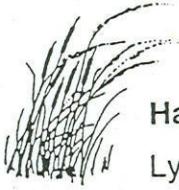


Report



Hackensack Meadowlands Development Commission
Lyndhurst, New Jersey

Land Use Feasibility Study Keegan Landfill, Kearny, New Jersey

Final Report

July 1998

Prepared by:
Camp Dresser & McKee Inc.



Camp Dresser & McKee

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July 22, 1998

Mr. William Nierstedt, P.P., A.I.C.P.
Hackensack Meadowlands Development Commission
One DeKorte Park Plaza
Lyndhurst, New Jersey 07071-3799

Subject: Submittal of the Final Report for the Keegan Landfill
Land Use Feasibility Study

Dear Mr. Nierstedt:

Enclosed please find the final report for the Keegan Landfill Land Use Feasibility Study. Five copies are provided for your use. It has been a pleasure working with HMDC on this feasibility study. Should you have any questions please do not hesitate to contact David Tanzi or me at (732) 225-7000.

Very truly yours,

CAMP DRESSER & McKEE

Henry R. Boucher, P.E., P.P.
Project Manager

c: W. Cesanek
D. Tanzi
File: 5074-21365-2.2.1,11.4.1

Hackensack Meadowlands Development Commission

Lyndhurst, New Jersey

Land Use Feasibility Study

Keegan Landfill, Kearny, New Jersey

July 1998

This feasibility study was prepared by:

Camp Dresser & McKee Inc.

with assistance from:

Cushman & Wakefield Research Services Group

Economics Research Associates

Edwards and Kelcey, Inc.

STS Consultants, Ltd.

Section 1

Existing Site Conditions

1 Site Description

The Keegan Landfill consists of 110 acres of a 421 acre tract located on Bergen Avenue in the Town of Kearny in Hudson County, New Jersey, as shown in Figure 1-1. The eastern boundary of the site is the Kearny Freshwater Marsh, while the western boundary is a mix of residential and industrial facilities. The landfill is situated on Block 205, Lots 18, 19, 24, 27, 28, 29, 30, 31, 32, and 33. The current site in relation to these blocks and lots is shown in Figure 1-2. It is believed that the Keegan Landfill began landfill operations in the 1940's, with the majority of landfilling taking place in the 1950's. At that time the site was operated by the Municipal Sanitary Landfill Authority as the MSLA #3 Landfill under a lease agreement with the Town of Kearny. This lease agreement permitted the MSLA to landfill all of the Meadowlands area under no control of the town, with no environmental improvements and with no financial assistance. Today the majority of the site is owned by the Town of Kearny, with the remainder of the site in private ownership. The Hudson Meadows Urban Development Corporation also has a leasehold interest on all of the Kearny-owned land, as well as directly owning approximately 34 acres.

2 Ownership

The following table summarizes the ownership of the Keegan site.

Table 1-1
Ownership of the Keegan Landfill Site

Block	Lot	Property Owner	Property Location
205	18	Hudson Mead. Urb. Renew c/o Kings Co.	Meadows
205	19	Kearny, Town of	Bergen Avenue
205	24	Kearny, Town of	Bergen Avenue
205	27	Kearny, Town of	Meadows
205	28	Keegan, John P.	Bergen Avenue
205	29	Kearny, Town of	Bergen Avenue - Rear
205	30	Kearny, Town of	Bergen Avenue - Rear
205	31	Hudson Mead. Urb. Renew c/o Kings Co.	Meadows
205	32	Hudson Mead. Urb. Renew c/o Kings Co.	Rear of Bergen Avenue
205	33	Hudson Mead. Urb. Renew c/o Kings Co.	Bergen Avenue



**Figure 1-1
Site Location Plan**

Keegan Landfill - Land Use Feasibility Study



Figure 1.
Facility Block and Lot
 Keegan Landfill - Land Use Feasibility Stu

1.3 Subsurface Conditions

1.3.1 Geology

The results of the most recent study of the subsurface conditions within the site boundary done by Melick-Tully and Associates, Inc. are presented below (Melick, 1987). This subsurface exploration consisted of performing four borings extending to the bedrock and excavating 26 test pits within the landfill.

"Subsurface Conditions: The subsurface conditions encountered in the explorations performed for this preliminary study were relatively uniform, and consisted of the following generalized strata in order of increasing depth:

- 1) Fill consisting primarily of trash containing wood, glass, newspapers, rags, organic materials and other refuse was encountered at each of the sites. However, several of the test pits performed also encountered fill materials consisting of silty sands and sandy silts containing varying amounts of wood, concrete fragments, bricks and other demolition debris. The fill materials encountered in the explorations were found to vary from 8 to more than 17 feet in thickness.
- 2) Dark brown peat was encountered beneath the surficial fill materials in the majority of the explorations. This material was soft and compressible and varied from approximately 1 to 4 feet in thickness, where encountered.

Dark gray and black organic silt was encountered in the previously performed test borings and in several of the test pits. This material was soft in consistency and reportedly extended to depths of up to 23 feet below the ground surface in the test borings previously performed by others.

- 3) Gray sandy silt and silty sand was generally encountered beneath the organic soils and ranged from 7.5 to 36 feet in thickness. This material was generally firm in consistency.
- 4) Gray and red-brown varved silt and clay with occasional layers of fine sand and silt was encountered below the silty/sandy soils of Stratum 3. The varved soils varied from very soft to stiff in consistency and ranged from 34 to 100 feet in thickness.
- 5) Dense to very dense clayey silt containing varying amounts of sand and gravel was encountered underlying the varved silts and clays. This material is locally referred to as "Glacial Till" and varied from 7 to 25 feet in thickness.
- 6) Red-brown shale bedrock was encountered beneath the glacial till soils. The surface of the shale was encountered in the borings performed for this preliminary study at depths ranging from approximately 90 to 150 feet below the existing surface grades. The available geologic mapping, and boring information from several other nearby projects, suggest that a subsurface valley may transect the site. As a result, depths to bedrock may be erratic over relatively short horizontal distances and may be as great as 200 to 250 feet below the ground surface in portions of the property."

To date there have been no other subsurface studies conducted. Before any development can be

designed and constructed on the site, additional detailed subsurface investigations will be required.

1.3.2 Subsurface Hydrology

An analysis of the subsurface hydrology of the site was presented in the Preliminary Environmental and Health Impact Statement (PEHIS) for the Materials Handling Complex at the Former Keegan Landfill prepared by Camp Dresser & McKee in June of 1995.

Groundwater quantity and quality data is presented in this section for the aquifers located beneath the site.

A site inspection report of the former Keegan Landfill was prepared by NUS Corporation under contract with the U.S. Environmental Protection Agency (NUS, 1989). Their investigation included the following discussion of the subsurface hydrology at the site.

"The Passaic Formation is the most important bedrock aquifer in the basin. The water table in this area is assumed to be at or near the ground surface. Groundwater in the Passaic Formation occurs in a network of interconnected openings formed along joints fractures, and solution channels. Groundwater flow in the area is likely to be southeast toward the Hackensack River. Unconsolidated deposits overlying the Passaic Formation consists of till, varved silt and clay, alluvium, sand, and gravel. Small quantities of groundwater are stored in the till which overlies the bedrock".

Groundwater from the Passaic Formation in the lower part of the basin is hard to very hard and highly mineralized. In the vicinity of the site the water quality in both the Brunswick and unconsolidated deposits is influenced by the water quality of the Hackensack River and Newark Bay. The surface groundwater quality in the lower area is influenced by the disposal of large quantities of sewage and industrial wastes in the Hackensack Meadows. Pollution from local industry, sewage, and urban area runoff prevents wellhead groundwater recharge and reduces water quality. In addition to the summer brackish flow up from Newark Bay, it is believed that highly influential hydraulic subsurface connections exist between the Brunswick 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. High concentrations of chloride make the water in the lower Hackensack River unsuitable for municipal and industrial processes, although it is usable for cooling purposes.

Well drilling in the Hackensack 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.

Acute groundwater problems exist in the District. The Oradell Dam has effectively cut off the headwaters and source of the Hackensack from its lower reaches thus 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 the brackish river water into the groundwater.

There is no potable water collected from groundwater in the area. The town of Kearny and Harrison draw their drinking water from the Wanaque Reservoir, located in northern Passaic County. The 1989 NUS report locates 10 industrial wells and one recreational well within 3 miles of the site. The nearest well being approximately 0.7 mile southwest of the site. This well and nine others withdraw water from the Passaic Formation. One well located 1.5 miles southeast of the site withdraws water from the stratified glacial drift. The recreational well is operated by the Essex County Parks Department, which is used to replenish water in a pond in Branch Brook Park located approximately 2.7 miles northwest of the site. This well information is summarized in Table 1-2.

1.4 Surface Conditions

1.4.1 Topography

Contour elevations of the site vary from approximately two feet above mean sea level (AMSL) to 15 feet AMSL. This variation in topography is due to previous unregulated landfilling that has taken place at the site. The site is entirely within the 100-year floodplain, but is essentially filled above the 5 foot 100-year flood level. Existing contours are shown in Figure 1-3. From this contour map three separate landfill cells can be distinguished. The largest cell (Area 1) is on the western side of the site and has an area of approximately 81 acres. The southeastern cell (Area 2) has an area of approximately 23 acres and the northeastern cell (Area 3) has an area of approximately 12 acres. Each of the three cell are separated by wetlands.

1.4.2 Soils

Soil associations, as defined by the Soil Conservation Service (SCS), are landscapes that have distinctive proportional patterns of soils. SCS classifies the entire HMDC District as a single soil association—a tidal marsh having "low-lying organic and sometimes flooded soils along waterways." These soils are the result of 10,000 years or more of glacial action and the resultant erosion and deposition.

1.4.2.1 Kearny Marsh

The characteristic soil series in the Kearny Marsh include Udorthents Ub, Uc and Ud, which are all found on low-lying marine and estuarine deposits. Individual soil units are irregular in shape. Included in mapped areas are poorly draining mineral soils: sulfaquents and sulfihemists. Slopes for the soil types listed in Table 1-3 range from 0 to 5 feet.

The soil descriptions in Table 1-3 are drawn from the SCS Soil Survey of Bergen County (SCS 1989). The companion soils maps are the basis for the soil distribution analysis. The Hudson County section of the District was not surveyed by the SCS, but judging from aerial photography, the distribution of the predominant udorthent, urban land and tidal marsh soils in the Hudson County portion of the District is comparable to that of the Bergen County portion.

Table 1-2
Groundwater Usage within 3 miles of the Keegan Landfill
Kearny, New Jersey

Name	Distance from Site (miles)	Direction from Site	Well Depth (ft.)	Aquifer	Use
Honecomb Plastics Corp.	0.7	SW	500	Passaic Formation	Industrial
Honecomb Plastics Corp.	0.7	SW	700	Passaic Formation	Industrial
V.H. Swenson Co., Inc.	0.75	N	400	Passaic Formation	Industrial
American Ref. Company	1.5	SE	35	Stratified Drift	Industrial
Ronson Metal Corp.	1.75	S	300	Passaic Formation	Industrial
Ronson Metal Corp.	2	S	165	Passaic Formation	Industrial
Public Service Electric	2	SW	216	Passaic Formation	Industrial
International Minerals and Chemicals	2	NNW	400	Passaic Formation	Industrial
New Jersey Bell Telephone	2.25	SW	215	Passaic Formation	Industrial
Grand Union Company	2.7	N	300	Passaic Formation	Industrial
Essex County Parks	2.7	NW	450	Passaic Formation	Recreation

Source: Site Inspection Report, NUS Corporation, 1989



Figure 1-3
Existing Site Topography
 Keegan Landfill - Land Use Feasibility Study

Table 1-3

Soil Series in the Hackensack Meadowlands District

Series Name	Size of Units	Composition	Current Use	Location in District
Ub - Udorthents, Organic Substratum	5 - 195 acres	Filled and smoothed or otherwise extensively disturbed to a depth of 3 feet or more. Fill material consists of relatively clean stone boulders and soil.	Supports railroads and unpaved service roads.	Small number of areas found along river banks and in drainage areas along roadways subject to daily tidal flooding
Uc - Udorthents, (Ud) - Urban Land Complex	5 - 310 acres	50% Ub, 36% Urban Land, 15% other soils. Clean fill to variable depths, smoothed and partially paved. Also included are very poorly drained Carlisle and Adrian units. Subject to daily flooding	Uses have been for residential, commercial and low-load paved surfaces	Largest areas are in the Turnpike meadow south of the Meadowlands Sports Complex. Other smaller sites found along the banks of Berry's Creek Canal.
Ud - Udorthents, Refuse Substratum	5 - 410 acres	Has been, or is being filled to a depth of 3 feet or more. Fill material generally consists of solid waste, refuse, and other non-soils. Limited amounts of soil material may have been added or incorporated with the dominant fill. Presumed to have been deep, poorly drained soils in low-lying areas.	Used for refuse disposal sites.	Many large tracts located in the southwest portion of the District. Comprises approximately 15 percent of the District.
Ue - Udorthents, Wet Substratum	5 - 180 acres	Extensively disturbed or filled areas to a depth of 3 feet. Fill material is generally clean fill of soil material with variable amounts of stone.	-	Occurs on upland estuarine deposits and flood plains. Buffer area around Teterboro Airport and other scattered recreational sites in the northern portion of the District
Uf - Udorthents, (Ue) - Urban Land Complex	5 - 20 acres	Shares characteristics of the other udorthents	-	Only appears on the runway at Teterboro Airport
Ur - Urban Land	5 - 750 acres	Nearly level or gently sloping. Typically cut or filled and covered with impervious surfaces (e.g., buildings, pavement) for over 85 percent of area. Identification of soils is not feasible because of the degree of alteration or obstruction by urban works.	Urban uses.	Covers roughly 35 percent of the District. Tracts around Carlstadt, with relatively recent construction, comprise the largest single Ur concentration. Remaining Ur is distributed along major roadway corridors and along the rim of wetland areas.
Tidal Marsh	-	Very poorly drained, having silty or mucky flats that are associated with estuarine systems, bays and coastal rivers. Low river velocity limits sediment-bearing capacity to predominantly fine-grained alluvial materials (clay and silt), which is trapped in dense marsh water during slack water. Together with detritus from marsh vegetation, captured material presently covers the tidal marshes to thicknesses ranging from 4 to 20 feet. Associated with microtopography, (0 to 2 percent slope and elevations of 0 to 5 feet mean sea level). Soils are almost continuously saturated and generally high in organic content.	-	From northern extent on the west bank and Loosen Slope to the large Kearny marshes, the tidal marsh soil series dominates the District landscape. Covers almost half of the District. Much of the Hackensack shore forms an almost uninterrupted swath across the District. Only isolated areas are small tracts that surround Teterboro Airport.

Source: SCS Soil Survey of Bergen County

CDM Camp Dresser & McKee

1.4.2.2 Former Keegan Landfill

The SCS issued a General Soils Map for Essex and Hudson Counties in June 1993 based on the statewide mapping. The characteristic soil series for the Keegan site include Urban Land; Boonton and Weathersfield. These soils are described as gently sloping to very steep, well drained and moderately well drained, very deep and deep gravelly loams formed in acid, reddish sandstone, shale, basalt and conglomerate glacial till over shale and basalt bedrock. These soils occur on upland glacial till plains and ridges.

1.4.3 On-Site Water Bodies

There are three on-site water bodies that are directly affected by the Keegan Landfill site. They are: Frank's Creek, an unnamed creek, and the Kearny Marsh. Frank's Creek has a length of 1.25 miles and covers a 400-acre area across the former Keegan Landfill. It flows south of the site into the Passaic River, approximately 1 stream mile from the site. Since the creek flows into the Newark portion of the Passaic River, (confluence with Second River to mouth), it receives the same classification as SE3. According to the Surface Water Quality Standards N.J.A.C. 7:9B-1.12(f) all SE3 waters have the following designated uses:

1. Secondary contact recreation;
2. Maintenance and migration of fish populations;
3. Migration of diadromous fish;
4. Maintenance of wildlife; and
5. Any other reasonable uses

Regional surface water features are shown on Figure 1-4.

1.4.4 Off-Site Water Bodies (Upstream and Downstream Tributaries)

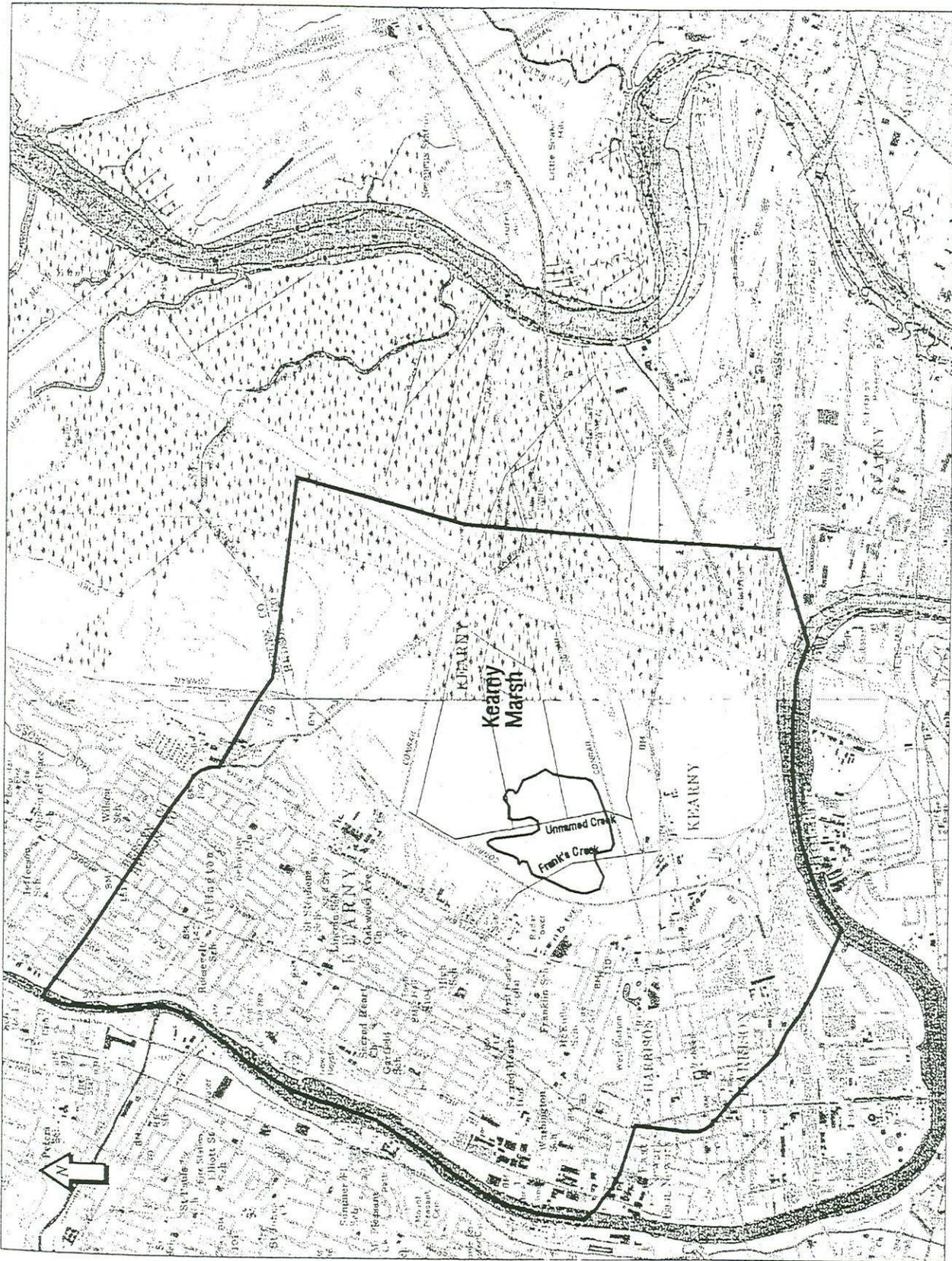
This section identifies existing classifications, designated uses and limitations for upstream tributaries which flow onto the site, and downstream tributaries which flow from the site. It also provides a narrative description of the factors affecting water quality.

1.4.4.1 Hackensack River

The Hackensack River, the primary fresh water source for the Meadowlands, originates in Rockland County, New York, drawing its water from streams in the north Palisades. The 50 mile southward course of the Hackensack River parallels that of the nearby Hudson River to the east. The river drains a watershed 34 miles in length with a width ranging from 4 to 7 miles. The area of the Hackensack River watershed is approximately 197 square miles, two thirds of which is located in Bergen and Hudson counties.

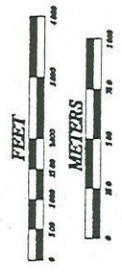
1.4.4.2 Passaic River

Frank's Creek flows into the Newark segment of the Passaic River. The Passaic River drains into the Hackensack River which flows into Newark Bay, and eventually connects with the Atlantic Ocean. The Passaic River is used for navigational purposes and is tidal in nature. The 1-year 24-hour rainfall in the area is approximately 2.75 inches. There are no surface water intakes on the Passaic River, the Hackensack River or Newark Bay within 3 miles downstream of the site (NUS, 1989).



Source: USGS Quads—Orange, Weehawken, Elizabeth, and Jersey City

Figure 1-4
Surface Water Features
 Keegan Landfill—Land Use Feasibility Study



- Legend**
- Project Study Area
 - Keegan Site Boundary
 - CDM Camp Dresser & McKee

1.4.5 Surface Water Quality

The following narrative summarizes the results of the most recent surface water investigation at the site (NUS, 1989):

On April 25, 1989, NUS Corporation Region 2 FIT personnel collected seven surface water samples and six sediment samples at the Keegan Landfill Site. These samples were collected to detect the presence or absence of Target Compound List (TCL) substances, and the potential for these compounds to migrate off site. Results of this sampling indicate the presence of mercury, lead, chromium, polychlorinated biphenyls (PCBs), and several semivolatile compounds in various sediment samples. Several inorganic compounds, including mercury, lead, and chromium, were detected in water samples collected in Frank Creek.

The NUS report indicated that the site poses a potential threat of contamination to surface waters. Downstream water samples indicated concentrations of chromium significantly greater than upstream samples. Sample results for the surface water and sediment samples are given in Table 1-4. Surface water quality standards, as defined under N.J.A.C. 7:9B are also provided. Figure 1-5 shows the location of each sample taken.

On July 30-31, 1997, the United States Environmental Protection Agency (EPA) Region II Superfund Technical Assessment and Response Team (START) again conducted sampling at the Keegan Landfill as part of Site Inspection Prioritization (SIP) activities. EPA personnel collected a total of three surface water samples, thirteen sediment samples and four soil samples. The results of this sampling indicated the presence of phthalates, pesticides, and metals at concentrations significantly above background levels. Organic analytical data of the surface water samples that were collected did not indicate the presence of elevated levels of TCL compounds.

The entire Keegan landfill falls within the Kearny Marsh Drainage Way. This drainage way is the largest single sub-basin within the HMD, comprising 2,669 acres. This drainage way is also the most constrained by man-made features. Numerous highway and railroad embankments intersect the marsh at many angles. Much of the complicated water flow is directed through culverts connecting subareas. Man-made dikes and tidegates prevent any tidal influence and thereby maintain a large freshwater marsh. Point sources of water from industrial discharge contribute to the local freshwater regime. The Kearny Marsh has been experiencing rising water levels resulting in large water cells and ponding action.

Water quality samples for the Kearny Marsh and the upstream and downstream portion of Frank's Creek and the unnamed creek were taken on March 7 and March 15, 1995 by HMDC personnel. Samples were analyzed for dissolved oxygen (DO), biochemical oxygen demand (BOD), total organic carbon (TOC), total suspended solids (TSS) and temperature. Figure 1-6 shows the location of the samples and the analytical results in relation to the on-site surface water bodies.

1.4.6 Wetlands

Figure 1-7 identifies wetlands within the vicinity of the Keegan Landfill. The Keegan Landfill is surrounded to the north and east by the Kearny Marsh. The freshwater marshes in this area consists of wetlands which are not directly connected to tidal waters, and consequently are influenced by fresh waters coming from upland runoff or groundwater. Wetlands in this area are

Table 1-4
 Summary of Analyses for Sediment Samples and
 Surface Water Samples
 (Taken at the Keegan Landfill on April 25, 1989)

Sediment Sample				
Parameter/Unit	Sed 1	Sed 4	Sed 5	Sed 6
Phenanthrene, ug/kg	-	-	5,300	4,800
Fluoranthrene, ug/kg	-	-	15,000	4,700
Pyrene, ug/kg	-	-	9,600	3,500
Benzo (a) anthracene, ug/kg	-	-	6,900	2,000
Chrysene, ug/kg	-	-	7,300	2,400
Benzo(b)fluoranthene, ug/kg	-	-	5,800	2,300
Benzo(k)fluoranthene, ug/kg	-	-	3,700	1,100
Indeno (1,2,3-cd) pyrene, ug/kg	-	-	3,200	1,600
Benzo (a) pyrene, ug/kg	-	-	4,400	2,000
Benzo (g,h,i) perylene, ug/kg	-	-	2,700	2,000
Aroclor - 1254, ug/kg	2,600 E	-	1,400 E	4,200 E
Aroclor - 1260, ug/kg	2,400 E	-	1,600 E	-
Mercury, mg/kg	0.7	2.6	8.7	2.3
Lead, mg/kg	305	1,020	1,180	479
Chromium, mg/kg	13.3	93.6	114	116
Surface Water Sample				
Parameter/Unit	SW-5	SW-6, SW-7	Surface Water Quality Standards	
Aluminum, ug/L	2,170 E	444 E, 467 E	Reserved	
Barium, ug/L	445	211, 212	2,000 (h)	
Chromium, ug/L	21.6 E	4.6*, 4.2*	3,230 (h)	
Copper, ug/L	95.2 E	-	Reserved	
Iron, ug/L	11,900	2550, 2630	Reserved	
Lead, ug/L	159	43.9, 42.8	N/A	
Manganese, ug/L	484	224, 220	100 (h)	
Mercury, ug/L	1.2	-	0.146 (h)	
Zinc, ug/L	339	45.4, 47.7	Reserved	

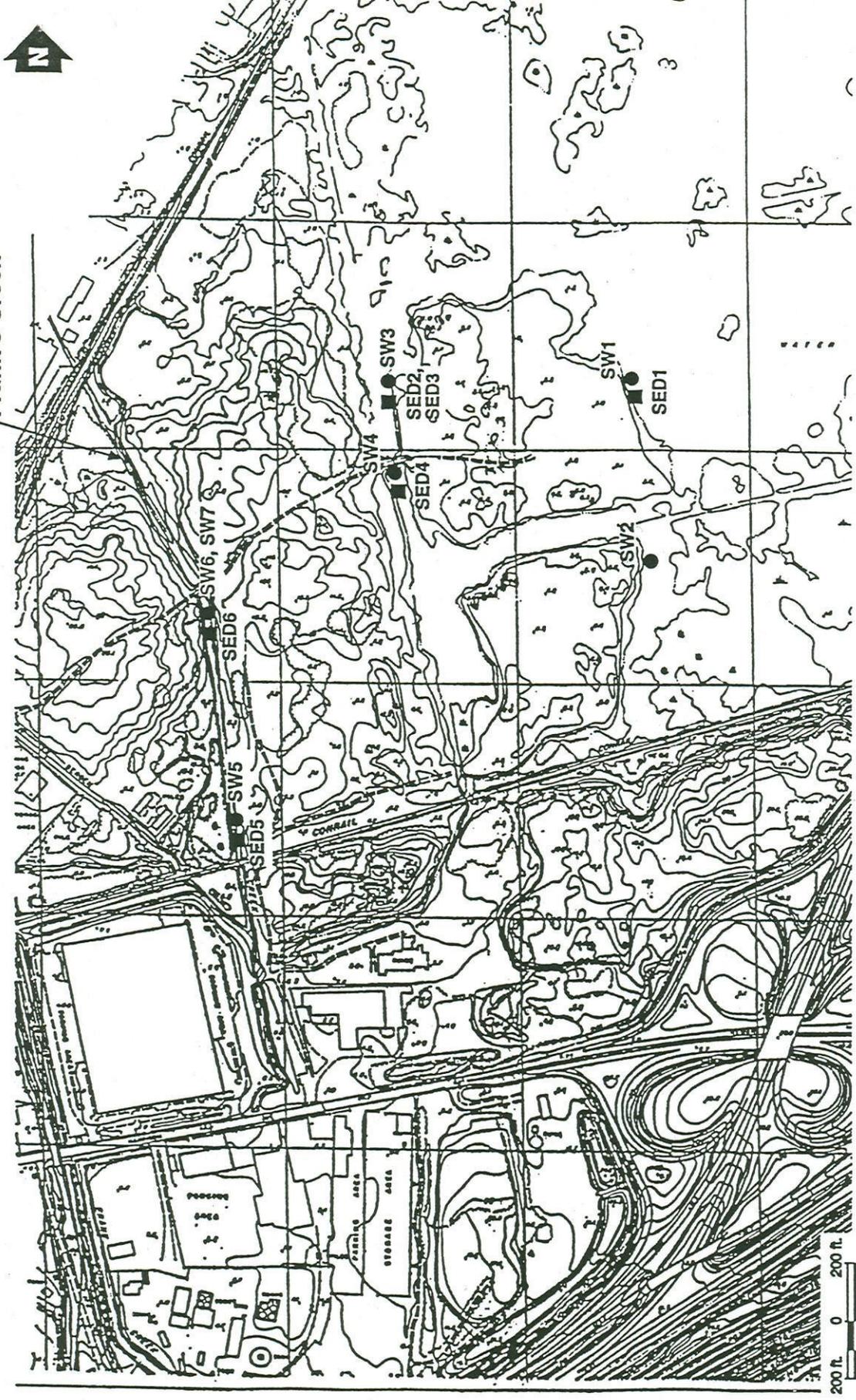
Source: Site Inspection Report, NUS Corporation, 1989

* - estimated value, compound present below CRDL, but above IDL.

E - estimated value

(h) - noncarcinogenic effect-based human health criteria as a 30-day average with no frequency of exceedance at or above the design flows specified in N.J.A.C. 7:9B-1.5(c)2.

Frank's Creek



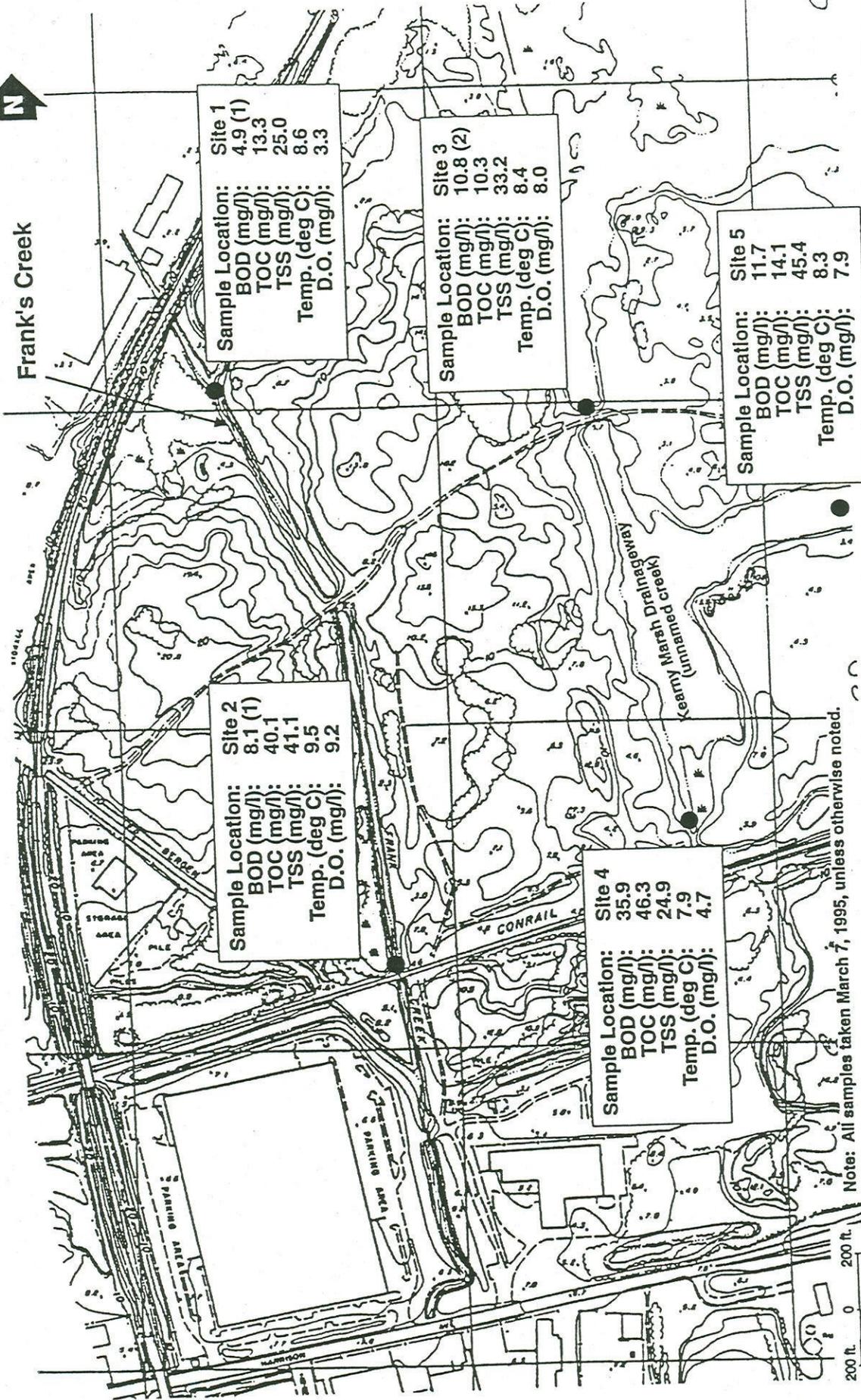
Source: Revised from (NUS, 1989)

Fig
USEPA Site Inspection Sample Loc
Keegan Landfill - Land Use Feasib

CDM Camp Dresser & McKee



Frank's Creek



200 ft. 0 200 ft.

Note: All samples taken March 7, 1995, unless otherwise noted.

- (1) Sample taken March 14, 1995
- (2) Average of samples taken March 7 and March 14, 1995

Figure
On-Site Water Quality Sample Locations and Res
 Keegan Landfill - Land Use Feasibility



Source: HMD SAMP/EIS

Legend

-  Wetlands Identified for HMD AVID (1989)
-  Project Study Area
-  Keegan Site Boundary
-  HMD Boundary

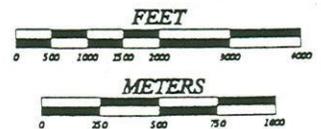


Figure 1-7
Wetland Areas within HMD
Identified by 1989 AVID Study
 Keegan Landfill—Land Use Feasibility Study

covered by various depths of fresh water, with depth depending on the origin, volume and flow regularity of the fresh water source. The amount of rainfall reaching a given creek basin is one such (seasonal) governing factor, and it, in turn, influences extent and variety of vegetation and thus diversity and abundance of habitat. The freshwater habitat contributes a high biological diversity to the surrounding area. Many freshwater species including the leopard frog, snapping, painted, and spotted turtles, can be found within the freshland marsh zone. In addition breeding birds which include red-winged blackbirds, long-billed marsh wrens, and green-backed herons are found within this zone.

Because there exists three different cells of the Keegan Landfill, development as one contiguous site will require that approximately 6.5 acres of wetlands that exist between the Keegan disposal sites be filled in. This wetland area, situated between areas that formerly received waste at the Keegan Landfill, has been adversely impacted by the discharge of contaminated leachate. Because of these conditions, the functional value of this wetland area is considered low and therefore filling in this wetland area may not cause any significant impacts. If the wetlands located between the cells are not filled, it may be infeasible to attract separate development for the three sections of the Keegan Landfill.

Due to the number of different plant and animal species situated within these wetlands, measures will have to be taken to reduce the impact of removing the plant and wildlife at the disturbed site.

1.5 Air Quality

The NJDEP has developed a number of air quality regulations and guidelines that are stricter than those developed by the EPA under the Clean Air Act (CAA) of 1970. NJDEP monitors and forecasts ambient air quality and reports this information in yearly reports. The quantitative description of existing air quality conditions in New Jersey is based on the 1996 Air Quality Report published by the NJDEP, Division of Environmental Quality dated August 1997. This report is a summary of the New Jersey air quality data compiled for 1996 from the statewide monitoring station network. Table 1-5 lists the pollutant concentrations at various Newark monitoring stations and compares them with the National Ambient Air Quality Standards (NAAQS) that are in effect in the United States. The air basin's baseline air quality exceeded the NAAQS for ozone. Any proposed development that may take place on the Keegan Landfill will have to demonstrate a reduction in air quality impacts for these pollutants.

1.6 Noise Conditions

A major continuous source of noise in the area is auto and truck traffic on major area roads, including Harrison Ave., Schuyler Ave., Belleville Turnpike, New Jersey Turnpike, and Route 280. For the preparation of the PEHIS (CDM, 1995) an environmental noise monitoring study was conducted. For this study four locations were chosen in order to provide a representative survey of existing noise levels surrounding the Keegan Landfill. The four locations, as shown in Figure 1-8, were as follows:

Location A: At the western boundary of the Keegan Landfill, adjacent to commercial/industrial and residential areas.

Location B: At the eastern boundary adjacent to the Kearny Marsh.

Table 1-5
Keegan Landfill Study Area
Existing Air Quality - 1996

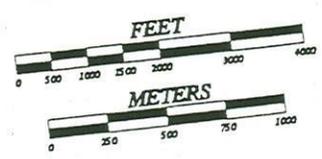
Pollutant	Monitoring * Station	Site Code **	Averaging Period	1995 Max Concentration	NAAQS
Carbon Monoxide	Newark	S	1-hour	5.6 ppm	35 ppm
			8-hour	4.8 ppm	9 ppm
Sulfur Dioxide	Newark	S	3-hour	0.056 ppm	0.5 ppm
			Annual	0.008 ppm	0.03 ppm
Inhalable Particulates (PM10)	Newark	S	24-hour	83 ug/m ³	150 ug/m ³
			Annual	33.9 ug/m ³	50 ug/m ³
	Newark Police Booth	S	24-hour	75 ug/m ³	150 ug/m ³
			Annual	38.7 ug/m ³	50 ug/m ³
Ozone	Newark	S	1-hour	0.121 ppm	0.12 ppm
Nitrogen Dioxide	Newark	S	Annual	0.033 ppm	0.053 ppm
Total Suspended Particulates	Newark-Ave. C ¹	S-PB	24-hour	117 ug/m ³	260 ug/m ³
			Annual	67.8 ug/m ³	75 ug/m ³
	Newark-Ave. C ²	SPM-PB	24-hour	109 ug/m ³	260 ug/m ³
			Annual	68.1 ug/m ³	75 ug/m ³
Lead	Newark-Ave. C ¹	S	3-month	0.069 ug/m ³	1.5 ug/m ³
	Newark-Ave. C ²	SPM	3-month	0.070 ug/m ³	1.5 ug/m ³

Source: NJDEP, 1996 Air Quality Report, August 1997

- * Newark - St. Charles and Berlin Streets
- Newark - Police Building - Broad and Market Streets
- Newark - Avenue C¹ - Avenue C and Wright Street - 060 - Cookson Pigments
- Newark - Avenue C² - Avenue C and Wright Street - 069 - Cookson Pigments
- PB - Lead Monitoring Site
- ** Site Code:
 - S - State and Local Air Monitoring Sites (SLAMS), these sites fulfill the federal monitoring requirements for the state.
 - SPM - Special Purpose Monitoring, these sites fulfill a specific need or purpose and are not federally required.
 - N - National Air Ambient Monitoring Sites (NAMS), these sites are a subject of the SLAMS which must comply with stricter siting criteria and reporting requirements.
 - PM - Lead Monitoring Site



Source: HMDC MHC PEHIS



Legend

- Noise Monitoring Locations
- ⌞ Project Study Area
- ⌞ Keegan Site Boundary
- ⌞ HMD Boundary

Figure 1-8
Noise Monitoring Location

Keegan Landfill—Land Use Feasibility Study

Location C: At the southern boundary of the Keegan Landfill, north of Harrison Avenue.

Location D: 80 Ivy Street in the Town of Kearny, off Bergen Avenue, in a residential area.

The noise monitoring covered twelve distinct 20-minute periods between 8:30 a.m. March 7, 1995 and 12:30 a.m., March 8, 1995 at each of the three boundary (A, B & C) locations in order to define representative existing ambient sound levels throughout the day and night. Between 7:30 a.m. and 8:00 a.m. residential location D was monitored to determine the maximum off-site noise conditions.

Table 1-6 shows the existing minimum and maximum daytime and nighttime energy equivalent sound levels (Leq) measured at each location. As shown in the table, measured existing noise levels at all locations are in compliance with both the 65 dBA daytime N.J.A.C. regulation for continuous sound but exceed the 50 dBA nighttime N.J.A.C. regulation (N.J.A.C. 7:29-1.2). Table 1-6 also shows that existing Ldn sound levels in the vicinity of the site are within the "normally unacceptable" range as defined by HUD for residential uses.

Table 1-6 Existing Noise Conditions Energy-Equivalent and Day-Night Energy-Equivalent Sound Levels at Study Area Noise Monitoring Locations (March 7 and 8, 1995)						
Energy-Equivalent Levels (L _{eq})						
Measured						Day-Night Energy (L _{dn}) Equivalent Sound Levels
Monitoring Location	Daytime Minimum (dBA)	Daytime Maximum (dBA)	Maximum Daytime Allowed (dBA)	Nighttime (dBA)	Nighttime (dBA)	Measured (dBA)
A	58	61	65	59	50	66
B	58	62	65	60	50	66
C	59	62	65	61	50	67
D	60	60	65	NA	50	NA

NA - No measurement taken.

The nearest sensitive noise receptors in the project study area are the residences west of the proposed facility.

With regard to other potential sensitive receptors, the nearest schools are as follows: an elementary school (Mt. Carmel Guild School) about 0.4 miles west of the landfill; Franklin Elementary School about 0.5 mile west from the landfill; Kearny High School approximately 0.6 miles northwest of the

proposed facility; and West Hudson Handicapped Center .4 miles, northwest of the site. The nearest hospital West Hudson Hospital is about 0.5 mile from the site. Harvey Field is the closest park to project activity approximately 0.1 miles west. In addition, Gunnel Oval (Kearny) Park 0.5 miles northwest and West Hudson Park 0.7 miles southwest exist within the study area.

1.7 Hazardous Materials

From 1940 to 1972, during the time of operations of the landfill, State and Federal Regulations did not prohibit disposal of hazardous wastes at municipal landfills. In addition, prior operators of the landfill were not required to construct any type of leachate collection system to limit the amount of leachate that escapes from the site. Based on rainfall data, site acreage, depth of waste, type and depth of soil cover, etc. it has been estimated that 65 million gallons per year of leachate is being discharged from the site. This leachate flows off the site and enters either the Kearny Freshwater Marsh, or Frank's Creek which bisects the site and flows south to Newark Bay. Surface water and sediment samples taken by the NUS Corporation in April of 1989 found a number of compounds that are listed on the Target Compound List (TCL). For these reasons the United States Environmental Protection Agency (EPA) concluded that not only was the subsurface contaminated by hazardous wastes but also surface water bodies have been contaminated by leachate produced and subsequently discharged from the landfill.

Sediment samples taken by NUS in 1989 indicated the presence of mercury, lead, chromium, polychlorinated biphenols (PCB's) and several semivolatile compounds. The report's waste source description included chromate and bichromate slurry, pigment wastes, and other organic wastes, abandoned automobiles, appliances, and furniture, municipal putrescible waste and construction debris. From a recent site visit conducted by CDM personnel, wastes are still illegally being disposed of around the perimeter of the site. Newly dumped piles of garbage, rubber tires and construction debris could be seen off dirt access roads leading into the west corner of the site off Harrison Avenue. Regardless of any type of future land use of this site it will be necessary to perform a comprehensive cleanup of the borders of the site. NUS indicated that there was a potential for direct contact with hazardous substances on the site, and it was recommended that the site be fenced in order to protect trespassers and illegal dumpers. To date there have been no site controls put in place.

Also noted in the NUS report was that a member of the Kearny Police Department had worked as a truck driver for DuPont Chemical in Newark in the 1960's. He reported that every morning at least one truck with approximately forty 30-gallon drums went to the Keegan Landfill. These wastes included chromate and bichromate slurry, pigment wastes and other organic wastes.

The majority of information available on hazardous materials associated with site is found in a site inspection report that was prepared by the NUS Corporation, under contract to the Environmental Protection Agency. Recently the EPA completed a site inspection prioritization report that updated the types and extent of hazardous waste found at this site. Sampling that took place in the summer of 1997 for this report indicated the presence of phthalates, pesticides, and metals at concentrations significantly above background levels. However, organic analytical data of the surface water samples collected did not indicate the presence of elevated levels of TCL compounds. Based upon this study, the EPA continues to consider the site a potential candidate for inclusion on the National Priority List of Superfund.

1.8 Development: Closure

Before any development can take place, the Keegan Landfill will have to undergo a number of modifications. A containment and final cover system will have to be installed in order to prevent further escape of leachate from the site into the surrounding areas. The containment system will have to include the construction of a soil bentonite cutoff wall around the perimeter of the landfill in order to hydraulically isolate the area from the Kearny Marsh. In addition, a leachate collection system will be installed inside the cutoff wall in order to collect any water that percolates through the final cover system. A final cover system will have to be constructed in order to reduce the infiltration of water through the buried waste. This will serve to reduce the amount of leachate that must be collected by the leachate collection system. In order to create a uniform surface over the top of the landfill, the topography of the proposed site will have to be regraded. Other areas of the site will have to be recontoured to allow for paving and storm water management.

In summary, the perimeter cut-off wall and collection system will prevent contaminated leachate from the Keegan Landfill from further degrading ground and surface water resources. Discharge of leachate from this inactive landfill will be controlled and the quality of its receiving water will be improved.

A detailed discussion of closure of the Keegan Landfill is presented in Section 4 of this report.

1.9 Conclusion

One of the greatest obstacles facing development on the Keegan Landfill is the fact that the landfill has not been properly closed. This is causing a significant amount of leachate to contaminate the surface water bodies that surround the Keegan site. These surface water bodies include Franks Creek, and an unnamed creek which intersects the landfill, and the Kearny Marsh which lies to the east of the Keegan Landfill. Before development can take place at the Keegan Landfill, the landfill will have to be properly closed. This closure will involve the installation of a final cover system and a leachate collection system. In addition, a soil bentonite cutoff wall will have to be constructed around the landfill in order to hydraulically isolate the landfill from the surrounding environmentally sensitive areas.

Another hindrance to potential development is the fact that the site is bordered to the north and to the east by wetlands. Proper measures need to be taken in order to reduce the negative impact that the Keegan Landfill may be having on them. Currently the Keegan site is split into three separate sections by a north-south piece of wetlands that intersect the site. Development of the Keegan Landfill as one site, instead of as three separate parcels, will require the filling in of approximately 6.5 acres of wetlands.

The site inspection report prepared in 1989 for the Environmental Protection Agency raised a number of concerns with respect to hazardous waste present at the Keegan site. Previous surface water and sediment samples found a number of compounds present listed on the Target Compound List. Given these results it is believed that the subsurface and surface water are contaminated by hazardous waste. From recent visits to the Keegan Landfill it is apparent that illegal dumping of waste is still taking place on and near the site. There are a number of access points to the site for illegal dumpers to dispose of waste, as well as for trespassers to come into contact with hazardous substances present on the site. It is important that measures be taken to correct these problems. All

access points should be fenced off and only authorized personnel should be allowed on the site.

From the standpoint of potential land use and accessibility of the Keegan Landfill, development of the site (commercial, industrial or retail) appears possible. It is also feasible to create a park and recreation environment on the site. However given the fact that the site is surrounded by a number of environmentally sensitive surface water bodies, that the site is split by wetlands and that an extensive environmental cleanup of the site will have to take place, it may be difficult to attract development to the site. An important unknown factor is the type and amount of hazardous wastes present at the site. Although the 1989 NUS site inspection report sheds some light on the situation, any potential development must look at this carefully; an updated assessment of the site may be indicated when the updated site inspection report is made available.

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Section 2

Surrounding Area: Existing Conditions

2.1 Study Area

To investigate the development potential of the Keegan Landfill, a project study area has been defined. This project study area as shown in Figure 2-1 encloses the landfill within an approximate one mile radius; however, its borders have been slightly adjusted to correspond with well established physical boundaries. The western border of the Keegan Landfill is essentially the western border of the Meadowlands District in the project area. Figure 2-2 shows the location of the Keegan Landfill with respect to the Hackensack Meadowlands District (HMD).

2.2 Transportation Facilities

As seen in Figure 2-3 an extensive highway system surrounds the Keegan Landfill. Highways-including the New Jersey Turnpike, U.S. Route 1 and 9, State Route 3, State Route 17, State Route 20 and U.S. Route 46-crisscross the District bringing cars and trucks to, from and within the Metropolitan Area.

2.2.1 *New Jersey Turnpike/Interstate Route 95*

The New Jersey Turnpike is a north-south limited access toll road with a posted speed of 55 miles per hour (mph) which passes through the center of the District via both the eastern and western spurs. The Keegan Landfill is easily accessible from Route 508 - Newark/Jersey City Turnpike (Harrison Avenue) which is accessed by exit 15W of the western spur of the NJ Turnpike.

2.2.2 *State Route 17*

Route 17 primarily serves through traffic between the major highways that it crosses, but also serves as a collector and distributor for local trips. It is a north-south roadway which runs parallel to the western boundary of the District. Most of the roadway, north of the subject study area, is a six-lane facility with a 50 mph speed limit and commercial developments located along both sides of the roadway. The segment of Route 17 south of Route 3, closer to the subject study area, also known as Ridge Road, is a two lane road passing through a mixed commercial/residential area and having a posted speed limit of 30 mph. Ridge Road turns into Kearny Avenue at the North Arlington border. The Keegan Landfill is accessible via Kearny Avenue by accessing either Bergen Avenue which directly crosses the south-west corner of the landfill or by accessing Harrison Avenue which passes less than 1,000 feet to the south of the Keegan Landfill. Harrison Avenue is also directly accessible via exit 15W of the New Jersey Turnpike.

2.2.3 *U.S. Routes 1 and 9*

Route 1 and 9 is a north-south roadway that parallels much of the eastern boundary of the District. These roads feed the New Jersey Turnpike with vehicular and truck traffic from the south and north.



Source: USGS Quads—Orange, Weehawken, Elizabeth, and Jersey City

Legend

-  Project Study Area
-  Keegan Site Boundary

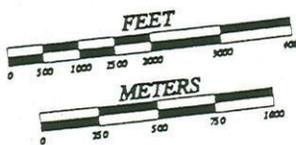
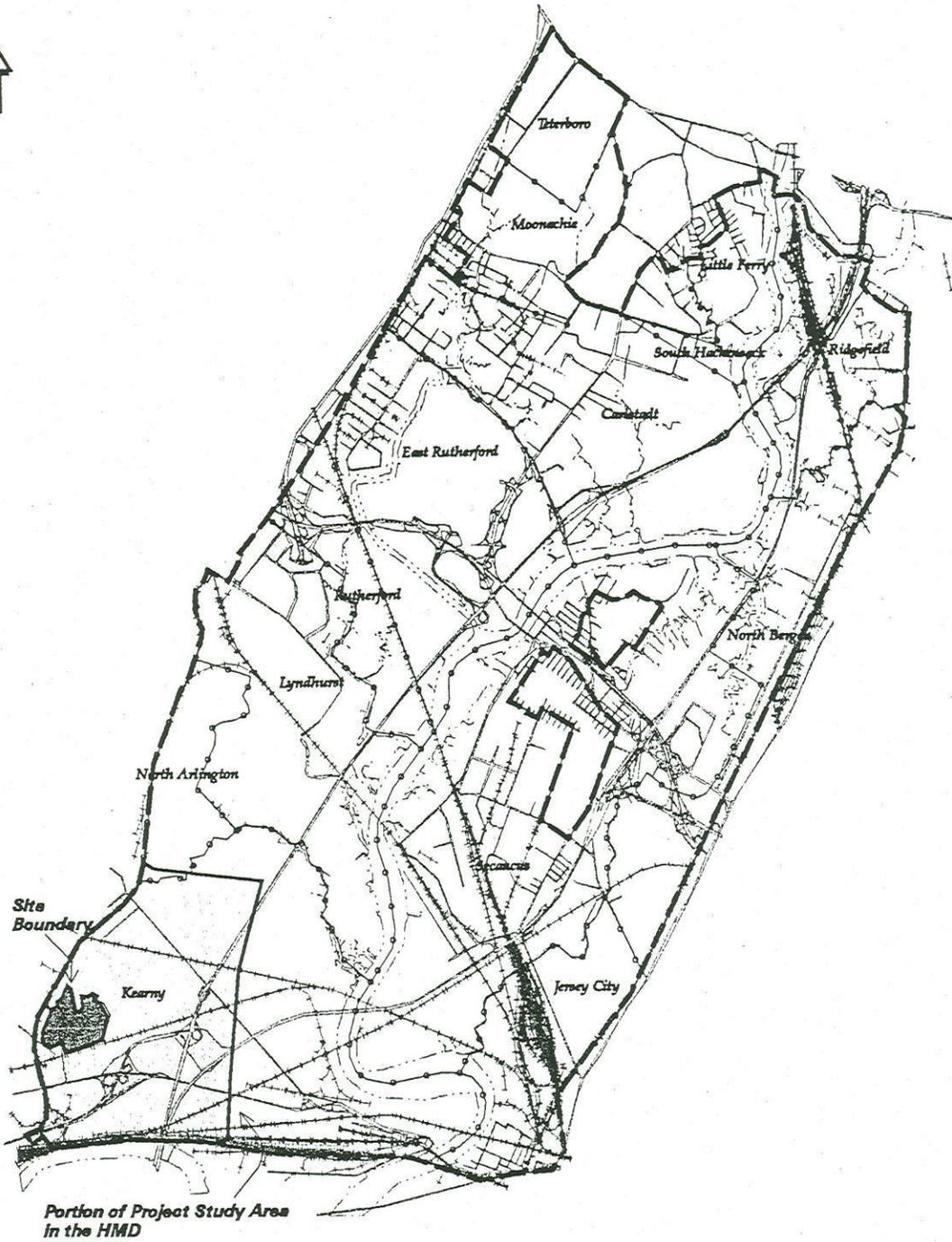


Figure 1
Project Study Area
 Keegan Landfill—Land Use Feasibility Study



Legend

-  HMD Boundary
-  Roads
-  Surface Water
-  Railroads
-  Municipal Boundaries

Source: HMD SAMP/EIS

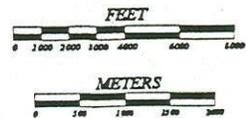


Figure 2-2
Site Location within
Hackensack Meadowlands District
Keegan Landfill--Land Use Feasibility Study

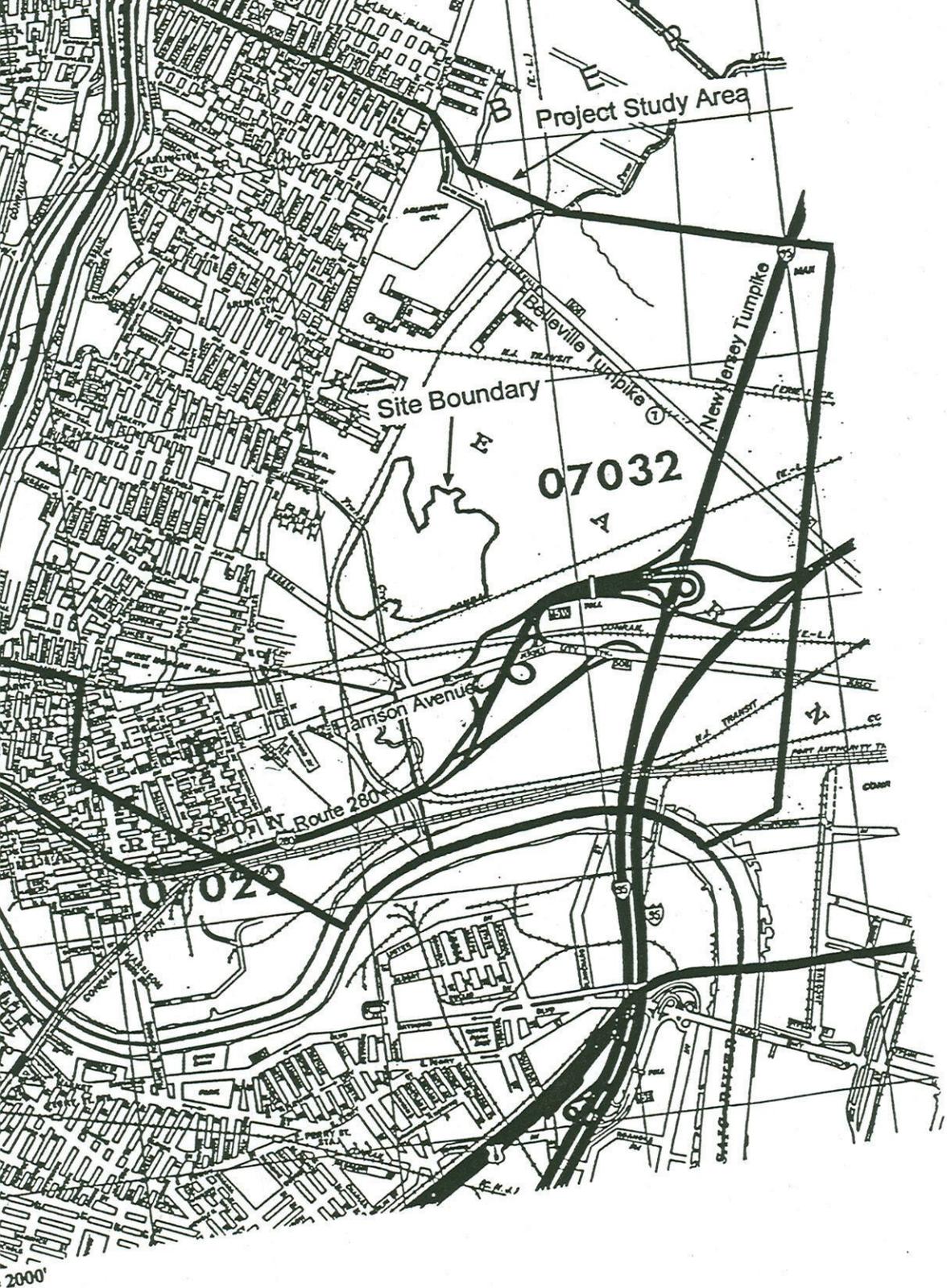


Figure
 Facility Transportation Network
 Keegan Landfill - Land Use Feasibility Study

2.2.4 Interstate Route 280

Interstate 280 terminates near the southeast corner of the Keegan Landfill at the NJ Turnpike interchange 15W. The roadway is mainly a six-lane limited access highway with a posted speed limit of 50 mph. It serves the regional traffic between Hudson and Morris Counties through Essex County, and provides access for Meadowlands traffic. By traveling east on Route 280, the Newark/Jersey City Turnpike - Route 508 (Harrison Avenue), which runs parallel to the south of the Keegan Landfill, is readily accessible.

2.2.5 Newark/Jersey City Turnpike - Route 508 (Harrison Avenue)

The Newark/Jersey City Turnpike - Route 508 (Harrison Avenue), with a posted speed limit of 35 mph, runs parallel to the south of the landfill; it is accessible via exit 15W of the New Jersey Turnpike. It currently serves residential traffic in Jersey City, Harrison and Kearny and a high volume of truck traffic to various industrial facilities.

There currently exists a partially developed access road located off Harrison Avenue that leads directly to the southern tip of the Keegan Landfill. This road begins as Bergen Avenue and turns into an undeveloped road before reaching the existing railroad tracks. Directly before this undeveloped road reaches the Keegan Landfill border it splits into two - one leading around the southern perimeter of the landfill for approximately 400 feet and the second leading directly to the middle of the Keegan Landfill. Both roads can be accessed via a motor vehicle, however at the present time a large truck may have difficulty in traveling the extent of these undeveloped roads. Currently the right-of-way of Bergen Avenue has a width of sixty feet. Bergen Avenue's right-of-way ends when the road turns into the undeveloped roadway before the railroad tracks. The undeveloped roadway is the property of the Town of Kearny. There are currently improvement plans to Route 508 which are expected to commence by the end of 1997.

Before any type of development of the Keegan Landfill can take place, an extensive cleanup of this access way would have to take place. Visible buried waste, construction debris, abandoned vehicles, and illegally disposed of waste is present along the entire length of this access road. It is not known what may be found when performing any type of clean up of this potential access road. This unknown variable can lead to a delay in development of this site. In addition to cleaning up this access road, widening and grading of the road will have to take place.

Railroad tracks run to the south of the Keegan site, from east to west. If the access road via Harrison Avenue is used as permanent access to the Keegan site, a right of way easement will have to be obtained from Conrail. The existing vertical clearance of the Conrail railroad bridge that spans the Newark/Jersey City Turnpike is approximately 15.3 feet. This clearance falls short of the minimum vertical clearance of 15.5 feet, as per local statute (NJDOT Bridges and Structures).

2.2.6 Bergen Avenue

The second potential access point to the site is via Bergen Avenue, which is accessible via Schuyler Avenue and Harrison Avenue. The right-of-way along Bergen Avenue is sixty feet. Currently there exists an undeveloped driveway off Bergen Avenue which leads to the Keegan Landfill. Before any development would take place this access road would have to be improved to allow construction vehicles to have easy access to the site. Improvements will include a cleanup of the undeveloped road, widening and providing for a stable sub-base for construction traffic. Along Bergen Avenue

there exists a railroad overpass that may potentially hinder large construction vehicles from entering the site via the Bergen Avenue entrance.

In 1995 a traffic study was performed by the New Jersey Department of Transportation (NJDOT) that measured average daily traffic (ADT) and AM/PM peak hour volumes for Harrison and Schuyler Avenues. In addition the study identified the percentage of heavy truck traffic and percentage of total truck traffic for Harrison Avenue. The results of the NJDOT study are presented below in Table 2-1.

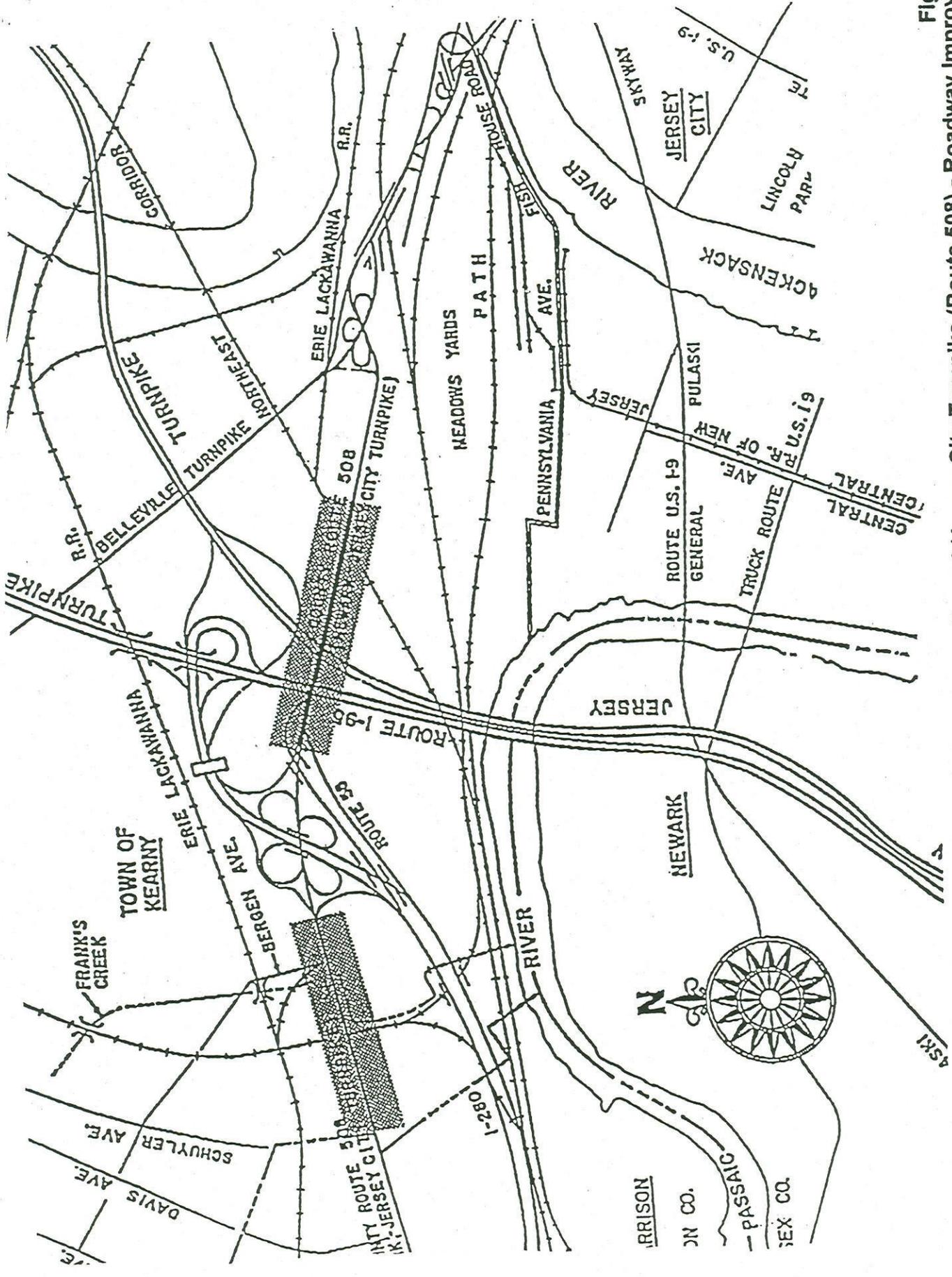
Table 2-1
Existing Traffic Conditions
Schuyler Avenue and Harrison Avenue
NJDOT Traffic Study

Street Name and Location	ADT Two Way	AM Peak Hour	PM Peak Hour	% Heavy Truck in 24 Hours	% Total Truck in 24 Hours
Harrison Avenue (from Schuyler Ave. Intersection to Interstate 280)	16,140	1,210	1,355	17% (2,591)	35% (5,334)
Schuyler Avenue (At Harrison Avenue Intersection)	12,345	910	1,050	Not measured	Not measured

2.2.7 Transportation Facility Improvements

The Newark/Jersey City Turnpike (Route 508) has been identified by the County of Hudson and the Town of Kearny for improvement. The objective of the improvement is to widen the roadway, from 40 to 46 feet, thus providing two lanes of traffic in each direction. An acceleration lane would be constructed at the eastbound Interstate 280 exit ramp interchange. This improvement project will consist of widening, reconstruction, pavement resurfacing, the addition of an acceleration lane, drainage improvements and miscellaneous safety improvements. The project is split into two sections - an east section and a west section. The length between the two sections is bounded by the Interstate 280 Interchange (M.P. 1.930) and the New Jersey Turnpike (M.P. 2.394). This length (from M.P. 1.930 to M.P. 2.394) is excluded from the project. The total project length is approximately 1.80 miles. The shaded areas in Figure 2-4 shows the project location. It is expected that construction of this project is to begin sometime in late 1997 or early 1998.

The western portion of this improvement project (M.P. 1.238 to M.P. 1.913) has its terminus at Schuyler Avenue (M.P. 1.218), located at the boundary of the Town of Harrison and the Town of Kearny. The existing roadway section consists of two 10-foot wide bituminous concrete travel lanes in each travel direction. The proposed improvement will widen the roadway three feet on each side which will provide one 12-foot and one 11-foot wide bituminous concrete travel lane in each direction. The total width of the proposed roadway pavement is 46 feet, located within a 66-foot



Figure

Newark/Jersey City Turnpike (Route 508) - Roadway Improvement

Keegan Landfill - Land Use Feasibility

CDM Camp Dresser & McKee

Source: Phase 1 Preliminary Report Newark/Jersey City Turnpike Roadway Improvements, by Urbitran Associates, May 13, 1994

existing right-of-way, thus providing 10-foot border areas on each side. In addition to widening, concrete vertical curbs and concrete sidewalks are proposed.

The terminus of the eastern portion of this improvement project (M.P. 2.397 to M.P. 3.456) is the Route 7 (Belleville Turnpike) Interchange (M.P. 3.487) in the Town of Kearny. The existing roadway section consists of one sixteen-foot wide bituminous concrete travel lane, and one bituminous concrete travel lane in each direction. Shoulders will be provided where the existing pavement width exceeds the proposed pavement width. The total width of the proposed roadway Figure 2-4 Newark/Jersey City Turnpike (Route 508) - Roadway Improvements pavement is 46 feet, located within a 66-foot existing right-of-way, providing a 13-foot border area on one side and a 7-foot wide border on the other side. In addition to the roadway widening, from M.P. 2.397 to M.P. 2.575, a 13-foot wide bituminous concrete acceleration lane is also planned from M.P. 2.39 to M.P. 2.57 from the Interstate 280 Eastbound exit ramp. Concrete vertical curb is proposed only in locations where curb is existing. There are no plans to install sidewalks.

These improvements on Route 508 (Harrison Avenue) are expected to commence by the end of 1997. These improvements will improve access to a new facility on the Keegan Landfill via Harrison Avenue. Improvements made to Harrison Avenue will help to alleviate development traffic impacts to the site.

There are also plans to develop a portion of Bergen Avenue north of Harrison Avenue. A.G.A. Wood Recycling Corporation is planning to develop Block 286 Lots 5 & 6-A. As part of this project, Bergen Avenue will be paved and various utilities will be installed for approximately 600 feet north of Harrison Avenue.

2.3 Utilities

2.3.1 Water

The Town of Kearny provides potable water for its residents through the North Jersey District Water Supply Commission (NJDWSC). The NJDWSC operates a water treatment plant in Wanaque, New Jersey. The source of water for NJDWSC is primarily from the Wanaque Reservoir but additional sources of supply can be taken from the Monksville Reservoir, the Pompton River and the Ramapo River. The Town of Kearny has an average demand of approximately 7 mgd while current allocation from NJDWSC to the Town of Kearny is over 12 mgd. A 24-inch water main runs along Harrison Avenue. An 8-inch main connects to this 24-inch main at Harrison Avenue and turns into a 12-inch water main before reaching Schuyler Avenue. This 12-inch water main connects to a 36-inch water main that runs along Schuyler Avenue. Any development that takes place on the Keegan Landfill site could potentially tie into the water main off Bergen Avenue.

Before construction of any type of facility for this site a water supply would have to be brought on-site. Depending on the access road it is likely that a water main can be brought up alongside of the road and fire services (hydrants) installed as well.

2.3.2 Sewer

Sewage that is produced within the Town of Kearny gets pumped via a network of gravity sewers, force mains and pump stations to the Passaic Valley Sewerage Commissioners (PVSC) wastewater treatment plant located in Newark, NJ. The PVSC treatment plant has an existing treatment capacity of 330 mgd. The Kearny Municipal Utilities Authority (KMUA) provides sewer service to the industrial users in South Kearny. Residential sewer service is provided by the Town of Kearny. A 12-inch main collects sewage along a small portion of Bergen Avenue and transfers it by gravity, via Schuyler Avenue, to the South Kearny Pump Station where it is pumped to the PVSC wastewater treatment plant. In addition there is a 30" line that extends along Harrison Ave, makes a right onto Schuyler Avenue, and then a left on Hamilton Street, where it ties into PVSC's line.

In addition to the production of leachate from the landfill, any proposed facility will produce domestic waste. A pump station and force main to direct this wastewater and leachate from the site will have to be constructed. The type of facility will determine the extent of wastewater infrastructure that will have to be constructed. From a preliminary standpoint, connection to the existing line along Harrison Avenue is the most viable alternative to transfer domestic waste and leachate away from the Keegan Landfill site.

2.3.3 Storm Sewer

Stormwater generated within the vicinity of the Keegan Landfill is conveyed overland to the Kearny Marsh. The existing wetlands and adjacent low-lying areas currently store and detain the stormwater runoff, thus preventing downstream flooding, and trapping of runoff-borne particles. Currently within the Town of Kearny stormwater drains to the Kearny Marsh or to catch basins which direct the stormwater to storm sewers. A 4' x 4'-3" box culvert on Bergen Avenue adjacent to the proposed property directs stormwater from portions of Kearny to the Kearny Marsh.

Any development of the Keegan Landfill will have to include the installation of additional catch basins and storm sewers in order to collect any surface water flow that would arise from impermeable areas within any new development.

2.3.4 Electric

Electrical energy needs are met, for the most part, by PSE&G's one in-District facility and two powerplants and associated substations that are just south of the District. These facilities transmit electricity over 138 kilovolt electric lines. The Kearny generating station on the lower Passaic provides service to the Town of Kearny. Overhead power lines run along the south side of Bergen Avenue and intersect at railroad tracts south of the proposed facility. Power lines continue south towards Harrison Avenue and east and west along the rail lines. It would be feasible to use these electric power lines to provide electric service to the site.

2.3.5 Gas

The Transcontinental Pipeline Corporation has two major pipelines in the HMD. One pipeline runs from north to south along the western spur of the New Jersey Turnpike, while the other runs from the gas storage facility site on the Hackensack River to points west and outside of the District. These lines are part of a larger network that spans the Atlantic seaboard that links petroleum

reserves in the Gulf of Mexico with the New England area. Within the vicinity of the Keegan Landfill, a natural gas pipeline runs along Bergen Avenue, which is owned and operated by Public Service Electric & Gas (PSE&G).

Any proposed development of the Keegan Landfill could potentially be served by this natural gas pipeline.

2.4 Community Services

Any proposed development of the Keegan Landfill will lie entirely within the Town of Kearny. Therefore community service with respect to police, fire, health service, etc., will be the responsibility of the Town of Kearny.

There are two police stations in the Town of Kearny. The headquarters is located on Laurel Avenue and the second station is located on Route 1 and 9. The Town of Harrison has one police station.

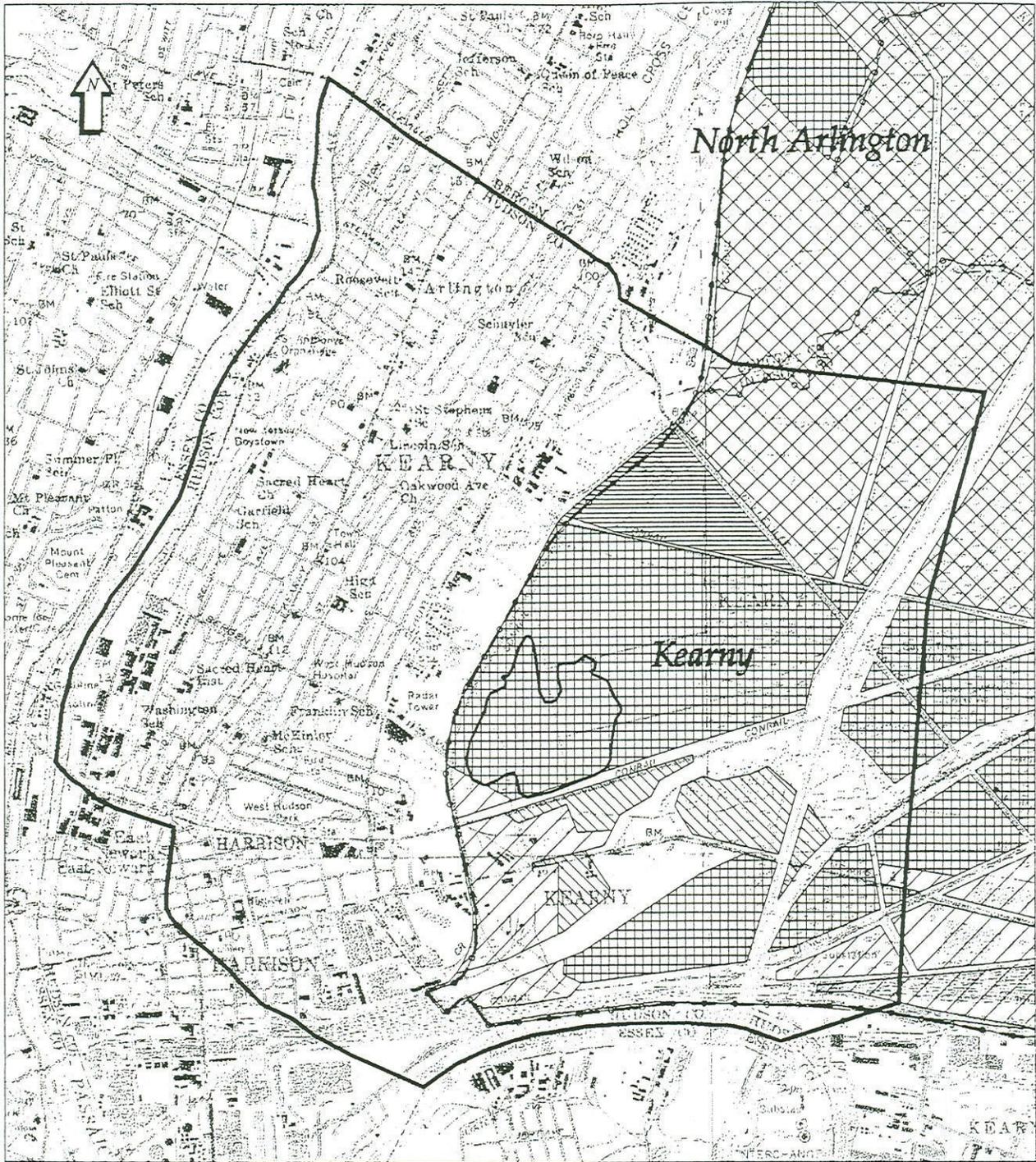
Fire protection within Kearny is provided by four fire stations located on Kearny Avenue, Midland Avenue, the corner of Even Terrace and Davis Avenue, and Route 1 and 9. The Harrison Fire Department has two station located on Sussex Street and Cleveland Avenue.

Health protection services are provided by the Kearny Health Department, the Harrison Board of Health and the Regional Health Commission. The only hospital within the vicinity of the Keegan Landfill is the West Hudson Hospital which is a 250-bed hospital located on Bergen Avenue in the Town of Kearny.

Within the Town of Kearny there are ten educational facilities including one high school. There are four educational facilities in the Town of Harrison including one high school. In addition there are a number of recreational facilities.

2.5 Land Use

The existing land uses in the Town of Kearny include residential, commercial, industrial, open space and public land. Existing land uses for the Town of Kearny located within the HMD are presented below in Table 2-2. The Town of Kearny has its own zoning ordinance that controls the use and development of land. However the part of Kearny that lies within the HMD is subject to the zoning authority and jurisdiction of HMDC. The New Jersey Legislature invested HMDC with full zoning power. HMDC has the authority to review, regulate, and approve land development and subdivision within the District. Figure 2-5 presents a generalized zoning map of the Town of Kearny that lies within the District. This portion is classified as special uses by HMDC. Although there is no specific use for the Kearny area or in the Kearny Meadows, the special uses zoning classification is designed for land uses of regional importance not otherwise provided for. Among uses are sports stadium, major educational and health institutions, large cultural facilities and other large scale development. In addition there is an open space requirement of at least 40 percent. To the south of the site, the property is zoned industrial and commercial. As can be seen by the table below, the Town of Kearny has a large amount of open space and vacant land. In addition heavy



Source: HMD SAMP/EIS

Legend

- Industrial
- Commercial
- Office
- Residential
- Recreation
- Special Uses
- Water & Rights-of-Way
- Project Study Area
- Keegan Site Boundary
- HMD Boundary
- Municipal Boundaries

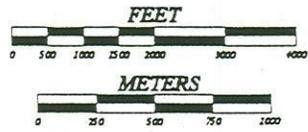


Figure 2-5
Generalized Zoning within HMD

industrial properties and warehouses make up the majority of land within the Town of Kearny. To the west of the Keegan site lies residential dwellings.

Table 2-2 Existing Land Uses within HMD Town of Kearny					
<i>Land Use</i>	<i>Acreage</i>	<i>Land Use</i>	<i>Acreage</i>	<i>Land Use</i>	<i>Acreage</i>
Heavy Industrial	112	Truck Terminal	73	Utility	95
Light Industrial	7	Solid Waste/Landfill	475	Public/Quasi-Public	52
Warehouse Industrial	101	Open Space	519	Vacant	1,002
Rail Facilities	109	Communications	49	Total	2,595

Any development that takes place on the Keegan site will have an impact on the surrounding area. Given the number of industrial warehouses and facilities surrounding the site implies that this same type of land use on the Keegan site would be compatible with the existing land use. At the same time it also disfavors a residential or upscale use. This is because access to the site would have to be through industrial areas. Development of the site will have to assure that the quality of life for residents within the Town of Kearny does not decrease. Development of the Keegan site should be one that allows for an economic revitalization of the Town of Kearny.

2.6 Demographics

Table 2-3 provides demographics, as provided by the 1990 U.S. Census, for the portions of the Town of Kearny and for the Town of Harrison that lie within the study area, as shown in Figure 2-1. 1990 population, housing units, age distribution, and mean house value are provided.

Table 2-3 1990 Demographics Within the Study Area for the Town of Kearny and the Town of Harrison						
<i>Town</i>	<i>1990 Population</i>	<i>1990 Housing Units</i>	<i>Population under the age of 18</i>	<i>Population between the ages of 19 to 65</i>	<i>Population over the age of 65</i>	<i>Mean House Value</i>
Kearny	34,597	13,432	7,454	22,513	4,630	\$158,149
Harrison	8,507	3,203	1,798	5,371	1,338	\$140,903
Total	43,104	16,635	9,252	27,884	5,968	\$154,829

*Average based on house value and number of housing units.

2.7 Conclusion

There exists an extensive highway system surrounding the Keegan Landfill, making the site attractive from a standpoint of regional accessibility. Although a number of state, interstate and limited access roads provide access to the Keegan Landfill from the Metropolitan area, there are a number of aspects that hinder direct access to the Keegan site. There are two potential access points to the site: currently an unimproved roadway exists off Harrison Avenue that leads directly to the center of the Keegan Landfill, and Bergen Avenue which runs parallel to the west of the site. Although both, upon improvement, have the potential to be viable access points to any development, there may be some problems associated with the use of these. Connection to existing utilities surrounding the Keegan site appears feasible, however these utilities will have to be evaluated to see if future demand can be met, depending on the type of development that is to take place.

Before any development can occur, a comprehensive cleanup will have to take place along either possible access roads. Depending on what is encountered during any cleanup, potential development at the Keegan site could be hindered. The Keegan Landfill is bordered to the south and west primarily by industrial facilities. Especially to the south, abandoned and semi-vacant warehouses exist. Further to the west lie residential areas. To the north and east the Keegan Landfill is bordered by wetlands. More detailed information regarding the current market and economic conditions surrounding the Keegan Landfill and how it relates to the most feasible land use alternative for the site is presented in Section 5 of this report.

Given these surrounding conditions it may be difficult to attract new development to the Keegan site. In addition, the number of unknowns that exist at the Keegan site, more specifically with the extent of hazardous waste present, may add to the difficulty in attracting new development.

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