III. ENVIRONMENTAL ANALYSES

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A. Land Use, Zoning and Public Policy

1. Existing Conditions

Land Use

a. Site Context

The Nassau University Medical Center campus is located in the hamlet of East Meadow, an unincorporated area in the Town of Hempstead in Nassau County, New York. The campus is located approximately one mile east of the Meadowbrook State Parkway and approximately one mile west of the Wantagh State Parkway.

b. Site Features

The NUMC campus can be generally divided into four functional land use areas:

- The southern portion of the NUMC campus, along Hempstead Turnpike, is defined by the 19-story, one million square foot Dynamic Care Building. This zone also includes the Women's Pavilion, Emergency Department, Cancer Center, Eye Clinic, the main visitor parking lot and several smaller parking fields.

- The area north of 3rd Street East and south of Avenue B consists of a number of vacant or underutilized buildings as well as the five-story parking garage, which is in need of significant renovation or replacement.

- Resident housing is provided in the area north of Avenue B and south of Intern Drive. Eight three-story, garden-style apartment buildings provide 159 units, which are occupied by hospital residents and their families.

- The area north of Intern Drive is occupied by support facilities including a power house, an ambulance repair and maintenance center, and a greenhouse.

The main hospital complex, located in the southern portion of the campus, includes the Dynamic Care Building (DCB), the Women's Pavilion, Eye Clinic, Cancer Center, Emergency Department, and several adjacent and connected wings providing support services to the main complex. With the exception of two shell floors within the DCB and a mostly vacant "B" building, most of the main complex is in use and the buildings/wings are in good condition.

The central portion of the site contains a number of obsolete or underutilized buildings. These include the five-story parking garage, which is in need of significant renovation or replacement. Other vacant, obsolete, or underutilized buildings in this portion of the site, and their current uses, are listed in the Table III-1 and illustrated on Exhibit II-6, Existing Buildings.

Table III-1
Vacant, Obsolete/Underutilized Buildings

Building	Use
"G" Building	
Basement	IT, Security, Storage
1st Floor	Finance Office
2nd Floor	Housing
3rd Floor	Vacant
4th Floor	Vacant
"H" Building	
Basement	Storage
1st Floor	Closed
2nd Floor	Closed
3rd Floor	Closed
4th Floor	Closed
"J" Building	
Basement	Storage / Cellar
1st Floor	Outpatient Psych.
2nd Floor	Outpatient Psych.
3rd Floor	Outpatient Psych.
"K" Building	
1st Floor	Methadone Clinic
2nd Floor	
3rd Floor	
"L" Building	
1st Floor	Closed
"M" Building	
1st Floor	Closed
"Z" Building	
1st Floor	Closed
Butler Building	
1st Floor	Nursing Education
Superintendant Building	
1st Floor	Closed
2nd Floor	
Activities Building	
1st Floor	Closed
Parking Garage	
5 levels	Parking

Further north on the campus are eight three-story garden style apartment buildings used for resident housing. Although all 159 units are occupied, the buildings are in generally poor condition. These apartment buildings are shown on Exhibit II-6 as "Apartment A, B, C, D, F, G, H, and J".

The area north of Intern Drive is occupied by a power house, which is considered to be in good operational condition. The ambulance center in this portion of the campus, which is also in good operational condition, is used for parking, repair and general maintenance of ambulances used by the medical center. Further north, a functioning greenhouse is in generally good condition. Within this part of the campus, the only space that is effectively obsolete is the helipad, which is rarely used and has been replaced by the helipad located near the Emergency Department.

c. Site Access

Access to the campus is from Hempstead Turnpike, which runs along the southern perimeter of the campus, and from Carman Avenue, which runs along the western perimeter. Near the southeast corner of the campus there is a service access from Hempstead Turnpike. The entry in front of the DCB provides a two-level entry that will serve walk-in Emergency Department patients on the upper level and clinic patients and visitors on the lower level. The main access to the hospital for visitors and on-site parking is from Carman Avenue. See Exhibit II-4, Existing Access and Circulation.

d. On-Site Circulation

Circulation within the campus is via a series of roads that make up a loop surrounding the hospital buildings. The western portion of this internal loop road is West Perimeter Road which provides direct access from Dofena Lane and Hospital Street. Along this roadway is the main parking lot for visitors and surface parking lots for doctors and employees of the hospital. The northern part of the internal loop road is Intern Drive, which runs between the medical center housing and the power plant.

e. On-Site Parking

East Perimeter Road, which runs north-south along the eastern side of the campus, provides access to three surface parking lots as well as the parking garage, and several east-west roadways such as 3rd Street East, Avenue B, and Intern Drive. Avenue B and 3rd Street East connect with Midway East, providing access to the Woman's Center, the central part of the campus, and the emergency department. In the southern portion of the campus, Hospital Street provides a direct connection to Hempstead Turnpike.

There are a total of 2,238 parking spaces on the NUMC East Meadow campus, including 1,238 surface parking spaces and 1,000 spaces in a five-story parking garage located in the east-central portion of the campus. The largest surface parking lots are: the main visitor parking lot – a paid parking lot at the southwest corner of the site (field 12) with 368 spaces; the lot adjacent to the Women's Center, with 134 spaces; the lot just west of the Women's Center lot, with 152 spaces; and three narrow lots along the eastern edge of the campus, with a combined 194 spaces. Twelve handicapped parking spaces are provided at the southern edge of the campus, outside the Dynamic Care Building. Existing parking is illustrated on Exhibit II-5.

Table III-2, Existing On-Site Parking details the number and location of parking throughout the campus.

Table III-2
Existing On-Site Parking

Location	Type	Number of Spaces
Parking Garage	Employee	1,000
Adm ROW	Reserved	22
Field 2	Reserved / Doctors	152
Field 2A	Reserved / Doctors	134
Field 3	Reserved	51
Field 3A	Open	70
Field 4	Permit	56
Field 5	Open	59
Field 6	Open	79
Field 7	Open	38
Field 7A	Open	116
Field 9	Permit	50
Field 10	Reserved	10
Field 11	Reserved	33
Field 12	Paid	368
Total		**2,238**

Surrounding Land Uses

The site is bounded by the Nassau County Correctional Center to the north, a residential neighborhood buffered by a row of trees to the east, Hempstead Turnpike to the south, and Carman Avenue to the west. Across Carman Avenue, uses include residential, the East Meadow High School, and the 930 acre Eisenhower County Park. See Exhibit II-3, Existing Land Use (Generalized).

The Nassau County Correctional Center, which is operated by Nassau County, is a maximum-security facility. Although the facility can house in excess of 1,800

inmates per day, it typically houses between 1,400 and 1,500. Inmates at the facility are awaiting trial, sentencing, or serving a sentence of less than one year. Approximately 1,200 full-time and part-time County employees, most of whom are corrections officers, work at the Correctional Center.

East Meadow High School, which is part of the East Meadow School District, is located across Carman Avenue from the NUMC campus. The school has an enrollment of approximately 1,650 students in grades 9-12.

Eisenhower County Park is located northwest of the NUMC campus. Facilities at the 930-acre park include three 18-hole golf courses, driving range, 16 lighted tennis courts, athletic fields (including 17 baseball fields, four soccer fields and three football fields), one full-court basketball court, batting cage, aquatic center and fitness center, fitness trail, 18-hole miniature golf course, playground areas and a sprinkler pool, reserved picnic areas, outdoor theater, memorials (including a Veteran's Memorial, County Firefighter's Memorial, and 9/11 Memorial), jogging path, gaming area (bocce court and game tables), and Carltun on the Park, a privately run restaurant and banquet facility.

Exhibit II-3 presents existing land use in the study area.

Zoning

The majority of the NUMC campus is located in the Residential "B" Zoning District of the Town of Hempstead. An area of approximately ½ acre in the southwest corner of the campus is in the Business "X" Zoning District.

The area of East Meadow surrounding the NUMC campus is primarily in the Residential "B" Zoning District, except for some portions of Hempstead Turnpike and Carman Avenue, which are in the Business "X" Zoning District. Regulations for these zoning districts are detailed as follows:

"B" Residence

The "B" Residence district permits single-family detached dwelling or senior residences; municipal recreational use; and, railway passenger stations. Accessory uses on the same lot with and customarily incidental to any of the above-permitted uses, including private garages are permitted, and also includes professional office or rooms for home occupations, provided that the office, studio, or occupational room is located in the dwelling in which the practitioner resides, and provided further that no goods are publically displayed on the premises. Special uses, when approved by the Board of Appeals are permitted. Table III-3, presents Town of Hempstead lot and bulk controls for the "B" Residence District.

Table III-3
Town of Hempstead Lot and Bulk Controls for the "B" Residence District

Zone	Use	Dimensional Requirements					
		Height	Maximum Lot Coverage	Lot Area and Width	Setbacks (ft.)		
					Front[1]	Side (min/ total)[2]	Rear[2]
B	SF	2 ½ story or 30'	30%	6,000 sq. ft., min. width 55'	Average	15', min. 5'	25'
	Non SF	3 story or 45', except church				20'	

Source: Building Zone Ordinance of the Town of Hempstead, NY

[1] Same as the average front yard depth of the existing buildings within two hundred (200) feet on each side of the lot and within the same block in the same use district, and no front yard shall be required to have a depth greater than 40 feet.

[2] If other than a single-family dwelling, if such a building is over 40' high, width of each of the side yards shall be at least 20', increasing 5' for each 12 feet by which the building exceeds 40 feet in height.

"X" Business

The X Business District permits single-family and two-family detached dwellings; clubs, fraternity houses or lodges; schools; religious uses; philanthropic uses; hospitals, sanatoriums and dormitories of educational institutions; music or dancing schools; greenhouses and nurseries; municipal recreational uses; railway passenger stations; offices, banks, financial institutions, and telephone exchanges; stores; restaurants; garages; shops; hand laundries, custom tailoring, hand dressmaking, shoemaking and repairing; sale or repair of jewelry, watches, clocks or optical goods, musical, professional or scientific instruments; and, undertaking and embalming. Existing land uses appear to comply with these permitted commercial uses, which include stores. The X Business District does not permit mixed uses in one building (stores or offices on the ground floor, and apartments above).
The X Business District allows, with a Special Permit, storage warehouses; places of amusement or public assembly; stores or salesrooms or open lots for the display or sale of used automobiles; and, bowling alleys.

As described above, certain uses are permitted in any district with a Special Permit, such as parking fields, either public or private, for the parking of passenger vehicles only, but not for display or sale of automobiles; amusement-ride facilities on a temporary basis; and, parking of automobiles in the minimum area required for the front yard setback.

The lot and bulk controls in the X Business District require a maximum building height of two stories or 30 feet; lot coverage of 70 percent if the property is used as a

dwelling; front yard setbacks of the average of the front yard depth of the existing buildings within 200 feet on either side of the lot and within the same use district; no side yard setbacks; and, 10 feet of rear yard setbacks as shown in Table III-4, Town of Hempstead Lot and Bulk Controls for the X Business District.

Table III-4
Town of Hempstead Lot and Bulk Controls for the "X" Business District

Zone	Dimensional Requirements				
	Height	Maximum Lot Coverage[1]	Setbacks (ft.)		
			Front[2]	Side (min/ total)	Rear[3]
X	2 story or 30 ft.	70%	Average	N/A	10

Source: Building Zone Ordinance of the Town of Hempstead, NY

[1] If used as a dwelling

[2] Same as the average front yard depth of the existing buildings within two hundred (200) feet on each side of the lot

[3] Provided that if a building is used in whole or in part as a dwelling, there shall be a rear yard, the depth of which shall be at least fifteen (15) feet. The depth shall be increased five (5) feet for each twelve (12) feet or portion thereof by which the building exceeds forty (40) feet in height

Town Policies and Requirements

a. Zoning Compliance

Provided that the Nassau Health Care Corporation limits its activities to those authorized pursuant to its enabling legislation, its activities are considered permissible as of right by operation of Building Zone Ordinance 309 and Public Authorities Law § 3418. NuHealth has been designated as a construction-permitting agency by the New York State Department of State pursuant to 19 NYCRR 1204.16 (b). As such, NuHealth will issue all applicable permits for construction projects undertaken by the Nassau Health Care Corporation.

Section 309 of the Building Zone Ordinance of the Town of Hempstead states that uses of premises by Nassau County for public or municipal purposes are permitted in all zoning districts of the Town. Based on an opinion rendered by the Town Attorney for the Town of Hempstead, a review of Public Authorities Law § 3418 makes it clear that in assuming control of the medical center and adjunct and related facilities, the Corporation is functionally adopting the prior legal status of the County with respect thereto. Therefore, any use consistent with public or municipal purposes would be permitted.

State Requirements

The Commission on Healthcare Facilities in the 21st Century (also referred to as the "Berger Commission") has recommended a variety of reconfigurations of NHCC programs, including downsizing from the current 631 to 530 certified beds at NUMC. Facility downsizing has been approved and NHCC has been notified of a HEAL (Healthcare Efficiency and Affordability Law for New Yorkers) award of $23 million for debt retirement and construction.

NHCC has determined that, in order to comply with Berger Commission recommendations, it must first identify vacant and/or underutilized portions of the NUMC campus and focus on the suitability of these sites for redevelopment.

The NHCC undertook an analysis of existing conditions on the campus and in the surrounding community within the context of the property's constraints and opportunities for reconfiguration, improvement and potential development. The inventory of existing conditions focused on identifying vacant or underutilized portions of the campus and the interrelationship with surrounding land uses and roadways. Market conditions and surrounding land uses, as well as local zoning, environmental, and other policies and regulations were reviewed to determine the potential impact on development or redevelopment of the campus and its long-term viability.

This DGEIS represents the next step in the New York State Environmental Quality Review (SEQR) regulatory process. The basic purpose of SEQR is to incorporate the consideration of environmental factors into the existing planning, review and decision-making processes and to determine whether the proposed redevelopment project(s) are likely to have a significant impact on the environment. Further, as part of the SEQR process, mitigation measures or project modification would be developed to address potential adverse environmental impacts that may result from the project(s).

Long Island relies on ground water as a source of drinking water and the ground water system is classified as a sole-source aquifer. Where an area designated as a sole-source aquifer may be impacted by a proposed project, early coordination with EPA assists in identifying potential impacts. Since the NUMC campus is located in a designated sole-source aquifer, measures to avoid, minimize or mitigate adverse impacts to the sole-source aquifer would be identified during the design phase. Best Management Practices (BMPs) to protect the aquifer would be employed, including Erosion and Sediment Control, Stormwater Management and Construction Chemical Storage and Handling.

Anticipated Development in the Vicinity of the Project Site

The following is a brief description of potential future development projects in the vicinity of the project site that could affect future land use patterns and trends by the build year of the proposed NUMC project.

The Oaks at East Meadow (a/k/a The Seasons at East Meadow) - A senior independent living facility with approximately 415 units located on the north side of Front Street, west of Merrick Avenue.

Avalon at Mitchel Field – A 160-apartment, 44-townhouse residential development located on the south side of Stewart Avenue between Endo Boulevard and Selfridge Avenue.

Avis Property Redevelopment - A proposed redevelopment of the former Avis property, located on Old Country Road between Zeckendorf Boulevard and East Gate Boulevard, with 400,000 square feet of mixed use development (office, retail, hotel, restaurants).

Privado Road Hotel - A proposed 145-room hotel to be located at the southwest corner of the intersection of Privado Road and Merrick Avenue.

Polimeni Office Building - A 150,000 sf development located on Old Country Road between Roosevelt Field and Clinton Road.

The Lighthouse at Long Island - The proposed redevelopment of the Nassau Coliseum site is proposed to include 500,000 sf of retail space, 2,306 new residential units, 300 additional hotel rooms, approximately 1,000,000 sf of new office space, 493,000 sf of new Coliseum ancillary use and approximately 200,000 sf of additional convention center facilities.

Hyatt Hotel - A 122-room Hotel located on East Gate Boulevard.

2. Potential Impacts

The Land Use Plan for the NUMC campus recommends locations for existing campus uses as well as for other uses that are intended to be added. All of this is within the context of the NUMC's primary objective of transforming itself from a standard acute care hospital to a more multi-faceted "medical village."

The Medical Center is already something more than simply a hospital due to the presence of on-site housing for medical residents and their families. This residential

component makes the campus a multi-use facility, though in a limited manner. But it is a goal of the NuHealth to expand the number and type of uses on the campus in a way that supports, reinforces and expands the overall mission of providing Nassau with a full-service, integrated healthcare center. In designing the Master Plan, therefore, consideration has been given to plans that the Nassau Health Care Corporation has already been pursuing as well as identifying other potential uses that might make sense for the East Meadow campus.

Among the uses that have been contemplated for the NUMC campus are the following:

- Expanded housing for medical residents and staff;
- Ambulatory surgery center;
- Veterans' Administration clinic;
- Veterans Adult Day Care center;
- Medical office space (may include Cancer Center and Imaging Center); and
- Medical and health related retail facilities

The overall land use plan for the East Meadow campus has been developed to accommodate these uses and fulfill the objectives of the Nassau Health Care Corporation in coordination with project stakeholders.

Anticipated Development in the Vicinity of the Project Site

For the purposes of this analysis, the potential land use impacts that may result from future development projects in the vicinity of the project site would relate to traffic and transportation. Traffic anticipated to be generated by these developments and the potential impact to the surrounding roadway network and existing traffic patterns, is discussed in section III.E of this DGEIS. Redevelopment of the NUMC campus would not have direct land use implications for the other proposed projects in the area as the nature of the proposed uses on the East Meadow campus are specifically health related, representing an expansion of existing uses on the campus.

Zoning

The proposed use of the NUMC campus will remain consistent with and limited to the activities authorized pursuant to the Nassau Health Care Corporation's enabling legislation. Therefore, the proposed activities are considered permissible as of right by operation of Building Zone Ordinance 309 and Public Authorities Law § 3418. NuHealth has been designated as a construction-permitting agency by the New York State Department of State pursuant to 19 NYCRR 1204.16 (b). As such, NuHealth will issue all applicable permits for construction projects undertaken by the Nassau Health Care Corporation.

B. Visual and Community Character

1. Existing Conditions

a. Visual Resources – Having developed over an extended period of time, the Medical Center campus presents a somewhat fragmented visual character. There is not a consistent architectural style among the buildings, nor are the buildings arranged in a manner that creates a coherent image. See Exhibit III-1, Existing Site Photographs.

The Dynamic Care Building, at 19 stories, dominates views into the campus from surrounding streets and uses and from points within the campus as well. Because of their locations along the campus perimeter, at-grade parking areas are also key visual elements of the campus as perceived from the neighboring communities.

b. Community Character – The character of the communities surrounding the campus varies depending upon the uses found in each. To the west, across Carman Avenue from the campus, there is a residential neighborhood characterized by single-family homes on small lots. That neighborhood also contains East Meadow High School and, further to the north, the Eisenhower Park and its amenities. The overall image of this section is of a well-maintained, suburban scale community. A similar neighborhood is found to the east of the campus.

Immediately north of the Medical Center campus is the Nassau County Correctional Center, which includes several multistory institutional buildings and surface parking. Much of the Correctional Center property is surrounded by security fencing.

Bordering the campus on the south is Hempstead Turnpike, a predominantly commercial corridor containing a mix of uses in an uncoordinated pattern. Most of the development in the vicinity of the Medical Center is low rise, with at-grade parking lots and little in the way of well-landscaped buffers. In addition, the visual image is characterized by an uncoordinated jumble of business signs typical of a highway commercial strip.

2. Potential Impacts

a. Visual Resources – The Vision Plan would maintain, and build on, the role of the DCB as the focal point of the campus. New buildings would all be substantially lower in height than the DCB and would be placed so as to recognize the DCB's preeminent position as the most significant structure on the campus (see Exhibit II-1, Long Range Vision Plan). The residential portion of the campus would be rebuilt to create a more attractive living environment for residents and to better blend with the remainder of the Medical Center buildings. The creation of an open lawn area in the central portion

of the campus would provide a visual focus and help to tie together the disparate elements of the Medical Center into a coherent whole.

b. Community Character – Implementation of the Vision Plan for the Medical Center campus would have only minor effects on the visual character of the surrounding communities. The DCB would remain the tallest building on campus and the visual focal point from off-campus locations. From the adjoining community, the most visible of the new buildings would be those constructed in the southwest corner of the campus near the intersection of Carman Avenue and Hempstead Turnpike: the Ambulatory Surgery Center, Cancer Center and related office space and parking.

The following table illustrates the proposed height (in floors) and approximate size (in square feet, units or parking spaces) for the proposed buildings, as outlined in the Long Range Vision Plan. Since the proposed redevelopment is conceptual in nature and fully engineered site plans have not been developed at this time, much of the information provided in the following table represents conceptual estimates. As of this writing, only the Ambulatory Care Pavilion has been further engineered and designed and all other plan components remain conceptual. For additional details relative to the Ambulatory Care Pavilion, see Exhibit II-8, Ambulatory Care Pavilion - Landscape Plan and Exhibits II-9 through II-11 for floor plans.

Table III-5
East Meadow Campus Implementation Matrix

Project	Use	Size (Sq. ft.)	Units/Spaces	# of Floors	Location	Phase
New DCB cafeteria	Food service	7,472		1	DCB (Courtyard, 1st Floor)	1
Ambulatory Care Pavilion	Ambulatory Care	45,000		3	Ambulatory Zone	1
Long Island Adult Day Care	Adult Day Care	7,165±		1	Activities Bldg	1
Ambulatory Surgery Center/MOB	Outpatient Surgery/Office	50,000±		3	Ambulatory Zone	2
Resident tower w/ student union	Living/retail/ community	160,000±	Net + 80 units	TBD	Residential	2
New staff /Visitor parking garage	Parking	610,000±	1,750 spaces	1B + 6	Parking Deck	4
Wellness Center	Fitness/retail/ ambulatory	120,000±	250± spaces	3	Wellness Zone	5
Cancer center	Oncology	50,000±		2	Inpatient/ Ambu Zone	5

Based on the Long Range Vision Plan, the height of the resident tower has not been determined at this time. Other new structures on the site would not exceed six stories, the height of the new staff visitor parking garage.

The massing of the proposed new buildings has been illustrated on Exhibits III-2 through III-9, Campus Perspectives.

3. **Mitigation Measures –** The visual impacts of redevelopment at the Medical Center campus would be mitigated by a variety of design factors:
    - Building heights would be substantially lower than the existing DCB.
    - Architectural features – including materials used, colors, lighting, etc. – would be selected so as to create an attractive and harmonious visual environment.
    - Landscape buffering would be provided around the campus to help screen and soften views from nearby residential neighborhoods.

C. Natural Features

The Nassau University Medical Center's East Meadow campus is a previously developed institutional campus that contains numerous buildings, extensive impervious pavement and landscaped areas. The site is currently in use as a medical facility, with intensive daily activity and visitation.

The structures and uses on the NUMC campus can be generally divided into four land use areas, each with distinct types of structures:

- Dynamic Care Building, located in the southern portion of the campus near the Hempstead Turnpike frontage, containing a 19-story medical center tower and additional medical buildings and administrative offices, and at-grade parking.
- Parking garage and mid-campus buildings, which include multi-story (less than 4 floors) buildings separated by landscaped courtyards.
- Resident housing area, located to the north of the mid-campus buildings and consisting of three-story garden apartment buildings separated by a common lawn and courtyard.
- Utility and service buildings located in the northern part of the site.

1. Soils, Surface Water and Groundwater

a. Existing Conditions

The NUMC campus is entirely developed, and has been cleared of native vegetation and graded. The site is level, with a generally uniform grade and elevation. The surface of the site is entirely occupied by structures, paving and maintained landscaped areas. Variation in grade is present in areas of the site, principally for drives that provide access to lower levels of buildings, and in graded berms within landscaped areas. The U.S. Department of Agriculture Soils Maps show that the soils on the NUMC site are classified Urban Land (Ug). This

soil type is found on sites that have been extensively disturbed and subject to re-grading, which will obscure the natural soil profile. No surface water systems are mapped or were observed on or adjacent to the campus.

As noted in groundwater information and reports compiled by the U.S. Environmental Protection Agency, the geologic structure of Long Island is relatively uniform. The island is underlain by bedrock of the Precambrian system or Proterozoic Era, composed of crystalline metamorphic and igneous rock. There are four distinct formations that serve as aquifers on Long Island: The Upper Glacial, the Jameco, the Magothy and the Lloyd aquifers. They all occur in the unconsolidated materials overlying the bedrock. The entire ground water reservoir underneath Nassau County may be regarded as a single hydraulic system. In the project area, ground water recharge is primarily through infiltration of precipitation into the water table.

Due to the unconsolidated nature of the soils over the aquifers, the Nassau and Suffolk Aquifer System is highly vulnerable to contamination. Therefore, ground water discharges and withdrawals are subject to area-wide management and planning.

b. Potential Impacts

The proposed activities will cause disturbance of the existing site soil during land clearing, building demolition and construction activities. These effects are associated with the construction phase, and are temporary. Adverse impacts to soils include exposure of soils to rain and wind erosion during the construction phase, which can potentially lead to airborne dust and sedimentation within storm sewers and local drainageways. The concept plans indicate that, after redevelopment, the site will have a greater amount of vegetated area that will facilitate rainwater percolation into the soil, and ultimately to the underlying aquifer.

2. Wildlife and Vegetation

a. Existing Conditions

A site visit was conducted on October 2, 2009 by Paulus, Sokolowski and Sartor (PS&S) to characterize the natural resources of the site. The site contains impervious surfaces consisting of bituminous material for vehicular driveways and parking, and concrete pedestrian walkways. The site is entirely developed, and contains limited vegetated areas consisting primarily of maintained lawns and landscape trees and shrubs. The property contains perimeter landscaping consisting of lawns and deciduous and evergreen trees. Additional areas of maintained lawns are present in the courtyards between buildings, along roadways and sidewalks, and around parking lots. Development activity has long-since

displaced the native vegetative communities and wildlife habitat on the site as well as in the surrounding suburban community. The remaining maintained landscapes provide habitat for wildlife species tolerant of disturbance and typical of urban and suburban areas of Nassau County.

The composition of the vegetative communities on the site has resulted from site clearance, construction and property maintenance activities that have taken place over several decades. The trees present on the site include landscape species and species that are adapted to growth on previously disturbed sites. The tree species observed on site include northern red oak (*Quercus rubra*), red maple (*Acer rubrum*), sycamore (*Plananus occidentalis*), American elm (*Ulmus americana*), black locust (*Robinia pseudoacacia*) and several landscape varieties of pine and spruce trees.

The site has potential habitat for a variety of mammals and birds that are adapted to Nassau County suburban areas, or may be drawn to the site to exploit food sources generated on site. Mammalian species that can be anticipated to be present on site include gray squirrel (*Scirus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), opossum (*Didelphis marsupialis*) and raccoon (*Procyon lotor*). The combination of structures, lawn grasses and deciduous trees afford habitat for a variety of avian species, commonly including rock pigeon (*Columba livia*) and gulls, and passerines (Order *Passeriformes*), which locally can include such perching birds as the American robin (*Turdus migratorius*), titmouse (*Baeolophus bicolor*), crows (*Corvus brachyrhynchos*), nuthatches (*Sitta sp.*), starlings (*Sturnus vulgaris*), vireos (*Vireo sp.*), Northern cardinal (*Cardinalis cardinalis*)and waxwings (*Bombycilla cedrorum*).

No water features, wetlands or standing water were observed during the site visit and no invertebrate or fish species are anticipated to occur on or near the site.

<u>Surrounding Community</u>

The area surrounding the NUMC site is a suburban community with a high density of development that has entirely displaced native vegetation communities. The area is served by a network of roads and infrastructure. Residential communities extend to the east and south of the site. A public high school is located to the west and a jail complex is located immediately north. A mix of commercial uses is present along Hempstead Turnpike, which is an arterial roadway. The residential areas, commercial uses, and institutional uses in the project area generate high levels of human activity, including vehicular traffic. Additional effects of the existing development include high levels of noise, artificial light, and potential disturbance of wildlife associated with the physical movement of vehicles and pedestrians.

No native vegetated communities or natural areas are present on or near the site. The nearest parkland or community open space is Eisenhower Park, a 930-acre park that includes golf courses, athletic fields and courts, children's play area, picnic facilities, and cultural venues. The New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Mapper (ERM) shows that the nearest wetland and water features are located approximately one mile west of the NUMC site. The absence of water features or standing water limits the potential for use of the site by amphibians and semi-aquatic reptiles.

Endangered and Threatened Species and Species of Special Concern

A review of the Significant Habitat Program and Natural Heritage Program files has been performed by NYSDEC Natural Heritage Program (NHP). The NHP provides confirmation that peregrine falcon (*Falco peregrinus*), a New York State Endangered Species, is present "on or near" the site. A copy of the NHP letter is provided as an addendum to this GEIS.

The presence of a mated pair of peregrine falcon at the NUMC site is well documented. The location of the nest is on a 17-floor window ledge of the 19-story medical center tower, within a nest box placed by the New York State Department of Environmental Conservation (NYSDEC) in 1997. The pair of peregrine falcon that utilizes this nest has been monitored since that time and has been credited with producing 46 falcons. Life expectancy estimates for wild peregrine falcon vary from approximately 12 to up to 20 years.

The peregrine falcon has become acclimated to urban and suburban areas, making nests on high structures and bridges, and preying mostly on birds, including doves, pigeons, shorebirds, waterfowl, and passerines. The peregrine falcon also eats small reptiles and mammals. Peregrine falcon breeding season begins with courtship in late winter (February or March); egg-laying generally begins in early March but may be delayed until early April. Incubation of the eggs takes about 30 days. Young that hatch successfully begin to fly around 5 ½ weeks of age, and are dependent on the adults for about 8 weeks after their first flight. Young generally migrate out of the breeding location by mid to late summer. The success of the pair of peregrine falcon in raising young every year indicates the NUMC area provides effective feeding and nesting habitat.

Peregrine falcon, along with other birds of prey, suffered in the past from exposure to pesticides including DDT, which resulted in thinning of egg shells and reduction in rate of successful breeding. Initial mitigation of these effects included removal of harmful pesticides from usage and active re-introduction of peregrine falcon into the affected range, including New York. Hacking, a

management practice that placed young birds at an artificial nest site, which are nurtured until they are able to fly and hunt on their own, has been successful for re-introduction of numerous individuals of this species into this range. Current NYSDEC management practices for peregrine falcon include locating, monitoring and protecting nesting pairs.

b. Potential Impacts

Construction activities associated with redevelopment of the mid-campus and northern campus areas will cause the displacement of much of the existing vegetation on the site, primarily involving areas planted as lawn and landscape. The vegetated communities are non-native, consisting of maintained lawns and landscaped areas. The construction activities for the proposed healthcare village will include removal of existing structures and site clearing activities, which will also result in removal of vegetated lawns and trees. During the construction phase the animal habitat afforded by these vegetative communities will be displaced. The proposed concept plan provides a major green space in the central area of the site, resulting in substantially more vegetated open space than is currently found on site. The total area of trees, lawns and grassland will be increased as a result of project implementation, with a concomitant increase in habitat area available for birds and small mammals.

As the species present on site are adapted to suburban communities and are anticipated to temporarily relocate to surrounding areas, no significant direct impacts to wildlife in the area of disturbance are anticipated during the construction phase of the activity. The passerine bird species and small mammals are anticipated to return to the site upon completion of site construction.

No activities that will directly impact the exterior fascia of the Dynamic Care Building are proposed. The peregrine falcon nest, located on the 17th floor of this building will not be subject to disturbance activities during construction. The area of the proposed activity currently contains structures and landscape vegetation, which are not seen as unique or essential to the peregrine falcon as a source of prey species. The proposed construction area is a previously developed site that is the location of daily activities, including large amounts of vehicular traffic, pedestrians, and facility operations. The principal attribute of the nest location is the height above grade; ground level activities in the central and northern part of the site are not anticipated to interfere with feeding or breeding activities.

3. Mitigation Measures

Due to the previously developed condition of the site and the large area of maintained landscaping and buildings, no preservation areas or construction staging measures have been proposed.

Soil erosion may occur during the construction phase, including potential for increased amounts of airborne dust and erosion during storm events. The project will incorporate measures to comply with soil erosion, sediment control and stormwater management regulations, which are required to mitigate adverse stormwater discharge and soil erosion effects.

Resident birds and small mammals will be temporarily displaced by construction activities. The project plans include lawn areas and tree plantings within the site. The planted lawns and landscaping will provide habitat for the species that currently populate the site. Dust control and noise control measures including implementation of a project soil erosion and sediment control plan, use of mufflers on operating equipment, and maintenance of a construction schedule during daytime hours are recommended. Construction and security lighting should also be managed, including use of shielding to prevent light pollution and glare. The peregrine falcons that nest in the hospital tower have been monitored by the NYSDEC for over 12 years. The Nassau Health Care Corporation, as sponsor of the redevelopment activities at this site, will coordinate construction activities and scheduling with NYSDEC representatives to avoid potential disruption of nesting activities.

D. Stormwater Management

1. Existing Conditions

The stormwater runoff for the subject property is collected using a series of catch basins and drywell structures. In addition, the entire drainage system is designed to overflow into the Nassau County storm sewers on Carman Avenue and Hempstead Turnpike. The main hospital and the front portion of the subject property along Hempstead Turnpike drain into a large pump station which collects the stormwater and then pumps it into a 36-inch storm sewer on Hempstead Turnpike. A copy of the drainage plans, which identifies the existing storm drainage structures, obtained from the Nassau University Medical Center Engineering Department, has been included in Appendix D of this report.

The depth to ground water is approximately 34.5 feet below grade elevation based on the boring log by Paulus, Sokolowski and Sartor dated 5/30/08 which has been included in Appendix E of this report.

2. Potential Impacts

NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-08-001) is required for construction activities involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a larger common plan of development or sale that will ultimately

disturb one or more acres of land. Since the project will disturb more than one (1) acre during construction, a permit application to NYSDEC will be required.

The proposed program is conceptual in nature and detailed site plans have not been developed at this time. This DGEIS considers a maximum development envelope that represents the upper limit of new development that is likely to occur within the project site as a result of the proposed Plan. Therefore, the proposed drainage infrastructure within the project site is only conceptual at this time. The proposed project may increase the impervious area and runoff of the subject property. Any additional runoff from the proposed buildings, access drives, parking area, walkways and landscape areas will be contained on-site using catch basins and drywell structures. This additional stormwater runoff generated by the proposed project may, although minimal, contain pollutants such as oils, salts and fertilizers which will be routed through a series of water quality control features such as catch basins and drywells before ultimately being introduced into the groundwater. A pre- and post-development drainage analysis of the project will be created once the site plan has been completed.

The stormwater drainage system for the proposed redevelopment will be designed to accommodate a 5-inch storm event as required by Nassau County Department of Public Works standards. A conventional stormwater collection and recharge design is proposed for the new development. Runoff from site access drives, parking areas and walkways will be collected using catch basins and piped to drywells. Roof runoff will be piped directly to drywells, buried below grade, which will recharge the stormwater into the ground without visually impacting the landscape. No runoff will be permitted from the proposed redevelopment onto adjacent properties. Maximum depth of the drywell structures will be 25 feet below grade.

The drywells will be installed in a granular strata and backfilled with bankrun (course/medium/fine sand and gravel) and will be inspected by the Town engineer during installation. This will insure the proper functioning of the drywell structures and recharge of storm water runoff. Each drywell structure will be installed with a "collar" or sand filter. This sand filter consists of a minimum three feet of sand, which is placed around the entire outside of the drywell. The collar will filter out remaining solids and organics before the effluent reaches the groundwater. In addition, a certified professional will be required to observe the drywell installation and confirm acceptable drainage material is encountered as required by the Nassau County Department of Public Works.

Soil borings were performed on the subject property as part of a limited environmental sampling program. Soils encountered from these excavations revealed that acceptable drainage material exists on site. The drainage structures will have a

minimum of 4 feet of vertical separation that will be maintained from the bottom of each drywell to the historical high groundwater elevation. Based on the soil boring log performed by PS&S dated 5/30/08, the groundwater was measured at approximately 34.5 feet below grade.

3. Proposed Mitigation

During the course of construction, erosion and sediment control measures shall be implemented to prevent the transport of sediment to offsite areas. The following general guidelines shall be observed:

- Grading shall be carefully scheduled to minimize the size of exposed areas and the length of time that areas are exposed.

- The length of cleared slopes shall be minimized to reduce potential erosion and sedimentation. The steepness of the slopes shall not exceed 1 on 3 in a fill situation and 1 on 2 in a cut situation to also minimize erosion and sedimentation.

- Sediment shall be trapped on the site.

- Specific control measures shall include the following: site construction activity (earthwork) will not be permitted during heavy rain, frozen conditions or wet conditions.

- Sediment barriers (silt fence, hay bales or approved equal) shall be installed as required along the limits of disturbance for the duration of the work in addition to a temporary construction fence. Hay bales shall be installed around the construction area. In addition, a temporary 6-foot high construction fence with silt fencing shall be installed around the entire perimeter of the construction area. No sediment from the site shall be permitted to wash onto adjacent properties or public streets.

- Graded and stripped areas and stockpiles, while kept to a minimum, shall be kept stabilized through the use of temporary seeding or salt hay as may be required. Seed mixtures shall be accordance with the National Resources Conservation Service recommendations.

- Drainage inlets installed shall be protected from sediment buildup through the use of sediment barriers, and sediment traps as may be required.

- Trees that are to remain on the subject property, as well as trees adjacent to the site, shall be protected, by fencing placed around the crown drip line of the

trees. Construction equipment will not be permitted within this fenced area to minimize the possibility of soil compaction around the root system and damage the existing trees. Additional treatment may consist of each tree trunk being protected by a fence barrier.

- Proper maintenance of erosion control measures shall be ensured by daily and follow-up inspections after heavy and prolonged storms. Maintenance measures include, but are not limited to, cleaning of sediment basins or traps, cleaning or repair of sediment barriers, repair/replacement of damaged silt fencing, replacement of damaged hay bales, cleaning and repair of berms and diversions, and cleaning and repair of inlet protection. Sediment, which has accumulated to the point of impairing the function of the above structures, shall be removed, especially after each storm event. In addition, supplemental hay bales and silt fencing shall be stored on-site. These extra supplies would be utilized if the initial hay bales and silt fencing become damaged or are not working as they were intended.

- Appropriate means shall be used to control dust during construction. Highly traveled areas and perimeter areas may require a sprayed on adhesive consisting of an acrylic polymer or resin in water.

- A stabilized construction entrance shall be maintained to minimize soil and loose debris from being tracked onto local roads. These measures shall be maintained until the site is permanently stabilized.

- Sediment barriers and other erosion control measures shall remain in place until disturbed areas have been permanently stabilized. After permanent stabilization, drainage structures shall be cleaned and flushed as necessary.

- If during construction operations and routine maintenance it is determined that additional erosion control measures are necessary, additional barriers/protection will be added. The New York State Department of Environmental Conservation will have the right to inspect the property at any time to ensure building and erosion control protection design are being constructed properly.

Best Management Practices (BMPs) are design approaches that further mitigate an adverse impact caused by developments related to stormwater management. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMP's*, developed for the Washington Metropolitan Water Resources Planning Board, by Thomas R. Schueler describes and evaluates several BMP's and identifies the benefits and limitations of each.

The project will utilize two of the BMP's in an effort to reduce any adverse impact. The first BMP that will be implemented in the project is infiltration of the stormwater runoff, which will be accomplished by using catch basins and drywells. The second BMP will incorporate the design of grass swales and vegetative systems which aims to filter pollutants from the stormwater runoff. Both of these BMPs provide water quality treatment for the increased stormwater runoff.

In addition, in accordance with the Environmental Protection Agency and the NYSDEC requirements for Storm Water Discharges from Construction Activities, a Stormwater Management Plan and Operations and Maintenance Manual will be required to be prepared and a National Pollutant Discharge Elimination System (NPDES) permit obtained prior to commencing any construction. As identified in "Reducing the Impacts of Stormwater Runoff from New Development" prepared by the NYSDEC, the Manuals will include background information, existing and proposed conditions, detailed erosions control plans (temporary and permanent control measures) and implementation and maintenance schedules.

E. Traffic, Transportation and Parking

A Traffic Impact and Parking Study was performed by Adler Consulting, following standard engineering principles and practices, to examine the traffic impacts associated with the redevelopment of the Nassau University Medical Center (NUMC) East Meadow campus. The complete study is located in Appendix G of this DGEIS. The study:

- Collected vehicular turning-movement and pedestrian counts on a typical weekday PM and Saturday to establish Existing Traffic Conditions;
- Collected parking accumulation counts of all on-campus parking on a typical weekday and a typical Saturday to establish Existing Parking Conditions;
- Determined the current occupancy level of the existing facility;
- Conducted a field inventory for roadway widths, sidewalks, roadway signage, on-street parking and traffic control data;
- Assessed the availability of public transportation serving the campus including bus schedules and other mass transportation information;
- Analyzed the most recent three years of accident data obtained from Nassau County Police Department and the New York State Department of Transportation (NYSDOT) to identify high-frequency accident locations and to understand the accident types and severity thereat;
- Determined the traffic volumes expected to be generated by other developments in the vicinity of the project;
- Projected the existing traffic volumes to the Horizon Year using a generalized growth rate;
- Used the Horizon-Year traffic volumes and the Vicinity Development volumes to determine the "No-Build" conditions;
- Determined the traffic volumes anticipated to be generated by the proposed action during the peak hours;
- Assigned the project-generated traffic to the traffic stream in accordance with patterns derived from both existing turning-movement counts and vicinity traffic patterns;
- Analyzed the resulting traffic volumes for the Existing, No-Build and Build conditions with respect to future roadway capacities;
- Based on a review of the Site-Generated traffic volumes and the projected traffic operating conditions, assessed the potential traffic impact of the proposed project;
- Where necessary, recommended measures to offset the project's impacts;
- Reevaluated future traffic operating conditions, incorporating the recommended measures to mitigate for the project;
- Assessed the availability of public transportation serving the proposed project;
- Reviewed the existing pedestrian equipment as it relates to pedestrian safety;

- Projected parking demand on a typical weekday and Saturday associated with the contemplated additional development, added it to the existing parking demand and compared it to the proposed parking supply to measure the adequacy of the proposed parking supply to satisfy future demand;
- Reviewed the availability of parking for construction employees and developed a plan to ensure that construction employee parking will not adversely impact traffic or quality of life in the surrounding neighborhoods; and developed construction traffic truck routes.

(Note: construction traffic is included in Chapter III.L, Construction Impacts).

1. Traffic and Transportation

a. Existing Conditions

1) Adjacent Roadway Network

The Nassau University Medical Center is served via Hempstead Turnpike (NY Route 24) and Carman Avenue. These roadways, in turn, are connected to Newbridge Road (NY Route 106), Front Street (NY Route 102) and Salisbury Park Drive, which provide primary access to and from the surrounding communities. The following is a description of the primary roadways in the vicinity of the site, as indicated on Exhibit III-11, Surrounding Roadways.

<u>Hempstead Turnpike (NY Route 24)</u>

Hempstead Turnpike is a two-way, divided, east-west, principal state arterial roadway, which provides three lanes in each direction for through traffic in the vicinity of the site. NY Route 24 runs from Hillside Avenue (at the end of the Clearview Expressway), in Queens, to Broadhollow Road (by Republic Airport) in Suffolk County. In the vicinity of the site, turn lanes are provided in the median and the major intersections are signalized. The roadway width, from the north curb, across the median, to the south curb is approximately 95 feet. The posted speed limit in the vicinity of the NUMC campus is 40 mph and illuminated sidewalks are provided along both sides of the road. Bus service is provided along Hempstead Turnpike in front of the NUMC campus by the MTA 47, 49, 67, 70, 71 and 72 bus lines.

<u>Carman Avenue</u>

Carman Avenue is a two-way, undivided, north-south, local collector roadway which provides two lanes in each direction for through traffic in the vicinity of the site. Carman Avenue runs from Hempstead Turnpike (at the southwest corner of the NUMC campus) to Old Country Road. In the vicinity of the site, turn lanes are provided in the median and the major intersections are

signalized. The roadway width, from the east curb, across the painted median, to the west curb is approximately 57 feet. The posted speed limit in the vicinity of the campus is 40 mph and illuminated sidewalks are provided along both sides of the road. Bus service is provided along Carman Avenue in front of the campus by the MTA 48 bus line.

Newbridge Road (NY Route 106)

Newbridge Road is a two-way, north-south, principal state arterial roadway which runs from Sunrise Highway (NY Route 27), in Bellmore, to Main Street in Oyster Bay. North of Hempstead Turnpike, Newbridge Road is a divided roadway which provides two lanes in each direction for through traffic, with turn lanes provided in the median and signals at the major intersections. It also has a wide shoulder on either side of the roadway. The roadway width, from the east curb, across the shoulders and the median, to the west curb is approximately 95 feet. The posted speed limit is 40 mph and illuminated sidewalks are provided along both sides of the road. Bus service along this portion of Newbridge Road is provided by the MTA 49, 50 and 87 bus lines. South of Hempstead Turnpike, Newbridge Road is an undivided roadway which provides two lanes in each direction for through traffic. Turn lanes are generally not provided and there is only a minimal shoulder. The roadway width, from the east curb to the west curb, is approximately 50 feet and signals are provided at the major intersections. The posted speed limit is 40 mph and illuminated sidewalks are provided along both sides of the road (albeit on the west side of the parallel residential street at some points). Bus service is provided along this portion of Newbridge Road by the MTA 47, 50 and 87 bus lines.

Front Street (NY Route 102)

Front Street is a two-way, undivided, east-west, principal state arterial roadway which runs from Hempstead Avenue, in Hempstead, to Hempstead Turnpike (NY Route 24) approximately 1/10th of a mile west of the NUMC campus. Along its eastern portion near the campus, Front Street provides one lane of travel with a wide shoulder in each direction and signals at the major intersections. The roadway width, from the north curb to the south curb, is approximately 45 feet. The posted speed limit is 40 mph and illuminated sidewalks are provided along both sides of the road. Bus service is provided along this portion of Front Street by the MTA 47, 48, 49 and 67 bus lines.

2) *Existing Public Transportation*

The Nassau University Medical Center is served by the #47, 48, 49, 67, 70, 71 and 72 bus lines, which connect the facility with Roosevelt, Hempstead,

Uniondale, East Meadow, Bellmore, Farmingdale, Melville, Babylon, Levittown, Hicksville and Jericho. Connections can be made to the LIRR at Hempstead (Hempstead Branch), Hicksville (Port Jefferson Branch) and Farmingdale (Ronkonkoma Branch). A map showing the MTA Long Island Bus routes servicing the NUMC campus is presented in Exhibit III-12 and the service provided is summarized in Table III-6.

Table III-6
Existing MTA Long Island Bus Service to NUMC East Meadow Campus

Route	Stops	Hours of Operation		Frequency (average)			
		Weekdays	Saturdays	Weekdays		Saturdays	
				Peak	Off-Peak	Peak	Off-Peak
N47	Hempstead, Uniondale, East Meadow, Bellmore	5:30 a.m. to 8:50 a.m. Eastbound 4:00 p.m. to 6:00 p.m. Westbound	No Service	Every 30 Minutes	Once an Hour	-	-
N48/ N49*	Hempstead, Uniondale, East Meadow, Levittown*, Hicksville, Jericho	6:00 a.m. to 10:30 p.m.	6:40 a.m. to 10:30 p.m.	Every 15 Minutes	Every 30 Minutes	Every 30 Minutes	Every 30 Minutes
N67**	Roosevelt Uniondale, East Meadow, Hicksville	7:15 a.m. to 7:50 a.m. Eastbound 2:40 p.m. to 3:30 p.m. Westbound	No Service	Every 20 Minutes	-	-	-
N70/ N71/ N72***	Hempstead, East Meadow, Levittown, Farmingdale, Massapequa Park, Melville, Babylon	5:15 a.m. to 12:00 a.m.	6:00 a.m. to 11:35 p.m.	Every 7 Minutes	Every 15 Minutes	Every 15 Minutes	Every 25 Minutes

* The N48 and N49 generally serve the same communities, the difference being that the N48 runs up Carman Avenue from Hempstead Turnpike to Hicksville, while the N49 continues on Hempstead Turnpike and runs up Newbridge Road to Hicksville. Service terminates at Hicksville on Saturdays.
** School days only.
*** All three lines run from Hempstead to Farmingdale, where the N70 splits off and goes north to Melville, the N71 splits off and goes south to the Sunrise Mall in Massapequa Park and the N72 continues on to Babylon.

Taxi service at the NUMC campus is provided by East Meadow Taxi Corp., LI Yellow Cab, Andrew Taxi Corp. and LI Checker Cab of Merrick, which operate out of nearby Levittown and Westbury. Several limousine services also operate in the vicinity of the campus.

3) *Existing Pedestrian and Bicycle Facilities*

A network of sidewalks on the NUMC campus including on the campus's driveways connect the various buildings on the campus, the parking facilities and the sidewalk network on the surrounding streets. Lighted sidewalks are provided on both sides of Hempstead Turnpike (NY Route 24) for more than 1,000 feet on either side of the NUMC campus. Striped crosswalks are provided on three sides of the Hempstead Turnpike's intersections with Prospect Avenue, Clearmeadow Drive, Jefferson Street and Conti Square Boulevard. Pedestrian crosswalk signals and pushbuttons are provided across Hempstead Turnpike on one side of the intersection at these intersections, with additional pedestrian crosswalk signals across the minor-street approach at Conti Square Boulevard only. At the intersection of Hempstead Turnpike with Carman Avenue, pedestrian crosswalks, signals and pushbuttons are provided on all four street crossings. Illuminated sidewalks are also provided on both sides of Carman Avenue within 1,000 feet of the NUMC campus. Stripped crosswalks and pedestrian signal indications are provided across Carman Avenue at the North driveway to the adjacent County penitentiary facility, at the NUMC North campus driveway (Intern Drive), at the East Meadow High School and at Nottingham Road as well as at Hempstead Turnpike.

Nassau County is planning the creation of a pedestrian and bicycle path to connect various cultural, educational and recreational facilities in Uniondale, Hempstead and Garden City. This new facility is intended to connect Eisenhower Park, just west of the NUMC campus, with various community facilities, cultural interests and Adelphi University. The pathway will connect at various points with an existing bike path along the north side of Hempstead Turnpike (NYS Route 24) in the vicinity of the Nassau Coliseum and Hofstra University and is expected to be approximately nine miles in length.

4) *School Traffic Safety*

East Meadow High School is located directly across Carman Avenue from the northern half of the NUMC campus. Access to the school is provided via the main driveway at the south end of the property, which is controlled by a traffic signal. Access is also provided by an unsignalized driveway which serves the drop-off area in front of the school (this area is also connected to the main driveway) and two minor driveways serving an approximately 30-space parking lot at the north end of the property. The accident history indicates that this section of Carman Avenue has not experienced an elevated accident history. Accordingly, safe and efficient pedestrian access is currently provided to the East Meadow High School.

As previously described, sidewalks are provided on both sides of Carman Avenue, a signalized pedestrian crosswalk is provided at the traffic signal which is located at the school's main entrance and bus stops are provided either directly across the street or within a block of the school on the west side of Carman Avenue.

5) Intersection Study Locations

Based on a review of the area roadway network servicing the campus, it was determined that the proposed action would have the greatest potential to impact traffic operating conditions at the following intersection locations:

Newbridge Road (NY Route 106) at Hempstead Turnpike (NY Route 24) - A major, four-legged, signalized intersection with double-left-turn lanes on all approaches to the intersection, three through lanes in both directions on Hempstead Turnpike, two through lanes in both directions on Newbridge Road and right-turn lanes on the Newbridge Road approaches. Striped crosswalks are provided on all sides of the intersection.

Hempstead Turnpike (NY Route 24) at Clearmeadow Drive - A four-legged, signalized intersection which provides access to the residential neighborhood to the east of the NUMC campus on the north side of Hempstead Turnpike and to a shopping center on the south side of Hempstead Turnpike. Hempstead Turnpike provides three through lanes and a left-turn lane in each direction. Clearmeadow Drive is striped to provide two-lanes approaching the intersection. Striped crosswalks are provided on all but the west side of the intersection.

Hempstead Turnpike (NY Route 24) at Franklin Street/Campus Driveway - A four-legged, signalized intersection which provides a primary access to the NUMC campus on the north side of Hempstead Turnpike and to the residential neighborhood on the south side of Hempstead Turnpike. Hempstead Turnpike provides three through lanes and a left-turn lane in each direction. Both Franklin Street and the NUMC campus driveway are striped to provide two-lanes approaching the intersection. Striped crosswalks are provided on all but the east side of the intersection.

Carman Avenue at Hempstead Turnpike (NY Route 24) - A major, four-legged, signalized intersection with double-left-turn lanes on the eastbound Hempstead Avenue approach to the intersection and single, left-turn lanes on the remaining three approaches. Hempstead Turnpike provides three through lanes in each direction while Carman Avenue provides a single through lane in either direction with a third lane on the southbound approach dedicated

exclusively for right-turning vehicles. Striped crosswalks are provided on all sides of the intersection.

Front Street (NY Route 102) at Hempstead Turnpike (NY Route 24) - A major, three-legged, Y-shaped, signalized intersection with double-left-turn lanes on the westbound Hempstead Turnpike approach to the intersection and double-right-turn lanes on the Front Street approach (left turns are not permitted). Hempstead Turnpike provides three through lanes in each direction with a short, fourth lane on the eastbound approach dedicated exclusively for right-turning vehicles. A striped crosswalk is provided on the south side of the intersection.

Dofena Lane/ Campus driveway (County Street) at Carman Avenue - A minor, four-legged, unsignalized intersection with two through lanes in each direction on Carman Avenue. A short, left-turn lane is provided on southbound Carman Avenue for vehicles entering the NUMC campus. Dofena Lane is one-way approaching the intersection and provides one wide lane. The campus driveway is two-way and is striped to provide a left-turn lane and a right-turn lane approaching the intersection.

Nottingham Road at Carman Avenue - A three-legged, T-shaped, signalized intersection with two through lanes in each direction on Carman Avenue. A short, left-turn lane is provided on northbound Carman Avenue for vehicles turning into Nottingham Road. Nottingham Road provides a single lane on its approach to Carman Avenue and a crosswalk is striped on the south side of the intersection.

East Meadow High School Driveway at Carman Avenue - A three-legged, T-shaped, signalized intersection with two through lanes in each direction on Carman Avenue. A left-turn lane is provided on northbound Carman Avenue and a right-turn lane is provided on southbound Carman Avenue for vehicles turning into the High School. The High School driveway is striped to provide a left-turn lane and a right-turn lane on its approach to Carman Avenue and a crosswalk is striped on the south and west sides of the intersection.

Salisbury Park Drive at Carman Avenue - A major, four-legged, signalized intersection with a single, left-turn lane on each of the approaches. Carman Avenue provides two through lanes in each direction, while Salisbury Park Drive provides two through lanes in the eastbound direction and one through lane with one right-turn lane in the westbound direction. Striped crosswalks are provided on all sides of the intersection.

In addition to these intersections, this study evaluated traffic operating conditions at the following driveways serving the NUMC campus:

Right-turn exit-only driveway (Hospital Street) at Hempstead Turnpike (NY Route 24) - A minor, three-legged, unsignalized intersection with a single, right-turn only lane exiting the NUMC campus and merging with the three westbound through lanes.

North NUMC campus driveway (Intern Drive) at Carman Avenue - A three-legged, T-shaped, signalized intersection with two through lanes in each direction on Carman Avenue. A left-turn lane is provided on southbound Carman Avenue for vehicles turning into the NUMC campus. The North campus driveway is striped to provide a left-turn lane and a right-turn lane on its approach to Carman Avenue and a crosswalk is striped on the south side of the intersection.

Surveys of the driveway leading to the underground service area from Hempstead Turnpike indicated that there was only minimal activity at this driveway, a condition which is not expected to change, and, therefore, no analysis was performed for this intersection.

6) Peak Hours

Activities at the NUMC campus generate the greatest traffic volumes during the weekday AM, weekday PM and Saturday midday periods. Traffic volumes peak on Hempstead Turnpike during the weekday morning and afternoon commuter hours as well as during the midday Saturday shopper hour. Data from previous studies reveals that traffic volumes during the weekday PM commuter hour are approximately 15 percent higher than during the weekday AM or midday Saturday peak hours. Based on this information, it was determined that the potential traffic impacts of the proposed action could be adequately evaluated by studying the weekday PM Peak Hour and the Saturday Midday Peak Hour. Turning movement counts were conducted at the study area intersections on Saturday, May 16, 2009 from 11:00 a.m. to 2:00 p.m. and on Wednesday, May 19, 2009 from 4:00 p.m. to 6:30 p.m.

A review of the surveyed traffic data revealed the peak hours of traffic activity on the roadway system in the vicinity of the NUMC site to be:

Peak PM Highway Hour	4:45 to 5:45 p.m.
Peak Saturday Highway Hour	12:15 to 1:15 p.m.

7) *Existing Traffic Volumes*

The counted traffic volumes were reviewed, verified for their validity, compared to other recent counts and then balanced to ensure uniformity. The resulting "Existing" traffic volumes are shown in Exhibit III-13 and Exhibit III-14. Pedestrian activity was surveyed at the intersections of Hempstead Turnpike with Jefferson Street/Main NUMC driveway, Hempstead Turnpike with Carman Avenue and Carman Avenue with the East Meadow High School driveway. Peak Hour Pedestrian Volumes are shown in Exhibits III-15 and III-16.

8) *Capacity Analysis*

Traffic impacts are measured by intersection capacity analyses, computed in accordance with procedures outlined in the **2000 Highway Capacity Manual**, published by the Transportation Research Board. In general, analyses' results are a measure of the ability of an intersection to process vehicles. This is evaluated for each approach to the intersection as well as for the entire intersection. The analyses' results are identified as Levels-of-Service (LOS) which range from "A" through "F," with LOS "A" representing the least delays and LOS "F" representing longer delays or capacity deficient operations.

According to generally accepted practice, Levels-of-Service "A," "B" and "C" reflect clearly acceptable conditions; Level-of-Service "D" reflects the existence of delays within a generally tolerable range; Level-of-Service "E" is generally only tolerated on minor movements; and Level-of-Service "F" indicates typically undesirable delays often associated with breakdown conditions.

The parameters considered in the calculations include type of intersection control, signal coordination, volumes on each approach, distribution of vehicles by direction (left, through and right) and other factors including vehicle types, pedestrian movements, and parking constraints. Roadway parameters relate to the geometry of the intersection, specifically, the number of lanes, the width of lanes and lane-use considerations.

The computed Level-of-Service is defined in terms of the average control delay per vehicle for the peak 15-minute period within the peak one-hour period. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. For *signalized* intersections, capital letters are used to indicate Levels-of-Service. For *unsignalized* intersections, LOS and delay are reported for the individual lane groups, in that they provide a more meaningful representation of operating conditions

than the overall intersection LOS and delay. Lower case letters are used to show that the Level-of-Service refers to unsignalized intersections. The ranges of delay within each LOS category are included in the Traffic Impact Study in Appendix G. The delay ranges for the unsignalized LOS categories are less than those at signalized intersections because it is assumed that motorists will tolerate longer delays at a signalized intersection in exchange for guaranteed entry into the intersection in a definite period of time.

The existing traffic volumes were compared with current roadway capacities using Synchro 7. Pedestrian activity was appropriately accounted for at the studied intersections. Detailed capacity analysis work sheets, which are included in the Appendix of the traffic report in Appendix G, are summarized in Table III-7.

Table III-7
Peak Hour Level-of-Service Summary, Existing Conditions

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Hempstead Turnpike & Front Street	EB t	F	193.9	B	12.7
	EB r	A	9.4	A	8.5
	WB l	D	49.5	D	49.7
	WB t	A	0.1	A	0.1
	NB r	E	76.4	E	70.0
	Overall	F	101.2	B	16.7
Hempstead Turnpike & Carman Avenue	EB l	F	97.4	E	70.5
	EB t/r	F	237.8	D	54.4
	WB l	E	58.7	D	47.8
	WB t/r	D	51.1	C	26.2
	NB l	E	75.8	E	76.2
	NB t/r	F	94.2	E	78.6
	SB l	E	57.4	E	66.3
	SB t/r	F	104.2	E	73.3
	SB r	D	47.4	D	35.5
	Overall	F	138.2	D	46.4
Hempstead Turnpike & NUMC Right-turn Exit (Hospital St)	SB r	a	9.4	a	9.2
Hempstead Turnpike & Franklin Avenue/NUMC Main Entrance	EB l	E	77.2	E	76.5
	EB t/r	C	25.5	B	10.2
	WB l	F	105.8	F	88.5
	WB t/r	A	2.5	A	6.7
	NB l	E	64.1	D	52.2
	NB t/r	C	22.5	C	21.5
	SB l/t/r	E	71.3	D	54.2
	Overall	C	20.0	B	10.9

Notes:
1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

Table III-7
Peak Hour Level-of-Service Summary, Existing Conditions, Cont'd

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Hempstead Turnpike & Clearmeadow Drive	EB l	F	91.8	F	95.7
	EB t/r	B	12.2	A	8.9
	WB l	E	77.6	E	72.8
	WB t/r	B	13.7	B	19.9
	NB l/t/r	E	61.9	D	46.5
	SB l/t/r	C	34.9	C	33.0
	Overall	B	15.7	B	17.8
Hempstead Turnpike & Newbridge Road (Route 106)	EB l	F	101.9	F	87.1
	EB t/	F	84.6	D	41.6
	WB l	F	91.3	E	77.4
	WB t/r	D	49.2	D	41.9
	NB l	F	89.2	F	90.8
	NB t	E	67.5	E	66.5
	NB r	D	43.3	D	45.4
	SB l	F	121.2	F	94.8
	SB t	F	86.7	E	67.2
	SB r	D	44.3	D	41.5
	Overall	E	76.0	E	56.0
Carman Avenue **&** Dofena Ln/NUMC Drive	EB l/t/r	b	12.7	b	12.0
	WB l	f	53.6	d	25.1
	WB r	b	10.7	b	10.6
	SB l	a	9.1	a	9.0
Carman Avenue & Nottingham Road	EB l/r	D	36.4	C	24.9
	NB l	A	3.5	A	6.6
	NB t	A	4.3	A	7.9
	SB t/r	A	1.5	A	1.8
	Overall	A	5.0	A	6.3

Notes:
1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

Table III-7
Peak Hour Level-of-Service Summary, Existing Conditions, Cont'd

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Carman Avenue & East Meadow HS Drive	EB l	C	30.4	C	25.7
	EB r	B	11.5	B	10.6
	NB l	A	2.2	A	1.4
	NB t	A	1.5	A	1.2
	SB t	A	8.2	A	7.0
	SB r	A	1.8	A	1.7
	Overall	A	5.5	A	4.2
Carman Avenue & NUMC North Drive	WB l	B	19.1	B	18.4
	WB r	A	7.8	A	8.1
	NB t/r	A	4.0	A	3.3
	SB l	A	4.6	A	4.4
	SB t	A	4.4	A	3.3
	Overall	A	4.7	A	3.6
Carman Avenue & Salisbury Park Drive	EB l	C	26.2	C	30.9
	EB t/r	D	35.1	C	22.1
	WB l	C	33.4	C	32.5
	WB t	C	20.8	C	24.6
	WB r	A	9.2	A	8.7
	NB l	B	10.7	A	7.7
	NB t/r	C	21.0	B	13.9
	SB l	B	13.2	D	48.2
	SB t/r	B	19.1	B	11.1
	Overall	C	23.9	B	19.6

Notes:
1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

As can be seen from Table III-7, all of the intersections on Carman Avenue, except for the unsignalized left-turn from the NUMC campus driveway, currently experience overall LOS "C" or better operating conditions during both peak hours. Of the remaining intersections, overall LOS "C" or better conditions prevail at the minor intersections (both NUMC driveways and the Clearmeadow Drive intersection on Hempstead Turnpike), while overall LOS "E" or "F" conditions prevail at the major intersections (Hempstead Turnpike

at Front Street, Carman Avenue and Newbridge Road). It is noted that "F" Levels-of-Service on some individual movements are attributable to the long cycle length (170 seconds, where the arriving motorist may have to wait for more than 80 seconds for the light to change green) and not due to capacity deficiencies.

9) Accident History

The Nassau County Police Department and the New York State Department of Transportation (NYSDOT) were contacted to obtain the most recent three years of accident data for the study area. Data were provided from November 1, 2005 to October 31, 2008. The accident data were compared to state-wide average accident rates for similar facilities using the "Rate Quality Control" method to identify, with statistical significance, intersections and roadway segments which have experienced a higher than average accident rate.

Accident data for Hempstead Turnpike, which are presented in Table III-8, indicated that the 346 reportable accidents (fatal, injury or with $1,000 or more of property damage) along this corridor in the study area were significantly greater than the statewide average for similar facilities. As can be seen from the table, the actual accident rate (6.76 accidents per million vehicle miles traveled) was determined to be 1.89 times higher than the Critical Accident Rate. A review of the individual intersections and mid-block locations revealed that the elevated accident frequency was concentrated at seven locations along the corridor.

A detailed evaluation was performed at each of the seven locations determined to have an elevated accident rate to identify accident patterns and possible contributory factors. A summary of the accident patterns at each of these seven locations is presented in Table III-9.

It is noted that, while the intersection of NY Route 24 with Franklin Avenue and the NUMC main driveway (Hospital Street) was not determined conclusively to have an elevated accident history, the only fatal accident in the study area occurred at this intersection at 3:37 p.m. on a Thursday, in February 2008, when a pedestrian was struck by a left-turning vehicle which failed to yield the right of way.

Details on how many of these accidents were of which type/cause (i.e., rear–end, overtaking, right or left turn), severity (injury or fatality), and weather conditions (wet weather or night time) are described in the text of the Traffic Impact Study in Appendix G.

Table III-8
Hempstead Turnpike 3-year Accident History

Intersection/ MidBlock	Number of Accidents	3 year volume (Millions)	Length in Miles	MEV MVM	Acc. Rate	State Ave.	Critical Accident Rate	Acc. Rate CAR
NY Route 24 at Front St.	17	60.83	-	60.83	0.28	0.19	0.29	0.96
NY Route 24 at Bailey Avenue	4	59.20	-	59.20	0.07	0.05	0.11	0.61
From Bailey Ave to Carman Avenue	10	59.20	0.07	4.14	2.41	1.7	2.65	0.91
NY Route 24 at Carman Avenue	70	66.38	-	66.38	1.05	0.28	0.39	**2.70**
From Carman Ave to 2nd Street	4	52.33	0.06	3.14	1.27	1.7	3.14	0.41
NY Route 24 at 2nd St	7	52.64	-	52.64	0.13	0.05	0.11	**1.21**
From 2nd Street to 1st Street	9	51.44	0.16	8.23	1.09	1.7	2.53	0.43
NY Route 24 at 1st Street	4	51.69	-	51.69	0.08	0.05	0.11	0.70
NY Route 24 at Jeff Av/ NUMC Driveway	21	53.95	-	53.95	0.39	0.28	0.41	0.95
From Franklin Ave to Clearmeadow Dr.	2	52.33	0.1	5.23	0.38	1.7	2.77	0.14
NY Route 24 at Clearmeadow Dr.	18	54.46	-	54.46	0.33	0.28	0.41	0.81
NY Route 24 at Prospect Avenue	49	52.12	-	52.12	0.94	0.28	0.41	**2.29**
From Prospect Ave to Bette Road	12	52.19	0.11	5.74	2.09	1.7	2.72	0.77
NY Route 24 at Bette Rd/Avis Dr.	10	52.43	-	52.43	0.19	0.05	0.11	**1.73**
From Bette Rd to Bright Avenue	10	52.09	0.03	1.56	6.40	1.7	3.87	**1.65**
NY Route 24 at Bright Avenue	2	52.37	-	52.37	0.04	0.05	0.11	0.35
From Bright Avenue to Newbridge Rd	32	51.12	0.13	6.65	4.81	1.7	2.64	**1.82**
NY Route 24 at Newbridge Rd	65	75.23	-	75.23	0.86	0.28	0.38	**2.27**
Entire Corridor	346	-	-	51.21	6.76	3.16	3.58	**1.89**

Notes: MVM=Million Vehicle miles; MEV=Million Entering Vehicles; CAR=Critical Accident Rate.

Table III-9
Accident Patterns at High Accident Locations
on Hempstead Turnpike

Location (Hempstead Turnpike and:)	Total	Accident Type							Severity		Conditions	
		Rear End	Left Turn	Right Turn	Angle	Over-taking	Ped/ Cyclist	Other	Injury	Fatality	Wet Weather	Night Time
Carman Ave/3rd Street	**70**	38	6	6	2	9	4	5	33	0	10	16
2nd Street	**7**	6	0	1	0	0	0	0	1	0	1	2
Prospect Avenue	**49**	20	6	1	13	4	0	5	27	0	8	15
Avis Drive/Bette Road	**10**	3	4	1	1	0	0	1	5	0	2	3
Bette Rd to Bright Av	**10**	2	0	2	1	4	1	0	5	0	3	4
Bright Av to Newbridge Rd (Bright Ave.- NY Rt. 106)	**32**	11	3	2	1	12	1	2	12	0	9	7
Newbridge Road	**65**	33	5	5	6	6	2	8	26	0	13	16
Total Accidents	**243**	**113**	**24**	**18**	**24**	**35**	**8**	**21**	**109**	**0**	**46**	**63**

Accident data for Carman Avenue, which is presented in Table III-10, indicated that the 42 reportable accidents along this corridor in the study area were not significantly greater than the statewide average for similar facilities. However, a review of the individual intersections and mid-block locations revealed that the intersection of Carman Avenue with Salisbury Park Drive has experienced an elevated accident frequency during the most recent three-year period for which data is available.

There were a total of 19 reportable accidents at the signalized intersection of Salisbury Park Drive with Carman Avenue during the three-year period between January 2005 and December 2007. There was no clear pattern of accidents with five listed as left-turn accidents, three listed as rear-end accidents, two listed as right-angle accidents and eight listed as "other" accidents. (See full report in Appendix G for details).

Table III-10
Carman Avenue 3-year Accident History

Intersection/ MidBlock	Number of Accidents	3 year volume (Millions)	Length in Miles	MEV MVM	Acc. Rate	State Ave.	Critical Accident Rate	Acc. Rate CAR
From NY Route 24 to Dofena lane	7	17.55	0.10	1.76	3.99	1.95	4.02	0.99
Carman Avenue at Dofena Lane	3	17.95	-	17.95	0.17	0.13	0.30	0.56
From Dofena lane to Nottingham Road	2	16.01	0.03	0.48	4.16	1.95	6.67	0.62
Carman Avenue at Nottingham Road	7	18.60	-	18.60	0.38	0.19	0.39	0.97
From Nottingham Rd to Salisbury Park Dr	4	17.20	0.79	13.59	0.29	1.95	2.56	0.11
Carman Avenue at Salisbury Park Drive	19	26.10	-	26.10	0.73	0.36	0.58	1.26
Entire Corridor	42	-	-	15.83	2.65	3.52	4.34	0.61

Notes: MVM-Million Vehicle miles; MEV-Million Entering Vehicles; CAR-Critical Accident Rate.

10) Other Potential Development in the Vicinity

The following potential/future developments, which will generate a component of their traffic through the intersections under study, were identified in the vicinity of the project:

The Oaks at East Meadow (a/k/a The Seasons at East Meadow)
A senior independent living facility with approximately 415 units located on the north side of Front Street, west of Merrick Avenue.

Avalon at Mitchel Field
A 160-apartment, 44-townhouse residential development located on the Southside of Stewart Avenue between Endo Boulevard and Selfridge Avenue.

Avis Property Redevelopment
A proposed redevelopment of the former Avis property, located on Old Country Road between Zeckendorf Boulevard and East Gate Boulevard, with 400,000 square feet of mixed use development (office, retail, hotel, restaurants).

Privado Road Hotel
A proposed 145-room hotel to be located at the southwest corner of the intersection of Privado Road and Merrick Avenue.

Polimeni Office Building
A 150,000 sf development located on Old Country Road between Roosevelt Field and Clinton Road.

The Lighthouse at Long Island
The proposed redevelopment of the Nassau Coliseum site is proposed to include 500,000 sf of retail space, 2,306 new residential units, 300 additional hotel rooms, approximately 1,000,000 sf of new office space, 493,000 sf of new Coliseum ancillary use and approximately 200,000 sf of additional convention center facilities.

Hyatt Hotel
A 122-room Hotel located on East Gate Boulevard.

Traffic anticipated to be generated by these developments was determined from a review of available traffic studies for the individual developments or from the Institute of Transportation Engineers' (ITE) publication, Trip Generation, 8th Edition. These trips were assigned to the study area intersections based on information contained in the respective traffic studies and on a review of the surrounding roadway network and existing traffic patterns. The resulting "Vicinity Development" traffic volumes are shown in Exhibit III-17 and Exhibit III-18.

11) No-Build Traffic Volumes/Capacity Analysis

The "No-Build" traffic volumes are the resultant sum of the Horizon Year traffic volumes and the vicinity development volumes. The Horizon Year traffic volumes are determined by multiplying the existing traffic volumes by a factor representative of area-wide growth. In this study, a 0.6 percent per year growth factor was used. This is consistent with what the Long Island Transportation Plan (2000) employed for its 20 to 30 year projections and is greater (more conservative) than the growth rate in the New York Metropolitan Transportation Council Best Practices Model (NYMTC model).

It is expected that the NUMC project will be completed and occupied by 2016. Therefore, the existing traffic volumes were increased by 0.6 percent per year for seven years, resulting in a total increase of 4.3 percent.

The No-Build traffic volumes which are the sum of the Horizon Year and the vicinity development traffic volumes, are shown graphically on Exhibits III-19 and III-20. These traffic volumes represent the number of vehicles, during the peak highway hours, projected to be on the adjacent roadway system in 2016 without the proposed action.

The No-Build traffic volumes were compared with current roadway capacities using Synchro 7. Detailed capacity analysis work sheets, which are included in the Appendix of the Traffic Impact Study, are summarized in Table III-11.

Table III-11
Peak Hour Level-of-Service Summary, No-Build Conditions

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Hempstead Turnpike & Front Street	EB t	F	254.9	C	24.3
	EB r	A	9.9	A	8.8
	WB l	D	47.8	D	50.0
	WB t	A	0.1	A	0.1
	NB r	E	76.1	E	70.6
	Overall	F	129.5	C	21.2
Hempstead Turnpike & Carman Avenue	EB l	F	143.3	E	67.0
	EB t/r	F	282.7	F	102.2
	WB l	E	60.1	D	49.1
	WB t/r	F	81.9	D	42.2
	NB l	E	75.5	E	75.9
	NB t/r	F	95.1	E	79.2
	SB l	E	58.9	E	64.0
	SB t/r	F	124.1	E	75.4
	SB r	D	52.8	C	34.1
	Overall	F	171.6	E	70.0
Hempstead Turnpike & NUMC Right-turn Exit	SB r	a	9.7	a	9.3
Hempstead Turnpike & Franklin Avenue/NUMC Main Entrance	EB l	E	74.5	E	69.2
	EB t/r	C	29.1	B	12.1
	WB l	F	106.1	F	83.9
	WB t/r	A	2.7	A	6.1
	NB l	E	64.8	E	56.9
	NB t/r	C	22.3	C	22.7
	SB l/t/r	E	72.6	E	59.6
	Overall	C	22.7	B	11.5

Notes:
1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

Table III-11
Peak Hour Level-of-Service Summary, No-Build Conditions, Cont'd

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Hempstead Turnpike & Clearmeadow Drive	EB l	F	91.4	F	92.8
	EB t/r	B	13.5	B	10.9
	WB l	E	75.6	E	70.0
	WB t/r	B	16.2	C	23.5
	NB l/t/r	E	62.5	D	46.6
	SB l/t/r	C	35.0	C	33.3
	Overall	B	17.3	C	20.1
Hempstead Turnpike & Newbridge Road	EB l	F	103.6	F	85.6
	EB t/	F	119.0	D	45.5
	WB l	F	92.8	E	77.7
	WB t/r	E	55.1	D	48.1
	NB l	F	91.2	F	95.4
	NB t	E	68.6	E	63.6
	NB r	D	43.4	D	43.4
	SB l	F	130.9	F	100.9
	SB t	F	97.8	E	64.5
	SB r	D	45.8	D	41.2
	Overall	F	91.3	E	58.6
Carman Avenue **&** Dofena Ln/NUMC Drive	EB l/t/r	b	13.3	b	12.5
	WB l	f	79.7	d	28.6
	WB r	b	11.1	b	10.8
	SB l	a	9.4	a	9.1
Carman Avenue & Nottingham Road	EB l/r	D	36.8	C	24.9
	NB l	A	3.9	A	6.2
	NB t	A	5.1	A	8.0
	SB t/r	A	1.8	A	1.8
	Overall	A	5.5	A	6.3

Notes:
1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

Table III-11
Peak Hour Level-of-Service Summary, No-Build Conditions, Cont'd

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Carman Avenue & East Meadow HS Drive	EB l	C	30.4	C	25.7
	EB r	B	11.4	B	10.7
	NB l	A	2.6	A	1.3
	NB t	A	1.4	A	1.1
	SB t	A	8.6	A	7.2
	SB r	A	1.7	A	1.7
	Overall	A	5.7	A	4.2
Carman Avenue & NUMC North Drive	WB l	B	19.1	B	18.4
	WB r	A	8.0	A	8.0
	NB t/r	A	4.4	A	3.4
	SB l	A	4.8	A	4.3
	SB t	A	5.0	A	3.4
	Overall	A	5.2	A	3.7
Carman Avenue & Salisbury Park Drive	EB l	C	26.3	C	31.1
	EB t/r	D	37.2	C	22.9
	WB l	D	38.8	C	32.0
	WB t	C	20.8	C	24.4
	WB r	A	8.9	A	8.4
	NB l	B	11.2	A	8.0
	NB t/r	C	23.8	B	14.9
	SB l	B	15.3	D	51.7
	SB t/r	C	20.6	B	11.6
	Overall	C	25.9	C	20.2

Notes:
1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

As can be seen from Table III-11, the analyses indicate that with the addition of traffic from other projects in the area and ambient traffic growth, all of the intersections on Carman Avenue, except for the unsignalized left-turn from the NUMC campus driveway, are projected to continue to experience LOS "C" or better operating conditions during both peak hours. Of the remaining intersections, overall LOS "C" or better conditions are projected to continue to prevail at the minor intersections (both NUMC driveways and the Clearmeadow Drive intersection on Hempstead Turnpike), while overall LOS

"F" conditions are projected to prevail at the major intersections (Hempstead Turnpike at Front Street, Carman Avenue and Newbridge Road) during at least one of the peak hours.

b. Potential Impacts

The proposed NUMC East Meadow campus redevelopment consists of approximately 35 acres of the 50-acre Nassau University Medical Center Campus consistent with the Campus Land Use Plan (January 2009). The proposed redevelopment will include the reconstruction and expansion of medical resident housing, the development of health-related research and medical office space, and health-related commercial uses to complement the existing 530-bed, 19-story Dynamic Care Building (DCB). The property will be re-subdivided as necessary to meet funding and/or leasing requirements. The land use plan for the campus includes plans for open space, new and redesigned parking, improved signage, pedestrian connections throughout the campus and appropriate improvements to existing infrastructure necessary to accommodate proposed development.

1) Trip Generation

Potential trips anticipated to be generated by the redevelopment of the site were determined based on the following assumptions and using appropriate land-use categories contained in the Institute of Transportation Engineers' (ITE) publication, *Trip Generation, 8th Edition*.

Proposed uses in the analysis are listed below:

Veterans clinic	10,000 sf
Residential units	500 total (count as 159 existing/341 new)
Veterans Day Care	100 veterans, 25 employees (12,000 sf)
Ambulatory Surgery	64,000 sf
Ambulatory Pavilion	65,000 sf
Fitness Center	35,000 sf
Medical Office	200,000 sf
Research & Development	100,000 sf
Retail/restaurant	8,000 sf

Details of the ITE Trip Generation data and traffic volumes that were used for each proposed land use is included in the Traffic Impact Study in Appendix G. A summary of the combined vehicular trip generation of the development proposed as part of the Campus Land Use Plan is presented in Table III-12. As can be seen in this table, the proposed action is projected to add 337 entering trips and 615 exiting trips during the Peak PM Highway Hour on a

weekday. During the peak hour on a Saturday, the proposed action is projected to add 345 entering trips and 293 exiting trips.

Table III-12
Proposed Action-Generated Vehicular Traffic Volumes

Trip Type	Component	PM Highway		Saturday Midday	
		In	Out	In	Out
	VA Clinic	11	15	10	8
	Residential	71	50	46	46
	Veterans Day Care	20	34	6	5
	Ambulatory Surgery Center	63	95	54	50
	Ambulatory Pavilion	8	12	7	6
	Fitness Center	36	26	22	26
	Medical Office Space	105	284	178	134
	Research & Development	17	93	13	10
	Ancillary Retail	6	6	9	8
Vehicular Trips	Total	337	615	345	293

2) *Public Transportation*

It is expected that MTA service on the LIRR and Long Island Bus, as well as service provided by private transit providers, will continue in a similar manner to that of recent years. Regional growth, coupled with an overall shift to public transit, continues to result in increased public transit usage. It is likely that transit improvement projects in the coming years will be aimed at increasing system capacity and improving service.

A summary of the combined number of trips added to the public transportation system as a result of the proposed development is presented in Table III-13. As can be seen in the table, the proposed action is projected to add 41 inbound trips and 82 outbound trips to the public transportation network during the Peak PM Highway Hour on a weekday. During the peak

hour on a Saturday, the proposed action is projected to add 48 inbound trips and 45 outbound trips.

Table III-13
Proposed Action-Generated Public Transit Trips

Trip Type	Component	PM Highway		Saturday Midday Highway	
		In	Out	In	Out
	VA Clinic	1	2	1	1
	Residential	1	3	1	2
	Veterans Day Care	1	2	0	0
	Ambulatory Surgery Center	8	13	7	7
	Ambulatory Pavilion	1	2	1	1
	Fitness Center	7	5	4	6
	Medical Office Space	14	38	24	18
	Research & Development	2	11	1	2
	Ancillary Retail	6	6	9	8
Public Transportation Trips	Total	41	82	48	45

3) Pedestrian Trips

The pedestrian and bicycle path planned by Nassau County will connect various cultural, educational and recreational facilities in Uniondale, Hempstead and Garden City with Eisenhower Park, just west of the NUMC campus. A summary of the combined number of pedestrian trips added to the on-campus sidewalk network as a result of the proposed campus redevelopment is presented in Table III-14. As can be seen in the table, public transit oriented new trips will add 41 entering and 82 exiting trips to the public sidewalks connecting to the campus during the Peak PM Highway Hour on a weekday. During the peak hour on a Saturday, public transit oriented new trips will add 48 entering and 45 exiting trips to these sidewalks. Internal to the campus, the level of pedestrian activity is projected to be increased by 320

trips during the PM Peak Hour on a weekday and by 283 trips during the Peak Hour on a Saturday.

Table III-14
Proposed Action-Generated Pedestrian Trips

Trip Type	Component	PM Highway		Saturday Midday Highway	
		In	Out	In	Out
Public Transit Pedestrians	External	41	82	48	45
On-Campus Pedestrian Trips	VA Clinic	1	2	1	1
	Residential	32	23	21	21
	Veterans Day Care	1	2	0	1
	Ambulatory Surgery Center	12	20	11	10
	Ambulatory Pavilion	2	2	1	2
	Fitness Center	28	22	17	21
	Medical Office Space	21	57	35	27
	Research & Development	1	6	1	0
	Ancillary Retail	46	48	69	64
	Total	144	182	156	147
Total On-Campus Pedestrian Traffic*	Transit and Internal	142	178	140	143

* Adjusted to reflect the fact that a walking trip from one new facility on the campus to another new facility on the campus is counted at both but is only one trip, while a walking trip from a new facility on the campus to an existing facility on the campus is counted is only one trip and is only registered at the new facility.

4) Proposed Access and Circulation

In addition to developing the various elements of the Campus Land Use plan, it is also proposed to reconfigure and improve campus access and circulation. From a traffic perspective, the most significant element of this reconfiguration will be the relocation of the south driveway on Carman Avenue from opposite Dofena Lane to opposite the East Meadow High School. This will allow the exit from the NUMC campus to be incorporated under the control of the traffic signal at that intersection and will permit the striping of a longer, southbound, left-turn lane for vehicles entering the campus.

The anticipated changes in traffic volumes associated with this improvement are shown in Exhibits III-21 and III-22 ("Reconfigured traffic volumes").

5) ***Arrival/Departure Patterns***

Arrival and departure patterns for the individual project components were developed based on a review of the area roadway network and of existing turning movement volumes. The arrival and departure patterns are shown in Exhibits III-23 and III-24.

6) ***Assigned Site-Generated Traffic Volumes***

The assignment of site-generated volumes onto the roadway system was accomplished by multiplying the trips generated by the individual components of the proposed development plan by the Arrival/Departure patterns previously established. All of the assignments reflect the proposed campus access and circulation reconfiguration and the individual component assignments reflect the anticipated locations of the various components. The resulting site-generated traffic volumes for the development are shown on Exhibits III-25 and III-26.

7) ***Build Capacity Analysis Results***

The "Build" traffic volumes are the sum of the reconfigured traffic volumes, the site-generated traffic volumes and the No-Build traffic volumes. The Build traffic volumes for the subject intersections are shown graphically in Exhibits III-27 and III-28.

The Build traffic volumes were compared with current roadway capacities using Synchro 7. Detailed capacity analysis work sheets, which are included in the appendix of the Traffic Impact Study, are summarized on Table III-15.

As can be seen from the table, the analyses indicate that with the addition of traffic generated by the proposed action, along with traffic from other projects in the area and ambient traffic growth, all of the intersections on Carman Avenue, including the relocated campus driveway, are projected to continue to experience overall LOS "C" or better operating conditions during both peak hours. Of the remaining intersections, overall LOS "C" or better conditions are projected to continue to prevail at the minor intersections (both NUMC driveways and the Clearmeadow Drive intersection on Hempstead Turnpike), while overall LOS "F" conditions are projected to prevail at the major intersections (Hempstead Turnpike at Front Street, Carman Avenue and Newbridge Road) during at least one of the peak hours.

Table III-15
Peak Hour Level-of-Service Summary, Build Conditions

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Hempstead Turnpike & Front Street	EB t	F	283.6	F	120.7
	EB r	B	10.5	A	9.3
	WB l	D	47.1	D	51.0
	WB t	A	0.0	A	0.1
	NB r	E	76.0	E	70.9
	Overall	F	140.0	E	61.1
Hempstead Turnpike & Carman Avenue	EB l	F	236.6	E	76.9
	EB t/r	F	296.9	F	162.9
	WB l	E	58.7	D	48.9
	WB t/r	F	82.3	F	81.6
	NB l	E	74.9	E	75.4
	NB t/r	F	96.6	E	79.4
	SB l	E	65.5	E	55.5
	SB t/r	F	258.0	E	74.9
	SB r	F	85.7	D	36.0
	Overall	F	194.7	F	107.0
Hempstead Turnpike & NUMC Right-turn Exit	SB r	b	10.1	a	9.3
Hempstead Turnpike & Jefferson Avenue/NUMC Main Entrance	EB l	E	75.4	E	71.2
	EB t/r	D	37.5	B	14.5
	WB l	F	105.4	F	84.6
	WB t/r	A	5.6	A	7.4
	NB l	E	68.0	E	55.9
	NB t/r	C	21.6	C	22.2
	SB l/t/r	F	86.3	E	63.0
	Overall	C	29.8	B	14.4

Notes: 1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

Table III-15
Peak Hour Level-of-Service Summary, Build Conditions, Cont'd

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Hempstead Turnpike & Clearmeadow Drive	EB l	F	87.9	F	92.1
	EB t/r	B	16.8	B	13.4
	WB l	E	73.8	E	68.0
	WB t/r	B	17.7	C	25.6
	NB l/t/r	E	62.5	D	46.6
	SB l/t/r	C	35.0	C	33.3
	Overall	B	19.5	C	22.2
Hempstead Turnpike & Newbridge Road	EB l	F	115.6	F	86.4
	EB t/r	F	139.9	D	46.4
	WB l	F	92.8	E	77.4
	WB t/r	E	62.2	E	55.1
	NB l	F	92.8	F	100.4
	NB t	E	68.6	E	62.0
	NB r	D	43.4	D	42.5
	SB l	F	130.9	F	100.9
	SB t	F	99.7	E	62.8
	SB r	D	47.3	D	41.4
	Overall	F	101.2	E	60.6
Carman Avenue & Dofena Ln/NUMC Drive	EB l/t/r	c	17.5	b	12.5
	WB l	-	-	-	-
	WB r	-	-	-	-
	SB l	-	-	-	-
Carman Avenue & Nottingham Road	EB l/r	D	36.8	C	24.9
	NB l	A	6.9	A	5.5
	NB t	A	7.5	A	8.6
	SB t/r	A	6.6	A	6.2
	Overall	A	8.5	A	8.3

Notes: 1.EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r =right.
2.LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3.Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

Table III-15
Peak Hour Level-of-Service Summary, Build Conditions, Cont'd

Intersection	Approach[1]	PM Highway Hour		Saturday Highway Hour	
		LOS[2]	Delay[3]	LOS	Delay
Carman Avenue & East Meadow HS Drive	EB l	C	30.4	C	25.7
	EB r	B	11.4	B	10.7
	WB l	D	41.3	C	32.9
	WB l/t	D	41.4	C	32.9
	WB r	A	7.3	A	8.6
	NB l	B	13.9	A	8.0
	NB t	C	27.5	B	15.7
	SB l	B	14.9	C	24.0
	SB t	C	26.0	B	19.8
	SB r	B	10.2	A	8.7
	Overall	C	26.3	B	18.1
Carman Avenue & NUMC North Drive	WB l	B	19.2	B	18.7
	WB r	B	18.2	A	7.9
	NB t/r	A	5.8	A	3.5
	SB l	A	6.2	A	4.4
	SB t	A	6.0	A	3.5
	Overall	A	7.4	A	3.9
Carman Avenue & Salisbury Park Drive	EB l	C	26.3	C	31.0
	EB t/r	D	37.3	C	22.5
	WB l	D	43.8	C	34.0
	WB t	C	20.8	C	24.3
	WB r	A	8.9	A	8.4
	NB l	B	12.2	A	8.2
	NB t/r	C	29.6	B	15.8
	SB l	C	22.9	D	51.7
	SB t/r	C	21.4	B	11.9
	Overall	C	28.4	C	20.2

Notes: 1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

c. Mitigation Measures

A comparison of the Build conditions with the No-Build conditions reveals that the addition of the project-generated traffic volumes is projected to increase delays at the poorly operating intersections of Hempstead Turnpike with Front Street, Carman Avenue and Newbridge Road by at least 10 percent during at least one of the peak hours, which is considered significant enough to warrant mitigation. The relocation of the NUMC campus entry drive from opposite Dofena Lane to opposite the high school is projected to improve traffic operating conditions exiting the campus from an unsignalized "F" Level-of-Service to a signalized "D" Level-of-Service. At the remaining intersections, the project-generated traffic is projected to have a minimal impact.

In order to mitigate for the project's impact on intersection capacities, it is recommended that the following improvements be implemented (see Exhibits III-29 and III-30):

- Provide a fourth lane on the southbound Carman Avenue approach to Hempstead Turnpike by widening Carman Avenue approach on the east/NUMC side of the road. Restripe the southbound approach to provide a left-turn lane, a through lane, two right-turn lanes and two northbound receiving lanes. Optimize the traffic signal by changing the signal timing and offset, as discussed hereafter.

- Construct the new NUMC driveway on Carman Avenue opposite the high school to provide a left-turn lane, a shared left-through lane and a channelized right-turn lane, and modify/replace the traffic signal, as necessary, to accommodate the new approach. Restripe the painted median on the southbound approach to the intersection to provide a left-turn lane. In addition, optimize the traffic signal by changing the signal timing and offset.

- Restripe the painted median in Carman Avenue at the intersection of Dofena Lane to eliminate the existing, southbound, left-turn lane.

- As the future development of the campus is phased in, coordinate with the NYS DOT and Nassau County Department of Public Works to optimize traffic signal performance at the studied intersections (by adjusting the phase timings) and the progression of vehicles between intersections (by adjusting the traffic signal offsets) to best accommodate the prevailing traffic volumes.

- To further reduce the project's traffic impact, it is recommended that

NUMC explore the possibility of providing a shuttle between the NUMC campus and the Hempstead, West Hempstead and Westbury Long Island Rail Road train stations during those hours when a sufficient demand exists to warrant such a service.

- It is also recommended that NUMC explore the possibility of establishing a ZipCar station on the campus. Such a station would prove particularly beneficial to residents of the 500 proposed residential units and could also benefit other campus employees.

Based on a review of the existing accident history, it is recommended that the following measures be implemented to mitigate for the impact that the project-generated traffic could have on traffic safety:

- At the intersection of Carman Avenue with Hempstead Turnpike, there appeared to be a disproportionate number of rear-end accidents which occurred mostly along NY Route 24. Other than driver inattention, these accidents could be caused by an improper yellow interval for the through movement on NY Route 24 or a higher operating speed than the roadway is posted for (40 mph). As the project proceeds, it is recommended that the NYS DOT be contacted on this matter and asked to confirm that the yellow clearance interval is 4.0 seconds, which is appropriate for the 40 mph posted speed limit. If it is not, it should be corrected. If the yellow interval is 4.0 seconds, speed surveys should be conducted approaching the intersection in either direction to determine the free-flow operating speed (85th percentile). If the operating speed is above 45 mph on either of the approaches, it is recommended that interactive speed signs, which advise motorists of the speed they are traveling and whether that is in excess of the posted speed limit, be installed or that the yellow clearance interval be increased appropriately.

- In addition to rear-end accidents on NY Route 24, there were also a disproportionate number of accidents involving vehicles making a right turn from southbound Carman Avenue to Hempstead Turnpike, which appear to be attributable to the permission of both through and right turns from the middle lane of the southbound approach. It is recommended that this condition be corrected by widening the southbound approach to provide two separate lanes for right turns, one for the through movement and one for the left-turn movement.

- At the intersection of Second Street and Hempstead Turnpike there appeared to be a disproportionate number of rear-end accidents along eastbound NY Route 24. These accidents could be caused by a higher

operating speed than the roadway is posted for (40 mph). Similar to the intersection of Carman Avenue with NY Route 24, it is recommended that the NYS DOT be contacted to conduct speed surveys and, if the operating speed is above 45 mph, the placement of an interactive speed sign be considered, dependent upon whether such a sign would be installed on the eastbound NY Route 24 approach to Carman Avenue.

- At the intersection of Prospect Avenue and Hempstead Turnpike there appeared to be a disproportionate number of rear-end accidents which occurred mostly along NY Route 24. These accidents could be caused by an improper yellow interval for the through movement on NY Route 24 or a higher operating speed than the roadway is posted for (40 mph). As a mitigation measure it is recommended that the clearance interval at this intersection (which should be 4.0 seconds) be verified with the NYS DOT and readjusted if needed. Otherwise, speed surveys should be conducted approaching the intersection in either direction to determine the free-flow operating speed (85th percentile). If the operating speed is above 45 mph on either of the approaches, it is recommended that interactive speed signs be installed or that the yellow clearance interval be increased appropriately.

- At the intersection of Avis Drive and Hempstead Turnpike, three of the total 10 accidents which occurred at this unsignalized "T" intersection were rear-end accidents which may be related to an operating speed significantly higher than the 40-mph posted speed limit. It is recommended that the NYS DOT be contacted to conduct speed surveys and, if the operating speed is above 45 mph, the placement of interactive speed signs be considered. Four of the remaining ten accidents could have been prevented if the median opening were closed; however, this would just route these trips to some other median opening and would not necessarily offer an overall safer condition.

- Along Hempstead Turnpike between Avis Drive and Bright Avenue there appeared to be a disproportionate number of overtaking accidents along eastbound NY Route 24. These accidents could be caused by a higher operating speed than the roadway is posted for (40 mph) which should be investigated by the NYS DOT and addressed by the installation of interactive a speed sign or some other suitable measure, if necessary.

- Along Hempstead Turnpike between Bright Avenue and Newbridge Road, 11 of the 32 accidents involved vehicles overtaking and 9 were rear-end accidents. These accidents could be caused by a higher operating speed than the roadway is posted for (40 mph) which should be investigated

NYS DOT and addressed by the installation of interactive speed signs or some other suitable measure, if necessary.

- At the intersection of Newbridge Road and Hempstead Turnpike there appeared to be a disproportionate number of rear-end accidents, mostly along westbound NY Route 24. These accidents could be caused by an improper yellow interval for the through movement on NY Route 24 or a higher operating speed than the roadway is posted for (40 mph). It is recommended that the NYS DOT be contacted on this matter and asked to confirm that the yellow clearance interval is 4.0 seconds, which is appropriate for the 40 mph posted speed limit. If it is not, it should be corrected. If the yellow interval is 4.0 seconds, speed surveys should be conducted approaching the intersection in the westbound direction to determine the free-flow operating speed (85th percentile). If the operating speed is above 45 mph, it is recommended that an interactive speed sign be installed or that the yellow clearance interval be increased appropriately.

- At the intersection of Salisbury Park Drive with Carman Avenue, 6 of the 19 reportable accidents involved southbound left-turning vehicles while half of the accidents for which data was provided indicated that the accident occurred during the hours of darkness. Based on these findings, it is recommended that the Nassau County Highway Department assign some additional time to the southbound protected left-turn phase. In addition, it is recommended that an evaluation of the lighting of the intersection be undertaken and, if it is found to be deficient, that additional lighting be provided.

1) Pedestrian Activity

As indicated in previous Table III-14, the proposed action is projected to generate an additional 123 public transit trips during the peak hours. These trips (averaging approximately 12 pedestrians at any one time) will become pedestrian trips between the on-street bus stops and the campus driveways. The level of pedestrian activity on the sidewalks surrounding the campus is currently relatively low and the addition of project-generated pedestrian trips is not expected to have a significant impact on pedestrian conditions. The relocation of the Carman Avenue campus driveway from opposite Dofena Lane to opposite the East Meadow High School does, however, have the potential to impact pedestrian activity. It is, therefore, recommended that when the new driveway is constructed at that location, that a new, signalized pedestrian crosswalk be constructed across Carman Avenue on the north side of the intersection and that the westbound right-turn movement be channelized.

Internal to the campus, the proposed activity is projected to give rise to a substantial volume of new pedestrian activity between the new buildings/facilities, as well as between the new buildings and the existing facility. It is, therefore, recommended that the master development plan include sidewalks between the new facilities and the existing buildings and that these sidewalks be sized based on the anticipated pedestrian volumes. All new sidewalks and facilities should comply with applicable ADA guidelines.

2) Public Transportation

As indicated in the previous table III-13, the proposed action is projected to generate an additional 123 public transit trips during the peak hours. Divided among the 19 buses which pass the NUMC campus during the Peak PM Highway Hours, the proposed action is projected to add between three and ten riders per bus. It is recommended that the NUMC administration coordinate with MTA-Long Island Bus to ensure that service best accommodates demand.

To further reduce the project's traffic impact, it is recommended that NUMC explore the possibility of providing a shuttle between the NUMC campus and the Hempstead, West Hempstead and Westbury Long Island Rail Road train stations during those hours when a sufficient demand exists to warrant such a service.

(Note: construction traffic is described in Chapter III.L, Construction Impacts).

3) Future Level of Service Comparison

To evaluate the recommended traffic mitigation measures, the Build traffic volumes were compared to future roadway capacities with the recommended improvements using Synchro 7. Detailed capacity analysis work sheets are included in the appendix of the report and are summarized in Table III-16 where the results of these analyses are compared to the Existing, No-Build and Build traffic operating conditions.

As can be seen from the table, at the intersection of Front Street with Hempstead Turnpike, the proposed signal offset and minor phase timing changes dramatically improve progression and, thereby, reduce delays through this intersection during the critical PM Highway Hour and are projected to result in a modest reduction in delays during the Peak Saturday highway hour, generally resulting in improved Levels-of-Service during both peak hours.

At the intersection of Carman Avenue with Hempstead Turnpike, the proposed additional southbound lane, combined with the signal offset changes and minor

phase timing changes significantly reduce delays through this intersection during both peak hours, generally resulting in improved Levels-of-Service.

At the intersection of the NUMC unsignalized driveway with Hempstead Turnpike, the additional traffic associated with the proposed action is projected to result in an increase in peak-hour delays of less than one second.

At the intersection of the NUMC signalized driveway with Hempstead Turnpike, the additional traffic associated with the proposed action is projected to result in an increase in peak-hour delays of less than five seconds per vehicle passing through the intersection and overall LOS "C" or better conditions are projected to prevail. Although LOS "F" is projected to prevail on the eastbound and westbound left-turn movements, these conditions are due to the lengthy signal cycle length required on Hempstead Turnpike and are not because there is insufficient capacity on the left-turn movement. The analyses indicated that capacity will exceed demand by at least 50% on both of the left-turn movements during both peak hours indicating that the 100 (fewer) vehicles which make these turns during the peak hours can easily be accommodated.

Table III-16
Future Level-of-Service Comparison

Intersection	App[1]	PM Highway Hour				Saturday Highway Hour			
		Existing	No-Build	Build	Build Mitigated	Existing	No-Build	Build	Build Mitigated
Hempstead Turnpike & Front Street	EB t	F (193.9)	F (254.9)	F (283.6)	D (45.4)	B (12.5)	C (24.3)	F (120.7)	B (15.2)
	EB r	A (9.4)	A (9.9)	B (10.5)	B (10.9)	A (8.5)	A (8.8)	A (9.3)	A (9.3)
	WB l	D (49.5)	D (47.8)	D (47.1)	D (54.9)	D (49.7)	D (50.0)	D (51.0)	D (48.3)
	WB t	A (0.1)	A (0.1)	A (0.0)	A (0.1)	A (0.1)	A (0.1)	A (0.1)	A (0.1)
	NB r	E (76.4)	E (76.1)	E (76.0)	E (73.7)	E (70.0)	E (70.6)	E (70.9)	E (70.9)
	Overall	F (101.2)	F (129.5)	F (140.0)	C (21.5)	B (16.7)	C (21.2)	E (61.1)	B (17.6)
Hempstead Turnpike & Carman Avenue	EB l	F (97.4)	F (143.3)	F (236.6)	F (127.6)	E (70.5)	E (67.0)	E (76.9)	E (76.1)
	EB t/r	F (237.8)	F (282.7)	F (296.9)	F (155.2)	D (54.4)	F (102.2)	F (162.9)	C (34.2)
	WB l	E (58.7)	E (60.1)	E (58.7)	E (71.2)	D (47.8)	D (49.1)	D (48.9)	D (54.6)
	WB t/r	D (51.1)	F (81.9)	F (82.3)	E (66.5)	C (26.2)	D (42.2)	F (81.6)	D (47.2)
	NB l	E (75.8)	E (75.5)	E (74.9)	E (74.9)	E (76.2)	E (75.9)	E (75.4)	E (75.4)
	NB t/r	F (94.2)	F (95.1)	F (96.6)	F (96.6)	E (78.6)	E (79.2)	E (79.4)	E (79.4)
	SB l	E (57.4)	E (58.9)	E (65.5)	E (66.1)	E (66.3)	E (64.0)	E (55.5)	E (69.2)
	SB t/r	F (104.2)	F (124.1)	F (258.0)	E (56.9)	E (73.3)	E (75.4)	E (74.9)	D (48.6)
	SB r	D (47.4)	D (52.8)	F (85.7)	D (49.2)	D (35.5)	C (34.1)	D (36.0)	D (38.9)
	Overall	F (138.2)	F (171.6)	F (194.7)	F (105.8)	D (46.2)	E (70.0)	F (107.0)	D (46.4)
Hempstead Turnpike & NUMC Right-turn Exit	SB r	a (9.4)	a (9.7)	b (10.1)	b (10.4)	a (9.2)	a (9.3)	a (9.5)	a (9.6)
Hempstead Turnpike & Franklin Ave/NUMC Main Entrance	EB l	E (77.2)	E (74.5)	E (75.4)	F (89.5)	E (76.5)	E (69.2)	E (71.2)	F (98.9)
	EB t/r	C (25.5)	C (30.1)	D (37.5)	C (21.2)	B (10.2)	B (12.1)	B (14.5)	A (2.1)
	WB l	F (105.8)	F (106.1)	F (105.4)	F (97.1)	F (88.5)	F (83.9)	F (84.6)	F (103.8)
	WB t/r	A (2.5)	A (2.7)	A (5.6)	C (23.5)	A (6.7)	A (6.1)	A (7.4)	A (6.6)
	NB l	E (64.1)	E (64.8)	E (68.0)	E (64.5)	D (52.2)	E (56.9)	E (55.9)	E (55.9)
	NB t/r	C (22.5)	C (22.3)	C (21.6)	C (20.7)	C (21.5)	C (22.7)	C (22.2)	C (22.2)
	SB l/t/r	E (71.3)	E (72.6)	F (86.3)	E (80.0)	D (54.2)	E (59.6)	E (63.0)	E (63.0)
	Overall	C (20.0)	C (22.7)	C (29.8)	C (27.4)	B (10.9)	B (11.5)	B (14.4)	A (8.9)

Notes: 1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.
2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.
3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

Table III-16
Future Level-of-Service Comparison, Cont'd

Intersection	App[1]	PM Highway Hour				Saturday Highway Hour			
		Existing	No-Build	Build	Build Mitigated	Existing	No-Build	Build	Build Mitigated
Hempstead Turnpike & Clearmeadow Drive	EB l	F (91.8)	F (91.4)	F (87.9)	F (101.8)	F (95.7)	F (92.3)	F (92.1)	F (88.5)
	EB t/r	B (12.2)	B (15.7)	B (16.8)	A (9.7)	A (8.9)	B (10.9)	B (13.4)	B (10.3)
	WB l	E (77.6)	E (75.6)	E (73.8)	E (67.3)	E (72.8)	E (70.0)	E (68.0)	E (67.8)
	WB t/r	B (13.7)	B (16.2)	B (17.7)	C (33.5)	B (19.9)	C (23.5)	C (25.6)	D (40.4)
	NB l/t/r	E (61.9)	E (62.5)	E (62.5)	E (62.5)	D (46.5)	D (46.6)	D (46.6)	D (46.6)
	SB l/t/r	C (34.9)	C (35.0)	C (35.0)	C (35.0)	C (33.0)	C (33.3)	C (33.3)	C (33.3)
	Overall	B (15.7)	B (17.3)	B (19.5)	C (21.8)	B (17.8)	C (20.1)	C (22.2)	C (27.5)
Hempstead Turnpike & Newbridge Road	EB l	F (101.1)	F (103.6)	F (115.6)	F (108.0)	F (87.1)	F (85.6)	F (86.4)	F (92.9)
	EB t/r	F (84.6)	F (119.0)	F (139.9)	F (120.8)	D (41.6)	D (45.5)	D (46.4)	C (25.1)
	WB l	F (91.3)	F (92.8)	F (92.8)	F (96.6)	E (77.4)	E (77.7)	E (77.7)	E (78.7)
	WB t/r	D (49.2)	E (55.1)	E (62.2)	E (63.8)	D (41.9)	D (48.1)	E (55.1)	D (54.7)
	NB l	F (89.2)	F (91.2)	F (92.8)	F (94.2)	F (90.8)	F (95.4)	F (100.4)	F (100.4)
	NB t	E (67.5)	E (68.6)	E (68.6)	E (68.6)	E (66.5)	E (63.6)	E (62.0)	E (62.0)
	NB r	D (43.3)	D (43.4)	D (43.4)	D (44.0)	D (45.4)	D (43.4)	D (42.5)	D (42.8)
	SB l	F (121.2)	F (130.9)	F (130.9)	F (138.5)	F (94.8)	F (100.9)	F (100.9)	F (100.9)
	SB t	F (86.7)	F (97.8)	F (99.7)	F (99.1)	E (67.2)	E (64.5)	E (62.8)	E (62.8)
	SB r	D (44.3)	D (45.8)	D (47.3)	D (46.5)	D (41.5)	D (41.2)	D (41.4)	D (41.7)
	Overall	E (76.0)	F (91.3)	F (101.2)	F (95.0)	E (56.0)	E (58.6)	E (60.6)	D (54.9)
Carman Avenue & Dofena Ln/NUMC Drive	EB l/t/r	b (12.7)	b (13.3)	n/a	n/a	b (12.0)	b (12.5)	b (14.3)	b (14.3)
	EB l/r	n/a	n/a	c (17.5)	c (17.5)	n/a	n/a	n/a	n/a
	WB l	f (53.6)	f (79.7)	n/a	n/a	d (25.1)	d (28.6)	n/a	n/a
	WB r	b (10.7)	b (11.1)	n/a	n/a	b (10.6)	b (10.8)	n/a	n/a
	SB l	a (9.1)	a (9.4)	n/a	n/a	a (9.0)	a (9.1)	n/a	n/a
Carman Avenue & Nottingham Road	EB l/r	D (36.4)	D (36.8)	D (36.8)	D (36.9)	C (24.9)	C (24.9)	C (24.9)	C (24.9)
	NB l	A(3.5)	A (3.9)	A (6.9)	A (1.4)	A (6.6)	A (6.2)	A (5.5)	A (1.2)
	NB t	A (4.3)	A (5.1)	A (7.5)	A (2.0)	A (7.9)	A (8.0)	A (8.6)	A (2.9)
	SB t/r	A (1.5)	A (1.8)	A (6.6)	A (6.1)	A (1.8)	A (1.8)	A (6.2)	A (2.5)
	Overall	A (5.0)	A (5.5)	A (8.5)	A (6.2)	A (6.3)	A (6.3)	A (8.3)	A (3.9)

Table III-16
Level-of-Service Comparison, Cont'd

Intersection	App[1]	PM Highway Hour				Saturday Highway Hour			
		Existing	No-Build	Build	Build Mitigated Existing	Existing	No-Build	Build	Build Mitigated
Carman Avenue & East Meadow HS Drive	EB l	C (30.4)	C (30.4)	C (30.4)	C (30.4)	C (25.7)	C (25.7)	C (25.7)	C (25.7)
	EB r	B (11.5)	B (11.4)	B (11.4)	B (11.4)	B (10.6)	B (10.7)	B (10.7)	B (10.7)
	WB l	N/A	N/A	D (41.3)	D (41.1)	N/A	N/A	C (32.9)	C (32.9)
	WB l/t	N/A	N/A	D (41.4)	D (41.3)	N/A	N/A	C (32.9)	C (32.9)
	WB r	N/A	N/A	A (7.3)	A (7.4)	N/A	N/A	A (8.6)	A (8.6)
	NB l	A (2.2)	A (2.6)	B (13.9)	B (12.3)	A (1.4)	A (1.3)	A (8.0)	A (6.1)
	NB t	A (1.5)	A (1.4)	C (27.5)	B (17.6)	A (1.2)	A (1.1)	B (15.7)	B (12.9)
	SB l	N/A	N/A	B (14.9)	B (14.9)	N/A	N/A	C (24.0)	B (13.3)
	SB t	A (8.2)	A (8.6)	C (26.0)	C (26.0)	A (7.0)	A (7.2)	B (19.8)	B (19.3)
	SB r	A (1.8)	A (1.7)	B (10.2)	B (10.2)	A (1.7)	A (1.7)	A (8.7)	A (8.4)
	Overall	A (5.5)	A (5.7)	C (26.3)	C (22.9)	A (4.2)	A (4.2)	B (18.1)	B (16.4)
Carman Avenue & NUMC North Drive	WB l	B (19.1)	B (19.1)	B (19.2)	B (19.2)	B (18.4)	B (18.4)	B (18.7)	B (18.7)
	WB r	A (7.8)	A (8.0)	B (18.2)	B (18.2)	A (8.1)	A (8.0)	A (7.9)	A (7.9)
	NB t/r	A (4.0)	A (4.4)	A (5.8)	A (5.8)	A (3.3)	A (3.4)	A (3.5)	A (3.5)
	SB l	A (4.6)	A (4.8)	A (6.2)	A (6.2)	A (4.4)	A (4.3)	A (4.4)	A (4.4)
	SB t	A (4.4)	A (5.0)	A (6.0)	A (6.0)	A (3.3)	A (3.4)	A (3.5)	A (3.5)
	Overall	A (4.7)	A (5.2)	A (7.4)	A (7.4)	A (3.6)	A (3.7)	A (3.9)	A (3.9)
Carman Avenue & Salisbury Park Drive	EB l	C (26.2)	C (26.3)	C (26.3)	C (26.3)	C (30.9)	C (31.1)	C (31.0)	C (31.0)
	EB t/r	D (35.1)	D (37.2)	D (37.3)	D (37.3)	C (22.1)	C (22.9)	C (22.5)	C (22.5)
	WB l	C (33.4)	D (38.8)	D (43.8)	D (43.8)	C (32.5)	C (32.0)	C (34.0)	C (34.0)
	WB t	C (20.8)	C (20.8)	C (20.8)	C (20.8)	C (24.6)	C (24.4)	C (24.3)	C (24.3)
	WB r	A (9.2)	A (8.9)	A (8.9)	A (8.9)	A (8.7)	A (8.4)	A (8.4)	A (8.4)
	NB l	B (10.7)	B (11.2)	B (12.2)	B (12.2)	A (7.7)	A (8.0)	A (8.2)	A (8.2)
	NB t/r	C (21.0)	C (23.8)	C (29.6)	C (29.6)	B (13.9)	B (14.9)	B (15.8)	B (15.8)
	SB l	B (13.2)	B (15.3)	C (22.9)	C (22.9)	D (48.2)	D (51.7)	D (51.7)	D (51.7)
	SB t/r	B (19.1)	C (20.6)	C (21.4)	C (21.4)	B (11.1)	B (11.6)	B (11.9)	B (11.9)
	Overall	C (23.9)	C (25.9)	C (28.4)	C (28.4)	B (19.6)	C (20.2)	C (20.2)	C (20.2)

Notes: 1. EB = eastbound, WB = westbound, NB = northbound, SB = southbound, l = left, t = through and r = right.

2. LOS - Level-of-Service. Uppercase letters represent Levels-of-Service for signalized intersections, while lowercase letters represent those for unsignalized intersections.

3. Delays are the average for each lane group in seconds per vehicle. For signalized intersections, the average delay per vehicle for the entire intersection is also included. For unsignalized intersections, the average delay per vehicle for the entire intersection is not meaningful.

At the intersection of Clearmeadow Drive with Hempstead Turnpike, the additional traffic associated with the proposed action is projected to result in an increase in peak-hour delays of less than 7.5 seconds per vehicle passing through the intersection and overall LOS "C" conditions are projected to prevail. Although "F" Levels-of-Service are projected to prevail on the eastbound left-turn movement, these conditions are due to the lengthy signal cycle length required on Hempstead Turnpike and are not because there is insufficient capacity on the left-turn movement. The analyses indicate that capacity will exceed demand by at least 50% on both of the left-turn movements during both peak hours indicating that the 90 (fewer) vehicles which make this turn during the peak hours can easily be accommodated.

As a result of the proposed signal offset and minor phase timing changes at the intersection of Newbridge Road with Hempstead Turnpike, the additional traffic associated with the proposed action is projected to result in an increase in peak-hour delays of less than five seconds per vehicle passing through the intersection during the PM highway hour and a reduction in peak-hour delays of almost four seconds per vehicle passing through the intersection during the Saturday highway hour. Other than an improvement in Level-of-Service on the eastbound through movement during the peak Saturday highway hour, no other lane-group Level-of-Service changes are projected to occur.

The removal of the unsignalized NUMC driveway from opposite Dofena Lane on Carman Avenue is projected to eliminate the No-Build LOS "F" condition on the driveway approach during the Peak PM Highway Hour.

No Level-of-Service changes are projected to occur at the signalized intersection of Nottingham Road with Carman Avenue and overall "A" Levels-of-Service are projected to occur during both peak hours.

The introduction of the relocated NUMC driveway to the signalized intersection of Carman Avenue with the East Meadow High School driveway will provide LOS "D" operating conditions for vehicles exiting the NUMC Campus while retaining LOS "C" or better conditions on the other movements passing through the intersection.

At the intersection of the north NUMC signalized driveway with Carman Avenue, the additional traffic associated with the proposed action is projected to result in an increase in peak-hour delays of less than three seconds per vehicle passing through the intersection and overall LOS"A" or better conditions are projected to prevail.

At the intersection of the Salisbury Drive with Carman Avenue, the additional traffic associated with the proposed action is projected to result in an increase in peak-hour delays of less than three seconds per vehicle passing through the

intersection and overall LOS "C" or better conditions are projected to prevail.

To ensure that, overall, the project's impacts are mitigated, a network performance analysis was conducted for the No-Build and Build-Mitigated conditions during both peak hours. The results of these analyses show that in almost every performance measure (delay, speed, travel time, fuel economy, etc.) the Build-Mitigated condition will be better than the No-Build condition.

2. Parking

a. Existing Conditions

An inventory of available parking on the NUMC East Meadow campus conducted in May of 2009, revealed that approximately 2,320 parking spaces were provided in various locations. Approximately 1,315 spaces are provided in surface lots. A further approximately 125 spaces are provided on the campus roadway system and approximately 880 parking spaces are provided in a multi-level parking garage located in the center of the east side of the campus. It is noted that this parking structure was originally designed to accommodate 1,000 vehicles but that over time, remedial structural measures have eliminated approximately 120 of these spaces.

Of the approximately 2,320 spaces provided, 707 are reserved or restricted for doctors (284 spaces) and other staff members, 1,089 spaces are allowed to be used by permit holders only (mostly the 880 spaces in the garage), and approximately 329 are public parking spaces for a fee. The remaining approximately 195 spaces (mostly at the north end of the campus) are open to all users free of charge. It is noted that the redevelopment of the campus is expected to eliminate and redistribute the vast majority of existing parking.

To determine current parking demand at this NUMC campus, parking surveys were conducted on Tuesday, May 19, 2009, from 8:30 a.m. to 4:30 p.m. and on Saturday, May 16, 2009 from 8:30 a.m. to 1:30 p.m. The results of these analyses indicated that parking peaks at 9:30 on Tuesday, when there were 1,945 vehicles parked on the campus (326 vehicles in public parking spaces - 243 in the pay-to-park lot, 960 in permit spaces - 743 in the garage, 636 in reserved spaces - 269 in the lots reserved for doctors, with the remainder stopped in a drop-off/pick-up zone or parked illegally at various points throughout the campus) and at 11:30 on Saturday, when 636 vehicles were parked on the campus.

A summary of existing parking supply and demand is provided in Table III-17. As can be seen from the table, it is apparent that adequate parking is currently provided for all users of the campus, as well as for the campus as a whole. However, a detailed review of the parking surveys revealed that all lots except the pay-to-park lot, the parking garage and the lots at the north end of the campus were essentially full at some time during the day, indicating that many of the

spaces may not be quite as conveniently located as motorists would like.

Table III-17
Existing Parking Supply and Peak Demand

	Permit/ Employee Parking	Reserved/ Restricted Parking	Public Parking	Other	Total
Spaces	1089	707	524	-	2,320
Weekday (9:30 a.m.)	960	636	326	23	1,945
Maximum Occupancy	88%	93% (at 12:30 p.m.)	63%	-	84%
Saturday (11:30 a.m.)	211	344	65	16	636
Maximum Occupancy	19%	50% (at 12:30 p.m.)	14% (at 12:30 p.m.)	-	27%

b. Potential Impacts

The parking surveys for the existing facilities on the NUMC campus indicated a peak parking demand of 1,945 parked vehicles at 9:30 a.m. on a weekday morning. It is estimated that approximately 1,490 of these spaces are related to medical facility employees, 350 are related to visitors and 105 are vehicles belonging to residents of the existing 159 residential units on-campus.

If the Campus Master Plan moves forward, (the existing residential units would be replaced with 500 new units and the current outpatient services are consolidated into the new Ambulatory Pavilion), the redeveloped campus will have to continue to provide parking for:

- 23 short-term parking spaces on the campus roadway closest to Hempstead Turnpike will serve the new emergency department walk-in entrance (see November 13, 2009 ED report);
- 6 ambulance bays by the new emergency department entrance;
- 13 spaces reserved for police and security by the lower level psychology department (both also in the November 13, 2009 ED report);
- 300 spaces for visitors; and
- 1,295 spaces for employees/staff.

This presumes that these spaces are all co-located. If parking spaces are broken out of this total (1,631), the amount of parking provided in each individual parking area should be increased by 4 percent over the base number initially considered.

A summary of the projected parking demand and the recommended parking supply is provided in Table III-18 It is noted that peak parking demand is

projected to be considerably less on weekends than on weekdays.

As can be seen on the table below, it is projected that as many as 3,500 parking spaces should be provided to accommodate the projected total campus parking demand, although this value could be reduced by up to 330 spaces by incorporating such measures as providing a central shared parking garage, instituting a shuttle to the nearest LIRR train stations, and establishing a ZipCar station on the campus. As redevelopment of the property proceeds, it is recommended that NUMC refer to this table regarding the parking needs of each development component and update it as each phase is completed.

Table III-18
Projected Peak Parking Supply and Demand

Component	Overnight	Daytime	Shared/ co-located Parking	If Shuttle is employed	If ZipCar is incorporated
Residential (500 DU)[1]	500	350	350	315	280
VA Clinic (10,000 sf)	0	37	34	33	33
Veterans Day Care (25 employees)	0	23	21	20	20
Ambulatory Surgery (64,000 sf)	0	238	230	225	224
Ambulatory Pavilion (65,000 sf)	0	241	231	226	225
Wellness Center (35,000 sf)	0	108	97	95	95
Medical Office (200,000)[2]	0	575	564	538	536
R & D (100,000)[2]	0	184	177	168	167
Retail/Café (8,000 sf)	0	3	3	3	3
Emergency Dept. (short term, patient)	15	23	23	23	23
Psych. Dept	8	13	13	13	13
Existing Visitors[3]	30	310	300	300	300
Existing Employees[3]	600	1,335	1,295	1,195	1,185
Total	1153	3440	3338	3154	3104
Recommended Parking Supply	**1,300**	**3,500**	**3,400** [4]	**3,215** [4]	**3,170** [4]

1. It is presumed that 150 of the 500 spaces needed for residential parking overnight will be in spaces used by other uses during the day.
2. Increase values by 2 % if broken into stand-alone units.
3. Increase values of any portions broken out of co-located/shared parking by 4 %.
4. Increase values for any portions of Medical Office, R&D, Existing Visitors or Existing Employees broken out shared parking by 4 %.

c. Mitigation Measures

In order to ensure that parking is confined to the NUMC campus and does not spill over onto the surrounding neighborhood streets, it is recommended that the Campus Land Use Plan design incorporate adequate parking for each development component, and that any pricing structure for such parking not be so prohibitive as to persuade campus visitors and employees to seek parking elsewhere.

In addition, to further reduce the project's parking needs, it is recommended that NUMC explore the possibility of providing a shuttle between the campus and the Hempstead, West Hempstead and Westbury Long Island Rail Road train stations during those hours when a sufficient demand exists to warrant such a service. It is also recommended that NUMC explore the possibility of establishing a ZipCar station on the campus which would further reduce parking demand.

Finally, since it is expected that development of the Campus Land Use Plan will be phased in over time, it is recommended that surveys of parking activity on the NUMC campus be conducted following the completion of significant phases of the project or after the implementation of any traffic management measure, such as a shuttle to the train station of the establishment of a ZipCar station. Such surveys will allow NUMC to confirm that increased parking demand is occurring at the rate forecast and will enable NUMC to make adjustments in subsequent phases, if necessary.

F. Utilities

1. Water Supply

a. Existing Conditions

The subject property is currently being serviced by the Town of Hempstead Department of Water coming from the Mitchel Field Water Supply Area. Based on the water distribution map obtained from the Town of Hempstead Department of Water (copy included in the Appendix B of this report), there is a 10-inch water main located on the north side of Hempstead Turnpike and a 10-inch water main located on the east side of Carman Avenue. A 10-inch service connection from Hempstead Turnpike and another 10-inch service connection from the Carman Avenue serve the Nassau University Medical Center. The existing buildings within the campus are served by combined domestic water/fire mains that loop around the campus.

The existing development has an estimated water demand of 191,250 gallons per day based on the Nassau County Department of Health's design flow rates.

A copy of the water distribution map, which identifies the existing domestic and fire water lines, and fire hydrants, obtained from the Town of Hempstead Department of Water, has been included in Appendix B of this report.

b. Potential Impacts

Based on the conceptual proposed program, the maximum development envelope that represents the upper limit of new development that is likely to occur within the project site is estimated to have a water demand of 426,000 gallons per day. The increase in water demand which would result from the proposed redevelopment is estimated to be 234,750 gallons per day. A copy of the estimated water demand calculations has been included in Appendix B of this report. Pursuant to the letter obtained from Commissioner John Reinhardt of the Town of Hempstead Department of Water (copy included in Appendix B of this report), the site is served by the public water supply, and therefore water service is available. Detailed water use calculations will need to be supplied to the Town of Hempstead Department of Water prior to the issuance of a letter of water availability for the project.

The existing water supply system carries less than half of the proposed domestic and fire flow. It is most likely that the existing water supply system will not be adequate for the proposed domestic and fire flow and an upgrade of the existing water supply system will be required.

2. Sanitary Sewer

a. Existing Conditions

The subject property is currently being serviced by Nassau County Sewer District No. 3. Based on the sanitary sewer maps obtained from the Nassau County

Department of Public Works Permits Department (copy included in Appendix B of this report), there is a 30-inch service connection on Carman Avenue which serves the Nassau University Medical Center East Meadow campus. Pursuant to the sanitary sewer availability letter obtained from the Nassau County Department of Public Works (copy enclosed), the existing 30-inch sewer located on Carman Avenue has sufficient capacity for the proposed redevelopment, as does the Cedar Creek Water Pollution Control Plant.

Copies of the sanitary sewer maps and plumbing utilities plan, which identify the existing sanitary lines, were obtained from Nassau County Department of Public Works and NuHealth Engineering Department, and have been included in Appendix B of this report.

b. Potential Impacts

The proposed redevelopment is estimated to have a sanitary sewage demand of 426,000 gallons per day. The increase in sanitary sewage demand was estimated to be 234,750 gallons per day. The existing sanitary sewage system carries less than half of the proposed sanitary sewage flow. It is most likely that the existing sanitary sewage system will not be adequate for the proposed sanitary sewage flow and an upgrade of the existing sanitary sewage system within the subject property will be required. It is anticipated that necessary improvements, which would be more specifically detailed during the design phase for the proposed campus redevelopment activities, would include new pipes, manholes and other related appurtenances as required by the Nassau County Department of Public Works.

3. Electric and Gas

a. Existing Conditions

The subject property is currently being serviced by National Grid for gas. There is a 4-inch, steel gas main serving the Nassau University Medical Center East Meadow campus. The gas service is fed off a 4-inch steel gas main located on the south side of Hempstead Turnpike. In addition, there is a 6-inch, steel gas main serving the residential buildings and the boiler room. The gas service for the apartment houses and boiler room is fed off a 6-inch steel gas main located on the east side of Carman Avenue. A copy of the request letter to National Grid and the gas distribution maps are included in Appendix B of this report.

The subject property is also currently being serviced by LIPA for electricity. Two transformers feed the Nassau University Medical Center East Meadow campus and the Nassau County Jail. Additional substations/electrical equipment exist within the facility. A copy of the request letter to LIPA, the electric distribution maps and the electric site plan are included in Appendix B of this report.

Response letters from the utility companies confirming availability of service will be obtained once detailed plans of the proposed developments are produced and submitted to them.

b. Potential Impacts

The proposed gas and electric load cannot be identified at the time of the preparation of this report since the site plan is still to be completed. However, it is reasonable to assume that the proposed development would result to a greater gas and electric usage compared the existing usage. It is anticipated that National Grid has the capacity to handle the additional electric and gas load arising from the proposed redevelopment as it is already serving the site.

The subject property currently has existing electric and gas services. Once the site plan has been completed, additional design would be required to calculate the upgrades for gas and electric that would be required to service the additional buildings. Energy efficient equipment will be proposed for any future improvements.

4. Mitigation

The proposed redevelopment project will utilize the latest technology to help in conserving water. This would include the installation of water saving type plumbing fixtures, drought resistant landscaping and irrigation systems with rain sensors. In order to minimize fire hazards, the installation of either noncombustible or limited-combustible construction materials or systems for the new building will be used. A "built-in" fire protection system (i.e., fire sprinklers) in new construction is also one of the most cost effective ways of reducing fire hazards.

The proposed redevelopment will utilize the latest technology to help in conserving energy. All roof and wall surfaces will be insulated to achieve adequate R-values, meeting or exceeding requirements of the New York State Energy Code. HVAC equipment controls will be designed with economy-cycle capability. Site lighting, including parking areas and pedestrian courtyards, will be controlled by timers and/or photocells. The installation of energy efficient lighting fixtures will also be used. The design also affords the opportunity of placing ventilation equipment (HVAC) on the flat roofs, rather than on the ground. This has at least two significant advantages:

1. Energy efficiency is improved because supply and return air circulation ducts are shorter. Ductwork from above the ceiling connects directly into the underside of the rooftop HVAC unit, rather than being routed down the perimeter wall and out to a ground-level unit.

2. HVAC units on the roof are less visible and less audible, and allow ground area to be better utilized for public pedestrian amenities and emergency/service access.

The building and MEP systems will be designed in conformance with the current New York State Energy Code, and latest applicable ASHRAE requirements.

G. Socio-Economic Conditions

1. Existing Conditions

According to 2006-2008 American Community Survey three year estimates from the U.S. Census Bureau, the East Meadow population was 36,823 and there were 12,119 housing units. The average household size was 2.96 persons per household.

Census 2000 area demographics, including population and housing units for Nassau County, the Town of Hempstead, and East Meadow, are illustrated in the following table.

Table III-19
Area Demographics

	Nassau County	Town of Hempstead	East Meadow
Population	1,352,817	770,849	36,823
Housing Units	458,358	251,224	12,119

* Based on U.S. Census Bureau, 2006-2008 American Community Survey 3-Year Estimates.

In 2006-2008, for the employed population 16 years and older, the leading industries in East Meadow were Educational services, and healthcare, and social assistance, 23 percent, and Professional, scientific, and management, and administrative and waste management services, 13 percent.

Table III-20
Employment by Industry in East Meadow CDP, New York in 2006-2008

Type of Industry	Percent of Employed People 16 years and over
Agriculture, forestry, fishing and hunting, and mining	0%
Construction	8%
Manufacturing	5%
Wholesale Trade	3%
Retail Trade	10%
Transportation and warehousing, and utilities	6%
Information	3%
Finance and insurance, and real estate and rental and leasing	9%
Professional, scientific, and management and administrative and waste management services	13%
Educational services, and healthcare and social assistance	23%
Arts, entertainment, and recreation, and accommodation, and food services	8%
Other services, except public administration	5%
Public Administration	6%

Source: U.S. Census Bureau, American Community Survey, 2006-2008.

a. Existing Site Population

Resident Housing

The NUMC campus currently includes eight three-story, garden-style apartment buildings with a total of 161 units. The on-site resident housing is used primarily for housing hospital residents (medical, surgical, etc.) and their families. The existing units include studios, one, two and three bedroom units. The total number of people living on-site is 321 people. This includes 151 medical residents, 108 spouses and other adult population (non-resident or faculty), 22 school-age children and 40 children under the age of five years.

Of the 161 total apartments on the NUMC campus, 151 are occupied by medical residents, seven units are unoccupied or not in use, and three units are occupied by faculty or guests. The existing mix of studio, one, two and three bedroom units and the current site population are shown in the following table.

Table III-21
Existing Resident Housing

Unit Type	Number of Units	Med./Surg. Resident or Faculty Population	Spouses & Other Adult Population (non-resident or faculty)	School-Age Children	Children Under Age 5	Unused Apts.	Comments
Studio	41	40	0	0	0	1	Guest Apt.
1-bedroom	33	32	28	1	8	2	Fire Damaged
2-bedroom	66	62	63	8	15	3	Fire Damaged
3-bedroom	18	17	17	13	17	1	Closed for repair
TOTAL	**158**	**151**	**108**	**22**	**40**	**7**	

Table III-22
Summary – Housing Units

Total Apartments	**161**
Residents Occupied	151
Faculty/Guest Occupied	3
Unoccupied Apartments	7

Employees

NuHealth currently employs approximately 3,550 administrative, clinical and other personnel at the East Meadow campus on either a full or part-time basis. Based on the information from the Nursing Department, their staffing is approximately 44/30/26 in percentages for the three shifts. NuHealth's Human Resources Department suggests a split of 50/25/25 for administrative staff and non-employees with all medical students in days and 20% of volunteers in each of the five weekdays. Breaking things down this way, the number of employees on the campus is estimated at 2,150 during the day and 700 on each subsequent shift. These figures include 270 medical residents, of whom 151 are housed on site.

Other Site Population

As the largest safety net hospital in Nassau, more than 75,000 patients were treated in the Medical Center's Emergency Room in 2007 and almost 200,000 people in its more than 80 specialty outpatient clinics. Another 23,000 people received inpatient care at the Medical Center and over 2,000 babies were born there.

2. Potential Impacts

The proposed development program for the Nassau University Medical Center campus will result in an increase in residential population, employees and visitors to the campus.

The potential increase in overall site population, including residential population, employees, and other users of the campus, has been analyzed using the maximum development envelope that represents the upper limit of new development that is likely to occur within the project site as a result of the proposed Plan. The following impact analysis is based on the maximum potential development for each of the program components.

Resident Housing

Based on the estimated 450 to 500 medical resident and faculty housing units planned for development on the campus, the maximum estimated residential population on the campus would be between 849 and 945, including between 724 and 805 adults (medical residents/faculty and spouses), between 36 and 41 school-age children and between 89 and 99 children under the age of five years.

Table III-23
Anticipated Medical Resident/Faculty Population

Unit Size	Number of Units	Adult Population	School-Age Children	Children Under Age 5	Total Population
Studios	158-175 units	158-175	0	0	158-175
1-bedrooms	158-175 units	296-328	5-6	40-44	341-378
2-bedrooms	112-125 units	226-252	14-16	27-30	267-298
3-bedrooms	22-25 units	44-50	17-19	22-25	83-94
TOTAL	**450-500 units**	**724-805**	**36-41**	**89-99**	**849-945**

*Average persons per household based on existing medical resident housing by unit size.

Estimates relative to medical resident and faculty housing units as shown in the table above, are inclusive of the existing medical resident housing units and existing site population. Therefore, the net increase in site population would be proportionately less.

As stated earlier, this analysis represents the upper limit of new development that is likely to occur within the project site. However, the Long Range Vision Plan for the site provides for a total of only 240 housing units.

Employees

The additional medical office space, R&D space, fitness/wellness space and other uses proposed for the campus will result in a greater number of on-site employees. Based on estimates by NuHealth, implementation of the Long Range Vision Plan for the East Meadow campus, will result in an estimated 500 construction jobs over the next five to seven years and approximately 400 new medical staff positions.

3. Proposed Mitigation

Population growth and expansion of housing stock are not, by themselves, adverse impacts that require mitigation. Impacts to demographic characteristics in the village are examined for the purpose of measuring the potential impacts to overall fiscal conditions and impacts to community facilities and services in the project area. Where adverse impacts from the proposed project are identified, mitigation is proposed where practicable. Fiscal impacts and benefits are examined in greater detail in Section III.H of this DGEIS. Potential impacts to community facilities and services are examined in Section III.I of this DGEIS.

H. Fiscal Impacts and Benefits

1. Existing Conditions

a. Property Taxes

The Nassau Health Care Corporation ("NHCC", or the "Corporation"), is a New York State public benefit corporation exempt from real estate taxation.

Although the NHCC is exempt from real property taxes, there is a PILOT (payment in lieu of taxes) to the East Meadow School District, based on the number of campus residents attending the East Meadow Public Schools. The rates and PILOT payments, by grade level, for the 2008/2009 and 2009/2010 school years are illustrated in the following tables.

Table III-24
2008/2009 PILOT Payments to the East Meadow School District

Grade Level	Number of Campus Residents Attending EMSD	Rate	Total Cost Paid by NHCC (PILOT)
K	3	$4,555	$13,665
1-6	14	$10.971	$153,594
7-10	3	$14,610	$43,830
	20		**$211,089**

Table III-25
2009/2010 PILOT Payments to the East Meadow School District

Grade Level	Number of Campus Residents Attending EMSD	Rate	% Increase or Decrease From Prior Year	Total Cost Paid by NHCC (PILOT)
K	3	$4,514	-0.90%	$13,542
1-6	19	$12.116	10.44%	$230,204
7-10	3	$15,617	6.89%	$46,851
	25			**$290,597**

b. Additional Costs

Since the proposed redevelopment is conceptual in nature and fully engineered site plans have not been developed yet, potential costs associated with infrastructure, traffic mitigation, or other public improvements necessary to accommodate the redevelopment of the site are only conceptual at this time.

c. Jobs

NuHealth currently employs approximately 3,550 administrative, clinical and other personnel at the East Meadow campus on either a full or part-time basis.

2. Potential Impacts

a. Property Taxes

The proposed campus redevelopment is being undertaken by the Nassau Health Care Corporation, a public benefit corporation exempt from taxation under the Internal Revenue Code and the laws of New York State. Provided that the Nassau Health Care Corporation limits its activities to those authorized pursuant to its enabling legislation, it will remain exempt from taxes and certain fees except as provided by the public health law, whether state or local, including but not limited to fees or taxes on real property, franchise taxes, sales taxes or other excise taxes, upon any property owned by it or under its jurisdiction, control or supervision and used for a public purpose, or upon the uses thereof, or upon its activities in the operation and maintenance of its facilities used for a public purpose, or any revenues or other income received by the corporation from public purpose activities.

NHCC will continue to make a payment in lieu of taxes to the East Meadow School District to cover costs incurred by the School District to educate those children living on the campus and attending East Meadow Public Schools. As the site is redeveloped with additional medical resident/faculty housing units, any increase in the number of campus residents attending East Meadow Public Schools would be reflected in the PILOT to the East Meadow School District.

PILOT payments to other taxing jurisdictions would also be negotiated as the development process moves forward.

b. Direct and Indirect Economic Impacts of Construction Activity

i. Construction Phase Employment Generation

During the course of the redevelopment activities, it is estimated that 500 construction jobs will be created.

ii. Construction Phase Secondary Spending

It is currently projected that the overall cost of the campus redevelopment would be approximately $300 million. A portion of this spending will help stimulate the Long Island economy through expenditures for construction materials and equipment; utilization of locally-based contractors and subcontractors for portions of the work; and employment of local residents as workers. In addition, workers at the site are expected to spend money in the vicinity of the job site for food beverages and other shopping items and personal services.

c. Permanent Jobs from Completed Project

Based on the current program for redevelopment of the campus, it is anticipated that 400 new Full Time Equivalent (FTE) jobs would be created. These would be in a variety of positions, including professional, administrative, technical, clerical and maintenance.

d. Costs and Benefits

Although some additional demand for police and fire protection services may result, this marginal impact would be offset by the increase in public benefit by expanding and improving medical, surgical, preventative and other healthcare for Nassau County, including the East Meadow community. There will be no additional cost to the Town of Hempstead for refuse collection since a private carting firm will be employed to collect and dispose of all solid waste generated by the proposed project.

The NHCC or its development partners would be responsible for costs associated with infrastructure or other public improvements that may be necessary to accommodate the redevelopment of the site.

I. Community Facilities and Services

1. Existing Conditions

a. Police

The NUMC campus is located within the jurisdiction of the Third Precinct of the Nassau County Police Department ("NCPD"). The Third Precinct is situated at 214 Hillside Avenue in the hamlet of Williston Park. The properties north of Hempstead Turnpike are serviced by the Third Precinct, while those situated south of Hempstead Turnpike are served by the First Precinct.

The patrol for the area is provided by two radio motor patrol cars, each manned by one police officer. The patrol cars also provide coverage within the precinct, and the subject property is not their sole area of patrol. The Police Department has other units that will patrol and respond to the NUMC campus, when needed. The Third Precinct has 25 geographical posts. Each of these posts has a Radio Motor Patrol ("RMP"), more commonly referred to as a marked police car, assigned on post to render services as needed. Each of these patrols is a one-person patrol, and they are operational at all times. However, any precinct patrol could be assigned to cover any assignment due to conditions at that time. Additionally, depending on the nature of the assignment, specialized units, such as EMS, may be assigned. The Third Precinct has responded to thousands of calls over the past three years. The calls are very varied in nature, as is common in police response. Some of the more common assignments have included aided cases, automobile accidents, larceny reports, domestic incidents and neighbor disputes.

Currently, NuHealth has private on-site security 24 hours a day, seven days a week that oversees the entire campus. As noted above, overall security/police protection for the site is provided by the Third Precinct of the NCPD.

b. Fire

The East Meadow Fire Department is responsible for serving 7.5 square miles of East Meadow, parts of Levittown and parts of Westbury. The East Meadow Fire Department has five fire stations and over 240 members. In 2008 the East Meadow Fire Department responded to 1,417 emergency calls varying from ambulance calls, to fire calls, to car accidents, and other emergencies.

Fire Headquarters is located at 197 East Meadow Avenue, less than one mile from the NUMC campus. Fire Headquarters is the hub of the East Meadow Fire Department. The building houses an alarm room staffing a dispatcher 24 hours a day to answer local emergencies. The building contains various maintenance equipment and is the home of Rescue Company 5.

Station #1 is located at 346 East Meadow Avenue, approximately $1^1/_4$ mile from the NUMC campus. Station #1 is the newest addition to the East Meadow Fire District. Built in 2001, the station houses both Engine Company #1 and Ladder Company #1. The two companies in total respond with an engine, tower ladder and a heavy rescue.

Located on East Meadow Avenue and Park Avenue, approximately 1.5 mile from the NUMC campus, Station #2 is one of East Meadow's oldest firehouses. Station #2 is a single company house lodging Engine Company #2. Station #2 has been protecting East Meadow for over 75 years.

Located on Newbridge Road and Carnation Road, approximately 1.5 mile from the NUMC campus, Station #3 was originally a World War II Quonset Hut,

purchased by the East Meadow Fire District and renovated into a firehouse in 1951. Today the firehouse houses Engine Company #3 and Ladder Company #2.

Station #4 is located on the corner of Carman Avenue and Bob Reed Lane in Westbury, approximately 2.5 miles from the NUMC campus. Station #4 is the home of Engine Company #4 who is responsible with responding to both fire and medical emergencies. They are equipped with both an engine and an ambulance.

The Advanced Emergency Medical Technicians Squad is composed of members of the Department who have attained the New York State Certifications and volunteer to serve in and operate a specially equipped advanced life support vehicle provided by the District. The unit contains the most modern emergency portable equipment available which include the ability to communicate with the Nassau University Medical Center doctors who monitor conditions and give orders on what treatment to administer. When the patient arrives at the hospital, the doctor and staff are prepared to continue the treatment with no delay.

c. Public Schools

The NUMC campus is located within the East Meadow School District, which is made up of nine schools serving the communities of East Meadow and Westbury. At its peak in 1963, more than 19,000 students were enrolled in the East Meadow School District. From 1973 to 1983, a pattern of declining enrollment occurred as the "baby boom" era ended. There are approximately 7,978 students currently enrolled in the East Meadow School District. Student enrollment at each of the district schools is shown in the following table.

Table III-26
East Meadow School District

School Name	City	Grade Level	Students
Barnum Woods Elementary School	East Meadow	KG - 05	849
Bowling Green School	Westbury	KG - 05	799
Clarke Middle School	Westbury	06 - 08	663
East Meadow High School	East Meadow	09 - 12	1,670
McVey Elementary School	East Meadow	KG - 05	757
Meadowbrook Elementary School	East Meadow	KG - 05	491
Parkway School	East Meadow	KG - 05	531
W. Tresper Clarke High School	Westbury	09 - 12	916
Woodland Middle School	East Meadow	06 - 08	1,302
		Total Students:	**7,978**

d. Recreation

The NUMC campus is located in the vicinity of several major recreation resources including Eisenhower County Park, which is located northwest of the NUMC campus. Facilities at the 930 acre park include three 18-hole golf courses, driving range, 16 lighted tennis courts, athletic fields (including 17 baseball fields, four

soccer fields and three football fields), one full-court basketball court, batting cage, aquatic center and fitness center, fitness trail, 18-hole miniature golf course, playground areas and a sprinkler pool, reserved picnic areas, outdoor theater, memorials (including a Veteran's Memorial, County Firefighter's Memorial, and 9/11 Memorial), jogging path, gaming area (bocce court and game tables), and Carltun on the Park, a privately run restaurant and banquet facility.

Town parks and recreation facilities in the area include:

Salisbury Park Drive Ballfields in East Meadow
Little League and Multi-purpose Fields

Senator Speno Memorial Park, East Meadow Avenue
Basketball, Handball, Shuffleboard, Playground, Tennis Court, Vita Course, Multi-purpose Fields

Veterans Memorial Park, 1700 Prospect Ave. (about $1^1/_4$ south of the NUMC campus)
Basketball, Handball, Paddleball, Tennis, Outdoor Pools, Diving, Wading Pool, Playground, Game Tables, Play Equipment, Sitting Area

On-site recreational resources for residents of the NUMC campus are limited to a children's playground located near the residential buildings.

2. Potential Impacts

a. Police

The demand for police manpower is not expected to increase significantly as a result of the proposed project. NuHealth will continue to provide private on-site security 24 hours a day, seven days a week, to oversee the entire campus.

b. Fire

The development of additional housing units on the campus and other new clinical and medical office space may result in additional calls to the Fire Department. However, the removal of existing vacant or obsolete buildings will result in fewer hazardous vacant buildings that are likely to require fire response. It is anticipated that the proposed project would not significantly impact fire protection services within the fire department service area. Response time to the NUMC campus is approximately three minutes. All new buildings will be fully protected by an automatic sprinkler system.

The campus roadway system will incorporate an enhanced access from Carman Avenue, and improved directional signage throughout the site. Multiple interior roadway loops will result in improved interior circulation throughout the site and optimal emergency access.

Fire hydrants will be located throughout the project. Since all the on-site buildings will be equipped with sprinkler fire suppression systems, it is most likely that the existing water supply system will not be adequate for the proposed domestic and fire flow and an upgrade of the existing water supply system will be required.

All buildings will be designed to comply with State and local building and fire code regulations. Prior to final site design, NuHealth will review site plans with local fire officials to ensure optimal safety and accessibility.

c. Public Schools

Based on the maximum potential residential development of the site, an estimated 450 to 500 medical resident and faculty housing units would result in between 36 and 41 school-age children and between 89 and 99 children under the age of five years.

Estimates relative to medical resident and faculty housing units are inclusive of the existing medical resident housing units and existing site population. Therefore, the net increase in site population and school-age children would be proportionately less.

As stated earlier, this analysis represents the upper limit of new development that is likely to occur within the project site. However, the Long Range Vision Plan for the site provides for a total of only 240 housing units, which would result in proportionately fewer school-age children living on-site than under the maximum development scenario.

d. Recreation

It is likely that with the increase in total on-site residential population, there would be an increase in demand and use of area recreational resources. However, the marginal increase in park usage expected from the increase resident population is not expected to have a significant adverse impact on existing recreation facilities in East Meadow and the Town of Hempstead. The new resident tower would include retail and community uses to serve campus residents. The on-site fitness/wellness facility would also meet some of the recreation needs of campus residents.

3. Mitigation

a. Police

NuHealth will continue to provide private on-site security 24 hours a day, seven days a week, to oversee the entire campus.

b. Fire

All new construction will comply with the New York State Uniform Building and Fire Prevention Code as well as all applicable local building and fire code

regulations. All new buildings will be fully protected by an automatic sprinkler system.

c. Public Schools

NHCC will continue to make a payment in lieu of taxes to the East Meadow School District to cover costs incurred by the School District to educate those children living on the campus and attending East Meadow Public Schools. As the site is redeveloped with additional medical resident/faculty housing units, any increase in the number of campus residents attending East Meadow Public Schools would be reflected in the PILOT to the East Meadow School District.

d. Recreation

The new resident tower will provide on-site retail and community uses to serve campus residents. In addition, the proposed fitness/wellness facility would also meet some of the recreation needs of campus residents. An on-site children's playground will be provided as part of the residential redevelopment.

J. Historic, Archaeological and Cultural Resources

1. Existing Conditions

The Area of Potential Effect is shown on Exhibit III-31. Overall, the topography of the APE (Area of Potential Effect) has generally retained its natural contours. However, the appearance of the APE has been substantially altered by 20th-century development. As a farm, the APE was subjected to intensive cultivation since the early 19th-century, as part of the Fish family farm, then as a private agricultural concern known as the Hempstead Farms, and finally as county land cultivated by prison inmates, until the construction of the first hospital on the site in the 1930s. Subsequent expansion of the hospital has transformed the former farmland of the APE with the construction of approximately 30 major buildings, internal roads, buried utilities, and parking lots.

Two soil types are mapped for the APE. These soils are described in the table following this paragraph. Only the northernmost extremity of the APE exhibits the Hempstead silt loam soil type. The remainder is Urban Land. A soil boring performed in the southeastern corner of the APE, in an area mapped as "Urban land," reveals a soil matrix of tan to brown, fine to coarse sand, with varying percentages of fine gravel and silt. These sand strata extend to at least 17 feet below the present surface, and their descriptions roughly correspond to the sand strata found beneath the silt layers of "Hempstead silt loam" (at greater than 29 inches below the surface) which were mapped for the less-disturbed portions of the APE.

Table III-27
Soils

SoilsName	Soil Horizon Depth cm (in)	Texture, Inclusions	Slope %	Drainage	Landform
Urban land (Ug)	n/a	n/a	n/a	Varies	Areas at least 85% covered with impervious building material
Hempstead silt loam (He)	0–11 in. 11–15 in. 15–29 in. 29–33 in. 33–60+ in.	Black SiLo; Dk. brown SiLo; Yellowish brown SiLo; Strong brown very gravelly loamy Sa; Very pale brown Sa and loamy Gr	0–3	Well drained	Plains and edges of broad terraces

KEY
Gr—Gravel; Lo—Loam; Sa—Sand; Si—Silt

Pre-Contact Conditions

The predevelopment APE appears to have offered little in the way of natural resources to attract exploitation by precontact Native Americans. Although the level APE was dry and well-drained, the nearest recorded source of fresh water, East Meadow Brook, was approximately 1.33 miles (about 2.2 km) to the west. The nearest meadow/marshland was that surrounding the East Meadow Brook, also more than 1 mile (1.7 km) to the west.

A file search of sites inventoried by the NYSM and the OPRHP has reported no precontact sites within one mile of the APE. The investigation nearest to the APE, a small area (0.011 acres) at Carman Avenue and the northeast corner of Eisenhower Memorial Park (2,200 feet/695 m to the north of the APE), encountered no precontact archaeological resources in a series of 4 shovel test pits (STPs) (EBI Consulting 2009). STPs performed along the eastern side of the Wantagh State Parkway (within 2,800 feet/885 m to the east of the APE) in 2000, also did not recover any buried precontact cultural materials. There are no recorded sites within three miles (4.8 km) of the APE.

A shovel test pit (STP) conducted on the west side of the parkway within the southwestern quarter of the Hempstead Turnpike interchange (more than 1.33 miles/2.2 km west of the NUMC APE) encountered a tertiary quartz flake (STP IV.A-8), and in supplementary shovel tests a quartz block/shatter was recovered (STP IV.A-8 north). Further STPs performed in this location were sterile, and led to the conclusion that these were isolated finds. No precontact sites or features were identified (Silver 1995:21, 36, 95, Sheet 16).

Based on the attractiveness of the predevelopment APE to Native American exploitation, and the lack of any inventoried precontact archaeological sites within 4.6 miles (7.7 km), the APE is rated as having a low potential for hosting precontact archaeological remains.

Historical Period

The first recorded road adjacent to the APE was the present Hempstead Turnpike, which forms the southern boundary of the APE. Already in existence at the time of the American Revolution, it linked Hempstead Village on the west with Bethpage to the east, and can be seen on the 1782 map of Long Island (see Appendix F, Figure 3). No structures are shown on the APE, although the drawing is fairly schematic. In the APE vicinity, it skirted the southern edge of the Hempstead Plain (see Appendix F, Figure 4). Later maps record a tollgate west of the APE, along the north side of the turnpike, just east of the intersection with modern Front Street (see Appendix F, Figures 6, 7), and the 1850 census lists Thomas Smith, 40, gatekeeper, living with his family near the APE.

The 1837 Coast Survey, the earliest map found which shows a structure in the APE, records one building in the southeast corner, which later maps identify as the William Fish farmhouse (see Appendix F, Figures 4, 6). The Fishes apparently lived in relative obscurity, with few or no appearances in the written record. Samuel Fish, most likely related to William Fish, occupied a farm and dwelling outside the APE, along present Jerusalem Road, 1.13 miles (1.9 km) south, which was referred to as the "Fish Homestead," and survived at least until 1958.

The next owner of the APE was the Hempstead Farm Company, Ltd., which was organized in 1886. According to the 11 February 1886 issue of the Long Island City *Daily Star*, the object of the then newly-formed Hempstead Farm Company was "to plant, cultivate, and raise vegetables, trees, plants, grain, etc.; breed and raise cattle, keep a store, and sell farm products." The trustees were headed by Thomas H. Terry, and included investors Albert D. Lewis, W. Richards, T. Drew Dwinnell, and James M. Bloomfield.

The APE passed to the Lannin Realty Company during the 1920s. Based on the aerial photograph taken in 1928—the only accurate record of farm building placement on the APE—the property continued under cultivation, and a large number of buildings were still standing near Hempstead Turnpike (see Appendix F, Figure 12). In 1930 the APE was part of an approximately 65-acre parcel purchased by Nassau County for $90,000, with the intentions of building a hospital. Referred to as the "Meadowbrook Farm," the parcel was one of three farms owned by the county, and operated by county prisoners. The original 250-bed building of the Meadowbrook Hospital was designed by the well-known architect, John Russell Pope, and cost $2 million. It opened in 1935.

Sixteen of the approximately 65 acres of the Meadowbrook Hospital campus, at the northwest corner of the APE, were set aside for the County Jail, which was completed

in 1956. A $12 million expansion of Meadowbrook Hospital was begun in 1949, and continued through 1952. The number of beds was increased from 250 to 600, and new buildings included a new laboratory, a building for the chronically ill and cancer patients, an isolation ward for premature babies, and increased space for nurses (including housing) and administration.

The next round of hospital expansion, during the 1960s and 1970s, resulted in the Nassau University Medical Center campus much as it appears today, with the most visible construction the multistory Dynamic Care Building, completed in 1974. The 18-floor (plus basement and penthouse) structure contains offices, clinics, laboratories, patient rooms, operating rooms, etc., and occupies the central part of the Hempstead Turnpike frontage, at the approximate location of the dwelling structures from the earlier Hempstead Farm. Additional structures from approximately 1970/1971 include greatly expanded staff housing and the utility and maintenance structures in the far northern section of the APE.

2. Anticipated Impacts

Despite the intensive building programs that have taken place on the NUMC campus, undeveloped areas still exist. The subsurface disturbance in these undeveloped areas has been limited to plowing and paving for roads and parking lots. Special care was given to the assessment of the precontact potential, but, as previously noted, even the relatively undisturbed portions of the APE have a low potential for shallowly buried precontact resources due to the lack of fresh water in the near vicinity. This is depicted on Exhibit III-31. Furthermore, even this low precontact potential would have been negated by subsurface disturbance in and around the areas of existing and mapped historical structures, described in the previous section of this report. No archaeological testing for precontact resources is recommended.

The APE is also sensitive for historical archaeological resources in a specific location, the southeastern corner of the APE along the Hempstead Turnpike frontage. Here, based on historical descriptions, maps, and photographs, the buildings of the early Fish farmstead, the Hempstead Farm Company, and their associated shaft features were located. Based on the 1928 aerial photo and the present location of the Dynamic Care Building, the zone of historical sensitivity includes the former farmstead building sites as well as the potential locations of the privies and wells associated with the buildings.

The surviving areas of historical sensitivity (19th-century farmstead remains from pre-1837 to about 1900) are depicted on Exhibit III-31. These locations are recommended for Phase 1B field-testing as per OPRHP standards, as shown on Exhibit III-31.

3. Proposed Mitigation

According to current construction designs, some portions of the APE would not be subjected to development. If the area of historical sensitivity will not be disturbed by any aspect of the proposed project (including construction staging, utility installation,

landscaping, grading and filling) and no ground disturbance would occur there, then no testing would be warranted in the sensitive location.

K. Environmental Site Assessment

1. Existing Conditions

The Nassau University Medical Center (NUMC) is a previously developed institutional campus that contains numerous buildings, extensive impervious pavement and landscaped areas that have been cleared of native vegetation and graded. Soils and groundwater conditions on site are described in Chapter III.C.1, Natural Features.

A Phase I Environmental Site Assessment (Phase I ESA) of the NUMC campus was conducted by Paulus, Sokolowski and Sartor (PS&S) in October 2009. The full report is included in Appendix H. The purpose of this Phase I ESA is to document "Recognized Environmental Conditions" (REC) associated with the current and historic uses of the site. Consistent with the American Society for Testing and Materials (ASTM) document, *The Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E-1527-05), REC's are defined as follows:

> *"The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with the laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions."*

Therefore, the RECs documented provide an indication of surface and subsurface conditions on the site that may be potentially hazardous. The Phase I ESA consisted of a site reconnaissance; a file review and document search regarding the past and current usage of the site; a review of available Sanborn Maps, aerial photographs and historical topographic maps; a review of property surveys; United States Environmental Protection Agency (USEPA), NYSDEC, county and local records requests; an environmental lien report; city directory; and a review of available property owner records and information provided by the client.

The site is approximately 51.6-acres in size and contains approximately 35 buildings including a teaching hospital, medical support facilities, apartment residential

buildings, mechanical support facilities and parking areas. Existing buildings on site are shown on Exhibit II-6, and described in detail in the **Phase I Site Assessment Report** in Appendix H. The buildings on site can be grouped into three sections: the southern portion of the site consists of the main hospital complex, including the 19-story Dynamic Care Building, Emergency Care Center, County Medical Examiners building, several ancillary buildings and the main visitor's parking lots. The central portion of the site contains a 5-level parking garage and several underutilized buildings partially occupied for various hospital functions, as well as several unoccupied buildings. The northern portion of the site contains eight garden-style, 3-story apartment buildings for use by hospital residents, a power house building, an ambulance center and a greenhouse.

Adjoining areas to the site may also be relevant to environmental site conditions. Adjacent uses include: Nassau County Jail to the north; several retail facilities across Hempstead Turnpike to the south (including several automotive repair facilities); and single-family residences to the east. To the west, on the west side of Carman Avenue, an automotive repair facility adjoins the far southwestern corner of the site, single-family residences adjoin the western portion of the site, and the East Meadow High School is opposite the site to the northwest.

As part of this Phase I ESA, an electronic search of the standard environmental record sources was provided by EDR.[1] The *EDR-Radius Map with GeoCheck* was used to identify potential environmental issues at or near the property in accordance with ASTM guidelines. This process allows the identification of facilities of potential environmental concern at distances commensurate with their potential risk to the site. A review of the EDR Database Report indicates that the site address was identified on several databases.

The site is identified on the NY SPILLS/HIST SPILLS database with six separate incidents. The database report concludes that on all 6, either no corrective action required or the incident was closed.

The site is identified on the LTANKS database, due to a tank test failure that occurred in 1995. The material is described as #2 fuel oil, and the incident was closed.

The site is identified on the RCRA-SQG (small quantity generator) database, the FINDS database and the MANIFEST database for generating non-halogenated solvent wastes. According to the database, the site was identified as a Large Quantity generator for the years 2004, 1999, 1998, 1996, 1994 and 1992. Further, the site received several written informal violations, and was identified as a "Significant Non-Complier" in 2003.

The site is identified on the UST (Underground Storage Tank) database with a total of eleven USTs. The locations and current status of these eleven USTs were not

[1] EDR, of Milford, Connecticut, uses *The EDR-Radius Map with GeoCheck* to identify potential environmental issues at or near the site in accordance with ASTM guidelines.

reported on the database; however PS&S identified thirteen known former and current USTs at the site, including two USTs associated with the ambulance center; five USTs abandoned on the south side of the Power House; two additional Power House USTs located on the east side of the Chillers; the two active 20,000-gallon USTs currently containing diesel fuel located on the north side of the chillers, and two active 2,500 gallon USTs containing diesel fuel located west of the Dynamic Care Building.

The site is identified on the AST database, which identified one 500-gallon AST (above ground storage tank) located indoors at the Ambulance Center Building. No further pertinent information is given on the database report.

Review of the EDR Federal USGS Well database identified 287 USGS wells within a one-eighth mile radius of the site. Of these, four USGS wells are located within one-quarter mile north of the site, and 26 USGS wells are between one-eighth and one-quarter miles of the site.

There is a public water supply well (Well ID# NY0002819) located between one-quarter mile and one-half mile south of the site.[2] This well is owned by the East Meadow Water District and serves the Town of Hempstead. No surface water bodies were observed on the site, or within a one-mile radius of the site. Local groundwater flow direction, inferred from available topographic mapping of the area, is assumed to be to the south. However, local variations in the groundwater flow direction may be present. In May 2008, PS&S encountered groundwater at approximately 35 feet below ground surface during a limited Environmental Sampling Program conducted in the area immediately east of the Dynamic Care Building.

Historic Aerial Photographs showing the site were reviewed, with one from 1928 (primarily farm fields on the site), then from 1953 to 1994, showing increased development of the former Meadow Brook Hospital, the jail, and the current hospital facilities and surrounding lands. From these photographs, it appears that in 1953, the site contained approximately 20 buildings and a water tank, and the East Meadow High School was under construction to the west. One of the buildings constructed in the late 1940's was utilized as an industrial laundry facility (Building "M", which has been unoccupied for decades, and is in extremely poor condition).

By 1966, more buildings were constructed on site, and the Nassau County Jail was constructed to the north. By 1976, several additional buildings had been constructed on the site including the Dynamic Care Building, the parking garage, the Eye Care building, the "L" and Butler Building, the Activities Building, and ancillary Locker Room and adjacent (former) pool, the Apartment Buildings, the (current) Power House, Chillers, Ambulance Center and Greenhouse. Several buildings have been removed since the 1966 aerial photograph, including the former Power House, the former water tower, and some unidentified buildings. The heliport/parking lot in the

[2] As identified in the Federal Reporting Data System (FRDS) Public Water Supply System Database

far northeastern corner of the site had not yet been constructed. By the 1994 photograph, development of the Nassau County Jail had increased substantially.

Historic USGS topographic maps were also reviewed, showing progressively increasing development on and around the site from 1903 to1994, similar to that shown on the series of aerial photographs.

The RECs found on the site range from potentially hazardous conditions from historic or current uses, wastes being potentially released in to the environmental, storage of potentially hazardous materials, potential presence of PCBs, asbestos and/or lead-based paint. The **Phase I Environmental Site Assessment** identified the following 11 RECs in connection with the site:

REC-1: Historic and Current Use of Power House

The original configuration of the site in the early 1930's included a Power House to provide steam heat to the entire facility. The steam heat was originally produced by #6 fuel oil stored in underground storage tanks. The original Power House building was replaced in the early 1970's by the current Power House building. No information was available regarding the number, location or status of these USTs. NUMC incinerated solid and biological wastes in the two original incinerators from their construction in the early 1970's until the late 1970's, when the construction of a newer incinerator was completed. This newer incinerator, located on the ground floor level of the Power House, was used from the late 1970's until approximately the mid-1980's, when the NUMC ceased incinerating activities and began disposing of wastes off-site using various waste hauler contractors. These incinerators were powered by natural gas and are still located at the site. The historic use of petroleum and incinerators at the Power House is considered to be a REC.

Based on survey plans provided by NUMC, the Apartment Buildings were completed circa 1972 in an area that previously contained a historic Power House in the vicinity of Apartment "F". The historic use of the Power House at the area of Apartment Buildings is also considered a REC.

Two approximately 275-gallon diesel AST were observed at the Power House and significant staining beneath the ASTs was noted, so the two 275-gallon ASTs are considered to be a REC. Chemical use and storage of drums in the area of unprotected floor drains and sumps at the Power House that are also considered to be a REC.

REC-2: Historic Use of Former Laundry at Building "M"

One of the existing buildings constructed in the late 1940's was utilized as an industrial laundry facility (Building "M"), which historically discharged wastes into the sanitary system. If the sanitary lines became compromised, these wastes could have been released into the environment; therefore the historic use of Building "M" as a former industrial laundry facility is considered to be a REC.

REC-3: Historic and Current Use of Ambulance Center

The Ambulance Center, in the northern portion of the site, was constructed in 1972 and was originally utilized by the NUMC for storage and general maintenance of ambulances and groundskeeping vehicles. This historic use as an automotive maintenance facility is considered to be a REC due to the numerous floor drains in the maintenance areas.

Eight drums were observed on the northern exterior areas of the Ambulance Center. The contents of these drums could not be confirmed (4 drums were stored on asphalt pavement next to the building, and 4 were stored directly on the unpaved ground). These drums at the Ambulance Center are considered to be a REC due to their unknown contents and storage methods.

Multiple drums were observed inside the Ambulance Center. The majority of these drums were identified by their placards as containing anti-freeze, automatic transmission fluid, and deicing liquids. Several drums were observed to be stored directly on the concrete floor, where some staining on the concrete floor was observed. The use and storage of chemicals, paint and gasoline near unprotected floor drains at the Ambulance Center is considered to be a REC.

Evidence of improper paint disposal into a utility sink located on the ground floor of the paint storage room was also observed, and the paint disposal method into the utility sink is considered to be a REC.

Inside the Ambulance Center, a 275-gallon waste oil AST without spill prevention devices was observed, along with staining on the concrete floor, and the use and storage of petroleum, paint, and chemicals near unprotected floor drains and the disposal of paint into slop sinks. The use and storage of chemicals, paint and petroleum near unprotected floor drains and improper disposal into sinks at the Ambulance Center is considered to be a REC.

REC-4: Current and Former Underground Storage Tanks

The following 13 former and current USTs were identified at the site: two USTs associated with the ambulance center fueling area; five USTs abandoned on the south side of the Power House; two additional Power House USTs located on the east side of the Chillers; two active 20,000-gallon USTs currently containing diesel fuel located on the north side of the chillers; and two active 2,500-gallon diesel USTs located on the west side of the DCB.

The original Power House also utilized USTs to store #6 heating oil. No information was available regarding the number, location or status of these former Power House USTs. PS&S also observed a vent pipe adjacent to the north exterior wall of Building "Q". An unused diesel powered emergency generator is located in the basement of Building "Q" in this area. NUMC personnel had no knowledge of this vent pipe or possible presence of a UST. Based on the historic use and the uncertain status of the

USTs and potential USTs, the current and former petroleum USTs are considered to be a REC.

REC-5: Greenhouse Use of Drains and Sumps

Chemical use and storage in the area of unprotected floor drains and sumps at the Greenhouse is considered to be a REC.

REC-6: Historic and Current Uses at the DCB

The DCB was constructed between 1973 and 1974. The historic and current use of the DCB as a medical complex is considered a REC due to the use and storage of large quantities of petroleum, radioactive materials, and chemicals throughout the building, including the following floors: basement, ground, 2nd, 3rd 4th, 9th 17th, and 19th.

REC-7: Historic and Current Uses at the Former Meadowbrook Hospital Buildings

The historic and current use of the Former Meadowbrook Hospital Complex is considered a REC due to the use and storage of large quantities of petroleum, radioactive materials, and chemicals throughout the buildings. Notable chemical and petroleum product use and storage was observed at Former Meadowbrook Hospital Complex including the following building floors: Building "A" Basement Floor; Building "A" 3rd Floor; Building "Q" Basement Floor; Building "Q" 2nd Floor; Building "Q" 4th Floor; Building "T" 1st Floor; Building "D" Basement Floor.

REC-8: Former Use of Adjacent Nassau County Jail Property

The historic use of the adjoining Nassau County Jail property is considered to be a REC due to the historic use of a portion of this property as a sewage treatment facility.

REC-9: Site-Wide Potential Presence of PCBs

Potentially PCB containing hydraulic machinery, electrical equipment and fluorescent light ballasts were observed across the site. Buildings with notable potential PCB containing material include: Ambulance Center, Greenhouse Building, Power House, Apartment Buildings, Activities Building, Former Laundry or "M" Building, Eye Care Building, Parking Garage, Residential Building, DCB, Former Meadowbrook Hospital Buildings, Buildings "H", "G", "K", "Z", and "J".

Although liquid-containing electrical equipment was not observed, some older electrical equipment may contain oil-based liquids, including PCB-materials. PCBs were commonly incorporated in the manufacture of fluorescent light ballasts manufactured prior to 1978. These light ballasts (observed throughout the site) are considered a REC based upon the fact that the buildings were constructed prior to 1979 and it is likely that some fluorescent light ballasts currently in place were manufactured with PCBs. Potentially PCB containing hydraulic machinery, electrical

equipment and fluorescent light ballasts observed through the site are considered to be a REC.

REC-10: Site-Wide Potential Presence of Lead Based Paint

In 1973, the Consumer Product Safety Commission established a maximum lead paint content of 0.5 percent, which was subsequently lowered in 1978 to 0.06 percent. No testing for lead was conducted as part of this Phase I ESA. However, since the buildings on-site were constructed prior to 1975, the potential use of lead based paint (LBP) does present a REC.

REC-11: Site-Wide Potential Presence of Asbestos Containing Building Materials

Since the buildings on site were constructed prior to 1978, it is likely that asbestos containing building materials (ACBM) are located within the buildings and underground steam piping. No testing for ACBM was conducted as part of this Phase I ESA, however, the potential for ACBM at the site is considered to be a REC.

2. Potential Impacts

Based on this Phase I ESA report and findings, a Phase II investigation is warranted in order to identify and confirm potential hazardous conditions and identify whether specific remediation is warranted. This report will be done prior to construction of any of the proposed developments.

3. Mitigation Measures

In order to identify specific mitigation measures, it is recommended that a Phase II ESA be undertaken in the areas identified in the Phase I report included in Appendix H and summarized above.

L. Construction Impacts

1. Potential Impacts

a. Construction Schedule/Phasing

Detailed construction scheduling for implementation of all project components has not been established at this time. NuHealth anticipates developing further details for each phase of the redevelopment based on healthcare needs, market conditions and financial considerations. Implementation of the Long Range Vision Plan is expected to occur over five phases with full build-out anticipated approximately five to seven years after project approvals are complete. An estimated build-year of 2016 has been used for the purposes of analyzing potential environmental impacts.

Construction phases are described in Chapter II, Project Description, and summarized below:

Phase One:

- Development of the new DCB cafeteria

- Construction of new Ambulatory Care Pavilion. (Staging of materials and equipment could readily be accommodated within the vacant and obsolete central portions of the campus with no measurable displacement of existing uses).
- The Long Island Adult Day Care would be constructed within "the Activities Building", to be extensively renovated.
- No significant demolition in Phase 1.

Phase Two:

- Construction of the Ambulatory Surgery Center (ASC) in the southwestern corner of the campus. (Prior to construction of the ASC, interim parking will have to be provided elsewhere on site).
- Construction of the resident tower/student union and demolition of the existing medical resident housing. (No displacement of medical residents and their families is expected other than relocation to the new housing).

Phase Three:

- Demolition of existing parking garage

Phase Four:

- Construction of the new staff/visitor parking garage (including demolition of the old structure). The new parking deck north of the Ambulatory Surgery Center will have already been complete, thereby off-setting the reduction in parking during construction of the new garage.

Phase Five:

- Construction of the Wellness Center, including the surface parking lot to the west
- Construction of the Cancer Center
- Demolition of vacant and/or obsolete buildings would be undertaken prior to construction of these facilities.

b. Construction Staging and Parking

The site is an existing hospital campus, with parking lots, open lands, buildings to remain, and buildings and structures to be demolished. Staging of construction will be designed to work within the confines of the site, and with a goal of having the least impact on the existing activities and surrounding land uses as possible over the 5 to 7 year construction period envisioned.

Parking on site will be affected during various phases of construction. The key to the management of parking during construction will be the ability to accommodate the current peak parking demand of approximately 1,950 vehicles while construction activity takes place on the major existing parking facilities, including the parking garage and the surface lots on the west side of the site.

c. Truck Routes and Truck Traffic Volumes

For construction of the phased project, truck and construction vehicles will use the surrounding roadways to gain access to the site. It will be required that all the contractor's and subcontractors' delivery vehicles to arrive at and depart from the site via the signalized site driveway (Hospital Street) on Hempstead Turnpike (NY Route 24). Deliveries from outside the locality will be directed to take I-495 to Exit 41 and to take NY Route 106 to NY Route 24 to get to the NUMC campus.

d. Construction Air Quality

Construction activities associated with the proposed project have the potential to generate air quality impacts in the vicinity of work areas. Construction activities in the project area will be temporary and impacts would tend to be localized at the site of activity. Construction activities will include building demolition/renovation and building construction. The central portion of the site contains a number of obsolete or underutilized buildings that are in need of significant renovation or replacement. Several of the existing structures are likely to be demolished. A number of the proposed structures will utilize existing building footprints.

The overall conceptual program for the site is the development of a Healthcare Village, including research and development, medical office, and health related in buildings ranging from one to four floors. Additional parking would include surface parking and the reconstruction of the five-story parking garage.

<u>Sensitive Receptors:</u>
Receptors that are considered potentially sensitive to air quality impacts from construction activities include residences, schools, hospitals, and recreational facilities. The majority of the area surrounding the campus is developed with single-family homes; with the exception of properties along Hempstead Turnpike, which are developed with a variety of non-residential uses and businesses. Sensitive receptors surrounding the project site include:

- Residential neighborhoods to the east, south and west of the site
- East Meadow High School
- Eisenhower Park/golf course located to the west of the site
- Nassau County Correctional Center located north and west of the site
- The campus itself is a sensitive use, particularly the Dynamic Care Building and the on-site housing, either in their present or proposed location(s).

<u>Ambient Air Quality Standards:</u>
National and New York State Ambient Air Quality Standards (NAAQS/NYSAAQS) have been adopted in accordance with requirements of the Clean Air Act, for several criteria air pollutants, to protect public health and

welfare allowing for an adequate margin of safety. Criteria air pollutants include sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), inhalable particulates (i.e., particulates less than 10 µm in diameter, PM_{10}), fine particulates (i.e., particulates less than 2.5 µm in diameter, $PM_{2.5}$) and lead (Pb).

The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. For NO_2, ozone, lead and PM, the primary and secondary standards are the same. There is no secondary standard for CO.

USEPA promulgated additional NAAQS which became effective September 16, 1997. A new 8-hour standard for ozone replaced the previous 1-hour standard. In addition to retaining the PM_{10} standards, USEPA adopted 24-hour and annual standards for $PM_{2.5}$. Similar standards have been adopted as the ambient air quality standards for New York State.

The NAAQS and the NYSAAQS for these criteria pollutants are shown in Table III-28. The NYSAAQS also include hydrocarbons (HC) and total suspended particulates (TSP), which are no longer federal criteria air pollutants. The NAAQS for carbon monoxide are not to be exceeded more than once per calendar year, while NYSAAQS are not to be exceeded more than once in any 12-month period.

Background Ambient Air Monitoring Data:

The NYSDEC Bureau of Air Quality Surveillance operates ambient air quality monitoring stations established throughout the state to assess air quality in relation to the NAAQS. The regional air quality can be characterized from a review of data collected at NYSDEC air quality monitoring stations in and around Nassau County in the general vicinity of the NUMC site. The NYSDEC air quality monitoring stations used to assess existing air quality were chosen primarily based on proximity to NUMC and secondarily based on the highest ambient air quality concentration. Available representative ambient air quality data from NYSDEC air monitoring stations in the site vicinity are summarized and compared to Ambient Air Quality Standards in Table III-29.

Table III-28
National and New York Ambient Air Quality Standards

Pollutant	Standard	Averaging Period	New York (a)		National (b)	
			(ug/m^3)	(ppm)	(ug/m^3)	(ppm)
Sulfur Dioxide	Primary	24-hour average	365	0.14	365	0.14
		12-month arith. Mean	80	0.03	80	0.03
	Secondary	3-hour average	1300	0.5	1300	0.5
		24-hour average	-	-	-	-
		12-month arith. Mean	-	-	-	-
Total Suspended (TSP) (c)	Primary	24-hour average	250	-	-	-
		12-month geom. Mean	75	-	-	-
	Secondary	24-hour average	-	-	-	-
		12-month geom. Mean	-	-	-	-
Inhalable Particulates (PM10)	Primary and Secondary	24-hour average (d)	-	-	150	-
		Annual arith. Mean (e)	-	-	50	-
Fine Particulates (PM2.5)	Primary and Secondary	24-hour average (f)	-	-	35	-
		Annual arith. Mean (g)	-	-	15	-
Carbon Monoxide	Primary and Secondary (h)	1-hour average	40,000	35	40,000	35
		8-hour average	10,000	9	10,000	9
Ozone (i)	Primary	Max. Daily 1 Hr. Avg. (j)	235	0.12	235	0.12
	Secondary	1-hour average	235	0.12	235	0.12
	Primary and Secondary	8-hour average	157	0.08	157	0.08
Nitrogen Dioxide	Primary and Secondary	12-month arith. Mean	100	0.05	100	0.053
Lead	Primary and Secondary	Quarterly mean	-	-	1.5	-

Notes:

(a) New York State (NYS) short-term standards are not to be exceeded more than once in any 12-month period.

(b) National short-term standards are not to be exceeded more than once in a calendar year, except as otherwise noted.

(c) As of 1991, the TSP National Standard was replaced by PM_{10} standards, which emphasizes the smaller particles (< 10 µm).

(d) Not to be exceeded more than once per year on average over 3 years.

(e) As of December 17, 2006, the PM_{10} Annual National Standard was rescinded.

(f) As of December 17, 2006, the $PM_{2.5}$ 24-hour National Standard was revised from 65 to 35 µg/m³. To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³.

(g) To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

(h) National secondary standards for carbon monoxide have been rescinded.

(i) Former NYS 1-hr Standard for ozone of 0.08 ppm was not officially revised via regulatory process to coincide with the Federal standard of 0.12 ppm which is currently being applied by NYS to determine compliance status.

(j) Maximum daily 1-hr average to be exceeded no more than once per year averaged over 3 consecutive years. The expected number of days above the standards must be less than or equal to one.

Source: 40 CFR Part 50 and NYSDEC Chapter III Part 257

Table III-29
Existing Ambient Air Quality Concentrations
Nassau County, New York

Contaminant (Concentration Units)	Averaging Period	AAQS (a) (ppm)	Background Concentration							Location
			Maximum				98th Percentile	Number of Exceedances (b)	Year (d)	
			1st	2nd	3rd	4th				
Sulfur Dioxide (ppm)	3-hour (c)	0.5	0.046	0.045	-	-	-	0	2006	Eisenhower Park, 740 Merrick Ave East Meadow, NY Nassau County
			0.039	0.039	-	-	-	0	2007	
			0.046	0.046	-	-	-	0	2008	
	24-hour (c)	0.14	0.021	0.020	-	-	-	0	2006	
			0.017	0.016	-	-	-	0	2007	
			0.017	0.017	-	-	-	0	2008	
	Annual	0.03	0.004	-	-	-	-	0	2006	
			0.004	-	-	-	-	0	2007	
			0.005	-	-	-	-	0	2008	
Nitrogen Dioxide (ppm)	Annual	0.05	0.018	-	-	-	-	0	2006	Eisenhower Park, 740 Merrick Ave East Meadow, NY Nassau County
			0.018	-	-	-	-	0	2007	
			0.017	-	-	-	-	0	2008	
Ozone (ppm)	1-hour	0.12	0.139	0.129	0.128	0.115	-	3	2006	East Farmingdale Water Dist. Gazza Blvd. East Farmingdale, NY Suffolk County
			0.106	0.106	0.105	0.104	-	0	2007	
			0.113	0.110	0.096	0.095	-	0	2008	
	8-hour	0.08	0.107	0.096	0.093	0.090	-	5	2006	
			0.095	0.092	0.091	0.084	-	13	2007	
			0.094	0.093	0.085	0.083	-	8	2008	
Carbon Monoxide (ppm)	1-hour (c)	35	2.5	2.3	-	-	-	0	2006	14439 Fravett Road New York, NY Queens County
			3.4	3.1	-	-	-	0	2007	
			8.6	2.3	-	-	-	0	2008	
	8-hour (c)	9	1.8	1.6	-	-	-	0	2006	
			2.8	2.4	-	-	-	0	2007	
			1.7	1.6	-	-	-	0	2008	

Table III-29 (continued)
Existing Ambient Air Quality Concentrations
Nassau County, New York

Contaminant (Concentration Units)	Averaging Period	AAQS (a)	Background Concentration							Location
			Maximum				98th Percentile	Number of Exceedances (b)	Year (d)	
			1st	2nd	3rd	4th				
PM-10 ($\mu g/m^3$)	24-hour	150	58	37	36	34	-	0	2004	Eisenhower Park, 740 Merrick Ave East Meadow, NY Nassau County
			46	35	32	30	-	0	2005	
			29	16	15	15	-	0	2006	
	Annual	50	18	-	-	-	-	0	2004	
			15	-	-	-	-	0	2005	
			13	-	-	-	-	0	2006	
PM2.5 ($\mu g/m^3$)	24-hour (c)(e)	35	40.8	33.1	31.9	29.2	31.9	0	2006	East Farmingdale Water Dist. Gazza Blvd. East Farmingdale, NY Suffolk County
			32.4	31.1	28.8	27.5	28.8	0	2007	
			29.4	26.8	24.5	24.0	26.8	0	2008	
	Annual (f)	15	10.39	-	-	-	-	0	2006	
			10.90	-	-	-	-	0	2007	
			10.93	-	-	-	-	0	2008	
Lead ($\mu g/m^3$)	3-month	1.5	0.02	0.02	0.02	0.01	-	0	2006	424 Leonard St New York, NY Kings County (Brooklyn)
			0.02	0.02	0.01	0.01	-	0	2007	
			0.01	0.01	0.01	-	-	0	2008	

Notes:

(a) AAQS presented are the most stringent of the New York or National AAQS for each contaminant and respective averaging periods.

(b) Denotes an exceedance of National AAQS. (NOTE - 0.12 ppm standard is not exceeded unless hourly ozone concentrations > 0.124 ppm.)

(c) Not to be exceeded more than once per year (NAAQS).

(d) AirData reports are produced from a monthly extract of EPA's air pollution database, AQS. Data for this report were extracted on January 10, 2009. They represent the best information available to EPA from state agencies on that date.

(e) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 $\mu g/m^3$ (NAAQS).

Source: USEPA AIRS Database, Monitor Values Report - Criteria Air Pollutants (URL: http://www.epa.gov/air/data/monvals.html)

Attainment Status/Nonattainment Areas:
The Clean Air Act requires that each state identify areas where NAAQS for criteria pollutants are exceeded, and designate these areas as "nonattainment" areas. Areas that meet the NAAQS for a criteria pollutant are designated as being in "attainment" of the air quality standards for that pollutant. Some nonattainment areas are subcategorized based on the severity of air contaminant concentrations (marginal, moderate, serious, severe, and extreme for ozone; and moderate and serious for PM_{10} and CO). Areas that were formerly designated nonattainment but have subsequently demonstrated attainment of the NAAQS may be designated as "maintenance" areas.

Nassau County has been designated as nonattainment for fine particulates ($PM_{2.5}$) and moderate nonattainment for ozone (8-hour standard). It is designated as a maintenance area for CO, and attainment for all other criteria pollutants.

Building Demolition/Renovation – Asbestos and Lead:
It is likely that asbestos containing materials (ACM) are located within buildings constructed prior to 1978. For buildings constructed prior to 1975, it is likely that the building contains lead based paint (LBP). (See Chapter III.K, Environmental Site Assessment). Sampling for ACM and LBP and removal of these materials must be performed in accordance with applicable federal, state and local regulations, including but not limited to the following:

- USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for asbestos demolition/renovation;
- Federal OSHA standards;
- New York State Department of Health regulations (10 NYCRR Part 73) for certification and training of individual employees who work in the asbestos abatement industry;
- New York State Department of Labor regulations (12 NYCRR Part 56), which cover removal, encapsulation, or enclosure of asbestos containing material;
- New York State Department of Health regulations (10 NYCRR Subpart 67-2) for remediation of lead paint hazards in areas where children may be exposed to lead; and
- NYSDEC Division of Solid & Hazardous Materials regulations for waste transportation and disposal (6 NYCRR Parts 364 and 360).

Construction equipment:
Construction equipment for the project will likely include mobile cranes, jackhammers, trucks, concrete cutters, bulldozers, graders, asphalt pavers, rollers, generator sets, etc. Construction equipment and construction worker vehicles produce exhaust emissions of volatile organic compounds (VOC), carbon monoxide (CO) and nitrogen oxides (NOx). Diesel-powered vehicles and equipment are also a source of exhaust emissions of diesel particulate matter.

Internal combustion engines on construction equipment are subject to EPA nonroad engine emission standards, based on the engine model year, and fuel standards limiting the sulfur content of diesel fuel to 500 ppm by weight.

Fugitive Dust Emissions:
The proposed construction activities will likely generate fugitive dust during building demolition, site clearing, grading and construction, which may temporarily increase localized levels of total suspended particulates. The project may include mechanical crushing of rock. In any minerals processing activity, dust is generated when ore is crushed, transferred, or stockpiled. Crushers reduce coarse material to a desired size. The crushing process uses mechanical energy and rubbing to fracture the rock.

The impact of fugitive dust emissions on local air quality will vary depending on the type and level of construction activity and meteorological conditions (i.e., precipitation, wind speed and temperature). Although fugitive dust emissions have the potential to create locally high levels of total suspended particulates, impacts can be minimized by the implementation of mitigation measures (described in the following section).

With the use of the recommended mitigation measures, air quality impacts from construction are not expected to be significant. Any impacts would be short-term and localized, and therefore are not expected to significantly impact measured ambient air quality or attainment of Ambient Air Quality Standards.

e. Construction Noise

Construction activities associated with the proposed project have the potential to generate noise in the vicinity of work areas. Construction activities that will occur in the project area will be temporary and tend to be localized at the site of activity. The predominant construction activities that are anticipated for the NUMC campus are building demolition and building construction, as described previously.

Noise Standards:

The NYSDEC has published a policy and guidance document entitled *Assessing and Mitigating Noise Impacts* (October 6, 2000). This document provides guidance on when noise due to projects has the potential for adverse impacts and requires review and possible mitigation in the absence of local regulations. The NYSDEC guidance indicates that local noise ordinances or regulations are not superseded by NYSDEC guidance. The New York State Guidance Document states that an increase of 10 dBA deserves consideration of avoidance and mitigation measures in most cases. The 10 dBA threshold is an indicator of impact potential and should be viewed as a guideline subject to adjustment as appropriate for the specific circumstances encountered.

When certain criteria are satisfied, the need for undertaking a noise impact analysis at any level is eliminated. One of these criteria states "The applicant's operational plan incorporates appropriate best management practices (BMP) for noise control for all facets of the operation." Any residual noise that is present following BMP implementation should be considered an inherent component of the activity that has been found acceptable in consideration of the zoning designation of the site.

An analysis may be required for various phases of the construction and operation of the project to assure that adverse noise effects do not occur at any phase. Use of generic tables in the first level of analysis can help determine whether or not noise will be an issue and whether actual measurements should be made to confirm noise levels.

The Town of Hempstead has a noise ordinance or "Noise Code" identified as "Chapter 144: Unreasonable Noise" of the Code of the Town of Hempstead[3]. Construction noise is addressed in Section §144-3 Specific Prohibitions. This section states that "*Any conduct contributing toward participation in any of the following activities hereby are declared to be offenses against this chapter: G. The erection, including excavating, demolition, alteration or repair, of any building other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, except in a case of urgent necessity in the interest of public safety, and then only with a permit from the Department of Buildings, which permit may be renewed for a period of three (3) days or less while the emergency continues*." Therefore, construction noise is not regulated by the Town of Hempstead during the hours of 7:00 a.m. and 6:00 p.m. on weekdays.

<u>Construction Noise Impacts:</u>
Noise associated with construction activities will be generated primarily by equipment such as heavy equipment operation (i.e., bulldozers, trucks, pile driving, etc.), generators, compressors, cranes, vibratory/impact pile driving hammer, welding equipment, water pumps, trucks on-site and other construction-related vehicles and equipment. Table III-30 shows FTA Construction Noise Guidelines for reference, and Table III-31 shows typical noise levels 50 feet from the source for specific types of construction equipment.

The most widespread source of noise from construction equipment is generally due to internal combustion engines, usually diesel, which provide operating power. Engine-powered construction equipment includes earthmoving equipment that is highly mobile, handling equipment that is partly mobile and stationary equipment. Stationary equipment such as air compressors and generators generally run continuously at relatively constant power and speed, although sound levels may vary according to the work cycle (e.g., loading).

[3] Code of the Town of Hempstead, New York, v229, Updated 06-20-2009, Division 2 Use of Property, Chapter 144 Unreasonable Noise

Table III-30
FTA Construction Noise Guidelines

Land Use	One-Hour Leq	
	Day (a)	Night (b)
	(dBA)	*(dBA)*
Residential	90	80
Commercial	100	100
Industrial	100	100

Notes: (a) Daytime criteria apply to activities occurring between the hours of 7:00 AM and 10:00 PM.
(b) Nighttime criteria apply to activities occurring between the hours of 10:00 PM and 7:00 AM.
Source: Transit Noise and Vibration Impact Assessment Guidance Manual (Report No. DOT-T-95-16), Federal Transit Administration, April 1995.

Table III-31
Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level 50 feet from Source *(dBA)*
Air Compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	88

Notes: Table reproduced from FTA Table (FTA, 1995) - Table based on EPA Report, Measured from Railroad construction equipment taken during the Northeast Corridor Improvement Project and other measured data.

Sound levels associated with the driving of piles would likely be the greatest source of noise from the building construction at the project site. Pile driving is associated with the foundation construction phase, and installation of piles is fairly common for modern construction projects. Piles are used to support parking structures and many types of buildings, and also are used as retaining structures or barriers. Piles often form the backbone of structures that can serve as framework to support great weight and pressure of concrete loads. Getting the piles into the ground, as with other construction activities, cannot be done without causing some noise and vibration. These activities can raise concern with regard to the potential for off-site noise and vibration impacts to neighbors. Pile driving is, however, a necessary construction activity.

Other potential project related noise during project construction would be associated with travel to and from the site by the construction workforce, transport of construction equipment, and deliveries of construction materials. These noises would be of a temporary duration, relatively intermittent, and are not anticipated to be significant relative to existing noise in the vicinity of the actual construction site and actual construction activities.

Specific phases of construction are anticipated to include ground clearing, excavation, foundation (with and without pile driving), building erection and finishing. Noise typically associated with these phases of construction is included in Table III-32**.**

Table III-32
Estimated Outdoor Construction Noise Levels (dBA)

Construction Phase/Activity	Typical Average Outdoor Noise Levels at Construction Site Boundaries (a)	Estimated Outdoor Construction Noise Levels at Distances from Site Boundary (b,c)							
		100 ft	200 ft	300 ft	400 ft	500 ft	600 ft	1000 ft	2000 ft
	(dBA)	*(dBA)*	*(dBA)*	*(dBA)*	*(dBA)*	*(dBA)*	*(dBA)*	*(dBA)*	*(dBA)*
Ground Clearing	84	78	72	69	66	64.5	63	58.5	52.5
Excavation	89	83	77	74	71	69.5	68	63.5	57.5
Pile Driving	101	95	89	86	83	81.5	80	75.5	69.5
Foundation	77	71	65	62	59	57.5	56	51.5	45.5
Erection	84	78	72	69	66	64.5	63	58.5	52.5
Finishing	89	83	77	74	71	69.5	68	63.5	57.5

Notes:
(a) Source: US EPA "Noise from Construction Equipment", 1971
(b) Estimated from (a) and approximate distance from site (Greenberg, et al. 1979)
(c) Projected sound levels at the Site boundary will vary with the type and location of the construction activity on the Site. Because construction activities would be carried out at various locations and because these activities change as work progresses, the construction site would have both spatial and temporal noise dimensions. Noise levels at the various receptors will depend on the work activity, the proximity of the work activity (relative location on site/distance to receptor), and extraneous sources (i.e., sirens, buses, and other background sources).

Construction related sound levels will decrease with increasing distance from the construction site. Projected sound levels at the site boundary will vary with the type and location of the construction activity on the site. Because construction activities would be carried out at various locations across the campus and because these activities change as work progresses, the construction site would have both spatial and temporal noise dimensions. Noise levels at the various receptors (i.e., neighboring residences) will depend on the work activity, the proximity of the work activity (relative location on site/distance to receptor), and extraneous sources (i.e., sirens, buses, and other background sources).

Construction activities would be required to adhere to Federal, State, and local noise regulations and restrictions. Construction noise would be limited by the Town of Hempstead local ordinance and by NYSDEC regulations and will be limited to the daytime hours in compliance with applicable codes and regulations (i.e., local municipal code).

Construction activities for the project would be expected to result in a temporary increase of existing sound levels and may have the potential to create nuisance conditions at some nearby sensitive receptors.

Areas or receptors that are considered potentially sensitive to noise include

residences, schools, hospitals, and recreational facilities (U.S. EPA 1974). Sensitive receptors surrounding the project site include residential neighborhoods to the east, south and west, East Meadow High School and the Eisenhower Park/Golf Course to the west, Nassau County Correctional Center to the north and the Dynamic Care Building (DCB Building), a hospital, located on the site itself.

Construction activities may occur within 100 feet of neighboring residences and within 200 feet of the East Meadow High School. Table III-32 presents noise levels associated with specific phases of construction at specific distances from the site boundary. Noise levels at residences adjacent to construction activity may experience sound-levels on the order of 70 to 85 dBA. The East Meadow High School may experience noise levels on the order of 65 to 80 dBA. Noise levels of this magnitude may be disturbing to nearby residents and school children.

The existing main hospital building (DCB) may be directly adjacent to some of the construction activities and experience noise levels on the order of 80 to 90 dBA. This DCB will be occupied during construction activities and may experience significant environmental noise impacts. Sensitive receptors (residences, school and hospital) adjacent to pile driving activities may experience even greater noise levels than noted above.

2. Mitigation Measures

a. Truck Routes, Truck Traffic Volumes and Parking

In order to mitigate for the project's construction-related traffic impacts, the following measures are recommended:

As part of the construction contracts for the project, the contractor(s) and all subcontractors shall require all delivery vehicles to arrive at and depart from the site via the signalized site driveway (Hospital Street) on Hempstead Turnpike (NY Route 24). Deliveries from outside the locality will be directed to take I-495 to Exit 41 and to take NY Route 106 to NY Route 24 to get to the campus.

The construction employee work schedule is to be prepared so that the work day does not start at the same time that classes start at the East Meadow High School and that the work day does not finish at the same time that classes finish at the high school.

Adequate construction staging and construction parking must be provided on-site. No construction staging or construction parking is to take place on the surrounding street system, including the idling/waiting of trucks, such as concrete trucks to deliver materials. Based on a review of aerial photographs of the site and of the existing parking demand surveys, parking for approximately 150 vehicles can be accommodated at the north end of the site

and there are considerable open areas which could be used for construction staging.

Key to the management of parking during construction will be the ability to accommodate the current peak parking demand of approximately 1,950 vehicles while construction activity takes place on the major existing parking facilities, including the parking garage and the surface lots on the west side of the site. If necessary, the contractor(s) shall secure an off-site satellite parking facility, requiring construction employees to park there, and shall provide a shuttle to ferry employees between the work site and the construction employee parking lot.

It is, therefore, recommended that potential parking impacts be prevented from occurring by the preparation of a Construction Phasing and Management Plan, which will first provide for the replacement of existing parking and thereby allow construction to move about the NUMC campus in an orderly fashion, also optimizing the space available for construction parking and staging. Provided that construction is phased, that the traffic mitigation measures are implemented as the project progresses and that the last phase of construction is not unusually intense or large, it is anticipated that construction traffic activity, combined with other traffic generated from the phases already built, will still be less than the total traffic anticipated to be generated by the project. Therefore, provided that all of the necessary mitigation measures are implemented on a timely basis, the impact of construction traffic will be mitigated.

b. Air Quality

The impacts of engine emissions may be minimized by the following measures:

- Utilize smaller equipment instead of large equipment where applicable (i.e., small bulldozers instead of large bulldozers);
- Maintain engines in accordance with manufacturers' recommendations; and
- Avoid unnecessary idling.

Proper design, selection, and operation of equipment can reduce dust emissions from building demolition, site clearing, grading and construction. Although fugitive dust emissions have the potential to create locally high levels of total suspended particulates during construction, impacts can be minimized by the implementation of the following measures:

- Use of tarps over open-body trucks transporting materials to/from and within the site;
- Use of temporary vegetative cover such as annual grasses on soil stockpiles and disturbed areas awaiting additional construction;
- If applicable, implementation of specific dust emission control measures to mitigate the potential for generation of dust emissions from the rock crusher

discharge and feeder. Such measures include enclosures and rubber curtains to minimize air entrainment and dust emission;
- Application of water or other dust suppressant to on-site dirt roads during construction to mitigate dust;
- Wet cleaning of paved truck routes during construction to mitigate dust; and
- Limiting vehicle speeds.

The project activities should include dust control measures to be specified in a Soil Erosion and Sediment Control Plan to reduce the potential for suspension of dust in the air.

In addition to these measures, on-site burning of construction wastes is prohibited.

With the use of the recommended mitigation measures, air quality impacts from construction are not expected to be significant. Any impacts would be short-term and localized, and therefore are not expected to significantly impact measured ambient air quality or attainment of Ambient Air Quality Standards.

c. Noise

Adverse noise effects can be avoided or reduced at the point of generation thereby diminishing the effects of the noise at the point of reception. The use of alternative construction or operational methods, proper equipment maintenance, selection of alternative equipment, use of physical barriers, siting of activities, use of setbacks, and established hours of construction or operation, are among the techniques that can successfully avoid or reduce adverse noise effects.

It is recommended that a noise management/mitigation plan be prepared to address construction-related noise impacts. The noise management/mitigation plan should include a more detailed discussion of proposed construction activities, construction schedule and anticipated impacts for each phase of the campus development, and identify which of the nearby sensitive receptors may be impacted. In addition, the mitigation plan should identify specific techniques that will be used to mitigate noise associated with construction activities that may impact sensitive receptors. This plan should also identify best management practices (BMP) to be implemented during construction. If it is determined that pile driving is a necessary part of the construction process, potential pile driving activity should be addressed in a noise management plan. A general discussion of construction noise mitigation and best management practices is included below.

A more detailed analysis of construction-related noise should be performed and an evaluation of mitigation measures should be included to avoid or reduce impacts to the maximum extent practicable. The following are best management practices that can be used to mitigate adverse impacts resulting from construction-related noise.

Most construction equipment today comes equipped with engine noise control devices, such as exhaust mufflers and acoustic casing enclosures, in accordance with Federal and State regulations. In addition to proper maintenance and operation of construction machinery, best management practices for controlling construction noise impacts should be employed as needed, and as may be practical. Best management practices include:

- Prepare a noise and vibration mitigation work-plan addressing construction activities, with a focus on potential pile driving impacts, if any, prior to the start of construction activities;
- Implement "quiet" pile-driving technology, where feasible, in consideration of geotechnical and structural requirements and conditions;
- Route heavily loaded truck traffic and heavy equipment movements to minimize impacts on sensitive uses (i.e., away from residential streets);
- Operate stationary noise generating construction equipment (i.e., air compressors and portable generators) along with earthmoving equipment on the construction lot as far away from noise-sensitive receptors as possible (i.e., keep equipment as far from site boundaries as possible);
- Avoid nighttime activity - operate equipment during weekday afternoons to limit any potential disturbance during the nighttime (sleep interference) periods to the extent possible;
- Combine noisy operations to occur in the same time period;
- Conduct monitoring where pile driving, drilling, or blasting is being carried out, particularly if sensitive structures are within 100 feet;
- Utilize walled enclosures around especially noisy activities, or clusters of noisy equipment (i.e., compressors, generators, etc.);
- Install temporary noise barriers (where practical) to minimize noise impacts on nearby sensitive uses;
- Select demolition methods not involving impact, where possible (i.e., use of concrete cutters (where practical), instead of pavement breakers, to minimize noise associated with the removal of existing paved or concrete surfaces);
- Utilize smaller equipment instead of large equipment where applicable (i.e., small bulldozers instead of large bulldozers);
- Equip construction vehicles or equipment, fixed or mobile, with properly operating and maintained mufflers; and
- Prohibit unnecessary idling of internal combustion engines.

View of NUMC

Exterior Conditions

Traffic/Access

Front Door/Hempstead Turnpike

Pedestrian Connections

Medical Resident Housing

Open Space

Relationship to Neighborhood

Parking Adjacent to Residential

Parking

Exhibit III-1

EXISTING SITE PHOTOGRAPHS

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Davis Brody Bond Aedas

Exhibit III-2

CAMPUS PERSPECTIVE 1

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: TRO JB

Exhibit III-3

CAMPUS PERSPECTIVE 2

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

SOURCE: TRO JB

Saccardi & Schiff, Inc. - Planning and Development Consultants

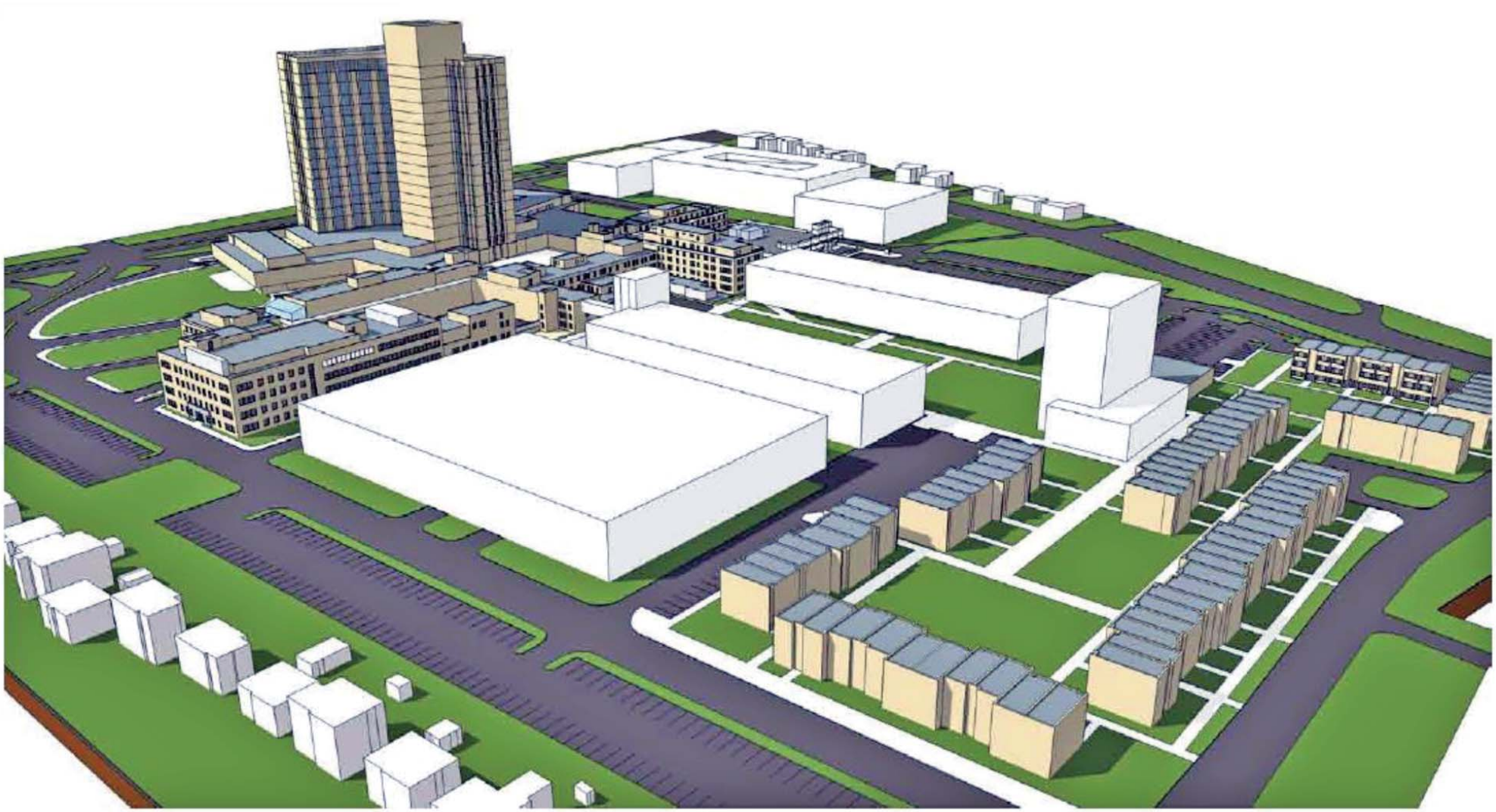


Exhibit III-4

CAMPUS PERSPECTIVE 3

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

SOURCE: TRO JB

Saccardi & Schiff, Inc. - Planning and Development Consultants

Exhibit III-5

CAMPUS PERSPECTIVE 4

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

SOURCE: TRO JB

Saccardi & Schiff, Inc. - Planning and Development Consultants

Exhibit III-6

CAMPUS PERSPECTIVE 5

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

SOURCE: TRO JB

Saccardi & Schiff, Inc. - Planning and Development Consultants

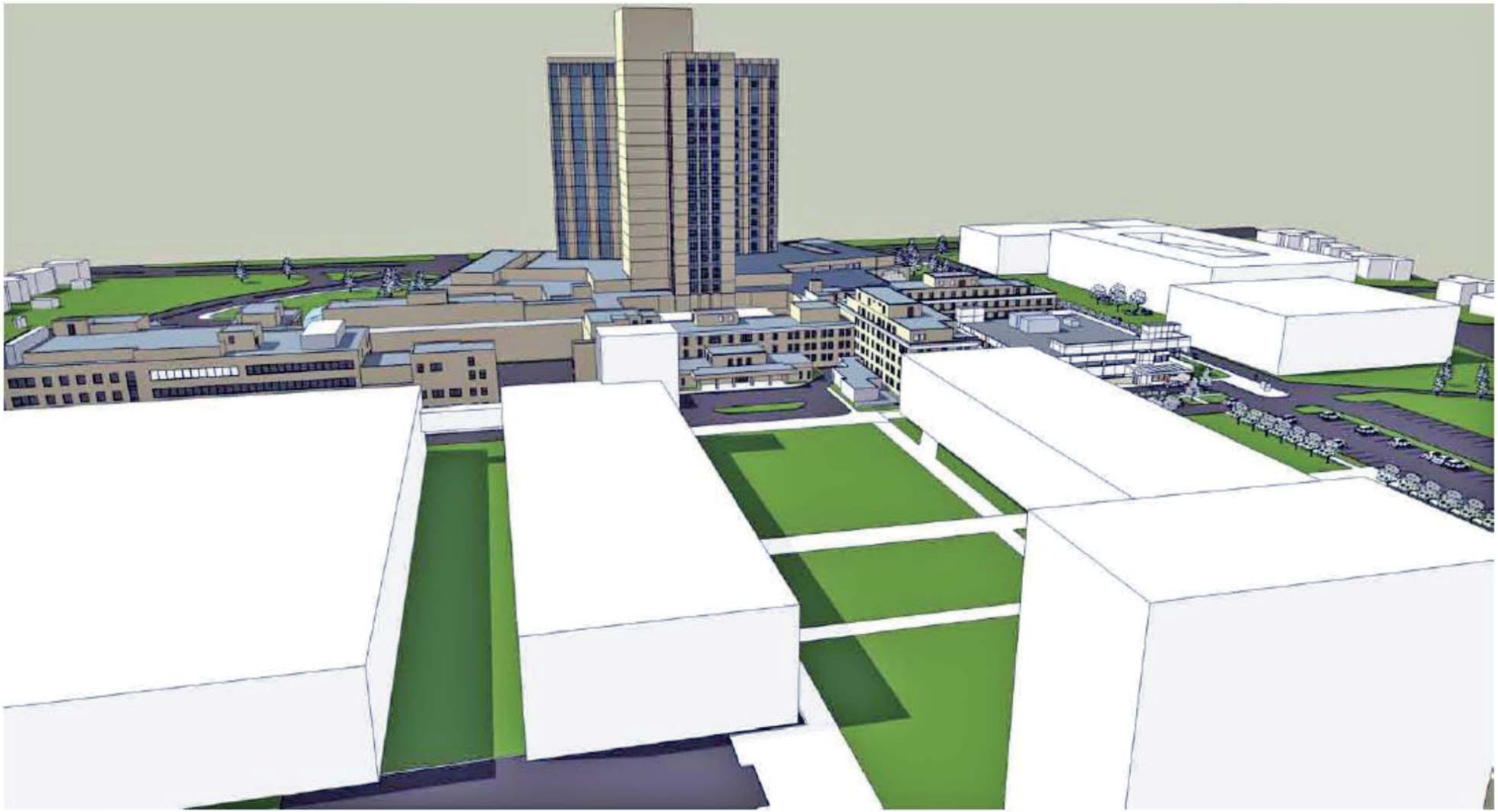


Exhibit III-7

CAMPUS PERSPECTIVE 6

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

SOURCE: TRO JB

Saccardi & Schiff, Inc. - Planning and Development Consultants

Exhibit III-8

CAMPUS PERSPECTIVE 7

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

SOURCE: TRO JB

Saccardi & Schiff, Inc. - Planning and Development Consultants

Exhibit III-9

CAMPUS PERSPECTIVE 8

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

SOURCE: TRO JB

Saccardi & Schiff, Inc. - Planning and Development Consultants

Exhibit III-10

AMBULATORY CARE PAVILION ENTRY VIEW

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: TRO JB

BASE MAP SOURCE: Geographic Information System Clearinghouse (GIS)

Exhibit III-11

SURROUNDING ROADWAYS

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

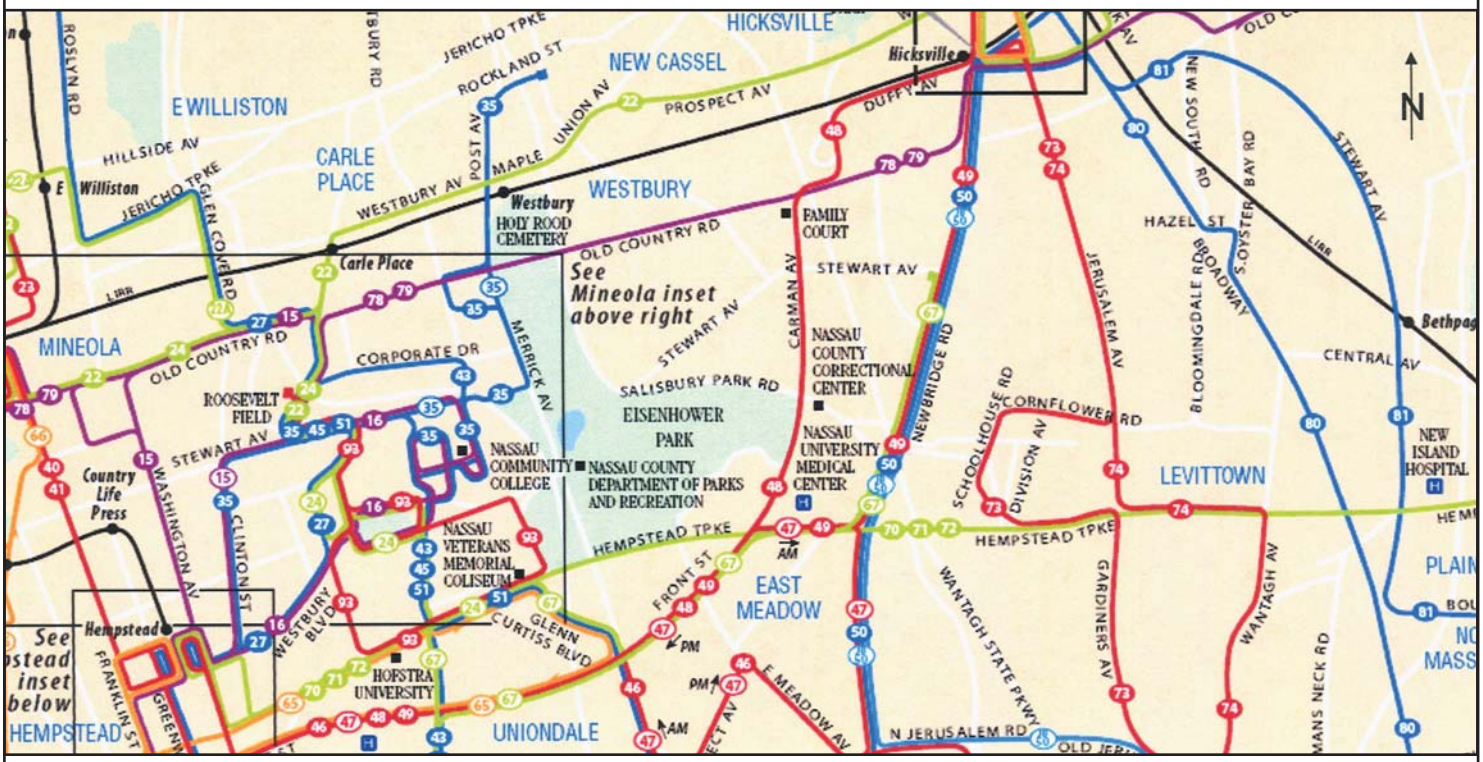


Exhibit III-12

EXISTING
MTA LONG ISLAND BUS ROUTES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

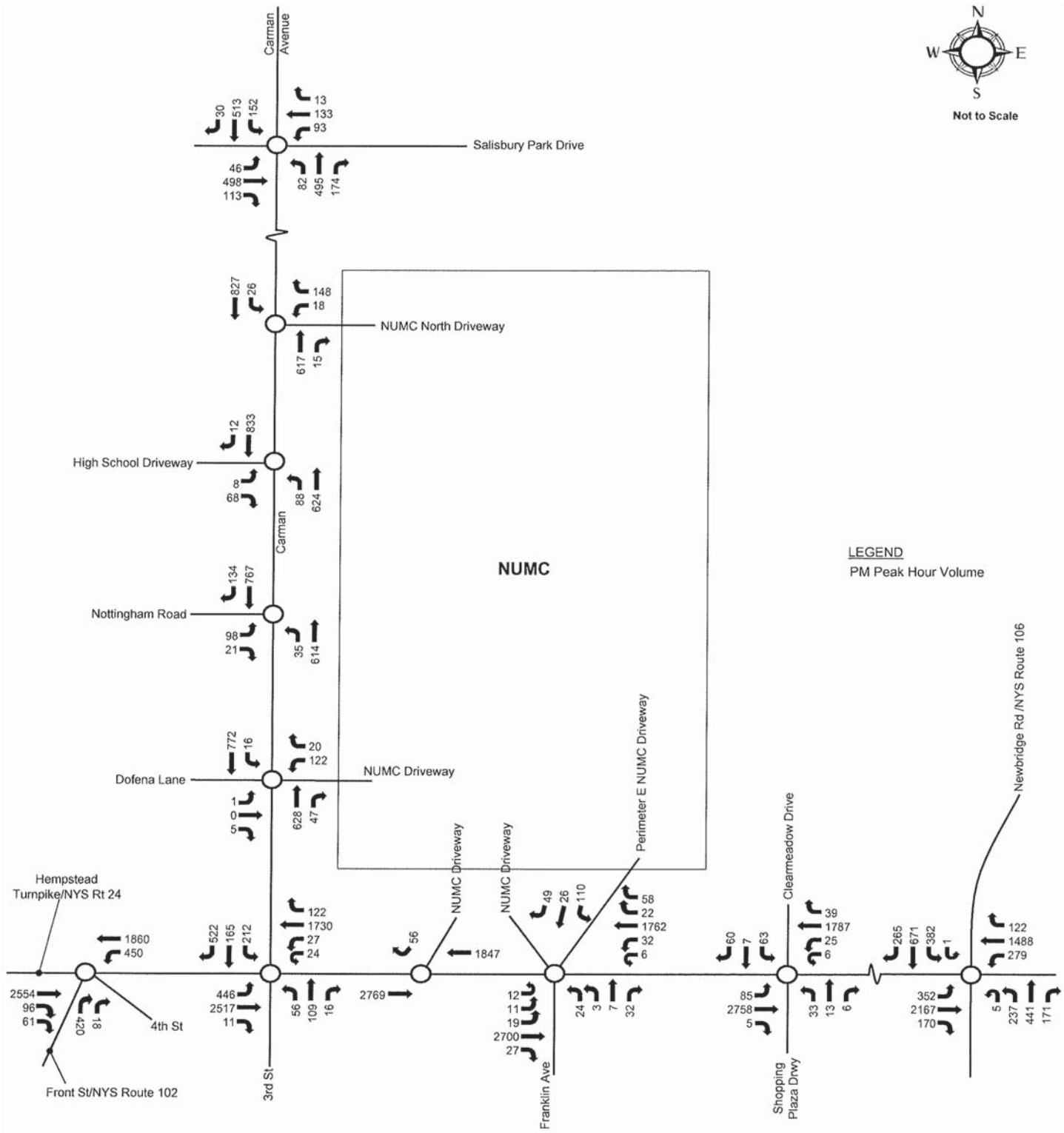


Exhibit III-13

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

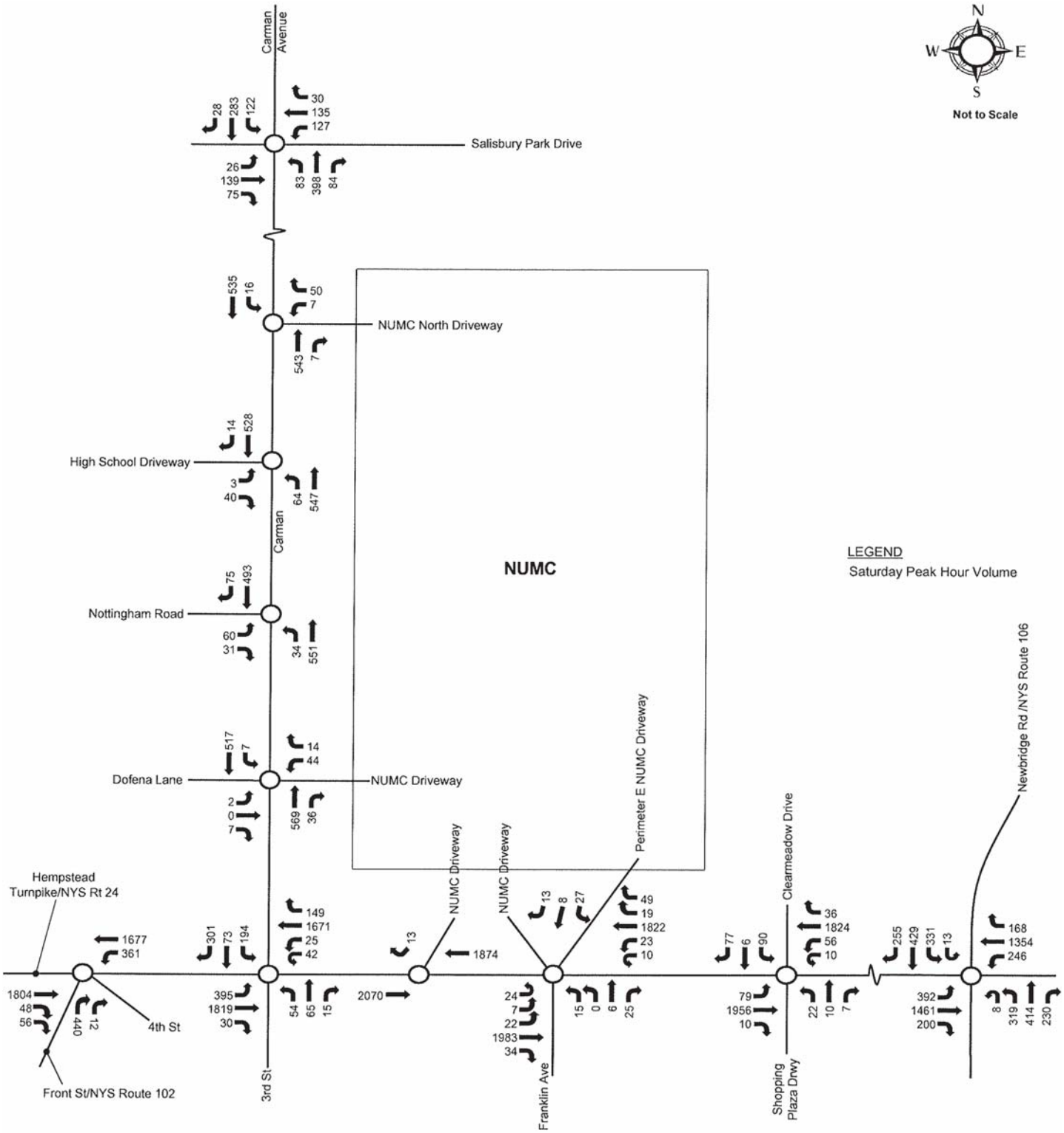


Exhibit III-14

EXISTING SATURDAY PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

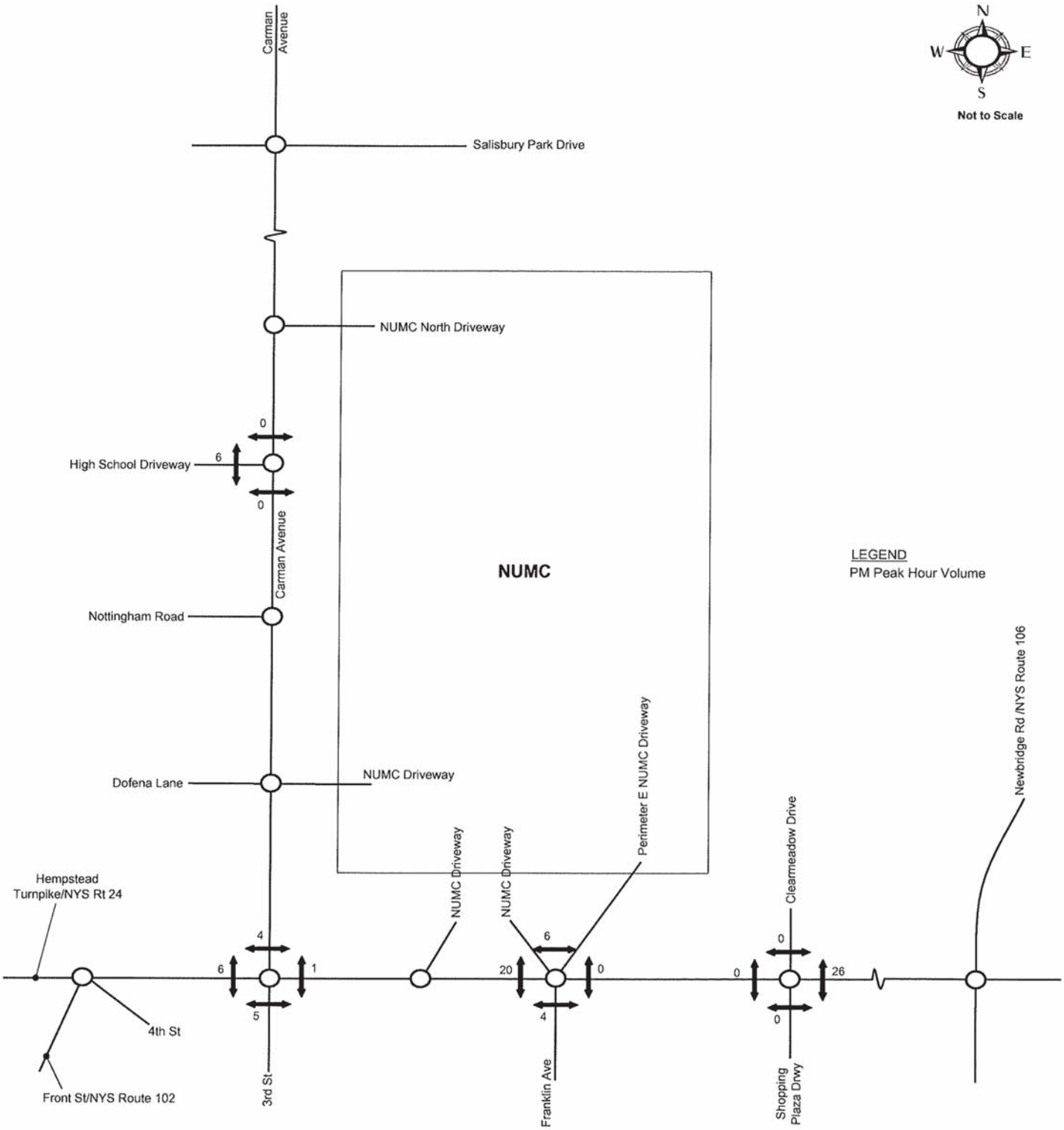


Exhibit III-15

EXISTING PM PEAK HOUR PEDESTRIAN VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

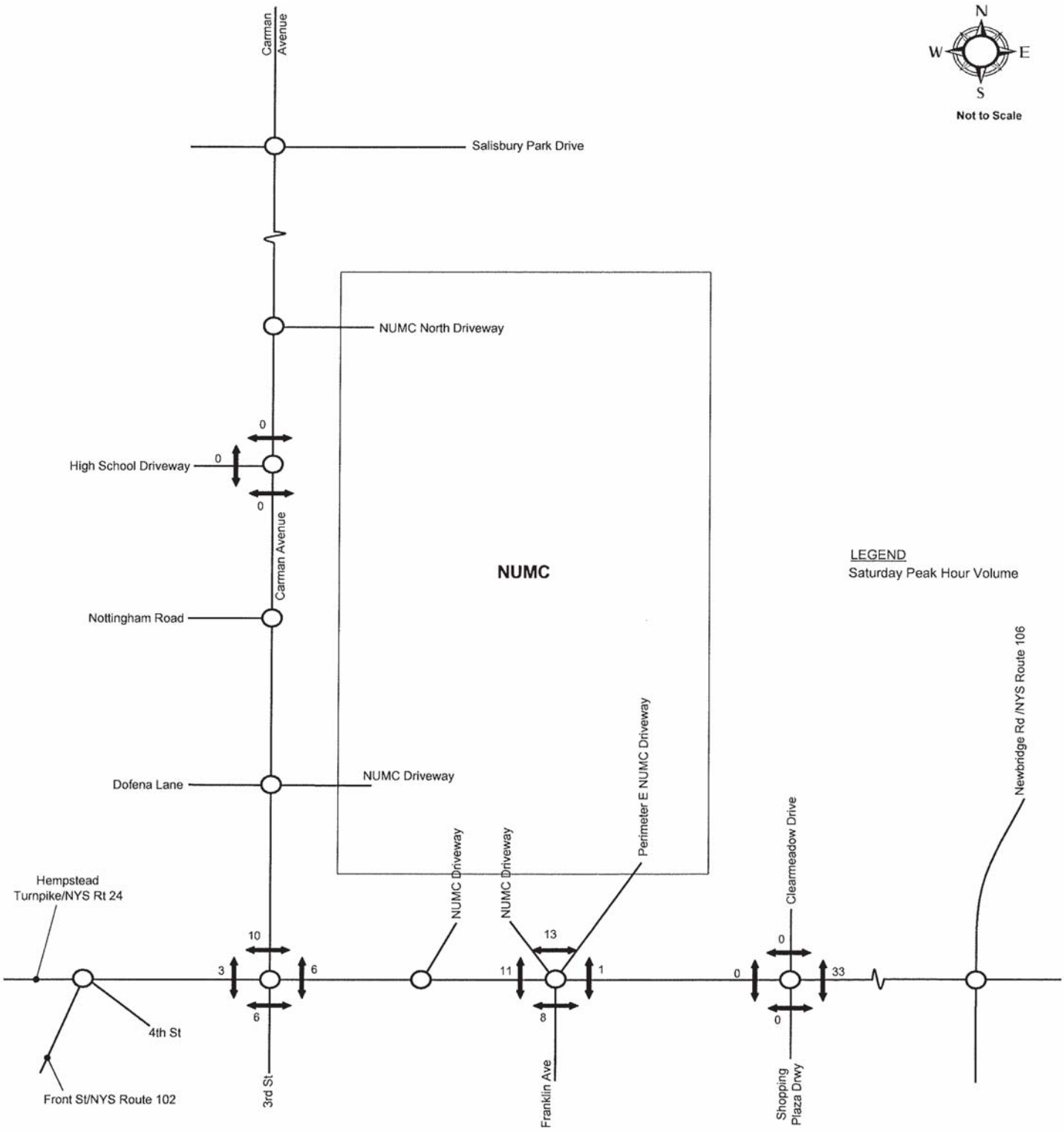


Exhibit III-16

EXISTING SATURDAY PEAK HOUR PEDESTRIAN VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

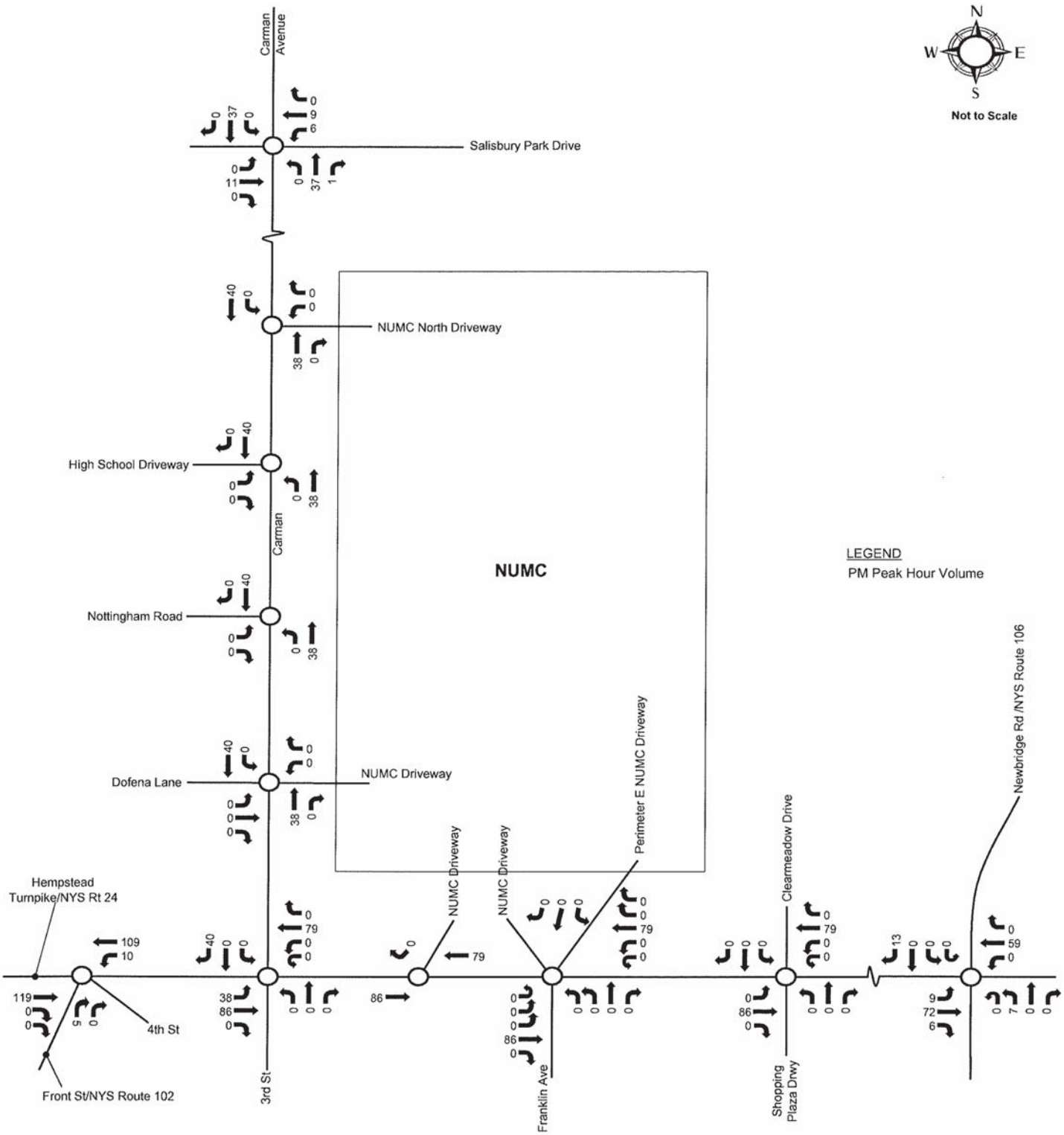


Exhibit III-17

VICINITY DEVELOPMENT PM PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

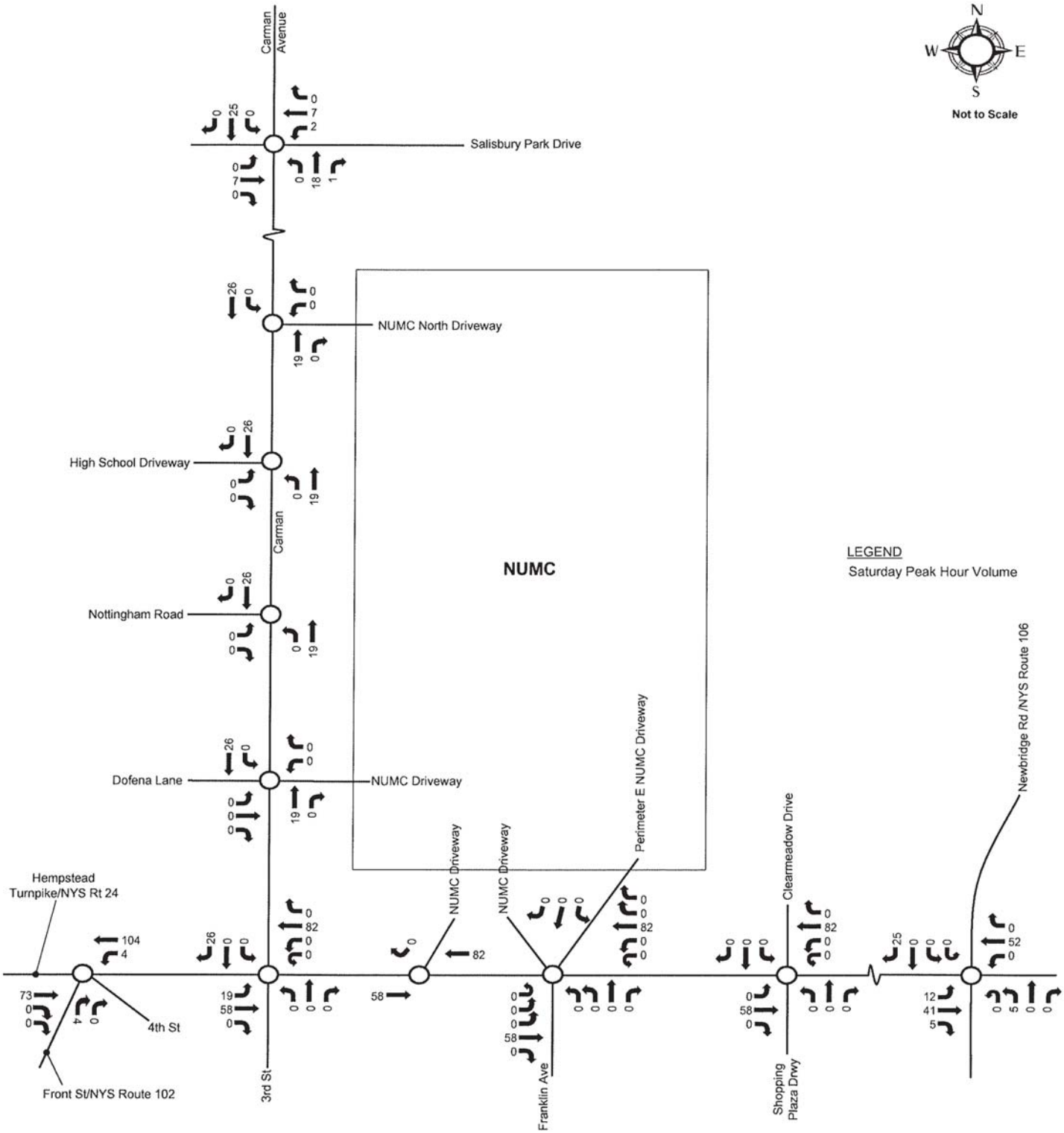


Exhibit III-18

VICINITY DEVELOPMENT SATURDAY PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

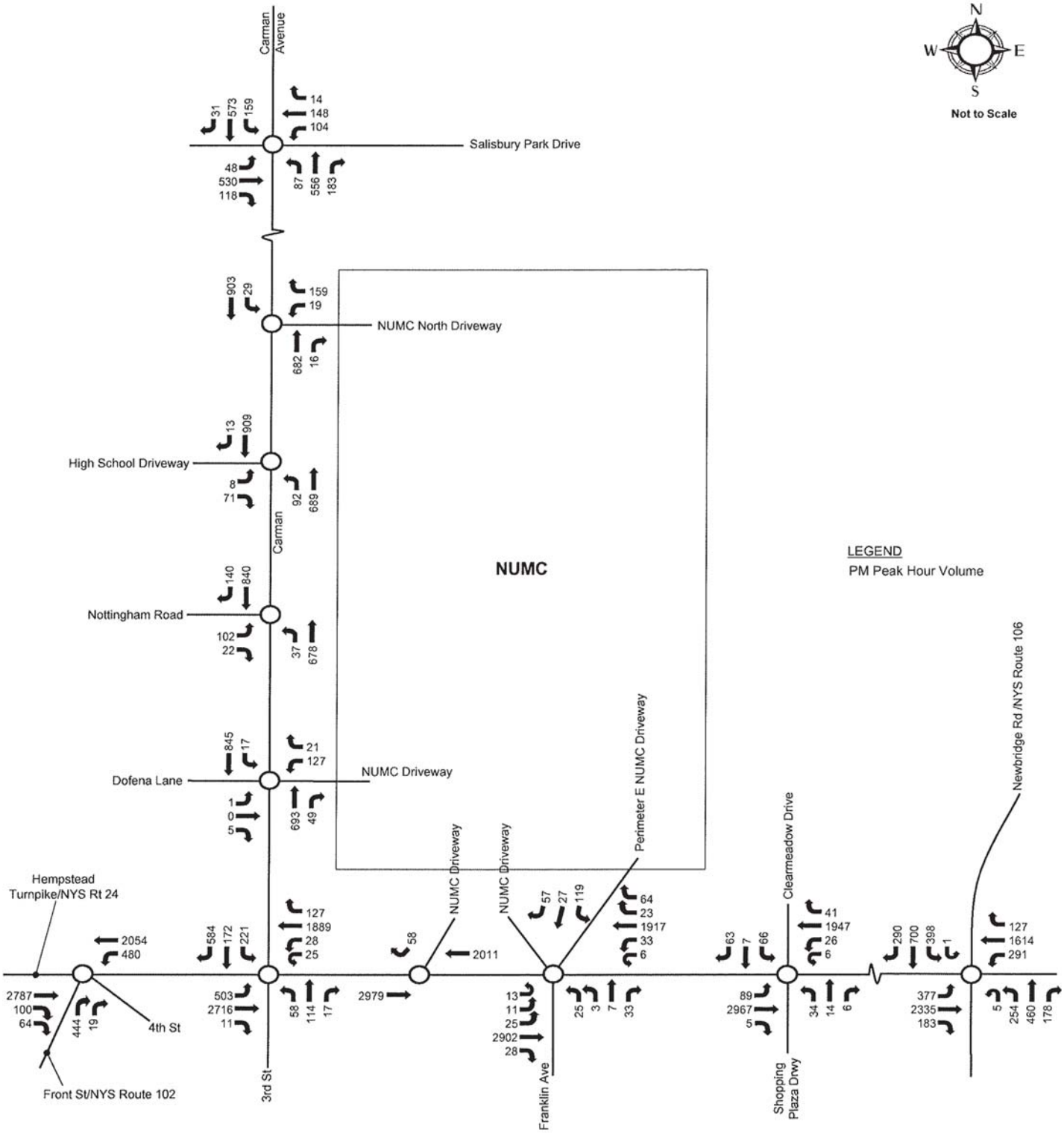


Exhibit III-19

NO-BUILD PM PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

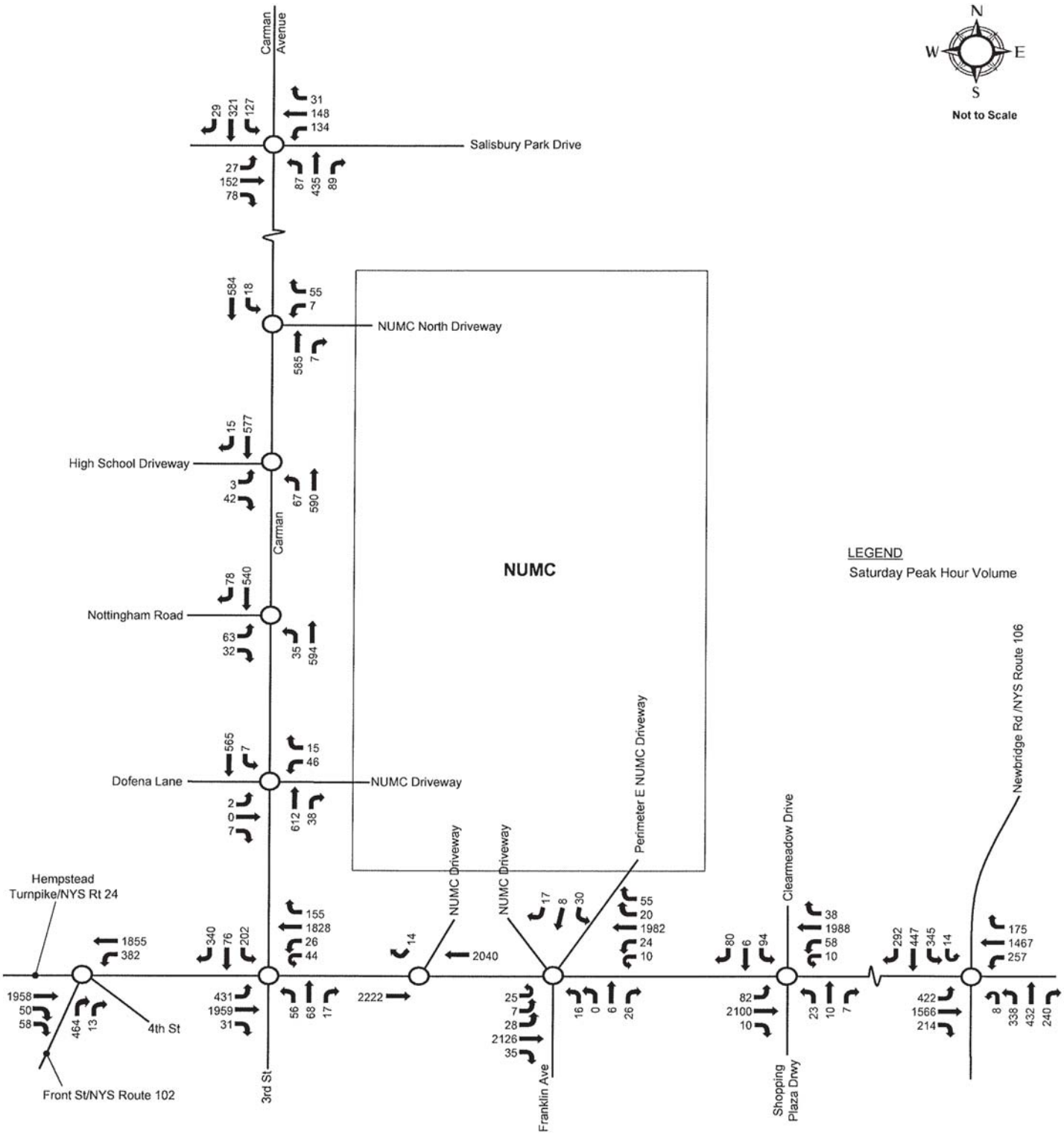


Exhibit III-20

NO-BUILD SATURDAY PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

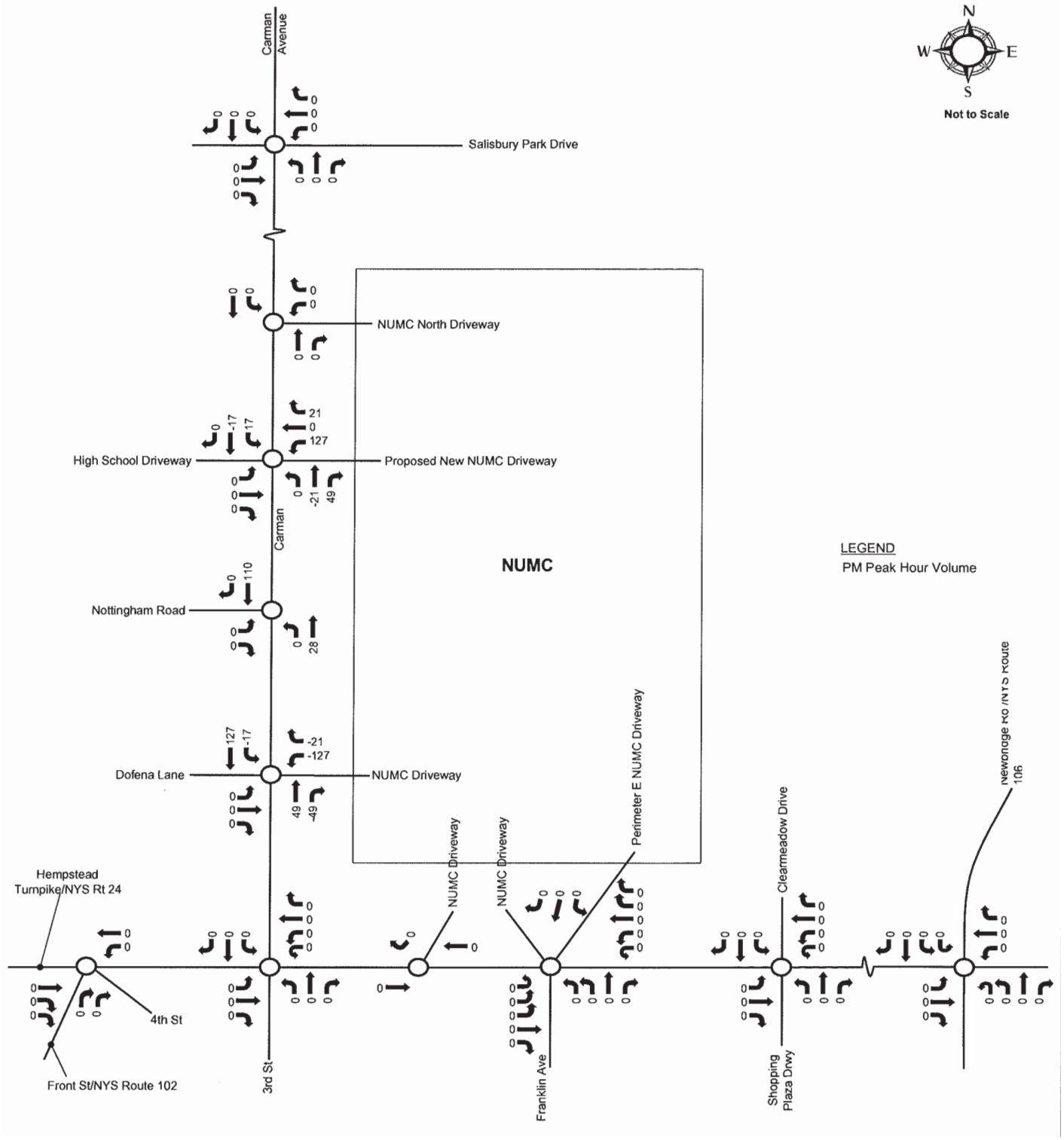


Exhibit III-21

RECONFIGURED TRAFFIC VOLUMES PM PEAK HOUR

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

SOURCE: Adler Consulting

Saccardi & Schiff, Inc. - Planning and Development Consultants

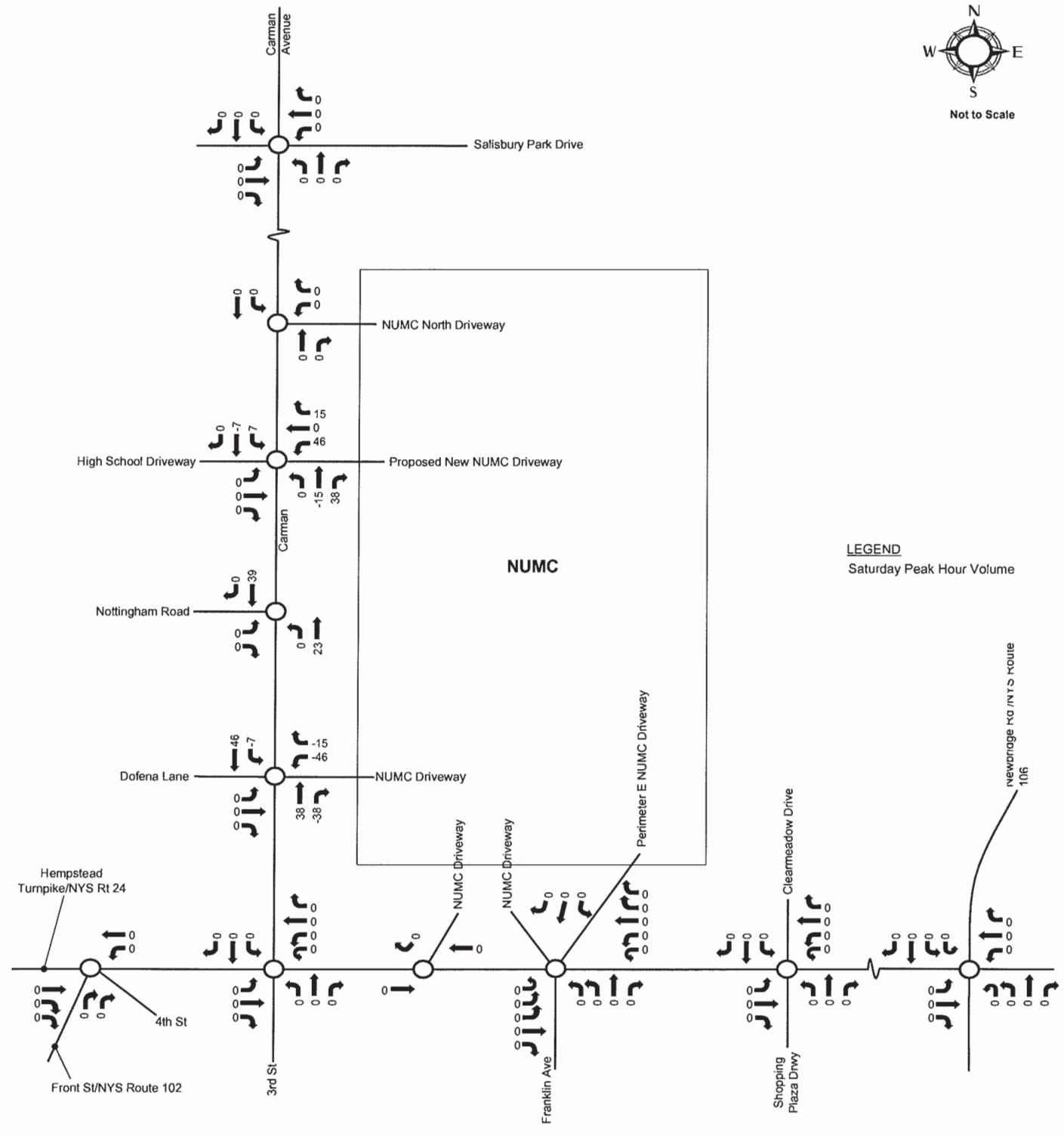


Exhibit III-22

RECONFIGURED TRAFFIC VOLUMES SATURDAY PEAK HOUR

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

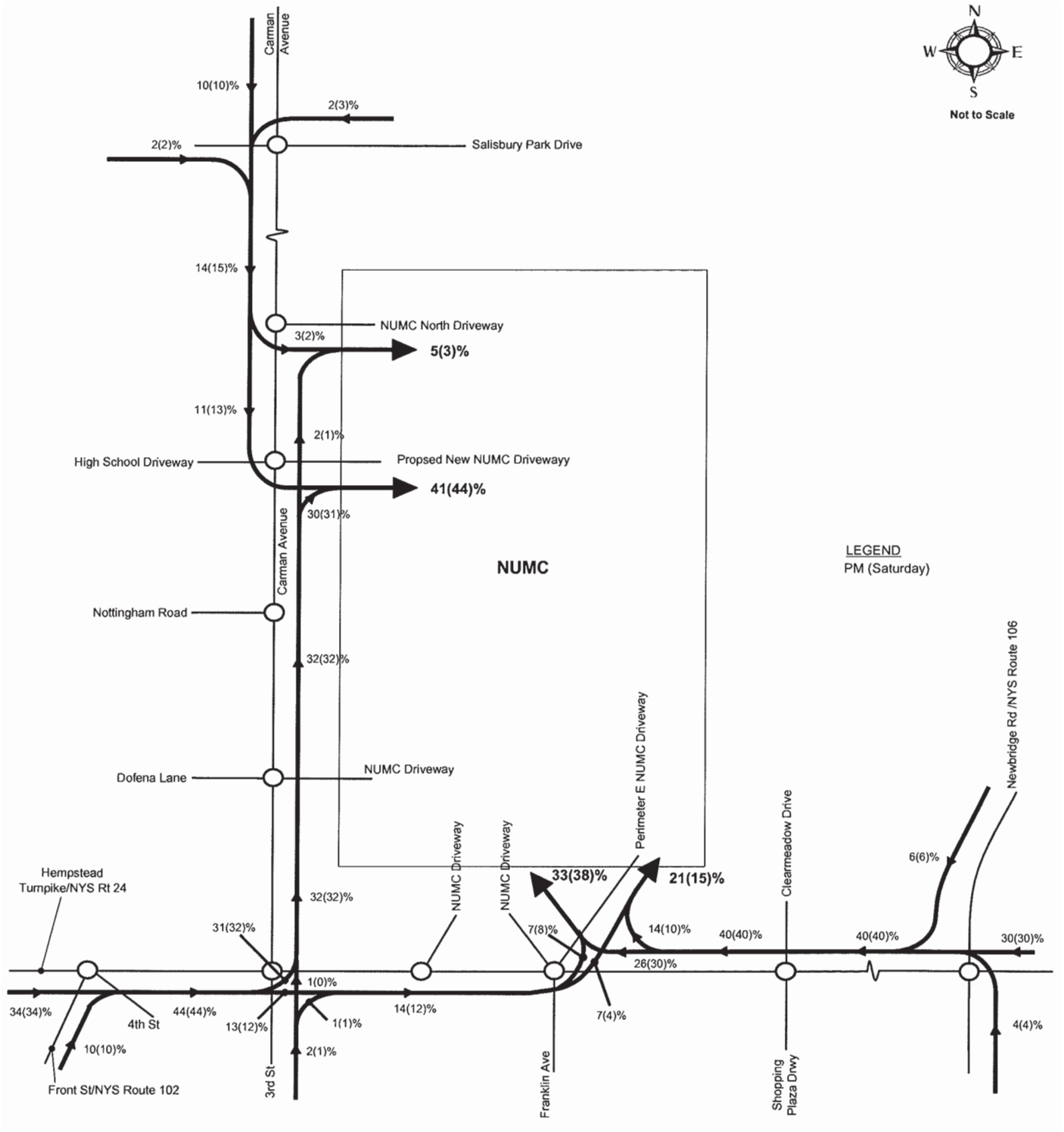


Exhibit III-23

ARRIVAL PATTERN

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

SOURCE: Adler Consulting

Saccardi & Schiff, Inc. - Planning and Development Consultants

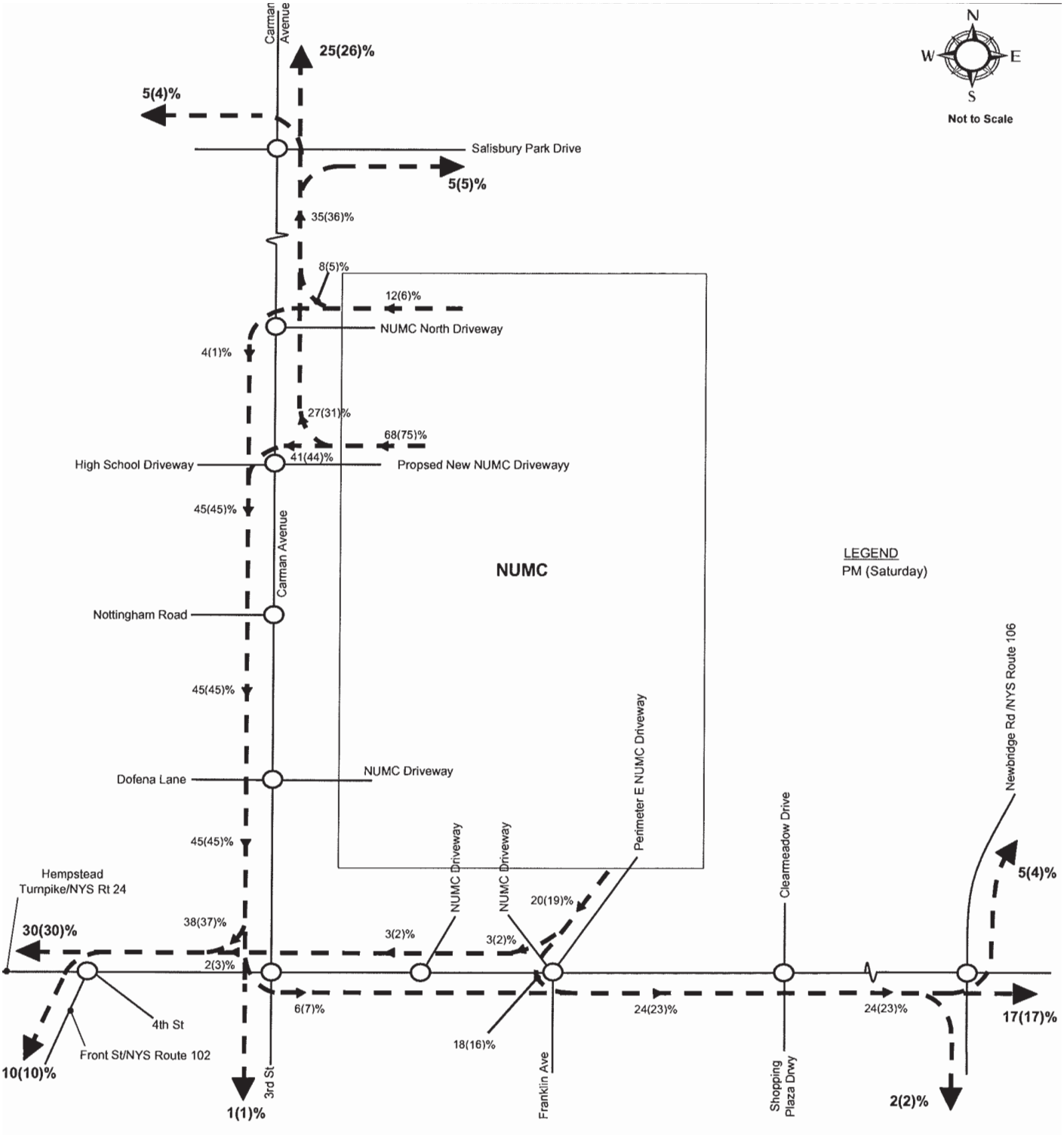


Exhibit III-24

DEPARTURE PATTERN

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

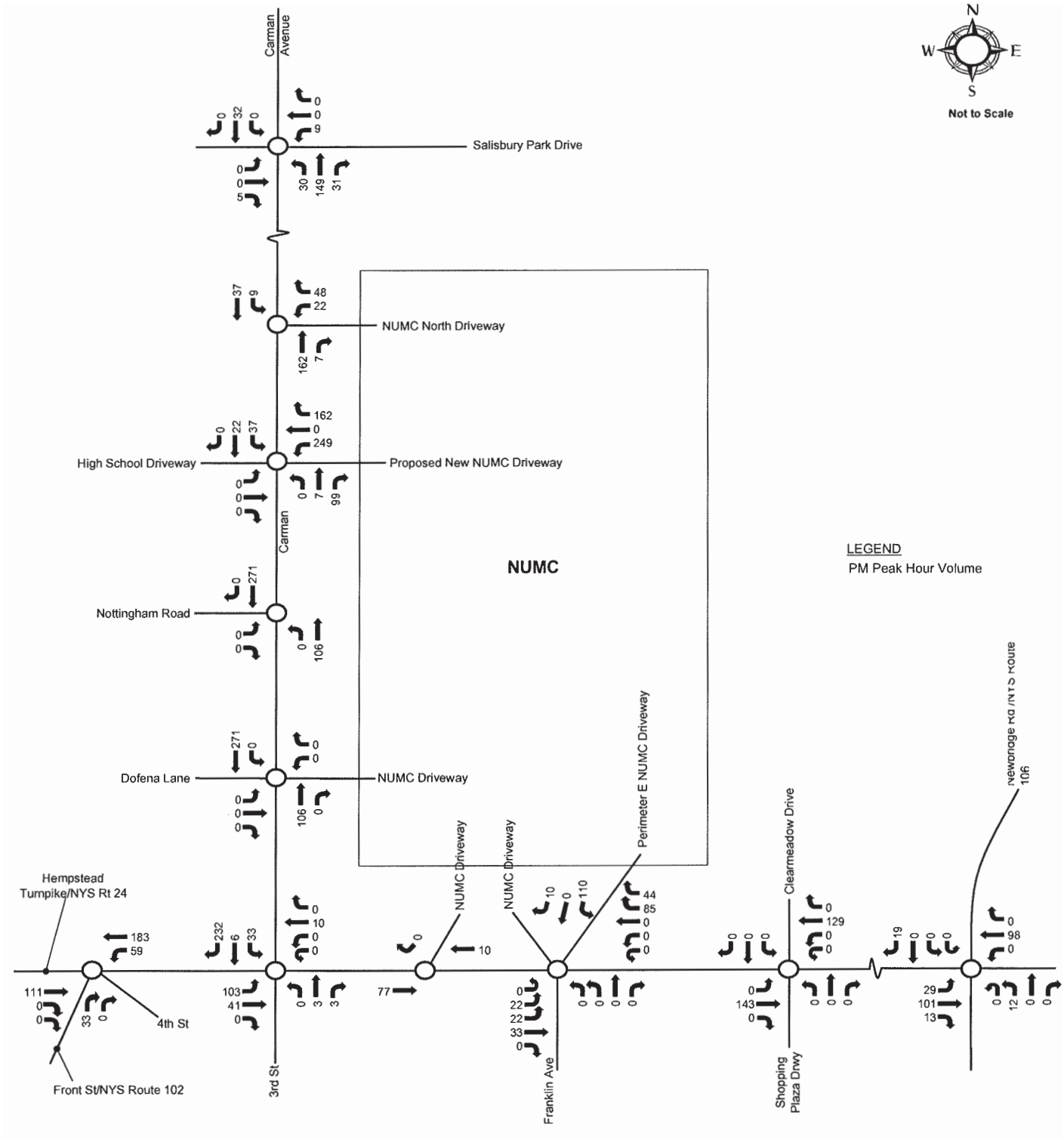


Exhibit III-25

SITE GENERATED PM PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

SOURCE: Adler Consulting

Saccardi & Schiff, Inc. - Planning and Development Consultants

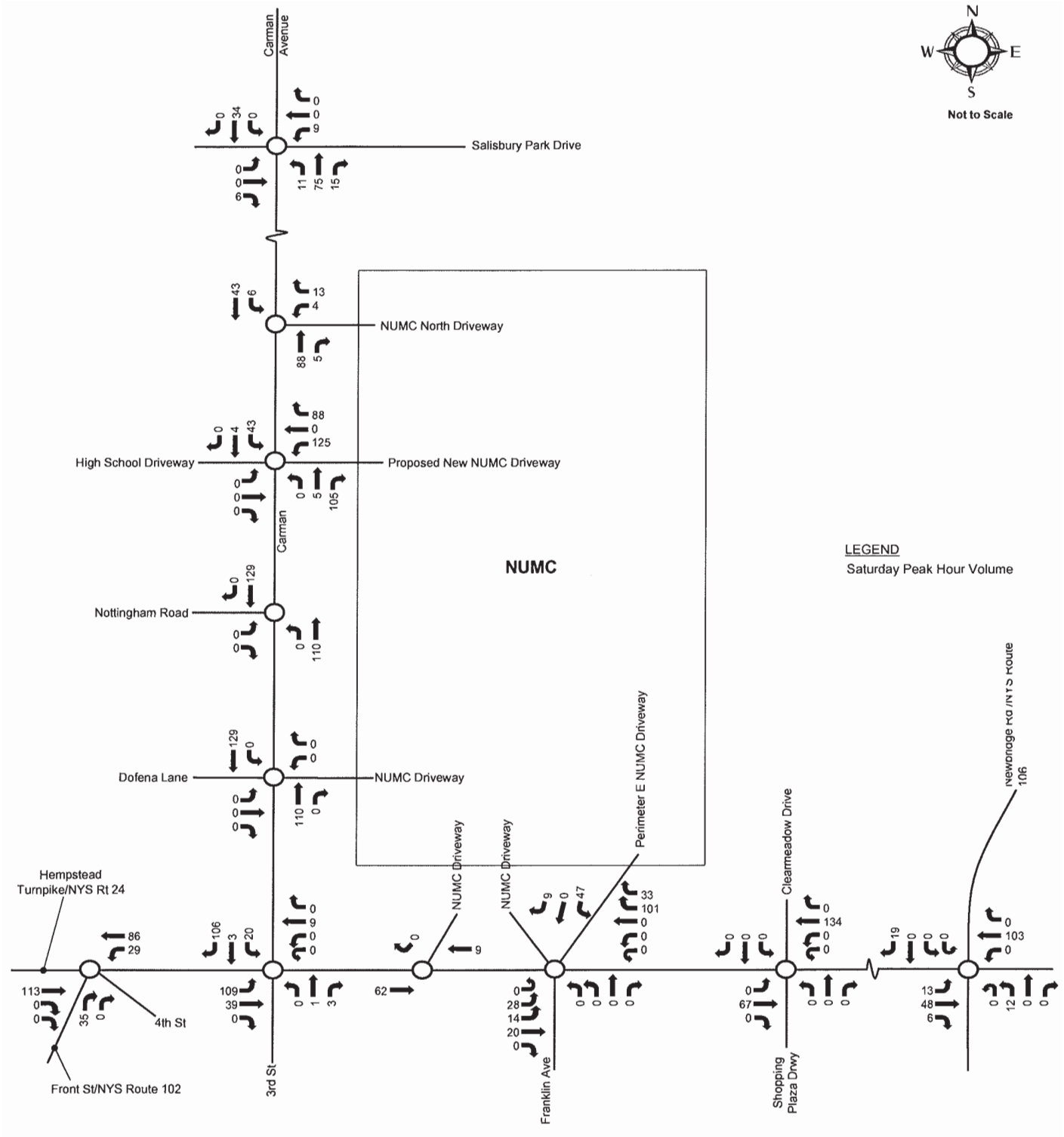


Exhibit III-26

SITE GENERATED SATURDAY PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

SOURCE: Adler Consulting

Saccardi & Schiff, Inc. - Planning and Development Consultants

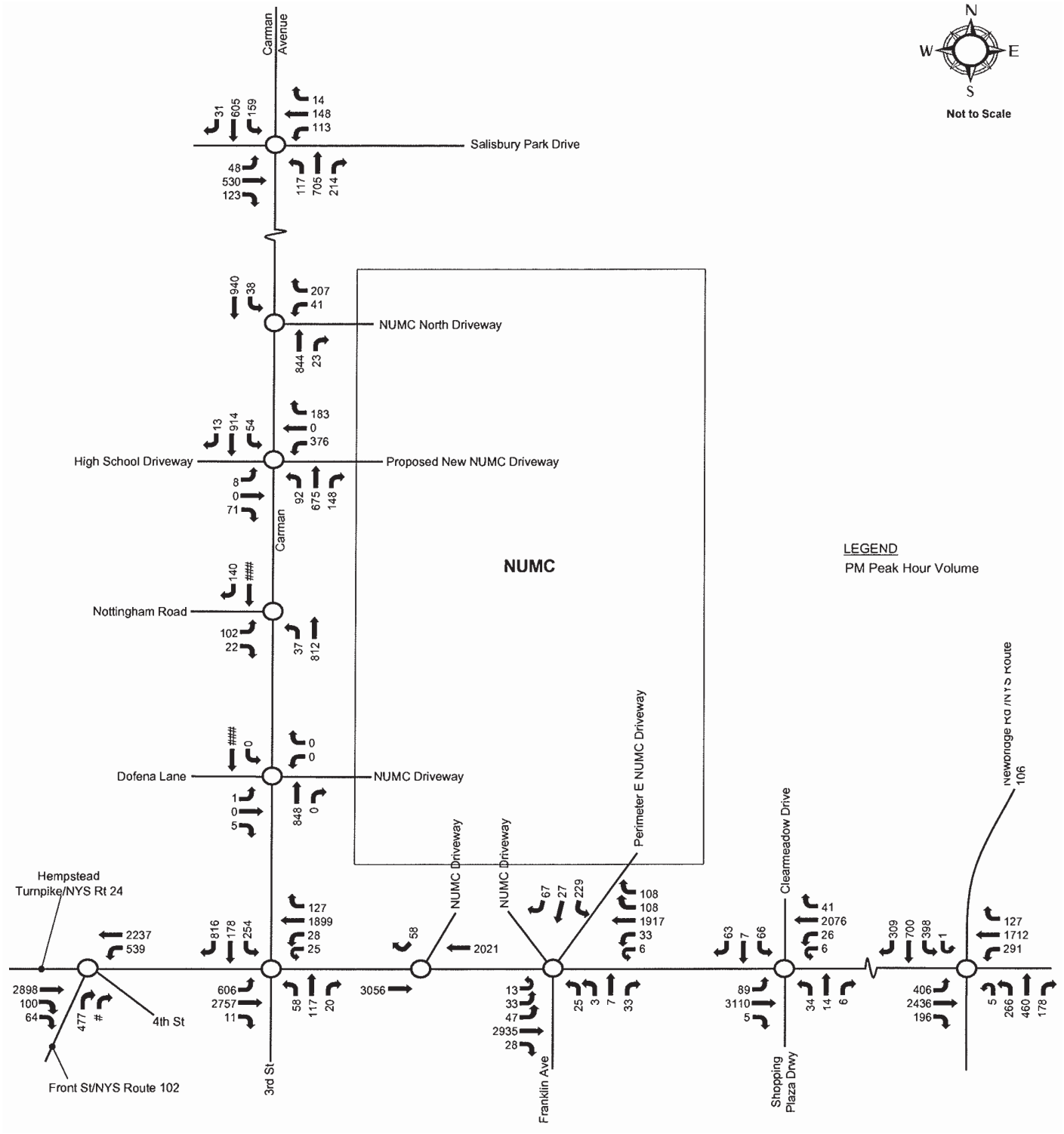


Exhibit III-27

BUILD PM PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

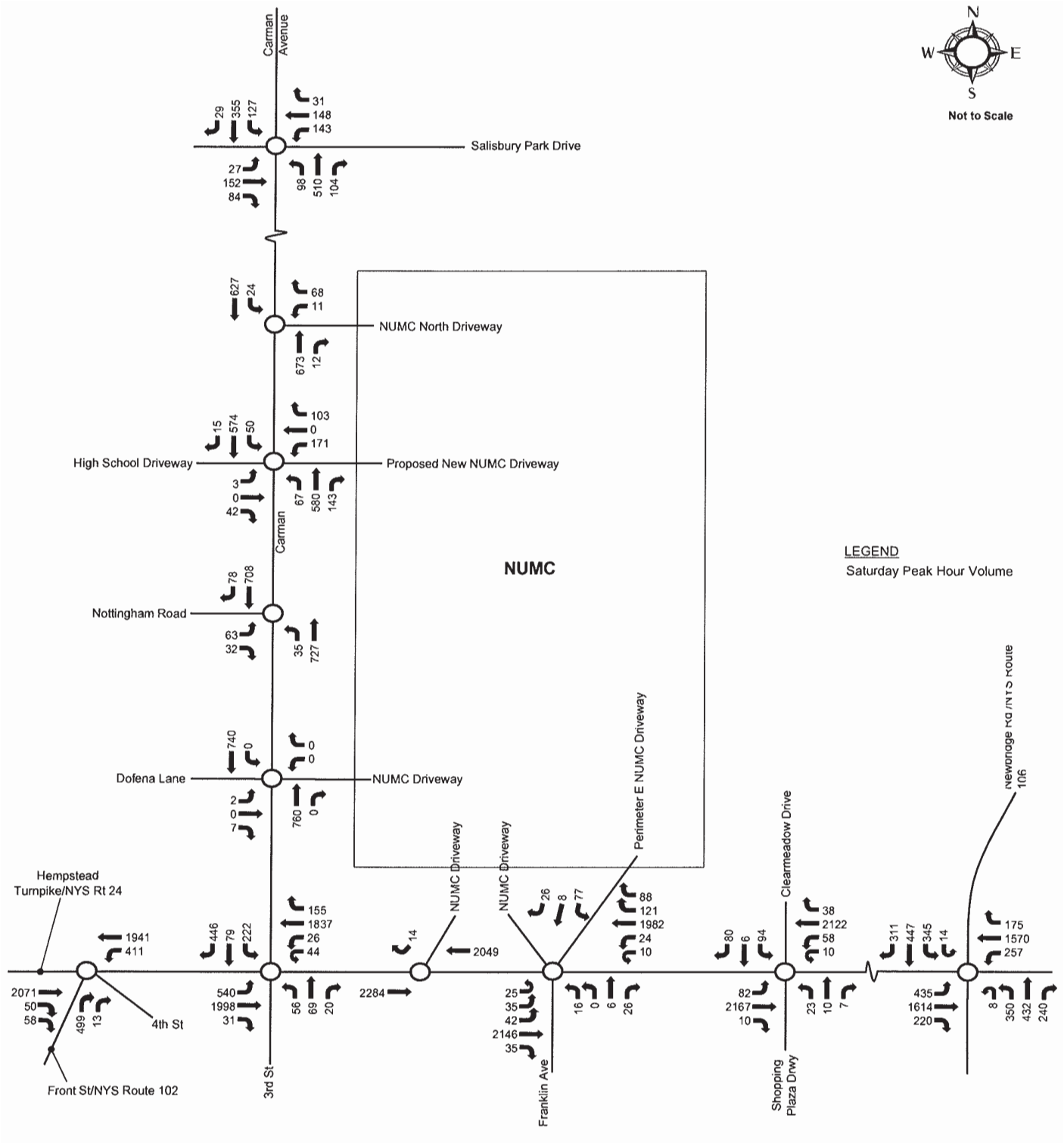


Exhibit III-28

BUILD SATURDAY PEAK HOUR TRAFFIC VOLUMES

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

SOURCE: Adler Consulting

Saccardi & Schiff, Inc. - Planning and Development Consultants

0 80'

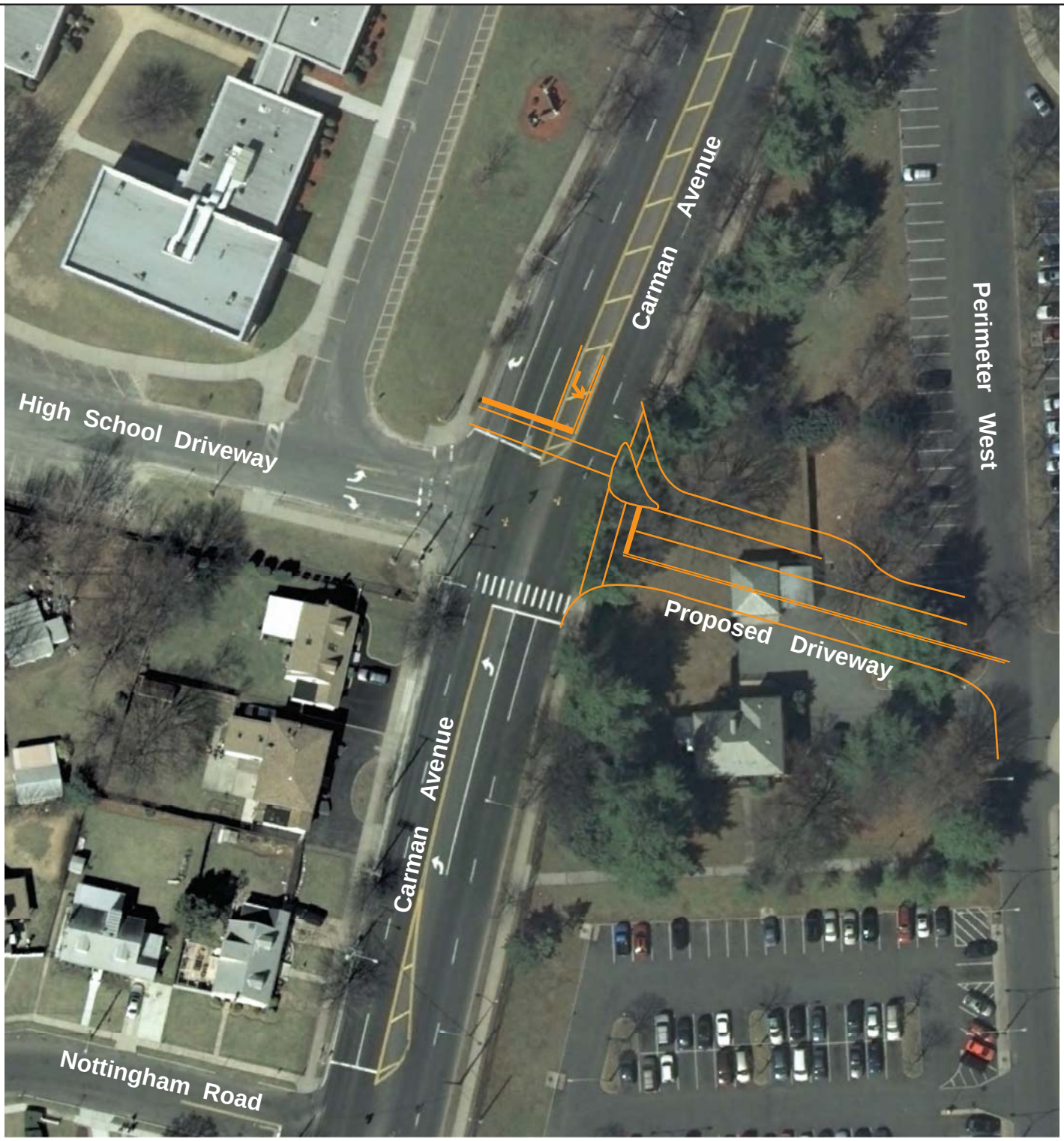
Exhibit III-29

PROPOSED MITIGATION FOR CARMAN AVENUE SOUTHBOUND APPROACH

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting



0 40'

Exhibit III-30

PROPOSED NUMC DRIVEWAY ON CARMAN AVENUE

NASSAU UNIVERSITY MEDICAL CENTER
Town of Hempstead, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

SOURCE: Adler Consulting

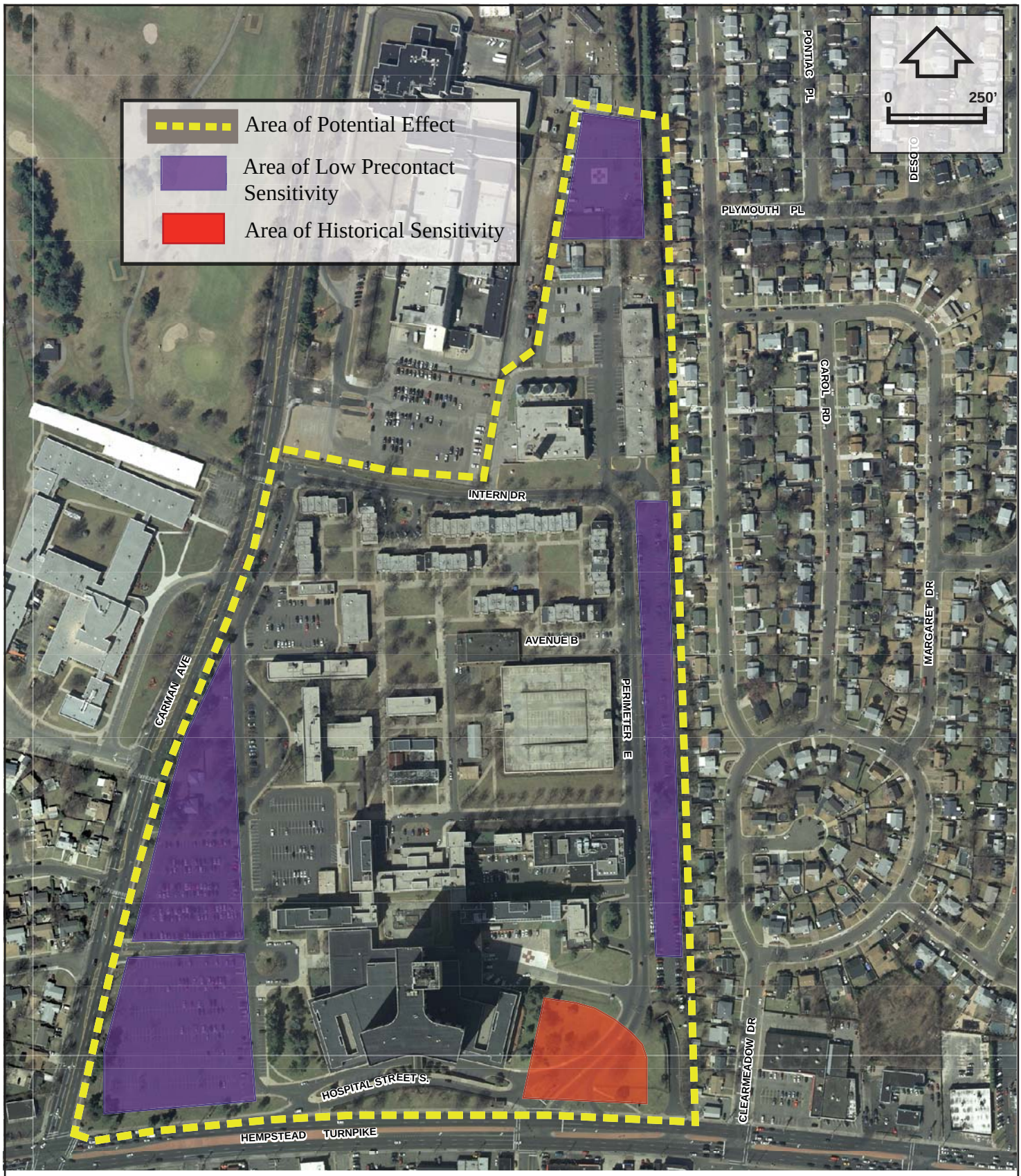


Exhibit III-31

AREAS OF ARCHAEOLOGICAL SENSITIVITY

NASSAU UNIVERSITY MEDICAL CENTER
East Meadow, New York

Saccardi & Schiff, Inc. - Planning and Development Consultants

BASE MAP SOURCE: Historical Perspectives, Inc.