regional and State levels. The data in Figure 4.5 can be used to assess owner affordability in the region via three different methods:

1. **Comparison of median housing costs to median household income.** A common measure of housing affordability for homeowners is that the percentage of housing costs, including mortgage principal and interest, taxes, and insurance, should not exceed 28 percent of income. In more recent years, some lenders have adopted expanded debt-to-income ratios that permit a homeowner to finance up to 33 percent of household income for housing expenses. Applying either standard, the median-income householder in Bergen and Hudson counties and the State could not afford the median household expenses assumed by a householder with a mortgage in the year 2000. Since some mortgage-holders have owned their homes for a period of time, a median-income household attempting to buy the median-priced home today would experience an even greater shortfall in affordability.
2. **Proportion of owners with high housing costs relative to income.** Approximately two out of three homeowners had mortgages in the year 2000. Statewide, almost 31 percent of homeowners with mortgages were paying 30 percent or more of their income for housing expenses. The proportions for homeowners with mortgages in Bergen and Hudson counties were even higher: 35.3 percent and 46.2 percent respectively.

Having no mortgage does not necessarily make housing affordable. Approximately one in five New Jersey homeowners without mortgages were still paying 30 percent or more of their income for housing expenses. For Bergen and Hudson county householders, the proportions were even higher: 23 percent for Bergen County owners and 31.5 percent for Hudson County owners.

FIGURE 4.5			
Housing Affordability Profile			
	Bergen County	Hudson County	New Jersey
All households:			
Median household income	\$ 61,925	\$ 37,189	\$ 54,226
Monthly median household income	\$ 5,160	\$ 3,099	\$ 4,519
Owner affordability:			
Median housing costs for owners with a mortgage	\$ 1,911	\$ 1,549	\$ 1,559
% median housing costs to median income for owners with a mortgage	37.0%	50.0%	34.5%
% owners with a mortgage having monthly housing costs at 30% or more of income	35.3%	46.2%	30.8%
% owners without a mortgage having monthly housing costs at 30% or more of income	23.0%	31.5%	20.8%
Median housing value	\$ 245,538	\$ 154,460	\$ 171,988
Ratio median housing value to median annual income	4.0	4.2	3.2
Renter affordability:			
Median rent	\$ 869	\$ 737	\$ 763
% households with gross rent > 30% or income	37.8%	41.7%	39.5%
<i>Source: Census 2000 Supplementary Survey</i>			

3. **Ratio of housing to income.** Another measure of affordability for prospective homeowners is the ratio of housing value to income. Typically, a ratio of 2.5 or 3.0 is considered affordable. Statewide, the median housing value, when compared to the median household income, shows a ratio of 3.2, exceeding both standards. Bergen and Hudson counties had even higher ratios, at 4.0 and 4.2 respectively. Again, the data demonstrate that housing valued at the median level is not affordable to the median-income household.

Home prices have jumped considerably since the Census 2000 supplementary survey, increasing the gap in affordability for lower and middle income owner households. Trends in the single-family housing market are reviewed in Chapter 8, Economic Vitality.

For rental units to be considered affordable, the gross rent including utilities must not exceed 30 percent of income. The Supplementary Survey indicates that a high percentage of renters are paying more than 30 percent of their income for rent: 37.8 percent of Bergen County renter households and 41.7 percent of Hudson County renter households. The data do not, however, tell us how much financial difficulty certain categories of renters have in meeting their needs for suitable housing.

Housing

Low vacancy rates throughout the region are indicative of a housing shortage. Within the District, 4.2 percent of the dwelling units in District municipalities were vacant at the time of the Census. Slightly over half of these vacant units were available for rent or sale. The remaining vacant units were rented or sold but not yet occupied; reserved for seasonal, recreational or occasional use; used by migrant workers; or vacant for other reason.

Condition

To assure an adequate quality of life for the District's residents, housing must not only be affordable, but of suitable size and condition. Housing may be considered overcrowded if a unit contains more than one occupant per room. A total of 3.4 percent of the housing units in Bergen County and 7.8 percent of the Hudson County units are overcrowded. The data do not provide information regarding the overcrowding due to inadequacies in room sizes or number of bedrooms.

Similarly, there is a lack of adequate, consistent data to determine the state of repair of housing at the District or regional level. The New Jersey Council on Affordable Housing (COAH) defines a substandard housing unit as "a housing unit with health and safety code violations that require the repair or replacement of a major system. A major system includes weatherization, a roof, plumbing (including wells), heating, electricity, sanitary plumbing (including septic systems) and/or a load bearing structural system."

The Census 2000 Supplementary Survey collected limited information regarding age and housing quality at the county level. Generally, a direct correlation can be found between the age of a jurisdiction's housing stock and its condition. Housing built prior to 1950 can be considered older for this purpose. This includes 37 percent of Bergen County's and 60.5 percent of Hudson County's housing stocks. Bergen County municipalities in the Meadowlands District are likely to have a higher percentage of older housing than the county as a whole.

In addition to the year the housing structure was built, the Supplementary Survey obtained information regarding plumbing and kitchen facilities. A total of 0.4 percent of Bergen County units and 0.2 percent of Hudson County units were reported as lacking complete plumbing facilities. Complete plumbing is defined as having these three facilities: 1) hot and cold piped water, 2) a flush toilet, and 3) a bathtub or shower. Additional survey information concerns housing units that lack complete kitchen facilities. Complete kitchen facilities must have 1) a sink with piped water, 2) a range or stove, and 3) a refrigerator. A total of 0.4 percent of Bergen County units and 0.8 percent of Hudson County units were reported as lacking complete kitchen facilities. Though the data provide some measure of substandard housing in the region, they likely underestimate the numbers of substandard units. A unit could satisfy the Census criteria and still be substandard per the COAH definition.

KEY CONDITIONS

Housing is a relatively minor land use in the District, comprising 1.5 percent of the total. A total of 2.4 percent of the residents of District municipalities live in-District.

The shortage of suitable, affordable housing will likely be an ongoing issue for many residents of northern New Jersey that will continue to drive the cost of housing. Owners and renters alike can expect to continue experiencing high housing costs in proportion to their total household income.

SOURCES

Substantive Rules of the New Jersey Council on Affordable Housing, N.J.A.C. 5:93-1.3.

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CHAPTER 5

**ENVIRONMENTAL PRESERVATION
AND ENHANCEMENT**

BASIS AND STRUCTURE

The NJMC has dual commitments to serve as trustee of the natural resources of the Meadowlands District and to foster a sustainable regional economy. The provision of space for human and wildlife needs must be a component of any comprehensive plan for the District. This chapter inventories the open space and recreational resources in the District. It examines the need for additional lands and facilities and assesses land and water resources for potential recreation and open space facilities.

When the Commission was established in 1969, the impacts of development on the ecosystem were immediately evident. Uncontrolled pollution from industries and minimal treatment, if any, of wastewater were leading to the demise of many species, particularly fish, waterfowl, and the small mammals that had at one time been abundant in the Meadowlands. This unique coastal ecosystem had been written off as a biological wasteland and a regional eyesore. It was necessary for the Commission to establish a means of analyzing the environmental conditions of the District and develop short and long term measures for reviving and protecting the ecosystem.

The Commission has responded in several ways. Through Intermunicipal Tax Sharing, the NJMC has been able to protect the existing ratable values of each of the Meadowlands towns when the NJMC was created, while calling for the equitable sharing of new financial benefits and new costs resulting from the development of the Meadowlands District as a whole from that time forward. In brief, the mechanism for tax sharing is a common pool, the Intermunicipal Account. Standards are prescribed under which the municipalities contribute or draw from the pool. Tax sharing has allowed the Commission to master plan the District as a region without consideration of municipal boundary lines. In doing so, the Commission was able to promulgate a plan to protect larger expanses of marshland and sensitive environmental habitats. In more recent years this concept has been implemented with the purchase of sensitive lands and valuable wetland habitats as the Commission has been able to secure appropriate funding. Tax sharing is discussed more fully in Chapter 8, Economic Vitality.

In April 1998, the NJMC entered into an agreement with Rutgers Center for Information Management, Integration and Connectivity (CIMIC) for the creation of the Meadowlands Environmental Research Institute (MERI). MERI functions as a world-class center for sci-

Environmental Preservation and Enhancement

entific investigation of urban wetlands, their functioning, restoration, and sustainable management, with emphasis on coastal wetlands. MERI integrates activities that preserve, restore and enhance the environmental quality of the Meadowlands through a comprehensive environmental monitoring system which benchmarks and targets environmental improvements. The establishment of MERI will result in significant contributions to the region through shared and stored data, as well as providing instructional and research opportunities to multidisciplinary faculties and personnel at collaborating institutions.

In spite of the NJMC's efforts to address many of the area's environmental concerns, varying degrees of problems associated with air and water pollution, flooding, diminished wildlife habitat, unclosed landfills and the like still exist today. Consequently, a clear understanding of the District's natural environment and its proper management is essential to this Master Plan. This chapter is of particular value in relationship to the chapters concerning Land Use, Housing, and Economic Vitality, as the finite, natural environment is a primary determinant of the types, locations, and intensities of permitted development.

HISTORIC AND EXISTING ENVIRONMENTAL CONDITIONS

Climate

The climate of the Meadowlands is mainly determined by both the topography of the area and its geographic location of approximately 40° N latitude and 74° W longitude. Although the area is close to the Atlantic Ocean, the climate is considered more continental than maritime. This is due to the dominant airflow pattern, which brings air masses over the continent in an easterly direction.

During the winter months, a polar continental air mass originating in Canada dominates the area, while the summer months are dominated by a maritime tropical air mass from the Caribbean and the Gulf of Mexico. These seasonal air masses account for the mean annual temperature range of approximately 31° F as the low and 77° F as the high. The movement and interaction of these air masses are also responsible for annual precipitation of approximately 45 inches.

As cited by the NJDEP, the international scientific community has given considerable attention to the issue of global climate warming in the last century. The consensus is that emissions of greenhouse gasses (GHGs) are a major cause of worldwide climate change. GHGs absorb infrared energy in the form of heat, preventing it from escaping into space. Without a certain level of GHGs in the atmosphere, the earth would be cold and devoid of life as we know it. Nevertheless, the trend is for warming due to GHGs.

Beginning with the Industrial Revolution, humans began to alter the environment through new agricultural and industrial practices. The factors of population growth, burning fossil fuels, and deforestation have affected the mixture of gases in the atmosphere. With an increase in the concentration of GHGs, more heat is trapped and the average global temperature rises. The oceans expand, and water levels rise.

The Meadowlands District is both a contributor to and a recipient of the consequences of climate change. The District is located within a major urban area, heavily industrialized and densely populated. Also, the tidal range for wetlands within the District is about 3.9 feet (per the US Geologic Service's National Geodetic Vertical Datum of 1929). Higher sea levels mean an increase in flooding severity and more frequent and intense tropical storms. Tropical storms developing over the Atlantic Ocean, the Caribbean Sea and the Gulf of Mexico can impact the US coastline, occasionally including the Meadowlands District. Tropical storms produce high winds and torrential rains. High winds can destroy poorly constructed buildings, such as mobile homes and cause considerable disruption through extensive damage to trees, water and underground utility lines (from uprooted trees), and fallen poles. Heavy rain causes floods. Hurricane Floyd brought heavy rains and record flooding to the area in 1999.

Geology

The Meadowlands is located within the Piedmont physiographic province, which encompasses the northern part of New Jersey. The topographic relief of the Piedmont is generally characterized by wide valleys and gently rounded hills lying at elevations that vary from 100 to 400 feet above sea level. The underlying bedrock geology in the Meadowlands consists mainly of sedimentary deposits, such as sandstone and shale. These deposits, collectively known as the Newark Group, are of the Triassic age and form low ridges and valleys that trend northeast to southwest, essentially parallel to the Palisades Ridge and the First Watchung Mountain.

The Newark group is divided into three formations: the Stockton, the Lockatong, and the Passaic (formerly known as the Brunswick), composing the lower, middle and upper units, respectively, of the Newark Group. The Passaic formation is the predominant layer in the Meadowlands, forming most of the bedrock of the Hackensack River basin. It is composed of sandstone, mudstone, siltstone and conglomerate containing gypsum and glauberite. The Stockton formation occurs in a narrow belt extending from the town of West New York, New Jersey northward to Rockland County, New York. It is composed of shale, red sandstone, light colored sandstone, and mainly quartz and feldspar. The Lockatong formation interweaves with both the Stockton and Passaic formations, but generally lies between the two. It is composed of mudstone of chemical and detrital origin and contains sodium feldspar, calcite, chlorite, dolomite, albite and analcime. The depth of the bedrock valleys ranges from 55 feet below sea level at the Sparkill Gap, to more than 250 feet below sea level around Newark. The Piedmont has been widely affected by Pleistocene glaciation, which formed the Passaic and Hackensack River drainages.

The formation of the Meadowlands was the result of the last major glacial advance, the Wisconsin, which built the massive Harbor Hill terminal moraine that extended from Long Island west across Staten Island to Perth Amboy. Between 15,000 and 12,000 years ago, this terminal moraine served as a dam for glacial meltwaters, and formed the southern boundary for Glacial Lake Hackensack. Sedimentation resulting from the advance and retreats of Pleistocene ice fronts resulted in the deposition of massive beds of lacustrine clays and glacial till which now fills the bedrock valleys and mantles the sandstone ridges. Following the drainage of Glacial Lake Hackensack (approximately 10,000 years ago), the lake bottom went through a complex

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succession of hydrologic and vegetation regimes before achieving its modern condition. With the gradual post-Pleistocene sea level rise, the initial freshwater marsh was gradually invaded by increasing amounts of seawater and consequent tidal influence. Much of the Meadowlands is at or just above sea level.

Soils

Soils within the District fall within two broad categories: urban land and tidal marshes. Urban land is a miscellaneous soil type in which the origins and characteristics used to determine naturally occurring soil types are unidentifiable. It reflects areas in which some form of development, such as buildings, roads, landfills, or other dredge-and-fill activities, has occurred. The Udorthents and urban land soils elsewhere are there as a result of past dredge-and-fill activities. This category is described by the Udorthent (U) series.

Tidal marshes consist of areas where development has not taken place, such as open water and wetlands. Approximately half of the District's soils are tidal marsh soils composed of fine silts and clays high in organic content. Exceptions to this are the diabase rock outcroppings of Laurel Hill (also known as Snake Hill) and Little Snake Hill in Secaucus.

The wetlands within the District are the remnants of a once continuous marsh that extended from the area of Elizabeth and Newark northward beyond Overpeck Creek. Tidal marsh soils consist mainly of decaying vegetative matter, creating an organic soil that is "spongy" in nature. These soils are generally inundated by tidal action twice a day and, as a result, the anaerobic microorganisms involved in the process of decomposition are hindered by the saturated conditions. This produces a soil which is an accumulation of partially decayed organic matter, referred to as peat. Of the three types of peat (woody, fibrous, and sedimentary), fibrous peat is the dominant type found within the District. This peat is categorized by its high fiber content which results from the partially decayed vegetation. The fibrous peat increases in thickness towards the center (Hackensack River) of the District.

Because of the extensive marsh soils and the amount of disturbance related to urban land soils, many structures in the Meadowlands require pile-supported foundations.

Topography

The Meadowlands are situated in a valley or "bowl" with ridges on either side that run parallel to one another in a northeast to southwest direction, reaching more than 100 feet above mean sea level (MSL). Secaucus contains a ridge that is 60 feet above MSL with gently sloping sides located parallel to County Avenue. Other prominent natural elevations within the Meadowlands include Laurel Hill (Snake Hill), which rises approximately 170 feet above MSL and Little Snake Hill reaching a height of 73 feet above MSL.

Hydrology

Surface Water

A central feature of the Meadowlands is the Hackensack River, which begins in Rockland County, New York. The 50-mile southward course of the River parallels that of the nearby Hudson River to the east. The River eventually flows into the Newark Bay at Kearny Point. It drains the Hackensack River watershed, approximately 34 miles in length with a width of four to seven miles. This watershed is approximately 197 square miles, two-thirds of which is located in Bergen and Hudson counties.

The Oradell Dam was constructed to supply potable water to northern New Jersey and has essentially separated the Hackensack River into two distinct components: the Upper River (above the Dam) and the Lower River. The Upper River is a controlled freshwater section in which the flow is inhibited. Water from 113 square miles of the total watershed area is impounded. This impoundment retains 84 percent of the watershed's supply in four large reservoirs. The Lower River (below the Dam) and its tributaries are bordered by approximately 8,500 acres of tidal marsh. This area is a brackish estuary that is influenced by the semi-diurnal tides. The majority of the River's lower reaches are located in the Meadowlands District.

In the Meadowlands, the major inputs of freshwater to the Hackensack River come from industrial and municipal discharges, stormwater runoff, and water spilling over the Oradell Dam. Within the District, the River is 11.5 miles in length and drains over 90% of the 30.4 square miles of Meadowlands District jurisdiction. Figure 5.1 lists the major tributaries of the Hackensack River. The River and its tributaries, along with the lower Passaic River (located along a portion of the District's southwestern border), form several sub-watersheds. The District's waterways and sub-watershed areas are presented in Map 5.

The Hackensack River and its tributaries have been altered at different times to meet specific needs. The lower section of the River has historically been dredged to handle barge traffic. The US Army Corps of Engineers (USACE) maintains a shipping channel at an average depth of twelve feet. Additionally, ditches and canals have been dug to control the flow of water into the tidal marshes.

Surface water features of the District are characterized by the many streams, creeks and smaller channels and ditches that drain the area. The quantity and quality of surface water in the Meadowlands is influenced by such factors as tidal flow, precipitation, permitted discharges and the release or detainment of freshwater from the Oradell reservoir. Tidal flow in the Meadowlands is such that the system is never completely flushed. By the time the tide in the upper reaches begins to recede, the next incoming tide has begun to enter the lower reaches. In a typical estuary, the freshwater flow maintains a net seaward movement of water mass and any pollutant load. The Hackensack River, however, has a disturbed flow regime; it acts as a trough in which the tidal waters slosh back and forth, only slowly getting flushed to the sea.

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FIGURE 5.1	
Hackensack River and Its Tributaries, Meadowlands District	
STREAM	WATER CONTROL METHOD
Hackensack River	Dam
Penhorn Creek	Tide gate/RR embankment
Losen Slote	Tide gate
Anderson Creek	Open to the tides
Sawmill Creek	Open to the tides
Kingsland Creek	Tide gate
Berry's Creek Canal	Open to the tides
Bashes Creek	Tide gate
Moonachie Creek	Two tide gates/culverts
Mill Creek	Open to the tides
Cromakill Creek	Open to the tides
Bellman's Creek	Open to the tides
Overpeck Creek	Dam/tide gate
Berry's Creek	Open to the tides
Peach Island Creek	Tide gate
West Riser Ditch	Tide gate
East Riser Ditch	Tide gate

Source: Draft Environmental Impact Statement for the Special Area Management Plan, June 1995

Floodplains

Floodplains are those areas subject to inundation by tidal action or severe storm events at a given frequency. Within the District, special flood hazard areas inundated by the 100-year flood are characterized as indicated in Figure 5.2. Due to the prevalence of low elevations, a majority of the District is located within one of the zones. Map 6 shows the general location of flood hazard areas.

FIGURE 5.2	
FEMA Floodplain Zones in the Meadowlands District	
ZONE	CHARACTERISTICS
AE	Base flood elevations determined and are located in elevations between 5 and 10 feet above the Mean Sea Level (floodway areas).
X	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from 100-year flood.
<i>Source: FEMA maps for Meadowlands District—September 20, 1995.</i>	

Groundwater

In aquifers underlying the District, movement and storage of groundwater occur primarily in the network of interconnected openings formed along joints, fractures and solution channels of the Passaic Formation (formerly known as the Brunswick Formation). Groundwater location varies from site to site depending on the development of joint openings and their alignment. The size and number of these openings decrease as the depth below ground surface increases. As some beds within the formation contain more openings than others, the groundwater system consists of a series of alternating tabular aquifers, permeable formations and aquicludes (impermeable strata). These rock series are several tens of feet thick and dip to the northwest at an angle of approximately 10 degrees. The water bearing fractures in each aquifer are more or less continuous, but have a poor hydraulic connection between them. These tabular aquifers generally extend downward for a few hundred feet and are continuous along the strike for thousands of feet.

Estimates of the thickness of the groundwater producing zone in the Passaic Formation have been tempered by the observation that, when a well has not found a water-bearing zone in the first 400 feet of drilling, water is unlikely to be found by drilling deeper. The zone in the Passaic Formation containing joints and fractures that are capable of storing and transmitting fresh water has been variously estimated at between 200 and 600 feet thick.

The zone of fresh (non-saline) groundwater in the Hackensack River basin appears to be thinner than 200 feet and is generally located at 400 to 500 foot depths. Typical water bearing zones in the Passaic Formation range from 200 to 600 feet deep. Glacial scour, which reaches depths of thirty feet along the western edge of the Meadowlands, has removed some of the water-bearing capacity of the Passaic Formation locally.

Other geologic formations underlying the District include the Stockton Formation, diabase intrusions (e.g., Laurel Hill), and various unconsolidated till, silt, clay and fill. The Stockton Formation is too deep under the Meadowlands to yield a significant amount of water. Diabase, with its impermeable properties, also yields small quantities and is not an important source of groundwater. Overlying the Passaic Formation are unconsolidated deposits consisting mostly of till, varied silt and clay. These materials are generally of low permeability and thus yield

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limited amounts of water. The limited areas of sand and gravel deposits in the District are a small but valuable source of groundwater.

Well drilling in the Meadowlands is limited by the above constraints and yields only small to moderate supplies of groundwater. The District is primarily in a groundwater discharge area (Groundwater is generally discharging to the Hackensack River and the Atlantic Ocean.). In discharge areas, groundwater travels for longer periods and greater distances, is higher in dissolved solids, and tends to be in chemical equilibrium with adjacent rocks. In the Meadowlands, the groundwater in the Passaic Formation is highly mineralized. Chemical quality is affected by induced recharge of poor quality surface water from the Hackensack River and Newark Bay.

The Oradell Dam has effectively cut off the headwaters and source of the Hackensack River from its lower reaches, limiting the fresh water in the lower reaches. Weakened flow rate in the lower valley has exposed the groundwater system to salt water intrusions from Newark Bay. Dredging of canals has further exposed permeable materials, which can lead to additional leaching of brackish river water into the groundwater.

Within the lower Hackensack River basin, yield variation and specific capacities of wells tapping the Passaic Formation are dependent on lithology penetration and position of the wells within the groundwater flow system. The most productive areas are located in narrow belts along the east and west edges of the District, at a point mid-way between the divides of the basin and the trough. The wells in the central portion of the Meadowlands only have an average specific capacity of one gallon per minute (gpm) per foot of drawdown. The groundwater supply along the edges of the District benefits from the pressure of hydraulic connection to the Passaic Formation, a gentle gradient, and permeable unconsolidated deposits. The central portion of the Meadowlands is overlain by former glacial lake beds with poor permeability.

Data on wells tapping the Passaic Formation in Bergen County show that in general, industrial and municipal supply well yields are ten times as great as domestic well yields. Industrial and municipal supply wells are at least twice as deep and have twice the specific capacity of domestic wells. The median industrial or municipal supply well is 260 feet deep, yields 100 gpm, and has a specific capacity of 1.5 gpm per foot of drawdown. The median domestic well is 120 feet deep, yields about 10 gpm, and has a specific capacity of about 0.7 gpm per foot of drawdown.

Pollution from local industry, sewage and urban runoff prevents wellhead groundwater recharge and reduces water quality. In addition to the summer brackish flow from Newark Bay, it is believed that highly influential hydraulic subsurface connections exist between the Passaic Formation and Newark Bay. As a consequence of heavy pumping, high chloride water has been induced deep into the aquifer along the strike of the beds.

Water Quality

The Meadowlands District lies within the basin of the lower Hackensack River. Water quality in this region has been influenced significantly by urbanization and industrialization. Due to its limited freshwater inflow and indirect link with the open sea, the lower Hackensack River is not as well flushed as other estuaries. Consequently, the District's water quality is inherently susceptible to pollutants introduced into the watershed. There are many existing point and non-point sources of pollution, which affect the present water quality. Point source pollution tends to come from activities such as sewage treatment plants and industrial discharges. Non-point sources of pollution cannot be pinpointed to the initial discharging source and include storm sewers, landfills, leachate, and surface runoff.

An analysis of data collected in the District by the NJMC defines the status of the Hackensack River. Surface water samples are collected seasonally from fourteen sites in the District, including five sites along the Hackensack River. Samples have been analyzed for the levels of dissolved oxygen, pH, temperature, and salinity; the presence of heavy metals, including cadmium, chromium, copper, iron, lead, nickel, and zinc; nutrients; suspended solids, and bacteria.

The level of dissolved oxygen is particularly critical, as it is necessary to support the maintenance, migration and propagation of the natural and established biota. Concentrations have varied widely among seasons and from year to year. For example, the restriction of freshwater input during times of drought produces worsening conditions. Dissolved oxygen readings were above the criteria minimum (standard) for 95 percent of readings in 2002 and 67 percent of readings in 2001.

Counts of fecal coliform bacteria, indicators of untreated sanitary wastes, were highly variable with time and from site to site. Bacterial counts have not exceeded the criteria maximum since fall 1998, although they are still high in some areas. Counts did show an overall reduction in concentration.

Heavy metal concentrations, by-products of industrial processes, power generation and the transportation arteries that criss-cross the District, are well below criteria limits. In recent years, drought conditions have, however, led to increased metal concentrations.

The New Jersey Administrative Code (N.J.A.C.) Section 7:9-4 defines standards for surface water quality, including the criteria required to meet these standards. The NJDEP has classified different reaches of the Hackensack River according to the surface water quality standards. The classifications are summarized in Figure 5.3.

FIGURE 5.3
Hackensack River Network Surface Water Classification,
Meadowlands District

RIVER SEGMENT	CLASSIFICATION
Overpeck Creek to Routes 1 & 9 Bridge Tributaries joining the main stem down stream of Overpeck Creek	SE2 FW2-NT/SE2
<p>CLASSIFICATION TERMS:</p> <p>SE = the general surface water classification applied to saline waters of estuaries.</p> <p>SE2 = SE waters that are designated for these uses: maintenance, migration, and propagation of the natural and established biota; migration of diadromous fish; maintenance of wildlife; secondary contact recreation; and any other reasonable uses.</p> <p>FW = the general surface water classification applied to fresh waters.</p> <p>FW1 = those fresh waters that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any man-made wastewater discharges or increases in runoff from anthropogenic activities.</p> <p>FW2 = the general surface water classification applied to those fresh waters that are not designated as FW1 or Pinelands Waters.</p> <p>NT = nontrout waters.</p> <p><i>Source: Surface Water Quality Standards, <u>N.J.A.C. 7:9B</u></i></p>	



FIGURES 5.4, 5.5, AND 5.6
These photos give various perspectives on the District's waterways.

FIGURE 5.4 (above) *An aerial view of Mill Creek and the Hackensack River looking northwest, taken by helicopter before NJMC mitigation activities.. The New Jersey Turnpike appears in the background.*

FIGURE 5.5 (upper left) *A boater's view of Berry's Creek in Carlstadt. The creek banks are lined with dense stands of the common reed (*Phragmites australis*), an invasive species. Although its origin is unclear, the common reed can be found all over Europe, Asia, Africa, North America, and Australia. Recent research involving archaeological evidence supports that both native and introduced genotypes exist in North America.*

FIGURE 5.6 (lower left) *A common site in the District, great egrets (*Casmerodius albus*) are joined by a great blue heron (*Ardea herodias*) at the water's edge.*

Environmental Preservation and Enhancement

Ecosystems and Habitats

Along with its waterways, the Meadowlands includes extensive wetlands, terrestrial ecosystems, and remnant and unique habitats. Each contributes to the biodiversity of the Meadowlands. Several features of the Meadowlands contribute to its value for wildlife. These features, as reported by Hudsonia Ltd. (Hackensack Meadowlands, New Jersey, Biodiversity: A Review and Synthesis, prepared for the Hackensack Meadowlands Partnership in August 2002), are as follows:

1. A large complex of undeveloped habitats in a vast urban-industrial area;
2. Abundant surface waters with diverse hydrology (tidal and nontidal, fresh and brackish);
3. A variety of habitats ranging from open estuarine waters to dry fill and rock;
4. Extensive areas of marsh, wet meadow, and upland meadow habitat with minimal direct human intrusion;
5. Dense stands of common reed and other plant communities that have low visibility and low penetrability (i.e., they are hard to see into and move through), and provide concealment and shelter for animals nesting, roosting, or foraging within the reed stands or on other habitats surrounded by reed stands;
6. Abundance of certain foods (including common reed for muskrats; small rodents and small birds for raptors; terrestrial insects and spiders, as well as adult chironomid midges, for small birds; macrobenthic invertebrates for dabbling ducks, gulls, terns, etc.; and fiddler crabs for turtles, herons, etc.);
7. Reduced levels of hunting, trapping, and fishing activities that might potentially affect non-target species and prey species as well as legally harvested species; and
8. Possibly reduced levels of predation, competition, and herbivory (e.g., deer grazing) providing ecological “refuge” for certain animals.

The extent to which animals can benefit from the presence of common reed or phragmites can be debated, however, the report establishes the overall value of the Meadowlands as wildlife habitat.

The report also cites several negative features that impact animal species to varying degrees:

1. Intensive replacement of “natural” habitats by altered or artificial habitats;
2. Loss of connectivity with other wetland and grassland habitat complexes;
3. Loss of sensitive species that may have served as food, symbionts, habitat structure, etc.;
4. Physical hazards of motor vehicles, aircraft, buildings, radio towers, and construction equipment;
5. High anthropogenic noise and light levels;
6. Urban-type water, soil, and air quality;
7. Contamination by metals and other toxic substances; and
8. Competition or predation from a few common, urban-tolerant animals (e.g., Norway rat, raccoon).

The presence of dense strands of phragmites is a symptom of a system degraded by unnatural forces.

A variety of invertebrates, amphibians, reptiles, fish, birds and mammals are found in the Meadowlands. The NJMC collected 53 species of invertebrates and 34 species of fish in a study conducted during 1987 and 1988. The USEPA (1989) reports that over 250 species of birds have been seen in the Meadowlands, including waterfowl, raptors and song birds. Based on data collected and various ornithology studies over the years, more than 60 species of birds utilize the Meadowlands for nesting and breeding. The intertidal mudflats near Sawmill Creek are the feeding ground for over 40 species of shore birds, while 10 species of raptors have been observed to feed on the wet meadows, landfills and fields in the region. Waterfowl such as terns, skimmers and grebes are often observed in the District's marshes. This category also includes over 20 species of ducks including mallards, black ducks, pintails and canvasbacks. These waterfowl, along with the long-legged wading birds such as herons and terns, utilize the District habitats for refuge, resting, feeding and nesting.

Common to the Meadowlands are the short-eared owl and the northern harrier. Osprey have also been observed in the District. Shorebirds and wading birds including the snowy egret, bitterns, rails and the great blue heron make the Meadowlands their home. The impoundments are heavily used by wading and shore birds traveling the Atlantic Flyway and support the largest known breeding population of pied-billed grebes in New Jersey. Finally, the District is rich in its population of songbirds. They include the marsh wren, winged blackbird, warblers, thrushes, starlings, titmice, among others.

A variety of mammals have made the Meadowlands their home. The species commonly found in the freshwater wetlands and at higher elevations in the intertidal zone include opossum, shrews, mice, moles, raccoon, weasel, skunk, fox, chipmunk, squirrel, muskrat, rat, cottontail, and feral dogs and cats. Additionally, this habitat provides the muskrat with the necessary raw materials for the construction of its home. Freshwater marshes also provide the necessary habitat for leopard frogs; snapping, painted and spotted turtles; and many aquatic insects.

A listing of declining, endangered, and threatened wildlife sighted in the District is maintained by the New Jersey Division of Fish and Wildlife. These species are presented in Figure 5.7. A declining species has exhibited a continued decline in population numbers over the years. Endangered species are those whose survival prospects in the State are in immediate danger because of a loss or change in habitat, overexploitation, predation, competition, disease or contamination. Threatened species are those species that may become endangered if conditions begin to or continue to deteriorate.

The District also contains a Natural Heritage Priority Site, the Kearny Marsh. Natural Heritage Priority Sites represent some of the best remaining habitat for rare species in the State and exemplary natural communities.

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FIGURE 5.7
Declining, Endangered, and Threatened Wildlife
Observed in the Meadowlands District

Common Name	Scientific Name	State Status
<u>Bird Species:</u>		
American Bittern	<i>Botaurus lentiginosus</i>	E-3
American Coot	<i>Fulicia americana</i>	D
Black Skimmer	<i>Rynchops niger</i>	E
Bobolink	<i>Dolichonyx oryzivorus</i>	T
Least Bittern	<i>Ixobrychus exilis</i>	D
Least Tern	<i>Sterna antillarum</i>	E
Northern Harrier	<i>Circus cyaneus</i>	E-3
Osprey	<i>Pandion haliaetus</i>	T
Peregrine Falcon	<i>Falco peregrinus</i>	E
Pied-Billed Grebe	<i>Podilymbus podiceps</i>	E-3
Savannah Sparrow	<i>Passerculus sandwichensis</i>	T
Yellow-Crowned Night Heron	<i>Nyctanassa violaceus</i>	T
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	T
Sedge Wren	<i>Cistothorus platensis</i>	E
<u>Reptiles:</u>		
Wood Turtle	<i>Clemmys insculpta</i>	T
<u>Plant Species:</u>		
Dog Fennel Thoroughwort	<i>Eupatorium capillifolium</i>	E
Cyperus-like-Sedge	<i>Carex pseudocyperus</i>	E
Canada hawkweed	<i>Hieracium kalmii</i>	E
Smooth rattle-snake root	<i>Prenanthes racemosa</i>	E
Salt Marsh Bullrush	<i>Scirpus maritimus</i>	E
Sea-side arrowgrass	<i>Triglochin maritimum</i>	E
Wafer-Ash	<i>Ptelea trifoliata</i>	E

D=Declining; T=Threatened; E=Endangered; 3=Breeding population only

Note: Information provided by the Natural Heritage Program cannot provide a *definitive* statement on the presence, absence, or condition of biological elements in any part of New Jersey. Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements or locations in question.

Sources: Draft Environmental Impact Statement for the Special Area Management Plan, June 1995; NJDEP Natural Heritage Program, January 2003

Wetlands and Estuaries

Besides the Hackensack River, one of the predominant environmental features of the Meadowlands is its wetlands. The wetlands in the Meadowlands have a history of transition. Approximately 17,000 years ago, the last continental glacier began to retreat from New Jersey. The melting water became trapped behind the terminal moraine to form Glacial Lake Hackensack. The glacial lake existed for at least 2,000 to 3,000 years. The first postglacial wetland community in the area was dominated by black ash, followed by a mixture of black ash, tamarack, and black spruce.

Between 1100 and 1200 years ago, Atlantic white cedar moved into the area. Rising sea level, saltwater intrusion, and exploitation by European settlers led to the demise of the cedar. Freshwater and brackish water marsh grasses eventually replaced the cedar. Increasing sea level and salinity led to a more brackish and salt marsh community that exists in the Meadowlands today.

Recent changes in the Meadowlands have been more abrupt and drastic. The first cause of change was the attempt to "reclaim" the Meadowlands as arable land. Beginning in the 1920's, so-called reclamation activities were pursued to control mosquito breeding. The diking and ditching undertaken to drain the Meadowlands probably aided in the decline of the cedar bogs. Additional human interventions leading to the decline of the cedar in the Meadowlands may have been the harvesting for use in ship building, to make plank roads to traverse the Meadowlands, and for lumber and shingles. Some of the cedar swamps were also burned to drive out pirates.

The second major cause of change in the Meadowlands environment was the construction of the Oradell Dam, completed in 1922. This dam limited fresh water inputs into the lower Hackensack River and increased the tidal effects, moving the head of the tide upstream. As the population served by the Oradell Reservoir increased, fresh water flows over the dam decreased, resulting in a more saline environment for most of the District.

Another major historic event relates to both the dikes that were built to "reclaim" the wetlands and the construction of the Oradell Dam. Because the dikes isolated large expanses of land from tidal waters, the layers of peat that existed at the bottom of the marshes began to dry out and subside. Common reed (*Phragmites australis*) began to colonize these drier, less saline areas. The land behind the dikes sank to lower elevations than the water level in the Hackensack River. In 1950, a major hurricane breached most of the dikes, and the saline waters of the Hackensack flooded large expanses of the Meadowlands. In some areas (e.g. the Sawmill Creek Wildlife Management Area) the *Phragmites* were unable to survive in the deeper, more saline waters, and large expanses died off. Only recently, the resulting mudflats are being slowly revegetated by salt-marsh cordgrass (*Spartina alterniflora*).

In addition to draining the marshes, some of the estuary was filled to provide land for residential and industrial development. In 1897 there were 18,580 acres of tidal marshes and 1,465 acres of freshwater meadows in the Meadowlands region including land outside the District. As a result of draining and filling marshes, only about 8,400 acres of the original wetlands and

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aquatic habitats in the lower Hackensack River Basin remain in the District today. The remaining estuary includes vegetated marshes, open water and mudflats.

In an effort to identify and locate the wetlands in the Meadowlands District, an advanced identification (AVID) study of the entire Meadowlands District was begun in the late 1980's. The intent was to identify and characterize how well the wetlands were performing. This study confirmed that approximately 8,400 acres of wetlands and waterways are present in the Meadowlands District and occur in all of the 14 constituent municipalities. The majority of the wetlands present in the Meadowlands District are estuarine and influenced by the tide. The largest concentration of estuarine wetlands is located in Carlstadt and Lyndhurst. Freshwater wetlands also exist within the District, with the largest area known as the Kearny Marsh and the Penhorn Creek Basin.

Wetland professionals, environmental interest groups and government agencies have recognized the wetlands in the District as an important natural resource. The United States Fish and Wildlife Service (USFWS), as part of the North American Waterfowl Management Plan's Atlantic Coast Joint Venture, has designated the Meadowlands as part of a "key priority habitat range" for migratory waterfowl traveling the Atlantic flyway. While the designation of "key priority habitat range" is not a regulatory status, the purpose of the USFWS designation is to emphasize to other agencies, planners and the general public that such areas are within the range of habitat that are important to migratory waterfowl. The US Environmental Protection Agency (USEPA) Region II has included the Meadowlands on its list of priority wetlands in New Jersey. Again, this list has no regulatory effect, but does identify areas that various federal environmental agencies believe are important resources within Region II.

Terrestrial Ecosystems

Little undeveloped open space remains in the Meadowlands District that is not wetland, an aquatic habitat or a filled and contaminated upland. The terrestrial habitats that do remain have been significantly modified since the arrival of the first settlers, first for farming and later for residential and industrial development. The major terrestrial open spaces that have become re-established in the District are on inactive solid waste disposal areas. Most of these inactive waste disposal areas have become revegetated and provide habitat for numerous species.

The plant communities on inactive landfills can be characterized as early to middle successional areas. The fills were abandoned only within the last twenty years. Dominant species are herbaceous plants, forbs (herbs other than grass) and small shrubs. The climax local forests have not yet had time to become re-established, a process that could take 200 years. As a result, these areas remain open, and terrestrial animals that dominate are those most closely associated with the traditional "old field" community of the Atlantic seaboard. This community is an association of plants and animals that develops in agricultural areas left undisturbed for several years. Both the plant and animal species in these open areas are considered opportunistic in that they can reproduce quickly and in large numbers to colonize disturbed areas. The populations, however, are continually changing as these opportunistic species are displaced by those of later successional stages, assuming no further human disturbances.

At the bottom of the food web in this transitional community are small mammals, birds, insect herbivores and grainivores (mice, moles, rabbits, crickets, grasshoppers, finches and sparrows). Mammal carnivores include foxes, weasels, and feral dogs and cats, while the bird carnivores are represented by raptors and owls. Though they typically nest in more forested suburban areas, omnivores that use the open spaces include squirrels, chipmunks, skunks and raccoons. The large mammal herbivores and carnivores often found in the transitional community (deer, coyote, etc.) are generally absent because of the relatively small size of the open spaces and the limited open corridors to the area from forested areas outside the District.

The open spaces provided by unused landfills are a very important habitat for the local and migratory populations of birds of prey which are not affected by the isolation from other terrestrial open spaces. The proximity of the unused fills to the wetlands increases the importance of these open spaces to raptors, because it increases the diversity of available prey. The peregrine falcon regularly feeds in the Meadowlands region. The red-tail hawk and the rough legged hawk are known to winter in the area. A pair of northern harriers has been confirmed to nest at Berry's Creek Marsh. Wintering short-eared owls use marshes and areas around landfills for hunting.

Remnant and Unique Habitats

Remnant habitats are those which were more common in the past but which have since dwindled to remnants of their former range. Unique habitats are those which have developed under unusual circumstances and now provide valuable habitat. Remnant and unique habitats 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 USEPA has identified four types of remnant and unique habitats in the District:

Forested Wetlands - sites found near Teterboro Airport and Losen Slote Creek

Freshwater Meadows - sites located near Losen Slote Creek, Moonachie Creek, Kingsland Marsh and Kearny Marsh

Hardwood Forest - site at the rock outcroppings of Laurel Hill in Secaucus

High Salt Marsh - sites found near the Hackensack River in two locations: adjacent to the Hackensack River in Lyndhurst and in Secaucus

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Air Quality

The Meadowlands District is located in the heart of a regional transportation network and contains a range of industrial activities that affect air quality. Unclosed landfills emit methane. The District's air quality is also affected by other States. Since the original Clean Air Act of 1970, significant improvements in air quality have been achieved in the District.

The Clean Air Act Amendments established National Ambient Air Quality Standards (NAAQS) for six pollutants, all of which are monitored by the New Jersey Department of Environmental Protection (NJDEP) as part of the maintenance and reporting requirements of the State Implementation Plan (SIP). The criteria air pollutants are carbon monoxide (CO), sulfur dioxide (SO₂), total suspended particulates (TSP), nitrogen dioxide (NO₂), ozone (O₃) and lead (Pb). The NAAQS have been established for the purpose of protecting the public health and welfare; they are divided into primary and secondary standards. The primary standards are intended to protect public health with an ample margin of safety. Secondary standards are intended to protect public welfare from known or anticipated adverse effects of a pollutant. The USEPA and the NJDEP monitor air quality to determine area compliance with the NAAQS. Areas where air pollution persistently exceed the standards may be designated as nonattainment areas by the USEPA.

The Meadowlands region is impacted by both mobile and stationary sources of pollution. Mobile sources can move from place to place and consist of such sources as cars, trucks, buses and trains. These sources contribute a significant amount of pollution to the region. Stationary sources of pollution are fixed and include point sources and area sources. Point sources are stationary facilities or processes that emit significant air pollution during manufacturing, power generation, heating, incineration, or similar activity. In general, these are located at industrial sites and power generating facilities. Area sources are small sources of pollution that may account for a sizable amount of air pollution when their emissions are added together. Examples include consumer products such as personal care products, residential heating and fuel use, gasoline stations, dry cleaners, bakeries, and metal recycling.

The District is located in the New York-Northern New Jersey-Long Island, NY-NJ-CT nonattainment area for persistently failing to meet the national ambient air quality standards for ozone and carbon monoxide:

- Ozone is the major component of smog. It is formed through chemical reactions in the atmosphere. Compounds such as volatile organic compounds (VOC's) and oxides of nitrogen (NO_x) react to form ozone in the presence of sunlight. Sources of VOC's include automobiles, chemical manufacturing facilities, drycleaners, paint shops, and other commercial and residential sources that use solvent and paint. NO_x forms when fuels are burned at high temperatures. The two major sources of NO_x are transportation vehicles and stationary combustion sources, including electric utility and industrial boilers. More measures need to be taken to meet health standards regarding ozone in the future.

- Although the region is in non-attainment for carbon monoxide, levels have declined significantly in recent years. Nationwide, transportation sources account for 77 percent of carbon monoxide emissions, the largest single contributor being highway motor vehicles.

The District and its surrounding environs have been classified as attainment for the remaining four NAAQS: sulfur dioxide, total suspended particulates, nitrogen dioxide, and lead. New Jersey's State Implementation Plan (SIP) calls for annual incremental reductions in ozone and carbon dioxide emissions. The SIP contains four main components as follows:

1. Conformance with NAAQS.
2. Control strategies for both mobile and stationary sources of pollution.
3. Reasonable Further Progress Report, which describes improvements to date, and necessary future steps needed to maintain and/or establish attainment.
4. Transportation control measures through which commitments are made for transportation planning such as ride sharing, exclusive bus lanes, and intermodal park and ride facilities.

The Transportation Improvement Plan (TIP) was created to provide a defined list of proposed improvements scheduled for implementation within a state program period. Internal programs have been prioritized based on the Regional Transportation Plan (RTP). This has fulfilled the federal requirements for metropolitan planning transportation organizations to coordinate among agencies; to monitor the performance of transportation systems; to prepare and maintain capital improvement plans; and to develop and annually update a multi-year program of projects to be implemented with available funds.

Open Space

There have been several open space plans for the Meadowlands area, the first of which was adopted by the Commission in 1972. The second plan was written in 1984 as an update, but was not formally adopted. In the spring of 1997, the Commission adopted an Open Space Plan as part of its review of existing policies and guidelines. These plans utilized the Hackensack River as the focal point through which wetlands and their diverse flora and fauna would be preserved while providing access to the river. They described the constraints, ecological considerations and techniques for implementing an open space plan in the Meadowlands. This section and the related strategies of Chapter 10 supercede any previous open space plans for the District.

Waterways/Waterbody Areas

The Meadowlands District open space system consists of a network of open land and water areas with the Hackensack River as its defining attribute. The Hackensack River separates the eastern and western portions of the District, but joins the landforms at its periphery. The waterways/waterbodies of the Meadowlands total approximately 1,870 acres and are controlled by the State of New Jersey. Waterways and wetlands are included in Map 7.

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FIGURE 5.8

Mehrhof Pond in Little Ferry offers watchable wildlife opportunities.



FIGURE 5.9

Losen Slote Creek Park, also in Little Ferry. In the summer of 1992, a small seating area was added as part of a woodland restoration project in a partnership between Little Ferry and the NJMC.



FIGURE 5.10

Twilight view of the wood pergola in the courtyard at the NJMC's DeKorte Park in Lyndhurst.

The Hackensack is fundamental to the entire District, because it provides for commercial uses, recreational uses, and wetlands preservation. The river gives hydrologic support to the adjoining wetlands. Tidal fluctuations and seasonal water events permit flooding of adjacent wetland areas, enhancing their quality. Also, the river presents the opportunity for observation, recreation, educational and scientific activities relating to the environment and the quality of the river. The District Zoning Regulations provide for a wetland buffer between waterways in the District and any proposed development. These buffers serve a biological function and insure proper drainage.

Wetland Conservation Areas

In addition to providing critical habitat for over 900 species of plants and animals, the District's wetlands impact human communities by serving as natural systems to purify water and alleviate the effects of flooding. Wetlands also improve our quality of life by providing a wide variety of recreational and educational opportunities. The NJMC strives to create an ecological balance between open space areas and development. It also seeks to improve the water quality of the Hackensack River estuary, including protection of the region from water pollution.

The primary tools for accomplishing these purposes are the preservation and enhancement of wetlands in the District. Wetlands preservation is the maintenance of a site in an unaltered condition. Wetland enhancement can be defined as any activity that restores a wetland degraded by human or other activity to a healthy functioning ecosystem.

Recognizing the urgent need to protect and restore our nation's wetlands, the NJMC initiated a comprehensive wetlands enhancement program in 1996. Enhancement activities restore wetland functions to areas that have lost their ability to provide quality fisheries, wildlife habitat and water quality purification. An inventory of the District's wetlands enhancement sites appears as Figure 5.11. To date, the NJMC has acquired approximately 1,800 acres of wetlands. The Commission continues to pursue the acquisition of suitable sites for this purpose as they become available.

As an additional wetlands activity, the NJDEP Bureau of Tidelands has granted the NJMC the management rights for approximately 1,600 acres of tidal wetlands in Lyndhurst, North Arlington, and Kearny. Due to the strategic location of the NJMC headquarters and the expertise of the Commission staff, the NJDEP deemed the NJMC as the ideal entity to manage these properties and provide regional park planning functions. The largest parcel in this endeavor is the state-owned Sawmill Creek Wildlife Management Area. The 788-acre site, located in the towns of Lyndhurst and Kearny, is dedicated as a wildlife management area and serves as an excellent feeding habitat for local and migratory waterfowl. It functions as one of the best examples of a low salt marsh/mudflat habitat in the District.

Environmental Preservation and Enhancement

FIGURE 5.11 Wetland Enhancement Sites in the Meadowlands District

Enhancement Site	Location	Size (Acres)	Design Plan	Project Status
Skeetkill Creek Marsh	Ridgefield	16.3	Enhancement of the wetlands to include the creation of open water areas, low/high marsh zones and upland islands for foraging, resting and nesting habitats. Public access features include a small barrier free park with seating areas, bird blind for wildlife viewing and interpretative signage.	Enhancement activities were completed in December 1998. This site is open to the public.
Secaucus High School**	Secaucus	38	Current concept design involves enhancing wetland functions by controlling common reed, improving tidal flow, creating open water impoundments and incorporating flood control and outdoor classroom features.	Completed baseline studies. Conducting additional studies to develop restoration design for implementation under at Continuing Authorities Program (CAP).
Mill Creek Marsh**+	Secaucus	203	Hartz Mountain Industries enhanced approx. 70 acres of this site in 1980's. Enhancement of the remaining degraded wetlands included the re-establishment of tidal flow across the site with the creation of open water impoundments and grading of the marsh surface to support the development of low marsh, high marsh and upland habitat areas. This enhancement has resulted in low marsh habitats that are flushed daily by the tides, lowland scrub-shrub passerine habitats along the marsh/upland ecotone and creation of breeding, wintering and migratory habitats. A secondary component is the passive park and ~ 1.5 mile walking trail. Approx. 3 miles of canoeable channels with access from Mill Creek were created as a result of this project.	Construction activities were completed in 1999 with major park development activities completed in summer 2002. The site is subject to continuing ecological monitoring and maintenance activities. The site was open to the public in October 2002.
Riverbend Wetland Preserve	Secaucus	58	Wetland Preservation	Site has been identified as a Tier 1 Restoration Site in the Hackensack DPMP.
Anderson Creek Marsh**	Secaucus	53.2	Conceptual design plan to control <i>Phragmites australis</i> by re-establishing tidal flow with the expectation of increasing habitat diversity.	Project on hold pending funding allocation.

Eastern Brackish Marsh+	North Bergen	75.24	Wetland enhancement project implemented by Hartz Mountain Industries in the 1980s. Project resulted in increased habitat diversity by re-establishing tidal flow and creating low marsh and upland habitats.	Access to the public via boat/canoe. No trails.
Oritani Marsh*	East Rutherford	224.8	Wetland preservation and enhancement activities.	Completed baseline studies in 2000. Site has been identified as a Tier 1 Restoration Site in the Hackensack Project Management Plan.
Lyndhurst Riverside Marsh Preserve*	Lyndhurst	31	C&F Realty enhanced approx. 9 acres of wetlands on this site in 1994. Enhancement of the remaining acres will include the re-establishment of tidal flow and an increase in habitat diversity.	Activities are on hold pending the allocation of funding.
Harrier Meadows*	North Arlington	77.5	Wetland enhancement included the excavation of 20 acres of shallow impoundments, which are hydrologically connected to the surrounding Kinglands mudflat to provide tidal flow. The impoundments are used to control common reed and purple loosestrife. Spoils from the excavation were used to create suitable nesting, resting habitats. The upland improvement part the project included the creation of a scrub-shrub border along the base of the 1.25 mile Meadows Path extension on the site's western and southern boundaries and around the margins of the impounded areas. Additional public access features include benches, wildlife viewing blinds and interpretative signage.	Site is open to the public for guided tours. Contact the Meadowlands Environment Center.
Kearny Freshwater Marsh*	Kearny	236	The Kearny Marsh is among the wetlands with the greatest ecological significance within the Meadowlands District. Studies are needed to determine the best approach to preserving and enhancing this valued resource.	Site is open to the Public for guided tours through the Meadowlands Environment Center. Site has been identified as a Tier 1 Restoration Site in the Hackensack Project Management Plan.
Kearny Brackish Marsh	Kearny	115.5	Currently no enhancement plan for this site.	

- * Included in Meadows Path
- ** Included in Secaucus Greenway Plans
- + Included in Blue Water Trail Plan

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Landfill restoration/management areas

Existing and former landfills in the District total approximately 1,300 acres. Most landfills in the District are now inactive. In order to mitigate the environmental impacts from these sites, they must be capped, contained with a cut-off wall and leachate collection system and a landfill gas recovery system. These activities are known as "closure" measures. Post-closure involves the maintenance of all aspects of the landfill closure improvements for a minimum of 30 years following closure of a site. Some of these landfills are proposed for recreational/commercial use in conjunction with passive open space use. Many are potential brownfield development sites.

The District landfills are unique since most were begun prior to the 1960s, and many involved filling of wetlands. In general these operations entailed excavation of the marsh soils and backfilling solid waste into the wetlands. Little or no soil cover was applied, and no environmental precautions were incorporated into the design. This was at a time when landfill owners and operators could walk away from garbage dumps without making any environmental improvements. The result was what the Commission refers to as "orphan" landfills, since there is no money reserved for their closure. Rain filtering uncontrollably through decomposing garbage turns into leachate, a tea-colored liquid that seeps into rivers and streams. This generates landfill gas, consisting of a roughly 50/50 mix of methane gas and carbon dioxide. The gas vents through the surface of the landfill. Under certain conditions, methane gas can cause fires or explosions. Prior to many of the controls now in place, drivers on the northern portion of the NJ Turnpike were often greeted by wafts of black smoke coming off the "meadows."

The Commission has taken over the liability and initiated closure of almost 500 acres of landfills in the District. In addition, another 100-acre site has been closed by the Bergen County Utilities Authority adjacent to the NJMC's office complex. This landfill was purchased by the NJMC in June 2002. Recently, through Commission efforts, the NJDEP has begun the process of geotechnical investigations and the preparation of plans for the closure of the 1-D landfill in Kearny that leaches tens of thousands of gallons daily into the surrounding wetlands. This site currently has a landfill gas recovery system.

The Commission has been able to remediate these sites through the construction of perimeter cutoff walls that extend to the naturally occurring clay layer beneath the landfills. This clay layer meets or exceeds the liner standards established by the State for vertical permeability, or the ability of water to pass through the soil. The cutoff wall design utilizes a vertical trench that extends into the underlying clay layer, creating a "bathtub." The trench remains stable during construction by pumping a "slurry" mixture of water, soil and bentonite clay. This clay is mined specifically for its ability to swell when wet and seal openings in the excavation. Once stabilized, this effectively isolates the landfills hydraulically from the surrounding wetlands.

Once this vertical barrier is constructed, a leachate collection system is constructed to maintain the leachate within the landfill at an established level. The Commission has designed the system so that the interior leachate level remains below the level of the wetlands surrounding the landfills. In the event that there is any migration of liquids through the cutoff wall, the liquid would tend to travel into the landfill, and not out to the wetlands. This state-of-the-art "inflow landfill" design has been used successfully throughout the District.

The installation of an impermeable cap on top of the landfill restricts the infiltration of precipitation, which decreases leachate production. Impermeable caps have been installed on top of the Commission 1-A Landfill and the Commission portion of the BCUA Kingsland landfill. The Commission has utilized a particular geomembrane (plastic) liner design as a cap that combines a woven geotextile bonded to both sides of the liner. This prevents soil from sliding off the liner as well as preventing punctures. These liners are then covered with topsoil, seeded and vegetated.

Among the other landfills in the District are the following:

- The Malanka/Mall landfill located in Secaucus is a 67-acre, privately-owned site, divided into two parcels by the NJ Transit Boonton rail line. Operation of the landfill ceased in 1983, but the site was not formally closed in accordance with State standards. Rip-rap has been placed at the river edge to prevent garbage from floating into the adjacent water. The site may have redevelopment potential due to its proximity to Secaucus Junction.
- The 1-D landfill in Kearny was operated by a private company under a lease arrangement with the Town of Kearny until 1982. The 83-acre landfill is known to be heavily contaminated with oil from a former waste oil facility on the adjacent property. The site was never formally closed in accordance with State standards. Although there are no leachate collection or water quality monitoring structures at present, a landfill gas recovery plant is located onsite. The landfill is expected to be dedicated as open space due to a variety of problems and site characteristics that would limit development, including height and composition of the landfill, known slope stability problems, and magnitude of remediation cost.
- The 1-A landfill, also located in Kearny, was formally closed by the Meadowlands Commission in 1985. The 50-acre site has leachate and gas collection systems in place, as well as a synthetic cap on top of the site.

Parklands

Parklands are open spaces consisting of any combination of 1) active recreational facilities, such as athletic fields, playgrounds, and running tracks; and 2) passive recreational facilities such as picnic areas, walking paths, wildlife viewing locations and sitting areas. These open spaces are established and maintained to serve human recreational needs and provide habitat. Park and recreational areas provide personal, social, economic and environmental benefits.

The NJMC's 1972 Open Space Plan called for a total of seven public areas representing a mere twenty-four acres. Today, with new parks and park additions in Little Ferry, Lyndhurst, and Secaucus, there are over 255 acres of park facilities in the Meadowlands District (The total includes only that portion of DeKorte Park accessible by the public.). The NJMC has provided technical and/or financial assistance for park facilities in the District including Richard W. DeKorte Park and the John Gagliardi Ballfields in Lyndhurst, Losen Slote Park in Little Ferry and Snipes Park and Hudson County Park at Laurel Hill in Secaucus. An inventory of parks in the District appears as Figure 5.12. Parklands and other open space attributes existing in the District are presented as part of Map 14, the Green Map.

Environmental Preservation and Enhancement

FIGURE 5.12		
Parks and Recreation Areas in the Meadowlands District		
Location/Name	# of Acres	Amenities
MUNICIPAL OWNERSHIP:		
Little Ferry, Bergen Co. (2)	<u>Sub-total 9.85</u>	
Birch Street Park	1.01	Open area
Losen Slote Park	8.84	Football, base/softball, soccer, hockey
Lyndhurst, Bergen Co. (1)	<u>Sub-total 35.37</u>	
Gagliardi Ball Field	35.37	Base/softball, soccer fields, track, restrooms, lighting
Moonachie, Bergen Co. (1)	<u>Sub-total .28</u>	
Concord Street Park	.28	Playground/tot lot, picnic area
Ridgefield, Bergen Co. (1)	<u>Sub-total 3.0</u>	
Meadowlands Field	3.0	Base/softball field
Secaucus, Hudson Co. (12)	<u>Sub-total 67.82</u>	
Buchmuller Park	5.42	Little League, base/softball fields, basketball, tennis, ice rink, bocce courts, picnic area, handball, shuffle board, ADA compatible rest rooms and playground, kiddy shower
Duck Pond	2.59	Picnic area, ADA accessible decks
Eckle Park-9 th Street Playground (Pocket Park)	.07	Picnic area, basketball, ADA compatible playground
Ivanoski Park	.22	Picnic area, ADA compatible playground, kiddy shower
Kane Stadium	4.46	Baseball, football fields, ADA compatible restrooms, nighttime lighting
Meadowlands Parkway Athletic Fields	6.3	Softball fields, nighttime lighting
Mill Creek Park (Pocket Park)	.41	Buffer
Mill Ridge Field	9.95	Base/softball fields, nighttime lighting, soccer, chip & putt
Mill Creek Point	7.0	Planned: Marina, picnic area, canoe launch
Secaucus High School Athletic Field	25.92	Base/softball fields, tennis, basketball, running track, nature trail
Shetik Field	3.4	Soccer, basketball, street hockey
Smit Park	.11	ADA compatible playground, picnic area

**FIGURE 5.12
Parks and Recreation Areas in the Meadowlands District (Cont.)**

Location/Name	# of Acres	Amenities
Secaucus, Hudson Co. (Cont.)		
Snipes Park	8.86	Passive recreation, picnic area
Trolley Park (Pocket Park)	.11	Passive recreation, picnic area
COUNTY OWNERSHIP:		
Laurel Hill, Secaucus, Hudson Co.	104.45	Boat ramp, walking trails, gazebo, base/softball, soccer, football fields, nighttime lighting, Snake Hill (a 16-acre rock outcropping)
NJMC OWNERSHIP:		
DeKorte Park, Lyndhurst, Bergen Co.	128.5	Environmental Center, walking trails, gazebo

In addition to the Parks in the District, there are several state facilities offering an array of recreational and educational opportunities. The Meadowlands Sports Complex is operated by the New Jersey Sports and Exposition Authority (NJSEA). Although the Meadowlands Sports Complex is outside the administrative jurisdiction of the NJMC, it is located within the physical boundaries of the Meadowlands District. The Sports Complex is the largest recreational facility within the District, serving the New York/New Jersey metropolitan region. The complex includes a racetrack, with both thoroughbred horse and harness racing, and Giants Stadium, home to two professional NFL football teams, the Giants and the Jets and one professional soccer team, the Metro Stars. The Continental Airlines Arena is home to the professional NBA basketball team, the Nets and the professional NHL hockey team, the Devils. In addition, the Complex hosts major athletic, cultural, music and other entertainment events.

The NJMC’s administrative offices and environmental center are situated within the boundaries of Richard W. DeKorte Park. A major estuary along the Atlantic flyway, much of the site was originally an open, tidally influenced mud flat. Impacted by former landfill operations, the reclamation of the site and its evolution into a park involved habitat restoration and conservation. The Meadowlands Environment Center is centrally located along a water body within the Richard W. DeKorte Park and serves as a visitor center, education facility and information resource for ecological and scientific data.

Individual park elements within Richard W. DeKorte Park include:

Kingsland Overlook - Built in 1990, this park transformed six acres of the Bergen County Utilities Authority (BCUA) sanitary landfill into a series of native plant communities, illustrating the process of natural succession. Prior to the end use, landfill closure improvements included a leachate collection system, methane vents and an impervious synthetic cap, which was partially manufactured from recycled plastic soda bottles.

Environmental Preservation and Enhancement

Lyndhurst Nature Reserve - This project involved the reclamation of a 3.5-acre, illegally filled area into wetland and upland habitats, educational facilities and other site amenities. The project also involved the restoration of a brackish wetland ecosystem along the island's edge and the establishment of an upland northeast woody plant community.

Marsh Discovery Trail - A boardwalk trail connects a series of dredge spoil islands within the Kingsland Impoundment. The trail traces the route of Kingsland Creek and provides access to rare wildlife habitats as well as providing educational and recreational opportunities for bird watchers and nature lovers.

Transco Trail - This trail involved the transformation of a natural gas pipeline service road into a self-guided nature trail. The public/private partnership project links the various open space components found within Richard W. DeKorte Park.

The trails within Richard W. DeKorte Park not only provide access to the various park elements, but also play a role in connecting other open space components within the District. All of the aforementioned trails represent portions of Meadows Path, a planned 25.5 mile District-wide trail system, linking nine of the fourteen constituent municipalities.

A listing of parks and recreation areas outside the Meadowlands District but located within one of the 14 municipalities comprising the District is included as Figure 5.13.

Trails/Greenways

Greenways provide continuous bands of open space by linking areas of development to natural areas. They offer unique experiences, combining recreational opportunities, alternative transportation routes and a connection to nature.

Meadows Path - In 1983, a master plan for a coastal, urban pedestrian trail system in the Meadowlands called Meadows Path was developed. The current version of this plan proposes a 25.5-mile pedestrian trail paralleling the western bank of the Hackensack River from Losen Slote Creek Park in Little Ferry to West Hudson Park in Kearny. When fully implemented, the trail will take advantage of existing trails, sidewalks, and utility company service roads to connect population centers and provide access to wildlife preservation areas, scenic river overlooks, marshes, woodlands, wildflower meadows, an environmental center, regional parks, boating facilities, ball fields, bus stops, and restaurants. Meadows Path will serve as a dedicated pedestrian artery through nine of the fourteen Meadowlands District municipalities.

To date, 5.35 miles of Meadows Path have been completed. These segments include a 0.5-mile woodland trail through Losen Slote Creek Park in Little Ferry; 2.25 miles of wheelchair-accessible trails through restored plant and animal communities within Richard W. DeKorte Park; a 1.5-mile pedestrian walkway along the Valley Brook Avenue Greenway, linking DeKorte Park and the Meadowlands Corporate Center in Lyndhurst; and the recently completed Saw Mill Creek Trail, a 1.1-mile pedestrian trail traversing

FIGURE 5.13
Out-of-District Park and Recreation Areas in Meadowlands Municipalities

Municipality	Owner	Name	Acres	Amenities
Carlstadt	Municipality	Lindberg Field/Park	7.73	Base/softball, roller hockey, playground/tot lot
		Rasmus/Hagowski	2.76	Little League, soccer, handball
		Staltz	1.20	Playground
		Zimmerman	2.06	Open space
E. Rutherford	Municipality	Riggin Field	14.00	Multipurpose: football, base/softball, Little League, soccer, track, field house, restrooms
		McKenzie Memorial Field	4.00	Multipurpose: base/softball, soccer, basketball, tennis playground/tot lot, restrooms
Little Ferry	Municipality	10 parks less than 2 acres each		
		Indian Lake	14.90	Football, base/softball, Little League, soccer playground/tot lot, pond with dock, field house, meeting hall, restrooms
		Willow Lake	12.80	Base/softball, soccer, playground/tot lot, field house, pavilion, shuffleboard
		Memorial School	8.20	Baseball, softball
		Washington School	2.07	Basketball, playground/ tot lot
		1 park less than 2 acres		
Lyndhurst	Bergen County	Riverside County Park (also in N. Arlington)	109.00	Base/softball, soccer, basketball, tennis, ice skating, playground/tot lot, bocce, fitness trail, bike path, field house, meeting hall, restrooms, storage, pavilions
		Town Hall Park	5.62	Handball, playground/tot lot, gazebo
Moonachie	Municipality	Gallagher/Deloy	4.20	Little League, street hockey, field house, restrooms, concessions
		5 parks less than 2 acres each		
		Redneck Avenue Park	28.80	Base/softball, Little League, field house, storage
		W. Joseph Street Park	3.10	Basketball, tennis, street hockey, playground/tot lot, bike path, picnic area, senior center, gazebo
		1 park less than 2 acres		
N. Arlington	Municipality	Skyline Sports Complex	6.50	Soccer, track, field house, restrooms
		Allan	2.80	
		Roosevelt Field	2.00	Soccer, basketball, playground/tot lot
		8 parks less than 2 acres each		

Environmental Preservation and Enhancement

FIGURE 5.13 (Cont.) Out-of-District Park and Recreation Areas in Meadowlands Municipalities

Ridgefield	Municipality	Veteran's Memorial Field	17.00	Base/softball, Little League, basketball, tennis, swimming pool, pool house, field house, restrooms, storage
		Willis Park	4.00	Track, lighted football/soccer, locker rooms/bathrooms, basketball court, playground/tot lot
		Marine Park	2.00	Playground/tot lot
Rutherford	Municipality	One Memorial	39.92	Football, base/softball, Little League, soccer, basketball, tennis, street hockey, playground/tot lot, bocce, fitness trail, track, jogging path, picnic area, field house, restrooms, storage, gazebo
		Tamblyn Field	7.12	Football, base/softball, basketball, handball, tennis, playground/tot lot, picnic area, senior center, meeting hall, restrooms, storage
		8 parks less than 2 acres each		
S. Hackensack	Municipality	Veterans	3.78	Base/softball, soccer, basketball, playground/tot lot, jogging path, gazebo
Teterboro	Municipality	1 park less than 2 acres		
Jersey City	State	Liberty State Park	1122.00	Liberty Science Center, Central Railroad of NJ terminal, walkway, marina, nature trails, fitness course, restaurant, playground, ferry service to Statue of Liberty/Ellis Island
	Hudson County	Lincoln Park	273.00	Restaurant, playgrounds, wading pool, softball, soccer, golf, track, football, tennis, basketball, picnic areas, restrooms
		Washington Park	21.00	Pavilions, playground, wading pool, softball, soccer, basketball, tennis, passive, restrooms
	Municipality	Caven Point Recreational Facility	17.29	Base/softball, Little League, soccer, basketball, field house, restrooms, storage
		Hackensack River Greenway	34.00	Passive
		Pershing Field	13.50	Swimming pool/pool house, base/softball, tennis, ice rink, bocce, playground, track, passive
		Bayside Park	9.20	Playground, softball, tennis, basketball, seating areas
		Bright Street Gateway Recreational Facility	6.30	Little League, baseball, football, concessions, night lighting
		Fiske/Riverview Park	5.34	Basketball, playground, spray shower, passive rec.
		Leonard Gordon Park (Mosquito Park)	5.34	Basketball, tennis, playground, pavilion, passive rec.

Jersey City (Continued)	Municipality	Hamilton Park	5.29	Basketball, tennis, playground, pavilion, passive rec.	
		Columbia Park (Greenville Memorial Park)	4.68	Passive recreation, swings	
		Enos Jones Park/Ed Franco Field	4.58	Field house, playground, softball	
		Lafayette Park	4.20	Pavilion, softball, basketball, playground, passive rec.	
		Arlington Park (William Thornton Park)	3.40	Pavilion, playground, passive	
		Audubon Park (Major John Desmond Park)	2.77	Basketball, tennis, playground	
		Pavonia/Marion Playground and Pool (Martucci Little League)	2.67	Swimming, pool/pool house, softball, basketball, bocce, passive recreation	
		McGovern Park (County Village Park)	2.44	Base/softball,basketball,tennis,picnic area,playground	
		Mary Benson Park	2.30	Softball, basketball, handball, restrooms, passive rec.	
		39 parks less than 2 acres each			
	Kearny	Hudson County	West Hudson Park	46.00	Football, base/softball, Little League, soccer, tennis, playground/tot lot, jogging path, picnic area, spray pool, pond, senior center
		Municipality	Riverbank Park	23.87	Tennis, ice skating, playground/tot lot, picnic area, restrooms, pavilion
			Gunnell Oval	23.22	Base/softball, Little League, soccer, basketball, playground/tot lot, restrooms
		Veterans Memorial Field	13.25	Football, base/softball, Little League	
		Harvey Field	8.44	Base/softball, soccer, playground/tot lot, restrooms	
		Kearny High School	3.00	Football, track	
		Fairlawn Playground	2.23	Base/softball, basketball, playground/tot lot	
		Veterans Playground	2.00	Basketball, street hockey, bocce	
		7 parks less than 2 acres each			
North Bergen		Hudson County	N. Hudson Park	167.32	Base/softball, Little League, soccer, basketball, tennis, playground/tot lot, jogging path, picnic area, spray pool, pond.
		Municipality	64th Street & Kilkenny Field	9.80	Football, base/softball, Little League, basketball, playground/tot lot, track, bike path, jogging path, field house, restrooms
			28th Street	5.70	Basketball, playground/tot lot
			10th Street	5.70	Basketball, playground/tot lot
		46th Street Park	4.00	Football, base/softball, soccer, basketball, playground/ tot lot, track, bike path, jogging path, picnic area, spray pool, restrooms	
		4 parks less than 2 acres			
Secaucus	Municipality	2 parks less than 2 acres			

Environmental Preservation and Enhancement

the Saw Mill Creek Wildlife Management Area that sits atop a dike originally built as a PSE&G service road for its Hudson Athenia electrical transmission towers. This segment of the Meadows Path forms a critical link between Richard W. DeKorte Park and the future trails planned for the NJMC's 1E Landfill in Kearny.

Secaucus Greenway - The Secaucus Greenway is a planned, 15-mile waterfront greenway through Secaucus and Jersey City. Completion of this trail will allow public access along the river while providing a continuous pedestrian trail linking Secaucus retail, office, commercial and residential districts. This trail will connect the Hudson County Park and the boat launch at Laurel Hill, Secaucus Junction, Snipes Park, Secaucus High School, the Mill Ridge Ball Fields, Mill Creek Point, Mill Creek Marsh, and Harmon Meadow Plaza north along West Side Avenue to 71st Street Park. The portions of the Greenway that are completed include trails in the Hudson County Park at Laurel Hill and a 1.5-mile pedestrian trail through a restored wetland within Mill Creek Marsh.

Mill Creek Point, a 7-acre site located on the banks of the Hackensack River, has been acquired by the Town of Secaucus to be reclaimed for open space and passive recreational purposes. The NJMC, in partnership with the Town of Secaucus, is developing this site as a public waterfront park that will include a public canoe launch. Mill Creek Point will serve as the "gateway" to the Hackensack River, adjacent creeks and enhanced wetlands in the Meadowlands District.

Blue Water Trail - The Blue Water Trail is a water-borne canoe trail including both named and unnamed waterways within the District. The main point of departure within the District is located at Mill Creek in Secaucus. When completed in spring 2004, the trail will enable canoeists to travel to any District park, enhanced wetland, or preserve accessible by water. These sites include the restored wetlands of Mill Creek Marsh, the Eastern Brackish Marsh and Cromakill Creek; parks such as Hudson County Park at Laurel Hill, Richard W. DeKorte Park and Snipes Park; and preserves like Anderson Marsh, Lyndhurst Riverside Marsh and the Saw Mill Creek Wildlife Management Area. A Blue Water Trail Map will be published and distributed by the NJMC to aid canoeists as they explore the District's waterways. Coordinating numerical markers will also be set at points along the water trail to serve as location identifiers.

Marinas & Boat/Canoe Launch Facilities

As the Hackensack River remains a focal point of the District, the Commission seeks to utilize the river as a rediscovered asset, particularly for educational and recreational purposes. There are several private boating facilities in the District located in the towns of Carlstadt, Little Ferry and Secaucus. Each of these commercial facilities offers varying amounts of boat storage, slips, repair facilities and public launch areas. The Hackensack River Public Boat Launch at the Hudson County Park at Laurel Hill is the District's sole public boat launch. This facility provides seating areas, an information shelter, parking for tow vehicles and linkage to the County park's waterfront promenade. Marina facilities in the District are summarized in Figure 5.14.

**FIGURE 5.14
Marinas and Boat/Canoe Launch Facilities in the Meadowlands District**

Location	Name of Facility	Marina	Boat/ Canoe Launch	Public	Private	Activity
Little Ferry	Riverside Boat Works	X			X	Slips, seasonal and live on, boat storage/repair, public boat ramp
	Little Ferry Marina	X			X	Slips, storage, repair
Carlstadt	Barge Club	X			X	Slips, restaurant, boat ramp
	Snipes	X			X	Slips, club house, storage, boat ramp
	Majestic Boat Club	X			X	Slips, club house, storage, boat ramp
	Waterfront Café/ Meadowlands Golf Center	X			X	Slips, restaurant, boat ramp
Secaucus	Coast Guard Auxiliary	X			X	Slips, private club
	Red Roof Inn	X			X	Slips, public boat ramp
	Harmon Cove	X			X	Slips for residences only
	Hudson County Park at Laurel Hill		X	X		
	Mill Creek Point		X	X		Canoe ramp only
	Extended Stay America Hotel	X	X	X		Boat ramp, slips

Environmental Preservation and Enhancement

KEY CONDITIONS

Although the NJMC has many successes in preserving and enhancing the natural environment of the District, the Meadowlands remains an ecologically fragile area.

- The District includes approximately 8,400 acres of wetlands and waterways. The NJMC holds title to approximately 1,800 acres. The Commission also has management rights without ownership to approximately 1,600 acres. The District's waterways total over 1,870 acres and are controlled by the State of New Jersey.
- Given its location in a major urban area, the Meadowlands offers extensive, critical wildlife habitats within its wetlands, waterways, and terrestrial ecosystems.
- The Hackensack River is a centerpiece of the District. The river system offers unrealized potential for recreation, open space and other uses. Flooding associated with the river system continues to be a problem in many developed areas.
- Tropical storms pose potential hazards.
- Although significant improvement has been made to regional water and air qualities in recent years, both resources still fail to meet all government standards.
- The District and the greater region contribute to and are a recipient of the consequences of climate change.

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CHAPTER

CIRCULATION

BASIS AND STRUCTURE

An efficient, multi-modal transportation network is critical to the overall vision for the Meadowlands District. The system network must have the capacity to meet the challenges associated with the balancing of planned redevelopment and new development, the retention and growth of commercial enterprises and jobs, the preservation and enhancement of the Meadowlands, and the movement of through traffic. This chapter presents an overview and identification of the main issues facing the District's transportation systems, including local roadways, regional highways, railways, aviation facilities, waterways, bicycle and pedestrian facilities. Chapter 10 will acknowledge these challenges as it sets forth a series of strategies for maintaining and improving the transportation network that serves the Meadowlands District and the greater region.

EXISTING CIRCULATION SYSTEM

The Meadowlands District is located in the heart of the New York/New Jersey Metropolitan region, which includes New Jersey's most densely populated counties, Hudson, Bergen, Essex, and Passaic, and their major cities, Jersey City, Newark and Paterson. According to a survey by the New York Metropolitan Transportation Council (NYMTC), the volume of persons traveling on a daily basis in Bergen and Hudson counties totaled 4.3 million in 1998. Bergen County experienced 3,056,000 person trips on an average weekday; Hudson County had 1,272,000 person trips.

The roadways that traverse the District are among the most heavily traveled in the nation. The principal mode of transportation in the region is the automobile, accounting for 68 percent of all trips. Public transit, on the other hand, accounts for just 15 percent. The majority of automobile and transit trips on the District's roads and railways throughout the District have origins and destinations outside the District. The District serves as the gateway to New York City through a variety of major roadways, including the New Jersey Turnpike and Route 3. The NYMTC survey found that a total of 63 percent of the transit trips in the region are made to Manhattan. Bergen County accounted for 18 percent of the total work trips to Manhattan, while 29 percent of the total originated in Hudson County.

Use of mass transit in the northern New Jersey region is relatively low, considering the high degree of urbanization and the overall population density. In Bergen County, just 3.4 per-

Circulation

cent of the persons (trips) in 1998 used transit. A total of 18 percent of persons (trips) originating in Hudson County took transit.

A high proportion of person trips terminate in the county of origin. In Bergen County, 79 percent of the person trips generated within the county remained there. For Hudson County, 70 percent of the person trips remained within the county.

Vehicle Access

The District and surrounding region are mainly dependent on the roadway system for transporting people and goods. Public transit is more efficient than the automobile in terms of enabling more passengers per vehicle, greater fuel efficiency per passenger, and lower emissions per passenger. Access to public transit, however, remains limited in many parts of the region including the Meadowlands District. The automobile's advantages to the consumer are perceived independence, convenience and flexibility compared to other modes of transportation. Consequently, the automobile will likely continue to be the dominant mode of transportation. Commuting data underscore this attachment to the automobile, as a full 48.9 percent of all weekday trips in the region are by single occupant vehicles (SOV's). According to the NYMTC survey, data for northern New Jersey alone show that SOV's account for 59.7 percent of weekday travel modes.

The District's roadway network consists of four major road types: local, collector, arterials, and freeways/expressways, commonly called highways. Local roads provide direct access from residential, commercial and industrial areas and are generally short in distance, resulting in lower speed limits and minor traffic volumes. Collector roads provide access from local roads that connect to residential, commercial and industrial areas. Collector roads lead to arterial roadways that have a greater traffic volume capacity and provide for higher operating speed limits of 35 to 45 mph. Highways are generally limited access roadways that function as primary arterials consisting of several lanes per direction with no parking lanes. Highways are designed to operate at higher continuous operating speed limits of 45 mph to 65 mph. They are designed to provide for a high degree of mobility and to serve a regional area. Additional criteria are included in Figure 6.1. The roadway network within the District is presented as Map 9.

The following summarizes the physical characteristics of the major highways and roadways within and around the District.

Highways/Major Arterials

There are three main types of highways and major arterial roads:

Interstate Highways: Interstate highways that traverse the District include the New Jersey Turnpike/I-95, with major north to south access; Interstate 495, providing east to west access to the Lincoln and Holland tunnels from the Turnpike and Route 3; and Route I-280, providing east to west access from western counties to both spurs of the NJ Turnpike and to the Newark-Jersey City Turnpike and the Holland Tunnel.

FIGURE 6.1 Functional Classification of Roadways

Criterion	Expressway/ Freeways	Principal Arterial	Minor Arterial	Major/Minor Collector	Local Street
Functional Role	Entirely through traffic movement with limited or no direct access to property.	Mobility is primary, access is secondary. Connects Freeways and other Arterials.	Connects Freeways, Principal Arterials and lower-classification roadways. Access is secondary.	Collects traffic destined for the Arterial network. Connects Arterials to Local Streets. Also land access.	Access is primary. Little through movement.
Roadway Continuity	Inter-city, regional and interstate.	Connects Freeways to lower-classification roadways. Connect major activity centers.	Connect Freeways and Principal Arterials to lower-classification roadways.	Continuous between Arterials. May extend across Arterials.	Discontinuous. Connect to Collectors.
Roadway Length	Usually more than 5 miles long	Usually more than 5 miles long	Usually more than 3 miles long	Varies from about 1/2 mile to 2 miles	Generally less than 1 mile long
Traffic Volumes	40,000 Vehicles per Day or more	20,000 to 60,000 VPD	5,000 to 30,000 VPD	1,000 to 15,000 VPD	100 to 5,000 VPD
Desirable Spacing	5 miles or more	2 miles or more	Generally 1/2 mile to 2 miles	Generally 1/4 to 1/2 mile	Varies with block length (at least 125 feet between)
Posted Speed	55 to 65 MPH	35 to 55 MPH	30 to 45 MPH	35 MPH or less	20 to 30 MPH
Access	Controlled access. Grade-separated interchanges and frontage/service roads.	Intersect with Freeways, Arterials, Collectors and Local Streets. Restricted driveway access.	Intersect with Freeways, Arterials, Collectors and Local Streets. Limited driveway access.	Intersect with Arterials and Local Streets. Driveways permitted.	Intersect with Collectors and Arterials. Driveways permitted.
On-Street Parking	Prohibited	Restricted	Restricted	Normally permitted	Permitted
Community Relationship	Define neighborhood boundaries.	Define neighborhood boundaries.	Define and traverse neighborhood boundaries.	Internal and traverse neighborhood boundaries.	Internal.
Through Truck Routes	Yes	Yes	Permitted	No	No
Bikeways	No	Limited	Limited	Yes	Yes
Sidewalks	No	Limited	Yes	Yes	Yes

Circulation

State/US highways: The State highways that travel through or next to the District include Route 3, a major east to west highway; Route 120, which connects Route 3 to Paterson Plank Road; Route 17, a major south to north highway providing access from Route 3 to points north; Route 46, an old federal highway providing access from western counties to southern Bergen County; and Routes 1&9/Tonnelle Avenue along the eastern border of the District. These highways provide major regional vehicular access to the District from Essex County (to the west), Union County (to the south), and to other parts of Hudson and Bergen counties and New York City.

Arterial/Collectors- State and County Roadways: Arterial and collector roadways in the District include Paterson Plank Road, County Road 503/ Moonachie Road, County Avenue/New County Road, County Road, Meadowland Parkway, Secaucus Road, CR 36/Moonachie Avenue, CR 43/Redneck Avenue, CR 506 (Section of Belleville Turnpike/Route 7), and the Newark/Jersey City Turnpike. County Road 55, known as Hoboken Road, is located on the border of the District parallel to Paterson Plank Road in East Rutherford and Carlstadt.

Local Road - Local roadways in the District can be categorized into two main types:

Local Collectors: Local streets serve commercial, retail, manufacturing and industrial uses. These roads generally provide access to either county roadways or major highways that traverse the District. Local streets tend to have low to moderate traffic volumes during off-peak hours.

Private Roadways: There are several private roads maintained by a property owner or the corresponding municipality. These roads range from shared driveway roads that provide access to several businesses to roads with through traffic access between two or more points within the corresponding town that operate as collector roadways.

The capacity of the District's roadways can be evaluated by the Level-of-Service (LOS) system. LOS is developed by a set of calculations outlined in the Highway Capacity Manual (HCM), a set of roadway capacity analysis procedures prepared by the National Research Council's Transportation Research Board. A general description of level-of-service and associated travel delay numbers for signalized intersections, described in seconds of travel delay, is shown in Figure 6.2 on page 6-6. The LOS describes the capability of a given roadway based on roadway conditions such as traffic volume, time, and roadway design factors. The LOS is a letter system, starting with the letter "A" to represent an efficiently operating roadway with low levels of traffic delay. The lowest grade letter "F" represents a poorly operating roadway intersection with high levels of traffic delay.

Traffic volume data for the major roadways are included in Figure 6.3 on pages 6-7 and 6-8. The table consists of traffic volume data concerning total daily volume (AADT) or peak hour travel time periods. The existing traffic volume capacity and associated level-of-service (LOS) were provided by several sources, including the New Jersey Department of Transportation, North Jersey Transportation Planning Authority, and Bergen and Hudson counties. Another source of LOS data is the traffic impact studies prepared by transportation agencies and private traffic planning firms in connection with development applications submitted to the NJMC.

Based on the data, the weekday morning peak traffic periods start at 6:00 AM and end at 9:00 AM, with the heaviest traffic volume occurring between 8:00 AM and 9:00 AM. The afternoon peak period starts at 3:30 PM and ends at 7:00 PM, with the greatest afternoon traffic volume occurring between 5:00 PM and 6:00 PM. The Saturday peak period begins at 11:00 AM and ends around 1:30 PM.

Certain roadways within and/or leading to the District have experienced higher traffic volumes than other roadways, as well as a greater share of traffic related accidents. Based on accident trend data from the New Jersey Department of Transportation, the majority of these accidents occur during clear weather days, on dry surfaces, and during daylight hours. Consequently, weather or roadway surface conditions are not the primary causes. Instead, accidents can likely be attributed to driver inattention, faulty roadway design, and high traffic volume. The concentration of accidents at specific locations suggests the need for further investigation with respect to roadway and intersection design.

In addition to accidents, a number of mobility issues impede traffic and transit flow in the District. The principal cause in the reduction of mobility is the increase in traffic congestion that corresponds to increases in population, housing, and commercial/office development; the economic vitality of the District and the larger region; and a shift in population from northeastern New Jersey to central and west sections of New Jersey. These trends contribute to increasing traffic delays, longer commuting times, and congested highways.

More drivers, more cars, and more people produce additional travel demands on all major roadways and transit systems. The added travel demands are partially due to patterns of residential and commercial development that promote greater distances between origins and destinations. The spread of development over longer distances contribute to the dependence on the automobile. Also, there is a lack of transportation alternatives, particularly in public transit systems. Public transit does not receive the same amount of public or legislative support given to roadway systems, due to the additional capital costs and annual operating funds associated with bus and rail systems. The added auto traffic has contributed to the deterioration of the region's roadway infrastructure and existing capacity.

Mobility issues within the District concerning both automobiles and trucks stem from the inadequate capacity of major roadways, particularly Routes 3, 17, 120, and the New Jersey Turnpike; limited roadway crossings over the Hackensack River; and insufficient interstate highway access. Restrictive street patterns and limited access to major roadways hinder truck traffic.

The Department of Transportation has promoted various remedies to mobility issues, such as Transportation System Management (TSM). TSM is aimed at producing cost effective solutions using existing transportation facilities. TSM includes Transportation Demand Management (TDM) programs, such as High Occupancy Vehicle (HOV) lanes, ride-sharing, modified work schedules, minor roadway improvements, and the promotion of public transit use. To date, TDM programs have been ineffective in reducing traffic congestion, due to insufficient funding and the lack of public and private support toward these programs.

FIGURE 6.2
Levels-of-Service for Signalized Intersections

Level of Service	Vehicle Delay Range in Seconds (pre-1997 HCM)	Vehicle Delay Range in Seconds (1997 HCM)	Traffic Flow	Driver Reactions
A	5 or Less	10 or Less	Free Flow	Driver has no restriction
B	5.1 to 15	10.1 to 20	Stable Flow	Driver has minor restriction
C	15.1 to 25	20.1 to 35	Stable Flow	Driver restriction is minor acceptable delay (desirable design LOS)
D	25.1 to 40	35.1 to 55	Unstable Flow	Increased restriction and signs of congestion
E	40.1 to 60	55.1 to 80	At Capacity	Substantial restrictions and delays
F	60 or More	80 or More	Beyond Capacity	Traffic congestion and very long delays
*	Beyond Calculation	Beyond Calculation	Over-saturation of Traffic	Extreme traffic delays

Note: Level-of-Service descriptions are based on “control delay” as outlined in the 1997 Highway Capacity Manual revision. Traffic delays based on versions of Chapter 9 prepared in 1994 or earlier only include “stop delay” which result in lower delay times compared to the 1997 HCM delay time calculations.

Sources: *Highway Capacity Manual, Special Report 209; Transportation Research Board, National Research Council, Washington, D.C. Revised Dec. 1997; Chapter 9, pp. 9-6, 9-7, 9-8.*

FIGURE 6.3 Traffic Volume & Level of Service (LOS) by Roadway Classification

Intersection/Roadway Location		Roadway Classification	Data Year	Intersection Vehicle Volume by Peak Hour Period			AADT* Dir. A / B	Intersection LOS by Peak Hour Period		
Road name(s)	Road name(s)/Location			AM	PM	Saturday		AM	PM	Saturday
NJ Turnpike Int. 16W	Route 3/Sports Complex near Harrison	Freeway/Interstate	1994	4157	3479	n/a	n/a	n/a	n/a	n/a
Route 280	Kearny	Freeway/Interstate	1993	n/a	n/a	n/a	87750	n/a	n/a	n/a
NJ Turnpike (I 95) East Spur	Kearny	Freeway/Interstate	1995	n/a	n/a	n/a	104000	n/a	n/a	n/a
NJ Turnpike (I 95) West Spur	Kearny	Freeway/Interstate	1995	n/a	n/a	n/a	104000	n/a	n/a	n/a
NJ Turnpike (I 95) East Spur	Vince Lombardi Pk. & Ride	Freeway/Interstate	1991	n/a	n/a	n/a	53090	n/a	n/a	n/a
NJ Turnpike Int. 18W Spur	US Rt. 46 & I 80	Freeway/Interstate	1994	5211	5132	n/a	n/a	n/a	n/a	n/a
NJ Turnpike (I 95)	Ridgefield Park	Freeway/Interstate	1994	n/a	n/a	n/a	41450	n/a	n/a	n/a
NJ Turnpike Int. 17	Route 3/Lincoln Tunnel	Freeway/Interstate	1994	3428	3241	n/a	n/a	n/a	n/a	n/a
NJ Turnpike (I 95) East Spur	Cromakill Creek	Freeway/Interstate	1996	n/a	n/a	n/a	107700	n/a	n/a	n/a
Route 3	Btwn NJ Turnpike Spurs	Freeway	1990	9200	8900	n/a	n/a	n/a	n/a	n/a
Pulaski Skyway	-----	Freeway	1992	n/a	n/a	n/a	48000	n/a	n/a	n/a
Route I-495	-----	Freeway	1992	n/a	n/a	n/a	116,000	n/a	n/a	n/a
Route 3	Btwn Rt. 17 & NJ Turnpike	Freeway	1990	10400	9550	n/a	n/a	n/a	n/a	n/a
Route 17	Paterson Plank Rd.	Principal Arterial	1990	5300	4900	n/a	n/a	n/a	n/a	n/a
Route 3	East of Hackensack River	Freeway	1992	n/a	n/a	n/a	139000	n/a	n/a	n/a
Route 3	Near Paterson Plank Road	Freeway	1991	n/a	n/a	n/a	87560	n/a	n/a	n/a
Route 3	Btwn Tpk. East & Rts. 1&9	Freeway	1990	7400	6700	n/a	n/a	n/a	n/a	n/a
Route 120/20 Wash. Ave.	Carlstadt/E. Rutherford	Principal Arterial ¹	1996	n/a	n/a	n/a	34200	n/a	n/a	n/a
Rt. 17 NB on/off Ramps	Paterson Plank Rd.	Principal Arterial	1999	2515	n/a	n/a	n/a	n/a	n/a	n/a
Route 17	Carlstadt/Moonachie	Principal Arterial	1993	n/a	n/a	n/a	86580	n/a	n/a	n/a
Route 120/20/Wash. Ave.	Btwn Rt. 3 & Route 17	Principal Arterial	1990	3710	3770	n/a	n/a	n/a	n/a	n/a
Tonnelle Ave. (Rts. 1&9)	County Road	Principal Arterial	1998	3915	4521	3738	n/a	n/a	C	C
Tonnelle Ave. (Rts. 1&9)	Jersey City/N. Bergen	Principal Arterial	1993	n/a	n/a	n/a	53580	n/a	n/a	n/a
Belleville Tpk (Route 7)	Kearny near NJ Turnpike	Principal Arterial	1993	n/a	n/a	n/a	10070	n/a	n/a	n/a
Belleville Tpk (Route 7)	near Passaic River	Principal Arterial	1991	n/a	n/a	n/a	15680	n/a	n/a	n/a
Washington Ave.	Empire Blvd	Princ. Arterial	1999	1979	n/a	n/a	n/a	n/a	B	n/a
Tonnelle Ave. (Rts. 1&9)	Secaucus Rd.	Princ. Arterial	1998	3759	3869	n/a	n/a	n/a	C	n/a
Tonnelle Ave. (Rts. 1&9)	near 69th Street (N. Bergen)	Princ. Arterial	1991	n/a	n/a	n/a	36260	n/a	n/a	n/a
Tonnelle Ave. (Rts. 1&9)	near 83rd Street (N. Bergen)	Princ. Arterial	1996	n/a	n/a	n/a	32480	n/a	n/a	n/a
Route 46	-----	Princ. Arterial	1990	5670	5200	n/a	n/a	n/a	n/a	n/a
Meadowlands Pkwy	Seaview Drive	Minor Arterial/local	2000	n/a	n/a	n/a	n/a	n/a	n/a	A
Moonachie Rd.	Carol Pl. to Rooney Pl.	Minor Arterial ²	1998	n/a	n/a	n/a	9668 / 9918	n/a	n/a	n/a
Rt. 17 NB on/off Ramps	Moonachie Ave	Minor Arterial	1999	1416	n/a	n/a	n/a	n/a	C	n/a

FIGURE 6.3 (Cont.) Traffic Volume & Level of Service (LOS) by Roadway Classification

Intersection/Roadway Location		Roadway Classification	Data Year	Intersection Vehicle Volume by Peak Hour Period			AADT* Dir. A / B	Intersection LOS by Peak Hour Period		
Roadname(s)	Roadname(s)/Location			AM	PM	Saturday		AM	PM	Saturday
Rt. 17 SB on/off Ramps	Moonachie Ave	Minor Arterial	1999	1083	n/a	n/a	n/a	E	n/a	n/a
Meadowland Pkwy	Route 3 EB Ramp	Minor Arterial	1998	2434	3635	2821	n/a	B	C	B
County Avenue	Paterson Plank Rd.	Minor Arterial	1998	1596	1638	1274	n/a	B	B	B
County Avenue	Secaucus Rd.	Minor Arterial	1998	2679	2783	1520	n/a	C	F	B
Meadowland Pkwy	Secaucus Rd.	Minor Arterial	1998	1614	1354	594	n/a	A	A	A
County Ave./New County	County Road	Minor Arterial	1998	1286	1515	675	n/a	B	F	A
New County Ave	Castle Road	Minor Arterial	1998	515	456	147	n/a	A	A	A
New County Road	Castle Road	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	A	A
Route 3 WB Ramp	Meadowlands Parkway	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	B	B
Route 3 EB Ramp	Meadowlands Parkway	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	C	C
Paterson Plank Road	County Avenue	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	B	B
Meadowland Pkwy South	Secaucus Rd.	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	A	A
Meadowland Pkwy North	Secaucus Rd.	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	A	A
County Ave./County Rd	New County Road	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	F	C
County Ave	Secaucus Rd.	Minor Arterial	2000	n/a	n/a	n/a	n/a	n/a	D	C
Schuyler Ave.	Harrison Ave.	Collector	1995	n/a	n/a	n/a	n/a	C	D	n/a
Valley Brook Ave	Orient-Way	Collector	1995	n/a	n/a	n/a	n/a	C	D	n/a
Rutherford Ave.	Orient-Way	Collector	1995	n/a	n/a	n/a	n/a	D	D	n/a
Rutherford Ave.	Polito Ave.	Collector	1995	n/a	n/a	n/a	n/a	D	D	n/a
Schuyler Ave.	Belleville Turnpike (Rt. 7)	Collector	1995	n/a	n/a	n/a	n/a	D	D	n/a
Enterprise Ave. South	Secaucus Rd.	Collector	1998	n/a	1369	1042	n/a	n/a	F	D
Enterprise Ave. North	Secaucus Rd.	Collector	1998	n/a	1245	1085	n/a	n/a	F	D
Meadowland Pkwy	American Way	Collector	1998	n/a	2819	2185	n/a	n/a	F	C
Meadowland Pkwy	Seaview Drive	Collector	1998	866	1034	305	n/a	B	B	B

Notes

* AADT - Annual Average Daily Traffic - Data shown by direction of traffic, Dir A / B represents either Northbound / Southbound directions or Eastbound / Westbound directions.

1 - Principal Arterial - Serves primary roadway network connecting collector and freeways with limited access to land uses.

2 - Minor Arterial - Similar to Principal Arterial but minor arterials have lower speed limits and have more access to major land uses.

n/a - Not Available



FIGURE 6.4 (left) *An undated aerial view of the District's center. In the foreground, the Eastern Spur of the New Jersey Turnpike crosses Cromakill Creek. Cromakill and Mill creeks meet the Hackensack River at photo center. Giants Stadium and Continental Airlines Arena can be seen in the distance.*

FIGURE 6.5 (below) *The newly opened Secaucus Junction promotes the region's passenger rail service as a quality alternative to the automobile for a number of popular destinations. Source: Courtesy of New Jersey Transit.*



Circulation

Transit

The District's transit system includes passenger rail service, bus service, and park and ride facilities offering parking for commuters using either rail or bus service. New Jersey Transit (NJ Transit) is the major agency providing both passenger train and bus service in and around the District. NJ Transit has experienced a gain of approximately 35 million passenger trips within the last nine years, a 20 percent increase. Ridership growth can be attributed to an improved economy, growing employment demand, stable transit fares, improved service quality and the implementation of new services. In an attempt to meet growing transit demands, NJ Transit has added 6,800 parking spaces system-wide since 1994.

Passenger Rail Service

The passenger rail system, both within the District and statewide, began as several competing private enterprises. All rail companies with passenger lines through the District had destinations that connected the lines to various outlying areas of New Jersey and New York City. The rail system was integrated when NJ Transit took control of the passenger rail service from the Consolidated Rail Corporation on January 1, 1983. The system is now part of a larger rail system that shares tracks with freight service and Amtrak. The existing rail system including the passenger rail lines and stations is shown in Map 10. The active passenger rail lines in and around the District include the Northeast Corridor, Morris and Essex, Main, Bergen, Pascack Valley, and the Port Authority Trans-Hudson Corporation (PATH).

Amtrak provides nationwide passenger rail service and operates on the Northeast Corridor (NEC) Line. The Northeast Corridor is the busiest Amtrak line in the nation, providing metro-liner service from Boston to Washington D.C. It traverses the District between Newark and New York, but does not currently have a station stop in the District. The Frank R. Lautenberg Station at Secaucus Junction provides a potential stop in Secaucus. In NJ Transit's Fiscal Year 2001, the NEC had 26.6 million passengers, accounting for 41.6 percent of the total number of passengers that traveled on the entire NJ Transit passenger rail system. The events of September 11, 2001 and the weakened economy decreased ridership on the NEC in 2002. A major cause of this decline was the temporary suspension of PATH service to lower Manhattan. Service resumed in November 2003.

The right-of-way for the West Shore Line follows part of the eastern boundary of the Meadowlands District in Ridgefield. Commuter service along this line ended prior to its being abandoned in 1959. The line is currently used for freight train service only, although NJ Transit is considering the restoration of passenger rail service. The agency is conducting a Major Investment Study (MIS)/Environmental Impact Study (EIS), scheduled to be completed in the spring of 2003.

The primary transit issue for the District is the limited connections with major employment, retail, and distribution centers.

Bus Service

Bus service is the major mode of public transportation to employment opportunities within the

District. A total of twenty-three public bus routes provided by NJ Transit and six private bus routes have designated stops around or within the district. The DeCamp Bus Company is the primary private carrier. Statewide, NJ Transit operates 236 bus routes, accumulating 72.6 million annual vehicle revenue miles and serving 152 million passengers. The inter/intrastate bus routes with associated bus route numbers are shown in Map 11.

Park and Ride Facilities

The District has three regional park-and-ride facilities for bus passengers and two local park-and-ride facility for rail passengers. Another regional park-and-ride is located just outside the district off I-495 in the Town of Weehawken, enroute to the Lincoln Tunnel. In-District facilities include the following:

- A 1,022-space (includes 22 Disability Parking Spaces) parking lot at the **Lombardi Service Area** in Ridgefield for bus service, operated by the New Jersey Turnpike Authority. NJ Transit reports that in 2002, this park-and-ride lot operated at approximately 70 percent capacity.
- A 1,498-space parking lot in **North Bergen** for bus service, operated by the Port Authority. For 2002, NJ Transit reports that this parking facility operated at 100 percent of its capacity. The majority of the parking lot patrons have Manhattan destinations.
- A 1,000-space parking lot at the **Meadowlands Sports Complex** in East Rutherford for bus service, operated by NJ Transit. It operates at 37 percent of capacity during the daily AM peak period, with 88 percent of riders having destinations in Manhattan.
- A 103-space parking lot at **Harmon Cove** in Secaucus provides access to Bergen Line rail passengers. The lot consistently operates over capacity. A total of 89 percent of the facility's patrons have destinations in Manhattan.
- A 27-space parking lot on **Williams Avenue** in Teterboro, serving the Pascack Valley Line rail passengers. For 2002, NJT reported that this lot consistently operated at 60 percent or more of its capacity.

The buses accessing the Lombardi park-and-ride facility and the North Bergen Park-and-Ride have a combined total of 2,937 daily passengers. Map 11 shows the locations of the District's park-and-ride facilities. There are also park-and-ride lots associated with four train stations located near District boundaries, with a total parking capacity of 832 spaces. In addition to these parking spaces, NJ Transit is constructing a 150-space parking deck near the Rutherford Train Station, scheduled for completion by the end of 2003.

Goods Movement

The Meadowlands District is home to many warehouses, light industry and commercial businesses that serve the largest market for consumer goods in the country. Economic trends show that the greater metropolitan region is expected to experience continued growth in commercial, office, and retail development (Chapter 8, Economic Vitality). As economic growth continues, so will the demand for freight movement and associated capacities of shipping ports, roadways and railways.

Circulation

Intermodal transport pertains to the movement of goods via two or more modes of transportation. In general, the movement of goods in an intermodal system occur between ship, rail, and truck modes of transportation, with trucks serving as the primary means of moving goods over short distances. The Meadowlands District has a number of intermodal facilities. Primary facilities include:

- Croxton Yards, a 179-acre facility operated by Norfolk-Southern in Jersey City and Secaucus.
- North Bergen Yard in North Bergen, operated by CSX; ten acres of this facility are in the District.
- Bellmans' Yard, a 42-acre facility in Ridgefield also operated by CSX.
- Little Ferry Yard, a 53-acre rail yard also located in Ridgefield also operated by CSX.
- NYS&W Auto/Lumber Intermodal Facility, a 43-acre rail yard in North Bergen operated by the New York, Susquehanna and Western (NYS&W), a private freight company.
- The Kearny Yard rail facility, of which 154 acres are located in-District, also operated by CSX.
- Resources Intermodal, a 24 acre private rail/truck facility located in North Bergen on Secaucus Road along the Northern Branch.

These facilities have access to major highways and railways that in turn provide access to freight origin points at the Port Newark/Elizabeth Marine Terminal and Newark Liberty International Airport, located a few miles south of the District. The capacities of Port Newark/Elizabeth Marine Terminal and Newark Liberty International Airport are expected to grow, increasing the need for intermodal facilities. Transportation access and the coordination of modes used in the movement of goods throughout the intermodal system are limitations that need to be resolved prior to expanding the number of intermodal facilities.

The use of *freight railways*, presented on Map 10, has become more vital with the rising demand to move freight more efficiently, accompanied by increases in traffic congestion. The freight rail companies in the District, operating on segments of former Conrail lines, include Norfolk-Southern and CSX Corporation. Norfolk-Southern Corporation was formed in 1982 with the consolidation of the Norfolk and Western Railway and the Southern Railway. In 1998, the merged Norfolk-Southern obtained permission from the Surface Transportation Board to acquire and operate portions of Conrail's holdings, including routes that reach into the northeastern part of the nation. On June 1, 1999, Norfolk-Southern began operating 7,000 miles of former Conrail routes in the nation. Norfolk-Southern's main freight includes coal, paper, agriculture products, chemicals, automotive parts, automobiles, construction material, and intermodal trailers/containers.

The CSX Corporation was formed in 1980 by the acquisition and merger of the Chessie System Railway and the Seaboard Coast Line Railroad companies. CSX transports freight items such as automobiles, automobile parts, coal, metals/minerals, chemicals, paper/forest, and agricultural products. CSX operates 67 route miles in New Jersey and shares an additional 421 miles of the New Jersey Shared Assets Area (formerly Conrail).

The federal government created Consolidated Rail Corporation (Conrail) in 1976 with the acquisition and merger of Central Railroad of New Jersey, Erie Lackawanna, Lehigh and Hudson River, Lehigh Valley, Penn Central and Reading rail lines. Conrail's creation resulted from the six failing rail companies' potential affect on the overall economy. Their failure mainly stemmed from competition with truck freight transportation and outdated regulations that did not allow rail companies to respond to changing market demands. In 1980, the Staggers Act lessened the constraints imposed on rail companies. Later legislation further assisted rail market competitiveness by transferring passenger rail service to organizations such as Amtrak.

In 1981, Conrail achieved its first annual profit after years of rebuilding rail tracks, locomotives, freight cars and improving freight service. The federal government sold its ownership of Conrail in 1987 to the private sector, achieving the original objective to return the rail system back to financial stability. The for-profit Conrail was sold to CSX Corporation and Norfolk-Southern Corporation in 1997. The US Surface Transportation Board prepared a plan for CSX and Norfolk Southern to operate most of the Conrail lines and facilities. Under the Conrail Shared Assets Operation (CSAO) plan, Conrail maintains control of some lines in the metropolitan areas of New Jersey, Philadelphia and Detroit.

The New York Susquehanna and Western Railroad (NYS&W) also provides freight service along the Northern Branch in the District. NYS&W operates approximately 11 miles of track in the NJMC District and about 105 miles of track throughout New Jersey. The freight line passes through Bergen, Passaic, and Sussex counties into western New York State. The company is exploring options to increase loading and unloading capacity, including the expansion of operations onto a nearby property off Secaucus Road.

NYS&W also operates the Lumber/Intermodal Facility adjacent to the Resources Warehouse in North Bergen. Approximately half a million gross tons of freight pass through this facility each year.

Trucking terminals are centralized truck storage facilities or distribution facilities for warehousing/manufacturing businesses that use trucks as the main transportation mode. They provide a link between trucking services and freight facilities. Truck terminals are generally located in areas that maximize access to both major roadways and commercial centers within the larger regional area. According to the US Department of Commerce, trucks originating from New Jersey delivered over 190 million tons in 1997, approximately 85 percent of all freight transportation modes and slightly less than 24 billion ton-miles.

Positioned within the nation's largest metropolitan market area, the Meadowlands District offers a prime location for trucking services and associated land uses. The major truck routes in the District include Routes 1&9/ Tonelle Avenue, Route 3, Route 17, the New Jersey Turnpike, Paterson Plank Road/Route 120, County Avenue, Belleville Turnpike and County Road.

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Other

Alternatives to the automobile are gaining in importance, due to fuel costs, vehicle safety, and traffic delays. Presently, automobile use in northern New Jersey area stands at 82.5 percent of all transportation modes. Alternate modes include trains, light rail, buses, dedicated transit routes, ferry service, motorcycling, bicycling and walking. Trip reduction is achieved with some measure of success through alternate work hours, working-from-home, as well as shopping from home by telephone or computer.

The Meadowlands Transportation Brokerage Corporation, known as Meadowlink, is a non-profit organization established in 1983 through a joint venture of the New Jersey Turnpike Authority, New Jersey Sports & Exposition Authority, the NJMC, the Port Authority of NY & NJ and the Meadowlands Chamber of Commerce. The main objective of Meadowlink is to coordinate transportation access for public and private establishments and to reduce traffic congestion in the Meadowlands area through the implementation of vehicle trip reduction measures, such as carpooling, shuttle programs and direct-link services to major employers in the Meadowlands area. Meadowlink also assists corporations with the preparation of Transportation Demand Management (TDM) plans in an effort to analyze employees' transportation needs and works with the public on planning projects that identify new public transit services and pedestrian access. Accomplishments include forty-nine (49) van pools, with approximately 519 total daily passengers, and maintaining a 1,000-person ride-share database for Bergen, Hudson, and Passaic counties.

Meadowlink has a shuttle program that includes nine shuttle routes, three of which serve the District. The three routes include the Meadowlands (Rutherford) Shuttle, providing access from the Rutherford Train Station to the Meadowlands Office Complex; the Newark-Secaucus Shuttle, stopping on County Road in Secaucus; and the Paterson-Secaucus route with a stop on County Avenue. Meadowlink's other shuttle routes include Clifton to Hoboken, New York Night Shuttle from the Reserve Bank in Rutherford to New York City, Jersey City to East Rutherford, Six Flags shuttle, and the Preakness route with stops in Paterson and Wayne. The Jersey City Shuttle provides service to the Federal Reserve Bank Building on Route 17 in East Rutherford.

The *pedestrian and bicycle access-ways* in the District are limited in number and quality, due to the concentration of industrial and commercial land uses and the heavily traveled existing roadways. There are no survey studies available to show the relative shares of each transportation mode in the District. For the North Jersey area, the walking mode accounts for 8.5 percent and the bicycle mode, 0.3 percent of the total weekday travel modes. The District's mode of travel shares for pedestrians or cyclists would likely be less, again due to the commercial and industrial nature of the District.

The sidewalks throughout the District vary in condition and location. Newer office/commercial developments tend to have sidewalks that are in fair condition; older industrial and warehouse areas are inconsistent in sidewalk availability and condition. The NJMC, in association with Meadowlink, investigated the pedestrian facilities in various sections of these municipalities:

Carlstadt, North Bergen, Secaucus, and Lyndhurst. The August 2000 study found that the five study areas contain approximately 135,000 linear feet of sidewalks, but had a deficit of more than 440,000 linear feet. Trails and walkways in the District are discussed in more detail in Chapter 5, Environmental Preservation and Enhancement.

The District has one designated bike path in East Rutherford along East Union Avenue east of Route 17 and Murray Hill Parkway from East Union Avenue to Paterson Plank Road. Also, walkway paths in the District do not restrict bicycle access. Major highways prohibit bicycle access due to safety hazards and limited access.

Newark Liberty International Airport and Teterboro Airport are the main providers of *air transportation* for the District. Newark Liberty Airport is a 2,027-acre facility located approximately three miles south of the District boundary. It provides both national and international passenger and freight air transportation. The Port Authority of New York and New Jersey (PANY/NJ) operates the airport under a long-term lease with the City of Newark. Newark Liberty International Airport ranked 8th of all U.S. Airports in 2000 with 34,188,702 total passengers; freight airlines transported 1,070,379 tons of cargo and 123,013 tons of mail in 2000. Major freight lines include Federal Express (568,756 short tons or 52.3 percent of total freight in 1998), United Parcel Service (166,670 short tons or 15.3 percent of total freight in 1998), and Airborne Express. Major roadway access includes the New Jersey Turnpike and Routes 1&9.

Teterboro Airport is an 827-acre facility (of which 329 acres are undeveloped) that provides air transportation access for private aircraft owners and local freight companies. No major airline service operates from this facility. Business services include charter flights, aircraft leasing, cargo/shipping, and medically oriented flight activities. It is also designated a “Reliever” by the National Plan of Integrated Airport Systems. Located in the northwest section of the Meadowlands District, the facility is owned and operated by the Port Authority of New York and New Jersey (PA) with management assistance by American Port Services, Incorporated (Amports). Teterboro had tallied 182,888 airline operations (trips) in 2000. The facility receives operating funds through a combination of federal, state, and private sources. It is presently undergoing a \$92.4 million capital improvement program.

A major issue for the two airports is the limited land available for growth and expansion. Access delays caused by high traffic volume on major roadways during peak travel periods also contribute to growth limitations at these facilities.

As alternative access to Newark Liberty International Airport, the Port Authority and NJ Transit have developed a rail link originating at Newark’s Penn Station. The link was achieved by connecting the airport’s monorail line to a new train station in Elizabeth along the Northeast Corridor rail-line, thereby allowing rail passengers to transfer to the airport monorail in 2001.

Teterboro Airport can be accessed by rail indirectly by using the Pascack Valley Rail Line station on Williams Avenue in Teterboro. The infrequency of rail service on the Pascack Valley line does not, however, promote an adequate alternative to roadway access. Since Teterboro does not provide commercial flights, public access is, however, a relatively minor issue. Em-

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ployee access to the airport would benefit from additional mass transit opportunities and improved roadway connections.

A system of *waterways and ports* also serves the District. The Hackensack River traverses the center of the District and feeds into Newark Bay where it merges with the Passaic River at the tip of Kearny. The Hackensack is a navigable waterway, with the channel depth of 26 feet to 29 feet from its confluence at Newark Bay to Hackensack. The Pulaski Skyway (Route 1& 9), Route 3, and the New Jersey Turnpike spurs all cross the Hackensack River on fixed structure bridges. New Jersey Department of Transportation also operates six movable railroad bridges across the Hackensack River. Bridge structures over the river are required to have a minimum 55-foot clearance.

The use of the Hackensack River as a commercial waterway has lessened over time as changes in the local economy have redirected land use activity from industrial to office, warehousing and distribution. Also, the region has come to rely more on railways and roadways for movement of goods and persons.

Port Newark and the Elizabeth Port Authority Marine Terminal, located on the western shore of Newark Bay, operate as an integrated marine terminal. The complex provides a full range of maritime commerce activities, including major container handling terminals, automobile processing and storage facilities, liquid and solid bulk terminals, breakbulk facilities, warehousing and distribution buildings, trucking firms, and an on-dock rail terminal. Elizabeth is known as “America’s Containership Capital.” Data from the Port Authority show that the entire New York and New Jersey port system generated 3,050,746 Twenty cubic foot Equivalent container Units (TEUs) in 2000, a 7.8 percent increase from 1999. Intermodal activity associated with this marine terminal is expected to increase significantly over the next five to ten years.

KEY CONDITIONS

Although the region has an extensive transportation system, it needs greater interconnectivity and capacity to meet current and future demands.

- The roadways that traverse the Meadowlands District are among the most heavily traveled in the nation. More drivers with more cars produce greater travel demands on all major roadways and transit systems.
- Missing connections and operational deficiencies further contribute to traffic delay. The system includes various routes for travel between the suburban areas of New Jersey and New York State to New York City. It is not fully attentive to the presence of significant employment centers in the District or the major sports and exposition venue at the Sports Complex. Patterns of residential and commercial development promote greater distances between origins and destinations, resulting in “sprawl” and even more traffic delay.
- Use of mass transit, including passenger rail and bus service, is low in view of the high degree of urbanization and the overall population density. The lack of transit availability during non-peak commuter periods is a factor that limits its use.
- Facilities for pedestrian movement and bicycling are limited.
- Newark Liberty International and Teterboro airports have limited land available for growth and expansion. Vehicular access delays to these facilities during peak travel times are caused by high traffic volume on major roadways.
- As economic growth continues, so will the already high demand for freight movement and associated capacities of shipping ports, roadways and railways. Positioned within the nation’s largest metropolitan market area, the Meadowlands District offers a prime location for intermodal services and related land uses. The use of freight railways has become more vital with the rising demand to move freight more efficiently, but truck access needs to be improved.

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CHAPTER
7

COMMUNITY FACILITIES

BASIS AND STRUCTURE

Communities are often defined by their civic activities and the places where these activities are conducted. The fourteen municipalities of the Meadowlands District contain a number of community facilities at locations both within and outside District boundaries. A community facility is a building or structure owned and operated by a government or non-profit agency to provide a service to the public. Community facilities consist of educational or cultural facilities, historic sites, libraries, hospitals, firehouses, police stations, utilities, and other related facilities. Parklands and other recreational lands, sometimes addressed in inventories of community facilities and plans, are included in Chapter 5, Environmental Preservation and Enhancement.

Utilities that are studied include potable water, sanitary sewer, solid waste, and private utilities. The discussion of private utilities is not intended to be comprehensive, as these utilities involve readily adaptable technologies that can be upgraded or expanded by their respective providers. Flood control and storm water management, often included in utility studies, are addressed in Chapter 5, Environmental Preservation and Enhancement.

Many facilities, particularly those that primarily serve residential areas, are located outside the District. In some instances, these facilities may serve all or a portion of the District. Consequently, an inventory of community facilities that encompasses the full extent of the District's municipalities can be valuable when considering future needs within the District. This chapter describes the existing community facilities for the District's fourteen municipalities. These facilities encompass land uses categorized as "public and quasi public services" in Chapter 3, Land Use, as well as utilities included within "communication & utilities." The regional data should assist municipalities and other decision-makers in their own planning for community facilities. The data also acknowledge that a comprehensive plan should not only cover the entire geographic area of the District, but all the functions that make the District work.

The NJMC recognizes the importance of supporting the District's municipalities in their provision of quality facilities and infrastructure. At its December 2002 meeting, the Commission approved approximately \$1.75 million in assistance benefiting the fourteen municipalities. Funds were conferred for projects such as equipment purchases, flood control structures, and transportation for school districts and senior citizen organizations to the Meadowlands Environment Center.

Community Facilities

EXISTING COMMUNITY FACILITIES

The availability of efficient, quality services is essential to providing a high quality environment for residents, businesses, and visitors. The locations and capacities of certain community facilities are often determinants as to where various land uses can be located. How certain facilities, particularly utilities, are supplied within the District can also have impacts on the natural environment.

The NJMC completed an initial inventory of community facilities in 1999 through telephone surveys with officials of the District's fourteen municipalities. The information was updated through written surveys distributed to Municipal Clerks in 2001. The inventory yielded information about the types and locations of facilities, their functions and services, and staffing. The information is summarized in the tables and text appearing on the following pages. Facilities located within the District are included as Map 11. Service areas for sewer and water appear as Map 12.

The reader is cautioned against using this information to make comparisons among municipalities with regard to adequacy of basic services or the level of amenities. The inventory is not intended to identify all facilities. It concentrates on those located within the District or near the District's boundaries. Also, the municipalities vary widely with regard to numbers of residents, daytime populations, and other factors of particular relevance to the level of basic services.



FIGURES 7.1 and 7.2 *Community facilities give place recognition to the District and its municipalities, fostering a sense of place unique to the District.*

FIGURE 7.1 (above) *The Aviation Hall of Fame & Museum of New Jersey, located in Teterboro, was founded in 1972. The museum is dedicated to the preservation of the State's aviation and space heritage.*

FIGURE 7.2 (left) *Borough of Little Ferry Fire Department.*

FIGURE 7.3 Police Facilities in the District’s Municipalities

<u>MUNICIPALITY</u>	<u>HEADQUARTERS/ PRECINCT LOCATION</u>	<u>UNIFORMED OFFICERS</u>	<u>MUTUAL AID AGREEMENTS</u>
Bergen County:			
Carlstadt	Municipal Building 500 Madison Street	30	Yes. With contiguous in-County municipalities.
East Rutherford	312 Grove Street	33	
Little Ferry	215-217 Liberty Street	27	Yes. With Teterboro.
Lyndhurst	367 Valley Brook Avenue	49	Yes.
Moonachie	70 Moonachie Road	16	Yes. With Teterboro.
North Arlington	214 Ridge Road	33	
Ridgefield	Municipal Building 604 Broad Avenue	25	
Rutherford	Borough Hall 184 Park Avenue	46	
South Hackensack	227 Phillips Avenue	18	
Teterboro	N/A	N/A	Services provided by Little Ferry and Moonachie.
Hudson County:			
Jersey City	Headquarters at 8-14 Erie St. 11 additional facilities	870	
Kearny	237 Laurel Avenue 2 additional facilities	110	
North Bergen	4233 Kennedy Blvd. 6100 Tonnelle Avenue	116	
Secaucus	1203 Paterson Plank Road	55	Yes. All Hudson County municipalities.

Community Facilities

FIGURE 7.4 Fire Fighting Facilities in the District's Municipalities

<u>MUNICIPALITY</u>	<u>HEADQUARTERS/ STATION LOCATION</u>	<u>PAID(P)/ VOLUNTEER(V)</u>	<u>FIRE- FIGHTERS</u>	<u>MUTUAL AID AGREEMENTS</u>
Bergen County:				
Carlstadt	500 Jefferson Avenue 480 Washington Ave.	V	83	Yes. All South Ber- gen municipalities.
East Rutherford	312 Grove Street; 107 Carlton, Herman Street	V	80	Yes. All South Ber- gen municipalities.
Little Ferry	50 Maple St; 124 Main St.	V	46	Yes. Moonachie, Carlstadt, Hasbrouck Heights, Wood-ridge, Wallington.
Lyndhurst	299 Delafield Avenue	V	76	Yes.
Moonachie	111 Moonachie Road	V	25	Yes. All South Ber- gen municipalities.
North Arlington	3 Legion Pl.; River Road; 575 Schuyler Avenue	V	75	Yes. All South Ber- gen municipalities.
Ridgefield	Ray Ave. & Broad Ave.; Bergen Blvd. & Oakdent Ave.; 530 Shaler Boulevard	V	60	
Rutherford	350 Union Ave.; 44 Ames Ave.; 400 Mortimer Ave.	V	73	Yes.
S. Hackensack	51 Worth St.; Calicooneck Rd.	V	35	Yes. Mid-Bergen .
Teterboro	N/A	N/A	N/A	Services by Hasbrouck Heights.
Hudson County:				
Jersey City	465 Maria Blvd. (HQ); 16 additional stations	P	428	
Kearny	109 Midland Ave. (HQ); 3 additional stations	P	106	
North Bergen	Five stations	P	350	Yes. North Hudson Re- gional Fire Department.
Secaucus	1203 Paterson Plank Rd. (HQ); 4 additional stations	V	85	South Bergen County.

FIGURE 7.5 Emergency Rescue Squads in the District’s Municipalities

<u>MUNICIPALITY</u>	<u>LOCATION</u>	<u>PAID(P)/ VOLUNTEER(V)</u>	<u>MUTUAL AID AGREEMENTS</u>
Bergen County:			
Carlstadt	424 Washington Ave.	V	
East Rutherford	312 Grove St.	V	
Little Ferry	Main Avenue & Pickens St.	V	
Lyndhurst	297 Delifield Avenue	V	
Moonachie	121 Moonachie Road	V	
North Arlington	575 Schulyer Avenue	V	
Ridgefield	403 Shaler Boulevard	V	
Rutherford	44 Ames Avenue	V	
S. Hackensack	227 Phillips Avenue	V	
Teterboro		P/V	Services by Hasbrouck Heights.
Hudson County:			
Jersey City	Jersey City Medical Center 50 Baldwin Avenue	P	
Kearny	352 Maple Street	P	
North Bergen	61st St. & Tonnelle Ave.	P/V	
Secaucus		P	Operates from Jersey City Medical Center & satellite Secaucus Police Dept.

Community Facilities

FIGURE 7.6 Medical Facilities in the District's Municipalities

<u>MUNICIPALITY</u>	<u>FACILITY/LOCATION</u>	<u>NUMBER OF BEDS</u>
Jersey City	Jersey City Medical Center 50 Baldwin Avenue	350
	Christ Hospital 176 Palisade Avenue	402
	St. Francis Hospital 25 McWilliams Place	243
	Greenville Hospital 1825 Kennedy Boulevard	86
	Franciscan Home and Rehab 198 Stevens Avenue	183
Kearny	West Hudson Hospital Bergen Avenue	250
North Bergen	Palisades General Hospital 7600 River Road	202
Secaucus	Meadowlands Hospital Medical Center/ Riverside General Hospital Meadowlands Parkway	200
	Meadowview County Hospital County Road	400

FIGURE 7.7 Schools in the District's Municipalities, Grades Pre K-12

<u>MUNICIPALITY</u>	<u>NAME</u>	<u>LOCATION</u>	<u>GRADES</u>	<u>— ENROLLMENT —</u>	
				<u>9/30/99</u>	<u>IN-DISTRICT</u>
Bergen County:					
Carlstadt	Lindbergh School	550 Washington St.	K-5		
	Lincoln School	503 6th Street	PK-5		
	Washington School	325 3rd Street	K-8		
			TOTAL	686	3
East Rutherford	Faust Intermediate	Uhland & Grove	5-8		
	Franklin School	Humbolt St.	K-4		
	McKenzie School	Carlton Avenue (under construction)			
	Henry P. Becton Reg. High	Paterson & Cornelia	9-12		
		TOTAL	982	0	
Little Ferry	Memorial Elem./Middle	130 Liberty Street	PK handicapped, 2-8		
	Washington School	123 Liberty Street	K-1		
			TOTAL	1,188	176
Lyndhurst	Columbus School	640 Lake Avenue	K-5		
	Franklin School	360 Stuyvesant Ave.	K-8		
	Jefferson School	336 Lake Avenue	K-8		
	Lincoln School	281 Ridge Road	PK-8		
	Roosevelt School	530 Stuyvesant Ave,	PK-8		
	Washington School	709 Ridge Street	K-8		
	Lyndhurst High School	Weart Avenue	9-12		
		TOTAL	2,072	0	

FIGURE 7.7 Schools in the District's Municipalities, Grades Pre K-12 (Continued)

<u>MUNICIPALITY</u>	<u>NAME</u>	<u>LOCATION</u>	<u>GRADES</u>	<u>— ENROLLMENT —</u>	
				<u>9/30/99</u>	<u>IN-DISTRICT</u>
Moonachie	Robert L. Craig	20 West Park Street	PK-8 TOTAL	330	57
North Arlington	Thomas Jefferson School	100 Prospect Avenue	PK-5		
	Franklin D. Roosevelt	50 Webster	PK-5		
	George Washington	175 Albert Street	PK-5		
	North Arlington Middle	45 Beech	6-8		
	North Arlington High	222 Ridge Road	9-12 TOTAL	1,525	0
Ridgefield	Bergen Boulevard School	635 Bergen Boulevard	PK-1		
	Slocum/Skewes School	650 Slocum	2-7		
	Shaler Academy	455 Shaler Boulevard	PK&autistic		
	Ridgefield Memorial High	Walnut Street	8-12 TOTAL	1,434	0
Rutherford	Lincoln School	414 Montross Avenue	K-5		
	Pierrepoint School	70 E. Pierrepoint Ave.	K-8		
	Sylvan School	109 Sylvan Street	K-5		
	Union School	359 Union Avenue	K-8		
	Washington School	89 Wood Street	K-5		
	Rutherford High School	54 Elliot Place	9-12 TOTAL	2,313	0
South Hackensack	Memorial School	One Dyer Avenue	PK-8 TOTAL	284	0
Teterboro	(none)				

FIGURE 7.7 Schools in the District's Municipalities, Grades Pre K-12 (Continued)

<u>MUNICIPALITY</u>	<u>NAME</u>	<u>LOCATION</u>	<u>GRADES</u>	<u>— ENROLLMENT —</u>	
				<u>9/30/99</u>	<u>IN-DISTRICT</u>
Hudson County:					
Jersey City	41 public schools	various	PK-12, adult education TOTAL	32,720	16
Kearny	Franklin School	100 Davis Avenue	K-8		
	Garfield School	360 Belgrove Drive	K-6		
	Lincoln School	121 Beech Street	K-8		
	Roosevelt School	733 Kearny Avenue	K-6		
	Schuyler School	644 Forest	K-6		
	Washington School	80 Belgrove Drive	K-8		
	Kearny High School	336 Devon Street	9-12 TOTAL	5,179	0
North Bergen	Franklin Elementary	5211 Columbia Ave.	K-8		
	Robert Fulton Elementary	7407 Hudson Avenue	K-8		
	John F. Kennedy	1210 11th Street	K-8		
	Lincoln School	1206 63rd Street	K-8		
	Horace Mann School	1215 83rd Street	K-8		
	McKinley School	3110 Liberty Avenue	K-8		
	North Bergen High School	7417 Kennedy Blvd.	9-12 TOTAL	6,881	0
Secaucus	Clarendon Elementary	685 5th Street	K-6		
	Huber Street School	1530 Paterson Plank	K-6		
	Secaucus Middle & High	Mill Ridge Road	7-12 TOTAL	1,667	717

FIGURE 7.8 Other Public Facilities in the District's Municipalities

<u>MUNICIPALITY</u>	<u>NAME/LOCATION</u>	<u>COMMENTS</u>
Carlstadt	William E. Dermody Free Public Library/420 Hackensack St. Community Center/424 Hackensack Street	35,000 volumes; 3,000 s.f. new space
East Rutherford	East Rutherford Memorial Library/143 Boiling Springs Ave. Community center in American Legion Building Meadowlands Sports Complex	30,000 volumes; Bookmobile. Regional entertainment facility operated by New Jersey Sports & Exhibition Authority
Little Ferry	Little Ferry Public Library/239 Liberty Street Senior Center/Main Avenue and Pickens	30,000 volumes.
Lyndhurst	Lyndhurst Public Library/355 Valley Brook Avenue Little Red Schoolhouse/Riverside Avenue Senior Center/Cleveland Avenue New Jersey Meadowlands Commission's Environment Center/ 1 DeKorte Park	55,000 volumes. Museum Variety of educational programs; 30,000 visitors annually.
Moonachie	Senior Center & Community Center/125 Moonachie Road Museum at Teterboro Airport/Route 46	
North Arlington	North Arlington Public Library/210 Ridge Road Senior Center/10 Beaver Avenue Youth Center/Legion Place	80,000 volumes Located in rear of Health Department.

FIGURE 7.8 Other Public Facilities in the District’s Municipalities (Continued)

<u>MUNICIPALITY</u>	<u>NAME/LOCATION</u>	<u>COMMENTS</u>
Ridgefield	Ridgefield Free Public Library/527 Morse Avenue Community/Senior Center/725 Slocum/Avenue	60,000 volumes.
Rutherford	Rutherford Public Library/150 Park Avenue William Carlos Williams Center for the Arts/Williams Plaza Meadowlands Museum/91 Crane Avenue Felician College/Montross & W. Passaic avenues Senior Manor/67 Kipp Avenue	120,000 volumes 3 movie theaters showing art films, 2 live theaters, children’s theater History/culture of the Meadowlands re gion.
South Hackensack	South Hackensack Senior Center/227 Phillips Avenue	
Teterboro	Teterboro Airport (portions of)/Route 46 Teterboro Aviation Hall of Fame/Fred Wehran Drive Bergen County Animal Shelter/100 United Lane Bergen County Technical School/Route 46 Bergen County Vocational & Special Needs School/Route 46	
<u>Hudson County:</u> Jersey City	Main library/472 Jersey Avenue plus 12 branches Community centers/various locations 4 museums at 5 locations	349,900 volumes, literacy program, internet, bookmobile Includes Jersey City Museum & Liberty Science Center

FIGURE 7.8 Other Public Facilities in the District's Municipalities (Continued)

<u>MUNICIPALITY</u>	<u>NAME/LOCATION</u>	<u>COMMENTS</u>
Kearny	Free Public Library/318 Kearny Ave. & 759 Kearny Ave. Kearny Museum/318 Kearny Avenue Senior center/60 Columbia Avenue	75,000 volumes. History of Kearny.
North Bergen	Public Library/8411 Bergen Line Avenue Community Center & Nutrition Center/1445 45th Street Nutrition center #1/1110 14th Street	156,000 volumes.
Secaucus	Secaucus Public Library and Business Resource Center/ 1379 Paterson Plank Road	63,000 volumes.

FIGURE 7.9 Water Providers to the Meadowlands District		
Provider	District Municipalities Served	Comments
United Water Company	Carlstadt, East Rutherford, Little Ferry, Moonachie, North Bergen, Ridgefield, Rutherford, Secaucus, South Hackensack, and Teterboro	Operates the Oradell Reservoir and the Haworth Treatment Plant.
Jersey City Water Department	Jersey City and Lyndhurst	United Company is under contract to operate. Water flows from the Boonton Reservoir to Jersey City & Lyndhurst via a 23-mile aqueduct system.
North Jersey District Water Supply Commission	Kearny	
Passaic Valley Water Commission	North Arlington	

FIGURE 7.10 Wastewater Treatment Facilities Serving the Meadowlands District				
Facility	District Municipalities Served	Level of Treatment	Receiving Stream	Capacity in mgd*
Bergen County Utilities Authority	Ridgefield, Little Ferry, Moonachie, South Hackensack, Teterboro, Carlstadt, E. Rutherford and Rutherford	Secondary	Hackensack River	109
North Bergen Municipal Utilities	North Bergen	Secondary	Cromakill Creek	18
Passaic Valley Sewerage Commission	Kearny, Lyndhurst, N. Arlington, E. Rutherford, Rutherford, & Jersey City	Secondary	Newark Bay	330
Secaucus Municipal Utilities Authority	Secaucus	Secondary	Mill Creek	5.1

* *Millions of gallons per day* *Note: There are no sewer bans at present in the District.*

Community Facilities

Solid Waste

The long, unregulated use of the Meadowlands as a disposal site for solid and industrial waste has been well documented. The conventional wisdom of the past was to use wetlands as open dumps for the disposal of the region's waste. The impact from this uncontrolled dumping was a driving force in the creation of the Hackensack Meadowlands Development Commission (now the New Jersey Meadowlands Commission) in 1968. The remediation of landfill sites continues to be a challenge presenting great opportunities for the District. Remediation is discussed in Chapter 5, Environmental Preservation and Enhancement.

Along with the State's twenty-one counties, the NJMC is one of twenty-two solid waste districts in New Jersey. The Commission currently serves as a regional depository for certain types of nonresidential wastes. The District's fourteen municipalities generally contract with a private solid waste collection company or use their own public works department to collect residential solid waste.

Private Utilities

Natural gas is supplied to the District via the three-step process of production, interstate delivery, and transportation. Through deregulation, both residential and commercial consumers are able to choose their own gas producer. Public Service Electric and Gas (PSE&G) is responsible for delivery and transportation to homes, businesses, and other users.

PSE&G's transmission pipelines run in a southerly direction along the western spur of the New Jersey Turnpike to a liquid gas storage facility on the Hackensack River in Carlstadt. The pipelines are part of a network that spans the Atlantic seaboard, connecting to points west and outside the District. The network is owned by Williams and operated as the Transcontinental Gas Pipeline Corporation (Transco). PSE&G operates the pipeline and controls the distribution of gas throughout the District.

Electrical power is supplied to the District's municipalities through a three-step process involving generation, transmission, and distribution. Deregulation has allowed consumers to choose their electric generation supplier, however, transmission and local distribution are the responsibility of PSE&G. The majority of consumers also use PSE&G to supply electric generation.

KEY CONDITIONS

Meadowlands communities are supported by a wide array of community facilities. Because resident populations mostly reside outside the District, the majority of these facilities are also located out-of-District. The location, types (including residential), and intensity of development in the District, however, impact community facility needs.

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All photos are the property of the New Jersey Meadowlands Commission.

CHAPTER
8

ECONOMIC VITALITY

BASIS AND STRUCTURE

The overall vitality of the Meadowlands District is dependent upon its economic strength. Yet the District's future is also integrally connected to the conditions of its environment and society. These three components of sustainability are addressed by the Master Plan through a series of policy statements regarding the physical use of lands within the District and indicating how those desires are to be achieved. This chapter emphasizes economic considerations, such as employment and business development.

Besides its redevelopment process, described in Chapter 3, one of the NJMC's main tools for promoting economic vitality in the District is intermunicipal tax-sharing. When the original Master Plan was created, it became apparent that a tax sharing plan among the District's municipalities was essential. With the District comprised of parts of fourteen municipalities and two counties, there was considerable fragmentation of property tax jurisdictions. A fiscal mechanism was necessary to share the benefits of development as certain areas were zoned for industrial, commercial, and residential uses, while others were zoned for parks, highways, open space and other non-taxable public uses. More simply, those sites designated for industrial, shopping center and high density residential uses would offer the potential for relatively high property tax revenues for the municipalities in which they are located. Those sites selected for parks, highways and schools, on the other hand, would not. With zoning taking place on a regional basis, the concern of possible financial inequities arose. Also, it was expected that funding would be needed to encourage individual municipalities to undertake capital improvements of benefit to the District as a whole.

The principals of the Intermunicipal Tax-Sharing Program were conceived by the municipalities themselves, sitting as the Meadowlands Regional Development Agency. The tax sharing plan was designed to balance these inequities so that the District could be developed with each community receiving a proportionate share of property taxes from post-1970 development, regardless of where it occurs.

The legal basis for the Intermunicipal Tax-Sharing Program is contained in Chapter 9 of the Hackensack Meadowlands Reclamation and Development Act as amended by Chapter 103, Public Law, 1972. The program is designed to enable the District's municipalities to "equitably share in the new financial benefits and new costs resulting from the development of the Meadowlands District as a whole." The intent is to moderate competition for tax ratables by ensuring that each municipality receives a fair share of the property tax generated by new development,

Economic Vitality

regardless of where it occurs. A New Jersey Supreme Court decision, rendered in May 1972, upheld the constitutionality of the tax sharing section of the Act and the formula now in effect.

The mechanism for tax sharing is a common pool, the Intermunicipal Account, operating since 1973. Consistent with typical pool arrangements, standards are prescribed under which the municipalities will contribute to or draw from the pool. Taxes collected from ratables existing in the Meadowlands portion of a community before 1970 are not subject to the tax sharing procedure. Each municipality retains its full tax collection powers. Properties in the Meadowlands portion of the town are taxed in exactly the same manner as all other properties. Although the formula is somewhat complex, these basic steps are followed:

- Each municipality pays its county taxes. The remaining taxation, minus the amount collected on ratables existing in 1970, is subject to the tax sharing plan.
- The communities directly retain 60 percent of the revenues left after payment of county taxes and the deduction of pre-1970 ratables.
- Each municipality then receives a payment for school pupils living within the District equal to the cost of educating these children.
- Each municipality receives an additional payment reflecting the percentage of property it has within the Meadowlands District.
- Those communities whose total credits are larger than the amount subject to tax sharing receive payments from the tax sharing fund. Communities whose total credits are less than the amount subject to tax sharing pay into the tax sharing fund. Beginning with the year 2001, each municipality's payment is adjusted to reflect the average of its last three years' "pre-adjustment" payments.

Subject to the availability of funds appropriated through the State budget, the NJMC has a tax-sharing stabilization fund that moderates the fluctuations in tax-sharing from year to year. Any adverse tax-sharing fluctuations of more than five percent from the prior year resulting from an increase in payment or a decrease in the tax-sharing receipts receive funding from the stabilization account.

Through intermunicipal tax-sharing, each municipality is guaranteed against the loss of existing ratables due to centralized coordination of land use. All increased revenues resulting from increased property values accrue to and are distributed back to the municipalities. The legislation expressly prohibits the diversion of any funds in the Intermunicipal Account to the NJMC. The Commission merely serves as a clearing house for the tax sharing transactions, performing these calculations:

- The amount each municipality must contribute to the Intermunicipal Account.
- The total payable to the account.
- The amount each municipality receives for school service payments and guarantee payments.
- The total payable by the Account to the municipalities.
- The surplus in the Account.

- The balance for each municipality, termed the Meadowlands Adjustment Payment. The Commission certifies to the Chief Financial Officer of each District municipality the amount of the municipality's Adjustment Payment and whether the amount is payable to the Intermunicipal Account or to the municipality. The certification is made in January so that each municipality may reflect the amount in its budget.

To gather the information and calculate the Adjustment Payment, the NJMC bases the payment in each year on the calculations for the third preceding year. For example, adjustment year 2002 was based upon data for the year 1999. Each municipality sets tax rates and collects taxes as usual from the property owners within its jurisdiction, both inside and outside the District. The tax-sharing process is designed to prevent disruption in the manner by which these functions would otherwise be administered by the municipalities.

The balance of the chapter is devoted to an analysis of various economic factors, such as population, the labor force, economic sectors or establishments, and the home-buying market. The analysis is made acknowledging the District economy's interdependence with the regional and national economies. Consequently, a regional perspective generally provides the proper context for analyzing many of the District's economic issues, with economic information drawn from the State or national level as needed. Data specific to the District's fourteen municipalities or the District itself are used where available. The analysis guides the shaping of the planning strategies in Chapter 10, designed to spur economic development while enhancing the District's role in promoting a more sustainable society.

ECONOMIC TRENDS AND OUTLOOK

At the beginning of 2001, the nation ended a record ten-year expansion and commenced the tenth recession since World War II. The recession was officially declared over as of November 2001, although employment continues to decline nationally. The New Jersey Council of Economic Advisors has reviewed the state of the economy at mid-2003. These are among the Council's observations for the State:

- Strong employment in residential construction, leisure and hospitality, and government offset a steady decline in manufacturing that followed national trends during the first half of 2003.
- Among the sectors of strength forecast for the next 18 months are defense-related industries benefiting from increases in procurement by the Department of Defense and Homeland Security. Improvements should also be seen in distribution industries, due to a recovery in regional consumer demand, finance services, money management, and technology.
- Increased demand since early 2002 has been met by increased productivity, not by adding workers.
- Lower tax withholding rates and the State's projected share of the revenue sharing provision should add approximately \$2 billion to the Gross State Product in 2004.
- Continuing weaknesses in New York City's economy impact northern New Jersey across a broad range of industries.
- Worldwide capacity surpluses in manufacturing constrain recovery.

Economic Vitality

Resident Population

From an economic standpoint, population is of interest in determining both the size and composition of the area labor force and the potential consumers of goods and services produced. The District and the surrounding region offer an abundant pool of potential workers and consumers:

- In the year 2000, Bergen and Hudson counties had a combined population of almost 1.5 million, 17.7 percent of the State's total.
- The Census 2000 reported a total population of 448,585 for the District's fourteen municipalities. This marks an increase of 8.3 percent to the 1990 level of 414,070 and reverses the population declines of the 1970's and 1980's.
- The portion of the above population residing within the District stood at 10,635 in the Year 2000, a two percent increase above the 1990 level of 10,426.

The New Jersey Department of Labor notes several major demographic shifts that will be observed statewide in the coming years. The June 2000 analysis used 1998 as the baseline year with projections to 2008. Even as the projections continue to be revised, these four trends should exert considerable influence on the regional economy:

- Early members of the "baby boom" generation (persons born between 1946 and 1964) will begin to retire from the labor force. In 2008, the first boomers will be 62 years of age.
- The children of the baby boomers, the so-called "baby boom echo" (persons born between 1977 and 1994) will constitute the second largest age group in the State, a total of 23 percent of the total population in 2008. Secondary school enrollment and new entrants to the labor force, college, and the military are expected to increase from 1998 to 2008.
- The "baby bust" generation, born between 1965 and 1976, will be 32 to 43 years old in 2008. This group will account for less than one-sixth of the State's population.
- The projected Statewide increase in persons 65 years and over is 8.5 percent for the decade 1998 to 2008. This rate is slower than any previous decade in a century and is attributed to low birth rates during the Great Depression.

Resident Labor Force

Resident employment measures employed persons by place of residence, as opposed to place of work. The resident labor force has two components: the employed and the unemployed population. Employed are all civilians 16 years and over who were either at work in paid employment or self-employment or with a job but not at work due to temporary absence. The unemployed consists of all civilians 16 years and over who do not meet the criteria for being employed, were looking for work during the last four weeks, and were available to start a job. Also included as unemployed are civilians who did not work at all during the reference week, were waiting to be called back to a job from which they had been laid off, and were away from work except for temporary illness. People on active duty in the United States Armed Forces and those who are institutionalized are excluded from these definitions.

Data regarding resident employment for the District’s municipalities are available from the New Jersey Department of Labor (NJDOL). The most recently published data, summarized in Figure 8.1, concern total residents in the labor force, employment, and unemployment. The fourteen municipalities of the District have a combined labor force of over 220,000. Unemployment in 2002 was at an average of 8.0 percent, an increase to the 6.1 percent rate in 2001 and somewhat higher than the 5 percent level generally considered by economists as full employment.

FIGURE 8.1				
2002 Annual Average Labor Force Estimates				
	Labor Force	Employment	Unemployment	Unemployment Rate (%)
Bergen County (10 District municipalities)	48,334	45,814	2,520	5.2
Hudson County (4 District municipalities)	172,108	156,971	15,137	8.8
Total for 14 District municipalities	220,442	202,785	17,657	8.0
State of New Jersey	4,367,800	4,112,800	255,000	5.8

Source: New Jersey Department of Labor, 9/30/2003

Income information regarding New Jersey households was previously reported in Chapter 2, History and Baseline Data. In brief, the State ranked first in terms of median household income in the year 2000, at an estimated \$54,226 a year. The data also underscore the income disparities between the two counties. Bergen County’s median household income stood at \$61,925, or 14 percent above that of the State, indicating considerable prosperity and consumer buying power. Significantly lower median household income is found in Hudson County. There, the median household income stood at \$37,189.

The region encompassing Bergen and Hudson counties also offers employers an educated, competitive labor force. As reviewed previously in Chapter 2, both Bergen and Hudson counties have higher percentages of residents that have attained a bachelor’s degree or higher than the State and the nation.

Economic Sectors

An analysis of the economy by sectors or establishments can yield insights as to the type and scale of businesses that may be encouraged to locate in the District. This information can then be applied to the development of a land use plan. National and State trends can contribute to knowledge of the District’s strengths and the development of an economic outlook. A major constraint to economic expansion in the Meadowlands District is the amount of space suitable and available to accommodate growth in the various economic sectors. Creative planning can, however, facilitate growth.

Economic Vitality

The US Census Bureau reports the following national trends in 2000:

- Revenues for the for-hire trucking industry, couriers and messengers, and warehousing and storage industries increased by 7 percent between 1999 and 2000, from \$249 billion to \$267 billion.
- Couriers' revenue grew by 12 percent, to \$48 billion. Local messengers and local delivery revenues were up 7 percent, to \$4 billion.
- General warehousing and storage revenue grew by 6 percent, to \$7 billion.
- Revenue from shipments of electronics & precision instruments and automobiles & other vehicles increased by 10 percent to \$10 billion.
- Revenue from hazardous materials shipments increased by 5 percent to \$10 billion.
- Highway miles traveled by for-hire trucks increased by 4 percent to 87 billion miles.

Additional economic strengths for the State have been cited by the New Jersey Business Resource Center:

- Hub of the most modern telecommunications network in the world, providing access to fiber optics and other high speed data transmission.
- First in the nation in the area of pharmaceutical R & D. In 2000, twelve of 33 (36 percent) FDA-approved drugs were products of New Jersey-based companies.
- Ninth largest exporting state. Exports increased 1.7 percent from 2000 to 2001.

Basic statistics collected under the Economic Census, conducted by the US Census Bureau once every five years, identify strengths of the regional economy. The most recent Economic Census, conducted in 1997, classifies data according to the 1997 North American Industry Classification System (NAICS), which supersedes the Standard Industrial Classification (SIC) used in reports from prior censuses. Data from the 2002 Economic Census will not be published until the years 2004 and 2005. Data for 1997 are available at the county level for sales, shipments, receipts, revenue, or business done, which includes the total volume by business establishments within the scope of the Economic Census. The data, published for eleven of the eighteen business establishment categories, are included in Figure 8.2.

Wholesale trade is the leading sector reported for Bergen and Hudson counties. Wholesale trade comprises establishments engaged in wholesaling merchandise and rendering services incidental to the sale of merchandise. Basically, the wholesale trade sector includes:

- Merchant wholesalers who buy and take title to the goods they sell;
- Manufacturers' sales branches and offices who sell products manufactured domestically by their own company; and
- Agents and brokers who collect a commission or fee for arranging the sale of merchandise owned by others.

The volume of containerized cargo moving through the Port of New York and New Jersey increased by 5.6 percent in 2001. The Port Authority expects imports of consumer goods to grow between 3.7 and 4.8 percent from 2000 to 2010. The Port's current capacity of 3.2 million TEU's (Twenty-foot Equivalent Units, a standardized measure of containerized traffic volume) for containerized cargo could be exceeded as early as 2004. Ocean shipping containers

FIGURE 8.2			
Sales, Shipments, Receipts, Revenue, or Business Done			
NAICS Code and Description:	— Thousands of Dollars —		
	Bergen County	Hudson County	Regional Total
31-33 Manufacturing	10,419,668	4,220,836	14,640,504
42 Wholesale trade	62,435,340	11,271,459	73,706,799
44-45 Retail trade	10,766,061	3,842,879	14,608,940
53 Real estate/rental/leasing	1,821,637	628,099	2,449,736
54 Professional/scientific/technical services	3,087,018	936,458	4,023,476
56 Administrative/support/waste management/remediation services	1,850,763	654,120	2,504,883
61 Educational services	111,748	19,756	131,504
62 Health care/social assistance	2,115,056	1,386,859	3,501,915
71 Arts/entertainment/recreation	426,077	50,615	476,692
72 Accommodation/food services	1,116,936	466,491	1,583,427
81 Other services (except public administration)	2,088	390,448	392,536
<i>Source: US Bureau of the Census, 1997 Economic Census</i>			

generally are 20 or 40 feet long. As an example, a single, 40-foot container represents 2 TEU's. Much of the goods arriving in area ports are purchased and consumed within the region. Transporting goods from their port of entry to their point of sale will present a growing challenge for two primary reasons: 1) a shortage of suitable warehouse space; and 2) the limitations of the transportation network, including freight movement and the associated capacities of shipping ports, roadways, and railways. Much of these goods will eventually be sold to consumers in the New York/New Jersey region. Inland warehouses will be in high demand, while land and governmental approvals will likely become more difficult to obtain.

The manufacturing and retail trade sectors also have a significant presence. The US Bureau of the Census did not publish comparable data for warehousing, another major land use in the District.

Recent trends in the warehouse and industrial market have been reviewed as part of the New Jersey Department of Transportation's "Portway Extensions Concept Development Study." Figure 8.3 summarizes trends relating to total space development and asking rents. From the third quarter of 1998 through the fourth quarter of 2002, the total square footage of warehouse and industrial space in Bergen and Hudson counties increased by 3.6 percent. During the same time period, increases in asking rents rose significantly, 25.2 percent for Bergen County and 28 percent for Hudson County.

FIGURE 8.3						
Warehouse/Industrial Space Trends						
County	Existing Space (in sq. ft.)			Asking Lease Rate (per sq. ft.)		
	3rd Qtr. 1998	4th Qtr. 2002	Percent Change	3rd Qtr. 1998	4th Qtr. 2002	Percent Change
Bergen	115,631,718	120,322,432	4.1%	\$ 5.56	\$ 6.96	25.2%
Hudson	101,552,624	104,647,867	3.0%	\$ 4.61	\$ 5.90	28.0%
Total	217,184,342	224,970,299	3.6%			

Source: CB Richard Ellis, as reported in "Portway Extensions Concept Development Study," draft, June 25, 2003

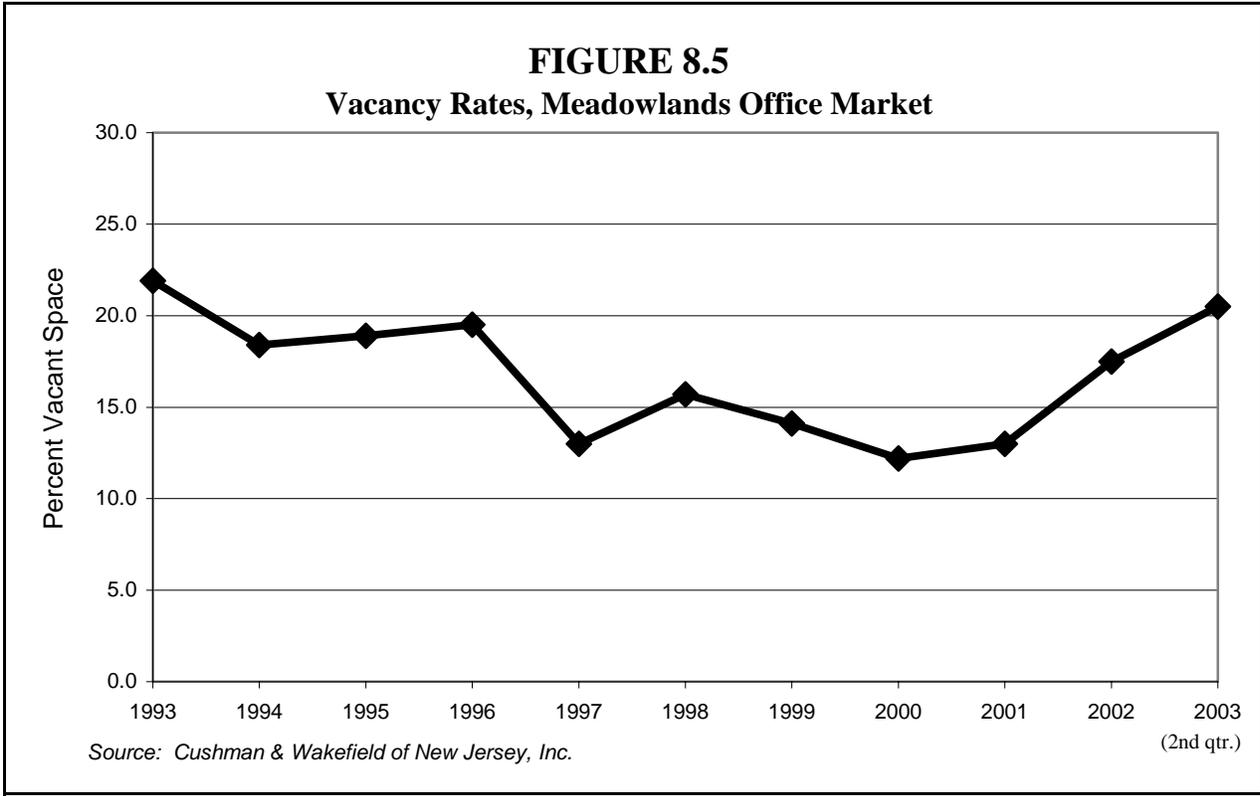
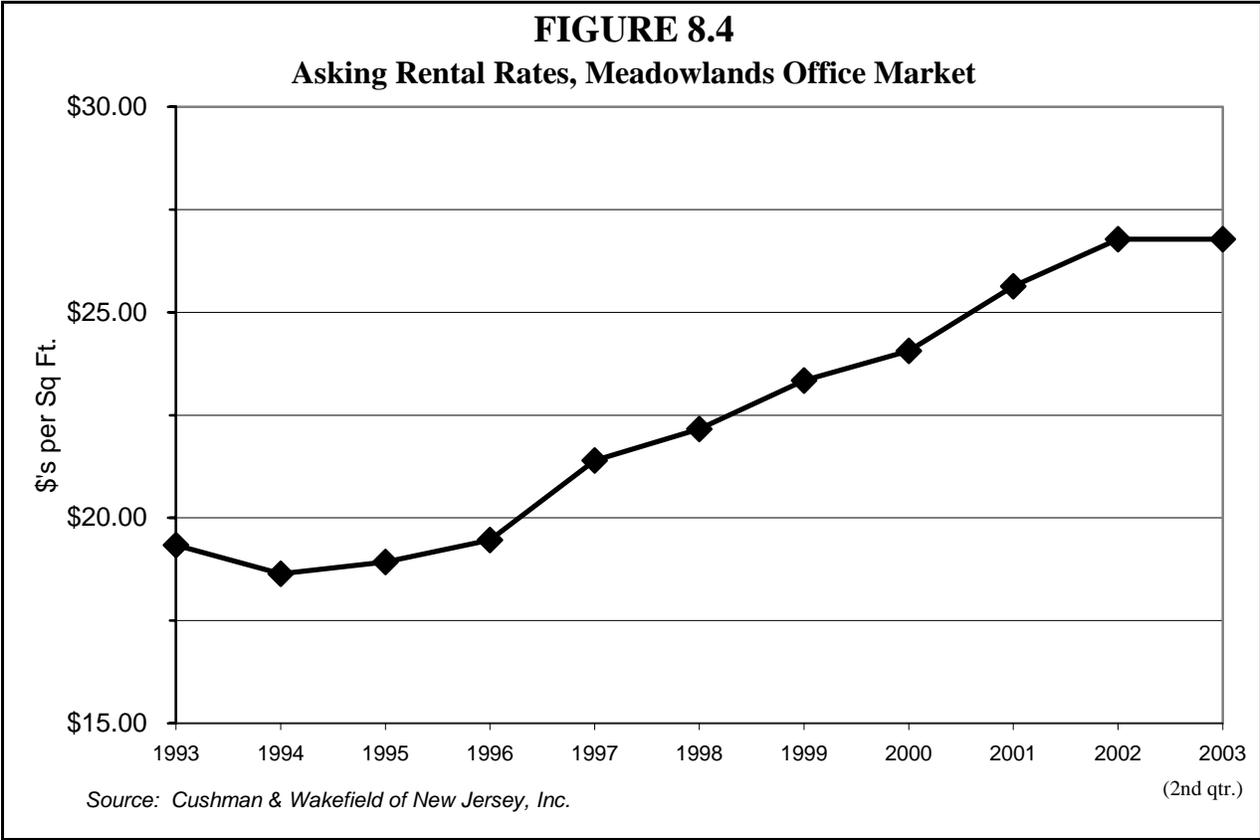
The firm of Cushman & Wakefield of New Jersey, licensed real estate brokers, publishes information regarding trends in the industrial market. The firm indicates that leasing activity and current available space for the Northern New Jersey industrial market at mid-2003 were holding at levels comparable to those recorded at the same time last year. Availability rates are among the lowest of any market area nationally.

Cushman & Wakefield also compiles data regarding the Meadowlands industrial submarket. The submarket covers significant portion of the Meadowlands District and adjacent areas, comprising Carlstadt, Moonachie, East Rutherford, Hasbrouck Heights, Lyndhurst, Rutherford, Teterboro, North Bergen, Secaucus, and Union City. The firm cites the submarket's quick access to the New York metropolitan area, its "deep" labor pool, and its flat topography as reasons that many companies prefer the Meadowlands as a location for distribution centers.

The firm further reports that some companies are discovering the value of owning, rather than leasing, industrial space within the Meadowlands submarket. Of the 764,700 square feet that changed ownership in the second quarter of 2003, a total of 52 percent was acquired by users. For the rental market, average asking rents in the quarter stood at \$6.58 per square foot.

The real estate market for office space is another economic sector, the strength of which is often regarded as a measure of the District's overall economic health. Cushman & Wakefield of New Jersey also publishes office space information for the Meadowlands submarket. The submarket included over 6.8 million square feet at the close of the second quarter of 2003. This represents nearly seven percent of the total inventory for Northern New Jersey.

Overall rental and vacancy rates for the Meadowlands office market, regardless of class, are included as Figures 8.4 and 8.5. The average asking rental rate for the second quarter of 2003 was \$26.78 per square foot. The overall vacancy rate had climbed to 20.5 percent from the decade's low of 12.2 percent in 1997, approaching the 21.9 percent level of a decade ago. The ample inventory of available space caused a leveling of asking rents over the 2002 level.



Economic Vitality

Additional insights can be gained through reviewing employment by economic sector. Data regarding within-District employment as of December 2001 are included in Figure 8.6. The data were obtained through impartial third party sources and may not address all employment. Manufacturing and wholesale trade are predominant employment categories at the District level. Transportation and warehousing, as well as retail trade, also employ significant numbers.

FIGURE 8.6
Paid Employees within the Meadowlands District by NAICS Code

<u>NAICS Code and Description:</u>	<u>Number of Paid Employees</u>		
	<u>Bergen Municipalities</u>	<u>Hudson Municipalities</u>	<u>District Total</u>
Agriculture, Forestry, Fishing & Hunting	15	0	15
Mining	0	4	4
Utilities	32	198	230
Construction	1,239	1,062	2,301
Manufacturing	16,083	5,736	21,819
Wholesale Trade	5,876	8,091	13,967
Retail Trade	1,213	5,642	6,855
Transportation and Warehousing	2,621	6,971	9,592
Information	1,130	2,707	3,837
Finance and Insurance	1,237	1,489	2,726
Real Estate, Rental & Leasing	561	633	1,194
Professional, Scientific, & Technical Services	2,047	2,190	4,237
Management of Companies and Enterprises	2	40	42
Administrative Support/ Waste Mngmnt/Remediation	1,751	1,043	2,794
Educational Services	386	130	516
Health Care & Social Assistance	2,943	509	3,452
Arts, Entertainment & Recreation	1,634	173	1,807
Accommodation & Food Services	1,673	1,415	3,088
Other Services (except public administration)	578	440	1,018
Public Administration	167	396	563
TOTAL EMPLOYEES	41,188	38,869	80,057

Source: Dun and Bradstreet, December 2001

An overview of recent events with regard to the larger Northern New Jersey region (Bergen, Essex, Hudson, Hunterdon, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren counties) is available from the New Jersey Department of Labor's Bureau of Labor Market Information. For the year ended June 2003, nonfarm payrolls in the 11-county region increased 0.3 percent, compared to 0.7 percent Statewide. Job growth has been concentrated in several discrete economic clusters, including government, education, and health and social services (particularly health care and social assistance). Notable setbacks during the same time period took place in manufacturing, due to losses in both durable and nondurable goods, and information, due to downsizing in telecommunications. Job growth in the coming months can be expected in education, health and social services, and government, due to an expanding and aging population. Manufacturing employment will likely decline further as companies reduce staff to lower operating costs and move operations out of the region. Construction payrolls should remain steady.



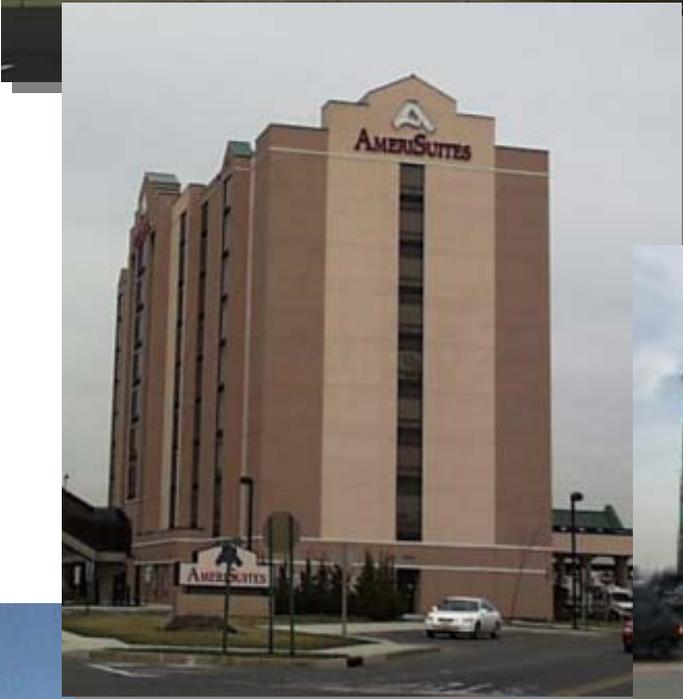
FIGURES 8.7, 8.8, 8.9, and 8.10 *Development around the District has assumed a variety of looks in recent years. Clockwise, beginning at the top of the page:*

FIGURE 8.7 *210 Chubb Avenue in Lyndhurst*

FIGURE 8.8 *Boiling Springs Savings Bank at 23 Park Avenue in Rutherford*

FIGURE 8.9 *Hampton Inn at 304 Paterson Plank Road in Carlstadt*

FIGURE 8.10 *AmeriSuites at 575 Park Plaza Drive in Secaucus*

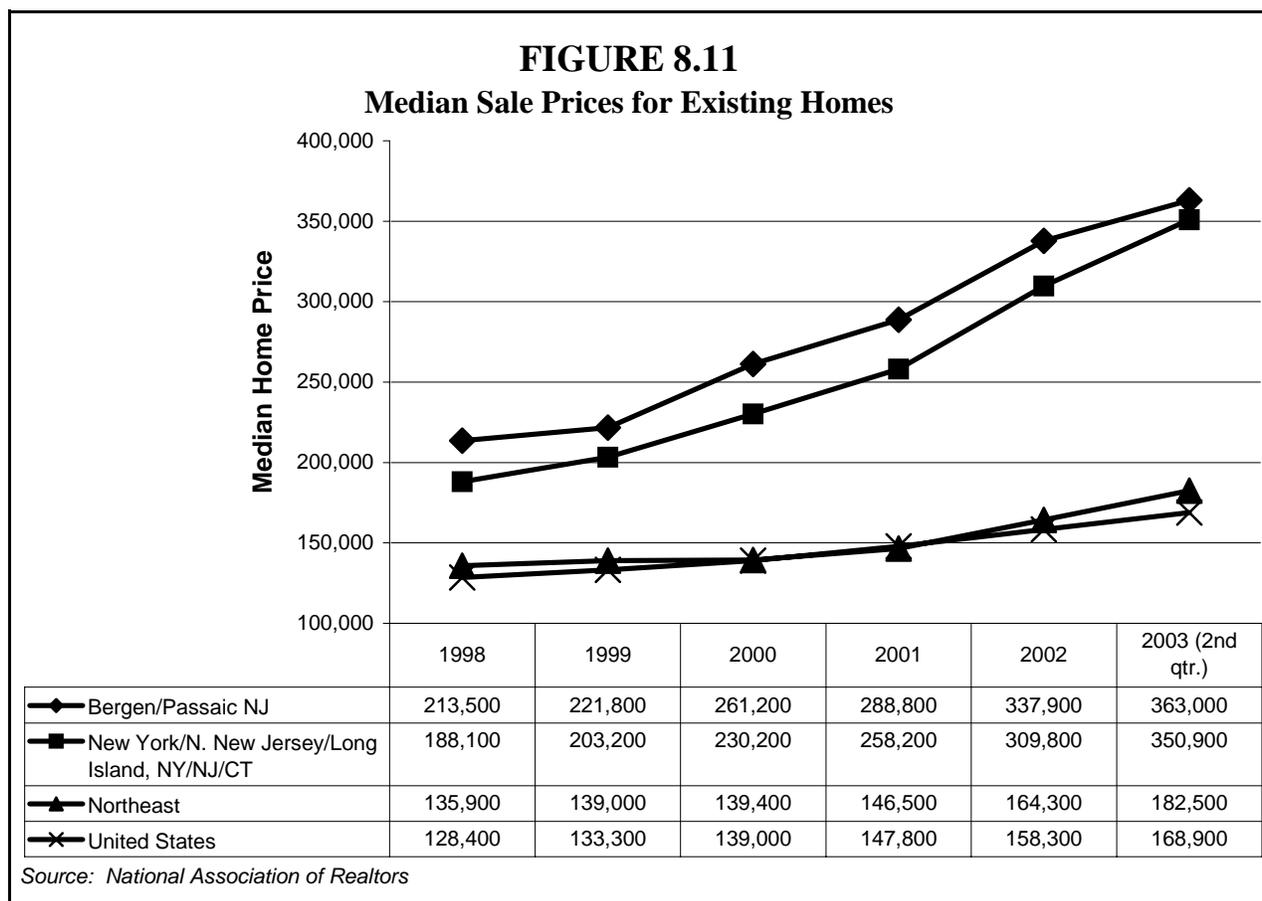


Economic Vitality

Housing Market

The strength of the housing market is important to the vitality of the overall economy, since housing and related industries account for a significant portion of the Gross Domestic Product. The market for existing homes set records nationally in 2001 and 2002. Sales of existing single-family homes continued to rise above historic norms through the first half of 2003. Home prices have also continued to rise. The National Association of Realtors (NAR) attributes record sales to low interest rates, increasing numbers of households, an improving economy, and rising consumer confidence. NAR forecasts that 2003 will set a third consecutive record for both existing and new home sales.

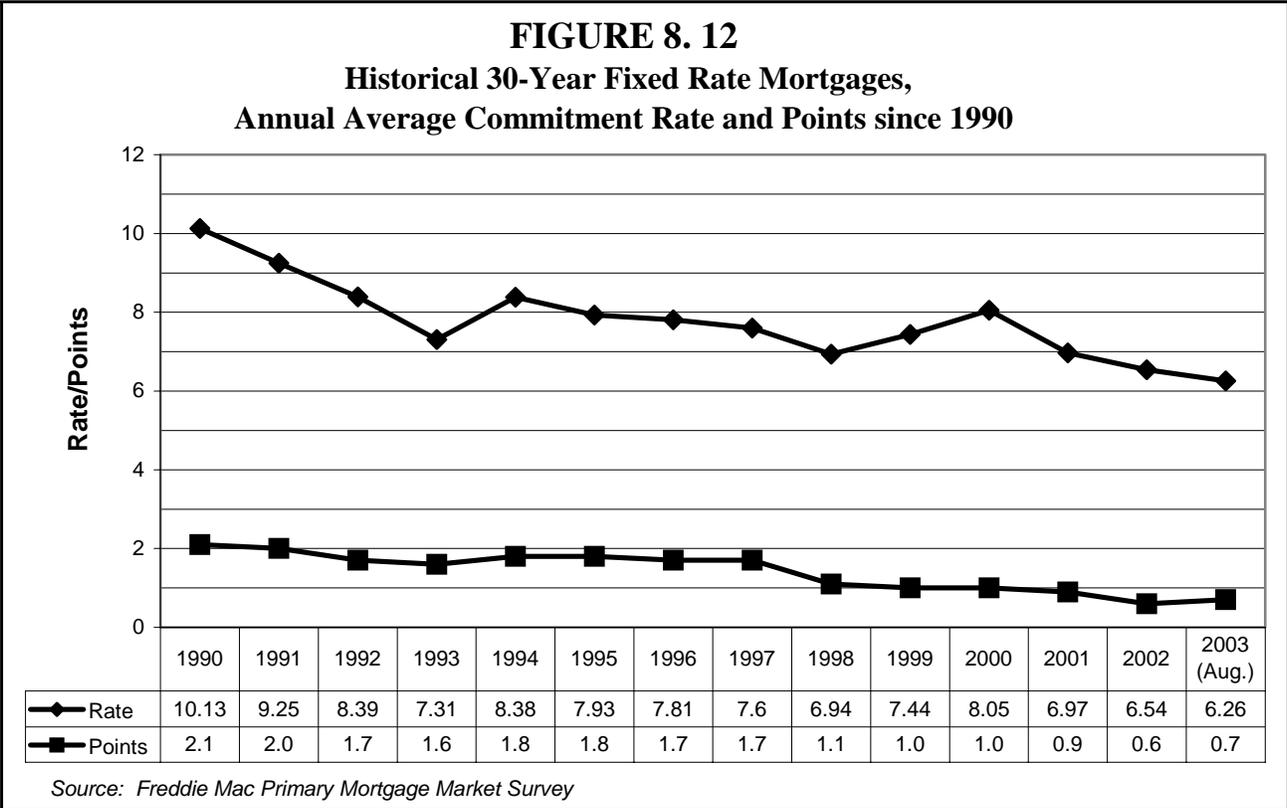
The record volume of sales have produced robust growth in home prices, particularly in Northern New Jersey. Recent median home prices are shown in Figure 8.11, as compiled by the National Association of Realtors. The Bergen-Passaic metropolitan area includes the ten Bergen County municipalities of the Meadowlands District. The median price of \$363,000 for the Bergen-Passaic metropolitan area in the second quarter of 2003 ranked seventh nationally. The 7.1 percent gain over the previous twelve-month period was only slightly lower than the 7.4 percent nationwide. Median home prices stand at more than double the national median of \$168,900. Data for the Jersey City metropolitan area, including Hudson County and the remaining four municipalities of the District, was not available. Bergen and Hudson counties are, however,



both part of the larger New York/Northern New Jersey metropolitan area, also reported in Figure 8.11. Median home prices throughout the metropolitan areas were near double the prices for the greater Northeast region and the United States.

The overall data are consistent with the comparatively high housing values reported by owners in the Census 2000 Supplementary Survey, included in Chapter 4, Housing. Per the Supplementary Survey, New Jersey’s median housing value of \$171,988 was 43 percent higher than the national median in 2000 and ranked fourth among the fifty states. Bergen County’s median value stood significantly higher at \$245,538, while Hudson County’s median value for an owner-occupied unit was somewhat lower at \$154,460.

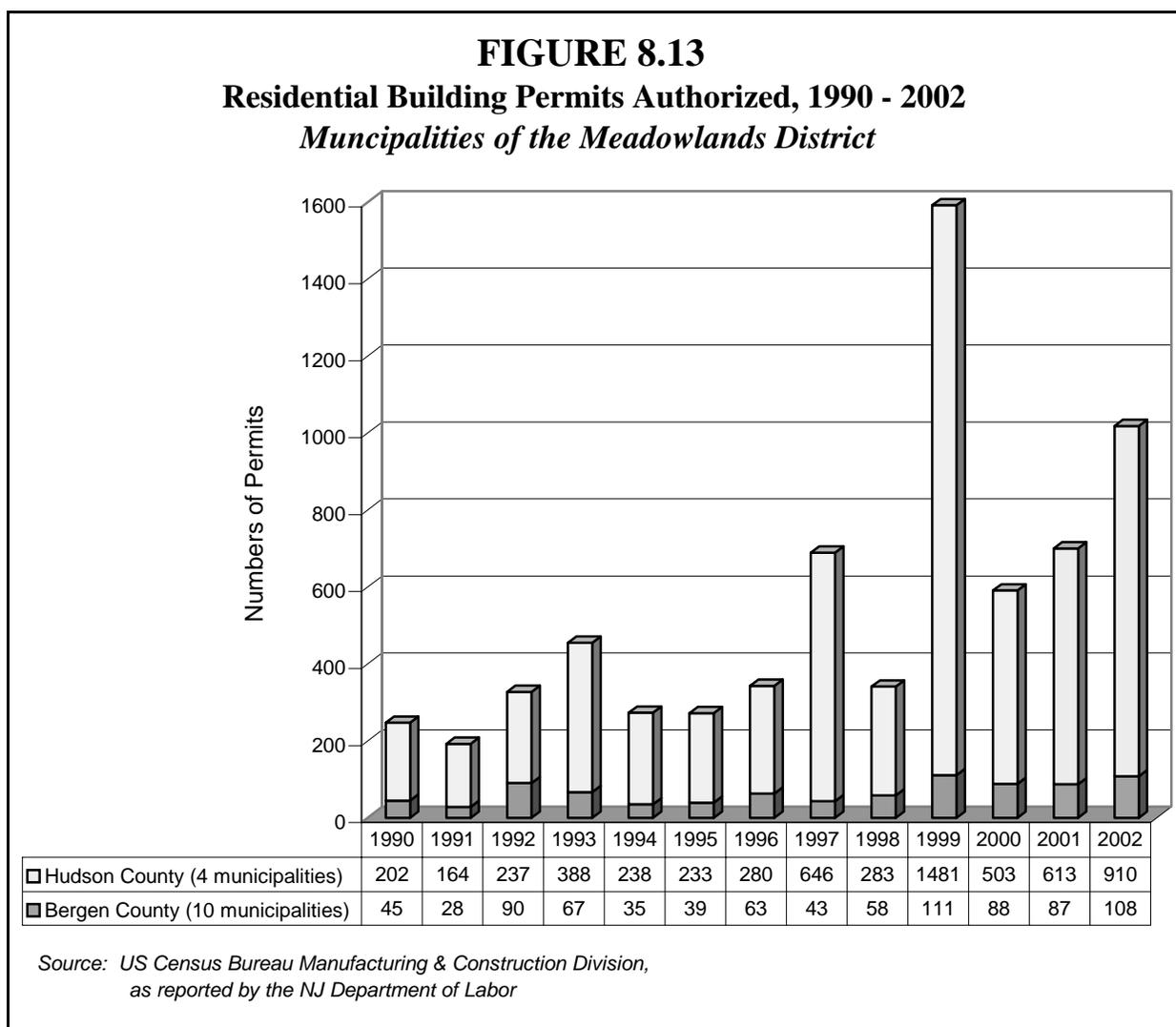
Interest rates for residential mortgages are a factor in the volume of home sales. Freddie Mac, a corporation chartered by Congress in 1970, supplies lenders with money to make mortgages and reduces the mortgage rates paid by certain homebuyers. Freddie Mac’s Primary Mortgage Market Survey provides a reliable gauge of mortgage rate trends and market conditions. For August 2003, 30-year fixed-rate mortgages (FRM) remained low by historical comparisons over a 35-year period, averaging 6.26 percent and 0.7 point. Investors have continued to turn to the bond market, including US Treasury bonds. Mortgage rates, in turn, have declined. Annual average FRM’s from 1990 are reported in Figure 8.12.



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The level of permitting for the construction of residential units can provide an additional measure of the local housing market's strength. For the municipalities of the Meadowlands District, most of the land suitable for new housing lies outside the District and is largely developed. Consequently, permitting activity is not itself a reliable indicator for the economic health of the local market. A dearth of permits could, however, suggest a slow local economy. Residential building permits issued from 1990 through 2002 for the District's municipalities are shown in Figure 8.13. Residential construction has generally been a viable, yet modest, element of the area's building industry. Jersey City accounted for approximately 70 percent of the permits issued during the thirteen years at locations generally outside the District's boundaries.

Additional information regarding housing is included in Chapter 4.



Further insights into the economic vitality of the District and the surrounding region can be gained from New Jersey data regarding productivity and energy efficiency, as well as trends shown by the Consumer Price Index.

Gross State Product

Gross State Product (GSP) is the market value of the goods and services produced by the labor and property located in a state. It is a traditional measure of economic activity, arguably the best indicator of a state's well-being. GSP is derived as the sum of GSP's originating in all industries in the state. An industry's GSP, or its "value added," equals its gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus its intermediate inputs (consumption of goods and services purchased from other U.S. industries or imported).

The most recent estimates of GSP, released in May 2003, are for the year 2001. New Jersey's preliminary GSP of \$332,897 million remained essentially unchanged from the year 2000 level of \$332,927 million. This compares to a 0.4 percent increase for the nation as a whole. New Jersey's share of the nation's 2001 GSP was approximately 3.6 percent, the same as for the year 2000. The State's overall growth in retail trade; finances, insurance, and real estate; and services offset losses in manufacturing and transportation/public utilities.

Productivity

Greater output from the same amount of work results in higher productivity. Productivity can be measured by calculating the amount of estimated Gross State Product produced per laborer. As shown in Figure 8.14, productivity statewide has generally been rising from 1992 to 2001, although 1999 to 2001 have seen relatively modest gains. According to the New Jersey Council on Economic Advisors, the State's above average level of productivity makes job creation even more difficult to achieve.

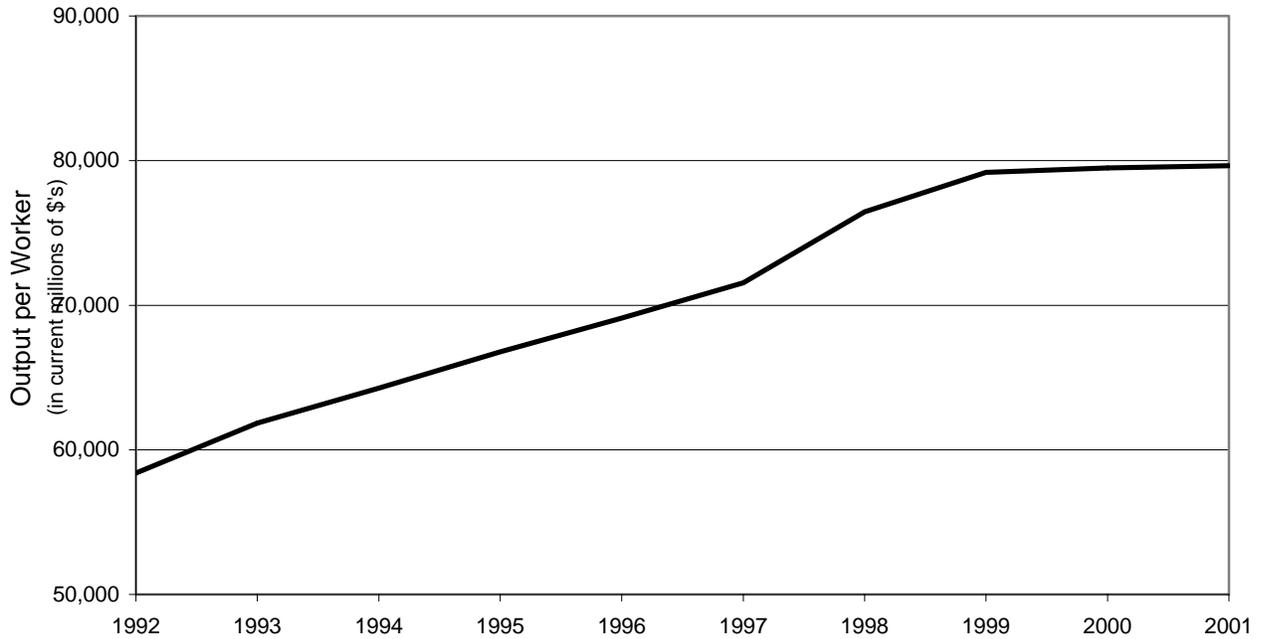
Consumer Price Index

The Consumer Price Indexes (CPI's) reflect monthly data on changes in prices paid by urban consumers for a representative "basket" of goods and services. When wages and salaries fail to keep up with increases to the CPI, consumers' buying power is eroded. For the year ended in December 2002, the Consumer Price Index for All Urban Consumers (CPI-U) increased 1.6 percent. The percent change is consistent with the recent pattern of modest annual fluctuations indicated in Figure 8.12.

As of mid-2003, consumer prices had risen 2.1 percent nationally over the past twelve months. According to the New Jersey Council of Economic Advisors, regional price increases were led by housing, which had increased by 4.3 percent due largely to increases in fuels and utilities. Motor fuel prices caused transportation costs to rise by 4 percent. One of the few signs of deflation in the region was an 11+ percent fall in apparel prices.

FIGURE 8.14

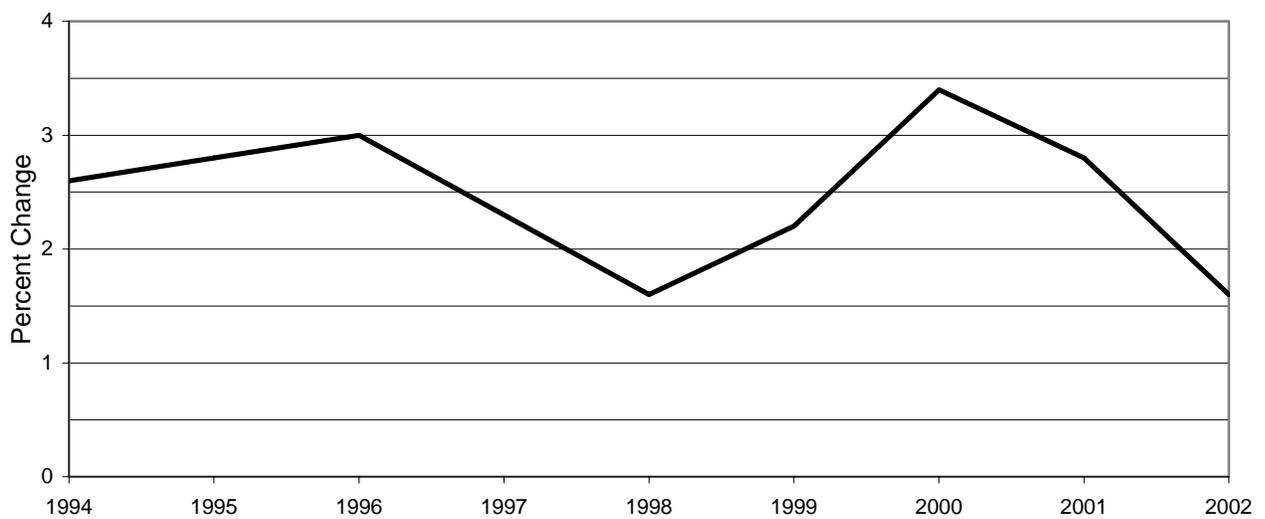
Productivity in the State of New Jersey, 1992 - 2001



Sources: United States Bureau of Economic Analysis and New Jersey Department of Labor

FIGURE 8.15

Annual Percent Changes in CPI-U for Urban Consumers

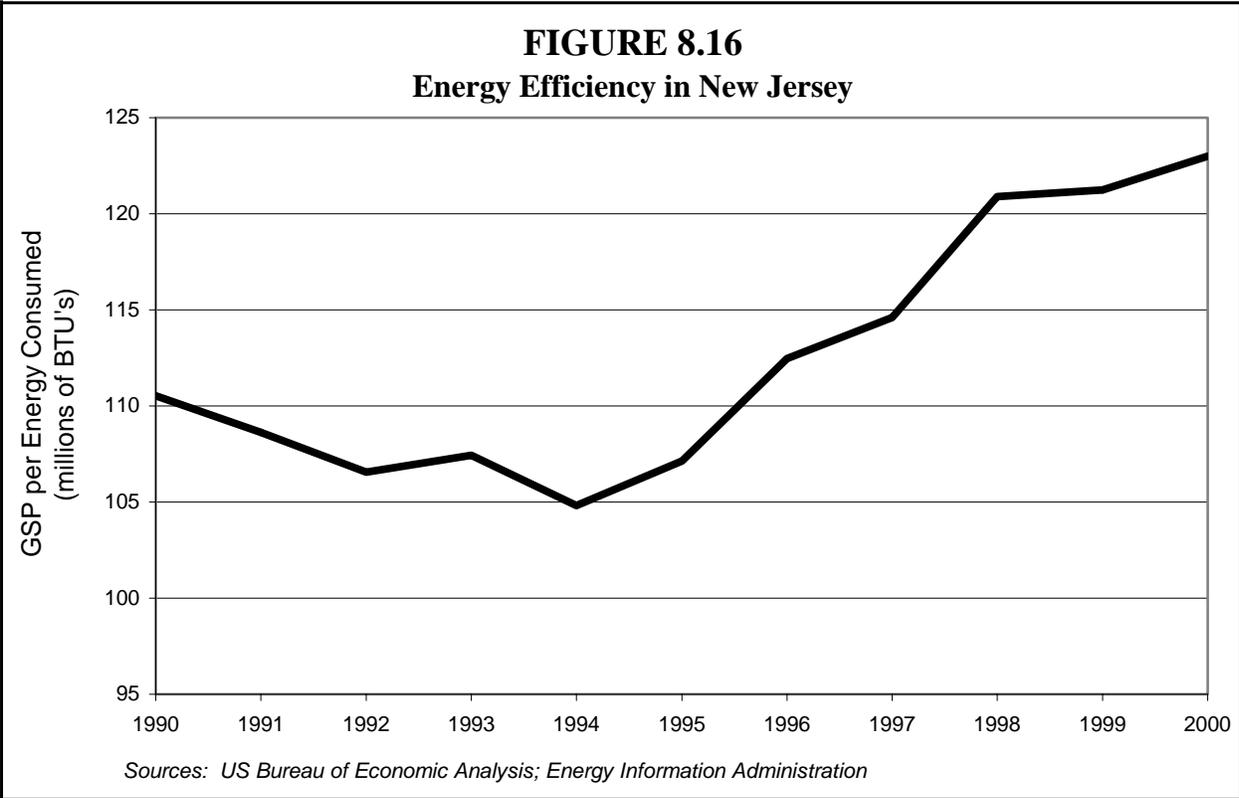


Source: United States Department of Labor, Bureau of Labor Statistics

Energy Efficiency

Another measure of economic competitiveness is the amount of energy we consume for each dollar produced. Greater energy efficiency means less dependency on out-of-State sources and a better ability to reduce pollution and greenhouse gases. Lower energy costs also translate into more disposable income for individual consumers.

The US Department of Energy has prepared a ranking of the fifty states' energy consumption. The most recent data set is for 2000. Although New Jersey ranked 12th in total energy consumption, its per-capita consumption was 32nd. A somewhat more complicated measure of energy efficiency is presented in Figure 8.16. Energy efficiency Statewide is calculated by comparing the ratio of annual Gross State Product to the amount of energy consumed. From 1990 to 2000, there was a small net increase in energy efficiency.



Economic Vitality

KEY CONDITIONS

The economy of the northern New Jersey region is fundamentally strong, in spite of recent employment declines in certain economic sectors. Trends for the region and the State include the following:

- The region is home to a stable, educated population that offers employers an abundant, competitive labor force.
- The comparatively high median income for households in Bergen and Hudson counties indicate strong consumer buying potential to support the regional economy. New Jersey ranks first in the nation with regard to household income; Bergen County's median household income is significantly higher than that of the State. In recent years, relatively low increases or actual decreases to the Consumer Price Index have maintained consumers' overall buying power, although housing costs have been increasing at a high rate.
- The economy is supported by a diversity of growth industries, concentrated in several discrete economic clusters. Recent job growth has taken place in government, education, and health and social services, due to an expanding and aging population. Retail trade; finances, insurance, and real estate; and services are major contributors to growth in New Jersey's Gross State Product. These growth sectors have compensated for a decreased reliance on manufacturing industries.
- Chemicals and allied products, as well as security and commodity brokers, are major contributors to growth in New Jersey's Gross State Product. These growth sectors have compensated for a decreased reliance on manufacturing industries.
- Productivity and energy efficiency, both measures of economic competitiveness, have made small gains Statewide in recent years.
- Substantial increases in imports of consumer goods are driving demands for 1) freight movement and the associated capacities of shipping ports, roadways, and railways; and 2) the need for suitable warehouse space.
- Low interest rates and the high demand for housing in the region have triggered the rise of median sale prices for existing homes to double the median price for the nation.

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All photos are owned by the New Jersey Meadowlands Commission.

CHAPTER

HISTORIC PRESERVATION

BASIS AND STRUCTURE

In recent years, a broad-based popular movement has evolved from the public's desire to know and embrace our national heritage, to conserve scenic views and landscapes, and to recognize that historic preservation is frequently associated with economic success. Historic preservation is the identification, evaluation, and protection of historic and archaeological resources so that they continue to play an integral, vibrant role in their communities. Many see the preservation of historic districts, sites, objects, structures, and buildings as enhancing their quality of life by adding variety and texture to the cultural landscape in which they live and work.

The Meadowlands District has historic resources dating from the initial human occupation of the region approximately 8,000 years ago. Unfortunately, these structures and sites from the past have often been easy to overlook because of the pace of new development. This chapter gives a brief account of significant resources in the District.

Numerous cultural resource surveys have been conducted within the District, with great variation in levels of coverage and investigation. Early studies of the Meadowlands were largely restricted to relatively small parcels of land or small segments of larger development tracts. Many of these studies were burdened by remnants of 19th century attitudes that viewed the Meadowlands as a static environment in need of reclamation, inhospitable by the standards of the day.

The original Master Plan, however, did not consider the historic resources of the District. The only such reference was to a "cultural complex" as part of the Berry's Creek Center concept, to include museums, art galleries, and facilities for the performing arts.

Consequently, the completion of a "Cultural Resource Reconnaissance" in 1989 gave the NJMC its first inventory of the District's historic and cultural areas. The 1992 "Stage 1A Archeological and Historical Sensitivity Evaluation of the Hackensack Meadowlands" built upon the former study by providing locations and distributions of previously identified cultural resources. The 1992 report also identified several previously overlooked resources and potential areas of archeological and historic sensitivity within the District. Additional resources were identified in the 1994 follow-up study, "Hackensack Meadowlands Archeological and Historical Sensitivity and Impact Evaluation."

Historic Preservation

EXISTING HISTORIC RESOURCES

Significant resources in the District are summarized in Figure 9.1 and appear on Map 13. The resource numbers on the map correspond to the numbers in the figure. These resources stand as primary symbols of the history of human settlement in the District. The resources were identified by the NJMC's inventories cited on the previous page, the Bergen County Historic Sites Survey of 1980-81, the Hudson County Master Plan, and the New Jersey State Historic Preservation Office (SHPO).

SHPO assists in identifying and preserving the State's historic and archaeological resources through its historic preservation programs. Among its functions, SHPO manages the New Jersey and National Registers of Historic Places and provides technical information and regulatory services focused on avoiding or mitigating adverse effects of public projects on historic resources. To identify historic resources, SHPO evaluates their significance and establishes priorities for designation and preservation. Resources must be significant in American history, architecture, archaeology, engineering or culture. They may be associated with persons or events that have contributed to the broad patterns of our history; embody the distinctive characteristics of a type, period, or method of construction; or yield important prehistoric or historic information.

To date, SHPO has identified several District resources as having historic significance. The resources are listed in, or have SHPO opinions of eligibility for listing in, the New Jersey Register of Historic Places and/or the National Register of Historic Places (NJRHP/NRHP). The SHPO resources are summarized below, including the identifying numbers on Figure 9.1 and Map 13:

HX Drawbridge (No. 39)

Milepost 5.48, Bergen County Line, East Rutherford, Secaucus

SHPO determined eligible: 4/02/92

Significance: Completed in 1911, HX (Hackensack Crossing) is one of the first technically innovative "Heel Trunnion" bascule bridges built in the United States. The style was patented by Joseph B. Strauss, designer of the Golden Gate Bridge. Bascule bridges have sections called "leaves" that rotate upward and away from the centerline of the river, providing clear passage for river traffic. A bascule drawbridge is counterweighted to open easily, seesaw fashion ("Bascule" is derived from the French word for seesaw.). A trunnion is a hinge arrangement that takes its name from the pivot on which a cannon swivels up and down.

A simple bascule bridge has its counterweight below the deck and requires a lot of space underneath. The Heel Trunnion bascule bridge uses a linkage to put the counterweight above the deck and to keep it and the leaf in balance with one another as the center of gravity changes when the bridge opens. An engineering trade magazine reported at the time of the Heel Trunnion bridge's invention, "A type of bascule bridge with fixed trunnions and overhead counterweights has been developed recently in which the center of gravity of the whole structure does not move either vertically or horizontally as the bridge is being opened or closed. The foundations for this type of bridge are therefore simple and economical. Eight bridges of this type have been completed."

FIGURE 9.1
Historic Resources in the Meadowlands District

No.	Resource	Address	Municipality
1	Outwater Cemetery	W. side Washington Ave./S. of Commerce Rd.	Carlstadt
2	Canadian Car & Foundry Company	East of Valley Brook & Polito avenues	Lyndhurst
3	Kingsland Railroad Repair Shops	S. of Valley Brook Ave., e. of Orient Way	Lyndhurst
4	(unnamed)	10 Berger Street	Moonachie
5	Phillip Mehrhof House	29 Riverside Avenue (Mehrfhof Lane)	Little Ferry
6	Ferry Landing & Trading Post Site	Foot of Riverside Avenue (Mehrfhof Lane)	Little Ferry
7	Jared De Peyster House	17 Riverside Avenue (Mehrfhof Lane)	Little Ferry
8	J. De Peyster Stagg House	21 Riverside Avenue (Mehrfhof Lane)	Little Ferry
9	(unnamed)	37 Riverside Avenue (Mehrfhof Lane)	Little Ferry
10	(unnamed)	41 Treptow St. corner Washington Ave.	Little Ferry
11	Roika House	113 Washington Avenue	Little Ferry
12	(unnamed)	141 Washington Avenue	Little Ferry
13	(unnamed)	113 Mehrhof Road	Little Ferry
14	(unnamed)	34 Lafayette Street	Little Ferry
15	(unnamed)	16 Lincoln Street	Little Ferry
16	(unnamed)	26 Lincoln Street	Little Ferry
17	(unnamed)	30 Lincoln Street	Little Ferry
18	(unnamed)	22 Dietrichs Street	Little Ferry
19	Inactive Railroad Track Bridge	New Jersey Transit Harrison Branch Over NJ7	Kearny
20	Bridge for East Bound NJ 3	NJ 3 East Bound Over Hackensack/Grace St.	Little Ferry
21	Clay Pits of Brick Making Industry		
21	Airport Tower & Hanger, 1945 (now Aviation Hall of Fame & Museum)	Teterboro Airport Near Industrial Avenue	Teterboro
22	Atlantic Aircraft Factory, 1930's	Teterboro Airport Near Industrial Avenue	Teterboro
23	Bendix Factory Complex	US Route 46 & Industrial Avenue	Teterboro
24	(unnamed)		North Arlington
25	Viaduct, 6-lane divided highway	NJ 3 Over Berry's Creek	East Rutherford
26	2-lane collector road and sidewalls		Ridgefield
27	Public Service Gas and Electric Company	57-31 Charlotte Avenue	Jersey City

FIGURE 9.1 (Continued)
Historic Resources in the Meadowlands District

28	(unnamed)	18-20a Lewis Avenue	Jersey City
29	Jacob Stouff Property	32 Lewis Avenue	Jersey City
30	Peoples Gas and Light Company	444-500 St. Pauls Avenue	Jersey City
31	Public Service Energy and Gas Corp.	460-468 St. Pauls Avenue	Jersey City
32	(unnamed)	472-518 St. Pauls Avenue	Jersey City
33	(193) Kingsland Tunnel	Newark Ave. & Orient Way	Lyndhurst
34	Covert/Larch Historic District		Jersey City
35	Portal Bridge, Pennsylvania, New Jersey and New York Railroad Co.		
36	Erie Marion Main Line Historic District	Northeast Corridor Rail Line across Hackensack R.	Kearny
37	West End Interlocking Tower		Jersey City
38	Portal Tower		Jersey City
39	HX Drawbridge Bergen County Line		Secaucus
40	Pulaski Skyway/U.S. Routes 1 & 9		E. Ruth./Secaucus
41	Lower Hack\ Draw Bridge		Jersey City
42	Old Main Line of the Delaware, Lackawanna & Western Rail Road Historic District	NJ Transit Morristown Line, Milepost 2.52 thru 2.64	Jersey City
43	Hudson Tower		Jersey City
44	(unnamed)		Kearny
			Kearny

FIGURE 9.2 (right)
The Pennsylvania, New Jersey and New York Railroad Co. Portal Bridge along the Northeast Corridor Railroad line in an undated photo, looking south towards the Pulaski Skyway. The swing bridge is open to permit the passage of a barge, pushed by a tugboat.



FIGURE 9.3 (left) A 1930 view of the former Paterson Plank Road swing bridge crossing Berry's Creek, with people swimming on the south side. The adjoining plank roadway, built about 1856, had already been replaced. About 15 miles in length, Paterson Plank Road was the longest plank road ever built in New Jersey. The wood planks came from the cedar forests that once covered significant areas of the Meadowlands.

FIGURE 9.4 (right)
The People's Gas Light Company/ Public Service Electric & Gas Company Marion Office Historic District in Jersey City. The oldest portion was erected in 1870.



Historic Preservation

Erie Marion Main Line Historic District (No. 36)

Jersey City

SHPO determined eligible: 3/10/99

Significance: This historic district has served as a critical transportation route over the years. The Paterson & Hudson River Railroad was incorporated in 1831 to connect Paterson and Jersey City. In Jersey City, the railroad was designed to link with the New Jersey Railroad, where it could utilize the New Jersey Railroad's planned route through the Bergen Ridge. The Paterson & Hudson River Railroad was completed between Paterson and the New Jersey Railroad in 1833, and the New Jersey Railroad's Bergen Cut completed several years later, in 1838. The New York & Erie Railroad was incorporated in New Jersey in 1853 and leased the Paterson & Hudson River Railroad, using it and other lines to provide access to the New York Harbor. The Long Dock Company was incorporated in 1856 to develop the New York & Erie waterfront terminal facility in Jersey City. By 1861, Long Dock had completed the Pavonia Terminal, the Erie Tunnel (two tracks), and a new rail line to the terminal. The capacity of the line was substantially expanded with the completion of the Bergen Archways in 1908, which provided an additional route through the Bergen Ridge to the waterfront terminal.

Covert/Larch Historic District (No. 34)

Jersey City

SHPO determined eligible: 3/10/99

Significance: This residential district is bounded to the north by a large parking lot and further by the Delaware, Lackawanna, & Western Railroad; to the east by the entrance ramp to the Pulaski Skyway; to the south by St. Paul's Avenue; and to the west by the New York, Susquehanna & Western Railroad. The district is a good example of Jersey City's early, working class neighborhoods. It reflects the successive shifts in ethnic composition and the resettlement patterns that occurred in this area of the country from the mid-19th century through the early 20th century. The dwellings are largely intact and stand as resources representing the historic activities that have taken place therein, exemplifying the development of a small, ethnically-based community in Hudson County.

People's Gas Light Company/Public Service Electric & Gas Company Marion Office Historic District, 444-468 St. Paul's Avenue, Jersey City (No.'s 30 and 31)

SHPO determined eligible: 3/10/99

Significance: This historic district is the only remaining physical element of what was once one of the thriving industries of the Marion section of Jersey City. It includes two structures: the PSE&G Garage, constructed circa 1919-1928, and the People's Gas Light Company/PSE&G Office/Meter Shop, the oldest portion of which was erected in 1870. The district retains integrity of location, design, materials, and association. The buildings remain the property of Public Service Electric & Gas Company.

Pulaski Skyway (No. 40)

US Routes 1 & 9, Jersey City

SHPO determined eligible: 8/04/83

Significance: The opening of the Holland Tunnel in 1927 increased the volume of traffic in the area considerably. Consequently, New Jersey officials were concerned about reliance on the

existing highways and delays due to open drawbridges. Engineering studies resulted in this three-mile steel viaduct, cutting across the Meadowlands marshes and passing 135 feet above the Hackensack and Passaic Rivers. The Skyway is one of America's pioneer elevated expressways, called the longest high-level viaduct in the world when completed in 1932. Costing \$21 million, it was also the most expensive highway facility at that time. Its completion was hailed by the New York Times as "the outstanding highway engineering achievement in history." Shortly after its opening, the bridge was officially designated the Pulaski Skyway in honor of General Casimir Pulaski, Polish hero of the American Revolution.

US Routes 1 & 9 Historic District (No. 40)

Jersey City

SHPO determined eligible: 3/22/92 & 3/8/96

Significance: The 13.2-mile highway, of which 6.25 miles is in the eligible historic district, is one of the nation's pioneer elevated expressways. When US Routes 1 & 9 were under construction, only two percent of all roads in the United States were hard surfaced, all-weather roads. At the time of its completion in 1932, the highway was the single largest highway construction project undertaken in the United States. The project marked the first time that public time-saving was used to justify significant capital costs. It also appears to be the first time that basic predictive formulae for assessing future traffic loads were applied to a highway construction project. At the time of its eligibility determination in 1996, SHPO reported that the district "retains integrity of location, design, setting, material, workmanship, feeling, and association."

Old Main Line Delaware (No. 42)

Lackawanna & Western Rail Road Historic District, Jersey City

SHPO determined eligible: 9/24/96

Significance: The Delaware, Lackawanna and Western Rail Road was chartered in 1815. Old Main Delaware is associated with suburbanization, commuter and passenger traffic, freight traffic, engineering and architecture. Initially chartered in 1815, the DL&W was made to transport anthracite coal in Pennsylvania's Lackawanna Valley. Eventually, the DL&W's service area grew as far east as Hoboken, bringing the Pennsylvania coal fields and iron ore mining to eastern markets. With the connection between the DL&W and the ferries at Hoboken, one could live in the country while maintaining easy access to New York City. The DL&W set standards for passenger service and safety by which other lines were judged. In 1901, the DL&W became the first railroad to adopt the telephone for train dispatching, replacing the telegraph. For suburban stations, the DL&W developed a fairly standard design, a low, rectangular-hopped roof structure with an open loggia at one or both ends supported on piers.

Lower Hack Draw Bridge, NJ Transit Morristown Line (No. 41)

Milepost 2.52 through 2.64 (Over the Hackensack River), Jersey City/Kearny

SHPO determined eligible: 9/18/96

Significance: The bridge is individually eligible and a contributing feature of the Old Main Delaware Lackawanna and Western Railroad Historic District.

Historic Preservation

West End Interlocking Tower ((No. 37)

Milepost 2.10 NJ Transit, east of West End Avenue, Jersey City

SHPO determined eligible: 1/20/99

Significance: Control towers and their interlockings were once a common feature along rail lines. An interlocking device is a combination of signals, derails, locks and switches, controlled from a central tower and connected to make it physically impossible for the operation to promote a collision of trains on opposing routes. If an engineer fails to obey a signal, the engine or a portion of his or her train will derail, but collisions of engines or trains on opposing lines are avoided.

SHPO has identified railroad interlocking towers as a “significant and increasingly endangered historic property type.” West End is individually eligible and a contributing feature of the Old Main Delaware Lackawanna and Western Railroad Historic District. The structure has unique architectural qualities and embodies the DL&W’s early use of concrete.

Hudson Tower ((No. 43)

Kearny

SHPO determined eligible: 2/6/97

Significance: Hudson Tower is an early twentieth century railroad signal tower. It represents the use of the “automatic safety principle” to railroad operations to increase reliability and efficiency. Hudson Tower, Portal Tower (below) and three other interlocking towers in New Jersey formed what was possibly the largest system of interlockings in the country at the time, representing major advances in railroad technology. Hudson Tower is also the last remaining element of the former Manhattan Transfer Station, the point at which the Pennsylvania’s steam locomotives were replaced with electric locomotives for the final leg through the tunnel into New York Penn Station. This helped demonstrate the feasibility of electric traction technology.

Pennsylvania, New Jersey and New York Railroad Co. Portal Bridge (No. 35)

Northeast Corridor Railroad Line across the Hackensack River, Jersey City/Secaucus

SHPO determined eligible: 1/18/78

State Register: 2/22/82

Significance: At the turn of the twentieth century, the railroad system stopped at the New Jersey waterfront. Barge and ferry transportation were necessary to transport freight and passengers across the Hudson into New York City. In 1901, the Pennsylvania Railroad announced plans to build Pennsylvania Station in mid-town Manhattan, electrify the system, and develop rail lines running from Newark, over the marshes of the meadowlands, and through tunnels under the Hudson River to New York. The resulting eight-mile rail line is part of the Northeast Corridor, an integral part of the nation’s mass transit rail system. Several bridges had to be built to carry the train line over rivers, creeks, and other railroad lines. The largest of these bridges was the Portal Bridge, constructed in 1907. The Portal Bridge is the only remaining center bearing swing bridge of three constructed on the Northeast Corridor rail line. It is representative of the improved bridge technology developed by engineers for American railroads in the early twentieth century.

Portal Tower, Amtrak Northeast Corridor Line (No. 38)

Milepost 6.00, Secaucus

SHPO determined eligible: 2/6/97

Significance: This tower serves as an intact example of an early twentieth century railroad signal tower, representing the use of the “automatic safety principle” to railroad operations to increase reliability and efficiency. Portal Tower is also a contributing resource to Portal Bridge.

Among the District’s other historic resources, several of which are named by the sources cited on page 9-2 and included in the figure and map, are the following:

The **Snake Hill** area covers 152 acres in Secaucus, bordering the east bank of the Hackensack River. The site was used as an encampment and lookout during the Revolutionary War and served as the location for various public institutions from the Civil War era to the beginning of the 20th century: in 1863, the site of the area’s first alms house; in 1870, a penitentiary; in 1873, an asylum for the insane, and in 1910 a new alms house and a school. Rock quarried from Snake Hill was used to form the embankments of the railroads that traversed the Meadowlands. In the 1890’s, an advertising agent passing by Snake Hill in a passenger train was inspired by the outcropping hill of rock. Soon photographs of the Rock of Gibraltar, which had a similar profile, were being used in advertisements for the Prudential Insurance Company of America. The image of the rock remains synonymous with Prudential to this day. In 1962, a contract was awarded for the demolition of Snake Hill to the height of ten feet above sea level. Most of the rock blasting was completed; only a portion remains. Since the early 1900’s the area has more commonly been referred to as Laurel Hill. Additional historical information regarding this area is included in Chapter 2, along with a photo appearing in Figure 2.3.

Besides Snake Hill, surveys have identified the 17th century Ferry Landing and Trading House Site at the foot of Riverside Avenue and the 19th century clay pits for brick making in Little Ferry (Resource No.’s 6 and 21, respectively). In Lyndhurst, the Bergen County Historic Sites Survey listed the ruins of the 1916 Canadian Car and Foundry Co. and the 1906 Kingsland Railroad Repair Shop, southeast of the intersection of Valley Brook Avenue and Orient Way (Resources No’s 2 and 3, respectively). With grant assistance from the NJMC, the Lyndhurst Historic Preservation Commission is preparing an application to the US Department of Interior to place the Canadian Car and Foundry Co. on the National Register of Historic Places. Teterboro sites include the Teterboro Airport Tower and Aviation Hall of Fame and Museum (See photo included as Figure 7.9 in Chapter 7.), the 1930’s Atlantic Aircraft Factory, and the 1937 Bendix Corporation complex (Resource No.’s 21—23). The Jersey City, Hoboken and Rutherford Electric Railway Co. car barn was located on Route 153 opposite 5th Street in Secaucus. In East Rutherford, a ferry dock and an exposed portion of the Paterson Plank Road have been identified where the road meets the western shore of the Hackensack River.

Historic Preservation

KEY CONDITIONS

The Meadowlands District has a unique historic and archaeological heritage.

- This heritage is well documented by several comprehensive studies, as well as the State Historic Preservation Office's review of individual sites.
- The significance of several historic resources in the District stems from their major contributions to the history of transportation during the nineteenth and early twentieth centuries.

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US Routes 1 & 9 Historic District, 3/22/1992 and 3/8/1996

Old Main Delaware, Lackawanna & Western Rail Road Historic District, 9/24/1996

Lower Hack Draw Bridge, NJ Transit Morristown Line, Milepost 2.52 through 2.64, 9/18/1996

West End Interlocking Tower, Milepost 2.10 NJ Transit, east of West End Avenue, 1/20/1999

Hudson Tower, 2/6/1997

Pennsylvania, New Jersey and New York Railroad Co. Portal Bridge, on the Northeast Corridor Railroad Line across the Hackensack River, 1/18/1978

Portal Tower, Amtrak Northeast Corridor Line, Milepost 6.00, 2/6/1997

Railspot, <<http://www.railspot.com/interlockers/history.htm>>

Research & Archaeological Management, Inc., prepared for the Hackensack Meadowlands Development Commission, Cultural Resource Reconnaissance, Hacksack Meadowlands Development Commission, January 1989.

Wiley, Walt; "Bee Today," August 7, 2000, Bee Today, <<http://cgi.sacbee.com/news/beetoday/newsroom/local/080700/local01.html>>

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CHAPTER
10

SYSTEMS PLANS

INTRODUCTION

Many of the planning issues for the Meadowlands District are District-wide in nature or affect significant portions of the District. These issues concern various systems, including the natural environment, economic development, transportation, housing, community facilities, and historic resources. Plans for these six systems are called systems plans and are presented in this chapter. Although each system is presented as a distinct element, the systems generally involve complex inter-relationships. For example, an economic development strategy would likely have implications for the natural environment and transportation.

Other planning issues concern smaller, distinct districts or areas located within the District, each with its own identity and potential. These plans are called area plans and are included as Chapter 11. The area plans are the narrative connection to the Land Use Plan, a map of locations for the desired types of development in the District.

Together, the systems and area plans compose the core of the comprehensive plan. Their strategies will guide the realization of the overall vision for the Meadowlands District.

SYSTEM 1: NATURAL ENVIRONMENT

The Commission seeks to safeguard the environmental resources of the Meadowlands District and to provide quality public recreation and educational opportunities.

Strategy 1-Preserve wide expanses of land for open space, wildlife habitats, and recreational opportunities. Planned enhancements identified to date are included in Map 14, the Green Map. To maintain and restore additional habitat, open space, and recreational opportunities, the NJMC will prepare and implement a comprehensive wildlife management and conservation plan. The plan will include the following actions:

- Target and prioritize potential preservation sites for acquisition, deed restriction, and/or conservation easements, including large tracts of wetlands. Sites will be identified from an inventory of vacant land in the District, including lots in their entirety and sizable open space portions of otherwise developed parcels of land. Wetlands will be preserved for wildlife, water quality, and flood storage value. At the direction of the Governor of the State of New Jersey, the NJMC will work towards the creation of a wetlands preservation and wildlife management system. The NJMC will review preservation sites for potential wetland enhancement and mitigation.

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- Improve connections among the District's trails and habitats, reducing fragmentation. The NJMC will identify missing links in the existing trail system, as well as key locations for connecting to wildlife viewing stations, environmental venues, boat launches/docks, and active and passive recreational attractions.
- Increase both active and passive recreational uses. Recreational facilities and opportunities should be available on an equal basis, accessible to all citizens.
- Prepare an inventory of animal and plant species considered high priority for habitat management. The inventory can assist with protecting sensitive species, the proliferation of species which are key to the local ecosystem, and identification of species for education and research.
- Reduce the presence of the invasive *Phragmites australis* (common reed) plant, where appropriate, and establish vegetation mosaics that are more beneficial to wildlife. Monocultures of dense *Phragmites* provide shelter and protection from predators, but the reeds are so dense at some locations that they are difficult, if not impossible for some wildlife to penetrate. Wildlife should increase in numbers from the introduction of a variety of vegetative types more conducive to the needs of many species, particularly migratory waterfowl.
- Eliminate or control the presence of other invasive plant and animal species.
- Maintain and improve targeted habitats relative to breeding, wintering, feeding, and other wildlife activities. Maintain the value of the Meadowlands as an urban sanctuary for birds using the Atlantic Flyway.
- Seek available funding for land acquisition, protection, and management of wildlife preserves; consider an application for National Wildlife Refuge status to attract a wider range of funding.

Strategy 2-Enhance and capitalize on the Meadowland's waterways as a defining asset of the District. The Hackensack River system is a key natural resource presenting unrealized social and economic opportunities.

- Maintain and restore the ecology of the waterways, including the estuary, shorelines, and nursery habitat for fish.
- Reestablish hydrologic functions. Locations of barriers or impediments that negatively impact hydrologic functions will be identified and proposed for removal where practical. The reintroduction of water, especially tidal water, will enhance hydrologic functions. Among the benefits that may be readily noted include improved water quality, increased tidal flow, retention of flood waters, nutrient retention, filtering of contaminants, habitat enhancement from greater available food sources, increases in dissolved oxygen, and more open water.
- Create interconnected networks of open spaces along the river network (also part of Strategy 1), to include, but not be limited to, greenways. Establish public places that offer river views and access to all groups for activities such as fishing, boating, and walking along waterways.
- Seek development opportunities at designated locations along the rivers that have a relationship to and enhance the waterways. The individual and cumulative effects of development on the river system would need to be evaluated.
- Develop strategies and seek pertinent funding for flood control based on flood modeling currently underway for the Meadowlands District and surrounding lands in the Lower Hack-

ensack River watershed; reduce the amount of impervious surfaces that contribute to flooding.

- Control water pollution from point and non-point sources. Control tools include remediation of contaminated properties, which includes landfills in the watershed; innovative technologies, such as “green” infrastructure and best management practices for controlling stormwater runoff from development; continuing to create constructed wetlands; and assisting municipalities and wastewater treatment plants with developing long-term control plans to separate combined sewer systems where feasible.
- Continue monitoring water quality by collecting and analyzing data to determine trends, document improvements, and assess the need for additional or more stringent measures. Monitoring should include the analysis of historic data to form a baseline to measure the degree of improvement over time.

Strategy 3-Encourage emission reductions of pollutants from mobile and stationary sources to improve the metropolitan area’s air quality.

- Monitor regional air quality to determine trends and the need for additional or more stringent actions. Perform traffic analyses to determine trends and recommend additional actions. The NJMC is undertaking a study of the air quality around Teterboro Airport based on concerns regarding the numbers of small jets departing and arriving at the airport daily.
- Permit types of land development in patterns that will influence the choices of travel modes available through zoning, planning for areas in need of redevelopment, and design guidelines. Implement smart growth transportation initiatives to enhance the viability of future projects. For example, locating jobs and services in closer proximity reduces reliance upon the automobile. Other strategies to be considered for the District include transit-oriented development, infill development, brownfield redevelopment, mixed-use development, shared parking, and promoting employer incentives for employee transit use.
- Facilitate and promote alternatives to automobile travel, such as mass transit, bicycling, and walkable communities. This requires strong cooperation among local, State and Federal governments, public interest groups, and the private sector.

Strategy 4-Promote environmental education and awareness in the metropolitan area.

The NJMC can build upon the successes of its educational programs and facilities in various ways:

- Promote programs of the Meadowlands Environment Center for school children and the general public. Programs are geared to a variety of age groups and interests. The NJMC is partnering with Ramapo College to reach new audiences and under-served populations through broadened environmental education programs. The NJMC aims to introduce subjects such as ecology of the estuary, wildlife appreciation, solid waste/recycling, and archaeology/geology to encourage people of all ages to appreciate their surroundings and become stewards of the environment. Lesson plans can be made available for downloading from the NJMC website for educators’ use in the classroom.
- Create satellite teaching facilities in the field with hands-on education focusing on the benefits of a clean environment. The facilities can be located at strategic sites along Meadows Path and other trails within the District. Satellite teaching areas may range from small facilities or experiences such as bird blinds, wetlands or water quality monitoring stations, and

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waterfront decks for collecting field samples to larger venues such as a field station building for public outreach programs, classes, data collection, experiments, and archive displays.

- Continue research opportunities through the Meadowlands Environmental Research Institute and other higher educational facilities in the metropolitan area. Promote research related to flora and fauna, water and air quality, geology, and the history and culture of the Meadowlands. Baseline data, research findings, and reports can be made available to the general public via the NJMC Digital Meadowlands website and library.
- Share long-term monitoring results pertaining to water and air quality and other indicators of sustainability that demonstrate environmental impacts and trends. Results will streamline the collection and analysis of data for environmental impact assessment purposes and assist in NJMC staff review of proposed development projects.
- Promote the public's role in environmental stewardship via the Commission's website, eco-tourism, and other suitable means. Information about the environment will be readily available to the public in a format easily understood by people from diverse backgrounds, education levels and ages. The result will be a greater awareness concerning "quality of life" issues and their importance to future generations.

SYSTEM 2: ECONOMIC DEVELOPMENT

The Commission will foster a healthy economy for the District while enhancing the environment of the Meadowlands and promoting the well-being of its constituent municipalities. Emphasis will be placed upon redevelopment and infill development, while minimizing the development of greenfields, or relatively untouched areas.

Strategy 1-Cultivate a sense of place unique to the District. To successfully promote the District as a desirable location for selected business and industry, mixed use development, transit villages, eco-tourism, recreation, and homeowners, the Meadowlands would benefit from greater place recognition. This strategy draws upon the Meadowlands' unique and memorable places, particularly its waterways and wetlands that offer a "regional breathing space." The Commission, its constituent municipalities, and the private sector would partner to develop a course of action. Several aspects to consider include:

- Clearly defined boundaries so that visitors know when they are entering and leaving the District.
- Coordinated signage at exit points from primary roadways, particularly Routes 3 and 17, to inform visitors about place names and the local attractions and services available. This would reinforce the value of the District's unique natural and cultural resources.
- Enhanced public areas. Design techniques can bring order and harmony to the public realm of streetscapes, parks, other landscaped areas, building design, and transportation. Holding special events and activities in public areas can reinforce their identity.
- Improved connectivity among commercial, educational, and cultural facilities and activities including the New Jersey Sports and Exposition Authority complex. Facilities should not be isolated, but physically integrated into their communities. Brochures and links among Internet sites are among the possible promotional tools. Also, the NJMC can consider development requirements or incentives for adopting a scale of development that is inviting to

pedestrians, bicyclists, and transit users. Greenbelts and greenways can define and connect facilities.

- Educating the public about those aspects of the Meadowlands that are unique, as described under the previous system, **Natural Environment**.

Strategy 2-Realize the opportunities provided by brownfield and grayfield sites. Redevelopment of brownfields and grayfields can revitalize the District by improving the tax base, creating businesses and jobs, preserving open space, and preventing sprawl. The Commission shall expand upon existing efforts to guide development of brownfield and grayfield sites.

For instance, the Paterson Plank Road redevelopment area, located near major transportation arteries and the Sports Complex, provides a prime opportunity to contribute to knowledge of brownfield redevelopment. A major portion of the area was chosen as a USEPA Brownfields Assessment Demonstration Pilot in late 1999. The Pilot involves environmental investigations to reduce the uncertainty regarding contamination to developers. A technical work group including representatives of several local, State, and Federal agencies with specialized knowledge in areas of concern to the study area meets regularly. The Pilot will produce a case study for use in subsequent brownfield initiatives.

The general process for identifying and redeveloping brownfield and grayfield sites will utilize the NJMC's redevelopment authority. Basic steps follow:

- The NJMC shall prepare an inventory of brownfield and grayfield sites in the District. Properties would be selected and prioritized based upon specified criteria, such as listing in a State contamination database (brownfields only); proximity to another site with evidence of serious contamination (brownfields only); the existence of other public health risks; redevelopment potential; and developer interest.
- The sites of the highest priority may then be deemed "in need of redevelopment" in accordance with the NJMC's redevelopment powers.
- Redevelopment plans would be prepared and adopted for the "in need" sites. Unless there is compelling reason to pursue an alternative type of development, the permitted land use(s) would be consistent with the uses designated for the planning area in which the site is located per Chapter 11, Land Use Plan.
- The NJMC would assist in marketing the properties with incentives to potential redevelopers.
- For brownfield sites, the NJMC can assist the selected redeveloper with the remediation process by coordinating technical assistance from State and federal agencies and identifying financial assistance programs suitable to the project. There are a growing number of loan, grant, and tax incentives programs applicable for brownfield redevelopment.

Strategy 3-Strengthen economic partnerships to encourage a variety of commercial and industrial uses at suitable locations that will diversify the District's economic base.

- The NJMC's website offers a valuable promotional tool. Links will be established with the governments of Bergen and Hudson counties; the Meadowlands Chamber of Commerce; Meadowlands municipalities; and State, Federal, and private non-profit entities offering economic assistance programs including the New Jersey Economic Development Authority.

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- Information regarding technical and financial assistance available to business and property owners can be available at the Commission's offices.
- A District-wide information base regarding commercial and industrial properties for sale or for rent should be developed and maintained on the Internet with appropriate web links, either by the NJMC or by another suitable entity.

Strategy 4-Promote the use of innovative technology in buildings and business operations. Examples are automation; high-cube warehouse buildings; and "green buildings," or high performance buildings that are energy efficient. Green buildings are designed and constructed in accordance with the Leadership in Energy and Environmental Design (LEED™) Green Building Rating System developed by the US Green Building Council, a coalition of building industry representatives. Such technologies can result in increased production, lower overhead, and more efficient business practices.

Strategy 5-Continue to make the development review process more efficient and effective. This will encourage developer interest in the District and promote the completion of beneficial projects in as short a timeframe as possible. The NJMC shall re-examine the overall process and coordinate with other State, local, and Federal agencies to streamline the permitting process where possible. The Commission will refine its use of information technology.

SYSTEM 3: TRANSPORTATION

The Commission will promote the improvement of the current transportation network and the ability of the Meadowlands District and its surrounding area to meet future demands. Improvements should be designed to minimize the degradation and fragmentation of wildlife habitats. Planning strategies for the District must view the Meadowlands as not only a vital component of the northern New Jersey transportation system, but also a destination in its own right.

The regional system consists of Hudson, Bergen, and other northern New Jersey counties. The system serves the world's largest regional consumer market. Increased port and rail traffic have put added strain on transportation routes as they generate more truck traffic. The increased freight movement has also put pressure on the development of vacant and underutilized properties for intermodal usage and warehousing. Strategies must consider the capacity and efficiency of regional systems.

Strategies must also take advantage of the location of existing and proposed transit facilities in the District. For example, the Frank R. Lautenberg Station at Secaucus Junction will provide the needed synergy for a significant investment of infrastructure and the creation of employment centers in the Meadowlands. Secaucus Junction and its surrounding area will be planned as a "transit village," described in the next chapter. Other locations in the District are also planned for transit villages. These planning areas will incorporate smart growth principles, multi-modal transit, and other transportation facilities. Intense development will be permitted at a scale compatible with the community and the capacity of the overall transportation network.

FIGURES 10.1—10.3 *These images suggest various ways the District can promote a unique sense of place.*

FIGURE 10.1 (upper) *This sign appears at key locations along the Borough of Rutherford’s borders. Coordinated signage at exit points from primary roadways can inform visitors about place names and the local attractions and services available.*



FIGURE 10.2 (middle) *The new Secaucus Public Library and Business Resource Center at 1379 Paterson Plank Road. Building design can enhance public areas and reinforce their identity.*



FIGURE 10.3 (lower) *The NJMC’s annual Riverfest is an example of how holding special events and activities in public areas can reinforce the District’s identity. NJMC’s educational programs are geared to a variety of age groups and interests.*



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The redevelopment of the Sports and Exposition Authority property will enhance the opportunity to bring transit facilities to the District. The combination of a significant demand for transit on game days and special events along with the future development of a regional retail and entertainment center that includes substantial office space will spur the coming of mass transit to the location. It may also serve other important land uses in the District.

The multi-modal transportation centers may include not only rail and bus transportation to other locations in the District and beyond, but also shuttle services to smaller employment locations. Pedestrian transportation will be strongly encouraged by the placement of destinations within walking distance of the centers. Where practical, park and ride facilities will be encouraged to divert motorists from the regional highways to transit systems.

The following strategies will foster the availability of various modal choices, particularly public transit, walking, and biking. They will also promote the interconnectivity of the transportation network where necessary and feasible.

Strategy 1-Enhance coordination and cooperation among local and regional transportation agencies. Engaging these agencies is essential to the development and implementation of the programs, projects and plans that will improve the balance and capacity of the roadway and transit systems. Among the NJMC's roles and considerations:

- Prepare a transportation improvement plan designated "Meadowlands Mobility 2030" and introduce the plan concurrently with the Commission's adoption of the NJMC Master Plan. Meadowlands Mobility 2030 will determine priority projects, establish guidelines on where and how to invest transportation dollars, and recommend funding alternatives. Emphasis will be placed on transportation options, including rail, bus, roads, walking, bicycling, and ridesharing, for people who live or work within the District. The plan will be a cooperative product of the NJMC, the North Jersey Transportation Planning Authority, New Jersey Transit, the New Jersey Department of Transportation, the New Jersey Turnpike Authority, Bergen and Hudson counties, the Meadowlands Regional Chamber of Commerce, the District's constituent municipalities, and environmental groups.
- On-going coordination with various agencies to reduce traffic delays as measured by levels-of-service.
- Seek coordination and consistency among local and regional plans and approaches regarding improvements to roadways, railways and other modes of transportation, including the Regional Transportation Plan prepared by the North Jersey Transportation Planning Authority and the Port Authority's Comprehensive Port Improvement Plan.
- Ensure that improvements maintain or enhance both the natural environment and the safety of transportation facilities.
- Generate and maintain data for use in transportation studies, land use, and transportation modeling/simulation.

Strategy 2- Improve the inter-relationship between land use and the transportation system through the NJMC's policies and regulations.

- Adopt uniform criteria for 1) identifying land use impacts upon the capacity of the transportation network; 2) traffic impact studies prepared in connection with proposed development

projects; 3) transportation safety design in site plan requirements; and 4) design guidelines that improve circulation and safety on roadways, railways, and pedestrian facilities within the District.

- Assess the parking needs of the District, develop strategies to improve parking conditions, and address any deficiencies.
- Create development opportunities for airport support services adjacent to the Teterboro Airport.
- Explore the feasibility of establishing one or more innovative transportation districts based on the concept of a Transportation Enhancement District (TED), a Transportation Oriented Development (TOD), or a Transportation Improvement District (TID). A portion of the Town of Secaucus, the Paterson Plank Road area, the area around the Sports Complex site, or even the District itself offer the potential for the establishment of innovative transportation-related districts.

Secaucus – The outlet centers, warehouse/distribution sites, office centers, and Secaucus Junction contain the right components for the establishment of a transportation district that could serve as a regional model of relating transportation uses to land uses. The Secaucus Junction area would also serve as the main hub to other district transportation hubs that may be established.

Paterson Plank Road and NJ Sports & Exposition Authority Area (NJSEA) – Paterson Plank Road (PPR), including the NJSEA area west of the Hackensack River, provides a major access corridor to the center of the District and a link to several major highways including Route 17, Route 3, Route 120, and the NJ Turnpike. The PPR corridor also has significant redevelopment potential in conjunction with the NJSEA area. These factors make PPR a prime location to establish a Transportation Improvement District and a multi-modal transportation hub. The PPR corridor could then be linked to a larger transportation hub such as Secaucus Junction.

Meadowlands District — As a transportation district, the Meadowlands District would be able to insure coordination with other transportation stakeholders, generate resources through impact fees and special assessments to reduce some of the demands upon the State’s Transportation Trust Fund, and create a structure for developers to pay their fair share of costs for regional transportation improvements.

Strategy 3-Promote vehicular free flow throughout the District. An efficient and effective roadway network can be realized through improving critical links in the system, enhancing access to transit facilities, and introducing innovative methods to reduce traffic and improve traffic flow. The “Mobility 2030” transportation plan will take into account currently proposed roadway improvement projects while considering additional roadway projects that could improve the system. It will consider the interrelationships among roadways, land uses, and the transit system. Through that plan and various other initiatives, the NJMC will support or address the following needs as appropriate:

- Determine which segments of the existing transportation network require capacity increases through the use of Transportation System Management methods.
- Identify the need for and encourage improvements to highways and other major roadways within and around the District. The development of an interrelated transportation network

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is essential to creating a harmonious transportation system that both respects the environment and facilitates the movement of people and goods in an efficient and effective manner.

Strategy 4-Encourage the use of transit through an integrated transit and multi-modal transportation system. An integrated system will enable efficient access to cultural, commercial, environmental, employment, and residential centers in the Meadowlands District. Alternative transportation modes, particularly rail and light rail, will need to assume a larger role in reducing traffic problems, especially in congested corridors such as the Meadowlands area.

- Identify transportation network improvements that create circulation links among roadways, railways and other related facilities within and near the District.
- Coordinate efforts in connecting transit, pedestrian, and parking facilities to provide greater accessibility among transportation modes within and around the district. These are the transportation interconnectivity measures that can be applied:
 1. Park-and-ride facilities for bus and rail access
 2. Multi/intermodal access centers and transit villages that interconnect with other transit facilities
 3. More efficient bus routing to avoid redundant or unnecessary service
 4. Bus shelters at heavily used bus stops
 5. Coordination with NJ Transit and other bus and shuttle operators to provide more efficient service
 6. Coordination of public transit modes and schedules, especially between bus and train transfers
 7. Improved modal choices, including vehicle, public transit, walking, biking, and other forms of transportation for residents, employees and travelers within and through the District
 8. Employee trip reduction programs that provide incentives to employees to use transit services
- Encourage the development of transit and paratransit programs for mobility of persons with disabilities and seniors seeking to access the transportation network.

Transit Villages - Intermodal centers interconnected with a mix of land uses and services that are suitable for transit services and pedestrianism. The establishment of Transit Oriented Developments (TOD) or Transit Development Districts (TDD) would require regulations, financial mechanisms, and incentives. The Frank R. Lautenberg Station at Secaucus Junction and the golf course redevelopment area have been identified as having the potential for Transit Villages in the District.

Strategy 5-Promote pedestrian movement and bicycle access in an integrated system. Continuing partnerships with the District's counties and municipalities will be valuable in the planning and development of pedestrian and bicycle trails.

- Prepare a study that assesses pedestrian and bicycle access.
- Develop policy that requires sidewalks for any new development or transportation improvement district.
- Provide pedestrian links among public transit, open space, trails, sidewalks, economic and employment centers, and housing.

- Encourage an appropriate spatial orientation of structures to the surrounding streetscapes and the dedication of pedestrian areas to improve access to and from transit facilities and adjacent land uses.
- Encourage the installment of sidewalks in areas where segments are missing.
- Encourage the development of pedestrian walkways/bridges over major roadways to link pedestrian oriented land uses and improves pedestrian safety.
- Encourage the development of waterfront esplanades.
- Coordinate the development of pedestrian and bicycle trails with NJDOT and NJ Transit.

Strategy 6-Foster the development of an integrated intermodal freight system. The system would establish distinct truck routes, encourage the use of freight rail systems to reduce truck trips, and locate supporting uses adjacent to intermodal facilities.

- Improve rail links to increase capacity in and through the Meadowlands District.
- Encourage freight movement by rail.
- Encourage the placement of intermodal and larger distribution sites near rail and highway locations.
- Investigate freight capacity and expansion options.
- Encourage and establish truck routing that uses major roadways and highways and limits access through local residential areas.
- Encourage freight movement by trucks during non-commuter peak periods.
- Promote the separation of rail and roadway crossings, especially at roadways that have moderate to heavy traffic volumes or pedestrian activity.
- Prepare an intermodal freight study to investigate the relationship of the regional freight movement to the Meadowlands District.
- Encourage Foreign Trade Zone designation for appropriate locations in the District.

SYSTEM 4: HOUSING

The regional shortage of suitable, affordable housing causes many District residents and employees to pay excessive portions of their income for housing costs or to reside at locations far away from employment. To alleviate the shortage, the District's housing inventory would benefit from a more balanced mix of housing types and costs. The chapters analyzing existing conditions in the District have demonstrated, however, that there is very limited vacant land that is suitable for any additional residential units within the NJMC's jurisdiction.

Another key consideration in formulating housing policy is the strong relationship that exists between the locations and numbers of the resident populations and the capacity of essential municipal services, including fire, police, emergency squads, and schools. Therefore, the NJMC places its housing policy in a municipal context, with guidance to the District's municipalities in planning and decision-making. The Commission will work with its municipalities to address the following housing strategies through local initiatives and available state and federal programs.

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Strategy 1-Permit the creation of additional housing units in existing residential areas or mixed use development within the limits of available infrastructure, community facilities, and the natural environment. The land use plan in Chapter 11 and the accompanying Map #15 delineate planning areas where residential development would be permitted. In the planning area known as Secaucus Transit Center, housing would be permitted along the riverfront. Housing as part of mixed use development may be permitted in a portion of the Waterfront Development area and in the Resort Recreation Community area. Village areas could include low-density housing. The Airport area would include very limited residential uses. The District's existing trailer parks would be permitted to continue along with other nonconforming housing, even though their overall quality may be considered less than desirable. Many households residing in trailer home communities are of lower income and benefit from the affordable alternative they provide. The NJMC encourages aesthetic enhancements to these facilities over time.

The land use plan promotes the development of clustered or higher density housing. Such housing is less expensive to service on a per-household basis, because infrastructure and public services are spread over a smaller geographic area. Development should be located in areas with sufficient roadways, utilities, schools, and emergency services to serve the projected increase in population. Another consideration is the proposed development's proximity to businesses providing needed services and jobs.

Prior to approving any new housing, the NJMC may require a limited fiscal impact analysis, based on the size of development being proposed. The analysis would look at the location and capacity of utilities, schools, and emergency services, traffic volume and movement, the costs of providing services for the development in comparison to taxes generated by the development, and the ability of the individual municipalities to accommodate and service the development. Additionally, a traffic analysis may be required in order to determine the ability of the existing infrastructure to handle new development. The NJMC would work with the municipalities to determine any necessary mitigating measures. The municipality, developer, and the NJMC would enter into a developer's agreement to offset extraordinary fiscal impacts caused by the development.

Strategy 2-Encourage the District's municipalities to bring substandard housing to standard condition through a program of code enforcement and rehabilitation. Property maintenance codes should be enforced. Where a homeowner has been cited but is unable to afford repairs, the owner can be referred to appropriate resources for rehabilitation assistance. Jersey City and the Township of North Bergen receive annual funding allocations under the federal Community Development Block Grant (CDBG) program. Jersey City also receives a federal allocation under the HOME Investment Partnerships Program. Both funding sources can be used for housing rehabilitation where the occupying household is considered to be of low or moderate income, in accordance with regulations of the US Department of Housing and Urban Development (HUD). Owners of housing located in other District municipalities can apply for assistance through the CDBG or HOME programs operated by their counties. The New Jersey Housing and Mortgage Finance Agency also offers assistance through programs that support local public and private partnerships. Rehabilitation activity should seek to minimize the displacement and relocation of families to the greatest extent possible.

Strategy 3-Spur the production of affordable housing in the region. The State of New Jersey’s affordable housing requirements result from the State’s Fair Housing Act of 1985, adopted by the New Jersey legislature in response to the “Mount Laurel” decisions of the New Jersey Supreme Court. Per Mount Laurel, each municipality has a constitutional obligation to establish a “realistic opportunity” for providing a “regional fair share of current and future need” for housing affordable to households of low and moderate income. A low-income household has an income equal to 50 percent or less of the median gross household income for households of the same size within the housing region. A moderate-income household has income in excess of 50 percent but less than 80 percent of the median gross household income for households of the same size within the housing region.

The Fair Housing Act also established the New Jersey Council on Affordable Housing (COAH) to prepare a comprehensive planning and implementation response to the constitutional obligation. The District’s municipalities are part of COAH’s Region I, which includes Bergen, Hudson, Passaic, and Sussex counties. COAH’s current income limits for Region I appear in Figure 10.4 below.

FIGURE 10.4								
2003 INCOME LIMITS FOR REGION I								
Bergen, Hudson, Passaic, and Sussex Counties								
	-----Household Size-----							
Income	1-Person	2-Person	3-Person	4-Person	5-Person	6-Person	7-Person	8-Person
Median	\$49,511	\$56,584	\$63,657	\$70,730	\$76,388	\$82,047	\$87,705	\$93,364
Moderate	\$39,609	\$45,267	\$50,926	\$56,584	\$61,111	\$65,637	\$70,164	\$74,691
Low	\$24,756	\$28,292	\$31,829	\$35,365	\$38,194	\$41,023	\$43,853	\$46,682

Source: New Jersey Council on Affordable Housing, adopted May 7, 2003

The Fair Housing Act requires each municipality to prepare and adopt a housing element and fair share plan as part of its master plan. The housing element must address the municipal affordable housing obligation, to include, per the Municipal Land Use Law, “residential standards and proposals for the construction and improvement of housing.” The municipality may petition COAH for “substantive certification” of its housing element and fair share plan to engage COAH’s mediation and review process. Substantive certification refers to a determination by COAH approving a municipality’s housing element and fair share plan in accordance with the provisions of the Fair Housing Act and COAH’s regulations. To be certified by COAH, the plan must establish a realistic opportunity for the provision of COAH’s affordable housing allocation. A grant of substantive certification shall be valid for a period of ten years.

The NJMC will pursue a Memorandum of Understanding with COAH regarding the shared goal of providing the opportunity for affordable housing within the Meadowlands District and its fourteen municipalities. It will also prepare a Memorandum of Agreement (MOA) with the Hackensack Meadowlands Municipal Committee detailing how affordable housing will be ad-

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dressed by the NJMC and its constituent municipalities. The MOA will effectuate COAH regulations regarding inclusionary developments, Regional Contribution Agreements (RCA's), senior citizen housing, rehabilitation of substandard housing, petitions for certification of housing elements and fair share plans, development fee ordinances, and other instruments and actions as appropriate.

The NJMC, in cooperation with COAH, will work with each District municipality to determine a plan for meeting its COAH allocation, including the identification of suitable locations for housing. A significant limitation to the municipalities meeting their obligations is the lack of available land capacity, particularly for land within the District. Vast, vacant areas in the Meadowslands have environmental constraints precluding the construction of housing. These environmentally sensitive areas consist of wetlands, flood hazard areas, and former landfills. Additional areas in the District are designated as conservation, parklands, and open space lands. In accordance with its regulations, COAH has adhered to the NJMC's policies in delineating these environmentally sensitive lands (NJAC 5:93-4.2(e)). COAH approved vacant land adjustments for the two towns in the District with certified housing elements, Ridgefield and Teterboro.

Rehabilitation of substandard housing may provide COAH credits, depending on the nature of the municipality's housing allocation. Appropriate controls would need to be put in place for the units to meet COAH's requirements on affordability. Some funding sources for rehabilitation are listed under Strategy 2.

The Commission will also award grants to its constituent municipalities for the purpose of preparing housing elements and fair share plans that would be submitted to COAH for substantive certification or recertification. The Commission has worked informally with its constituent municipalities over the years to develop affordable housing in a manner that allows the local flexibility permitted by COAH regulations. The successes of the Town of Secaucus and the Borough of Teterboro are noteworthy examples. Secaucus has instituted a development fee ordinance and spending plan, approved by COAH. Using those funds, the Town has selected sites outside the District to develop new, affordable units and rehabilitate existing units. Also, a major development within the District is currently under construction and will include affordable units. At Teterboro's request, the NJMC prepared a redevelopment plan to allow for new housing, also with an affordable component.

The NJMC encourages the development of residential uses in accordance with COAH guidelines. The municipality may satisfy its COAH responsibility with any residential development in the District. In those cases in which a municipality seeks to use available sites within the District in order to provide for its affordable housing obligation, the Commission will consider a municipal petition to rezone a non-residential property provided that

- the municipality has considered all out-of-District alternatives and in-District residential zones; and
- all reasonable attempts have been made to minimize the environmental impact of the development, including but not limited to a careful consideration of a variety of affordable housing types.

Under no circumstances will wetlands be impacted for housing needs.

In this manner, the town can determine the best way to meet its COAH obligation through projects located inside and/or outside the District.

To promote the actual production of affordable units, the NJMC will consider seeking a change to COAH regulations that would authorize the Commission to establish and operate a regional development fee pool. The pool would capture funds from new development in the District and deposit them into established escrow accounts. Those municipalities that do not already have a development fee ordinance could apply to the pool for projects that meet COAH requirements. The distribution of funds from the pool would require the approval of the NJMC and the requesting municipality's governing body. Municipalities that have established development fee ordinances would operate outside of this pool under the existing COAH regulations for such funds.

An additional economic incentive for municipalities to produce affordable housing could be achieved through modifying the NJMC's Intermunicipal Tax Sharing Formula. Any modification may require an amendment to the Commission's legislation.

Strategy 4-Encourage development of housing for people 55 and over who currently reside in the region and wish to continue to live here. The NJMC will ensure that its new zoning regulations do not restrict the opportunity for such housing to be developed. According to the Census 2000, one-third of the households in the two counties include at least one person 60 years and over. More housing opportunities are needed for maturing and older householders seeking to downsize or reside in proximity to retail, recreation facilities, and transit. COAH recognizes this need in its current regulations by allowing municipalities to reserve up to 25 percent of their allocations for age-restricted units.

SYSTEM 5: COMMUNITY FACILITIES

The Master Plan is an expression of the Commission's desire for the Meadowlands District to attain its full potential as a land resource of incalculable opportunity for new jobs, homes, and recreational sites. This vision cannot be achieved without a strong supporting system of community facilities.

Strategy 1-Encourage the District's municipalities to provide a suitable array of community facilities to support anticipated population, employment and economic growth.

- Develop or update municipal facilities plans in consultation with Commission staff. The NJMC can support municipalities' facilities planning and improvements to operations by continuing to offer access to Geographic Information System (GIS) data. With GIS, the NJMC can assist municipalities in combining detailed land information from satellite images with census data and local municipal contributions, turning data into visual problem solving tools for day-to-day operations, emergency management, and long-term planning. Accessible, expanded databases can assist several municipal functions, including planning, zoning, fire, police, and public safety.

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- Continue partnering through shared services and expand the use of shared services where feasible.
- Use NJMC and municipal websites to provide information about services and programs and render certain services, such as licensing, permitting, and paying fees and fines. Conducting such transactions via the Internet reduces automobile use, provides easier and more timely access, and enables the processing of transactions more efficiently.

Strategy 2-Consider the support capacity of community facilities and private utilities when planning or reviewing types and levels of development. Prior to issuing zoning approvals for additional residential units or other new development, the NJMC will confer with any affected municipalities and/or utility providers to determine if there is available capacity to service new projects or if expansion of utilities or service units would be needed. The NJMC will require a limited fiscal impact analysis for proposals involving the creation of new housing units. Utility expansion should be based upon demand levels and environmental considerations.

Strategy 3-Conduct appropriate analyses that support emergency planning. Comprehensive plans can be powerful tools for protecting communities against losses from emergencies and disasters. Disaster preparedness contributes to a sustainable future. Mitigation and recovery can improve the quality of life with regard to public health and safety, environmental stewardship, and social and economic security.

The NJMC has an Emergency Management Plan. The Commission has formed an Emergency Management/Continuation of Government Committee to manage the plan, including its implementation, related exercises with employee involvement, and revisions as necessary. The following activities are considerations for emergency management planning in the District:

- Identify risks to the District from flood.
- Develop mitigation strategies to eliminate or reduce the probability of a flood disaster. Examples include restricting new construction in vulnerable areas, increasing building elevations to reduce the threat of flooding, and adopting other requirements for sites/buildings to be more hazard-resistant.
- Restricting access to site and building plans.
- Design suitable response activities by the Commission following an emergency or disaster to provide emergency assistance to victims.

Strategy 4-Support disaster preparedness and mitigation activities by the District's municipalities. Effective emergency planning requires the collection, analysis, and sharing of location-based data. Through its Geographic Information System (GIS), the NJMC can continue to offer assistance to municipalities in combining detailed land information from satellite images with census data and local municipal contributions, turning data into visual problem solving tools for emergency management.

SYSTEM 6: HISTORIC RESOURCES

The NJMC will strive to preserve, protect and sustain the unique historic and archaeological resources of the Meadowlands.

Strategy 1-Preserve the District’s historic and archaeological heritage. The NJMC will refine the inventory of significant resources included in Chapter 9. The Commission will review the potential effects to these resources associated with any applications for development, including those applications that concern sites adjacent to such resources. It will consult with SHPO regarding any appropriate mitigating actions that should be undertaken.

Systems Plans

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CHAPTER 11

AREA PLANS

CONCEPTS

The character of development throughout the Meadowlands District is a composite of the types, locations, intensities, and design of its constituent land uses. Current land use patterns are functions of development that took place prior to the NJMC and its original Master Plan, the subsequent years of implementing the Plan, and various legislative mandates. A map of locations for desired types of development, included as Map 15, presents a major strategy in achieving the Master Plan's vision for the District. It provides the blueprint that guides the District's form.

Traditionally, both master plans and local zoning have sought to separate commercial and industrial development from residential areas. There has also been a widespread belief that single-family detached dwellings should be protected from the intrusion of other housing types. Both notions were challenged by the decline of heavy industry and the growth of modern technology in the 1970's. These trends fostered the planning concept that certain types of land uses could be compatible, particularly residences, offices, and small retail establishments, marking the beginning of mixed use zones.

More recently, the smart growth and sustainable development initiatives have given further impetus to the mixed use concept. As discussed in Chapter 1, smart growth reflects concerns about sprawl, environmental degradation, and fiscal constraints. Sustainability requires the economy, society, and the environment to function harmoniously, meeting the needs of the present without compromising the ability of future generations to meet their own needs. Within the Meadowlands District, the sustainability and smart growth initiatives must be undertaken within the context of these competing factors:

- The wetlands and open areas of the Meadowlands are critical to the environmental protection and enhancement of the Hackensack River system. Most suitable upland properties have already been developed.
- The District's historic development of warehouses and light industrial uses, its proximity to New York City and Port Newark and the Elizabeth Port Authority Marine Terminal, and the extensive regional system of roadways and railways suggest a continuing demand for distribution/warehouse facilities and transportation improvements.

The District's original Comprehensive Land Use Plan consisted of a map and a rendering developed to balance certain competing interests. According to the accompanying narrative, "The pivotal part of the plan is a central, six square mile regional breathing space, recrea-

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tional water park and marsh conservation-wildlife preserve running the length of the District.” The original plan incorporated certain aspects of smart growth and sustainable development well before those concepts had been defined and popularized. Although the plan drew upon traditional land use principles to bring order to the District, it also introduced innovative concepts and design for a Meadowlands of the future. The plan did not, however, concentrate on redevelopment or the remediation of industrial properties.

The new Land Use Plan continues to promote the overall vision of the original plan, modifying certain aspects in light of changed conditions, current attitudes, and subsequent legal mandates. It incorporates the following policy considerations, consistent with those regarding Systems Plans in Chapter 10, as well as the Plan Features described in Chapter 1:

- The District’s remaining wetlands will be preserved as open space. There is now a greater understanding of the critical roles of wetlands as wildlife habitat and the overall quality of the Hackensack River system than existed at the time of the original Comprehensive Plan. Once viewed as non-productive, wetlands are now recognized as important in the hemispherical context as part of the North American Flyway for migratory birds and for the richness of the wetland environment as a host for a variety of wildlife.
- Redevelopment of landfill sites will provide not only the closure of landfill operations, but also much needed recreation, open space, and habitat enhancement areas. Landfill sites in Rutherford, Lyndhurst, North Arlington, and Kearny will be designated as “Resort Recreation Community” areas, consistent with the adopted redevelopment plan for these areas.
- The expansion of the warehouse/distribution sector in the District is highly desirable, particularly when considering the regional growth in port-related and intermodal freight business. The many freight railroads that traverse the District induce demand for additional intermodal facilities and freight related businesses.
- The influence of the Frank R. Lautenberg Station at Secaucus Junction will be directed to the entire south Secaucus area for purposes of economic development and to the entire District in terms of transportation services.
- The evolution of the New Jersey Sports and Exposition Authority area continues to play a vital role in this plan. The NJSEA’s consideration of redeveloping the Meadowlands Sports Complex to include a mix of commercial uses dramatically influences land use decisions regarding adjacent areas.

DESCRIPTIONS AND POLICIES

The Land Use Plan, included as Map 15, divides the District into twenty planning areas, including three Preserve areas and five Village areas. Each planning area has its own unique character. A summary of the planning areas and their sizes is included as Figure 11.1. Narrative descriptions appear on the following pages.

FIGURE 11.1		
Planning Areas		
in the Meadowlands District		
PLANNING AREAS	ACRES	PERCENT
Airport	681.9	3.5%
Secaucus Transit Center	137.3	0.7%
Commercial Corridor	398.1	2.0%
Employment Center	2550.9	13.1%
Logistics/Intermodal/Industrial	2528.6	13.0%
Paterson Plank Corridor	199.6	1.0%
Preserve: Berry's Creek, Hackensack River, & Penhorn	7128.7	36.6%
Resort Recreation Community	1255.6	6.4%
Sports and Entertainment	583.3	3.0%
Transportation	2865.8	14.7%
Utility	54.3	0.3%
Village: Little Ferry, Lyndhurst, Moonachie, Secaucus, & Teterboro	396.2	2.0%
Warehouse Outlet Center	542.3	2.8%
Waterfront Development	162.8	0.8%
TOTAL ACRES	19485.4	100.0%
<i>Note: Total acres are approximate due to rounding.</i>		

The planning areas do not constitute zoning districts. Instead, the descriptions of the planning areas provide the impetus for the development of a new zone plan and regulations. The zone plan and regulations will reflect the spirit and intent of the adopted Master Plan and will be the mechanism by which the policies and principles of the Master Plan are implemented and enforced. Proposed development will be evaluated in accordance with smart growth principles.

Preserve: Hackensack River, Berry's Creek, and Penhorn

The Hackensack River system is recognized as a defining attribute of the Meadowlands District in the designation of the Hackensack River Preserve and two tributary preserve areas, the Berry's Creek Preserve and the Penhorn Preserve. This designation includes most of the exist-

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ing wetland areas in the District. Some uplands are also included, particularly along the Hackensack River where they are important for recreation or open space protection. The Preserve areas will protect wetlands remaining in the District, with the intent of full public ownership. To meet this objective, the NJMC will seek to acquire approximately 2,600 acres of wetlands. An additional 600 acres are anticipated to be donated to the State of New Jersey. These areas will not be consumed by sprawl development.

Preserves permit uses that are consistent with the preservation of open space and habitat protection and enhancement. Wildlife management areas are encouraged. The plan promotes the formulation of a habitat enhancement program for the preserve areas, as well as edge parks and waterfront park areas for the public. Wetland restoration and/or mitigation is provided in connection with programs and regulations of other State and Federal agencies.

The Preserve areas consist of all undeveloped land adjacent to the Hackensack River. This includes most of the land between the western spur of the New Jersey Turnpike and the Hackensack River, the undeveloped land on the east side of the River to the north of the developed portions of Secaucus, the Saw Mill Creek Wildlife Management Area, and Kearny Marsh.

Major tributaries associated with the Hackensack River Preserve are located on both sides of the river and include the Losen Slote, Moonachie Creek, Saw Mill Creek, Anderson Creek, Mill Creek and Bellmans Creek.

The Penhorn Creek Preserve includes the headwater areas north of Secaucus Road in North Bergen and the area surrounding the Malanka Landfill and the Public Service Electric and Gas facilities in Secaucus and Jersey City, respectively.

The Berry's Creek Preserve includes the areas along both the Creek itself and Berry's Creek Canal in Rutherford and East Rutherford. Further upstream, it includes the Berry's Creek Tidal Marsh on the New Jersey Sports and Exposition Authority property and the wetland areas in Carlstadt at the confluence of the East and West Riser Ditches and Peach Island Creek. Its designation as part of Berry's Creek Preserve will allow the Berry's Creek Tidal Marsh to be used for open space in conjunction with other development on the Sports Complex site.

Resort Recreation Community

This designation is associated with the existing landfill areas in Rutherford, Lyndhurst, North Arlington and Kearny. The landfill areas include the Viola, the Avon, the Rutherford, the Lyndhurst, the Erie, I-E, and the Kingsland landfills.

The purposes of the Resort Recreation Community are to convert landfills and adjacent areas to recreation uses, establish upland and wetland habitat areas, properly close the landfills using techniques that are proven to protect the environment, and provide for economic development in concert with the recreation uses. Golf courses will be constructed on top of the closure materials. A total of four courses are planned together with ancillary facilities such as a practice range and a clubhouse. A conference center, offices and residential development are also pro-

posed within the Resort Recreation Community area. The residential development will offer overlooks of the golf courses and the wetland environment.

Together, the Resort Recreation Community and the Hackensack River Preserve will establish a substantial open space area west of the Hackensack River. The area will include passive and active recreational facilities and provide for both upland and wetland habitat protection areas in an expansive system of streams and elevation changes. It will enrich the Meadowlands as a destination for resort recreation opportunities.

Secaucus Transit Center

Secaucus Transit Center is a planned mixed-use development. The Frank R. Lautenberg Station at Secaucus Junction, the most significant transportation improvement in the northeastern United States in the past decade, is located at the center. Secaucus Junction connects every major rail commuter line in northeast New Jersey and allows transfers to various destinations in the region. Operated by NJ Transit, Secaucus Junction provides direct, interrelated train operations among NJ Transit's Bergen and Main Line, Amtrak, and the Northeast Corridor Line. The Northeast Corridor carries trains from the Raritan Valley Line, the Montclair Branch, the Boonton Line, and the Jersey Shore Line via the Newark Penn Station. Officially opened in September 2003, Secaucus Junction is establishing itself as a transit hub.

Consistent with smart growth principles, the station is the focal point of a major development node that offers potential as a "transit village." Permitted uses immediately above and adjacent to Secaucus Junction may include retail, office, hotel, parks, and residential development.

Commercial space in conjunction with Secaucus Junction will accommodate the needs of the local employee base and residents. Concourse space is available within Secaucus Junction itself. Retail including business services may be established within proximity of the residential development.

Office space is planned for the area above and adjacent to the station. The office space establishes a unique commitment to the economic development of the area and is one of the most significant public-private partnership arrangements ever to take place in this region. Mass transit will be the preferred transportation mode for persons accessing the office buildings, including approximately 60 percent of the office employees.

Active and passive recreational facilities will have connections to the water, residences, and offices. The transit village will be a walkable neighborhood. Wetlands along the Hackensack River and Penhorn Creek will remain as natural open space. The Secaucus Greenway would be the focal point for open space. The Greenway should be interconnected to future waterfront open space areas north of the County Park.

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FIGURE 11.3 *The NJMC's administrative offices and Environment Center at Richard W. DeKorte Park in Lyndhurst present an effective interface of development with the waterfront. DeKorte Park balances the public's desires for access, education, and recreation with environmental protection and restoration.*

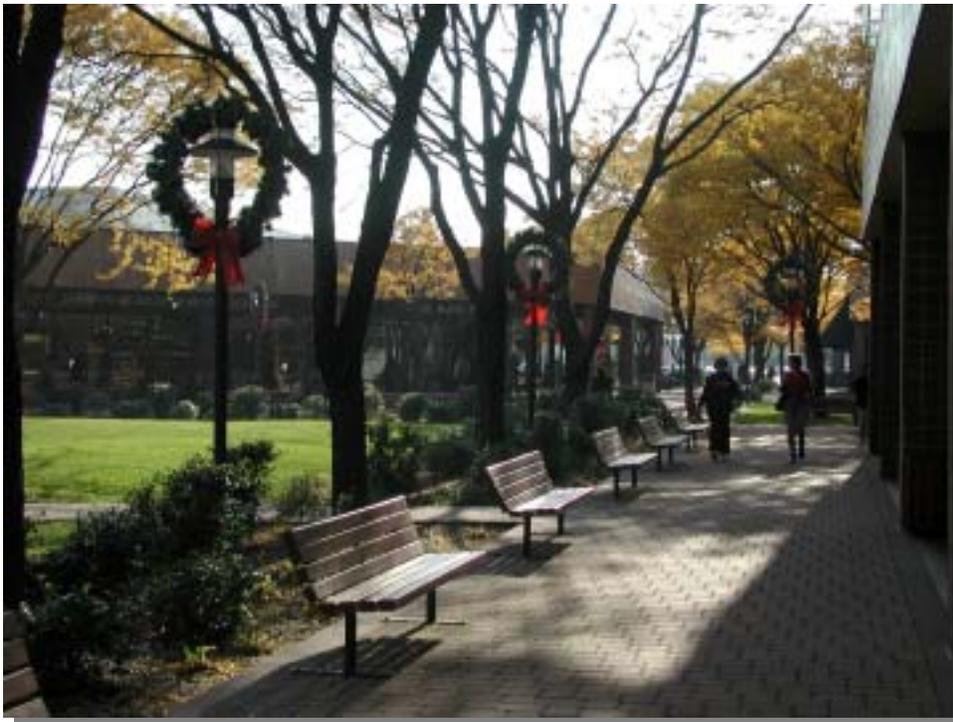


FIGURE 11.4 *The Plaza at the Meadows and the adjacent office complexes in Secaucus provide a relatively compact mix of retail, office, and public uses. Compared to sprawl development, this development strategy is a more efficient use of land and other resources.*

Sports and Entertainment

Giants Stadium, Continental Airlines Arena, and the Meadowlands Racetrack have immediate recognition in the world of sports and entertainment. The events held in the Sports Complex are highly attended, each bringing thousands of people into the Meadowlands area. From a land use perspective, the Sports Complex and its facilities are a focal point of Meadowlands development. The facilities are located at the center of the District, visible from various viewpoints in and around its environs.

The NJMC Master Plan recognizes the Sports Complex as a Sports and Entertainment District subject to the Sports Authority's plans for development of the site. The Berry's Creek Tidal Marsh is designated as part of Berry's Creek Preserve, reflecting the intent to preserve as much of the District's remaining wetlands as possible. The NJMC does not, however, have jurisdiction to regulate development on the Sports Complex site. Special legislation creating the Sports Authority conferred the entity with powers to plan and develop its properties based on its own criteria, not the Commission's Master Plan and zoning regulations. Nevertheless, the NJMC recognizes the parallel planning for the Sports Complex site and the need to coordinate its planning outcomes with those of this Master Plan, particularly with regard to surrounding land uses and transportation planning efforts. The NJMC's focus would be planning for compatible uses around the Sports Complex. Current plans for the overall redevelopment of the Sports Complex site presently include three components:

- Xanadu. The \$1.3 billion plan for Xanadu consists of a 4.8 million-square-foot family entertainment complex, office, and retail project on a 104-acre site near Continental Airlines Arena. A partial list of attractions includes an indoor snow dome, a resort-style spa, a skate park, and a New Jersey Music Hall of Fame. Construction is scheduled to begin in the spring of 2004. The entertainment phase of the project could open as early as 2006.
- Renovations at Continental Airlines Arena. A \$75 million to \$100 million renovation plan proposed for the arena would increase seating at the arena and provide a connector with Xanadu.
- Mass transit improvements. A \$400 million financial plan is being developed for mass transit improvements, including a 2.5-mile rail loop that would circle the sports complex and connect with Secaucus Junction and the Pascack Valley, Main, and Bergen rail lines.

Employment Centers

Employment centers contain the workplaces for a relatively large number of the District's employment population. The centers may include a mix of land uses such as office, warehouse-distribution, and industrial facilities. Permitted uses also include business incubator parks for manufacturing start-up and buildings with multiple manufacturing and "value-added" tenants.

The Land Use Plan calls for centers with a concentration of industrial and warehouse distribution businesses. Business and professional services and transportation facilities are also encouraged. Employment Centers could evolve into the next phase of distribution and light industrial facilities. The plan encourages the continuation of office development at the locations where it currently exists.

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Villages: Little Ferry, Lyndhurst, Moonachie, Secaucus, and Teterboro

Although there is not an extensive amount of residential development in the Meadowlands District, residential areas do exist and need to be addressed in the Land Use Plan. As described in Chapter 4, Housing, the most extensive residential areas in the District are located in the Town of Secaucus. Other areas of residential use are located in Little Ferry, Moonachie, Teterboro, Lyndhurst, and Jersey City. The dominant residential development in these areas consists of single and two family houses on small lots. The largest multi-family residential development in the District is Harmon Cove in Secaucus, which consists of townhouses and several high rise buildings.

The Land Use Plan generally seeks to protect and maintain the existing one and two family residential areas. The Plan's "Village" designation will promote the continuation of this development scale and ensure that the Village areas are compatible with adjacent residential development outside the District. Low density residential development will be permitted in single and two-family structures. New development will be pedestrian-friendly and consistent with the character of surrounding neighborhoods. Retail and service establishments will be permitted to accommodate residents.

The Village designation also includes the two mobile home parks located for many decades on Moonachie Avenue in Moonachie. The parks are evolving into manufactured home parks where "single-wide units" are being replaced with new "double-wide" manufactured homes. These areas are active neighborhoods despite their locations between warehouses and Teterboro Airport.

A residential area in Jersey City is a unique areas that require additional study to determine their future viability as residential neighborhoods. The zone plan and regulations should adequately address the issue of the suitability of these areas for residential uses.

Airport

As described in Chapter 6, Circulation, Teterboro Airport is owned and operated by the Port Authority of New York and New Jersey (PANY/NJ) and subject to Federal Aviation Administration and PANY/NJ regulations. The NJMC has limited jurisdiction in regulating development on property owned by the Port Authority. The Airport planning area straddles the municipalities of Teterboro and Moonachie. Uses at the 827-acre airport include paved runways, taxiways, landing strips, and aprons; aircraft storage, service and hanger facilities; lighting, radio and radar facilities; aircraft fueling facilities; and private passenger terminal facilities. The airport has 408 aeronautical acres, 90 acres of aircraft hangers/maintenance/office and 329 acres of undeveloped land. The undeveloped land includes a 140-acre lowland forest, considered wetland. The surrounding land uses include medical research facilities, limited distribution facilities, airport executive office park and limited residential development.

Teterboro is designed as a reliever airport and therefore does not accommodate scheduled carrier operations. The airport imposes a weight restriction that prohibits use by aircraft with operating weights in excess of 100,000 pounds. The Airport concept assumes Teterboro Airport

will continue as a “general aviation reliever” airport along with related uses. Consistent with smart growth principles, uses will value regional considerations of sustainability over isolated actions. This aspiration should be complemented by the surrounding land use. All uses on and around the Airport are subject to height restrictions and established noise controls set by the Federal Aviation Administration.

The wetland on the Airport property will be preserved in its natural state. It is one of the few locations in the Meadowlands area where natural forested areas can be found.

Commercial Corridor

The Commercial Corridor takes advantage of commercial retail opportunities along major transportation corridors. In addition to recognizing existing commercial centers, the Commercial Corridor designation promotes a range of commercial development uses, including community commercial centers, highway commercial development, big box retail, theme retail, commercial recreation facilities and office/hotel development.

The corridor includes the land adjacent to Route 3 in East Rutherford and Secaucus. Mill Creek Mall in Secaucus is a retail area already located in the corridor. The individual commercial uses with highway frontage along Route 3 in Secaucus are part of this district. Also added to this designation is the Sheraton Plaza area in East Rutherford which is in proximity to Interchange 16W of the New Jersey Turnpike. The commercial development of this area may be influenced by the redevelopment of the New Jersey Sports and Exposition property.

Waterfront Development

Waterfront Development areas are located adjacent to the Hackensack River. Since most of the Hackensack River frontage is wetland, there are limited locations where upland areas have opportunities to interface with the river. For those locations, comprehensive design planning will maximize the waterfront opportunities for recreation and access to the water. These activities include pedestrian walkways, restaurants, marinas/boat launches, related commercial activities and, in certain portions, residential development. Any residential development should provide for public access to the waterfront and to pedestrian walkways.

Design standards will require commercial development to be constructed at a scale that will allow the river to play an important visual role in how the buildings are viewed and how the mix of uses are integrated into the water’s edge. Residential development should maintain moderate densities.

These areas are designated as Waterfront Development:

- The land area adjacent to the Hackensack River from Harmon Cove Towers in the south to Paterson Plank Road in the north. This includes much of the existing development along the River including Harmon Cove, Meadowlands Hospital, and commercial uses along the west side of Meadowland Parkway.

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- An area located at the foot of Paterson Plank Road along the Hackensack River in Carlstadt/East Rutherford. This area is not deemed suitable for residential uses.
- A portion of Little Ferry at its northernmost point within the District.

Paterson Plank Road Corridor

The Paterson Plank Road Corridor is a designated redevelopment area in the District. It is situated along Paterson Plank Road between Route 17 and Washington Avenue, adjacent to the Sports Complex. The Corridor also acts as the entrance way to the Gotham Industrial Park in Carlstadt. Paterson Plank Road is a heavily traveled roadway and is used as a bypass between Route 3 and Route 17. It contains two superfund sites, which are in the process of remediation.

This designation provides a combination of commercial and entertainment uses along the frontage of Paterson Plank Road. Office, retail, and hotel uses are planned in a comprehensive manner to coordinate the various commercial uses and provide adequate access and parking. The area is intended to be redeveloped as a significant destination point for business and visitors in conjunction with future development at the Sports Complex site. A transit station may be developed at the Pascack Valley Line along the western portion of the Corridor.

Warehouse Outlet Center

The Warehouse Outlet Center designation acknowledges the outlet area already located in Secaucus. The area has evolved from a warehouse/distribution park into a warehouse area with substantial retail facilities, including a mall entirely dedicated to retail use. It has become a major attraction for shoppers and visitors to the region.

The Land Use Plan encourages the Warehouse Outlet Center to develop into a cohesive, planned, retail-oriented area. The warehouse component, vital to the Meadowland's economy, would remain. Because the two uses are not always compatible from a transportation perspective, requirements should ensure adequate truck movements to warehouses and sufficient parking areas for retail outlet stores.

Logistics/Intermodal/Industrial

Logistics/Intermodal areas are traditionally associated with heavy industry in the Meadowlands. They include heavy industry, public service uses and intermodal rail and truck facilities. Two trends have created an opportunity to restructure the heavy industry use category by defining geographic areas for intermodal and logistic uses:

- The relocation of most heavy industry out of the region is being accompanied by increases in uses related to growth in the Port Newark/Elizabeth area and freight rail business. The rail business has dramatically changed since the sale of Conrail to Norfolk Southern and CSX. The two companies have expanded their intermodal yards and increased the amount of goods imported into the region by rail; they look to improve connections to the ports for

increased freight services. The ports, in response to changing conditions in world trade, are anticipating increased imports. A harbor dredging program by the Army Corps of Engineers is underway to enable larger vessels to utilize the port facilities.

The intermodal designation is derived from the use of multiple transportation modes to get goods from manufacturers to the consumer market. The product flow from ship to rail to truck requires a series of transportation transfers at intermodal facilities. Intermodal uses have a particular reliance on the trucking industry.

- The manufacturing of products from raw materials has evolved into “value-added” and light assembly facilities with a heavy reliance on trucking services to move freight to the local markets from the railheads or from light manufacturing facilities. This process is called “logistics,” because it involves the combination of transportation, assembly, processing and delivery of goods to the market.

The Land Use Plan designates these locations for Logistics/Intermodal/Industrial:

- A portion of the Town of Kearny south of Kearny Marsh from the Hackensack River to the western border of the District;
- The majority of the in-District portion of Jersey City and adjacent parcels in North Bergen;
- A section of Ridgefield including Little Ferry Yard and an auto terminal;
- The lower portion of Little Ferry adjacent to the Hackensack River;
- An area of North Bergen located between Westside Avenue and the Northern Branch Rail Line; and
- A section of Lyndhurst along the westerly border of the District.

A comprehensive study of the need for intermodal use and “value-added” facilities should be undertaken to refine the intermodal industry’s needs. An in-depth analysis of the economic conditions and trends regarding this evolving industry will enable appropriate planning and land use requirements for its future growth in the Meadowlands.

Area Plans

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CHAPTER
12

PLAN IMPLEMENTATION

INTRODUCTION

The NJMC Master Plan sets high standards for the future of the Meadowlands District. These standards can be expected, in turn, to create high expectations on the part of the people who live, work, own property and businesses, and visit here. Vision can only become reality, however, through the ongoing efforts of many individuals—the NJMC Commissioners, NJMC staff, officials from all levels of government, developers, representatives of nonprofit organizations and businesses, environmental stewards, and private citizens. The NJMC will need to engage these stakeholders by soliciting their involvement and clearly articulating the roles they can play. Through the expansion of its environmental education programs, the Commission will further instill a sense of individual responsibility in the preservation of the District’s natural resources and fostering the sustainability of the greater region.

The following sections of this chapter compare the Master Plan to related plans, describe the processes for implementing the plan’s strategies and an ongoing monitoring, and present a mechanism for revising the plan as warranted by changing conditions and attitudes.

COMPARISONS

The strategies of the last two chapters were devised to implement the vision for the Meadowlands District by defining the type and location of future development and enhancing the systems that make the District function. For the Master Plan and its strategies to be viable, they should be consistent with pertinent plans by other entities. The plan comparisons of this section are prepared in an effort to avoid inconsistencies between the new NJMC plan and the plans of associated municipalities and counties as well as pertinent regional strategies. Comparisons are made with the most recent plans of the District’s constituent municipalities, municipalities adjacent to the District, Bergen and Hudson counties, the Regional Plan Association, the North Jersey Transportation Planning Authority, and the State via the New Jersey State Development and Redevelopment Plan and the New Jersey Coastal Management Plan.

New Jersey State Development and Redevelopment Plan

The New Jersey State Development and Redevelopment Plan was adopted by the New Jersey State Planning Commission on March 1, 2001. Although the State Plan does not include the

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District within its jurisdiction, the NJMC seeks to develop a Memorandum of Understanding (MOU) with the State Planning Commission regarding the shared goals of Smart Growth in accordance with current State initiatives. A recent resolution by the Meadowlands Commission authorizes the MOU, which should promote the two state commissions' cooperation and consistency in regional planning.

The NJMC Master Plan seeks to further the purposes and goals of the State Plan in many ways, such as coordinated planning at all levels of government, maintaining and improving the vitality of Meadowlands communities, and protecting the District's remaining open space. The Master Plan embraces the State Plan's key concepts, such as sustainable development, smart growth, strong connections between transportation and land use, and capacity-based planning. It seeks fair and just treatment of citizens through the premise that "the benefits and burdens" of implementing the plan should be shared equitably. Needs for housing, employment, and open space are balanced, with open space being preserved to the greatest extent possible. The District's waterways, open spaces, and wetlands will be preserved and accessible to the public. The NJMC will encourage the upgrading of public transit systems and increased ridership. The plan comparisons of this chapter seek coordination among the various comprehensive plans that have relevance to the District. The vitality of Meadowlands communities will be preserved and enhanced by the strategies of chapters 10 and 11.

New Jersey Coastal Management Plan

The Coastal Management Program is located within the NJDEP Commissioner's Office of Policy, Planning and Science. The Program supports the planning component of the federally approved Coastal Management Program. The staff is charged with developing and implementing long-range planning projects pertaining to coastal resource issues and coordinating with related programs. Its primary planning document, the New Jersey Coastal Management Plan, addresses wetlands and wetlands buffers, endangered and threatened species and critical wildlife habitats, public access (including visual and physical access), provisions for water dependent and water oriented uses, brownfield redevelopment, and historic resources.

The NJMC acts as the lead coastal planning and management agency for the Meadowlands District. The NJDEP periodically considers incorporating proposed changes in NJMC plans or policies into the Coastal Management Program. The emphasis is upon the continued protection of wetlands and other environmental resources.

The NJMC Master Plan is generally consistent with the above-mentioned strategies of the New Jersey Coastal Management Plan and its eight basic coastal policies:

1. Protect and enhance the coastal ecosystem.
2. Concentrate rather than disperse the pattern of coastal residential, commercial, industrial, and resort development, encourage the preservation of open space, and ensure the availability of suitable waterfront areas for water dependent activities.
3. Employ a method for decision making which allows each coastal location to be evaluated in terms of both the advantages and the disadvantages it offers for development.

4. Protect the health, safety and welfare of people who reside, work and visit the coastal zone.
5. Promote public access to the waterfront through protection and creation of meaningful access points and linear walkways and at least one waterfront park in each waterfront municipality.
6. Maintain active port and industrial facilities, and provide for necessary expansion in adjacent sites.
7. Maintain and upgrade existing energy facilities, and site additional energy facilities in a manner consistent with the rules of the Coastal Management Program.
8. Encourage residential, commercial, and recreational mixed-use redevelopment of the developed waterfront.

Regional Plan Association

In 1996, the Regional Plan Association (RPA) released its Third Regional Plan, “A Region at Risk,” for the New York, New Jersey, and Connecticut Metropolitan region. The Plan calls for the region to become more competitive by improving the economy, environment and social equity of the area. It includes 77 specific recommendations divided into five major campaigns: improving mobility, creating a regional greensward, concentrating growth in centers, investing in a competitive workforce and reforming governance. The Plan’s “mobility” campaign recommends improving commuter access both in and out of New York City through a program called MetroLink, which proposes improvements to the access between New York City boroughs through various initiatives such as a rail link to the JFK Airport. The Port Authority, through recommendations of the RPA, has begun construction of the train link to JFK Airport called “AirTrain.” The mobility plan also advocates creating a freight tunnel under the harbor connecting New Jersey with Long Island. Recommendations of other campaigns that are consistent with this plan include restoring and creating new spaces along waterfronts, state growth management plans, and transit- and pedestrian-friendly centers.

North Jersey Transportation Planning Authority (NJTPA)

The NJTPA’s current Regional Transportation Plan (RTP) was approved September 2002. The RTP was prepared to meet mandates of the federal Transportation Equity Act for the 21st Century (TEA-21). It presents a long-range vision for the transportation system serving the 13-county NJTPA region, including Bergen and Hudson counties. The RTP must be updated every three years. The current update, “Access and Mobility,” provides a framework for identifying and evaluating potential transportation projects to guide infrastructure investments through 2025. The RTP identifies 18 broad transportation corridors for the purposes of analyzing specific mobility needs and presenting near-term improvement projects. Through the use of corridor planning areas, the RTP establishes a method to identify critical areas of congestion and areas with safety issues that affect mobility and accessibility in the region, including portions of the Meadowlands District. One of the RTP’s main objectives is to preserve and maintain the region’s existing highway, bridge and mass transportation systems by providing enhancements that will accommodate changes to travel demand. The majority of the activities attributed to the RTP are described in the NJTPA’s Unified Planning Work Program (UPWP). The program outlines the process that the NJTPA will follow in developing broad system wide transportation studies and project analyses.

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County of Bergen

Bergen County's "Part I Master Plan of Bergen County, State of New Jersey" was adopted December 10, 1962. Amendments were adopted March 14, 1966. The documents include measures for the protection of open space and streams. One of the amendments proposes 500 acres of park land south of Route 3 in Lyndhurst. This is generally consistent with the NJMC Land Use Plan designation of large portions of Lyndhurst as the Hackensack River Preserve and Resort Recreation Community, as both planning areas protect wetlands and preserve open space.

The "1978 Generalized Land Use Plan" consists of a map that shows the District as having these uses: public-quasi public, open space, industrial & office, transportation, utilities, communication, some residential and commercial, and vacant land. Some of the areas shown as vacant by the County plan are designated by the NJMC as Hackensack River Preserve.

The County also completed a "Cross Acceptance II Final Report" in 1998. The report reviews each municipality's plans and regulations for consistency with the proposed State Plan. Some of the local concerns were preservation of open space and environmental features, the need to address redevelopment issues and opportunities, and the lack of mass transit options and outdated service on existing rail lines. The NJMC Master Plan acknowledges these concerns by promoting the redevelopment of developed properties, and preserving environmentally sensitive land. The report also stressed the need for inter-governmental planning, coordination, and resolution of conflicts. This Master Plan strives to strengthen coordination among the various public and private entities and approaches shaping land use in the District.

The June 2000 draft "Open Space & Recreation Plan" seeks to ". . . provide facilities regional in nature and capable of serving residents of the entire County" and ". . . the protection and preservation of natural and scenic values . . ." The plan cites the 1994 New Jersey Open Space and Outdoor Recreation Plan 1994-1999 as concluding that Bergen County has a deficit of 1,253 acres for direct public recreation uses, not including open space protected for environmental or agricultural purposes. Consistent with the objectives of the NJMC Master Plan's Hackensack Preserve, this plan considers the Hackensack River Corridor as presenting opportunities for acquisition and preservation.

County of Hudson

A goal of Hudson County's 2002 Master Plan is "to encourage existing manufacturing and industrial uses to remain, modernize and expand and to encourage new manufacturing and industrial uses to locate in the County." The growth of international trade and port business suggest a continued demand for distribution and warehouse facilities in the District, promoted by the NJMC Master Plan.

Hudson County also seeks to "encourage redevelopment that utilizes transit-friendly design practices and capitalizes on existing and planned transportation improvements." A goal of the NJMC Master Plan is "To foster the availability of various transportation choices and increase the capacity of the transportation network where necessary and feasible." Among this Master

Plan's tools to further the goal is the designation of the Secaucus Transit Center planning area in the Town of Secaucus.

The County's 1999 Strategic Revitalization Plan designates the Meadowlands District as the Meadowlands Planning Area, striving to balance environmental preservation efforts and the need for economic development. The Strategic Revitalization Plan has the goal of constructing a Hackensack River Urban Promenade. The NJMC's efforts to preserve and enhance the Hackensack River waterfront will facilitate the County reaching its goal. The NJMC Master Plan designates most of that land as Hackensack River Preserve or Waterfront Development.

The "Comprehensive Economic Development Strategy, 2003 Annual Progress Update," was prepared by the Hudson County Comprehensive Economic Development Strategy (CEDS) Committee. The Committee, charged with improving economic conditions in Hudson County, was formed as a requirement to apply for funding under the US Economic Development Administration's public works and economic adjustment programs. Its shared vision with the NJMC Master Plan includes "an improved transportation system, centering upon the increased use of mass transportation for work and pleasure commuting;" "the concerted reuse of brownfields sites;" and "providing economic opportunity and sustainable growth." The annual update includes an overview of trends in the Hudson County economy. Its observations are generally consistent with those included in Chapter 8, Economic Vitality.

Municipalities of the Meadowlands District

Carlstadt

Carlstadt's 1999 Reexamination Report is a reexamination of its 1978 Land Use Plan. The 1978 Plan included a Waterfront Recreation Zone along the Hackensack River for water-oriented activities and recreation, permitting some commercial use. The NJMC's Hackensack River Preserve seeks to protect and enhance these wetland areas. The Waterfront Development planning area allows some commercial use. The Borough expresses concern for the development of the Meadowlands Mills Center between Washington Avenue and the New Jersey Turnpike. The NJMC Master Plan identifies that area as open space-wetland preserve.

East Rutherford

According to its 1997 Reexamination Report, East Rutherford's 1989 Land Use Plan proposed the rezoning of the frontage along Route 17 between Paterson Plank Road and the railroad tracks to the south. The change would be from "highway commercial retail" to "highway business development." The change would permit offices, hotels, and retail. Part of this site includes a portion of the Paterson Plank Road Corridor, in which office, hotel, and retail uses will be planned in a comprehensive manner. The balance is located within the Berry's Creek Preserve and Light Industrial areas.

Jersey City

Jersey City's 2000 Master Plan seeks to "coordinate land use policies in sections of the City that are within the Hackensack Meadowlands District with the Hackensack Meadowlands

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District Commission.” The area contains a Public Service Electric and Gas generating station, the Croxton rail yard, and a US Postal Service bulk mail facility. Jersey City’s Land Use Plan designates the in-District portion for industrial use, consistent with the NJMC Master Plan’s Logistics/Intermodal/Industrial planning area. Jersey City cautions that “...careful site planning is required to adequately screen industrial activity and buffer adjacent residential and commercial districts.” The City further recommends “...frequent consultation with the HMDC about planning issues and development within the Hackensack Meadowlands District.”

Kearny

The 2002 draft “Master Plan Reexamination” seeks “to encourage planned, controlled growth within the Kearny Meadowlands.” The Kearny Urban Enterprise Zone (KUEZ) includes various commercial areas, some within the NJMC’s jurisdiction. The Schuyler Avenue Redevelopment Plan proposes to revitalize the area between the east side of Schuyler Avenue and the District’s boundary with a combination of new commercial, light industrial, mixed-use and recreational uses. The southern part of Kearny is proposed for rezoning as South Kearny Industrial North (SKI-N) and South Kearny Industrial South (SKI-S). The NJMC abuts the proposed SKI-N zone in a Logistics/Intermodal/Industrial planning area. The Reexamination report states that the NJMC’s redevelopment plans are in agreement with the Town’s planning goals. These plans include the Belleville Turnpike Redevelopment Plan and the Kearny Area Redevelopment Plan.

Little Ferry

The 2003 Reexamination Report addresses many concepts included in the NJMC Master Plan. The report cites the opportunity for redevelopment of the Hackensack River waterfront for new residential and commercial development, along with increased waterfront access and recreation for the public. Improved visual and pedestrian connections are deemed desirable in new development. The Borough states that it should prepare a housing element and fair share plan and seek substantive certification from COAH. More housing is needed for the growing numbers of resident senior citizens. The Borough calls for enhancing “Gateways” to the Borough to create “a sense of arrival,” consistent with the NJMC’s concept of creating a sense of place. The Borough seeks to maintain its sites on Losen Slote as open space. The report looks to examining each brownfield site, many of which are located in the vicinity of the Hackensack River, to determine its redevelopment potential and to develop a clean-up plan.

The Borough lists four inconsistencies between its Borough’s plans and the current NJMC zoning map:

- A 4.79-acre site along the Hackensack River, designated by NJMC regulations as Waterfront Recreation. The NJMC Master Plan includes this site as part of a Waterfront Development planning area. Activities and development would include pedestrian walkways, restaurants, marinas/boat launches, related commercial activities, and residential development.
- A Low Density Residential area along the south side of Washington Street, east of Mehrhof Avenue. The area is part of NJMC Master Plan’s Little Ferry Village, which would protect the existing character of the area and permit retail and service establishments to accommodate residents.

- The NJMC Low Density Residential zoning for several properties along Losen Slote and the west side of Mehrhof Road is inconsistent with the Borough's "Public" designation. The NJMC Master Plan includes most of the properties as part of the Hackensack River Preserve.
- The NJMC's zoning requirements for Low Density Residential areas differs from the Borough's planning concept for its housing areas. The NJMC Master Plan designates the Borough's established housing area as Little Ferry Village. The Master Plan's intent for this planning area will be effectuated through new regulations.

Lyndhurst

The Town's 2001 Master Plan Update and Reexamination Report recommends that the NJMC change its PR-2 zone within its boundaries to a Park Residential Zone. The NJMC Master Plan designates most of the PR-2 zone as Resort Recreation Community, with some areas under the Hackensack River Preserve. The Resort Recreation Community planning area permits residential and other uses. Lyndhurst also recommends that industrial, commercial and open space uses be provided in areas under NJMC jurisdiction.

Moonachie

Moonachie's 1978 Land Use Plan indicates that the Borough prefers industrial zoning for 9.9 acres zoned for parks and recreation by the NJMC and commercial zoning for 2.4 acres zoned for industrial use by the NJMC. The Moonachie Plan expresses concern over an NJMC plan to develop the southwest corner of Teterboro Airport as a transportation center, due to potential conflicts with air and car traffic. The NJMC Master Plan divides the area into an Airport District and an Employment Center.

The 1978 Land Use Plan includes a limited commercial area along portions of Moonachie Avenue. The NJMC Master Plan designates these areas as Employment Centers or Moonachie Village. Areas that the Town proposed for industrial use are designated by the NJMC as Employment Centers or as Hackensack River Preserve.

The Town prepared a Periodic Reexamination Report in the year 2000. The report notes that a 2-million square-foot shopping center proposed in Carlstadt, the Meadowlands Mills project, could have considerable impact on Moonachie. The land is designated as open space-wetland preserve by this Master Plan.

North Arlington

In its 1988 Master Plan Reexamination Report, North Arlington sought "to encourage the expansion of parks and recreational areas." In the 1995 report, the Town states the need for more open space in North Arlington. It proposes the redevelopment of the BCUA property off Schuyler Avenue as ballfields (specifically the southern section of the BCUA property that was being used as a transfer station). The section of North Arlington under the NJMC jurisdiction is designated by the NJMC Master Plan as a Resort Recreation Community, including the parts of BCUA inside the NJMC district.

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The 1992 Porete Avenue Redevelopment Plan adopted by the town of North Arlington establishes a Planned Industrial Park zone in the Porete Ave. area. The redevelopment plan seeks to upgrade the old industrial zone and allow for a variety of light industrial uses. It proposes improvements in the decaying industrial section of the town, such as architectural guidelines and landscaping that will improve the physical appearance and functionality of the area. The use of industries in this area should consider the planned adjacent Resort Recreation Community. Only Block 196, Lot 1 in the NJMC district is designated for industrial use in this Master Plan.

North Bergen

North Bergen's 1987 Master Plan expressed a concern that areas within the NJMC were zoned "for low-intensity warehouse and distribution, uses which are low-tax and job generators." Its industrial zones, most of which are adjacent to the NJMC, had experienced considerable industrial and commercial development.

The 1994 Update is concerned with low tax-generating industries in its industrial zones adjacent to the District, such as large-scale storage and distribution uses. The Town proposes adding storage of busses, vans and cabs. The 1994 Update suggests reducing the industrial areas by incorporating some of the C2 zones adjacent to the area. The C2 zone allows "large-scale and vehicle related uses such as hotels, wholesale business, storage, distribution and warehousing and truck terminals." The Update also proposes to eliminate wholesale, storage, distribution and truck terminals in the C2 zone and permit wholesale business and day care centers as a conditional use.

The NJMC Land Use Plan designates North Bergen as Employment Center, Preserve, and Logistics/Intermodal planning areas. The Employment Center will complement the Town's proposed increase to the C2 zone areas. Some of the uses in the increased C2 (such as day care centers) might not be compatible with uses allowed in adjacent industrial zones and the NJMC's Intermodal and Logistics planning area.

Ridgefield

Ridgefield's most recent master plan documents are the 1989 Summary Master Plan & 1988-89 Land Use Plan. An objective of the 1988-89 Land Use Plan is to establish a "scenic stream corridor" along the Hackensack River waterfront. The Town recommends that "remaining vacant lands along the Hackensack River be rezoned for Marshland Preservation, with a 300-foot deep Scenic and River Corridor along the Hackensack River banks." (Refer to old tax block numbers 145, 184 and 186.) The NJMC Master Plan designates most of the area along the Hackensack River as Hackensack River Preserve. The Preserve is intended to protect and preserve remaining wetlands in the NJMC District. A section of the waterfront designated for Logistics, Intermodal in the NJMC Master Plan was proposed by Ridgefield as Marshland Preservation (New tax block 4010). For flood control purposes, the Town has proposed deepening and lining with concrete the bed of Wolf Creek, a project that could affect wetlands within the District.

Rutherford

Rutherford's most recent planning document is its 1997 Master Plan Up-date and Reexamination Report. Rutherford proposes that property within the NJMC be used for office park and corporate headquarters. The NJMC Master Plan designates this property as Hackensack River Preserve, Resort Recreation Community, and Employment Center planning areas. The Borough also discusses the potential for Block 220 being redeveloped with offices and warehouse. This Master Plan designates most of Block 220 as a Resort Recreation Community, which allows for office and residential development. Finally, Rutherford's proposal for a Ten-Story Office Research and Distribution designation as well as a Three Story Office Designation on the edge of the District correlates with the NJMC's Employment Center area at that location.

Secaucus

Over 89 percent of Secaucus lies within the Meadowlands District. Its 1999 Reexamination of the Master Plan focuses on the remaining portion. The report cites the need for a regional growth management plan. Secaucus also expresses concern over any traffic volume increase due to the new Secaucus Junction transfer station. Secaucus Junction does not promote further vehicular traffic in the area; no parking is provided and only a drop off area will be put in place. Secaucus Junction is a hub of public transportation where buses and different rail lines meet to further alleviate the need for car usage in the area. Any plans to build office space above Secaucus Junction should take place only after several transportation improvements are made in the area, such as the construction of the New Jersey Turnpike Authority Interchange. The Town's goal to preserve and protect waterfront and other environmentally sensitive areas under its jurisdiction is consistent with the NJMC Master Plan. Some of these areas will serve as spaces for public recreation.

South Hackensack

South Hackensack's 2001 Land Use Element of the Master Plan states, "The township's future land use planning issues will revolve primarily around the rehabilitation, upgrading and adaptive reuse of existing buildings and sites." The Township also hopes to minimize intrusion of incompatible uses. Its Land Use Plan recognizes the need to promote development that takes into consideration and protects environmentally sensitive areas. The town's Industrial and Office Land Use designation promotes mixed uses such as light industry, general manufacture and related business, warehouse and distribution facilities and office use. This is consistent with the NJMC's Employment Center designation.

Teterboro

Its 1994 Master Plan proposes most of Teterboro for Light Industrial and Distribution uses. The NJMC Master Plan indicates the potential to change the warehouse, distribution, and manufacturing uses to airport related uses. Teterboro's Master Plan identifies a wetland site for preservation on Industrial Avenue south of Malcolm Avenue. This site is not identified accordingly on Map 8, the Green Map. Teterboro's plan assumes that adjacent uses are commercial and industrial. The NJMC Master Plan indicates Moonachie Village as abutting Teterboro.

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FIGURES 12.1, and 12.2 *These images offer perspectives on how the District's landscape may appear in the future. They suggest innovative ways in which the identity of the District can be strengthened through enhancements to existing features. The images were prepared by students of the Columbia University Graduate School of Architecture, Planning and Preservation as part of a Design Studio conducted in fall 2002 in cooperation with NJMC staff.*

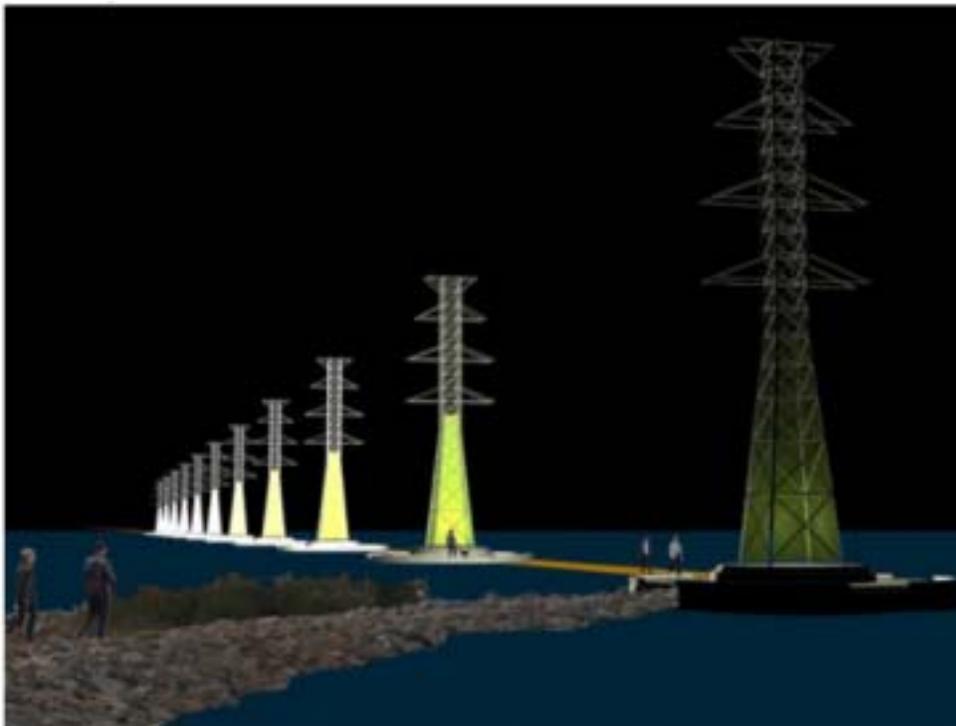


FIGURE 12.1 (upper left) *An abandoned rail line is transformed into a bike trail through the addition of a transparent cover. Repurposing the rail line also creates a connection with the past.*

FIGURE 12.2 (lower left) *Illuminated electric towers provide lighting along another segment of the trail system in the District.*

In its 2000 Reexamination Report and Housing Plan, Teterboro indicated a goal of increasing its residential base. The analysis concluded, however, that the industrial nature of the town limits the potential for residential development. The construction of 28 housing units on Vincent Place increased Teterboro's small population. The Reexamination Report acknowledges "the importance of Teterboro Airport to the local and regional economy."

Municipalities Adjacent to the District

Hasbrouck Heights

In its 1994 Master Plan Periodic Reexamination, the Borough of Hasbrouck Heights seeks "to provide an orderly and planned program which shall properly regulate commercial development along the Route 17 corridor in a manner which promotes sound planning and a desirable visual environment." Areas along Route 17 are designated as B-2 Highway Commercial Zone, which permits various retail uses such as large stores, hotels, motels, and restaurants. The NJMC Master Plan designates most of the areas adjacent to Route 17 in Teterboro and Moonachie as Airport District. The Borough designates an area adjacent to the NJMC's Airport District, bisected by Industrial Avenue and located to the southwest of Anderson Avenue, as Industrial.

Wood-Ridge

Wood-Ridge's most recent master planning document is its 1991 Master Plan Reexamination Report. Sections of Wood-Ridge adjacent to the District are primarily Light Industrial Park with small R2 (two-family) zoning areas. The Light Industrial Park areas about these District planning areas: Moonachie Village, Employment Center, Hackensack River Preserve, and Light Industrial.

Fairview

The 1997 Master Plan describes the two small areas of Fairview that share borders with the District:

- The section adjacent to Ridgely is zoned as a General Business District. A flood hazard and wetland area along Bellman and Wolf creeks marks the boundary between the two municipalities. Ridgely is zoned as Light Industrial and Distribution B in this area.
- The other section is adjacent to North Bergen and contains industrial uses.

The Master Plan designates the adjacent areas in the District as Logistics/Intermodal/Industrial.

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IMPACTS REVIEW

The area plans and strategies presented in Chapters 10 and 11 of this Master Plan will impact the District in a number of ways. Impact areas include the natural environment, land use, social, and economic. An impacts review allows a test of the plan's overall potential to guide the realization of the Commission's vision and goals for the District. Because this plan is District-wide and encompasses a number of planning areas and physical systems, the impacts review must, however, be generalized.

A build-out analysis, summarized in Figure 12.3, presents the course charted by development permitted under this plan and compares it to the level of development allowed by the original 1970 plan. For this plan, the table identifies the approximate square footage of buildings that

FIGURE 12.3
Impacts of Added Development

	Original 1970 Plan	This Plan
Removal of structures in redevelopment areas	(not identified)	3,562,553 sq. ft
New development:		
Residential	70,000 units	3,741 units
Commercial	3,000,000 sq. ft.	6,593,326 sq. ft.*
Office	20,000,000 sq. ft.	8,939,369 sq. ft.*
Industrial/Warehouse	90,000,000 sq. ft.	12,106,359 sq. ft.
Hotel	10,000 rooms	2,750 rooms*
* Calculations for the new Master Plan include consideration of development by the New Jersey Sports and Exposition Authority.		

would be razed in redevelopment areas as part of the site preparation for new construction. These structures are mostly old warehouses and industrial buildings. This Master Plan provides for a mix of new residential and non-residential uses throughout the District. The extent of new development is calculated by applying current development practices in the District for each use as permitted in each of the planning areas of the Land Use Plan.

The NJMC has also analyzed the plan's effects with regard to wetlands preservation. As a result of the policy considerations delineated in this chapter, wetlands fill for development shall be limited to approximately 23 acres. Wetland fill for transportation improvements is estimated to be about 60 additional acres. There will be temporary wetland impacts needed for landfill closure. The exact number of wetland impacts at the 1-D, Keegan, and Malanka landfills has not been determined.

Development will be excluded from the balance of approximately 8,400 acres of wetlands and waterways. This represents a significant increase to the 3,700 acres that the original Comprehensive Plan of 1970 would have preserved as Marshland Preservation and Open Water Areas. It is also a major change from the 1995 draft Environmental Impact Statement (EIS) of the draft SAMP. The draft EIS called for 842 acres of wetlands fill for development and transportation projects, which would have left approximately 7,558 acres.

Rutgers Center for Urban Policy Research has prepared a fiscal impact analysis for the buildout of the NJMC Master Plan. It addresses the impacts of the new plan with regard to local tax bases, municipal services, and school enrollment. Summary findings are as follows:

- **Valuation.** Approximately \$5.6 billion in additional market value and \$4.9 billion of increased assessed value to the District’s municipalities. The projected increase in market value would add approximately 25 percent to the total market value of the municipalities.
- **Demographics.** An additional resident population of 8,194, including 722 public school children, and 56,250 workers.
- **Cost and Revenue Impacts.** Additional property taxes and other public revenues estimated at \$116.1 million per year, resulting from new development. Increased public service costs due to the added population and workers would partially offset these revenues. The increased public service costs are estimated at \$43.0 million per year. The net effect is a large fiscal surplus to the District’s municipalities and school districts, estimated at \$73.1 million.

STRATEGY IMPLEMENTATION

The plan’s adoption by the Commission serves as a mandate for the NJMC to implement the strategies of Chapters 11 and 12 that support its vision. The strategies, in turn, state the general policies that can be used to generate further decision-making, collaborations, additional plans, requests for financial assistance, preparation of new regulations, and other actions geared toward implementation. The policies and principles of the Master Plan will be effectuated through the NJMC’s regulations, codified at N.J.A.C. 19:3-1.1 et seq. The NJMC will need to keep its initiatives to a number that can reasonably be managed by staff and supported by key stakeholders. As part of its review of development applications, the NJMC will need to determine whether proposals are consistent with the official Zoning Map and effectuate the purposes of the Land Use Plan. The NJMC staff shall report annually to the Commission regarding plan accomplishments and any problems encountered.

SUSTAINABLE MEADOWLANDS

The Hackensack Meadowlands Reclamation and Redevelopment Act recognized that the District’s economy, society and environment interrelate to shape the quality of life for its residents, workers, visitors and future generations. The principle of sustainability requires each of these three systems to function harmoniously.

As discussed in Chapter 10, the strategies of the Master Plan have been devised to deal with many issues concerning the sustainability of the District and the greater region. Yet an ongoing process is critical to ensure that implementation is proceeding in accordance with the Master Plan. Also, the NJMC should regularly monitor the impacts of implementing the plan. Monitoring outcomes could provide the basis for amendments to the plan or NJMC regulations.

The “Sustainable Meadowlands” initiative will be charged with developing a framework for tracking the sustainability of the District. The initiative will consist of the following:

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- **A “State of the Meadowlands” report.** The NJMC will identify issues related to sustainability based upon the Master Plan. A baseline assessment of the District will be prepared through the use of “Meadowlands Milestones,” selected indicators of environmental, social, and economic health. The selection of an indicator would be based on how well it answered an issue at a single point in time and whether data could be obtained for the indicator over time. The indicators would reflect existing data to the extent possible. Monitoring would also identify gaps in available data and develop or recommend data-gathering mechanisms to fill such gaps. The NJMC would develop a threshold value for each indicator. The value might reflect baseline data or a governmental standard. A list of potential milestone indicators is included as Figure 12.4.
- **A series of technical studies necessary to implement the strategies of the Master Plan.** The technical studies would include the various studies identified in Chapter 10, such as identifying and prioritizing brownfields and grayfields, identifying potential preservation sites, priorities for habitat management, and various transportation studies.
- **Ongoing monitoring of “Meadowlands Milestones.”** Monitoring will chart progress towards sustainability in the District and guide revisions to the Master Plan.

REVISION MECHANISM

The Master Plan will remain current through a combination of ongoing reviews and a major review in accordance with N.J.S.A. 13:7-9. The Sustainable Meadowlands project may periodically recommend revisions to the Master Plan as a result of its ongoing monitoring process. The need for revisions may also surface as a result of changing circumstances identified outside of Sustainable Meadowlands, such as new technologies and market swings. The major review will be undertaken in ten years. It will include a full analysis of existing conditions and trends, a vision statement with accompanying goals, identification of issues, and a recommendation of strategies developed to achieve the vision for the District.

The opportunity for public comment in the form of public hearings would be essential for all proposed revisions. This mechanism for revision will enable the Master Plan to provide a useful, long-term guide to planning for the sustainable future of the Meadowlands District.

FIGURE 12.4	
Potential Meadowlands Milestones	
SYSTEM	POTENTIAL INDICATORS
Natural Environment	<input checked="" type="checkbox"/> Acres of land permanently dedicated for open space (including wetlands and habitats) and recreation
	<input checked="" type="checkbox"/> Abundance of selected native animal and plant species/ number of threatened species
	<input checked="" type="checkbox"/> Introduction of invasive (not native) animal or plant species
	<input checked="" type="checkbox"/> Ambient concentrations of air pollutants/days per year in which federal standards (NAAQS) are exceeded
	<input checked="" type="checkbox"/> River health/dissolved oxygen, fecal coliform, heavy metals
	<input checked="" type="checkbox"/> Persons reached through programs promoting environmental education and awareness
	Economic Development
<input checked="" type="checkbox"/> Brownfield and grayfield sites redeveloped	
<input checked="" type="checkbox"/> Square feet of vacant commercial, office, industrial space	
<input checked="" type="checkbox"/> Average disposable income	
<input checked="" type="checkbox"/> Jobs created	
<input checked="" type="checkbox"/> Average salary	
<input checked="" type="checkbox"/> Unemployment rate	
<input checked="" type="checkbox"/> Percent of population within each census tract living under the poverty level	
<input checked="" type="checkbox"/> Per capita energy consumption	
Transportation	<input checked="" type="checkbox"/> Vehicle miles traveled per person
	<input checked="" type="checkbox"/> Change in transit ridership
	<input checked="" type="checkbox"/> Average commuting time/distance for Meadowlands employees
	<input checked="" type="checkbox"/> Proportion of new development that is transit-friendly
	<input checked="" type="checkbox"/> Traffic fatalities involving motorists or pedestrians
Housing	<input checked="" type="checkbox"/> Resident population growth taking place in designated planning areas
	<input checked="" type="checkbox"/> Relative rates of change for median income and sales of existing single-family houses
Community Facilities	<input checked="" type="checkbox"/> Utility demand levels under capacity
	<input checked="" type="checkbox"/> Increase in park and recreation facilities
	<input checked="" type="checkbox"/> Average classroom size
	<input checked="" type="checkbox"/> Public opinion ratings of District as a good place to live, work, visit

Plan Implementation

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GLOSSARY

Albite — a widely distributed, rock-forming mineral.

Alluvial — of or relating to river and stream deposits.

Analcime — a mineral found in the cavities of intrusive and volcanic igneous rocks; often as clear shiny crystals.

Anthropogenic — changes that humans have introduced to the environment.

Aquiclude — a saturated but poorly permeable underground bed, formation, or group of formations that impedes groundwater movement and does not yield water freely to a well or spring. An aquiclude may, however, transmit appreciable water to or from adjacent aquifers, and where sufficiently thick, may constitute an important groundwater storage unit.

Aquifer — a geological formation or group of formations or part of a formation that is capable of yielding a significant amount of water to a well or spring.

Biota — the plants and animals of a specific region or period, or the total aggregation of organisms in the biosphere.

Brackish — partially saline water.

Brownfield — real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Chloride water — water to which chlorine has been applied to disinfect or to oxidize undesirable compounds.

Climax forest — the final stage of succession in a forest ecosystem. Also, a forest community that reached a steady state under a particular set of environmental conditions.

Common reed — the common name for the invasive grass *Phragmites australis*, which grows in certain wetlands.

Detrital — relating to debris or waste material, usually organic, such as dead or partially decayed plants and animals, often important as a source of nutrients; or, small particles of minerals from weathered rock, such as sand or silt.

Glossary

Diabase intrusions — intrusions of magma which were emplaced between the sedimentary layers of rock, forming the Palisades Sill, Granton Sill, and Snake Hill.

Diabase rock — a fine grained, dark colored igneous rock. It commonly occurs as tabular bodies (dikes and sills) intruded into surrounding rocks. The Palisades of the Hudson River, near New York City, are an example.

Diadromous fish—fish that migrate between freshwater and saltwater. Only one percent of all fish in the world are diadromous.

Drawdown — lowering of the ground-water surface caused by pumping, measured as the difference between the original ground-water level and the current pumping level after a period of pumping.

Ecotone — an edge or border zone between different habitats usually with high diversity of species.

Estuary — any confined coastal water body with a connection to the sea and measurable quantity of marine salt in the waters (greater than 0.5 parts per thousand).

Flood hazard (floodplain) — an area that has a 1 percent chance of being flooded in any given year (100-year floodplain).

Floodway — that portion of the available flow cross section that cannot be obstructed without causing an increase in the water-surface elevations resulting from a flood with a 100 year average return period of more than a given amount. The Federal Emergency Management Agency establishes the amount to be 1.0 ft.

Flood zone — a geographical area shown on the Flood Hazard Boundary Map or Flood Insurance Rate Map that reflects the severity or type of flooding in the area.

Flushed — the replacement of the water in a water body.

Freshwater meadow — a freshwater wetland area dominated by herbaceous vegetation.

Forb — an herbaceous plant which is not a grass.

Forested wetland — a wetland class where the soil is saturated and often inundated, and woody plants taller than 20 feet form the dominant cover, e.g. red maple, American elm, and tamarack; water tolerant shrubs often form a second layer beneath the forest canopy, with a layer of herbaceous plants growing beneath the shrubs.

Freddie Mac — a stockholder-owned corporation chartered by Congress in 1970 to create a continuous flow of funds to mortgage lenders in support of homeownership and rental housing.

Glacial lake — a lake formed by the collection of glacial meltwater behind a glacial moraine.

Glacial scour — a natural process in which bedrock is abraded, scratched, and polished, and surface material removed by rock fragments is carried by or embedded in a moving glacier.

Glacial till — a stiff unstratified deposit of clay mixed with sand, gravel and boulders, formed in a glacier valley by the waters derived from the melting glaciers.

Glauberite — a bitter, salty tasting mineral that dissolves slowly in water. It is a sedimentary mineral formed by the evaporation of saline water.

Grayfield — real property that is declining in use but with no contamination.

Green infrastructure — an interconnected network of natural areas, conservation lands, and other green spaces that support native species, maintain natural ecological processes, sustain air and water resources, and contribute to the health and quality of life for communities and people.

Gross Domestic Product — the total value of goods and services produced in a country over a period of time.

Groundwater recharge — the process whereby infiltrating rain, snowmelt or surface water enters and replenishes the groundwater stores.

Habitat — the place normally occupied by a particular organism.

Hardwood forest — a forest dominated by hardwood trees, such as oak, hickory, and maple.

High salt marsh — a salt marsh dominated by salt hay (*Spartina patens*), spike grass (*Distichlis spicata*) and black grass (*Juncus gerardi*). A high salt marsh is generally flooded on spring tides and/or storm tides only.

Hydraulic connection — a connection between two bodies of water (i.e., a stream channel or ditch).

Hydrologic support — support derived from the properties, distributions, or circulation of water.

Impoundment — a structure that obstructs natural water flow patterns for the purpose of forming a contained volume of water. Impoundments include dikes with sluice gates and other structures to control the flow of water.

Infill development — new construction activity occurring on vacant parcels located within an area which is predominantly developed.

Infrastructure — roads, utilities and other public uses and amenities that support property use.

Glossary

Intermodal — the transportation of goods and materials using more than one means of transportation from the point of manufacture to the final point of sale. Commonly used in discussing products imported by ship and rail, then transferred to truck for final delivery.

Inter-tidal — the area between high and low tide levels, twice daily exposed and flooded.

Inter-tidal flats — extensive areas between the mean high water line and mean low water line along tidal bayshores.

Invasive species— an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Key priority habitat — area containing physical and biological features essential to, and that may require special management to provide for the conservation of the species involved.

Lacustrine — pertaining to, produced by, or formed in a lake.

Landfill — a disposal facility for solid wastes.

Land use plan — the element of a master plan or comprehensive plan that designates and justifies the future use or reuse of land.

Leachate — liquid that has passed through or emerged from solid waste and contains soluble, suspended or miscible materials removed from such wastes.

Leaching — undergoing the process by which materials in the soil are moved into a lower level of soil or are dissolved and carried through soil by water.

Lithology — the description of rocks on the basis of their physical and chemical characteristics.

Logistics — the common term for facilities that provide warehousing, distribution, and value-added services. Relates to intermodal services.

Low salt marsh — a salt marsh dominated by salt marsh cordgrass (*Spartina alterniflora*). A low salt marsh is generally flooded by both high tides daily.

Mixed-use development — a development that allows multiple compatible uses in close proximity to one another.

Mount Laurel — a series of New Jersey Supreme Court cases. The New Jersey Supreme Court established a constitutional obligation for each of the 566 municipalities in the state to establish a realistic opportunity for the provision of fair share low and moderate income housing obligations, generally through land use and zoning powers.

Mudflat — bare, flat bottoms of lakes, rivers and ponds, or coastal waters, largely filled with organic deposits, freshly exposed by a lowering of the water level; a broad expanse of muddy substrate commonly occurring in estuaries and bays.

Multi-modal — capable of accommodating a variety of transportation modes, such as buses, automobiles, rapid transit, rail, bicycles and pedestrians. A multi-modal transportation hub is a facility for the transfer of passengers and/or goods between different modes of transportation.

Non-point source runoff/discharge — surface water entering a channel from no definable discharge source.

Old field — a stage of ecological succession. Also, a field that has reached a steady state under a particular set of environmental conditions.

Orphan landfill — a landfill which is no longer in operation and which has no established fund to cover the cost of closure in an environmentally sound manner, such as capping, cutoff walls, leachate collection systems, and methane recovery systems.

Passaic formation — a body of rock characterized by a soft red shale with interbedded sandstone which is traceable in the subsurface and is the most common rock type in northeastern New Jersey. Formerly known as the Brunswick formation.

Paratransit — comparable transportation services required by the Americans with Disabilities Act for individuals with disabilities who are unable to use fixed route transportation systems.

Passerine — of or relating to the largest order (Passeriformes) of birds, which includes more than half of all living birds and consists primarily of perching songbirds, whose young are hatched in an immature and helpless condition.

Permeable — porous soil or rock that has the capacity to conduct or transmit fluids.

Physiographic province — broad-scale subdivision of the United States based on terrain texture, rock type, and geologic structure and history.

Piedmont physiographic province — a physiographic province located southeast of the New Jersey Highlands Physiographic. The Piedmont province encompasses one-fifth of the State of New Jersey. It is a lowland area made of primarily sedimentary rocks such as sandstones, siltstones, shale and conglomerate. Igneous rocks form the higher ridges, including diabase that composes the Palisades sill and basalts that compose the three Watchung Mountains.

Point source — a stationary source of a large individual emission, generally industrial in nature.

Ponding — forming a small water body with limited freshwater inflow and lack of tidal inundation.

Glossary

Primary contact recreation — water related recreational activities that involve significant ingestion risks and includes, but is not limited to, wading, swimming, diving, surfing, and water skiing.

Priority wetlands — wetlands identified by the US Environmental Protection Agency as the most vulnerable and important.

Recolonize — to colonize an area that has been disturbed or denuded.

Redevelopment — any proposed replacement of existing development.

Regime — a regular pattern of occurrence or action.

Reliever — a roadway designed to provide an alternate route for users of a heavily traveled road.

Remnant habitats — a small portion of what was once a widespread habitat.

Revegetated — an area previously disturbed or denuded where vegetation is growing.

Rip-rap — a general term for large, blocky stones that are artificially placed to stabilize and prevent erosion along a riverbank or shoreline.

Secondary contact recreation — recreational activities where the probability of water ingestion is minimal and includes, but is not limited to, boating and fishing.

Semi-diurnal — occurring twice in a 24-hour period.

Sheet flow — water that flows overland, as opposed to water that flows within a defined channel.

Smart growth — using comprehensive planning to guide, design, develop, revitalize and build communities for all that:

- Have a unique sense of community and place;
- Preserve and enhance valuable natural and cultural resources;
- Equitably distribute the costs and benefits of development;
- Expand the range of transportation, employment and housing choices in a fiscally responsible manner;
- Value long-range, regional considerations of sustainability over short term incremental geographically isolated actions; and
- Promote public health and healthy communities.

Solution channel — a pathway through rock or soil that permits the flow of water.

Sprawl — development that is low-density, automobile-dependent, and land-consumptive.

Special Area Management Plan (SAMP) — a draft environmental impact statement and plan which attempted to balance economic development with environmental preservation and enhancement. The plan identified areas for potential wetlands fill within the Meadowlands. The SAMP was never finalized and formally withdrawn from federal and state review processes in 2001.

Strike (of the beds) — the direction or trend of a bedding plane or fault (a fracture or zone of fractures in rocks of mappable size along which there has been displacement of one side relative to the other) , as it intersects the horizontal.

Successional — plant species or vegetative community which will be successively replaced by more stable communities.

Surface water — water present above the substrate or soil surface; an open body of water such as a lake, river, or stream.

Terminal moraine — a ridgelike accumulation of drift built chiefly along the terminal margin of a valley glacier or the margin of an ice sheet. It is mainly the result of deposition by ice, or deformation by ice thrust, or both.

Terrestrial habitat — living on land, as opposed to marine or aquatic.

Tidal flow — flow caused by the rising and falling of the tide.

Udorthent series — disturbed native soils (fill) typical of industrial and parking lot areas.

Unique habitat — a habitat type that is not commonly found within an area.

Upland — any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands.

Value Added — the process of increasing the value of goods and products through final assembly, customization, and packaging. Used in the intermodal industry to increase the value of imported goods.

Watershed — an area or a region that is bordered by a divide and from which water drains to a particular watercourse or body of water.

Water quality standards—a legally established state regulation consisting of three parts: (1) designated uses, (2) criteria, and (3) antidegradation policy

Wellhead groundwater recharge area — the entire area of land that allows water and other fluids to flow into the subsurface and move toward the well.

Glossary

Wetland — a general term applied to land which is transitional between terrestrial and aquatic systems and which contain at least one of three key attributes: predominantly wetland vegetation (hydrophytes); hydric soils; and/or saturation or inundation by surface or ground water at some time during the growing season each year

Woody plant community — a plant community dominated by woody vegetation (i.e., trees and shrubs).

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