P.S. 62R

Final Environmental Impact Statement

Prepared for:
New York City School Construction Authority

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A. INTRODUCTION

The New York City School Construction Authority (SCA) proposes the design and construction of a new Primary School (P.S.) facility containing approximately 444 seats for students in pre-kindergarten through fifth grades (P.S. 62R) in the Rossville/Woodrow section of Staten Island, in Community School District (CSD) 31. The project site consists of Block 7092, Lots 39 and 75 on the block bounded by Crabtree Avenue to the north, Bloomingdale Road to the east, Woodrow Road to the south, and Trina Lane to the west. Lot 39 is an approximately 2.9-acre, previously developed and currently vacant, wooded lot, and Lot 75 is an approximately 0.3-acre lot containing a two-story residential building.

The proposed project involves demolition of the existing residential building and site preparation (including the removal of trees) followed by the construction of the proposed school, including outdoor recreational areas and an access roadway. Based on preliminary conceptual plans, the proposed school would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on a wing that would rise approximately 55 feet in height.

The proposed school building would contain approximately 67,000 gross square feet (gsf), and would be constructed on the western portion of the site. Play areas would be constructed at street level, on the northern and southern sides of the site. The main bus drop off/pick up location would be from a new internal U-shaped roadway with access from Woodrow and Bloomingdale Roads, and the school's main entrance would face the new internal roadway. A minimum of 25 parking spaces for faculty would be provided on-site.

Lot 39 is City-owned property under the jurisdiction of the New York City Department of Education (DOE), and Lot 75 is currently under private ownership. The project site is located in a residential area, and is in close proximity to Clay Pit Ponds State Park Preserve. The site is within an R3-1 residential zoning district, in which schools are permitted as-of-right, as per Section 22-00 of the NYC Zoning Resolution. The site is also located within the Special South Richmond Development (SRD) District, which contains regulations relating to new development, specifically with respect to tree removal and changes in topography. While the design of the school is not yet final, preliminary plans show that the photovoltaic roof structure would exceed the 50-foot maximum building height and required side setbacks. The proposed project would also require modification to the existing topography in excess of the two-foot limit that is allowed, and modifications with respect to the removal of trees greater than six-inch caliper. Therefore, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development to permit the project to proceed. In addition, authorization from the City Planning Commission (CPC) would be required under the SRD District regulations.

Funding for acquisition of Lot 75 and design and construction of this project would be provided in DOE's Capital Plan for Fiscal Years 2009 through 2014. The school is expected to be

occupied by 2015. Therefore, 2015 has been selected as the build year for these environmental analyses.

B. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE

At two stories in height (approximately 29 feet to the roof and 55 feet to the photovoltaic extension), the proposed project would be slightly taller than its surrounding structures. However, the proposed school facility would be compatible with the surrounding uses, which are primarily residential, and would be surrounded by landscaping. The proposed project would have no significant adverse impacts on land use.

ZONING AND PUBLIC POLICY

The proposed facility would conform to the use requirements of the R3-1 zoning district, which permits community facility uses, including schools, as-of-right. As described previously, preliminary plans show that the photovoltaic roof structure would exceed the 50-foot maximum building height and required side setbacks. The proposed project would also require modification to the existing topography in excess of the two-foot limit that is allowed, and modifications with respect to the removal of trees greater than six-inch caliper. Therefore, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development to permit the project to proceed. If the zoning override is granted, it would apply only the project site and would have no impact on neighboring zoning or property. In addition, authorization from CPC would be required under the SRD District regulations. Therefore, the proposed project would have no significant adverse impacts to local zoning.

PLANYC 2030

The proposed project would provide an essential service to the growing residential population and be consistent with the goals of PlaNYC. The proposed design aims achieve a net zero energy consumption building (i.e., the new school facility would consume, on an annual basis, no more energy than the building produces). The net zero energy building would help support PlaNYC's goal of attaining the cleanest air quality of any big city in America and help reduce global warming emissions.

COMMUNITY CHARACTER

The proposed project would replace current uses on the site with a new primary school facility that would be slightly taller than the existing surrounding buildings, but would be compatible with surrounding residential land uses. The proposed project would benefit the area by bringing new community facility uses to the neighborhood. The increase in traffic volumes that the proposed project would generate is not expected to result in any significant adverse impacts to the character of the community.

COMMUNITY FACILITIES

The new school would provide additional community resources for area residents, and is expected to relieve overcrowding in nearby elementary schools. Police and fire services would

be adjusted as deemed necessary by both agencies, and no significant adverse impacts to police or fire services are expected to result from the proposed project.

HISTORIC AND CULTURAL RESOURCES

ARCHAEOLOGICAL RESOURCES

The project site is located within the boundaries of the National Register (NR)-listed Sandy Ground Historic Archaeological District, which was added to the National Register of Historic Places in 1982. Three areas of the project site were considered to have the potential to contain significant archaeological resources based on the results of the Phase 2 Archaeological investigation that was completed: (1) the northwest corner; (2) the eastern shaft feature; and, (3) the western shaft feature. The Phase 2 report concluded that additional archaeological investigation of these areas could result in the discovery of features (in the northwest corner) or artifact deposits (in all three areas) that could provide significant information concerning the Sandy Ground community with respect to the three main areas of interest outlined above: population migration, community evolution, and community response to economic hardship. The remainder of the project site does not have the potential to yield significant archaeological information. In a comment letter dated May 24, 2011, OPRHP concurred with the conclusions of the Phase 2 survey and its recommendations for further Phase 3 data recovery in the locations of the two existing shaft features and in the vicinity of the former historic lot at the northwest corner of the project site.

Since the project would require excavation or disturbance in the three sensitive areas and plans could not be altered to avoid these areas, additional archaeological analysis in the form of a Phase 3 data recovery was undertaken in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP). Analysis of the recovered finds is ongoing and an "end of field" letter is currently being prepared for submission to the OPRHP. The data value of the identified resources has been collected and no additional archaeological fieldwork is warranted. Upon the completion of the Phase 3 testing report, it will be submitted to OPRHP for review and comment. With the completion of Phase 3 testing and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources (see "Mitigation" section below).

ARCHITECTURAL RESOURCES

Since there are no known or potential architectural resources on the project site, the proposed project would have no adverse impacts on architectural resources on the project site. The project site is located approximately 110 feet from the one historic resource in the study area, the Rossville A.M.E. Zion Church Cemetery. The Rossville A.M.E. Church, located just outside the study area, is approximately 450 feet from the project site. These resources are located far enough away so that no adverse construction-related impacts on these resources are expected as a result of the proposed project.

Once constructed, the proposed project is not expected to result in any visual or contextual impacts on the Rossville A.M.E. Zion Church or Cemetery. The new school would be built within an existing block and across Trina Lane from the Cemetery. The row of contiguous houses on the west side of Trina Lane obstructs views between the project site and Cemetery, and, therefore, there is no visual relationship between the project site and the Cemetery. The visibility of the Cemetery on Crabtree Avenue would not be altered. As such, the proposed

project would not isolate this historic resource from its setting or alter its visual prominence. The Church is located south of Claypit Road with an intervening block developed with houses. Therefore, there is no visual relationship between the Church and the project site and the proposed project would not result in any adverse visual or contextual impacts on the Rossville A.M.E. Zion Church.

Overall, the proposed project would not result in any significant adverse impacts to architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

URBAN DESIGN

The proposed school would be constructed on an existing block and would not entail any changes to streets or street patterns or public open space on the project site. The use on the project site would change from a wooded area and a two-story house in the No Action scenario to a new public school facility with the proposed project. Although the proposed project would result in a new building of a different height, use, bulk, and lot coverage than the existing wooded area and house on the project site, these changes would not be considered adverse as the new school would be constructed in a largely residential area where schools are permitted as-of-right. The zoning floor area of the proposed project would be in compliance with the applicable floor area requirements on the site. Therefore, a new school would be an appropriate addition to the project site.

The removal of trees and changes to topography on the project site would affect natural features; however, the proposed changes to natural features would be made in consultation with DCP per SRD mandates, and therefore would not result in adverse impacts. Thus, with DCP approval of the final design as it relates to the SRD zoning regulations, the anticipated changes to the pedestrian experience would not be expected to adversely affect the vitality, walkability, or visual character of the project site. While the proposed school would add a new building to the project site that would have a different bulk and massing from other buildings in the study area, the new school's design and location on the project site have been developed to visually reduce the perceived height and size of the building by pedestrians from nearby locations in the study area.

Wind conditions on the project site would not be significantly altered with the proposed actions. Sunlight conditions would be somewhat altered with the redevelopment of the project site with a new school building whose bulk and massing would be different from the No Action condition. However, these changes would not be expected to adversely affect the pedestrian experience of the project site.

Overall, the new school building would be expected to positively affect the character of the project site or surrounding area by redeveloping it with a new school building, playgrounds, and parking that would add new pedestrian activity to the project site.

VIEW CORRIDORS AND VISUAL RESOURCES

Although some views in the study area would be altered by the redevelopment of the project site with a new school building, no significant visual resources or view corridors would be obstructed.

NATURAL RESOURCES

FLOODPLAINS

Because the project site is outside the 100- and 500-year floodplains, the proposed project would not result in adverse impacts to floodplain resources.

TERRESTRIAL RESOURCES

Vegetation

The entire project site would be cleared and graded as a result of the proposed project, resulting in the loss of the successional southern hardwood forest and the habitat it provides for wildlife present within the project site. While this loss would be adverse, the successional southern hardwood forest observed within the project site is not unique and is found elsewhere within the New York metropolitan region and on Staten Island, and the loss of this woodland within the approximately 2.9-acre wooded portion of the project site would not result in significant adverse impacts to vegetation resources of New York. Additionally, in accordance with the requirements for the Special South Richmond Development District and the requirements for street tree planting, the SCA will develop a tree replacement plan for review and approval by the DPR, Department of Buildings (DOB), and the New York City Department of City Planning (DCP) prior to any land clearing activities. Tree planting areas will include areas adjacent to the roads surrounding the project site, as well as within the bioretention/bioswale areas proposed for stormwater management within the project site.

Wetlands

Because neither NYSDEC nor NWI wetlands are present within or adjacent to the project area, no significant adverse impacts to wetlands would occur as a result of the proposed project.

Wildlife

The 2.9-acre forested habitat within the project site is surrounded by highly developed residential area. For this reason, wildlife observed and expected to occur within the project site include common urban native and non-native species (e.g., rock dove and gray squirrel). Additional species, such as those listed within the breeding bird block 5648A, would likely be found within the contiguous forested/wetland habitats provided throughout Clay Pit Ponds State Park Preserve, which is located at least 300 feet from the project site. The loss of the woodland habitat within the project site would have the potential to adversely affect some individual birds and other wildlife currently using the habitats of the project site should these individuals be unable to find suitable available habitats nearby such as the extensive habitats available within the nearby Clay Pit Ponds Preserve. However, the wildlife species expected to occur within this area are common to urban areas, and the loss of some individuals would not result in a significant adverse impact on the bird and wildlife community of the New York City region. Therefore, no significant adverse impacts to terrestrial resources are expected as a result of the construction of the proposed project. Additionally, the new trees planted as part of the proposed project and the vegetation communities that would comprise the bioretention/biowsales proposed as part of the stormwater management measures on the project site would provide habitat for some of the same urban wildlife species currently expected to use the project site.

THREATENED OR ENDANGERED SPECIES

No state-listed species or habitats were observed within the project site during the field investigation. As discussed above, the project site consists of a successional southern hardwood community with a number of invasive and successional species that are characteristic of disturbed areas. The two ecological communities identified by the NYNHP as occurring within the vicinity of the project site—red maple-sweet gum swamp and the post oak-blackjack oak barren communities—are not present on the project site. The project site does not provide suitable habitat for the state-listed whorled mountain-mint, velvety bush-clover, and eastern fence lizard, and no individuals of these species were observed during the site reconnaissance. However, given that this project site is located in close proximity to Clay Pit Ponds Preserve, where these species and ecological communities are known to occur, additional coordination with NYNHP is not deemed necessary.

With these measures in place, no significant adverse impact to endangered and/or threatened species would occur as a result of the proposed project.

WATERFRONT REVITALIZATION PROGRAM

The proposed project complies with New York State's Coastal Management Program as expressed in New York City's approved Waterfront Revitalization Program.

TRANSPORTATION

TRAFFIC

For the streets around the site, capacities at most of the approaches would be sufficient to accommodate these increases. However, the proposed project could cause significant adverse impacts at the following intersection approaches/lane-groups during the two peak hours analyzed:

- The westbound, northbound, and southbound approaches at the signalized intersection of Bloomingdale Road and Woodrow Road during the morning and afternoon peak periods.

In addition, the project generated traffic volumes would result in the westbound approach at the Bloomingdale Road and Crabtree Avenue intersection to operate at mid-LOS D or worse. However, based on the impact criteria for unsignalized intersections identified in the *CEQR Technical Manual*, the increase in delays at the westbound approach would not be considered a significant adverse impact because there are less than 90 vehicles per hour identified at this approach during the morning and afternoon peak hours. See the "Mitigation" section below.

TRANSIT OPERATIONS

The project site is located in an area served by the S55, S74, and S84 bus routes. Based on the travel demand estimates and the availability S55, S74, and S84 bus routes near the project site, it was determined that no individual bus route would experience 50 or more peak hour bus trips in one direction—the CEQR recommended threshold for undertaking quantified bus analysis. Consequently, it is expected that the project would not create a noticeable constraint on bus capacity; therefore, a quantitative bus analysis is not warranted.

PEDESTRIAN OPERATIONS

The proposed project would result in increased pedestrian trips. As part of the modified Bloomingdale Road and Woodrow Road intersection to accommodate the project exit driveway, crosswalks would be added on the west and north legs of the intersection. However, based on the analysis results, all sidewalks, crosswalks and corners would continue to operate at acceptable levels (minimum 24 square feet per pedestrian [SFP] for crosswalks and corners, maximum 6 pedestrians per minute per foot [PMF] platoon flows for sidewalks) during both the morning and afternoon peak 15-minute periods. Therefore, the proposed project would not result in any significant adverse pedestrian impacts.

PARKING

The proposed school would provide a minimum of 25 on-site parking spaces and would generate a demand of approximately 23 parking spaces by faculty/staff commuting by auto. Therefore, the on-street parking utilization with the proposed project is expected to remain at similar levels as the 2015 No Build conditions. Thus, the proposed project would not result in significant adverse impacts to the supply and demand of on-street parking in the study area.

PEDESTRIAN SAFETY

Accident data for the study area intersections were compiled from New York State Department of Transportation (NYSDOT) records for the period between December 1, 2007 and November 30, 2010. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage) during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. According to the 2010 *CEQR Technical Manual*, a high accident location is one where there were 48 or more total reportable and non-reportable accidents or five or more pedestrian/bicyclist injury accidents in any consecutive twelve months of the most recent three-year period for which data are available.

During this period, a total of 20 reportable and non-reportable accidents (including 1 pedestrian-related accident), no fatalities, and 7 injuries occurred at the study area intersections. Based on the CEQR criteria, no intersections were identified as high pedestrian accident locations in the 2007 to 2010 period.

AIR QUALITY

MOBILE SOURCE ANALYSIS

The results of the carbon monoxide (CO) analysis indicate that the proposed school would not result in any violations of the 8-hour CO standard. In addition, the incremental increases in 8-hour average CO concentrations are very small, and consequently would not exceed the *de minimis* CO criteria.

The results of the PM analyses indicate that the cumulative vehicle trips generated by the proposed project would not result in PM_{10} concentrations that would exceed the NAAQS, and that the annual and daily (24-hour) $PM_{2.5}$ cumulative increments are predicted to be well below the interim guidance criteria. Therefore, the proposed project would not result in significant adverse impacts from mobile sources.

HEAT AND HOT WATER SYSTEM SCREENING ANALYSIS

A screening analysis was performed to assess the potential for air quality impacts from the proposed school's heat and hot water system. The proposed school would mainly rely on solar and geothermal heat and hot water systems with a natural gas backup boiler. However, to provide a conservative analysis, it was assumed the school would use natural gas. The analysis assumed a total of 67,000 gross square feet and an exhaust height of 37 feet (3 feet above the estimated height of the proposed school building). The nearest distance to an existing building of a similar or greater height, determined to be 110 feet, was used in the screening analysis. The use of natural gas would not result in a significant adverse impact on air quality because the proposed school would be below the maximum permitted size per the *CEQR Technical Manual.*

NOISE

In terms of the New York City CEQR standards, the noise levels with the proposed project at receptor Sites 1 and 2 would remain in the "marginally acceptable" category, the noise level with the project at receptor Sites 3 and 4 would remain in the "acceptable" category.

An outdoor play area is expected to be located on the northern portion of the project site, and an early childhood play area is expected to be located on the southern portion of the project site. The closest residences on Crabtree Lane are approximately 40 feet away from the proposed edge of the proposed outdoor play area. Noise generated by the outdoor playground would have a potential to cause noise impacts at the adjacent residences. The maximum increased $L_{eq(1)}$ noise level would be 3.9 dBA when the proposed playgrounds are in use, which would not exceed the CEQR relative change criteria of 5 dBA.

Based upon the analysis results, significant adverse noise impacts would occur at residences where there is a direct line-of-sight to the proposed school playgrounds within approximately 30 feet. A field survey was conducted to examine how many residential buildings would be affected, and their window/AC conditions were also examined. Based upon the field observations, there are no residential buildings within 30 feet from the proposed outdoor playground.

SHADOWS

The 2010 *CEQR Technical Manual* requires a shadow assessment if a proposed structure is 50 feet or greater in height, or adjacent to a sunlight-sensitive resource regardless of height. Because a portion of the proposed structure would reach beyond 50 feet in height, a preliminary screening assessment was performed to determine whether new shadows from the proposed school could be long enough to reach any nearby sunlight-sensitive resources. According to the 2010 *CEQR Technical Manual*, such resources include publicly-accessible open spaces, architectural resources that depend on direct sunlight for their enjoyment by the public, or important natural resources.

In coordination with the land use, historic and cultural resources, and natural resources assessments presented in other chapters of the EIS, potentially sunlight-sensitive resources were identified and shown on a map of the project site and surrounding street layout. According to CEQR methodology, the longest shadow that the proposed school could cast would be 237 feet. Using this length as the radius, a perimeter was drawn on the map around the project site. The Rossville AME Zion Church Cemetery, a designated NYC Landmark, is located about 160 feet west of the project site, within the longest shadow study area. However, the designation report

for this historic resource does not reference landscape features, design elements, or vegetation as contributing factors to the historic significance of this resource. The cemetery's significance is largely derived from the community it has historically served. Therefore, it has been determined that the cemetery does not contain any sunlight-sensitive historic features. The proposed project would not result in any significant adverse shadow impacts, and no further analysis is necessary.

SOIL AND GROUNDWATER CONDITIONS

Two Phase I Environmental Site Assessments (ESAs) and a Phase II Environmental Site Investigation (ESI) were completed for the project site between November 2009 and August 2010 to evaluate the environmental conditions of the site.

The Phase I ESAs identified several on-site recognized environmental conditions (RECs) including: potential buried structures and/or demolition debris that may contain abandoned underground storage tanks (USTs) from the dwellings and structures shown on historical maps of the area; the potential presence of historic fill associated with the historic project site structures and clearing activities; and the potential presence of dumped materials on Lot 39, indicated by soil and refuse piles near the perimeter of the Site. The only off-site REC identified for the project site was a historic auto repair facility northwest of the project site shown on Sanborn maps from 1987 through 1995. Environmental concerns identified during the Phase I ESAs included the potential presence of asbestos containing material (ACM), lead-based paint (LBP), and polychlorinated biphenyl (PCB)-containing items in the residence on Lot 75, and/or in potential buried structures on both lots.

The Phase II ESI of Lot 39 included a geophysical survey, the installation of four soil vapor points, the advancement of four soil borings, excavation of four test pits in soil/debris piles present at the Site, and the collection and laboratory analysis of four soil vapor samples, eight grab soil samples, and one ambient air sample.

The presence of analytical parameters greater than the corresponding State soil cleanup objectives was generally limited to the soil/debris piles and shallow historic fill on-site. No volatile organic compounds (VOCs), semi-volatile compounds (SVOCs) or polychlorinated biphenyls (PCBs) were detected at concentrations above the corresponding State soil cleanup objectives for unrestricted use. Selected metals commonly associated with historic fill materials and selected pesticides commonly found in the environment due to their former widespread use for mosquito control were also detected in soil at concentrations slightly greater than the State soil cleanup objectives for unrestricted use.

VOCs (including trimethylbenzenes, benzene, ethylbenzene, tetrachloroethene (PCE), trichloroethene (TCE), toluene, xylenes) were detected in all four of the soil vapor samples at concentrations exceeding the established background levels. In addition, TCE was detected in one of the four soil vapor samples at a concentration above the corresponding New York State Department of Health (NYSDOH) Air Guidance Value (AGV). VOCs detected in the ambient air sample were below the anticipated background levels for outdoor air.

The proposed project would not result in impacts from contaminated media and building materials. Prior to the construction of the project, a pre-design investigation would be conducted to search for potential USTs and to further characterize subsurface conditions in the Lot 75 portion of the proposed project site. If encountered, suspect USTs and any contaminated soil would be removed in accordance with all applicable regulations.

Any suspect ACM, LBP, and PCB-containing materials affected by the preparation of the project site for use as a public school would be identified prior to construction and properly managed during construction activities. All soil excavated during building construction would be properly managed in accordance with all applicable local, State and Federal regulations. If dewatering is necessary due to perched water conditions, dewatering fluids would be handled and discharged in accordance with applicable regulations. In addition, to minimize the potential for exposure by construction workers and the surrounding public, standard industry practices, including appropriate health and safety measures, would be utilized.

As a preventative measure, a soil vapor barrier and a sub-slab depressurization system would be installed below the proposed school building to prevent potential soil vapor intrusion into the building. For areas of the project site where exposed soils may exist after building construction (i.e., landscaped areas), a 24-inch thick layer of environmentally clean fill would be placed over the soils. With these measures, no significant adverse impacts with respect to hazardous materials would occur as a result of the construction or operation of the proposed project.

INFRASTRUCTURE

The proposed project would create an incremental demand for 14,276 gallons per day (gpd). Overall, the proposed development's incremental demand for water would represent an insignificant increase in the total demand in Staten Island. As a result, this added demand would not overburden the City's water supply or the local conveyance system. The proposed project would also comply with the City's water conservation measures as mandated by Local Law 19. Therefore, the proposed project would not result in a significant adverse impact on the water supply system's ability to adequately deliver water to Staten Island or New York City.

It is assumed that the proposed development would generate wastewater at a rate commensurate with domestic water consumption, or about 4,440 gpd (not including water usage for air conditioning). This amount of wastewater would not cause the Oakwood Beach Water Pollution Control Plant to exceed its design capacity or State Pollutant Discharge Elimination System (SPDES) permit flow limit. Therefore, the proposed development would not result in a significant adverse impact on wastewater treatment.

As there are no combined or storm sewers in the adjacent streets, the proposed project would include a storm water retention system that would be reviewed and permitted by the New York City Department of Environmental Protection (NYCDEP). Preliminary designs for the proposed project include three retention systems near the playground areas and open landscaped areas. In addition, roof detention would be provided to slow down runoff from the roof to the retention systems and bio-retentions and/or bioswale for storm water management would be incorporated in the landscape design.

The proposed school would be expected to generate approximately 1,332 pounds of solid waste per week during the school year. The total waste generated would be negligible compared with the 13,000 tons per day handled by the New York City Department of Sanitation.

The proposed building would rely on geothermal heating and cooling, daylight harvesting to minimize lighting load, and photovoltaic panels to provide electricity. However, it is anticipated that Con Edison would provide some electrical service to the proposed school. The electrical demand generated by the proposed project would be minimal and would require no special appurtenances. Con Edison would be able to meet this demand.

GREENHOUSE GAS (GHG) EMISSIONS

Vehicle use associated with the proposed school, operation of the natural gas backup hot water boiler, use of grid electricity to supplement on-site renewable electricity production, construction activities, production of materials used in the construction of the school building, and generation of waste would result in GHG emissions. With the sustainable design elements that would be included as part of the project, energy efficiency and use of renewable energy would be maximized, and GHG emissions would be reduced to the extent practicable. Therefore, the proposed school would be consistent with the City's GHG reduction goals.

CONSTRUCTION

It is anticipated that construction of the proposed project would require a total of approximately 32 months to complete, although the major external construction activities are expected to be completed within less than 24 months. Based on current plans, construction would begin in 2012 and be completed in 2015.

The estimated average number of workers on site by phase would be: 40 workers for mobilization, demolition, excavation and foundation; 60 workers for superstructure and exterior work; 100 workers for interior construction and fit-out; and 40 workers for exterior finishing and landscaping. The majority of construction activities would take place Monday through Friday, although if necessary, the delivery or installation of certain equipment could occur on weekend days. Hours of construction are regulated by the New York City Department of Buildings (DOB) and apply in all areas of the City.

Typical equipment used for demolition, excavation, and foundation work would include excavators, bulldozers, backhoes, chainsaws and tree stump grinders (tree removal), compaction equipment, tractors, jackhammers, and concrete pumping trucks. Other equipment that would be used include hoist complexes, dump trucks and loaders, concrete trucks, and back hoes. Trucks would deliver concrete and other building materials, and remove excavated material as well as demolition and construction debris. The construction equipment likely to be used during erection of the superstructure would include compressors, cranes, derricks, hoists, bending jigs, and welding machines. During facade and roof construction, hoists may continue to be used. Trucks would remain in use for material supply and construction waste removal. Interior and finishing work would employ a large number of construction workers, and a wide variety of fixtures and supplies would have to be delivered to the site. It is anticipated that trucks would primarily access the site from Bloomingdale Road.

Much of the proposed project's construction staging would occur within the project site, thereby limiting any effects on surrounding roadways and pedestrian elements. However, certain construction activities may require the temporary closing, narrowing, or otherwise impeding of the surrounding streets and sidewalks.

An evaluation of construction sequencing and worker/truck projections was undertaken to assess potential transportation-related impacts associated with the construction of the proposed project. Traffic assignments for the construction-generated vehicle trips show that incremental construction vehicle trips (in passenger car equivalents, or PCEs) during the weekday morning and mid-afternoon peak hours would be below the CEQR threshold of 50 peak hour vehicle trips at the majority of the study area intersections. One exception is the intersection of Woodrow Road and Bloomingdale Road, which could experience up to 60 incremental construction vehicle trips (PCEs) during the weekday morning and mid-afternoon peak hours. Therefore, a

detailed capacity analysis was conducted for this intersection to assess any potential traffic impacts under the Construction conditions. Based on the detailed capacity analysis, there would be no significant impacts at this intersection with construction-related traffic. Thus, the proposed school would not result in significant adverse construction traffic impacts.

As with most development in New York City, construction of the proposed project may be disruptive to the surrounding area for limited periods of time throughout the construction period. In addition to the anticipated effects associated with construction-related traffic, an assessment is provided of the proposed project's temporary effects on air quality, noise, historic resources, soil and groundwater conditions, natural resources, land use and neighborhood character, socioeconomic conditions, community facilities, open space, and infrastructure, as well as the economic benefits associated with the construction. The analyses concluded that the proposed project would not result in extensive construction-related effects with respect to any of the analysis areas of concern. Therefore, no significant adverse impacts are expected to occur as a result of construction.

PUBLIC HEALTH

A screening assessment was performed to examine the proposed development's potential to significantly impact public health concerns related to its construction and operation. The initial screening assessment determined that a full assessment of the proposed development's potential impacts on public health is not necessary: the proposed project would not be expected to exceed accepted City, state, or federal public health standards in the areas of air quality, construction, solid waste management practices, odors, and noise. Therefore, the proposed project would not result in significant adverse impacts on public health.

MITIGATION

HISTORIC AND CULTURAL RESOURCES

As described previously, three areas of the project site are considered to have the potential to contain significant archaeological resources based on the results of the Phase 2 Archaeological investigation: (1) the northwest corner; (2) the eastern shaft feature; and (3) the western shaft feature. The Phase 2 report concluded that additional archaeological investigation of these areas could result in the discovery of features (in the northwest corner) or artifact deposits (in all three areas) that could provide significant information concerning the Sandy Ground community with respect to the three main areas of interest outlined above: population migration, community evolution, and community response to economic hardship.

Since the project would require excavation or disturbance in the three sensitive areas and plans could not be altered to avoid these areas, additional archaeological analysis in the form of a Phase 3 data recovery was undertaken in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP). Analysis of the recovered finds is ongoing and an end of field letter is currently being prepared for submission to the OPRHP. The data value of the identified resources has been collected and no additional archaeological fieldwork is warranted. Upon the completion of the Phase 3 testing report, it will be submitted to OPRHP for review and comment. With the completion of Phase 3 testing and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources.

TRAFFIC

Capacities at most of the approaches for the streets around the site would be sufficient to accommodate the traffic volume increases. However, based on the impact criteria, the proposed project could cause significant adverse traffic impacts at the following intersection approaches/lane-groups during the two peak hours analyzed:

- The westbound, northbound, and southbound approaches at the signalized intersection of Bloomingdale Road and Woodrow Road during the morning and afternoon peak periods.

Recommended mitigation measures for the affected intersection consist of signal timing modifications and lane restriping. These mitigation measures are subject to review and approval by the New York City Department of Transportation (DOT). With these mitigation measures in place, all of the impacted intersection approaches/lane groups would operate at the same or at better service conditions than the No Build conditions, and the proposed project would not result in significant adverse traffic impacts.

ALTERNATIVES

Under the No Build alternative, the proposed school facility would not be constructed. The project area would remain in its current state—as wooded, undeveloped land and a residential property. Under a second alternative, the Site Access Alternative, the new internal roadway would be L-shaped, entering from Crabtree Avenue and exiting onto Bloomingdale Road.

As with the proposed project, the No Build alternative would not result in adverse impacts to land use, zoning, and community character, parking, transit, air quality, noise, shadows, soil and groundwater conditions, infrastructure and energy, natural resources, or public health, or with respect to greenhouse gas emissions or the waterfront revitalization plan. Unlike the proposed project, with the No Build alternative there would be no potential to disturb archaeological resources and no additional traffic trips would be generated. However, with the proposed mitigation measures no significant adverse impacts would occur as a result of the proposed project.

It is expected that the Site Access Alternative would have similar impacts to the proposed site plan, with the following exceptions. Currently, Crabtree Avenue is not wide enough to efficiently accommodate and process the two-way peak hour traffic volumes. Under the Site Access Alternative, curbside parking along Crabtree Avenue would likely need to be eliminated between Bloomingdale Road and Trina Lane to accommodate the two-way traffic flow as well as to accommodate adequate turning radii for the school buses. In addition, with the Site Access Alternative, noise impacts could potentially occur at backyards (and rear-facing windows) of residences adjacent to the L-shaped driveway on Crabtree Lane and at residences along Crabtree Avenue. At most residences, where there are existing double-glazed windows and alternative ventilation (i.e., central air conditioning), predicted interior noise levels associated with the Site Access Alternative would be expected to be less than the 45 dBA $L_{10(1)}$ interior noise level CEQR guideline and mitigation would not be required. For residential buildings without double-glazed windows and alternative ventilation where a potential impact is possible, the SCA would provide storm windows or double-glazed windows and alternative ventilation measures (i.e., window air conditioning units) as a mitigation measure, if the Site Access Alternative were approved.

As with the proposed project, the Site Access Alternative would have the potential to disturb archaeological resources, and additional traffic trips would be generated by the proposed school.

However, with the proposed mitigation measures, no significant adverse impacts with respect to traffic or archaeological resources would occur as a result of the Site Access Alternative.

CONCEPTUAL ANALYSIS

Independent from the proposed project, DOT is considering a street improvement project that involves a widening and extension of Woodrow Road west of Bloomingdale Road. This street improvement project includes widening Woodrow Road to 100 feet (including a segment adjacent to the project site), and extending Woodrow Road to the west, creating new intersections with Gladwin Avenue and Turner Street and providing access to the West Shore Expressway Service Road. With the future widening of Woodrow Road to 100 feet, the southernmost portion of the project site would become part of the widened roadway and modifications would be required to the site plan of the proposed school ("Modified Site Plan").

DOT's proposed widening and extension of Woodrow Road would require discretionary actions, including street mapping and property acquisitions, and would be subject to a separate public review and approval process, including review under the State Environmental Quality Review Act (SEQR). As the Woodrow Road widening and extension project is in the planning stages and capital funds are not yet available for its implementation, and because it would require discretionary actions and be subject to a separate public review and approval process, the FEIS provides a qualitative assessment of the potential environmental impacts that could result from the Modified Site Plan as compared with the proposed site plan.

The required site modifications include: the removal of the southernmost segment of the internal access roadway; the relocation of the school bus drop-off and pick-up area and the parent drop-off and pick-up area; the relocation of some staff parking spaces; and the removal of some walkways and landscaped areas. With the Modified Site Plan, there would be no change to the proposed program or the design or location of the proposed school building or playground areas as compared with the proposed site plan.

At this time, there is no construction plan or schedule available from DOT for the Woodrow Road widening and extension project. Once available, the SCA would coordinate with DOT's construction plan for the widening of Woodrow Road. Any substantial modifications to the site plan would likely be made during times when school is not in session, such as during the summer, school vacations, or off-school hours.

Overall, it is expected that the Modified Site Plan would have similar impacts to the proposed site plan. The modifications to the site plan could potentially result in significant increases in traffic-related noise to residences adjacent to Woodrow Road. For any residential buildings without double-glazed windows and alternative ventilation where a potential impact is possible, mitigation is likely to be provision of storm windows or double-glazed windows and alternative ventilation measures (i.e., window air conditioning units). As with the proposed project, the Modified Site Plan would have the potential to disturb archaeological resources, and additional traffic trips would be generated by the proposed school. However, with the proposed mitigation measures, no significant adverse impacts with respect to traffic or archaeological resources would occur as a result of the Modified Site Plan. ✷

Chapter 1: Project Description

A. INTRODUCTION

The New York City School Construction Authority (SCA) proposes the design and construction of a new Primary School (P.S.) facility containing approximately 444 seats for students in pre-kindergarten through fifth grades (P.S. 62R) in the Rossville/Woodrow section of Staten Island, in Community School District (CSD) 31. The project site consists of Block 7092, Lots 39 and 75 on the block bounded by Crabtree Avenue to the north, Bloomingdale Road to the east, Woodrow Road to the south, and Trina Lane to the west (see **Figure 1-1**). Lot 39 is an approximately 2.9-acre, previously developed and currently vacant, heavily-wooded lot, and Lot 75 is an approximately 0.3-acre lot containing a two-story residential building.

The proposed project involves demolition of the existing residential building and site preparation (including the removal of trees) followed by construction of the proposed school, including outdoor recreational areas and an access roadway. Based on preliminary conceptual plans the proposed school would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on a wing that would rise approximately 55 feet in height.

The proposed school building would contain approximately 67,000 gross square feet (gsf), and would be constructed on the western portion of the site. Play areas would be constructed at street level, on the northern and southern sides of the site. The main bus drop off/pick up location would be from a new internal U-shaped roadway with access from Woodrow and Bloomingdale Roads, and the school's main entrance would face the new internal roadway. (See **Figures 1-2 and 1-3**.)

Lot 39 is City-owned property under the jurisdiction of the New York City Department of Education (DOE), and Lot 75 is currently under private ownership. The project site is located in a residential area, and is in close proximity to Clay Pit Ponds State Park Preserve. The site is within an R3-1 residential zoning district, in which schools are permitted as-of-right, as per Section 22-00 of the NYC Zoning Resolution. The site is also located within the Special South Richmond Development (SRD) District, which contains certain regulations with respect to tree removal and changes in topography. While the design of the school is not yet final, preliminary plans show that the photovoltaic roof structure would exceed the 50-foot maximum building height and required side setbacks. The proposed project would also require modification to the existing topography in excess of the two-foot limit that is allowed, and modifications with respect to the removal of trees greater than six-inch caliper. Therefore, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development to permit the project to proceed. In addition, authorization from the City Planning Commission (CPC) would be required under the SRD District regulations.

Funding for acquisition of Lot 75, and design and construction of this project would be provided in DOE's Capital Plan for Fiscal Years 2009 through 2014. The school is expected to be

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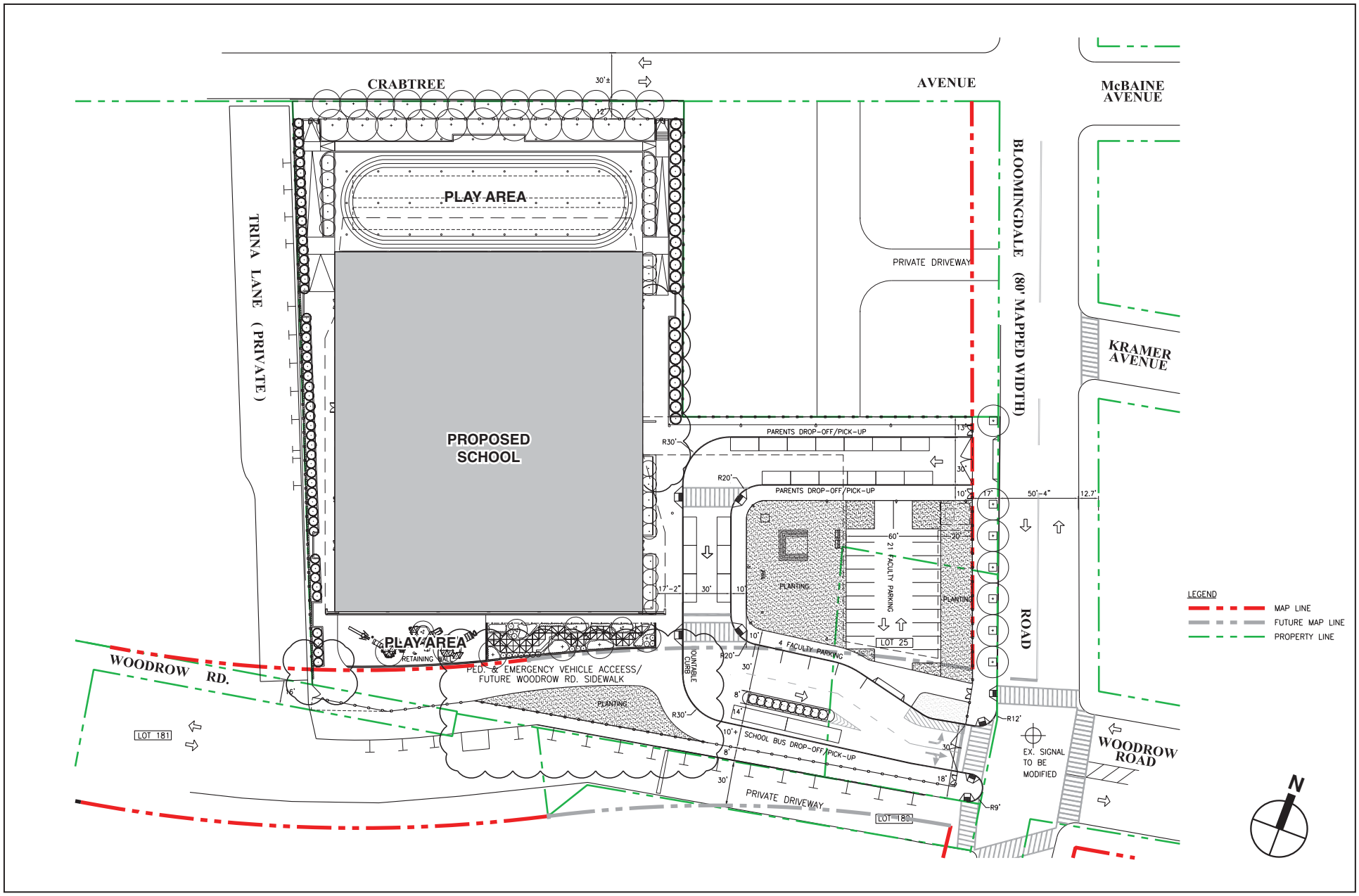
NOTE: Sanborn map has been altered to reflect current site conditions.

Project Site Boundary

39 Project Site Lot Number

Project Location

Figure 1-1



NOTE: For Illustrative Purposes

SCA P.S. 62R, Staten Island

Proposed Site Plan
Figure 1-2

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NOTE: For Illustrative Purposes

NOT TO SCALE

Illustative Rendering
Figure 1-3

SCA P.S. 62R, Staten Island

occupied by 2015. Therefore, 2015 has been selected as the build year for these environmental analyses.

B. PURPOSE AND NEED

Construction of the new school facility has been proposed to provide additional public primary school capacity in CSD 31. According to the latest DOE school utilization profile for 2009 to 2010, primary schools in CSD 31 are currently operating at 89 percent of their existing capacity. The two nearest primary schools, P.S. 56 and P.S. 3, are currently operating at 85 and 93 percent of their existing capacity, respectively.

C. PROJECT SITE AND PROPOSED SCHOOL

The approximately 3.2-acre project site is located on Block 7092, Lots 39 and 75 in the Rossville/Woodrow section of Staten Island. The site is located on a block bounded by Crabtree Avenue to the north, Bloomingdale Road to the east, Woodrow Road to the south, and Trina Lane to the west.

The proposed school would contain 444 seats serving pre-kindergarten through grade 5, as well as a District 75 Citywide Special Education program. The proposed two-story school building would contain an entry lobby, gymnatorium, library, art and science rooms, cafeteria, and administrative offices. The proposed school structure would be located on the western side of the project site, and outdoor recreational areas would be located on the north and south of the building. The main entrance and main drop off area for the school would be located on a new internal U-shaped access roadway connecting to Woodrow and Bloomingdale Roads. Approximately 25 parking spaces for faculty would be provided on-site, in the vicinity of the school's internal roadway. A perimeter fence would be located around the entire site.

The proposed project is being designed with the intent to achieve net zero energy consumption (i.e., the new school facility would consume, on an annual basis, no more energy than the building produces). The proposed design has been developed to maximize north and south exposures, optimizing natural daylighting while minimizing solar heat gain and loss and reducing electrical loads. A key element to the energy-efficient design is the roof of photovoltaic panels. Large areas of the panels have been raised above the roof surface to allow for sloped panels which have a higher efficiency and energy output. Through the incorporation of a central courtyard, north and south orientations have been given to all academic spaces, including all classrooms, the library, gymnatorium, and cafeteria. In addition, an outdoor courtyard and vegetable garden would be located at the center of the building.

The proposed project would include a storm water retention system on-site. Preliminary designs include three retention systems near the playground areas and open landscaped areas. In addition, roof detention would be provided to slow down runoff from the roof to the retention systems, and bio-retentions and/or bioswale for storm water management would be incorporated in the landscape design. The current site topography varies approximately fourteen feet in elevation from highest to lowest points. In order to accommodate handicapped accessible pathways throughout the site, the site would be re-graded and retaining walls would be required along the western edge of the site (at Trina Lane), along the eastern edge (adjacent to the rear lot lines of the existing residential lots), and along the southern edge (near Woodrow Road). The retaining wall on the southern edge of the site would separate the play area and bio-retention area from the proposed sidewalk and walkway area adjacent to the existing Woodrow Road; the

proposed sidewalk and walkway area would be graded to the current existing curb level. The retaining walls on the project site would vary in height from six inches to four feet.

Separate from the proposed project, the New York City Department of Transportation (DOT) is considering street improvement projects on Woodrow Road and Bloomingdale Roads, bordering the project site, including: widening a segment of Woodrow Road directly south and west of the project site to 100 feet and extension to provide direct access to Route 440; and widening a segment of Bloomingdale Road directly east and north of the project site to create new sidewalks. DOT's proposed widening and extension of Woodrow Road would require discretionary actions and would be subject to a separate public review and approval process. However, the site plan of the proposed school project has been designed to accommodate the potential future widening of Woodrow and Bloomingdale Roads. When the Woodrow Road widening and extension project advances, some modifications would be required at the site of the proposed school. These would include modifications to the internal access roadway, sidewalks, and some staff parking spaces located along the southern edge of the site. These modifications and the potential effects associated with these modifications are assessed in Chapter 18, "Conceptual Analysis—Proposed Project with Woodrow Road Widening."

It is assumed that the new school would employ approximately 34 teachers, administrators, and support staff. The school facility would operate during normal school hours, 7:30 AM to 4:00 PM from September to June. ✷

Chapter 2: Land Use, Zoning, and Community Character

A. INTRODUCTION

This chapter considers the effects of the proposed project on land use, zoning, and community character. The proposed project involves the construction of a new primary school facility containing approximately 444 seats for students in pre-kindergarten through fifth grades (P.S. 62R) in the Rossville/Woodrow section of southern Staten Island, in Community School District 31. Land use issues associated with the proposed project include potential changes in local land uses and neighborhood land use patterns. Zoning and public policy issues include the compatibility of the proposed project with public policies and zoning requirements.

As described below, this analysis concludes that construction of the proposed project would be compatible with, and supportive of, existing land uses and ongoing land use trends in the study area, and would not result in any significant adverse impacts to land use, zoning, or community character.

B. METHODOLOGY

The study area includes the area within approximately 400 feet of the project site, generally extending between: Harris Lane and Mason Boulevard to the north, Clay Pit Road to the south, Turner Street to the west, and the mid-block between Bloomingdale Road and Winant Avenue to the east (see **Figure 2-1**). This analysis identifies anticipated changes in land use, zoning, and community character that are expected to occur independently of the proposed project by 2015, the project's build year, and assesses any potential adverse impacts to land use, zoning, and community character that would occur as a result of the proposed project.

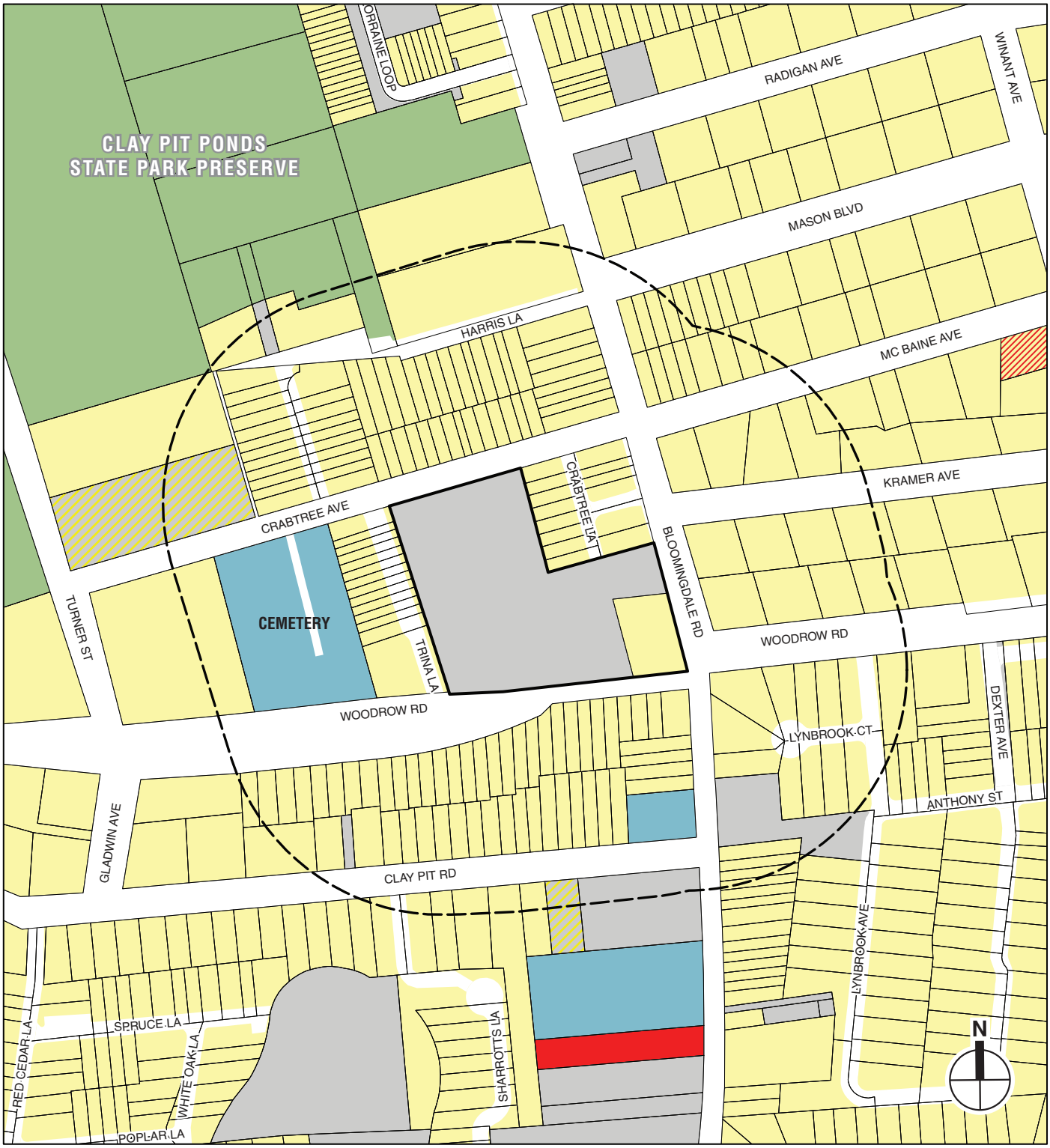
C. EXISTING CONDITIONS

Existing land use patterns and trends are described below for the project site and the study area. This is followed by a discussion of zoning and community character for both areas.

LAND USE

PROJECT SITE

The project site is located at the intersection of Bloomingdale Road and Woodrow Road in the Rossville/Woodrow section of Staten Island (Block 7092, Lots 39 and 75), and is bounded by Woodrow Road to the south, Crabtree Avenue to the north, residences and Bloomingdale Avenue to the east, and Trina Lane to the west. The site has a total lot area of approximately 3.2 acres. It is currently comprised of a residential property (0.3 acres) containing a two–story residential building located at the corner of Bloomingdale Road and Woodrow Road, and wooded land (2.9 acres).



SCA P.S. 62R, Staten Island

Land Use
Figure 2-1

STUDY AREA

The study area, generally defined as the 400-foot area surrounding the project site, is predominantly residential, with the exception of the Rossville A.M.E. Zion Church Cemetery and a day care facility located nearby. Several areas of wooded vacant land are located within the study area.

Residential buildings in the study area primarily consist of single-family detached and semi-detached homes, as well as multi-family homes, ranging in height from one to three stories. The Rossville African Methodist Church (AME) Zion Church Cemetery is located to the west of the project site. The cemetery is a New York City Landmark and is discussed further in Chapter 3, "Historic and Cultural Resources." Friends Preschool and Daycare is located on the block south of the project site at 610 Bloomingdale Road.

The neighborhood surrounding the study area is predominantly residential. The Clay Pit Ponds State Park Preserve extends northwest of the study area. Community facility uses near the study area include primary school P.S. 56, located east of the project site at 250 Kramer Avenue, the Sandy Ground Historical Society, located east of the project site in a residential building at 1538 Woodrow Road, and the Rossville AME Zion Church, located south of the site at 584 Bloomingdale Road. Medical offices, identified as Bloomingdale Dental, are located south of the study area at 570 Bloomingdale Road.

ZONING AND PUBLIC POLICY

PROJECT SITE

The project site is located in an R3-1 residential zoning district (see **Figure 2-2**). R3-1 districts are the lowest density districts that allow semi-detached one- and two-family residences, as well as detached homes. R3-1 zoning districts have a maximum allowable floor area ratio (FAR) of 0.5 with an additional attic allowance of 0.1 for residential uses, and a maximum FAR of 1.0 for community facility uses. Schools are allowed as-of-right in residential districts.

The project site is also located within the Special South Richmond Development District (SRD). The Special SRD District was established to promote balanced land use and development in the South Richmond area while avoiding the destruction of irreplaceable natural and recreational resources. The special district maintains the densities established by the underlying zones and ensures that new development is compatible with existing communities.

To maintain the existing community character, the Special SRD District mandates tree preservation, planting requirements, controls on changes to the topography, height limits, and setback and curb cut restrictions along railroads and certain roads. It restricts construction within designated open space (a defined network of open space set aside for preservation in its natural state). To preserve designated open space without penalizing the owners of such space, owners are permitted to transfer development rights from the designated open space to the balance of their property. A topographic survey and a report on the availability of public services must be submitted as a prerequisite to any application for development. As the proposed project proceeds, SCA will coordinate with the New York City Department of City Planning to comply with the SRD District mandates.

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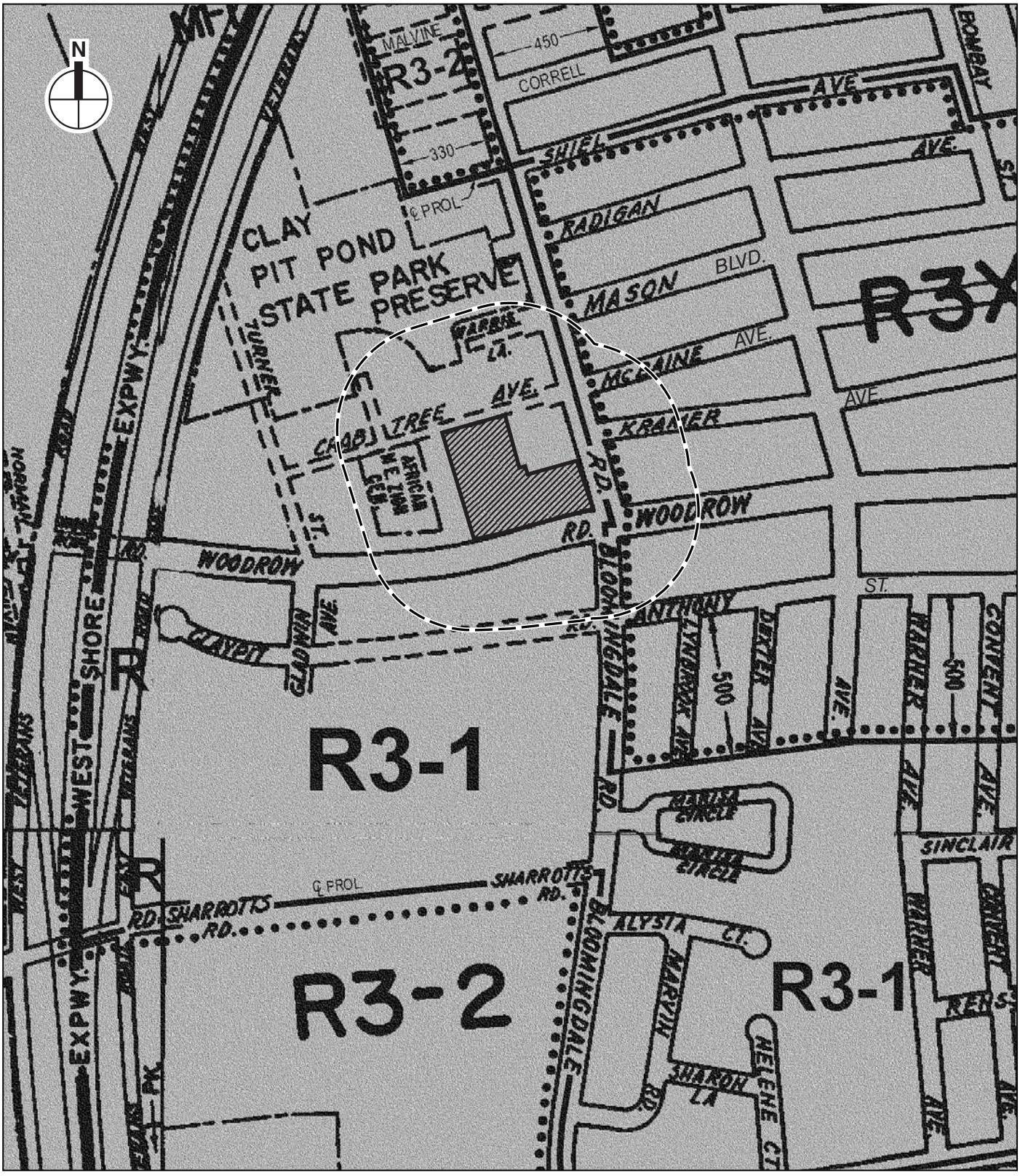

0 200 500 FEET
SCALE

Project Site

Study Area Boundary
(400-foot Perimeter)

Zoning District Boundary

Special South Richmond
Development District

SCA P.S. 62R, Staten Island

Zoning Map
Figure 2-2

STUDY AREA

The majority of the study area is within the R3-1 residential district, as described above. The eastern portion of the study area contains a residential R3X district. R3X zoning districts are generally in lower-density neighborhoods and permit only one- and two-family detached homes. R3X districts have a maximum FAR of 0.5 with an additional attic allowance of 0.1 for residential uses, and a maximum FAR of 1.0 for community facility uses.

PLANYC 2030

The proposed Plan would be consistent with and vital to the advancement of several of the goals of PlaNYC, which aims to create a more sustainable New York by the year 2030. Released by the City in April 2007, this 128-point plan was prepared to create an environmentally sustainable city over the next two decades. PlaNYC focuses on the many facets of New York's environment—its transportation network, housing stock, land and park system, energy network, water supply, and air quality—and sets a course to achieve 10 goals to create a more sustainable New York by the year 2030.

A few of the specific goals of the plan include:

- Create enough housing for almost a million more people, and find ways to make housing more affordable;
- Ensure that every New Yorker lives within a 10-minute walk of a park;
- Add to the capacity of New York City's regional mass transit system;
- Reach a full "state of good repair" for New York City's roads, subways, and rails;
- Provide cleaner, more reliable power by upgrading New York City's energy infrastructure;
- Reduce New York City's global-warming emissions by more than 30 percent by 2030;
- Achieve the cleanest air quality of any big city in America; and
- Clean up all contaminated land in New York City.

WATERFRONT REVITALIZATION PROGRAM

The project site is located within the designated boundaries of New York City's Coastal Zone; therefore, consistency with the New York City's Local Waterfront Revitalization Program (LWRP) has been assessed. A WRP consisting of 10 policies was approved by the New York State Department of State (NYSDOS) in August 2002. These policies are used as the basis for evaluation of discretionary actions within the City's designated Coastal Zone.

COMMUNITY CHARACTER

Community character is defined as the combination of a number of traits, including land use, urban design and visual resources, traffic, and noise. These elements are considered together to create a sense of the neighborhood in which a project is proposed, so that the compatibility of the project within its community setting can be presented and assessed.

PROJECT SITE AND STUDY AREA

The community character of the Woodrow section of Staten Island is generally that of a low-density residential area defined by a combination of detached houses, and two- to three-story

semi-attached and attached brick and frame buildings. Clay Pit Ponds State Park Preserve, a 260-acre nature preserve, extends northwest of the study area. The nature preserve, which contains wetlands, ponds, sand barrens, spring-fed streams, and woodlands, is managed to retain its unique ecology and to provide educational and recreational opportunities.

Bloomingdale Avenue is a busy, two-way street that runs north-south through the study area. Crabtree Avenue and Woodrow Road are quiet, two-way streets that run generally east-west through the study area. Each of these streets typically carries local traffic, with one travel lane in each direction and a parking lane on each side of the street.

The neighborhood's pedestrian activity is mainly concentrated on Bloomingdale Avenue. Pedestrian traffic is mainly to and from bus stops. The area is served by the S55 and S74 bus routes, which run along Bloomingdale Avenue.

COMMUNITY FACILITIES

A new school facility would provide additional community resources for area residents. The project is not expected to place additional demands on hospitals and other health care facilities, libraries, or public school or day care facilities. This section focuses, therefore, on police and fire protection services.

The project is served by the 123rd Police Precinct. The precinct house is located at 116 Main Street in the Tottenville section of Staten Island, approximately 3 miles west of the project site. The project site is served by Engine 164, Ladder 84 located at 1560 Drumgoole Road West, which is approximately 1.5 miles from the project site to the southeast.

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

LAND USE

In the future without the project, the project site is expected to remain unchanged by the 2015 build year. The existing two-story residential building on the site and wooded land are expected to remain.

A number of new residences are expected to be complete within the study area by the 2015 build year. West of the project site, at the intersection of Turner Street and Crabtree Avenue, a large residential development consisting of approximately 24 one- and two-family semi-attached homes are currently under construction. South of the project site, a two-family residence is currently under construction at 22 Clay Pit Road.

ZONING AND PUBLIC POLICY

In the future without the proposed project, the zoning on the project site and within the study area is expected to remain unchanged.

COMMUNITY CHARACTER

In the future without the proposed project, it is anticipated that the general character of the community in which the proposed project is located would remain as it is today, as a predominantly residential area with low-rise character. Any new development that might occur in the study area is not expected to be substantially different from what currently exists, nor is it

expected to introduce a significant new source of traffic or noise. Therefore, no change to the existing community character is expected in the future without the proposed project.

COMMUNITY FACILITIES

The Police Department has no known plans for any changes that will affect law enforcement services in this portion of the 123rd Precinct. Similarly, there are no other projects or changes in fire protection services or equipment expected by the 2015 build year.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE

PROJECT SITE

With the proposed project, the existing two-story residential building at the southeast corner of the project site would be demolished, and site preparation work on the remainder of the site would include the removal of trees and grading. The design plans for the proposed project are not yet finalized, however, it is expected that the proposed school building would contain approximately 67,000 gsf and would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on a wing to approximately 55 feet in height. The main entrance to the school would be located along the eastern side of the building, fronting on a new internal access roadway. Approximately 25 parking spaces for faculty would be provided on-site. Two outdoor playground areas would be located on the site at street-level, to the north and south of the new school building.

STUDY AREA

At two stories in height (approximately 29 feet to the roof and 55 feet to the photovoltaic extension), the proposed facility would be slightly taller than the surrounding structures. However, the proposed school facility would be compatible with the surrounding uses, which are primarily residential, and would be surrounded by landscaping.

ZONING AND PUBLIC POLICY

The proposed facility would conform to the use requirements of the R3-1 zoning district, which permits community facility uses, including schools, as-of-right. While the design of the school is not yet final, preliminary plans show that the photovoltaic roof structure would exceed the 50-foot maximum building height and required side setbacks. The proposed project would also require modification to the existing topography in excess of the two-foot limit that is allowed, and modifications with respect to the removal of trees greater than six-inch caliper. Therefore, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development to permit the project to proceed. If the zoning override is granted, it would apply only the project site and would have no impact on neighboring zoning or property. In addition, authorization from the City Planning Commission (CPC) would be required under the SRD District regulations. Therefore, the proposed project would have no significant adverse impacts to local zoning.

PLANYC 2030

The proposed project would provide an essential service to the growing residential population and be consistent with the goals of PlaNYC. The proposed design aims achieve a net zero energy consumption building (i.e., the new school facility would consume, on an annual basis, no more energy than the building produces). The net zero energy building would help achieve PlaNYC's goal of attaining the cleanest air quality of any big city in America and help reduce global warming emissions.

WATERFRONT REVITALIZATION PROGRAM

The proposed project complies with New York State's Coastal Management Program as expressed in New York City's approved Waterfront Revitalization Program. An analysis of the proposed project's consistency with the 10 policies of New York City's LWRP is provided in Chapter 6, "Waterfront Revitalization Program," and a Coastal Assessment Form (CAF) is provided in Appendix C.

COMMUNITY CHARACTER

The proposed project would replace current uses on the site with a new primary school facility that would be slightly taller than the existing surrounding buildings, but would be compatible with surrounding residential land uses. The proposed project would benefit the area by bringing new community facility uses to the neighborhood. The increase in traffic volumes with the proposed project is not expected to result in any significant adverse impacts to the character of the community.

COMMUNITY FACILITIES

The new school would provide additional community resources for area residents, and is expected to relieve overcrowding in nearby elementary schools. The Police and Fire Departments monitor conditions to determine how their personnel are deployed. Decisions to alter existing deployment patterns would be made only in response to a demonstrated change in demand. Police and fire services would be adjusted as deemed necessary by both agencies, and no significant adverse impacts to police or fire services are expected to result from the proposed project. ✷

A. INTRODUCTION

This chapter assesses the potential of the proposed project to affect historic and cultural resources. The project site is located on the block bounded by Bloomingdale Road to the east, Crabtree Avenue to the north, Woodrow Road to the south, and Trina Lane to the west (Block 7092, Lots 39 and 75) in the Rossville/Woodrow section of Staten Island (see **Figure 3-1**). The site is currently occupied by an undeveloped wooded lot and a lot containing a two-story residential building, which would be replaced by a new primary school and outdoor recreational areas. The project site is located within the boundaries of the National Register (NR)-listed Sandy Ground Historic Archaeological District, which was added to the National Register of Historic Places in 1982.

Historic and cultural resources include both archaeological and architectural resources. The study area for archaeological resources is the project site, which is the area that could be disturbed by the project construction. Study areas for architectural resources are determined based on the area of potential effect for construction-period impacts, such as ground-borne vibrations, and the area of potential effect for visual or contextual effects, which is usually a larger area. The architectural resources study area for this project is defined as being within an approximately 400-foot radius of the project site, as shown in Figure 3-1.

Known architectural resources include properties listed on the State and National Registers of Historic Places (S/NR) or properties determined eligible for S/NR listing, National Historic Landmarks (NHLs), New York City Landmarks (NYCLs) and Historic Districts (NYCHDs) and properties determined eligible for landmark status. Potential architectural resources are properties that may meet the criteria of eligibility for S/NR listing or NYCL designation.

B. EXISTING CONDITIONS

ARCHAEOLOGICAL RESOURCES

In November 2009, a Phase 1A Archaeological Documentary Study of Lot 39 was completed.[1] The study concluded that the lot was moderately sensitive for precontact archaeological resources and highly sensitive for historic period archaeological resources. The Phase 1A recommended a Phase 1B archaeological investigation of the site to determine the presence or absence of archaeological resources such as precontact deposits or historic period domestic shaft features (i.e., privies, cisterns, or wells).

[1] *Phase 1A Archaeological Documentary Study, New York City School Construction Authority: Crabtree Avenue Site; Block 7092, Lot 39, Staten Island, Richmond County, New York,* prepared by AKRF, Inc., November 2009.

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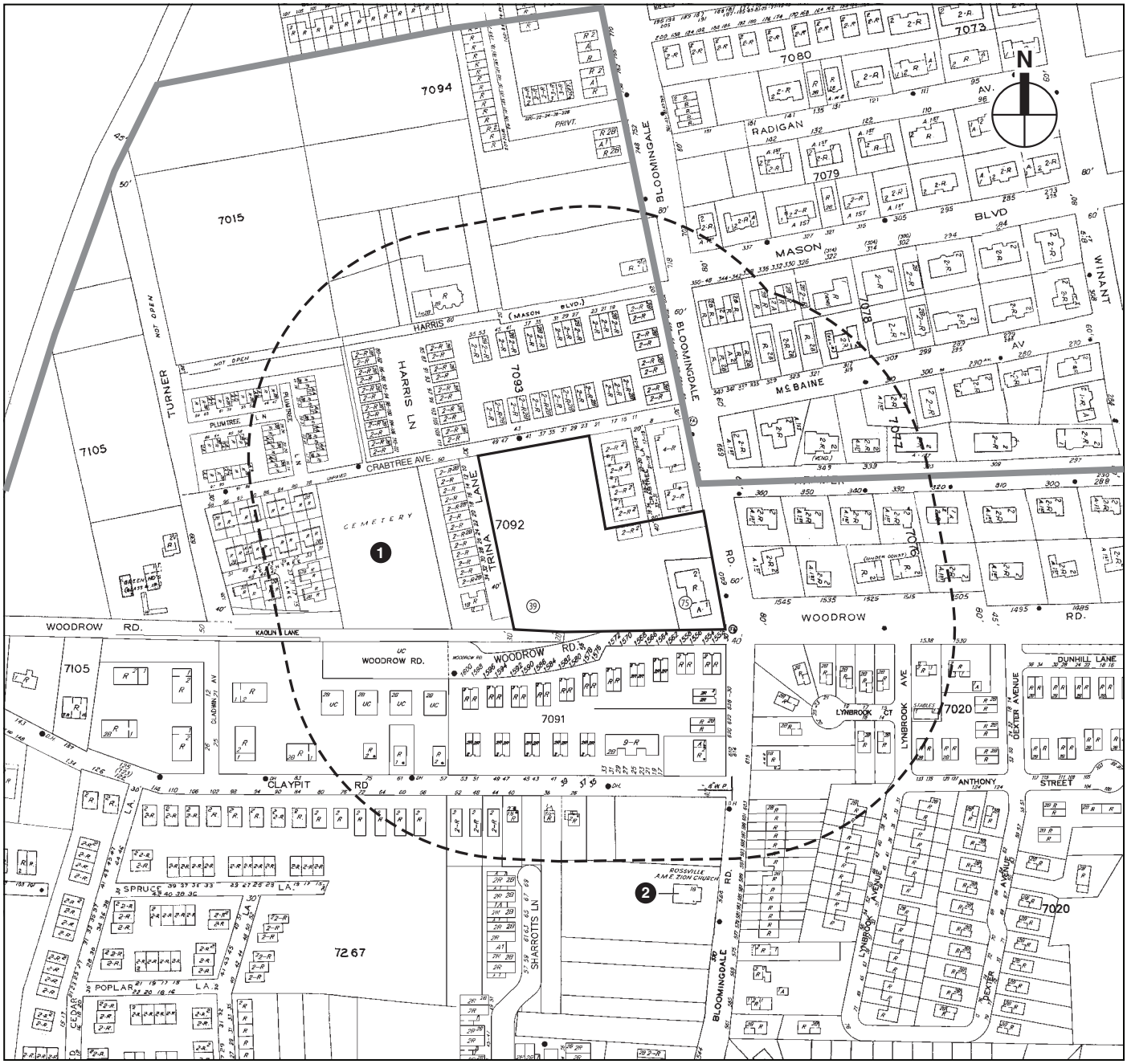

NOTE: Sanborn map has been altered to reflect current site conditions.

0 100 250 FEET
SCALE

Project Site Boundary

(39) Project Site Lot Number

Study Area Boundary
(400-Foot Perimeter)

❶ Rossville A.M.E. Zion Church Cemetery (NYCL)

❷ Rossville A.M.E. Zion Church (NYCL)

Approximate Boundary of the Sandy Ground Historic Archaeological District (S/NR)

Known Historic and Cultural Resources

Figure 3-1

In comments dated December 7, 2009, the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) concurred with the conclusions of the Phase 1A study (Appendix A). OPRHP requested that Phase 2 testing be completed rather than a Phase 1B investigation given that previous archaeological excavations completed on the project site in the early 1970s had identified intact archaeological deposits on the site and because shaft features are visibly extant on the property. In addition, Phase 2 testing was recommended because the project site is located within the S/NR-listed Sandy Ground Historic Archaeological District.

A Phase 2 Archaeological Investigation of the project site was completed in March 2011.[1] Lot 75 was added to the project site after the completion of the Phase 1A archaeological documentary study and was therefore included within the Phase 2 investigation. The Phase 2 Archaeological Survey concluded that three areas of the project site are considered to have the potential to contain significant archaeological resources: (1) the northwest corner; (2) the eastern shaft feature; and (3) the western shaft feature (see **Figure 3-4**). The Phase 2 report recommended additional archaeological investigation in the form of a data recovery of these areas and was submitted to OPRHP in March 2011 for review and comment. In a comment letter dated May 24, 2011, OPRHP concurred with the conclusions and recommendations of the Phase 2 survey (Appendix A).

An archaeological data recovery plan was submitted and approved by OPRHP in a letter dated September 13, 2011 (Appendix A) and the fieldwork portion of the data recovery was completed for the three areas of archaeological potential during the months of August and September 2011. Analysis of the recovered finds is ongoing and an end of field letter is currently being prepared for submission to the OPRHP. The data value of the identified resources has been collected and no additional archaeological fieldwork is warranted.

The conclusions from the Phase 1A and Phase 2 surveys and the data recovery are summarized below.

BACKGROUND HISTORY

The precontact period refers to the time when Staten Island was inhabited by Native Americans prior to the settlement of the region by European colonists in the 17th century. The precontact sensitivity of project sites in New York City is generally evaluated based on the presence of high ground (not exceeding 30 percent slopes), fresh water courses, well-drained soils, and close proximity to previously identified precontact archaeological sites. The project site is located in an area that was historically characterized by gently sloping (less than 3 percent) land and a freshwater stream known as Sandy Brook ran to the east of the project site. Finally, numerous precontact archaeological sites have been identified within one mile of the project site, including several campsites in the immediate vicinity of Sandy Brook. Therefore, it is possible that Lots 39 and 75 were occupied by Native Americans, perhaps as a campsite, during the precontact period.

After the European settlement of New York, Staten Island's development was slow compared to that of Manhattan and other nearby urban areas. The project site was developed with structures before 1835 and much of the surrounding land appears to have been used for agricultural purposes. By 1850, the project site was included within the farm of James S. Guyon, a member

[1] *Phase 2 Archaeological Investigation, New York City School Construction Authority: Crabtree Avenue Site; Block 7092, Lots 39 & 75, Staten Island, Richmond County, New Yor*k, prepared by AKRF, Inc., March 2011.

of a prominent Staten Island family that was descended from a French Huguenot settler who had emigrated to Staten Island in the 17th century. It is likely that members of the Guyon family occupied the project site prior to 1850, although property records from the first half of the 19th century are somewhat unclear.

The first documented structures on the property were constructed well before sewer and water lines were available in this portion of Staten Island. Therefore, the early residents of the project site, which included the Guyon and Staudt families as well as unknown individuals who may have inhabited a second house in the northwest corner of Lot 39, would have relied on shaft features such as privies, cisterns, and wells for sanitation and water gathering. The remnants of at least two such features are located on the property, possibly brick cisterns or subsurface structures associated with a nearby barn and ice house.

By the mid-19th century, the area surrounding the Guyon farm was increasingly developed as the population grew and a large population of free individuals of African descent settled in the area. The neighborhood, known today as Sandy Ground, was racially diverse and was focused largely on agriculture and oyster farming. Records show that many of the Guyon family's neighbors during the 19th century were of African descent and that many were involved in the Sandy Ground oyster industry.

Historic maps depict numerous structures on the property over the years, most notably the original Guyon farmhouse at the northwest corner of Bloomingdale and Woodrow Roads. Another, smaller, structure was included within another small lot at the northwest corner of Lot 39; a portion of this lot is now situated beneath Trina Lane. It is unclear who, if anyone, may have lived in this structure, however, census records show that many families of African descent or of mixed race lived near the Guyon family and one of those families may have rented the smaller house on the Guyon property. In addition, many outbuildings including barns, stables, and an ice house, were depicted on maps in various locations throughout the project site.

The Guyon family occupied the property continuously until the turn of the 20th century, when James S. Guyon died. The property was later sold to John Staudt, a German immigrant who operated a farm and store on the property and lived there with his family. In the early 1940s, after Staudt's death, the property was divided into smaller parcels and Lot 39, containing formerly cultivated land, was sold to the City of New York while Lot 75, containing the Guyon/Staudt home, was sold separately and continued to be used for residential purposes. In the early 1960s, the project site was affected by an enormous brush fire that destroyed the original home on Lot 75. A new house was constructed on Lot 75.

ARCHAEOLOGICAL SENSITIVITY OF THE PROJECT SITE

The Phase 1A study concluded that the project site was moderately sensitive for precontact archaeological resources and highly sensitive for historic period archaeological resources. The area of potential precontact sensitivity included the entire project site with the exception of the disturbed portions of Lot 75 (see **Figure 3-2**). Two areas of potential historic sensitivity were identified in the northwest and southeast corners of the project site (see Figure 3-2). The Sandy Ground area is considered archaeologically significant because it could provide information on three main topics: population migrations; the growth of communities; and, social reactions to economic pressures. The Sandy Ground community was established in the first half of the 19th century and went into decline after circa 1916, when the local oyster beds, where the majority of local residents worked, were closed. The majority of the artifacts that were analyzed in

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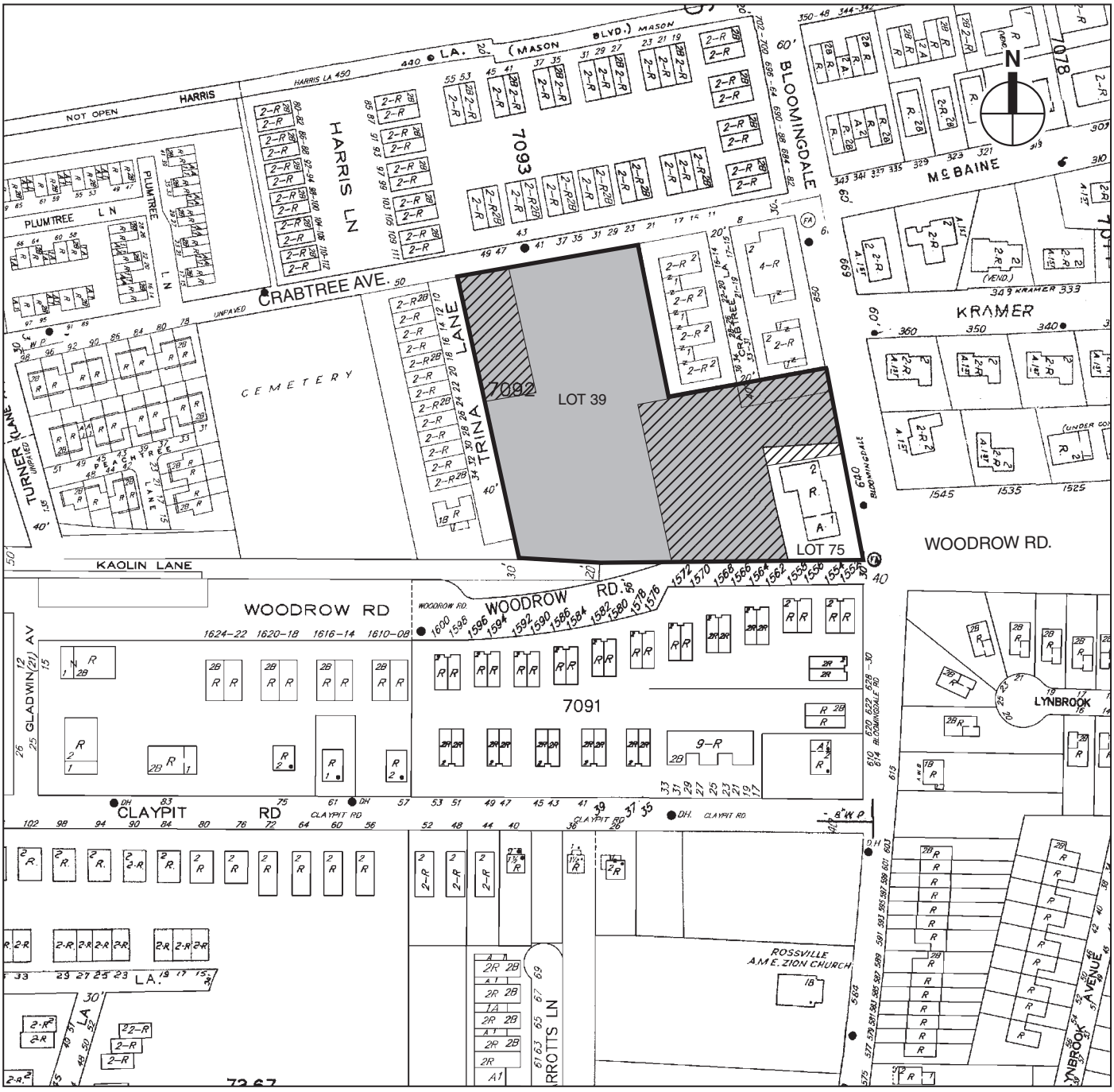


Project Site

Historic Sensitivity

Precontact Sensitivity

Areas of Archaeological Sensitivity

Figure 3-2

association with this Phase 2 survey were dated to between circa 1900 and 1940, suggesting that their deposition occurred around the same time as, or after the neighborhood's economic decline.

The Phase 2 Archaeological investigation involved the completion of a non-invasive geophysical survey and the excavation of 101 shovel test pits (STPs) and one testing unit. The goals of the survey were to identify the presence or absence of archaeological resources dating to both the precontact and historic periods; to determine the horizontal and vertical distribution of those resources; to re-identify and sample the historic period midden deposits identified on the project site during previous excavations; to document existing shaft features and sample any artifacts within; and to determine the integrity, significance, and eligibility of any archaeological resources that would be considered to be contributing resources within the broader context of the S/NR-listed Sandy Ground Archaeological Historic District.

Where possible, the STPs were excavated to the depth of native subsoil, which was typically encountered between 2 and 3 feet below ground surface. The excavation unit was excavated to a depth of 4.25 feet (51 inches), where a brick or concrete floor was encountered, rendering further excavation impossible. Soils overlying the native subsoil were typically fill deposits or disturbed and redeposited soils. More than 1,800 artifacts were recovered during the Phase 2 survey. All but one of these was considered to be modern refuse or historic artifacts. The exception was a single potential precontact flake recovered from a disturbed context in the southeast corner of the site.

As a result of varying artifact concentrations and artifact types that were identified during the Phase 2 survey, the project site was divided into three general areas: (1) the southeast corner, where potentially disturbed midden deposits associated with the Staudt family's occupation of the project site (circa 1900 to 1940) were found; (2) the central area of the site, which appears to have been disturbed as a result of the area's agricultural use; and (3) the northwest corner, where artifacts associated with the 19th-century residential occupation of a small historic lot were recovered.

Southeast Corner

The majority (75 percent) of the artifacts collected as part of the Phase 2 survey were recovered from the southeast corner. Deposits seemingly associated with an early-20th century trash midden were encountered within an approximately 10-foot-square area near the southern edge of the site. These deposits extended between the ground surface and a maximum depth of 4.25 feet, where the brick or concrete floor, possibly associated with some sort of refuse-containment structure, was encountered during the excavation of a unit. STPs in the area found midden deposits at shallower depths, followed by native subsoil at depths of 2 to 3 feet below ground surface. Additional deposits potentially associated with this midden were present to the north. While these additional deposits could indicate the presence of additional primary trash deposits, it seems more likely that the southern midden was disturbed and the trash deposits were scattered around a broader area within the southeast corner of the site.

The artifacts from the southeast corner of the site date to between circa 1900 and 1940 and were found beneath a level of modern refuse. These deposits were clearly associated with the Staudt family's occupation of the project site; a metal plate engraved with John Staudt's name was recovered from the trash midden. These deposits are likely from a similar trash midden that was identified in the early 1970s, by archaeologist Robert L. Schuyler, who conducted archaeological excavations within what is now the Sandy Ground Historic Archaeological District while operating a field school for the City College of New York (CCNY).

While the artifacts may have been deposited during a time when the neighborhood was facing a general decline, there is little evidence to suggest that the Staudt family, which operated a farm on the land and may have run a store from the property as well, were affected by the close of the oyster beds. A sufficient sample of the midden deposits was taken to characterize the remainder of the midden and to provide information on the lives of the Staudt family in terms of the types of food consumed and products. The Staudt family's presence on the project site does not appear to be associated with the broad patterns of history for which the Archaeological Historic District is considered significant. Therefore it does not appear that the remainder of these trash deposits possess significance. In addition, a large sample has already been collected from which sufficient information about the Staudt family's occupation can be obtained. The midden deposits are therefore not considered to retain their archaeological integrity and are not considered contributing elements to the S/NR-listed Sandy Ground Archaeological Historic District.

Two existing brick shaft features are present in this portion of the site. During the Phase 2 survey an STP was excavated in one of these shaft features and a mixture of modern and historic refuse was recovered. Subsoil was not reached and it appeared that the artifact deposits would have continued had further testing been possible. Hand testing was not possible in the second STP due to the presence of impenetrable concrete and brick rubble. Therefore, both existing shaft features were considered likely to contain intact archaeological deposits to depths potentially as great as 10 to 15 feet below the ground surface. Both features were completely excavated using an excavator during the data recovery. Based on the recovery of early 20th century materials throughout the entire extent of each feature it is clear that both features were filled during the first half of the 20th century and are associated with the Staudt family's occupation of the property. The midden deposits are therefore not significant and are not considered contributing elements to the S/NR-listed Sandy Ground Archaeological Historic District.

Northwest Corner

The northwest corner of the project site, which contained 17 percent of the total artifact count, contained the greatest concentration of mid- to late-19th century artifacts from the artifact assemblage. The 19th century artifacts, which included redware fragments, a gun flint, and part of a bone-handled knife, appear to represent the earliest domestic occupation that was identified through the Phase 2 survey. These deposits were encountered at various depths between the ground surface and native subsoil, which was identified approximately 2 to 3 feet below ground surface. The intact deposits in the northwest corner seem to suggest the presence of larger intact archaeological deposits in this area of the site, possibly a sheet midden or shaft feature. Therefore, the former historic lot measuring approximately 75 by 150 feet at the northwest corner of the site was thought to represent an archaeological site associated with the 19th century occupation of the Sandy Ground neighborhood. These deposits were expected to be situated between the ground surface and a depth of 2 to 3 feet (in locations of soil and debris piles, the depths will be greater).

The data recovery completed in the northwest corner consisted of a combination of mechanical soil stripping and hand excavation. All modern and disturbed soils were stripped from an area measuring approximately 100 feet by 150 feet and having an area of approximately 12,500 square feet. Soils were stripped to the original ground surface, encountered beneath one to three feet of fill. The original ground surface was then stripped exposing the underlying subsoil. No shaft features, trash middens, or building foundations were discovered. However, a number of small pockets of 19th century artifacts and a small number of small features identified as post

molds were identified extending into the subsoil. These features were documented and excavated and the associated artifacts were collected for analysis. A small assemblage of several hundred artifacts was collected that appear to be associated with the 19th century occupancy of the northwest corner of the project site. The assemblage appears to be the result of a diffuse distribution of refuse deposited on the original ground surface over time, as opposed to a primary deposit. The artifacts consisted primarily of ceramics, bottle glass, and architectural materials such as nails and brick fragments and were collected during shovel skimming stripped areas and through screening during the excavation of three 5 foot by 5 foot excavation units. The units were excavated into the buried original ground surface and extended into the underlying subsoil.

Central Area

Some similar, although more fragmentary, 19th century artifacts were also recovered from the central area of the site, which contained 8 percent of the total recovered artifact assemblage. The similarity between the ceramics found in found in the northwest and central portions of the site combined with the low density and widespread distribution of the artifacts in the central area, suggest the refuse originated in the northwest corner and was distributed through the central area, likely through effects of farming. This area is not expected to yield intact archaeological deposits and is not considered to be sensitive for archaeological resources.

ARCHITECTURAL RESOURCES

PROJECT SITE

As described above, the project site is located within the boundaries of the NR-listed Sandy Ground Historic Archaeological District. However, there are no architectural resources on the project site. The project site is currently occupied by vacant land and a two-story contemporary house and garage at the northwest corner of Bloomingdale and Woodrow Roads. The building is not associated with the Sandy Ground community. It does not meet age criteria (50 years) for listing on the S/NR and is not architecturally distinguished. Therefore, there are no architectural resources on the project site.

STUDY AREA

There is one known architectural resource in the 400-foot study area. The **Rossville A.M.E. Zion Church Cemetery** (NYCL) is located west of Trina Lane and south of Crabtree Avenue. The cemetery is a grassy parcel with an overgrown narrow roadway, bordered by a chain-link fence. The cemetery is an important surviving element of the 19th century Sandy Ground settlement. The cemetery contains the remains of at least 34 African American families associated with the Sandy Ground settlement (see Resource No. 1 on Figure 3-1 and Photo 1 of **Figure 3-3**). The church with which is associated was built in 1897 and is located on Bloomingdale Road south of Claypit Road (discussed below).

With respect to historic standing structures, the National Register Nomination Form for the Sandy Ground Historic Archaeological District identifies one standing structure as contributing to the significance of the historic district. This is the Harris-Pedro House, built in 1850 and formerly located on the north side of Harris Lane within the study area. At the time the nomination report was prepared the building was deteriorated and abandoned. It has since been demolished. The nomination form indicates that the superstructures of the remaining 19th century buildings associated with the historic free black oyster community have been extensively altered and as such are considered non-contributing elements to the historic district.

Rossville A.M.E. Zion Church Cemetery **1**

Rossville A.M.E. Zion Church **2**

In February 2011, the New York City Landmarks Preservation Commission designated as New York City Landmarks four properties associated with the historic Sandy Ground community. These properties are located outside the study area and include: the Rossville A.M.E. Zion Church at 584 Bloomingdale Road (located just south of the study area, see Resource No.2 on Figure 3-1 and photo 2 of Figure 3-3), two cottages at 565 and 569 Bloomingdale Road (also south of the study area), and the Coleman House at 1482 Woodrow Road (east of the study area).

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

Architectural resources that are listed on the National Register or that have been found eligible for listing are given a measure of protection from the effects of federally sponsored or assisted projects under Section 106 of the National Historic Preservation Act. Although preservation is not mandated, federal agencies must attempt to avoid adverse impacts on such resources through a notice, review and construction process. Properties listed on the State Register are similarly protected against impacts resulting from state-sponsored or state-assisted projects under the State Historic Preservation Act. Private property owners using private funds can, however, alter or demolish their properties without such a review process.

PROJECT SITE

In the future without the proposed project, it is assumed that the project site will remain unchanged with vacant wooded land and a two-story house and will not be developed by the 2015 analysis year. Therefore, no archaeological resources are expected to be disturbed.

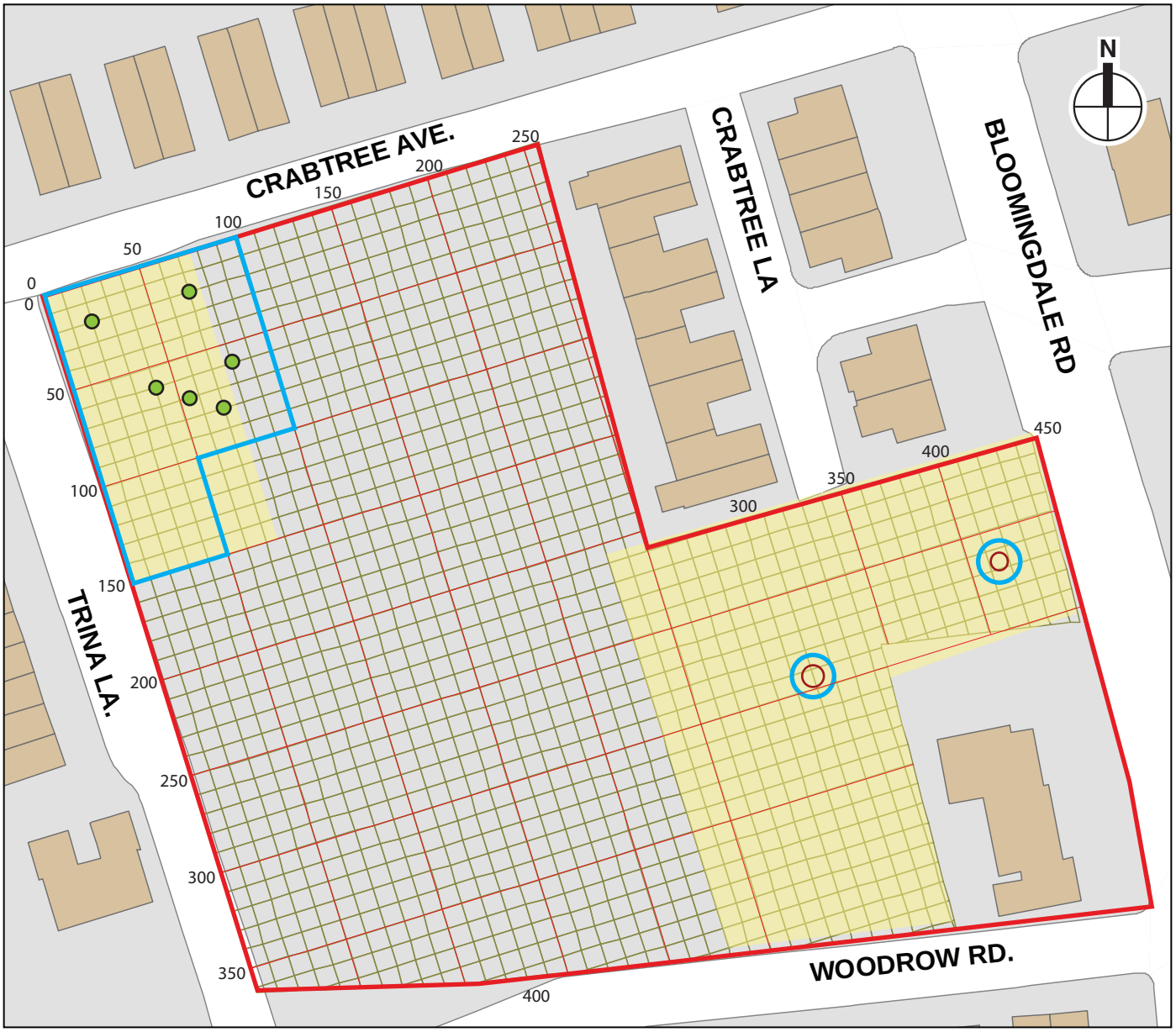
STUDY AREA

New residential development within the architectural resources study area is expected to be complete by the 2015 build year. West of the project site, at the intersection of Turner Street and Crabtree Avenue, a large residential development consisting of 24 semi-attached homes is currently under construction. South of the project site, at 22 Clay Pit Road, a two-family residence is currently under construction. Neither of these projects would directly affect architectural resources. However, these developments are located within the boundaries of the Sandy Ground Historic Archaeological District and could potentially disturb archaeological resources.

D. THE FUTURE WITH THE PROPOSED PROJECT

ARCHAEOLOGICAL RESOURCES

As discussed above, a data recovery has been completed for the three areas of the project site considered to have the potential to contain significant archaeological resources: (1) the northwest corner; (2) the eastern shaft feature; and (3) the western shaft feature (see **Figure 3-4**). No shaft features or building foundations were discovered during soil stripping of the northwest corner although an assemblage of artifacts possibly associated with its 19th century occupation was collected and the eastern and western shaft features were determined to post date the period of significance for the Sandy Ground district. Analysis of the recovered artifacts is currently underway but no additional fieldwork at the project site is warranted.



Areas Where Phase 3 Testing is Recommended

SCA P.S. 62R, Staten Island

Figure 3-4

With the completion of artifact analysis and preparation of a final report, and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources.

ARCHITECTURAL RESOURCES

In general, potential impacts on architectural resources can include both direct physical impacts and indirect impacts. Direct impacts include demolition of a resource and alterations to a resource that cause it to become a different visual entity. A resource could also be damaged from vibration (i.e., from construction blasting or pile driving) and additional damage from adjacent construction that could occur from falling objects, subsidence, collapse, or damage from construction machinery. Adjacent construction is defined as any construction activity that would occur within 90 feet of an architectural resource, as defined in the *New York City Department of Buildings (DOB) Technical Policy and Procedure Notice (TPPN) #10/88*.[1] Indirect impacts such as contextual impacts may include isolation of a historic resource from its setting or visual relationships with the streetscape, changes to a resource's visual prominence, elimination or screening of publicly accessible views of a historic resource, introduction of significant new shadows or significant lengthening of the duration of existing shadows on sun-sensitive historic resources, and introduction of incompatible visual, audible, or atmospheric elements to a resource's setting.

PROJECT SITE

As described in Chapter 1, "Project Description," the New York City School Construction Authority (SCA) has not finalized project plans for the proposed school. Based on preliminary conceptual plans the proposed school would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on a wing to approximately 55 feet in height. It is anticipated that the new school would be built on the west side of the project site. There would be outdoor recreational areas to the north and south of the school along Crabtree Avenue and Woodrow Road. The main bus drop off/pick up location would be from a new internal U-shaped roadway with access from Woodrow and Bloomingdale Roads, and the school's main entrance would likely face the new internal roadway. Since there are no known or potential architectural resources on the project site, the proposed project would have no adverse impacts on architectural resources on the project site.

STUDY AREA

The project site is located approximately 110 feet from the one historic resource in the study area, the Rossville A.M.E. Zion Church Cemetery. The Rossville A.M.E. Church, located just outside the study area, is approximately 450 feet from the project site. Due to these distances, no adverse construction-related impacts on these resources are expected as a result of the proposed project.

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[1] *TPPN #10/88* was issued by DOB on June 6, 1988, to supplement Building Code regulations with regard to historic structures. *TPPN #10/88* outlines procedures for the avoidance of damage to historic structures resulting from adjacent construction, defined as construction within a lateral distance of 90 feet from the historic resource.

The proposed project is not expected to result in any visual or contextual impacts on the Rossville A.M.E. Zion Church or Cemetery. The new school would be built within an existing block and across Trina Lane from the Cemetery. The row of contiguous houses on the west side of Trina Lane obstruct views between the project site and Cemetery, and, therefore, there is no visual relationship between the project site and the Cemetery. The visibility of the Cemetery on Crabtree Avenue would not be altered. As such, the proposed project would not isolate this historic resource from its setting or alter its visual prominence. The Church is located south of Claypit Road with an intervening block developed with houses. Therefore, there is no visual relationship between the Church and the project site and the proposed project would not result in any adverse visual or contextual impacts on the Rossville A.M.E. Zion Church.

Overall, the proposed project would not result in any significant adverse impacts to architectural resources. ✷

A. INTRODUCTION

This attachment considers the potential of the proposed project to affect urban design and visual resources. The project site (Block 7092, Lots 39 and 75) is in the Rossville/Woodrow section of Staten Island. It occupies the block bounded by Crabtree Avenue to the north, Bloomingdale Road to the east, Woodrow Road to the south, and Trina Lane to the west (see **Figure 4-1**). As per the guidelines presented in the 2010 *New York City Environmental Quality Review (CEQR) Technical Manual*, the urban design study area includes the area within 400 feet of the project site and is consistent with the study area for the land use, zoning, and public policy analysis. The study area is roughly bounded by the north side of Harris Lane to the north, the midblock between Bloomingdale Road and Winant Avenue to the east, the south side of Claypit Road to the south, and the midblocks between Bloomingdale Road and Gladwin Avenue and Turner Street to the west (see **Figures 4-1** and **4-2**). Views of the project site are generally not available beyond this distance.

The following preliminary assessment addresses urban design and visual resources for existing conditions and the future without and with the proposed actions for the year 2015, when the proposed project is expected to be completed. The basis for comparison is the No Action scenario which assumes that if the proposed project does not proceed, the project site will remain in its current condition by 2015.

As described below, the proposed project would replace a wooded area and a two-story house on the project site with a new primary school building that would also include two play areas, an access driveway, and surface parking. The New York City School Construction Authority (SCA) has not yet finalized project plans for the proposed school; however, as currently contemplated, the new school building would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on a wing to approximately 55 feet in height. Two outdoor play areas would be located on the site, to the north of the proposed school building along Crabtree Avenue and to the south of the building along Woodrow Road.

The proposed project would not be expected to adversely affect wind or sunlight conditions in the surrounding area. The proposed project would not alter the street pattern, block shapes, or natural features of the study area, nor would it introduce an incompatible use. Although the proposed school would be larger in bulk and somewhat taller in height than most study area houses, the school building would be compliant with zoning use regulations that allow schools on the project site as-of-right. While the design of the school is not yet final, preliminary plans show that the photovoltaic roof structure would exceed the 50-foot maximum building height and required side setbacks. The proposed project would also require modification to the existing topography in excess of the two-foot limit that is allowed, and modifications with respect to the removal of trees greater than six-inch caliper. Therefore, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development to permit the project to proceed. In addition, authorization from the City Planning Commission (CPC) would be

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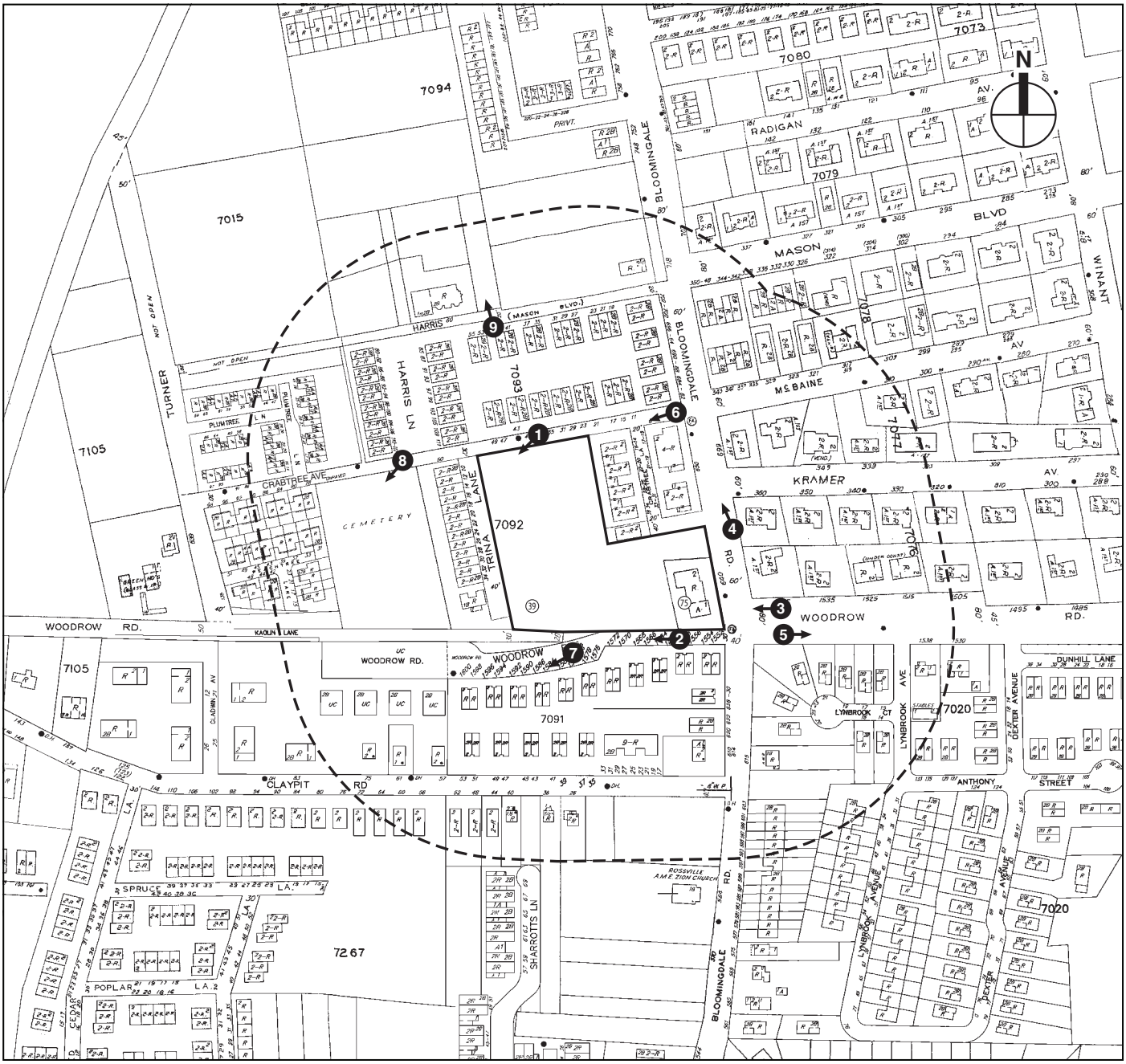


NOTE: Sanborn map has been altered to reflect current site conditions.

0 100 250 FEET
SCALE

Project Site Boundary

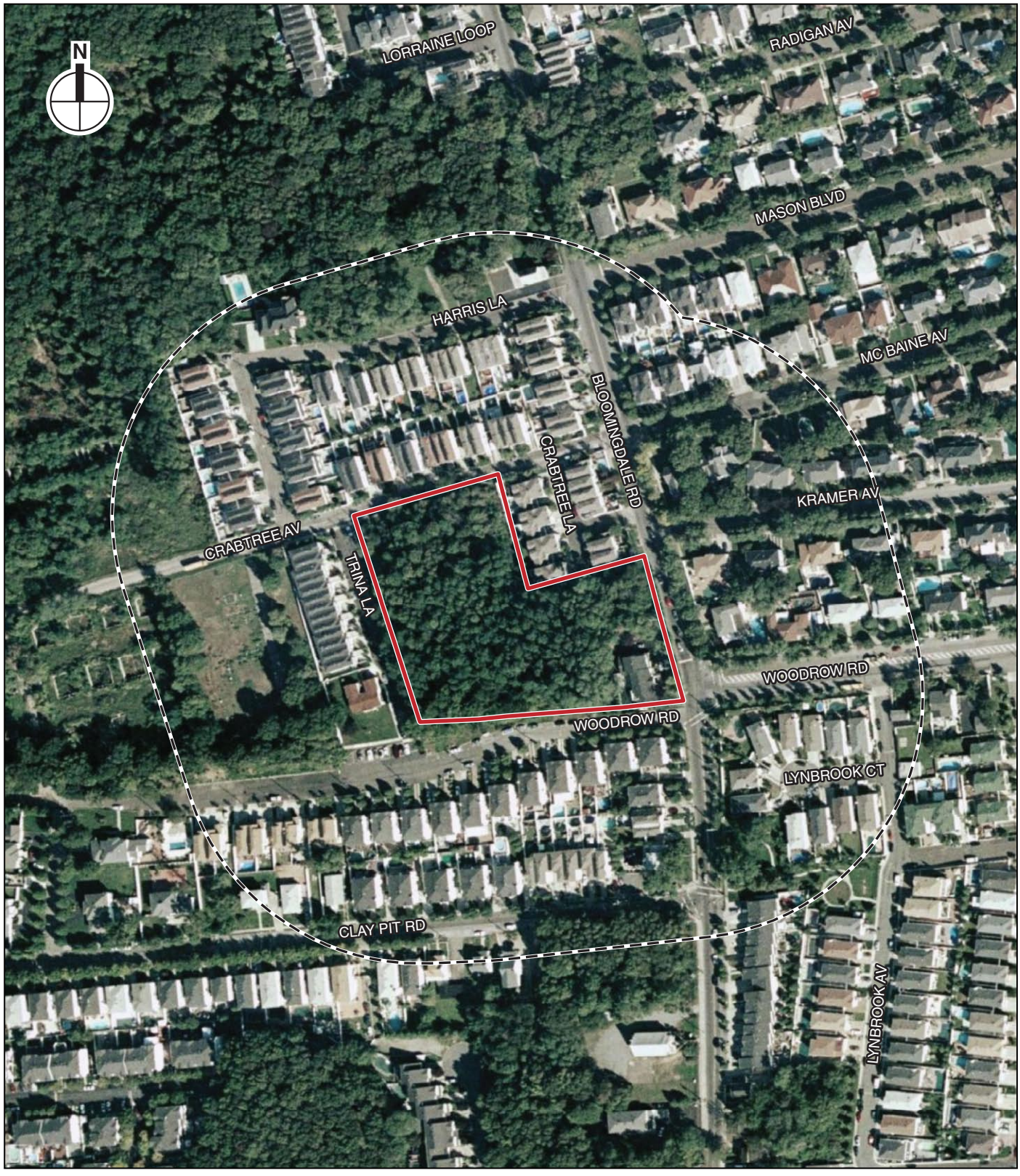
(39) Project Site Lot Number

Study Area Boundary
(400-Foot Perimeter)

1→ Photograph View Direction
and Reference Number

Urban Design and Visual Resources
Project Location and Study Area

5.17.11



Project Site Boundary

Study Area Boundary
(400-Foot Perimeter)

0 500 FEET

SCALE

Urban Design and Visual Resources
Aerial Map of the Project Location and Study Area
Figure 4-2

required under the Special South Richmond Development District (SRD) regulations. Therefore, SCA is consulting with the New York City Department of City Planning (DCP) regarding the proposed changes to natural features on the project site. With DCP's approval of the final design as it relates to the SRD zoning regulations, the anticipated changes to the pedestrian experience would not be expected to adversely affect the vitality, walkability, or visual character of the project site. Although some views in the study area would be altered by the redevelopment of the project site with a new school building, as described below, no significant visual resources or view corridors would be obstructed.

This preliminary assessment concludes that in comparison to the No Action scenario, the proposed project would not be expected to result in any significant adverse impacts to urban design and visual resources on the project site or in the study area and does not require a detailed urban design analysis.

B. EXISTING CONDITIONS

PROJECT SITE

URBAN DESIGN

The project site consists of an approximately three-acre, wooded area on Lot 39 and a two-story, free-standing house on Lot 75 immediately east of Lot 39. The wooded area is an overgrown undeveloped area that occupies an L-shaped portion of the project site fronting onto Crabtree Avenue and Bloomingdale and Woodrow Roads (see Views 1 and 2 of **Figure 4-3**). In its existing condition, it is not a noteworthy natural feature. The house on the eastern portion of the project site occupies a corner lot with frontages on Bloomingdale and Woodrow Roads. The house is faced in white vinyl siding and red brick. Its primary entrance faces Bloomingdale Road and is accessed by a paved driveway with two curb cuts (see View 3 of **Figure 4-4**). The project site has a total lot area of approximately 139,924 square feet. The current site topography varies approximately fourteen feet in elevation from highest to lowest points.

The project site was field surveyed in the spring and no notable pedestrian wind conditions were experienced at that time. Most study area buildings near the project site are two stories in height and are set back from the streets, with nearby streets ranging from 20 to 80 feet wide. In general, these conditions allow sunlight to reach the project site throughout the day.

VISUAL RESOURCES

There are no visual resources on the project site and no visual resources in the study area are visible from the project site.

STUDY AREA

URBAN DESIGN

Bloomingdale Road is the primary thoroughfare in the study area, extending north-south along the eastern boundary of the project site and carrying two-way traffic. Its width ranges from 40 to 80 feet (see **Figure 4-1**). Woodrow Road extends east-west south of the project site. Its width also varies—east of Bloomingdale Road it is 80 feet wide; west of Bloomingdale Road it is a private road and narrows, with segments ranging from 20 feet to 56 feet wide. The segment of

View southwest across the wooded area of the project site from Crabtree Avenue **1**

View northwest across the wooded area of the project site from Woodrow Road **2**

Urban Design and Visual Resources
Project Site
Figure 4-3

View west from Woodrow Road to the house on the project site **3**

Urban Design and Visual Resources
Project Site
Figure 4-4

Woodrow Road south of the Rossville A.M.E. Zion Church Cemetery is closed to traffic by traffic cones and a chain. Trina Lane, west of the project site, is a narrow private road. Other study area streets include narrow (20- and 30-foot-wide) streets, primarily west of Bloomingdale Road and 40- to 80-foot-wide streets extending east from Bloomingdale Road (see Views 4 and 5 of **Figure 4-5**). Most study area streets carry two-way traffic. Some streets terminate at cul-de-sacs. Streets and avenues throughout the study area have curbside parking. Most streets bordering the project site do not have sidewalks. Many blocks in the study area have irregular shapes and sizes due to the varied street widths and the changes in street patterns.

Most study area buildings are free-standing, semi-detached, and attached houses (see Views 6 and 7 of **Figure 4-6**). There are no commercial buildings but there are institutional facilities. Study area buildings do not cover their entire lots. Free-standing and semi-detached houses generally have small rectangular or square footprints, while attached houses have larger footprints. Most houses are two stories, faced in brick or vinyl siding, and have pitched roofs. Houses are set back from the sidewalk or street by small grassy yards and have paved driveways. Some houses have front stoops; many houses are raised above a garage. Most houses east of the project site are larger, free-standing buildings with large front yards.

Four institutional uses are located in the study area. The Friends Preschool and Daycare, located at 610-614 Bloomingdale Road, occupies a two-story free-standing house on a corner lot, approximately 200 feet south of the project site. It is set back from Bloomingdale and Claypit Roads, and has a paved surface parking lot along Claypit Road. Located approximately 110 feet west of the project site is the Rossville A.M.E. Zion Church Cemetery. The cemetery includes grassy areas and trees and is access by a paved roadway. Chainlink fences, some with privacy panels, establish the cemetery's boundaries (see View 8 of **Figure 4-7**). The Sandy Ground Historical Society occupies a two-story, free-standing house on a corner lot at 1538 Woodrow Road, approximately 350 east of the project site. The house is set back from Woodrow and Bloomingdale Roads. A small portion of the Clay Pit Ponds State Park Preserve is in the northwest portion of the study area and is characterized by dense trees and vegetation (see View 9 of **Figure 4-7**).

Streetscape elements in the study area include standard cobra head street lamps; traffic lights; fire hydrants; mail boxes; grassy yards and grassy areas with street trees between the streets and sidewalks; telephone poles with overhead lines; and bus stop signs (no shelters) on Bloomingdale Road. Most properties have curb cuts for driveways and many also have decorative brick walls, fences, or hedges along the property line.

The topography of the study area is generally flat. Natural features in the study area include two undeveloped wooded areas—located northwest of Harris Lane and at the southwest corner of Bloomingdale and Claypit Roads—and a narrow strip of undeveloped land immediately south of the cemetery on Woodrow Road. These areas are characterized by dense trees and vegetation. Most houses also have small grassy yards with trees and shrubs. There are also street trees throughout the study area, including several mature trees.

No notable pedestrian wind conditions were experienced when the study area was field surveyed. Building heights and street widths in the study area vary; these conditions generally allow sunlight to reach the much of the study area throughout the day.

View northwest on Bloomingdale Road **4**

View east on Woodrow Road **5**

Urban Design and Visual Resources
Study Area
Figure 4-5

View southwest on Crabtree Avenue **6**

View west on Woodrow Road **7**

Urban Design and Visual Resources
Study Area
Figure 4-6

View southwest on Crabtree Avenue to the Rossville A.M.E. Zion Church Cemetery **8**

View north from Harris Lane to the Clay Pit Ponds State Park Preserve **9**

Urban Design and Visual Resources Study Area

Figure 4-7

VIEW CORRIDORS AND VISUAL RESOURCES

There are no notable view corridors in the study area. Views on study area streets extend for long distances but are generally limited to views of adjacent buildings. There are longer views on Bloomingdale Road due its width; however, there are no prominent features in these views.

There are no visual resources in the study area. Although the Rossville A.M.E. Zion Church is a known architectural resource just outside the study area to the south, as described in Chapter 3, "Historic and Cultural Resources," it is not visually prominent within the surrounding context. Further, because of distance and intervening buildings, this church is not visible from the project site and there is no visual or contextual relationship between the project site and the church.

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

PROJECT SITE

In the future without the proposed project, the project site is expected to remain unchanged by the 2015 build year. Therefore, the urban design character of the project site will not be altered.

OTHER FUTURE PROJECTS

Several development projects in the study area are expected to be complete by 2015. A two-family residence is under construction at 22 Claypit Road, approximately 300 feet south of the project site. Orchard Estates, a new development consisting of 24 semi-attached homes, is under construction in the western portion of the study area near Turner Street and Crabtree Avenue, approximately 300 feet west of the project site.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

PROJECT SITE

URBAN DESIGN

The proposed project would remove a vacant, wooded area and two-story house from the project site. As described above, plans for the proposed project are not yet finalized; however, as currently anticipated, the project site would be redeveloped with a new, approximately 67,000-gross-square-foot (gsf) school building. As currently planned, the new school would be oriented along the western boundary of the project site. Based on preliminary plans, the proposed school would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on an approximately 55-foot-tall wing element extending approximately 30 feet beyond the building's footprint (see **Figures 1-4**, **4-8** and **4-9**). As described in Chapter 1, "Project Description," the proposed project is being designed with the intent to achieve net zero energy consumption. Key elements to the energy-efficient design include maximizing north and south exposures to optimize natural daylighting, and the large areas of photovoltaic panels raised above the roof surface.

Two outdoor play areas would be located on the site, to the north of the school building along Crabtree Avenue and to the south of the school along Woodrow Road. The school's main bus drop off/pick up area would be from a new internal U-shaped roadway with access from Bloomingdale and Woodrow Roads. Approximately 25 parking spaces for staff would be located in the vicinity of the school's internal roadway. The property's boundaries would be established

SOURCE: Skidmore Owings & Merrill, LLP

Aerial View of the Proposed School
(For Illustrative Purposes Only)
Figure 4-8

8.2.11

SOURCE: Skidmore Owings & Merrill, LLP

East Facade of the Proposed School
(For Illustrative Purposes Only)
Figure 4-9

by an approximately six-foot-tall fence, with an approximately ten-foot-tall fence along Crabtree Avenue. Gates would open onto the adjacent streets.

In order to accommodate handicapped accessible pathways throughout the site, the site would be re-graded and retaining walls would be required along the western edge of the site (at Trina Lane), along the eastern edge (adjacent to the rear lot lines of the existing residential lots), and along the southern edge (near Woodrow Road). The retaining wall on the southern edge of the site would separate the play area and bio-retention area from the proposed sidewalk and walkway area adjacent to the existing Woodrow Road; the proposed sidewalk and walkway area would be graded to the current existing curb level. The retaining walls on the project site would vary in height from six inches to four feet.

The new building would be set back from the Crabtree Avenue sidewalk by approximately 85 feet, from the Woodrow Road sidewalk by approximately 70 to 85 feet, and from the Bloomingdale Road sidewalk by approximately 209 feet. The school's primary entrance would likely face the project site's new internal roadway. Secondary entrances to the school would be located on Trina Lane and on a north-south sidewalk adjacent to the school's east façade (see Figure 4-8). SCA intends to retain some of the existing trees on the site where possible. All public roadways bordering the site would be upgraded, and all new sidewalks bordering public roadways would include new street trees.

The proposed school would be constructed on an existing block and would not entail any changes to streets or street patterns or public open space on the project site. The use on the project site would change from a vacant, wooded area and a two-story house in the No Action scenario to a public school with the proposed project. Although the proposed project would result in a new building of a different height, use, bulk, and lot coverage than the existing wooded area and house on the project site, these changes would not considered adverse as the new school would be constructed in a largely residential area where schools are permitted as-of-right.

The New York City Department of Transportation (DOT) is considering street improvement projects on Woodrow Road and Bloomingdale Roads, bordering the project site, including: widening a segment of Woodrow Road directly south and west of the project site to 100 feet and an extension to provide direct access to Route 440; and widening a segment of Bloomingdale Road directly east and north of the project site to create new sidewalks. The site plan of the proposed school project has been designed to accommodate the potential future widening of Woodrow and Bloomingdale Roads. When the Woodrow Road widening and extension project advances, only minor modifications would be required at the site of the proposed school. These would include modifications to the internal access roadway, sidewalks, and some staff parking spaces located along the southern edge of the site. (See Chapter 18 for further discussion of the potential effects associated with these modifications.) If the Bloomingdale Road street improvement project proceeds, the lot area of the project site would be reduced to 136,300 sf. If the Woodrow Road street improvement project proceeds, the lot area of the project site would be reduced to 115,875 sf. As shown in **Table 4-1**, the zoning floor area of the proposed project would be in compliance with the applicable floor area requirements, under both the existing condition (i.e., existing lot area) and in the event that the street improvement projects proceed at some time in the future. Therefore, a new school would be an appropriate addition to the project site.

Table 4-1
Project Site Zoning

Zoning District	Maximum Allowable FAR	Lot Area	Maximum Allowable ZFA	Proposed ZFA
R3-1 within Special South Richmond Development District (Overlay Area H)	1.0 (community facility)	139,924	139,924	Approx. 42,300

Sources: NYC School Construction Authority; Skidmore, Owings & Merrill, LLP; Zoning Resolution of the City of New York

The proposed school is a use that is permitted in an R3-1 zoning district, therefore, no zoning use overrides are anticipated for the proposed project. Preliminary plans show that the photovoltaic roof structure would exceed the 50-foot maximum building height and required side setbacks. The proposed project would also require modification to the existing topography in excess of the two-foot limit that is allowed, and modifications with respect to the removal of trees greater than six-inch caliper. Therefore, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development to permit the project to proceed. As described in Chapter 2, "Land Use, Zoning, and Community Character," the project site is located within the SRD District which was established to guide development of predominantly vacant land in southern Staten Island. In compliance with the SRD mandates, SCA will coordinate with DCP with respect to tree preservation, planting requirements, and changes to the topography concerning the project site. The removal of trees and changes to topography on the project site would affect natural features, however, the proposed changes to natural features would be made in consultation with DCP per SRD mandates, and therefore would not result in adverse impacts. Thus, with DCP approval of the final design as it relates to the SRD zoning regulations, the anticipated changes to the pedestrian experience would not be expected to adversely affect the vitality, walkability, or visual character of the project site.

Wind conditions on the project site would not be significantly altered with the proposed actions. Sunlight conditions would be somewhat altered with the redevelopment of the project site with a new school building whose bulk and massing would be different from the No Action condition. However, these changes would not be expected to adversely affect the pedestrian experience of the project site.

Overall, the new school building would be expected to positively affect the character of the project site by redeveloping it with a new school building, playgrounds, and parking that would add new pedestrian activity to the project site.

VIEW CORRIDORS AND VISUAL RESOURCES

As there are no visual resources on the project site and there are no visual resources in the study area, the proposed project would have no adverse impacts on such resources.

STUDY AREA

URBAN DESIGN

The proposed school would be constructed on an existing block and would not alter streets, street patterns, block shapes, or buildings in the study area. Schools are allowed on the project

site as-of-right under existing zoning regulations. Although the proposed school would be slightly taller and its footprint would be larger than most study area houses, the school building would be compliant with existing zoning regulations governing lot coverage. Like most study area buildings, the new school would also be set back from the adjacent streets and, on Crabtree Avenue and Woodrow Road, the school would be set back beyond new playgrounds. The school would be set back from Bloomingdale and Woodrow Roads by the new internal roadway and wooded area. While the proposed school would add a new building to the project site that would have a different bulk and massing from other buildings in the study area, the new school's design and location on the project site have been developed to visually reduce the perceived height and size of the building by pedestrians from nearby locations in the study area.

The redevelopment of the project site with a new school, playgrounds, and an access road would alter the pedestrian experience of the project site from nearby study area streets. However, these changes would not be considered adverse because the new school and playgrounds would add active uses to the project site that would enliven the study area's streetscape with new pedestrian activity.

As the new school would be constructed on an existing block, there would be no impacts to natural features in the study area as a result of the proposed project. The new school building also would not be expected to adversely affect wind or sunlight conditions in the surrounding area.

VIEW CORRIDORS AND VISUAL RESOURCES

There are no significant view corridors or visual resources in the study area. Therefore, there would be no adverse impacts with the proposed project.

Overall, with the proposed actions the proposed project would not result in any significant adverse impacts to urban design or visual resources and does not require further analysis. ✷

Chapter 5: Natural Resources

A. INTRODUCTION

This chapter examines the potential impacts from the proposed project on terrestrial natural resources within the project site. The 2010 *City Environmental Quality Review Manual* defines natural resources as "(1) the City's biodiversity (plants, wildlife and other organisms); (2) any aquatic or terrestrial areas capable of providing suitable habitat to sustain the life processes of plants, wildlife, and other organisms; and (3) any areas capable of functioning in support of the ecological systems that maintain the City's environmental stability." The project site consists of approximately 3.2-acres, including a 2.9-acre undeveloped, heavily-wooded lot (Lot 39), and an approximately 0.3-acre lot containing a residential building (Lot 75). The project site is located in the southwestern portion of Staten Island within the South Richmond Development District.

This chapter describes:

- The current condition of the floodplain and terrestrial natural resources within the project site, including threatened or endangered species and species of special concern;
- The floodplain and terrestrial natural resources conditions in the future without the proposed project (the "No Action" condition);
- The potential impacts of the proposed project on the floodplain and terrestrial natural resources; and
- The measures that would be developed, as necessary, to mitigate and/or reduce any of the proposed project's potential significant adverse effects on natural resources and floodplains.

B. METHODOLOGY

Because the proposed project would not affect the surrounding terrestrial resources of the primarily residential uses, or the floodplain either directly or indirectly during construction or operation of the proposed project, the study area is limited to the boundaries of the project site and the immediate vicinity. An exception was made for the identification of threatened or endangered species, which were evaluated for a distance of at least 0.5 miles from the project site. With the exception of Zion Cemetery to west of the project site, a portion of Clay Pit Ponds State Park Preserve about 300 feet north of the project site, and a nearby day care facility, land uses immediately surrounding the project site are residential. Existing conditions for floodplain and terrestrial natural resources within the study area were summarized from:

- Existing information identified in literature and obtained from governmental and nongovernmental agencies, such as U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps; New York State Breeding Bird Atlas; New York State Department of Environmental Conservation (NYSDEC) Amphibian and Reptile Atlas Project, Federal Emergency Management Agency (FEMA) flood insurance rate maps; United States Geological Survey (USGS)—topographic quadrangle map for the Arthur Kill quadrangle;

- Ecological Communities of New York State (Reschke [1990], Edinger et al. [2002]);
- New York Natural Heritage Program (NYNHP) response to a request for information on rare, threatened, or endangered species in the vicinity of the project site; and
- On-site observations made during a field reconnaissance on October 13, 2009—Habitat classifications on the project site were developed on the basis of the field reconnaissance and Edinger et al. (2002).

This analysis evaluates floodplains and terrestrial resources in the future without the proposed project, and assesses any potential adverse impacts to floodplains and terrestrial natural resources that would occur as a result of the proposed project.

C. REGULATORY CONTEXT

The following is a summary of State and City legislation and regulations that would apply to the proposed project.

Activities associated with the proposed project must comply with the following State and City legislation and regulatory programs that pertain to the natural resources present within the project site.

NEW YORK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) (N.Y. ENVIRONMENTAL CONSERVATION LAW [ECL] ARTICLE 3, TITLE 3; ARTICLE 15; ARTICLE 17, TITLES 3, 5, 7, AND 8; ARTICLE 21; ARTICLE 70, TITLE 1; ARTICLE 71, TITLE 19; IMPLEMENTING REGULATIONS 6 NYCRR ARTICLES 2 AND 3)

Title 8 of Article 17, ECL, Water Pollution Control, authorized the creation of the State Pollutant Discharge Elimination System (SPDES) to regulate discharges to New York State's waters. Activities requiring a SPDES permit include point source discharges of wastewater into surface or groundwaters of the state, including the intake and discharge of water for cooling purposes, constructing or operating a disposal system (sewage treatment plant), discharge of stormwater, and construction activities that disturb one or more acres.

FRESHWATER WETLANDS ACT, ENVIRONMENTAL CONSERVATION LAW [ECL] ARTICLE 24, IMPLEMENTING REGULATIONS 6 NYCRR PART 662

The Freshwater Wetlands Act requires NYSDEC to map freshwater wetlands protected by the Act (12.4 acres or greater in size containing wetland vegetation characteristic of freshwater wetlands as specified in the Act). Around each mapped wetland is a protected 100-foot adjacent area that serves as a buffer. In accordance with the Act, the NYSDEC ranks wetlands in one of four classes that range from Class 1, which represents the greatest benefits and is the most restrictive, to Class IV. The permit requirements are more stringent for a Class I wetland than for a Class IV wetland. Certain activities (e.g., normal agricultural activities, fishing, hunting, hiking, swimming, camping or picnicking, routine maintenance of structures and lawns, and selective cutting of trees and harvesting fuel wood) are exempt from regulation. Activities that could have negative impact on wetlands are regulated and require a permit if conducted in a protected wetland or its adjacent area. There are no mapped State freshwater wetlands on the project site but they do exist in the surrounding area.

ENDANGERED AND THREATENED SPECIES OF FISH AND WILDLIFE; SPECIES OF SPECIAL CONCERN (ECL, SECTIONS 11-0535[1]-[2], 11-0536[2], [4], IMPLEMENTING REGULATIONS 6 NYCRR PART 182)

The Endangered and Threatened Species of Fish and Wildlife, Species of Special Concern Regulations prohibit the taking, import, transport, possession, or selling of any endangered or threatened species of fish or wildlife, or any hide, or other part of these species as listed in 6 NYCRR §182.6.

NEW YORK CITY

SPECIAL SOUTH RICHMOND DEVELOPMENT DISTRICT

The project site is within the Special South Richmond Development District (SRD) which was established in 1975 to guide the development of the southern part of Staten Island. The SRD includes strict rules to manage growth within the more than 20 square miles of the SRD and to ensure that the provision of public infrastructure keeps pace with new development.

To avoid destruction of the natural and recreational resources that define the community, the district mandates tree preservation and planting requirements, controls changes to topography, establishes special building height and setback limits, and designated open spaces to be left in a natural state as part of an open space network that includes public parks and waterfront esplanades.

NEW YORK CITY STREET TREE ZONING AND TREE PLANTING PERMIT

The New York City Council passed a zoning text amendment which requires trees to be planted along the curb following the construction of new buildings and certain types of alternations citywide. All applicants must apply to the New York City Department of Parks and Recreation (DPR) for street tree planting permits. The current zoning requires all new buildings and enlargements exceeding 20 percent of the floor area to have 1 tree for every 25 feet of road frontage including existing trees.

D. EXISTING CONDITIONS

FLOODPLAINS

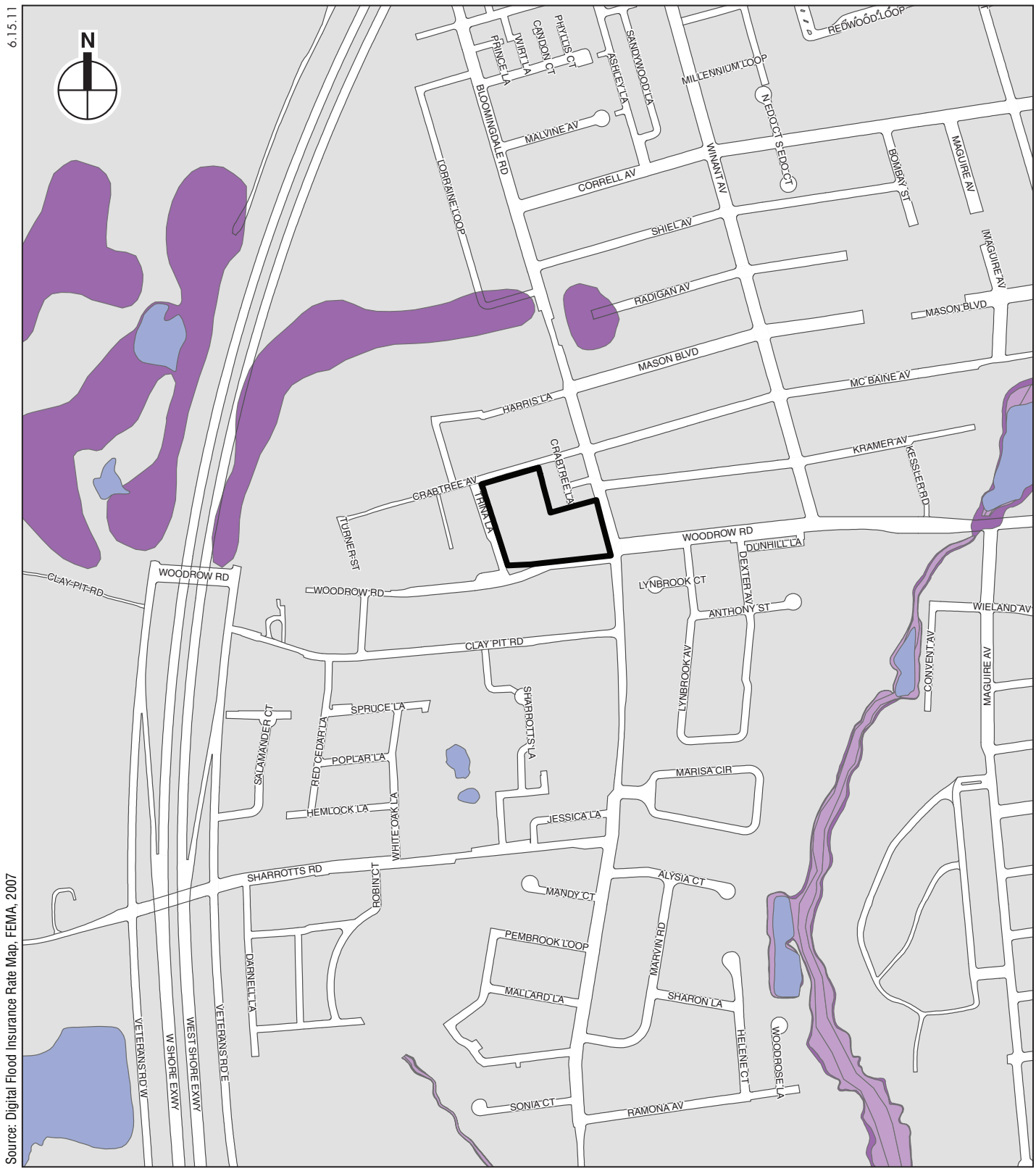
As shown in **Figure 5-1**, the project site is not located within FEMA designated 100- or 500-year floodplains.

TERRESTRIAL RESOURCES

VEGETATION

Land cover on the project site consists of upland woodlands that would be described as successional southern hardwoods (Edinger et al. 2002) which are:

> "a hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed. Characteristic trees and shrubs include any of the following: American elm *(Ulmus Americana),* slippery elm *(Ulmus rubra), white ash (Fraxinus americana),* red maple *(Acer rubrum*), box elder *(Acer negundo*), silver maple *(A. saccharinum),* sassafras *(Sassafras albidum),* gray birch *(Betula populifolia),* hawthorns *(Crataegus spp.),* eastern red cedar *(Juniperous virginiana),* and choke-cherry *(Prunus virginiana).* Certain introduced species are commonly found in successional forests, including black locust *(Robinia pseudo-acacia),* tree-of-heaven *(Ailanthus altissima),* and buckthorn



SCA P.S. 62R, Staten Island

FEMA Floodplain
Figure 5-1

(Rhamnus cathartica). Any of these may be dominant or codominant in a succesional southern hardwood forest. Southern indicators include American elm, white ash, red maple, box elder, choke-cherry, and sassafras. This is a broadly defined community and several seral and regional variants are known.*"*

The 2.9-acre parcel (Lot 39) on the project site features tree canopy that encloses most of the project site (see site photographs in **Figures 5-2 through 5-6** and photograph reference key **Figure 5-7**). Table 5-1 lists vegetation observed on the project site during the field reconnaissance effort. Black cherry (*Prunus serotina*), red maple (*Acer rubrum*), black locust (*Robinia psuedoacacia*) and sassafras (*Sassafras albidum*) are the dominant tree species on the project site. While the understory is dominated by smaller trees and southern arrowwood (*Viburnum dentatum),* Japanese knotweed (*Polygonum cuspidatum),* roundleaf green brier *(Smilax rotundifolia),* and poison ivy *(Rhus radicans)* comprise approximately 80 percent of the herbaceous community.

Table 5-1
Vegetation Observed on Project Site

Common Name	Scientific Name
Trees	
black cherry	*Prunus serotina*
black locust	*Robinia pseudoacacia*
sassafras	*Sassafras albidum*
American beech	*Fagus grandifolia*
pin oak	*Quercus palustris*
oak sp.	*Quercus sp.*
sweetgum	*Liquidambar styraciflua*
Norway maple	*Acer platanoides*
tree-of-heaven	*Ailanthus altissima*
red maple	*Acer rubrum*
cottonwood	*Populus sp.*
Shrubs/Herbaceous	
Japanese knotweed	*Polygonum cuspidatum*
southern arrowwood	*Viburnum dentatum*
mugwort	*Artemesia vulgaris*
mowed lawn	*various grass species*
lady's thumb	*Polygonum periscaria*
roundleaf green brier	*Smilax rotundifolia*
pokeweed	*Phytolacca americana*
daisy fleabane	*Erigeron annuus*
Vines	
Virginia creeper	*Parthenocissus quinquefolia*
poison ivy	*Toxicodendron radicans*

Source: AKRF field visit conducted October 13, 2009.

Approximately 60 to 70 percent of trees within the project site have a diameter at breast height (DBH) of 6 inches or greater. The larger trees (greater than 10 inches DBH, primarily black locust and black cherry) occupy the site boundaries while the younger trees, less than 6 inches DBH occupy the central portion of the project site. Several large pin oaks (*Quercus palustris*) with a DBH of 18 inches or greater are located within the periphery of the project site near Woodrow Road.

View from southern boundary of project site, midway between Trinia and Bloomingdale Roads **1**

View from southwestern portion of project site facing residential area to the west **2**

View from southeastern portion of project site facing black locust trees to the east **3**

View of Norway maple trees near existing home in northeastern corner of project site **4**

View of various tree species within central portion of project site facing east **5**

View from southeastern portion of project site facing northwest **6**

View from northwestern corner of project site facing south **7**

View from northern portion of project site facing south **8**

View along Crabtree Avenue facing east **9**

6.15.11

Project Site

Photograph Location and View Direction

0 200 FEET

SCALE

SCA P.S. 62R, Staten Island

Aerial Photograph

Figure 5-7

The open edges of the project site comprise mowed lawn extending approximately 8 feet from the roads along the south and western project area boundaries and include various grass, wildflower and weed species. The surrounding area includes paved roads with dense residential landscaping.

In June, 2011, a tree survey was conducted by Mark K. Morrison Landscape Architecture, PC. (See Appendix B.) According to the survey, 621 trees had a diameter at breast height (DBH) of 6 inches or greater. The survey found the majority of these trees to be in fair condition while a number of trees were deemed to be in good or very good condition. Non-native species represented 34 percent of the surveyed trees.

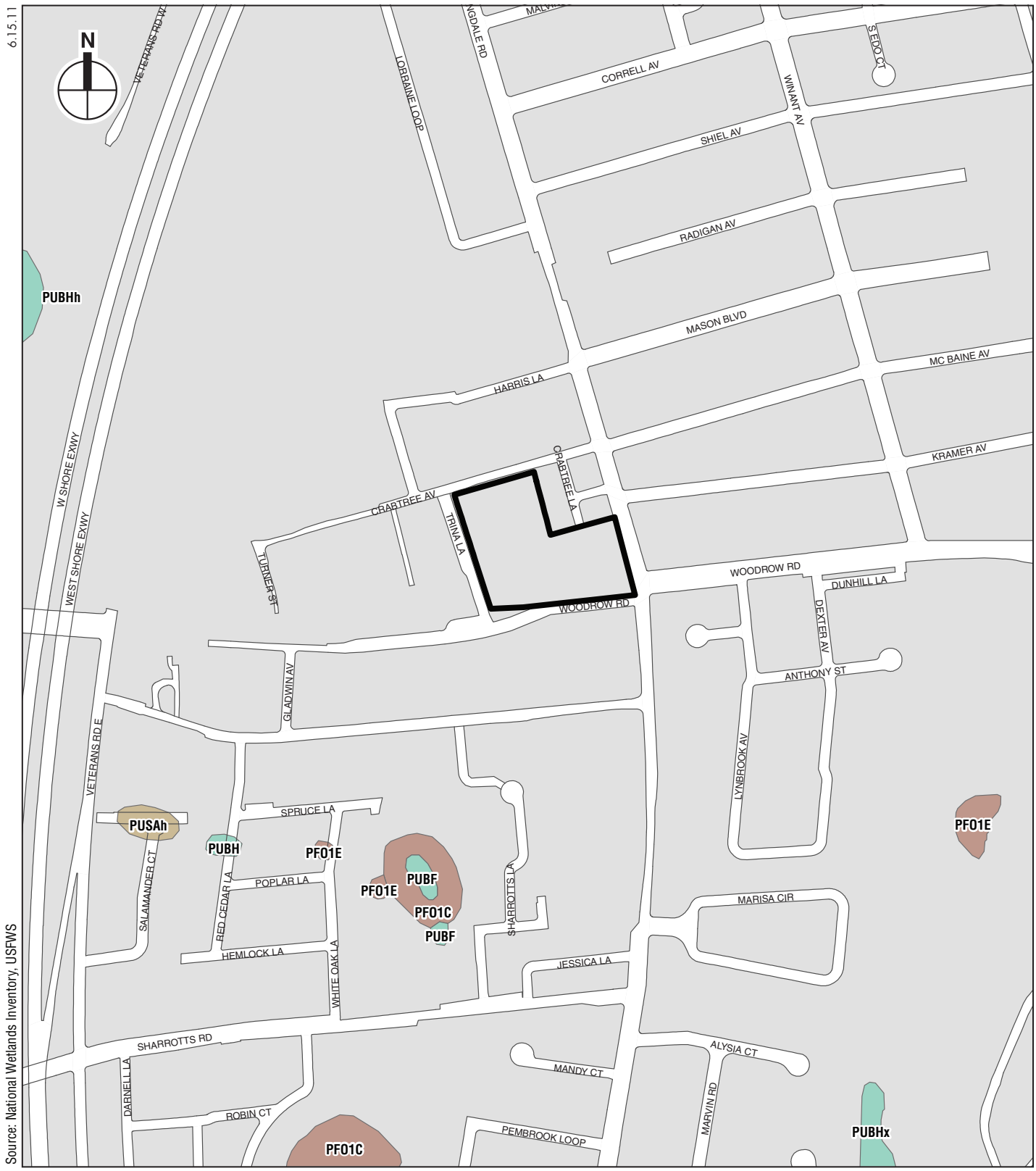
WETLANDS

As indicated in **Figures 5-8 and 5-9**, and observations made during the site visit, there are no NWI mapped wetlands or NYSDEC mapped freshwater wetlands present on or in the vicinity of the project site.

WILDLIFE

Although several burrows, roughly 6 to 8 inches in diameter were observed throughout the project area, rock doves (Columba livia) and gray squirrel (Sciurus carolinenis) were the only wildlife observed during field reconnaissance. Wildlife common to urban areas that would be expected to occur within the project site include raccoon (Procyon Lotor), grey squirrel (Sciurus carolinensis), Norway rat (Rattus norvegicus), and feral cat (Felis catus). Reptile and amphibian species identified in the NYSDEC Reptile and Amphibian Atlas Project for Staten Island with the potential to occur on the project site include Fowler's toad (*Bufo woodhousii fowleri*) and common garter snake *(Thamnophis sirtalis)*.

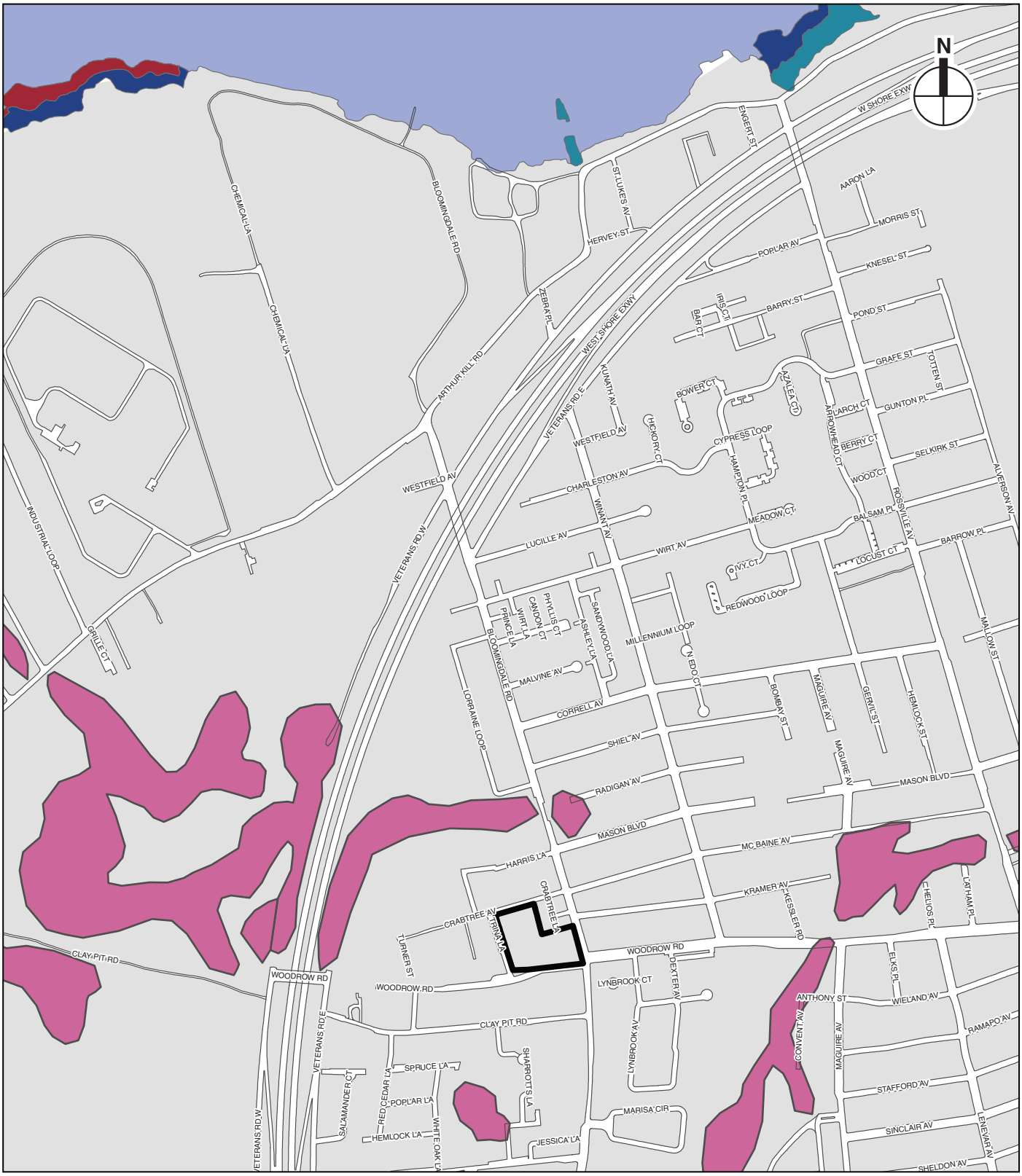
According to the NYSDEC Breeding Bird Atlas (2000-2005), 59 bird species have been identified as potential breeders within the survey block that includes the study area (5648A). On the basis of available habitat observed on and in the vicinity of the project site, bird species with the potential to occur within the project site include those breeding birds common to urban edge and woodland habitats, such as downy woodpecker *(Picoides pubescens)*, blue jay *(Cyanocitta cristata)*, black-capped chickadee *(Poecile atricapillus)*, Carolina wren *(Thryothorus ludovicianus)*, American robin *(Turdus migratorius)*, gray catbird *(Dumetella carolinensis)*, northern cardinal *(Cardinalis cardinalis)*, and brown-headed cowbird *(Molothrus ater)*. Because of the proximity to the larger woodland habitats found within the Clay Pit Ponds State Park Preserve, forest-dwelling species found more often in larger urban forest patches, such as eastern screech-owl *(Megascops asio)*, Red-eyed Vireo *(Vireo olivaceus)*, and Wood Thrush *(Hylocichla mustelina)* also have the potential to occur within the project site. The project site would also be used as foraging habitat by a variety of seasonally migrating passerines, such as Wood Warblers (*Dendroica spp.*) and Rose-breasted Grosbeak (*Pheucticus ludovicianus*); and overwintering species, such as White-throated Sparrow (*Zonotrichia albicollis*), Slate-colored Junco (*Junco hyemalis*), and Black-capped Chickadee. These species, in addition to others listed as part of breeding block 5648A are listed in Table 5-2 below. The larger contiguous areas of woodland and edge habitats found within Clay Pit Ponds State Park Preserve located to the northwest of the project site, and also within breeding block 5648A, would be expected to provide habitat for most of the breeding species identified for this breeding block.



National Wetland Inventory Mapped Wetlands

SCA P.S. 62R, Staten Island

Figure 5-8



NYSDEC Wetlands

Figure 5-9

SCA P.S. 62R, Staten Island

Table 5-2
Bird Species within Breeding Block 5648A

Common name	*Scientific name*
mallard	*Anas platyrhynchos*
Canada goose	*Branta canadensis*
wood duck	*Aix sponsa*
ring-necked pheasant	*Phasianus colchicus*
green heron	*Butorides virescens*
cooper's hawk	*Accipiter cooperii*
red-tailed hawk	*Buteo jamaicensis*
killdeer	*Charadrius vociferus*
American woodcock	*Scolopax minor*
yellow-billed cuckoo	*Coccyzus americanus*
eastern screech-owl	*Megascops asio*
great horned owl	*Bubo virginianus*
Chimney Swift	*Chaetura pelagica*
belted kingfisher	*Megaceryle alcyon*
red-bellied woodpecker	*Melanerpes carolinus*
downy woodpecker	*Picoides pubescens*
hairy woodpecker	*Picoides villosus*
northern flicker	*Colaptes auratus*
eastern wood-pewee	*Contopus virens*
great crested flycatcher	*Myiarchus crinitus*
eastern kingbird	*Tyrannus tyrannus*
white-eyed vireo	*Vireo griseus*
red-eyed vireo	*Vireo olivaceus*
blue jay	*Cyanocitta cristata*
American crow	*Corvus brachyrhynchos*
fish crow	*Corvus ossifragus*
purple martin	*Progne subis*
tree swallow	*Tachycineta bicolor*
northern rough-winged swallow	*Stelgidopteryx serripennis*
barn swallow	*Hirundo rustica*
black-capped chickadee	*Poecile atricapillus*
tufted titmouse	*Baeolophus bicolor*
white-breasted nuthatch	*Sitta carolinensis*
Carolina wren	*Thryothorus ludovicianus*
house wren	*Troglodytes aedon*
wood thrush	*Hylocichla mustelina*
American robin	*Turdus migratorius*
gray catbird	*Dumetella carolinensis*
northern mockingbird	*Mimus polyglottos*
brown thrasher	*Toxostoma rufum*
European starling	*Sturnus vulgaris*
cedar waxwing	*Bombycilla cedrorum*
blue-winged warbler	*Vermivora pinus*
yellow warbler	*Dendroica petechia*
American redstart	*Setophaga ruticilla*
common yellowthroat	*Geothlypis trichas*
eastern towhee	*Pipilo erythrophthalmus*
savannah sparrow	*Passerculus sandwichensis*
song sparrow	*Melospiza melodia*
northern cardinal	*Cardinalis cardinalis*
indigo bunting	*Passerina cyanea*
red-winged blackbird	*Agelaius phoeniceus*
common grackle	*Quiscalus quiscula*
brown-headed cowbird	*Molothrus ater*
orchard oriole	*Icterus spurius*
Baltimore oriole	*Icterus galbula*
house finch	*Carpodacus mexicanus*
American goldfinch	*Spinus tristis*
house sparrow	*Passer domesticus*

Source: NYS DEC Breeding Bird Atlas 2000-2005.

E. THREATENED OR ENDANGERED SPECIES

The NYNHP (2009) identified two unlisted ecological communities located within Clay Pit Ponds Preserve outside the study area for this project, red maple-sweetgum swamp and post oak-blackjack oak barrens, and two state-listed threatened plant species velvety bush-clover (*Lespedeza stuevei*), and whorled mountain-mint (*Pycnanthemum verticillatum var. verticillatum*), as occurring outside the study area between approximately 0.2 and 0.3 miles of the project site (1056 to 1584 feet). The NYNHP identified the state-listed threatened fence lizard (*Sceloporus undulatus*) as occurring within or adjacent to the project site. These ecological communities and the habitats for the state-listed species are described below. Neither these habitats nor the two state-listed threatened plant species or the state-listed fence lizard were observed within the project site.

RED MAPLE-SWEETGUM SWAMP

According to NYNHP, this community is State unlisted and described as, "A forested swamp of moderate size with good diversity, but with several exotic species and altered hydrology due to development pressures. The community is partially buffered by adjoining natural communities of a small state park preserve, but is located within a heavily developed landscape." This community type is represented by a forest co-dominated by red maple (*Acer rubrum*) and sweetgum *(Liquidambar styraciflua*), and consists of 5 patches, ranging from one to 72 acres in size. The forested wetland has some exotic species but the majority of it is located within a 250-acre natural area preserve in heavily developed landscape. It is partially buffered from the heavily developed land that surrounds the park by upland forest communities. Oak-tulip tree forest and successional southern hardwoods occupy much of the upland surrounding the community. Several small patches of post oak-blackjack oak barrens are also found in the area, as well as several small patches of post oak-blackjack oak barrens are also found in the area as well as several small patches of shrub swamp, successional old field and some red maple-hardwood swamp.

POST OAK-BLACKJACK OAK BARRENS

This community has described by Edinger et al. as "open barrens on upper slopes and low ridges characterized by the presence of stunted individuals of post oak (*Quercus stellata*), scarlet oak (*Q. Cocinea*), and blackjack oak (*Q. marilandica*). Other trees at low cover include white oak (*Q. alba*), black oak (*Q. velutina*), sassafras, American chestnut (*Castanea dentate*), gray birch (*Betula populifera*), red maple, pitch pine (*Pinus rigida*), and black gum (*Nyssa sylvatica*). There is a sparse heath and grass ground cover growing in very dry, deep, exposed sand overlying a clay subsoil."

Based on correspondence from NYNHP and observations made during field investigation, this community does not occur within the project site. Portions of this community, however, have been identified within the Clay Pit Ponds Preserve.

VELVETY BUSH-CLOVER

Velvety bush-clover occurs in dry, upland woods, and barrens (Clemants and Gracie 2006) located mostly near the coast (Gleason and Cronquist 1963). Individuals of this species in proximity to the project site were last reported in 1985 (NYNHP 2009). This species would not be likely to occur within the project site and was not observed during the site reconnaissance.

WHORLED MOUNTAIN-MINT

Mountain mints occur in dry woods, meadows, fields, thickets (Newcomb 1977), and wet places (Clemants and Gracie 2006). Within the study area, whorled mountain-mint is known to occur in open areas containing sandy soils (NYNHP 2009). Thus, this species would not be likely to occur within the disturbed areas of the successional southern hardwood community located on the project site.

FENCE LIZARD

The fence lizard is mostly an arboreal species of warm, open dry woods with stumps and logs for cover that are active in New York between April and October. Ecological communities associated with this species include chestnut oak forests, pitch pine-oak-heath rocky summit, post oak-blackjack oak barrens, and rocky summit grassland (NYNHP 2009). This species, deliberately introduced to Staten Island in 1942 (WNYH 2009), has been documented in Clay Pit Ponds Preserve. However, based on the habitat requirements of the fence lizard, it would be unlikely for the fence lizard to occur within the isolated successional southern hardwood community of the project site and no individuals were observed during the site reconnaisance.

F. FUTURE WITHOUT THE PROPOSED PROJECT

Without the proposed project, the project site is expected to remain unchanged and the existing forested habitat would be expected to continue maturing.

G. FUTURE WITH THE PROPOSED PROJECT

FLOODPLAINS

Because the project site is outside the 100- and 500-year floodplains, the proposed project would not result in adverse impacts to floodplain resources.

TERRESTRIAL RESOURCES

VEGETATION

SCA intends to retain some of the existing trees on the site where possible. However, it is assumed for the purposes of this analysis that the entire project site would be cleared and graded as a result of the proposed project, resulting in the loss of the successional southern hardwood forest and the habitat it provides for wildlife present within the project site. While this loss would be adverse, the successional southern hardwood forest observed within the project site is not unique and is found elsewhere within the New York metropolitan region and on Staten Island, and the loss of this woodland on the project site would not result in significant adverse impacts to vegetation resources of New York. Additionally, in accordance with the requirements of the SRD District and the requirements for street tree planting, the SCA will develop a tree replacement plan for review and approval by the DPR, Department of Buildings (DOB), and the New York City Department of City Planning (DCP) prior to any land clearing activities. Tree planting areas will include areas adjacent to the roads surrounding the project site, as well as within the bioretention/bioswale areas proposed for stormwater management within the project site, as described in Chapter 1, “Project Description,” and Chapter 12, “Infrastructure.”

WETLANDS

Because neither NYSDEC nor NWI wetlands are present within or adjacent to the project area, no significant adverse impacts to wetlands would occur as a result of the proposed project.

WILDLIFE

The 2.9-acre forested habitat within the project site is surrounded by highly developed residential area. For this reason, wildlife observed and expected to occur within the project site include common urban native and non-native species (e.g., rock dove and gray squirrel), as described above under "Existing Conditions, Wildlife." Additional species, such as those listed within the breeding bird block 5648A, would likely be found within the contiguous forested/wetland habitats provided throughout Clay Pit Ponds Preserve, which is located at least 300 feet from the project site. The loss of the woodland habitat within the project site would have the potential to adversely affect some individual birds and other wildlife currently using the habitats of the project site should these individuals be unable to find suitable available habitats nearby such as the extensive habitats available within the nearby Clay Pit Ponds Preserve. However, the wildlife species expected to occur within this area are common to urban areas, and the loss of some individuals would not result in a significant adverse impact on the bird and wildlife community of the New York City region. Therefore, no significant adverse impacts to terrestrial resources are expected as a result of the construction of the proposed project. Additionally, the new trees required as part of the proposed project and the vegetation communities that would comprise the bioretention/biowsales proposed as part of the stormwater management measures on the project site would provide habitat for some of the same urban wildlife species currently expected to use the project site.

THREATENED OR ENDANGERED SPECIES

No state-listed species or habitats were observed within the project site during the field investigation. As discussed above, the project site consists of a successional southern hardwood community with a number of invasive and successional species that are characteristic of disturbed areas. The two ecological communites identified by the NYNHP as occurring within the vicinity of the project site—red maple-sweet gum swamp and the post oak-blackjack oak barren communities—are not present on the project site. The project site does not provide suitable habitat for the state-listed whorled mountain-mint, velvety bush-clover, and eastern fence lizard, and no individuals of these species were observed during the site reconnaissance. However, given that this project site is located in close proximity to Clay Pit Ponds Preserve, where these species and ecological communities are known to occur, additional coordination with NYNHP is not deemed necessary.

With these measures in place, no significant adverse impact to endangered and/or threatened species would occur as a result of the proposed project.

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Chapter 6: Waterfront Revitalization Program

A. NEW YORK STATE COASTAL ZONE MANAGEMENT PROGRAM

This chapter assesses the compliance of the proposed project with the City's Waterfront Revitalization Program. The Coastal Zone Management (CZM) Act of 1972 was established to support and protect the distinctive character of the waterfront, and set forth standard policies for reviewing proposed development projects along coastlines. The program addressed local, state, and federal concerns about the deterioration and inappropriate use of the waterfront.

In response, New York State adopted its Coastal Management Program, designed to balance economic development and preservation by promoting waterfront revitalization and water-dependent uses while protecting fish and wildlife, open space and scenic areas, public access to the shoreline, and farmland; and minimizing adverse changes to ecological systems and in erosion and flood hazards. The program provides for local implementation when a municipality adopts a local waterfront revitalization program, as is the case in New York City.

The New York City Waterfront Revitalization Program (WRP) encourages coordination among all levels of government to promote sound waterfront planning and requires consideration of the program's goals in making land use decisions. The New York State Department of State (NYSDOS) administers the program at the state level, and the New York City Department of City Planning (DCP) administers it in the City.

Because the proposed project is located within the City's coastal zone (see **Figure 6-1**), it is subject to the City's Coastal Zone Management Program. The WRP is the City's principal coastal zone management tool. The original WRP, originally adopted in 1982, included 44 state policies and 12 City policies. It established the City's policies for development and use of the waterfront and provided a framework for evaluating discretionary actions in the coastal zone. A revised WRP was approved by the City Council in October 1999. The overhaul of the WRP was the result of the numerous plans and studies focusing on New York City's waterfront that led to a better understanding of the conditions and issues facing the waterfront. The goal was to simplify and to clarify the review process. This chapter reviews the 10 New York City coastal zone policies, which constitute the new WRP, and assesses, where applicable, the general consistency of the proposed project with those policies. A completed New York City Waterfront Revitalization Program Consistency Assessment Form is provided (see Appendix C).

B. NEW YORK CITY WATERFRONT REVITALIZATION POLICIES

New York City's WRP includes 10 policies designed to maximize the benefits derived from economic development, environmental preservation, and public use of the waterfront, while minimizing the conflicts among those objectives. This attachment provides additional information for each of the policies that have been checked "yes" in the *WRP Consistency Assessment Form* included as Appendix C.

Policy 6: Minimize loss of life, structures and natural resources caused by flooding and erosion.

6.22.11

Project Site

Coastal Zone Area

SCA P.S. 62R, Staten Island

Coastal Zone Boundary

Figure 6-1

Policy 6.1: Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the condition and use of the property to be protected and the surrounding area.

Consistent with this policy, the proposed project would minimize impacts to lives and structures from flooding by complying with all applicable Federal Emergency Management Agency (FEMA) and City of New York requirements to minimize flood damage. Therefore, the proposed project would be consistent with this policy.

Policy 6.2: Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit.

Public funding for flood prevention or erosion control measures is not part of the proposed project. Therefore, this policy does not apply.

Policy 6.3: Protect and preserve non-renewable sources of sand for beach nourishment.

The project site does not contain any public or private beaches and does not contain non-renewable sources of sand. Therefore, this policy does not apply.

Policy 7: Minimize environmental degradation from solid waste and hazardous substances.

Policy 7.1: Manage solid waste material, hazardous wastes, toxic pollutants, and substances hazardous to the environment to protect public health, control pollution and prevent degradation of coastal ecosystems.

As described in Chapter 11, "Soil and Groundwater Conditions," the proposed project would include measures to ensure that no significant adverse impacts due to the presence of any hazardous or petroleum-contaminated materials would occur either during or following construction at the project site. Among these measures would be the installation of a vapor barrier and an active sub-slab depressurization system (SSDS) and, where exposed soils may exist (e.g., landscaped areas), a 24-inch-thick layer of environmentally clean fill would be placed over these soils.

Solid waste generated by the construction of the proposed project would be hauled by a licensed waste hauler according to applicable laws and regulations. The proposed project would not involve the siting of solid or hazardous waste facilities. For these reasons, the proposed project is consistent with these policies.

Policy 7.2: Prevent and remediate discharge of petroleum products.

The proposed project would follow all applicable guidelines for the management of hazardous materials. Therefore, the proposed project would be consistent with this policy.

Policy 7.3: Transport solid waste and hazardous substances and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources.

Any hazardous materials uncovered during construction would be disposed of or remediated in conformance with all applicable laws, rules, and regulations, thus minimizing the potential for adverse impacts to coastal resources. The proposed project would not entail the siting of solid or hazardous waste facilities. Therefore, the proposed project is consistent with this policy.

Policy 10: Protect, preserve, and enhance resources significant to the historical, archaeological, and cultural legacy of the New York City coastal area.

Policy 10.1: Retain and preserve designated historic resources and enhance resources significant to the coastal culture of New York City.

As discussed in Chapter 3, "Historic and Cultural Resources," the proposed project would not have any significant adverse impacts on architectural resources on or within 400 feet of the project site. Therefore, the proposed project is consistent with this policy.

Policy 10.2: Protect and preserve archaeological resources and artifacts.

As discussed in Chapter 3, "Historic and Cultural Resources," the project site is located within the Sandy Ground Historic Archaeological District and three areas of the project site were considered to have the potential to contain significant archaeological resources, Additional archaeological analysis in the form of a Phase 3 data recovery was undertaken in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP). Analysis of the recovered finds is ongoing and an end of field letter is currently being prepared for submission to the OPRHP. The data value of the identified resources has been collected and no additional archaeological fieldwork is warranted. Upon the completion of the Phase 3 testing report, it will be submitted to OPRHP for review and comment. With the completion of Phase 3 testing and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources. Therefore, the proposed project is consistent with this policy.

C. CONCLUSION

Based on the information presented above, the proposed project complies with New York State's Coastal Management Program as expressed in New York City's approved WRP. ✷

A. INTRODUCTION

The proposed school would generate new trips from students and staff traveling to and from the project site. This section examines the potential for impacts of the proposed school project on transportation conditions. The proposed school, expected to be operational in 2015, would accommodate a total of 444 students in pre-kindergarten through fifth grade. In terms of staff, the proposed school would employ approximately 34 faculty and staff.

Based on travel demand estimates, the proposed project would exceed the 2010 *City Environmental Quality Review (CEQR) Technical Manual* thresholds for undertaking quantified traffic, parking and pedestrian analyses. However, since the proposed project would not exceed the CEQR threshold for undertaking a quantified transit analyses—i.e., 200 peak hour transit riders at any given subway station element and/or bus route—it is not expected to result in significant adverse transit impacts in the study area. For informational purposes, this chapter provides a qualitative assessment of transit conditions in the study area.

B. METHODOLOGY

The operation of all of the signalized intersections and unsignalized intersections in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5)*. The *HCM* procedure evaluates the levels of service (LOS) for signalized and unsignalized intersections using stop control delay, in seconds per vehicle, as described below.

SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The levels of service are defined as follows:

Table 7-1
LOS Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds
Source:	Transportation Research Board. *Highway Capacity Manual*, 2000.

Although the HCM methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the *HCM*. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low

average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum capacity with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. Conditions at LOS E and F reflect poor service levels, and cycle breakdowns are frequent. The *HCM* methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (the worst case from each roadway) and calculates a summary critical v/c ratio. The overall intersection delay, which determines the intersection's LOS, is based on a weighted average of control delays of the individual lane groups. Within New York City, the midpoint of LOS D (45 seconds of delay) is generally considered as the threshold between acceptable and unacceptable operations.

SIGNIFICANT IMPACT CRITERIA

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the Action condition of 5 or more seconds of delay in a lane group over No Action levels beyond mid-LOS D. For No Action LOS E, a 4-second increase in delay is considered significant. For No Action LOS F, a 3-second increase in delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the No Action condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the future Action condition.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the average control delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. This includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The average control delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. The LOS criteria for unsignalized intersections are summarized as follows:

Table 7-2
LOS Criteria for Unsignalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

The LOS thresholds for unsignalized intersections are different from those for signalized intersections. The primary reason is that drivers expect different levels of performance from

different types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection; hence, the corresponding control delays are higher at a signalized intersection than at an unsignalized intersection for the same LOS. In addition, certain driver behavioral considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections. For these reasons, the corresponding delay thresholds for unsignalized intersections are lower than those of signalized intersections. As with signalized intersections, within New York City, the midpoint of LOS D (30 seconds of delay) is generally perceived as the threshold between acceptable and unacceptable operations.

SIGNIFICANT IMPACT CRITERIA

The same sliding scale of significant delays described for signalized intersections applies for unsignalized intersections. For the minor street to trigger significant impacts, at least 90 passenger car equivalents (PCE) must be identified in the future Action condition in any peak hour.

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which on-street and off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from parking displacement attributable to or additional demand generated by a proposed action. Typically, this analysis encompasses a study area within ¼-mile of the project site. If the analysis concludes a shortfall in parking within the ¼-mile study area, the study area could sometimes be extended to ½-mile (reasonable for certain uses, such as amusement parks, arenas, beaches, and other recreational facilities) to identify additional parking supply.

Outside of Manhattan, and areas in the South Bronx, Flushing, Jamaica, Long Island City/Astoria, Downtown Brooklyn, and Greenpoint/Williamsburg, a parking shortfall that exceeds more than half the available on-street and off-street parking spaces within ¼-mile of the project site may be considered significant. Additional factors, such as the availability and extent of transit in the area, proximity of the project to such transit, and patterns of automobile usage by area residents, could be considered to determine significance of the identified parking shortfall. In some cases, if there is adequate parking supply within ½-mile of the project site, the projected parking shortfall may also not necessarily be considered significant.

PEDESTRIAN OPERATIONS

The adequacy of the study area's sidewalks, crosswalks, and corner reservoir capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the 2000 *Highway Capacity Manual* (HCM), pursuant to procedures detailed in the *CEQR Technical Manual*.

Sidewalks are analyzed in terms of pedestrian flow. The calculation of the average pedestrians per minute per foot (PMF) of effective walkway width is the basis for a sidewalk level-of-service (LOS) analysis. The determination of walkway LOS is also dependent on whether the pedestrian flow being analyzed is best described as "non-platoon" or "platoon." Non-platoon

flow occurs when pedestrian volume within the peak 15-minute period is relatively uniform, whereas, platoon flow occurs when pedestrian volumes vary significantly with the peak 15-minute period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway's pedestrian volume.

Crosswalks and street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The HCM methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians.

The total "time-space" available for these activities, expressed in square feet-second, is calculated by multiplying the net area of the corner (in square feet) by the signal's cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the total pedestrian circulation volume per signal cycle provides the LOS measurement of square feet per pedestrian (SFP).

Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in square feet-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk.

The LOS standards for sidewalks, corner reservoirs, and crosswalks are summarized as follows:

Table 7-3
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	≤ 5 PMF	≤ 0.5 PMF	> 60 SFP
B	> 5 and ≤ 7 PMF	> 0.5 and ≤ 3 PMF	> 40 and ≤ 60 SFP
C	> 7 and ≤ 10 PMF	> 3 and ≤ 6 PMF	> 24 and ≤ 40 SFP
D	> 10 and ≤ 15 PMF	> 6 and ≤ 11 PMF	> 15 and ≤ 24 SFP
E	> 15 and ≤ 23 PMF	> 11 and ≤ 18 PMF	> 8 and ≤ 15 SFP
F	> 23 PMF	> 18 PMF	≤ 8 SFP

Notes: PMF = pedestrians per minute per foot; SFP = square feet per pedestrian.
Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (May 2010).

The *CEQR Technical Manual* specifies acceptable LOS elsewhere in non-CBD areas is LOS C or better.

SIGNIFICANT IMPACT CRITERIA

The determination of significant pedestrian impacts considers the level of predicted deterioration in pedestrian flow or decrease in pedestrian space between the No Action and Action conditions. For different pedestrian elements, flow conditions, and area types, the CEQR procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Sidewalks

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the increase in average pedestrian flow rate (Y) in PMF needs to be greater or equal to 3.5 minus X divided by 8.0 (where X is the No Action pedestrian flow rate in PMF [$Y \geq 3.5 - X/8.0$]) for it to be a significant impact. For platoon flow, the sliding-scale formula is $Y \geq 3.0 - X/8.0$. Since deterioration in pedestrian flow within acceptable levels would not constitute a significant impact, these formulas would apply only if the Action pedestrian flow exceeds LOS C in non-CBD areas or mid-LOS D in CBD areas. The following table summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Table 7-4
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: ***Y ≥ 3.5 – X/8.0***				**Sliding Scale Formula:** ***Y ≥ 3.0 – X/8.0***			
Non-CBD Areas		**CBD Areas**		**Non-CBD Areas**		**CBD Areas**	
No Action Ped. Flow (X, PMF)	**Action Ped. Flow Incr. (Y, PMF)**	**No Action Ped. Flow (X, PMF)**	**Action Ped. Flow Incr. (Y, PMF)**	**No Action Ped. Flow (X, PMF)**	**Action Ped. Flow Incr. (Y, PMF)**	**No Action Ped. Flow (X, PMF)**	**Action Ped. Flow Incr. (Y, PMF)**
7.4 to 7.8	≥ 2.6	–	–	3.4 to 3.8	≥ 2.6	–	–
7.9 to 8.6	≥ 2.5	–	–	3.9 to 4.6	≥ 2.5	–	–
8.7 to 9.4	≥ 2.4	–	–	4.7 to 5.4	≥ 2.4	–	–
9.5 to 10.2	≥ 2.3	–	–	5.5 to 6.2	≥ 2.3	–	–
10.3 to 11.0	≥ 2.2	10.3 to 11.0	≥ 2.2	6.3 to 7.0	≥ 2.2	6.3 to 7.0	≥ 2.2
11.1 to 11.8	≥ 2.1	11.1 to 11.8	≥ 2.1	7.1 to 7.8	≥ 2.1	7.1 to 7.8	≥ 2.1
11.9 to 12.6	≥ 2.0	11.9 to 12.6	≥ 2.0	7.9 to 8.6	≥ 2.0	7.9 to 8.6	≥ 2.0
12.7 to 13.4	≥ 1.9	12.7 to 13.4	≥ 1.9	8.7 to 9.4	≥ 1.9	8.7 to 9.4	≥ 1.9
13.5 to 14.2	≥ 1.8	13.5 to 14.2	≥ 1.8	9.5 to 10.2	≥ 1.8	9.5 to 10.2	≥ 1.8
14.3 to 15.0	≥ 1.7	14.3 to 15.0	≥ 1.7	10. to 11.0	≥ 1.7	10. to 11.0	≥ 1.7
15.1 to 15.8	≥ 1.6	15.1 to 15.8	≥ 1.6	11.1 to 11.8	≥ 1.6	11.1 to 11.8	≥ 1.6
15.9 to 16.6	≥ 1.5	15.9 to 16.6	≥ 1.5	11.9 to 12.6	≥ 1.5	11.9 to 12.6	≥ 1.5
16.7 to 17.4	≥ 1.4	16.7 to 17.4	≥ 1.4	12.7 to 13.4	≥ 1.4	12.7 to 13.4	≥ 1.4
17.5 to 18.2	≥ 1.3	17.5 to 18.2	≥ 1.3	13.5 to 14.2	≥ 1.3	13.5 to 14.2	≥ 1.3
18.3 to 19.0	≥ 1.2	18.3 to 19.0	≥ 1.2	14.3 to 15.0	≥ 1.2	14.3 to 15.0	≥ 1.2
19.1 to 19.8	≥ 1.1	19.1 to 19.8	≥ 1.1	15.1 to 15.8	≥ 1.1	15.1 to 15.8	≥ 1.1
19.9 to 20.6	≥ 1.0	19.9 to 20.6	≥ 1.0	15.9 to 16.6	≥ 1.0	15.9 to 16.6	≥ 1.0
20.7 to 21.4	≥ 0.9	20.7 to 21.4	≥ 0.9	16.7 to 17.4	≥ 0.9	16.7 to 17.4	≥ 0.9
21.5 to 22.2	≥ 0.8	21.5 to 22.2	≥ 0.8	17.5 to 18.2	≥ 0.8	17.5 to 18.2	≥ 0.8
22.3 to 23.0	≥ 0.7	22.3 to 23.0	≥ 0.7	18.3 to 19.0	≥ 0.7	18.3 to 19.0	≥ 0.7
> 23.0	≥ 0.6	> 23.0	≥ 0.6	> 19.0	≥ 0.6	> 19.0	≥ 0.6

Notes: PMF = pedestrians per minute per foot; Y = increase in average pedestrian flow rate in PMF; X = No Action pedestrian flow rate in PMF.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (May 2010).

Corner Reservoirs and Crosswalks

The determination of significant corner and crosswalk impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.3$, where Y is the decrease in pedestrian space in SFP and X is the No Action pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the Action pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. The following table summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 7-5
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: ***Y ≥ X/9.0 – 0.3***			
Non-CBD Areas		**CBD Areas**	
No Action Pedestrian Space (X, SFP)	**Action Pedestrian Space Reduction (Y, SFP)**	**No Action Pedestrian Space (X, SFP)**	**Action Pedestrian Space Reduction (Y, SFP)**
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.6	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2

Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (May 2010).

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high accident locations, where 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent three-year period for which data are available. For these locations, accident trends would be identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations or whether existing unsafe conditions could adversely impact the flow of the projected new trips. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic volumes, accident types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety should be identified and coordinated with the New York City Department of Transportation (DOT).

C. TRAFFIC ANALYSES

EXISTING CONDITIONS

ROADWAY NETWORK

To assess the potential traffic impacts associated with the development of the project, nine key intersections were identified that would most likely be affected by the project-generated traffic (see **Figure 7-1**). These include six signalized and three unsignalized intersections. The signalized intersections are:

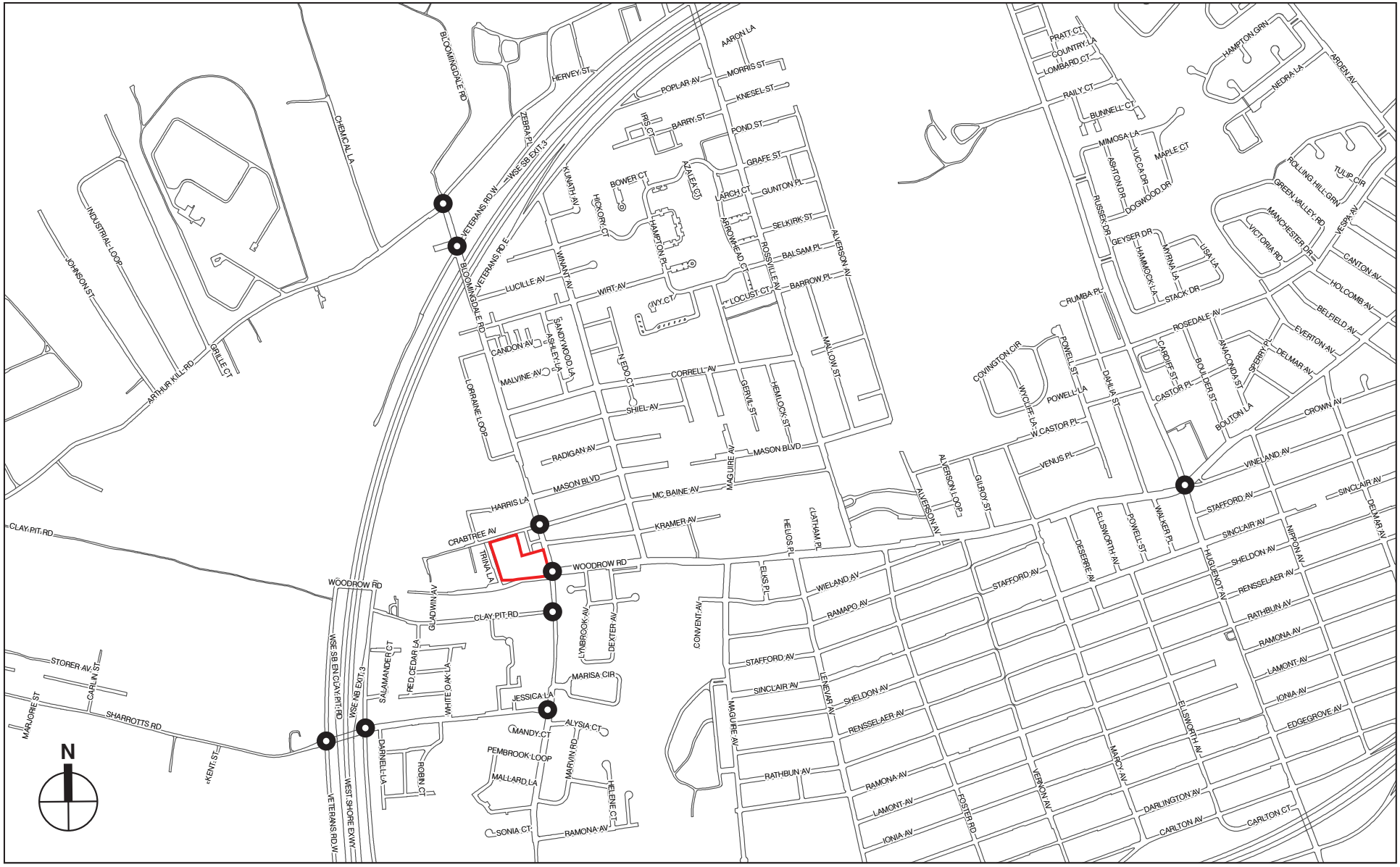
- Arthur Kill Road and Bloomingdale Road;
- West Service Road and Bloomingdale Road;
- Woodrow Road and Bloomingdale Road;
- Clay Pit Road and Bloomingdale Road;
- Sharrotts Road and Bloomingdale Road; and
- Woodrow Road and Huguenot Avenue.

The unsignalized intersections are:

- Crabtree Avenue – McBaine Avenue and Bloomingdale Road
- Sharrots Road and East Service Road; and
- Sharrots Road and West Service Road.

Major roadways in the study area are discussed as follows:

- Bloomingdale Road is a major two-way northbound-southbound roadway that provides access to the two major highways in the area, including Route-440 (Staten Island Expressway) and Richmond Parkway (Korean War Veterans Parkway). Within the broader study area, it also provides a connection between Amboy Road in the south and Arthur Kill Road in the north. In the vicinity of the project site, it generally operates with one moving lane of traffic with no curbside parking.
- Crabtree Avenue is a local two-way eastbound-westbound street located west of Bloomingdale Road. It operates with one moving lane of traffic in each direction and provides parking on both sides of the street. East of Bloomingdale Road, Crabtree Avenue changes into McBaine Avenue providing an east-west connection between Bloomingdale Road and Rossville Avenue.
- Woodrow Road is a major two-way eastbound-westbound roadway east of Bloomingdale Road. In the broader study area, it provides a connection between Bloomingdale Road in the west to Arthur Kill Road in the northeast. West of Bloomingdale Road, along the southern boundary of the project site, Woodrow Road operates as local two-way eastbound-westbound street which operates with one moving lane in each direction and provides parking on both sides of the street. Although paved, currently, the segment of Woodrow Road (west of Bloomingdale Road) is not accessible beyond Trina Lane as the street is cordoned-off by a chain-link prohibiting any vehicular traffic.
- Huguenot Avenue is a major two-way north-south roadway that operates with one effective moving lane in each direction and provides curbside parking on both sides.
- Clay Pit Road is a local two-way east-west roadway and provides curbside parking on both sides of the street.



Project Site

Traffic Analysis Study Location

0 500 1000 FEET

SCALE

Traffic Analysis Study Locations

Figure 7-1

SCA P.S. 62R, Staten Island

- Sharrots Road is a major two-way east-west roadway that operates with one effective moving lane in each direction and provides curbside parking on both sides of the street. Sharrots Road provides a connection to Route-440 (Staten Island Expressway).

TRAFFIC CONDITIONS

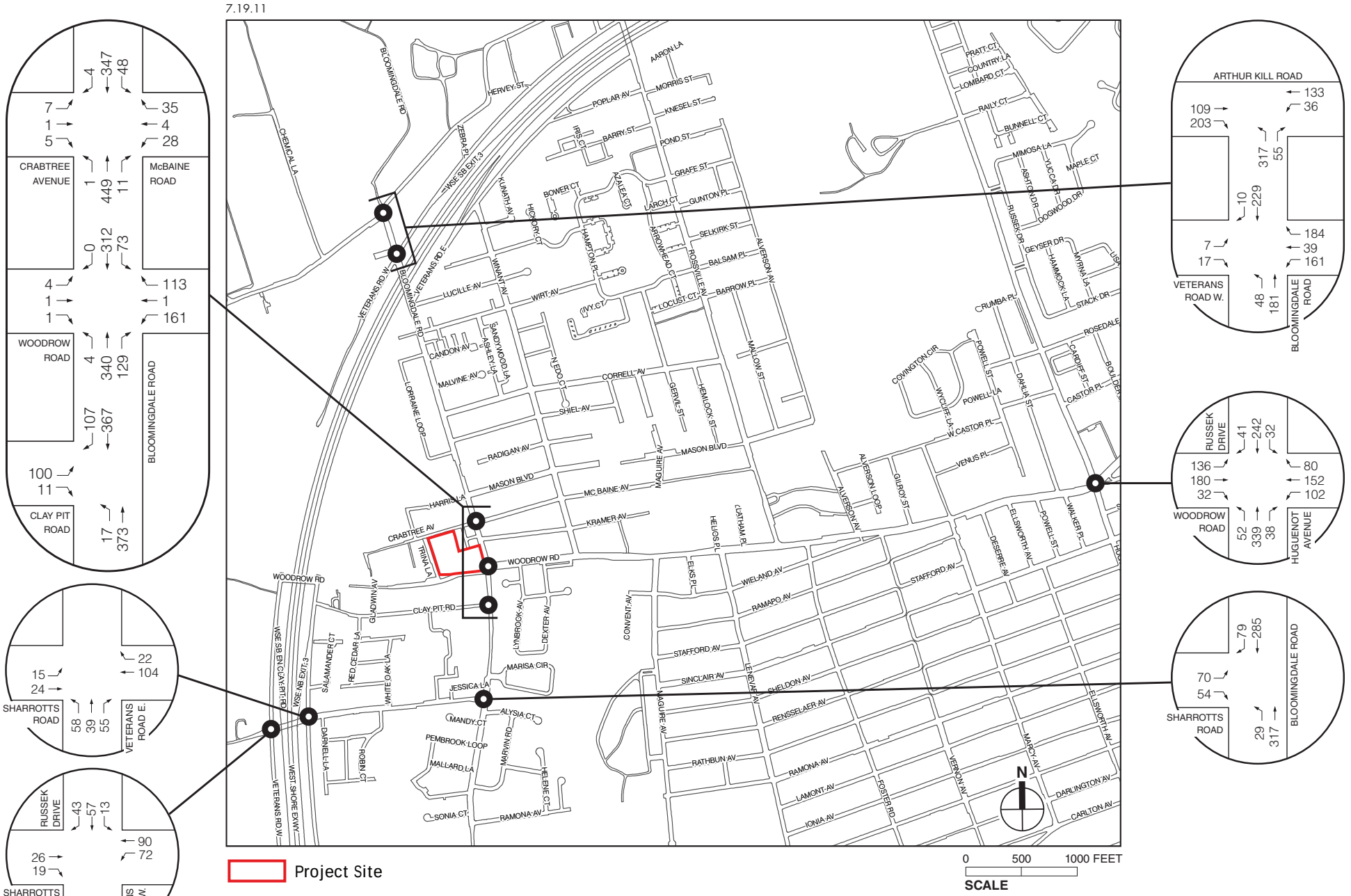
Existing traffic volumes for the study area intersections were primarily established based on field counts conducted in November 2009. Since the counts were collected there has not been any significant development in the study area that would increase the turning movement volumes, however, to be conservative the traffic volumes collected in November 2009 were increased by an annual background growth rate of 1.0 percent, as per the 2010 *CEQR* guidelines, to establish baseline (year 2011) volumes for existing conditions.

To supplement the field data, inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were also recorded to provide appropriate inputs for the operational analyses. In addition, official signal timings obtained from DOT were used in the analysis for all of the signalized intersections. **Figures 7-2** and **7-3** show the existing (2011) traffic volumes for the morning and afternoon peak hours, which were determined to take place from 7:30 to 8:30 AM and 3:00 to 4:00 PM, respectively.

In terms of traffic levels, the majority of streets bordering the project site carry low traffic volumes during the school related morning and afternoon peak periods. The exception is Bloomingdale Road which carries moderate-to-heavy two-way traffic volumes of approximately 950 and 1,190 vehicles per hour (vph) during the morning and afternoon peak periods, respectively.

LEVELS OF SERVICE

Tables 7-6 and 7-7 present the service conditions for the study area's signalized and unsignalized intersections. The capacity analysis indicates that most of the study area's intersection approaches operate acceptably—at mid-LOS D (delays of 45 seconds or less for signalized intersections and 30 seconds or less for unsignalized intersections) or better for the two peak hours except for the northbound approach at the intersection of Woodrow Road and Bloomingdale Road, which operates at beyond mid-LOS D during the afternoon peak hour.



2011 Existing Traffic Volumes
Morning Peak Hour

Figure 7-2

2011 Existing Traffic Volumes
Afternoon Peak Hour

Figure 7-3

Table 7-6
2011 Existing Conditions Level of Service Analysis
Signalized Intersections

Intersection / Approach		Morning Peak Hour				Afternoon Peak Hour			
		Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Arthur Kill Road and Bloomingdale Road									
	Eastbound	T	0.12	12.2	B	T	0.20	12.9	B
		R	0.27	13.7	B	R	0.37	15.1	B
	Westbound	LT	0.23	13.2	B	LT	0.19	12.8	B
	Northbound	LR	0.55	24.3	C	LR	0.55	24.2	C
		Intersection		17.9	B	Intersection		17.7	B
West Service Road and Bloomingdale Road									
	Eastbound	LR	0.06	20.6	C	LR	0.31	23.7	C
	Westbound	L	0.35	24.4	C	L	0.59	29.4	C
		T	0.08	20.9	C	T	0.12	21.2	C
		R	0.44	26.2	C	R	0.54	28.5	C
	Northbound	LT	0.49	29.8	C	LT	0.51	30.9	C
	Southbound	TR	0.45	28.6	C	TR	0.66	33.7	C
		Intersection		27.0	C	Intersection		29.6	C
Woodrow Road and Bloomingdale Road									
	Eastbound	LTR	0.03	32.4	C	LTR	0.03	32.4	C
	Westbound	LTR	0.77	41.2	D	LTR	0.52	30.3	C
	Northbound	LTR	0.86	40.5	D	LTR	0.97	53.8	D
	Southbound	LTR	0.84	40.9	D	LTR	0.84	38.8	D
		Intersection		40.7	D	Intersection		44.0	D
Clay Pit Road and Bloomingdale Road									
	Eastbound	LR	0.18	17.4	B	LR	0.34	19.4	B
	Northbound	LT	0.44	17.0	B	LT	0.49	17.9	B
	Southbound	TR	0.54	18.8	B	TR	0.62	20.5	C
		Intersection		17.9	B	Intersection		19.3	B
Sharrots Road and Bloomingdale Road									
	Eastbound	LR	0.23	15.3	B	LR	0.22	15.2	B
	Northbound	LT	0.38	10.4	B	LT	0.45	11.2	B
	Southbound	TR	0.39	10.5	B	TR	0.46	11.3	B
		Intersection		11.2	B	Intersection		11.8	B
Woodrow Road and Huguenot Avenue									
	Eastbound	L	0.35	14.1	B	L	0.26	13.0	B
		TR	0.34	13.2	B	TR	0.51	15.6	B
	Westbound	L	0.31	13.6	B	L	0.19	12.3	B
		T	0.26	12.3	B	T	0.36	13.3	B
		R	0.14	11.3	B	R	0.08	10.8	B
	Northbound	LTR	0.78	23.8	C	LTR	0.86	32.1	C
	Southbound	LTR	0.49	15.0	B	LTR	0.51	15.2	B
		Intersection		16.6	B	Intersection		19.1	B

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

Table 7-7
2011 Existing Conditions Level of Service Analysis
Unsignalized Intersections

Intersection / Approach	Morning Peak Hour				Afternoon Peak Hour			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Crabtree Avenue – McBaine Avenue and Bloomingdale Road								
Eastbound	LTR	0.07	20.4	C	LTR	0.02	18.5	C
Westbound	LTR	0.31	21.9	C	LTR	0.14	20.2	C
Northbound	LTR	0.00	8.1	A	LTR	0.00	8.3	A
Southbound	LTR	0.05	8.8	A	LTR	0.02	8.6	A
Sharrots Road and East Service Road								
Eastbound	LT	--	7.9	A	LT	--	8.4	A
Westbound	TR	--	8.2	A	TR	--	8.4	A
Northbound	LT	--	8.1	A	LT	--	8.4	A
	TR	--	7.4	A	TR	--	7.9	A
	Intersection		8.0	A	Intersection		8.2	A
Sharrots Road and West Service Road								
Eastbound	ER	--	7.5	A	ER	--	8.0	A
Westbound	EL	--	8.8	A	EL	--	8.6	A
Southbound	LT	--	7.9	A	LT	--	8.0	A
	TR	--	7.6	A	TR	--	7.8	A
	Intersection		8.3	A	Intersection		8.2	A

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

THE FUTURE WITHOUT THE PROPOSED PROJECT

Future 2015 conditions without the proposed project were estimated by increasing existing (2011) traffic and pedestrian levels to reflect expected growth in overall travel through and within the study area. As per the 2010 *CEQR* guidelines, an annual background growth rate of 1.0 percent was assumed. In addition to the background growth, trips expected to be generated by the 24 new dwelling units in the Orchard Estates development were estimated and included in the 2015 No Build traffic volumes.

TRAFFIC OPERATIONS

The 2015 No Build traffic volumes are shown in **Figures 7-4** and **7-5** for the morning and afternoon peak hours, respectively. **Tables 7-8** and **7-9** present a comparison of Existing and No Build conditions for signalized and unsignalized intersections, respectively. Based on the analysis results, the majority of the approaches/lane-groups would operate at the same LOS as in the existing conditions with the following notable exceptions:

- The southbound approach at the intersection of Veterans Road West and Bloomingdale Road which would deteriorate from LOS C to LOS D during the afternoon peak hour;
- The westbound approach at the intersection of Crabtree Avenue and Bloomingdale Road which would deteriorate from LOS C to LOS D during the morning peak hour;
- The northbound approach at the intersection of Woodrow Road and Bloomingdale Road which would deteriorate from LOS D to LOS E during the afternoon peak hour; and
- The southbound approach at the intersection of Woodrow Road and Bloomingdale Road which would deteriorate from below a mid-LOS D to LOS E during the morning and from below a mid-LOS D top above mid-LOS D during the afternoon peak hours.

2015 No Build Traffic Volumes
Morning Peak Hour

Figure 7-4

SCA P.S. 62R, Staten Island

2015 No Build Traffic Volumes
Afternoon Peak Hour

Figure 7-5

Table 7-8
2011 Existing and 2015 No Build Conditions Level of Service Analysis
Signalized Intersections

	Morning Peak Hour								Afternoon Peak Hour							
	2011 Existing				2015 No Build				2011 Existing				2015 No Build			
Intersection / Approach	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Arthur Kill Road and Bloomingdale Road																
Eastbound	T	0.12	12.2	B	T	0.12	12.2	B	T	0.20	12.9	B	T	0.21	13.0	B
	R	0.27	13.7	B	R	0.28	13.9	B	R	0.37	15.1	B	R	0.39	15.3	B
Westbound	LT	0.23	13.2	B	LT	0.24	13.3	B	LT	0.19	12.8	B	LT	0.20	12.9	B
Northbound	LR	0.55	24.3	C	LR	0.58	28.0	C	LR	0.55	24.2	C	LR	0.57	24.7	C
	Intersection		17.9	B	Intersection		18.3	B	Intersection		17.7	B	Intersection		18.0	B
West Service Road and Bloomingdale Road																
Eastbound	LR	0.06	20.6	C	LR	0.06	20.7	C	LR	0.31	23.7	C	LR	0.32	23.9	C
Westbound	L	0.35	24.4	C	L	0.37	24.7	C	L	0.59	29.4	C	L	0.61	30.0	C
	T	0.08	20.9	C	T	0.09	20.9	C	T	0.12	21.2	C	T	0.13	21.3	C
	R	0.44	26.2	C	R	0.46	26.6	C	R	0.54	28.5	C	R	0.56	29.1	C
Northbound	LT	0.49	29.8	C	LT	0.52	30.6	C	LT	0.51	30.9	C	LT	0.55	31.9	C
Southbound	TR	0.45	28.6	C	TR	0.47	29.0	C	TR	0.66	33.7	C	TR	0.70	35.0	D
	Intersection		27.0	C	Intersection		27.4	C	Intersection		29.6	C	Intersection		30.4	C
Woodrow Road and Bloomingdale Road																
Eastbound	LTR	0.03	32.4	C	LTR	0.03	32.4	C	LTR	0.03	32.4	C	LTR	0.03	32.4	C
Westbound	LTR	0.77	41.2	D	LTR	0.81	43.9	D	LTR	0.52	30.3	C	LTR	0.55	30.9	C
Northbound	LTR	0.86	40.5	D	LTR	0.90	44.9	D	LTR	0.97	53.8	D	LTR	1.02	65.9	E
Southbound	LTR	0.84	40.9	D	LTR	0.94	55.1	E	LTR	0.84	38.8	D	LTR	0.92	48.3	D
	Intersection		40.7	D	Intersection		47.9	D	Intersection		44.0	D	Intersection		52.9	D
Clay Pit Road and Bloomingdale Road																
Eastbound	LR	0.18	17.4	B	LR	0.19	17.5	B	LR	0.34	19.4	B	LR	0.35	19.6	B
Northbound	LT	0.44	17.0	B	LT	0.46	17.3	B	LT	0.49	17.9	B	LT	0.52	18.4	B
Southbound	TR	0.54	18.8	B	TR	0.58	19.5	C	TR	0.62	20.5	C	TR	0.65	21.2	C
	Intersection		17.9	B	Intersection		18.4	B	Intersection		19.3	B	Intersection		19.9	B
Sharrots Road and Bloomingdale Road																
Eastbound	LR	0.23	15.3	B	LR	0.24	15.4	B	LR	0.22	15.2	B	LR	0.23	15.3	B
Northbound	LT	0.38	10.4	B	LT	0.40	10.6	B	LT	0.45	11.2	B	LT	0.48	11.6	B
Southbound	TR	0.39	10.5	B	TR	0.42	10.8	B	TR	0.46	11.3	B	TR	0.49	11.6	B
	Intersection		11.2	B	Intersection		11.4	B	Intersection		11.8	B	Intersection		12.1	B
Woodrow Road and Huguenot Avenue																
Eastbound	L	0.35	14.1	B	L	0.37	14.4	B	L	0.26	13.0	B	L	0.28	13.3	B
	TR	0.34	13.2	B	TR	0.36	13.4	B	TR	0.51	15.6	B	TR	0.53	16.0	B
Westbound	L	0.31	13.6	B	L	0.33	13.9	B	L	0.19	12.3	B	L	0.21	12.6	B
	T	0.26	12.3	B	T	0.28	12.4	B	T	0.36	13.3	B	T	0.37	13.5	B
	R	0.14	11.3	B	R	0.15	11.3	B	R	0.08	10.8	B	R	0.09	10.8	B
Northbound	LTR	0.78	23.8	C	LTR	0.81	25.8	C	LTR	0.86	32.1	C	LTR	0.92	39.4	D
Southbound	LTR	0.49	15.0	B	LTR	0.51	15.3	B	LTR	0.51	15.2	B	LTR	0.53	15.6	B
	Intersection		16.6	B	Intersection		17.4	B	Intersection		19.1	B	Intersection		21.3	C

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

Table 7-9
2011 Existing and 2015 No Build Conditions Level of Service Analysis
Unsignalized Intersections

Intersection / Approach	Morning Peak Hour								Afternoon Peak Hour							
	2011 Existing				2015 No Build				2011 Existing				2015 No Build			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Crabtree Avenue – McBaine Avenue and Bloomingdale Road																
Eastbound	LTR	0.07	20.4	C	LTR	0.21	23.4	C	LTR	0.02	18.5	C	LTR	0.09	21.0	C
Westbound	LTR	0.31	21.9	C	LTR	0.35	25.1	D	LTR	0.14	20.2	C	LTR	0.17	23.6	C
Northbound	LTR	0.00	8.1	A	LTR	0.00	8.2	A	LTR	0.00	8.3	A	LTR	0.00	8.4	A
Southbound	LTR	0.05	8.8	A	LTR	0.05	8.9	A	LTR	0.02	8.6	A	LTR	0.02	8.7	A
Sharrots Road and East Service Road																
Eastbound	LT	--	7.9	A	LT	--	7.9	A	LT	--	8.4	A	LT	--	8.6	A
Westbound	TR	--	8.2	A	TR	--	8.3	A	TR	--	8.4	A	TR	--	8.5	A
Northbound	LT	--	8.1	A	LT	--	8.2	A	LT	--	8.4	A	LT	--	8.4	A
	TR	--	7.4	A	TR	--	7.4	A	TR	--	7.9	A	TR	--	8.0	A
	Intersection		8.0	A	Intersection		8.0	A	Intersection		8.2	A	Intersection		8.4	A
Sharrots Road and West Service Road																
Eastbound	ER	--	7.5	A	ER	--	7.5	A	ER	--	8.0	A	ER	--	8.1	A
Westbound	EL	--	8.8	A	EL	--	8.9	A	EL	--	8.6	A	EL	--	8.7	A
Southbound	LT	--	7.9	A	LT	--	8.0	A	LT	--	8.0	A	LT	--	8.1	A
	TR	--	7.6	A	TR	--	7.7	A	TR	--	7.8	A	TR	--	7.9	A
	Intersection		8.3	A	Intersection		8.4	A	Intersection		8.2	A	Intersection		8.3	A

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

PROJECT TRIP GENERATION AND MODAL SPLIT

The proposed school would accommodate students in pre-kindergarten through fifth grade. Modal split estimates for the primary school students were determined based on the information presented in environmental studies for other school projects with comparable characteristics and the New York Metropolitan Transportation Council (NYMTC) data for Richmond County in Staten Island.

The primary school would serve approximately 444 students. To estimate the number of student trips on a typical day, a 10 percent absentee rate was assumed, yielding a total of 400 students. In addition, it is estimated that approximately 90 percent, or about 360 of the students, would arrive and depart during the morning and afternoon peak hours. The school facility would be staffed by approximately 34 teachers and administrative staff. It is estimated that about 90 percent of the teachers and administrative staff would arrive and depart during the morning and afternoon peak hours. The trip generation rates and trip generation estimates proposed primary school students are presented in **Tables 7-10 and 7-11**.

Table 7-10
Trip Generation Rate Assumptions

	Students	Faculty/Staff [1]
	444	34
Vehicle Occupancy	1.3	1.3
School Bus/Van Occupancy	1.13	-
Absentee Rate	10%	0%
AM Peak Hour Temporal	90%	90%
PM Peak Hour Temporal	90%	90%
Travel Mode	**Modal Split [2]**	
	AM Peak Hour	
Auto (Drop-offs/pick-ups)	36%*	83%
Taxi	0%	0%
School Bus/Van	34%*	0%
Public Transit	4%	11%
Walk	26%	6%
	PM Peak Hour	
Auto (Drop-offs/pick-ups)	36%*	83%
Taxi	0%	0%
School Bus/Van	34%*	0%
Public Transit	4%	11%
Walk	26%	6%

Notes:

(1) Assumes one faculty/staff member for every 13 students

(2) Modal Splits based on NYMTC School Paired Journey and Work Income Paired Journey by Destination data for Richmond County.

* Both inbound and outbound vehicle trips take place during the same peak hour

Table 7-11
Trip Generation Summary

Peak Hour	In / Out	Person Trips						Vehicle Trips			
		Auto	Taxi	School Bus	Bus	Walk	Total	Auto	Taxi	School Bus	Total
Student Trip Generation											
AM	In	129	0	122	14	94	359	99	0	8	107
	Out	0	0	0	0	0	0	99	0	8	107
	Total	129	0	122	14	94	359	198	0	16	214
PM	In	0	0	0	0	0	0	99	0	8	107
	Out	129	0	122	14	94	359	99	0	8	107
	Total	129	0	122	14	94	359	198	0	16	214
Faculty/Staff Trip Generation											
AM	In	26	0	0	3	2	31	23	0	0	23
	Out	0	0	0	0	0	0	0	0	0	0
	Total	26	0	0	3	2	31	23	0	0	23
PM	In	0	0	0	0	0	0	0	0	0	0
	Out	26	0	0	3	2	31	23	0	0	23
	Total	26	0	0	3	2	31	23	0	0	23
Total Trip Generation (Students and Faculty/Staff)											
AM	In	155	0	122	17	96	390	122	0	8	130
	Out	0	0	0	0	0	0	99	0	8	107
	Total	**155**	**0**	**122**	**17**	**96**	**390**	**221**	**0**	**16**	**237**
PM	In	0	0	0	0	0	0	99	0	8	107
	Out	155	0	122	17	96	390	122	0	8	130
	Total	**155**	**0**	**122**	**17**	**96**	**390**	**221**	**0**	**16**	**237**

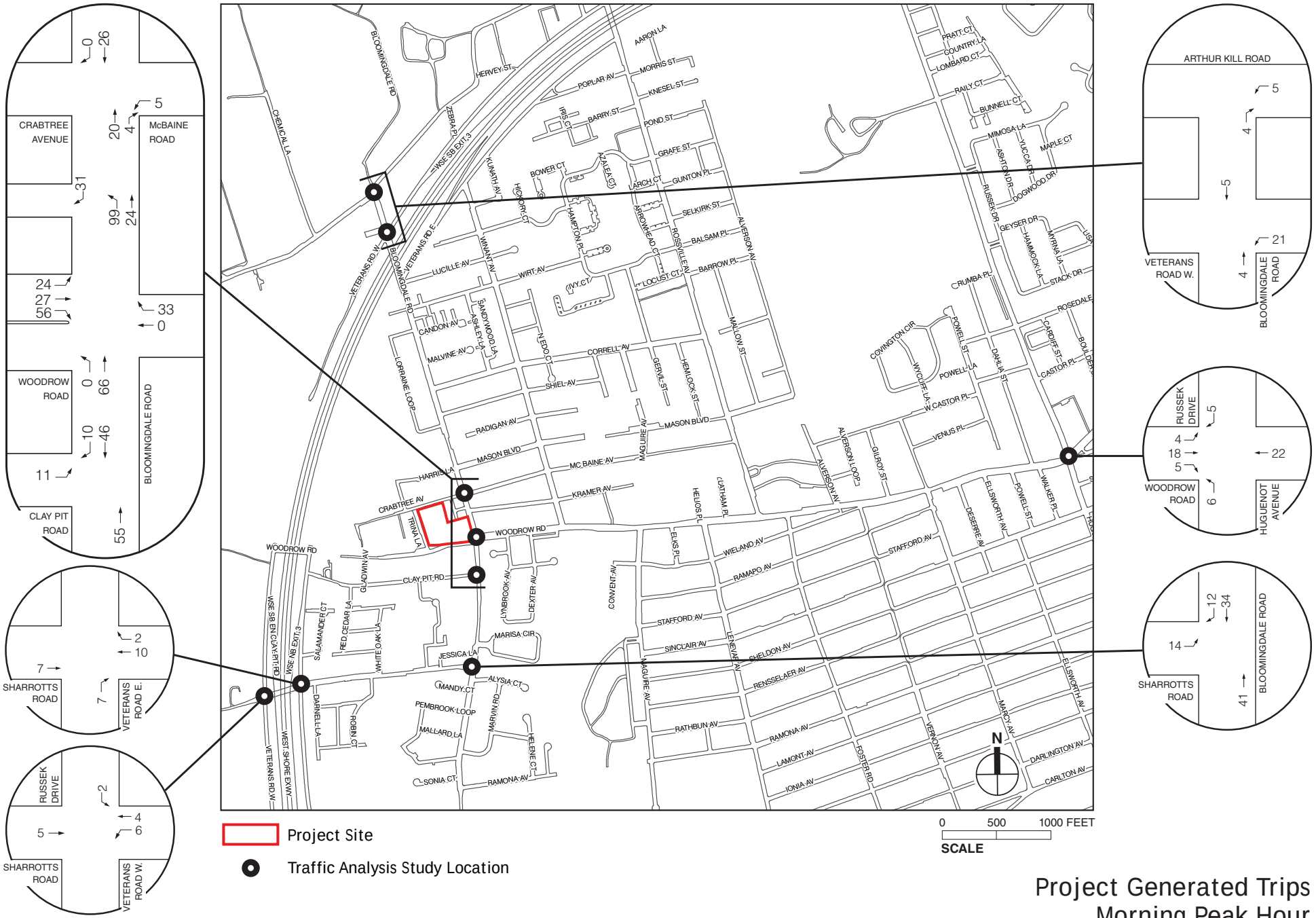
SITE ACCESS AND STUDENT DROP-OFFS

The main entrance for the proposed school facility would be located approximately 180 feet north of the Woodrow Road and Bloomingdale Road intersection. The exit for the proposed school facility would be provided as the fifth leg at the Woodrow Road and Bloomingdale Road intersection.

All student drop-offs/pick-ups will take place on the project site. The proposed school would provide a minimum of 25 on-site parking spaces for faculty/staff. Therefore, all the staff/faculty vehicles were assigned to the on-site parking spaces.

PROJECT VEHICLE ASSIGNMENT

Project-generated traffic was assigned to the study area network based on the local travel patterns and the most likely approach paths to and from the project site. Project-generated traffic entering the study area was distributed in the following manner: 23 percent from the north, 52 percent from the south, and 25 percent from the east. The vehicle trip assignment is show in **Figures 7-6** and **7-7** for the morning and afternoon peak hours, respectively.



Project Generated Trips
Morning Peak Hour

SCA P.S. 62R, Staten Island

Figure 7-6

SCA P.S. 62R, Staten Island

Project Generated Trips
Afternoon Peak Hour

Figure 7-7

TRAFFIC OPERATIONS

The 2015 Build (with project) traffic volumes are shown in **Figures 7-8** and **7-9** for the morning and afternoon peak hours, respectively. **Tables 7-12** and **7-13** present a comparison of No Build and Build conditions for signalized and unsignalized intersections, respectively.

For the streets around the site, capacities at most of the approaches would be sufficient to accommodate these increases. However, based on the impact criteria discussed earlier, the proposed project could cause significant adverse impacts at the following intersection approaches/lane-groups during the two peak hours analyzed:

- The westbound, northbound, and southbound approaches at the signalized intersection of Bloomingdale Road and Woodrow Road during the morning and afternoon peak periods.

In addition, the project generated traffic volumes would result in the westbound approach at the Bloomingdale Road and Crabtree Avenue intersection to operate at mid-LOS D or worse. However, based on the impact criteria for unsignalized intersections identified in the *CEQR Technical Manual*, the increase in delays at the westbound approach would not be considered a significant adverse impact because there are less than 90 vehicles per hour identified at this approach during the morning and afternoon peak hours.

Potential measures that can be implemented to mitigate the significant adverse traffic impact at the signalized intersection of Bloomingdale Road and Woodrow Road are discussed in Chapter 16, “Mitigation.”

2015 With ProjectTraffic Volumes
Morning Peak Hour

Figure 7-8

2015 With ProjectTraffic Volumes
Afternoon Peak Hour

Figure 7-9

Table 7-12
2015 No Build and Build Conditions Level of Service Analysis
Signalized Intersections

Intersection / Approach	Morning Peak Hour								Afternoon Peak Hour							
	2015 No Build				2015 Build				2015 No Build				2015 Build			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Arthur Kill Road and Bloomingdale Road																
Eastbound	T	0.12	12.2	B	T	0.12	12.2	B	T	0.21	13.0	B	T	0.21	13.0	B
	R	0.28	13.9	B	R	0.28	13.9	B	R	0.39	15.3	B	R	0.39	15.3	B
Westbound	LT	0.24	13.3	B	LT	0.24	13.4	B	LT	0.20	12.9	B	LT	0.20	13.0	B
Northbound	LR	0.58	28.0	C	LR	0.59	25.1	C	LR	0.57	24.7	C	LR	0.58	24.9	C
	Intersection		18.3	B	Intersection		18.4	B	Intersection		18.0	B	Intersection		18.1	B
West Service Road and Bloomingdale Road																
Eastbound	LR	0.06	20.7	C	LR	0.06	20.7	C	LR	0.32	23.9	C	LR	0.32	23.9	C
Westbound	L	0.37	24.7	C	L	0.42	25.5	C	L	0.61	30.0	C	L	0.64	31.0	C
	T	0.09	20.9	C	T	0.09	20.9	C	T	0.13	21.3	C	T	0.13	21.3	C
	R	0.46	26.6	C	R	0.46	26.6	C	R	0.56	29.1	C	R	0.56	29.1	C
Northbound	LT	0.52	30.6	C	LT	0.53	30.8	C	LT	0.55	31.9	C	LT	0.55	32.1	C
Southbound	TR	0.47	29.0	C	TR	0.48	29.2	C	TR	0.70	35.0	D	TR	0.70	35.3	D
	Intersection		27.4	C	Intersection		27.6	C	Intersection		30.4	C	Intersection		30.8	C
Woodrow Road and Bloomingdale Road																
Eastbound	LTR	0.03	32.4	C	LTR	0.03	32.4	C	LTR	0.03	32.4	C	LTR	0.03	32.4	C
Project	--	--	--	--	L	0.13	24.7	C	--	--	--	--	L	0.16	25.2	C
Driveway	--	--	--	--	TR	0.24	25.8	C	--	--	--	--	TR	0.30	26.6	C
Westbound	LTR	0.81	43.9	D	LTR	1.22	>80	F+	LTR	0.55	30.9	C	LTR	0.85	50.2	D
Northbound	LTR	0.90	44.9	D	LTR	1.01	67.8	E+	LTR	1.02	65.9	E	LTR	1.10	>80	F+
Southbound	LTR	0.94	55.1	E	LTR	1.00	70.2	E+	LTR	0.92	48.3	D	LTR	0.96	57.2	E+
	Intersection		47.9	D	Intersection		>80	F	Intersection		52.9	D	Intersection		63.0	E
Clay Pit Road and Bloomingdale Road																
Eastbound	LR	0.19	17.5	B	LR	0.21	17.7	B	LR	0.35	19.6	B	LR	0.37	19.8	B
Northbound	LT	0.46	17.3	B	LT	0.52	18.3	B	LT	0.52	18.4	B	LT	0.57	19.3	B
Southbound	TR	0.58	19.5	C	TR	0.65	21.2	C	TR	0.65	21.2	C	TR	0.73	23.8	C
	Intersection		18.4	B	Intersection		19.6	B	Intersection		19.9	B	Intersection		21.4	C
Sharrots Road and Bloomingdale Road																
Eastbound	LR	0.24	15.4	B	LR	0.26	15.6	B	LR	0.23	15.3	B	LR	0.25	15.5	B
Northbound	LT	0.40	10.6	B	LT	0.44	11.1	B	LT	0.48	11.6	B	LT	0.52	12.1	B
Southbound	TR	0.42	10.8	B	TR	0.47	11.4	B	TR	0.49	11.6	B	TR	0.55	12.4	B
	Intersection		11.4	B	Intersection		11.9	B	Intersection		12.1	B	Intersection		12.7	B
Woodrow Road and Huguenot Avenue																
Eastbound	L	0.37	14.4	B	L	0.40	15.0	B	L	0.28	13.3	B	L	0.30	13.7	B
	TR	0.36	13.4	B	TR	0.40	13.9	B	TR	0.53	16.0	B	TR	0.57	16.8	B
Westbound	L	0.33	13.9	B	L	0.35	14.3	B	L	0.21	12.6	B	L	0.22	12.9	B
	T	0.28	12.4	B	T	0.31	12.8	B	T	0.37	13.5	B	T	0.40	13.8	B
	R	0.15	11.3	B	R	0.15	11.3	B	R	0.09	10.8	B	R	0.09	10.8	B
Northbound	LTR	0.81	25.8	C	LTR	0.83	27.2	C	LTR	0.92	39.4	D	LTR	0.94	43.9	D
Southbound	LTR	0.51	15.3	B	LTR	0.52	15.5	B	LTR	0.53	15.6	B	LTR	0.53	15.7	B
	Intersection		17.4	B	Intersection		17.9	B	Intersection		21.3	C	Intersection		22.6	C

Notes: **Notes:**
L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.
+ implies a significant adverse impact.

Table 7-13
2015 No Build and Build Conditions Level of Service Analysis
Unsignalized Intersections

Intersection / Approach	Morning Peak Hour								Afternoon Peak Hour							
	2015 No Build				2015 Build				2015 No Build				2015 Build			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Crabtree Avenue – McBaine Avenue and Bloomingdale Road																
Eastbound	LTR	0.21	23.4	C	LTR	0.27	30.2	D	LTR	0.09	21.0	C	LTR	0.11	25.7	D
Westbound	LTR	0.35	25.1	D	LTR	0.52	41.0	E	LTR	0.17	23.6	C	LTR	0.28	35.3	E
Northbound	LTR	0.00	8.2	A	LTR	0.00	8.4	A	LTR	0.00	8.4	A	LTR	0.01	8.6	A
Southbound	LTR	0.05	8.9	A	LTR	0.06	9.4	A	LTR	0.02	8.7	A	LTR	0.02	9.3	A
Sharrots Road and East Service Road																
Eastbound	LT	--	7.9	A	LT	--	8.0	A	LT	--	8.6	A	LT	--	8.6	A
Westbound	TR	--	8.3	A	TR	--	8.5	A	TR	--	8.5	A	TR	--	8.7	A
Northbound	LT	--	8.2	A	LT	--	8.3	A	LT	--	8.4	A	LT	--	8.5	A
	TR	--	7.4	A	TR	--	7.5	A	TR	--	8.0	A	TR	--	8.1	A
	Intersection		8.0	A	Intersection		8.2	A	Intersection		8.4	A	Intersection		8.5	A
Sharrots Road and West Service Road																
Eastbound	ER	--	7.5	A	ER	--	7.6	A	ER	--	8.1	A	ER	--	8.2	A
Westbound	EL	--	8.9	A	EL	--	9.1	A	EL	--	8.7	A	EL	--	8.9	A
Southbound	LT	--	8.0	A	LT	--	8.0	A	LT	--	8.1	A	LT	--	8.2	A
	TR	--	7.7	A	TR	--	7.8	A	TR	--	7.9	A	TR	--	7.9	A
	Intersection		8.4	A	Intersection		8.5	A	Intersection		8.4	A	Intersection		8.4	A
School Entrance and Bloomingdale Road (Build Only)																
Northbound	--	--	--	--	LT	0.11	9.1	A	--	--	--	--	LT	0.09	9.2	A
Southbound	--	--	--	--	TR	--	--	--	--	--	--	--	TR	--	--	--
	Intersection		--	--	Intersection		9.1	A	Intersection		--	--	Intersection		9.2	A

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

D. TRANSIT OPERATIONS

The project site is located in an area served by the S55, S74, and S84 bus routes. Based on the travel demand estimates and the availability S55, S74, and S84 bus routes near the project site, it was determined that no individual bus route would experience 50 or more peak hour bus trips in one direction—the CEQR recommended threshold for undertaking quantified bus analysis. Consequently, it is expected that the project would not create a noticeable constraint on bus capacity; therefore, a quantitative bus analysis is not warranted.

Table 7-14 provides a summary of the NYCT local bus routes, which provide regular service to the study area, and their weekday frequencies of operation.

Table 7-14
NYCT Local Bus Routes Serving The Study Area

Bus Route	Start Point	End Point	Routing	Freq. of Bus Service (Headway in Minutes)	
				Morning	Afternoon
S55	Staten Island Mall	Rossville Arthur Kill Correctional Facility	Bloomingdale Road	30	35
S74	Tottenville Main Street / Amboy Road	St. George Ferry Terminal	Bloomingdale Road	10-20	15
S84	Tottenville Main Street / Amboy Road	St. George Ferry Terminal	Bloomingdale Road	--	30

Source: MTA NYCT, Staten Island Bus Timetable (2010).

E. PEDESTRIAN OPERATIONS

Existing pedestrian levels are based on field surveys conducted in November 2009 during the hours of 7:30 to 9:30 AM and 2:00 to 4:00 PM. Since the surveys were collected there has not been any significant development in the study area that would increase the pedestrian volumes, however, to be conservative the volumes collected in November 2009 were increased by an annual background growth rate of 1.0 percent, as per the 2010 *CEQR* guidelines, to establish baseline (year 2011) volumes for existing conditions.

PEDESTRIAN STUDY AREA

Pedestrian trip assignments were developed by distributing person trips generated by the proposed project to surrounding pedestrian facilities, including sidewalks, crosswalks, and corner reservoirs that would be most affected by new trips. Transit riders were assigned to the nearby bus stops. As shown in **Figures 7-10** and **7-11**, pedestrian activities resulting from the proposed project are expected to concentrate along Bloomingdale Road between Crabtree Avenue and Clay Pit Road. The estimated level of pedestrian activity is below the 200 peak-hour pedestrian trips/element threshold identified in the 2010 *CEQR Technical Manual*, however, since the proposed project is a new school, a detailed pedestrian analysis was still conducted. The following pedestrian elements were analyzed for this study:

SIDEWALK ANALYSIS LOCATIONS

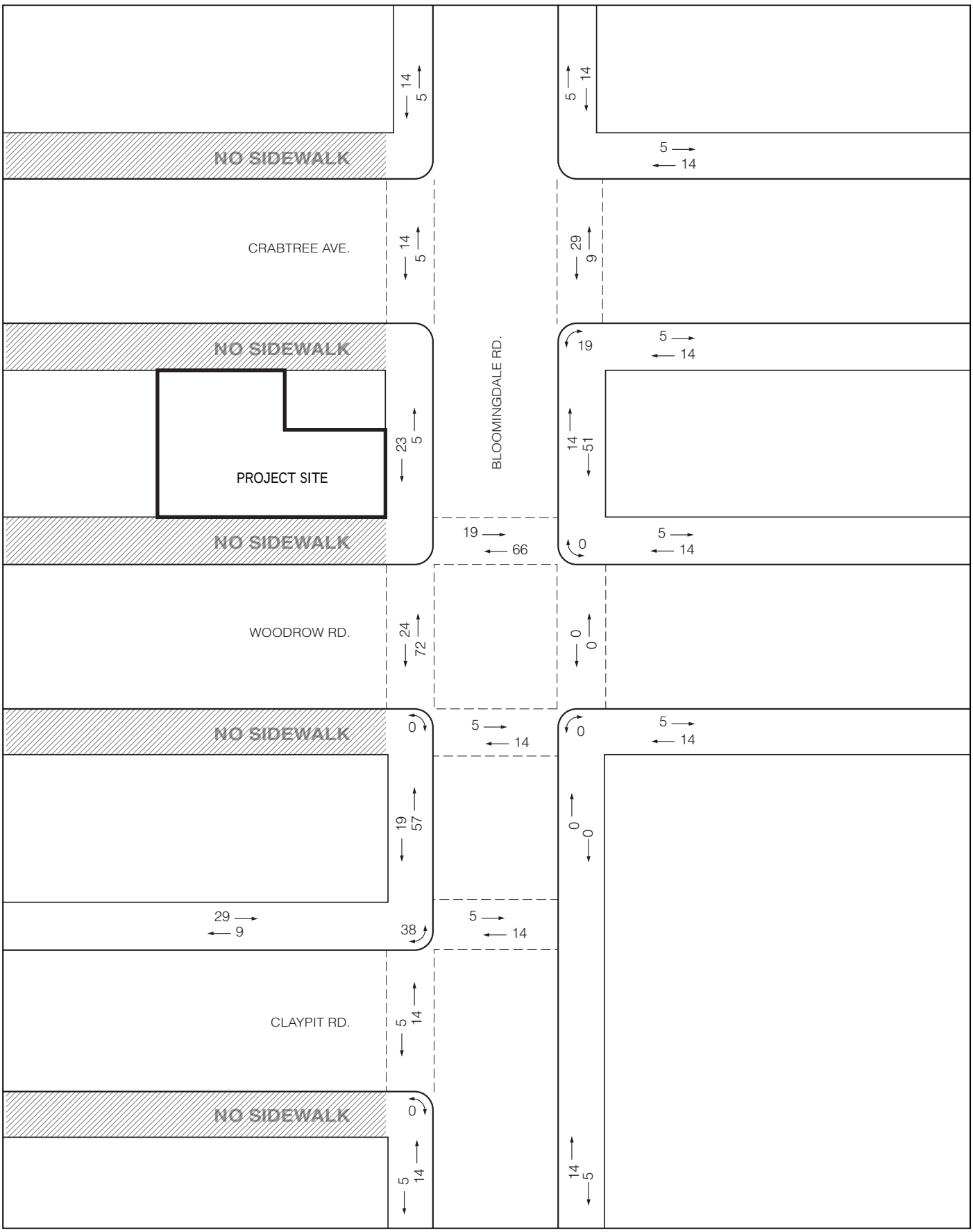
- East and west sidewalks along Bloomingdale Road north of Crabtree Avenue-McBaine Avenue;
- North and south sidewalks along Crabtree Avenue-McBaine Avenue east of Bloomingdale Road;
- East and west sidewalks along Bloomingdale Road between Crabtree Avenue-McBaine Avenue and Woodrow Road;
- North and south sidewalks along Woodrow Road east of Bloomingdale Road;
- East and west sidewalks along Bloomingdale Road between Woodrow Road and Clay Pit Road;
- North sidewalk along Clay Pit Road west of Bloomingdale Road; and
- East and west sidewalks along Bloomingdale Road south of Clay Pit Road.

CORNER RESERVOIR ANALYSIS LOCATIONS

- Northeast, southeast, and southwest corners of Bloomingdale Road and Woodrow Road;
- Northwest corner of Bloomingdale Road and Woodrow Road (Build only); and
- Northwest and southwest corners of Bloomingdale Road and Clay Pit Road.

CROSSWALK ANALYSIS LOCATIONS

- South and east crosswalks of Bloomingdale Road and Woodrow Road;
- New north and new west crosswalks of Bloomingdale Road and Woodrow Road (Build only); and
- North and west crosswalks of Bloomingdale Road and Clay Pit Road.

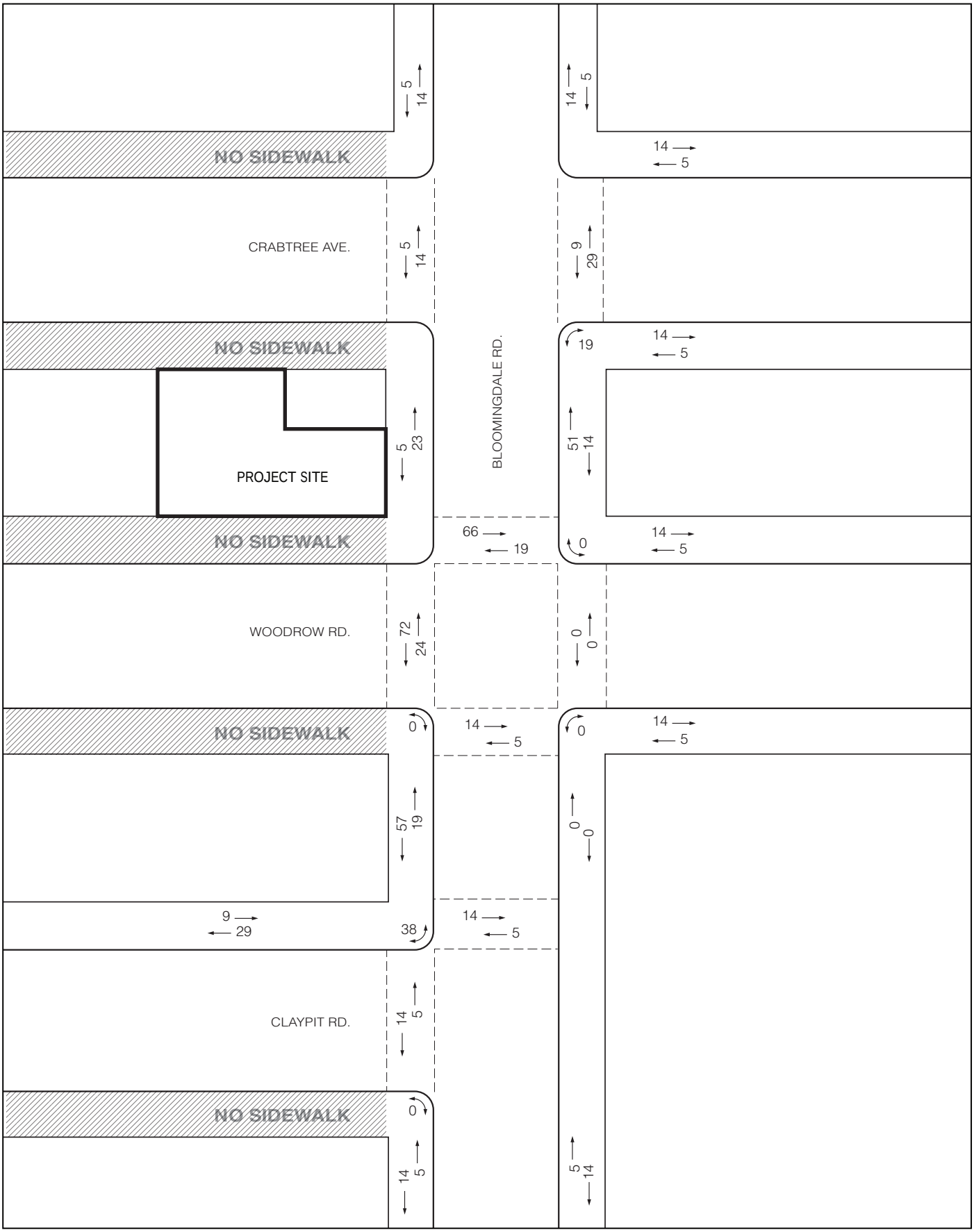


NOT TO SCALE

Project Generated Pedestrian Volumes
Morning Peak Hour

SCA P.S. 62R, Staten Island

Figure 7-10



NOT TO SCALE

Project Generated Pedestrian Volumes
Afternoon Peak Hour

Figure 7-11

ANALYSIS RESULTS

STREET LEVEL PEDESTRIAN OPERATIONS

As described above, the study area sidewalks, corner reservoirs, and crosswalks were assessed for the morning and afternoon peak periods. Existing peak 15-minute volumes were developed for pedestrian elements closest to the project site where the most pedestrian trips are anticipated. As shown in **Tables 7-15** to **7-17**, all sidewalks, crosswalks, and corner reservoir analysis locations operate at acceptable levels (minimum 24 SFP for crosswalks and corners, maximum 6 PMF platoon flows for sidewalks) during the morning and afternoon peak 15-minute periods.

Table 7-15
2011 Existing Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
Morning Peak Period					
Bloomingdale Road north of Crabtree Avenue – McBaine Avenue	East	5.0	4	0.1	A
	West	5.0	1	0.0	A
Crabtree Avenue-McBaine Avenue east of Bloomingdale Road	North	5.0	2	0.0	A
	South	5.0	4	0.1	A
Bloomingdale Road between Crabtree Avenue – McBaine Avenue and Woodrow Road	East	5.0	7	0.1	A
	West	5.0	2	0.0	A
Woodrow Road east of Bloomingdale Road	North	4.7	3	0.0	A
	South	5.0	10	0.1	A
Bloomingdale Road between Woodrow Road and Clay Pit Road	East	5.0	7	0.1	A
	West	5.0	4	0.1	A
Clay Pit Road west of Bloomingdale Road	North	5.0	3	0.0	A
Bloomingdale Road south of Clay Pit Road	East	5.0	4	0.1	A
	West	5.0	2	0.0	A
Afternoon Peak Period					
Bloomingdale Road north of Crabtree Avenue – McBaine Avenue	East	5.0	1	0.0	A
	West	5.0	3	0.0	A
Crabtree Avenue-McBaine Avenue east of Bloomingdale Road	North	5.0	1	0.0	A
	South	5.0	2	0.0	A
Bloomingdale Road between Crabtree Avenue – McBaine Avenue and Woodrow Road	East	5.0	2	0.0	A
	West	5.0	2	0.0	A
Woodrow Road east of Bloomingdale Road	North	4.7	0	0.0	A
	South	5.0	4	0.1	A
Bloomingdale Road between Woodrow Road and Clay Pit Road	East	5.0	9	0.1	A
	West	5.0	3	0.0	A
Clay Pit Road west of Bloomingdale Road	North	5.0	3	0.0	A
Bloomingdale Road south of Clay Pit Road	East	5.0	9	0.1	A
	West	5.0	2	0.0	A

Note: PMF = pedestrians per minute per foot

Table 7-16
2011 Existing Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Locations	Corner	Morning Peak Period		Afternoon Peak Period	
		SFP	LOS	SFP	LOS
Bloomingdale Road and Woodrow Road	Northeast	2,129.6	A	2,551.8	A
	Southeast	1,272.1	A	1,411.4	A
	Southwest	3,196.6	A	4,262.1	A
Bloomingdale Road and Clay Pit Road	Southwest	5,065.9	A	10,145.3	A
	Northwest	2004.4	A	2,001.0	A

Note: SFP = square feet per pedestrian

Table 7-17
2011 Existing Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles			
				Morning		Afternoon	
				SFP	LOS	SFP	LOS
Bloomingdale Road and Woodrow Road	East	68.8	10.8	2,831.2	A	1,618.8	A
	South	44.8	8.5	1,259.3	A	1,256.7	A
Bloomingdale Road and Clay Pit Road	North	36.8	10.0	9,321.6	A	9,311.4	A
	West	26.0	11.5	5,363.2	A	10,412.9	A

Note: SFP = square feet per pedestrian

THE FUTURE WITHOUT THE PROPOSED PROJECT

Future 2015 conditions without the proposed project were estimated by increasing existing (2011) pedestrian levels to reflect expected growth in overall travel through and within the study area. As per the 2010 *CEQR* guidelines, an annual background growth rate of 1.0 percent was assumed.

STREET LEVEL PEDESTRIAN OPERATIONS

The 2015 No Build peak period volume projections were applied to the pedestrian analysis networks described previously. As shown in **Tables 7-18** to **7-20**, all sidewalks, crosswalks, and corner reservoir analysis locations would continue to operate at acceptable levels (minimum 24 SFP for crosswalks and corners, maximum 6 PMF platoon flows for sidewalks) during both the morning and afternoon peak 15-minute periods.

Table 7-18
2015 No Build Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
Morning Peak Period					
Bloomingdale Road north of Crabtree Avenue – McBaine Avenue	East	5.0	4	0.1	A
	West	5.0	1	0.0	A
Crabtree Avenue-McBaine Avenue east of Bloomingdale Road	North	5.0	2	0.0	A
	South	5.0	4	0.1	A
Bloomingdale Road between Crabtree Avenue – McBaine Avenue and Woodrow Road	East	5.0	7	0.1	A
	West	5.0	2	0.0	A
Woodrow Road east of Bloomingdale Road	North	4.7	3	0.0	A
	South	5.0	10	0.1	A
Bloomingdale Road between Woodrow Road and Clay Pit Road	East	5.0	7	0.1	A
	West	5.0	4	0.1	A
Clay Pit Road west of Bloomingdale Road	North	5.0	3	0.0	A
Bloomingdale Road south of Clay Pit Road	East	5.0	4	0.1	A
	West	5.0	2	0.0	A
Afternoon Peak Period					
Bloomingdale Road north of Crabtree Avenue – McBaine Avenue	East	5.0	1	0.0	A
	West	5.0	3	0.0	A
Crabtree Avenue-McBaine Avenue east of Bloomingdale Road	North	5.0	1	0.0	A
	South	5.0	2	0.0	A
Bloomingdale Road between Crabtree Avenue – McBaine Avenue and Woodrow Road	East	5.0	2	0.0	A
	West	5.0	2	0.0	A
Woodrow Road east of Bloomingdale Road	North	4.7	0	0.0	A
	South	5.0	4	0.1	A
Bloomingdale Road between Woodrow Road and Clay Pit Road	East	5.0	9	0.1	A
	West	5.0	3	0.0	A
Clay Pit Road west of Bloomingdale Road	North	5.0	3	0.0	A
Bloomingdale Road south of Clay Pit Road	East	5.0	9	0.1	A
	West	5.0	2	0.0	A

Note: PMF = pedestrians per minute per foot

Table 7-19
2015 No Build Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Locations	Corner	Morning Peak Period		Afternoon Peak Period	
		SFP	LOS	SFP	LOS
Bloomingdale Road and Woodrow Road	Northeast	1,825.4	A	2,551.8	A
	Southeast	1,154.8	A	1,411.4	A
	Southwest	3,196.6	A	4,262.1	A
Bloomingdale Road and Clay Pit Road	Southwest	5,065.9	A	10,145.3	A
	Northwest	2004.4	A	2,001.0	A

Note: SFP = square feet per pedestrian

Table 7-20
2015 No Build Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles			
				Morning		Afternoon	
				SFP	LOS	SFP	LOS
Bloomingdale Road and Woodrow Road	East	68.8	10.8	2,116.2	A	1,610.3	A
	South	44.8	8.5	1,259.3	A	1,256.7	A
Bloomingdale Road and Clay Pit Road	North	36.8	10.0	9,321.6	A	9,311.4	A
	West	26.0	11.5	5,341.6	A	10,348.1	A

Note: SFP = square feet per pedestrian

PROBABLE IMPACTS OF THE PROPOSED PROJECT

The future with the proposed project would result in increased pedestrian trips as compared to the No Build conditions. As part of the modified Bloomingdale Road and Woodrow Road intersection to accommodate the project exit driveway, crosswalks would be added on the west and north legs of the intersection. This section describes the projected travel patterns of the site-related trips and assesses their potential impacts on nearby pedestrian facilities.

TRIP DISTRIBUTION AND ASSIGNMENT

Primary pedestrian access to the project site would be provided along Bloomingdale Road between Woodrow Road and Crabtree Avenue-McBaine Avenue. The following assumptions were used to assign auto, school bus, transit, and walk-only trips to the project site.

- Auto and school bus drop-offs/pick-ups were assumed to occur on site.
- Bus person trips would be assigned to the S55, S74, and S84 bus stops located on Bloomingdale Road between Woodrow Road and Crabtree Avenue-McBaine Avenue. distributed to the three bus routes available in the study area.
- The area's pedestrian network and nearby populated neighborhoods were accounted for in the assignment of these trips.

ANALYSIS RESULTS

Pedestrian trips associated with the proposed project would result in increased volumes at the analysis locations. The analysis conducted for the 2015 Build condition accounts for the distribution of project-generated trips overlaid onto the 2015 No Build trips on the network's sidewalks, corner reservoirs, and crosswalks. **Tables 7-21** to **7-23** present the future Build operating conditions for the analysis elements. Based on the analysis results, all sidewalks, crosswalks and corners would continue to operate at acceptable levels (minimum 24 SFP for crosswalks and corners, maximum 6 PMF platoon flows for sidewalks) during both the morning and

afternoon peak 15-minute periods. Therefore, the proposed project would not result in any significant adverse pedestrian impacts under the 2015 Build condition.

Table 7-21
2015 Build Conditions: Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
Morning Peak Period					
Bloomingdale Road north of Crabtree Avenue – McBaine Avenue	East	5.0	9	0.1	A
	West	5.0	6	0.1	A
Crabtree Avenue-McBaine Avenue east of Bloomingdale Road	North	5.0	7	0.1	A
	South	5.0	9	0.1	A
Bloomingdale Road between Crabtree Avenue – McBaine Avenue and Woodrow Road	East	5.0	22	0.3	A
	West	5.0	7	0.1	A
Woodrow Road east of Bloomingdale Road	North	4.7	8	0.1	A
	South	5.0	15	0.2	A
Bloomingdale Road between Woodrow Road and Clay Pit Road	East	5.0	7	0.1	A
	West	5.0	23	0.3	A
Clay Pit Road west of Bloomingdale Road	North	5.0	12	0.2	A
Bloomingdale Road south of Clay Pit Road	East	5.0	9	0.1	A
	West	5.0	7	0.1	A
Afternoon Peak Period					
Bloomingdale Road north of Crabtree Avenue – McBaine Avenue	East	5.0	6	0.1	A
	West	5.0	8	0.1	A
Crabtree Avenue-McBaine Avenue east of Bloomingdale Road	North	5.0	6	0.1	A
	South	5.0	7	0.1	A
Bloomingdale Road between Crabtree Avenue – McBaine Avenue and Woodrow Road	East	5.0	17	0.2	A
	West	5.0	7	0.1	A
Woodrow Road east of Bloomingdale Road	North	4.7	5	0.1	A
	South	5.0	9	0.1	A
Bloomingdale Road between Woodrow Road and Clay Pit Road	East	5.0	9	0.1	A
	West	5.0	22	0.3	A
Clay Pit Road west of Bloomingdale Road	North	5.0	12	0.2	A
Bloomingdale Road south of Clay Pit Road	East	5.0	14	0.2	A
	West	5.0	7	0.1	A

Note: PMF = pedestrians per minute per foot

Table 7-22
2015 Build Conditions: Pedestrian LOS Analysis for Corner Reservoirs

Locations	Corner	Morning Peak Period		Afternoon Peak Period	
		SFP	LOS	SFP	LOS
Bloomingdale Road and Woodrow Road	Northeast	440.1	A	484.5	A
	Southeast	785.9	A	904.4	A
	Southwest	374.7	A	391.9	A
	Northwest	262.1	A	260.6	A
Bloomingdale Road and Clay Pit Road	Southwest	1,439.7	A	1,688.6	A
	Northwest	416.3	A	411.7	A

Note: SFP = square feet per pedestrian

Table 7-23
2015 Build Conditions: Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles			
				Morning		Afternoon	
				SFP	LOS	SFP	LOS
Bloomingdale Road and Woodrow Road	North	55.0	10.0	171.5	A	128.9	A
	East	68.8	10.8	1382.7	A	1,146.9	A
	South	44.8	8.5	441.7	A	316.5	A
	West	27.0	10.0	240.2	A	262.6	A
Bloomingdale Road and Clay Pit Road	North	36.8	10.0	1,341.6	A	1,336.5	A
	West	26.0	11.5	1,329.7	A	1,495.4	A

Note: SFP = square feet per pedestrian

F. PARKING

EXISTING CONDITIONS

A survey of off-and on-street parking within a ¼-mile radius of the project site was conducted in February 2011 to assess their capacities and approximate utilization rates. Based on the survey, there are no off-street public parking facilities located within a ¼-mile radius of the project site. In terms of on-street parking, there are approximately 751 on-street spaces within a ¼-mile radius of the project site. Out of these, approximately 351 spaces were available during the morning peak period resulting in an overall utilization rate of 53 percent.

THE FUTURE WITHOUT THE PROPOSED PROJECT

The study area's overall on-street parking utilization is assumed to experience the same growth as projected for the traffic conditions in the study area. Accounting for the general background growth, the overall on-street parking utilization rate in the study area in the 2015 No Build condition would increase to approximately 55 percent, with 335 available on-street spaces during the morning peak period.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

The proposed school would provide a minimum of 25 on-site parking spaces and would generate a demand of approximately 23 parking spaces by faculty/staff commuting by auto. Therefore, the on-street parking utilization with the proposed project is expected to remain at similar levels as the 2015 No Build conditions. Thus, the proposed project would not result in significant adverse impacts to the supply and demand of on-street parking in the study area.

G. PEDESTRIAN SAFETY

Accident data for the study area intersections were compiled from New York State Department of Transportation (NYSDOT) records for the period between December 1, 2007 and November 30, 2010. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage) during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. According to the 2010 *CEQR Technical Manual*, a high accident location is one where there were 48 or more total reportable and non-reportable accidents or five or more pedestrian/bicyclist injury accidents in any consecutive twelve months of the most recent three-year period for which data are available.

During this period, a total of 20 reportable and non-reportable accidents (including 1 pedestrian-related accident), no fatalities, and 7 injuries occurred at the study area intersections. Based on

the CEQR criteria, no intersections were identified as high pedestrian accident locations in the 2007 to 2010 period. **Table 7-24** depicts total accident characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle accidents by year and location.

Table 7-24
Accident Data

Intersection		Study Period						Accidents by Year							
North-South Roadway	East-West Roadway	All Accidents by Year				Total Fatalities	Total Injuries	Pedestrian				Bicycle			
		2007	2008	2009	2010			2007	2008	2009	2010	2007	2008	2009	2010
Bloomingdale Rd	Arthur Kill Rd	0	1	2	0	0	0	0	0	0	0	0	0	0	0
Bloomingdale Rd	Veterans Rd W	0	0	1	1	0	1	0	0	0	0	0	0	0	0
Bloomingdale Rd	Crabtree/McBaine	0	0	1	1	0	1	0	0	0	0	0	0	0	0
Bloomingdale Rd	Woodrow Road	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Bloomingdale Rd	Clay Pit Road	0	3	0	0	0	2	0	0	0	0	0	0	0	0
Bloomingdale Rd	Sharrotts Road	0	1	2	0	0	1	0	0	1	0	0	0	0	0
Veterans Rd E	Sharrotts Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Veterans Rd W	Sharrotts Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Huguenot Rd	Woodrow Road	1	4	0	1	0	2	0	0	0	0	0	0	0	0

Source: NYSDOT December 1, 2007 to November 30, 2010 accident data.
Bold intersections are high pedestrian accident locations.

✷

A. INTRODUCTION

The potential for air quality impacts with the proposed school is examined in this chapter. Air quality impacts can be either direct or indirect. Direct impacts result from emissions generated by stationary sources at the project site, such as emissions from on-site fuel combustion for heat and hot water system. Indirect impacts are those caused by emissions from nearby existing stationary sources (impacts on the proposed project) or by emissions from on-road vehicle trips (mobile sources) generated by a project.

The maximum hourly traffic that would generated by the proposed school would exceed the *CEQR Technical Manual* carbon monoxide screening threshold of 170 for peak hour trips at nearby intersections in the study area and would also exceed the particulate matter emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from traffic that would be generated by the proposed school was conducted.

The proposed school would mainly rely on solar and geothermal heat and hot water systems, which would not affect air quality. However, there would also be a natural gas backup boiler. Therefore, a screening analysis was conducted to evaluate the potential for air quality impacts from the backup hot water boiler.

The mobile source analysis conducted shows that there would be no potential for significant adverse impact on air quality from the vehicle trips generated by the proposed school. Based on the screening analysis, there would be no potential significant adverse air quality impacts from emissions of the proposed school's heat and hot water systems. Therefore, there is no potential for any significant adverse air quality impacts with the proposed school.

B. POLLUTANTS FOR ANALYSIS

Ambient air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Ambient concentrations of carbon monoxide (CO) are predominantly influenced by mobile source emissions. Particulate matter (PM), volatile organic compounds (VOCs), and nitrogen oxides (NO and NO_2, collectively referred to as NO_x) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NO_x, sulfur oxides (SO_x), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of sulfur dioxide (SO_2) are associated mainly with stationary sources, and sources utilizing non-road diesel such as diesel trains, marine engines, and non-road vehicles (e.g., construction engines). On-road diesel vehicles currently contribute very little to SO_2 emissions since the sulfur content of on-road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NO_x and VOCs.

CARBON MONOXIDE

CO, a colorless and odorless gas, is produced in the urban environment primarily by the incomplete combustion of gasoline and other fossil fuels. In urban areas, approximately 80 to 90 percent of CO emissions are from motor vehicles. Since CO is a reactive gas which does not persist in the atmosphere, CO concentrations can vary greatly over relatively short distances; elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. Consequently, CO concentrations must be predicted on a local, or microscale, basis. Since the proposed school would result in peak hour vehicle trips that would exceed the *CEQR Technical Manual* screening analysis thresholds for CO, a quantified assessment of air quality impacts from vehicle CO emissions was conducted.

NITROGEN OXIDES, VOCS, AND OZONE

NO_x are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow, and occur as the pollutants are advected downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NO_x and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions; the change in regional mobile source emissions of these pollutants would be related to the total vehicle miles traveled added or subtracted on various roadway types throughout the New York metropolitan area, which is designated as a moderate nonattainment area for ozone by the U.S. Environmental Protection Agency (EPA).

The proposed school would not have a significant effect on the overall volume of vehicular travel in the metropolitan area; therefore, no measurable impact on regional NO_x emissions or on ozone levels is predicted. An analysis of emissions of these pollutants from mobile sources was therefore not warranted.

In addition to being a precursor to the formation of ozone, NO_2 (one component of NO_x) is also a regulated pollutant. Since NO_2 is mostly formed from the transformation of NO in the atmosphere, it has mostly been of concern further downwind from large stationary point sources, and not a local concern from mobile sources. (NO_x emissions from fuel combustion consist of approximately 90 percent NO and 10 percent NO_2 at the source.) However, with the promulgation of the 2010 1-hour average standard for NO_2, local (i.e., mobile) sources may become of greater concern for this pollutant. Potential impacts from the proposed school's hot water systems were evaluated.

LEAD

Airborne lead emissions are currently associated principally with industrial sources. Effective January 1, 1996, the Clean Air Act (CAA) banned the sale of the small amount of leaded fuel that was still available in some parts of the country for use in on-road vehicles, concluding a 25-year effort to phase out lead in gasoline. Even at locations in the New York City area where traffic volumes are very high, atmospheric lead concentrations are below the 3-month average national standard of 0.15 micrograms per cubic meter ($\mu g/m^3$).

No significant sources of lead are associated with the proposed school and, therefore, analysis was not warranted.

RESPIRABLE PARTICULATE MATTER—PM_{10} AND $PM_{2.5}$

PM is a broad class of air pollutants that includes discrete particles of a wide range of sizes and chemical compositions, as either liquid droplets (aerosols) or solids suspended in the atmosphere. The constituents of PM are both numerous and varied, and they are emitted from a wide variety of sources (both natural and anthropogenic). Natural sources include the condensed and reacted forms of naturally occurring VOC; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, bacteria, and material from live and decaying plant and animal life; particles eroded from beaches, soil, and rock; and particles emitted from volcanic and geothermal eruptions and from forest fires. Naturally occurring PM is generally greater than 2.5 micrometers in diameter. Major anthropogenic sources include the combustion of fossil fuels (e.g., vehicular exhaust, power generation, boilers, engines, and home heating), chemical and manufacturing processes, all types of construction, agricultural activities, as well as wood-burning stoves and fireplaces. PM also acts as a substrate for the adsorption (accumulation of gases, liquids, or solutes on the surface of a solid or liquid) of other pollutants, often toxic and some likely carcinogenic compounds.

As described below, PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), and particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}, which includes $PM_{2.5}$). $PM_{2.5}$ has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles, and is also extremely persistent in the atmosphere. $PM_{2.5}$ is mainly derived from combustion material that has volatilized and then condensed to form primary PM (often soon after the release from a source exhaust) or from precursor gases reacting in the atmosphere to form secondary PM.

Diesel-powered vehicles, especially heavy duty trucks and buses, are a significant source of respirable PM, most of which is $PM_{2.5}$; PM concentrations may, consequently, be locally elevated near roadways with high volumes of heavy diesel-powered vehicles. Since the proposed school would result in an increase in $PM_{2.5}$ vehicle emissions that would exceed the $PM_{2.5}$ emissions threshold defined in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual* above which a detailed analysis of mobile source impacts on air quality is required, a quantified assessment of air quality impacts from vehicle PM emissions was conducted.

SULFUR DIOXIDE

SO_2 emissions are primarily associated with the combustion of sulfur-containing fuels (oil and coal). Monitored SO_2 concentrations in New York City are lower than the national standards. Due to the federal restrictions on the sulfur content in diesel fuel for on-road vehicles, no significant quantities are emitted from vehicular sources. Vehicular sources of SO_2 are not significant and therefore, an analysis of SO_2 from mobile sources was not warranted.

The proposed school would include a backup hot water boiler that would use natural gas. The sulfur content of natural gas is negligible; therefore, no analysis was performed to estimate the future levels of SO_2.

C. AIR QUALITY REGULATIONS, STANDARDS, AND BENCHMARKS

NATIONAL AND STATE AIR QUALITY STANDARDS

As required by the CAA, primary and secondary National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: CO, NO_2, ozone, respirable PM (both $PM_{2.5}$ and PM_{10}), SO_2, and lead. The primary standards represent levels that are requisite to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary and secondary standards are the same for NO_2 (annual), ozone, lead, and PM, and there is no secondary standard for CO and the 1-hour NO_2 standard. The NAAQS are presented in **Table 8-1**. The NAAQS for CO, NO_2, and SO_2 have also been adopted as the ambient air quality standards for New York State, but are defined on a running 12-month basis rather than for calendar years only. New York State also has standards for total suspended particulate matter (TSP), settleable particles, non-methane hydrocarbons (NMHC), and ozone which correspond to federal standards that have since been revoked or replaced, and for beryllium, fluoride, and hydrogen sulfide (H_2S).

EPA has revised the NAAQS for PM, effective December 18, 2006. The revision included lowering the level of the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ and retaining the level of the annual standard at 15 $\mu g/m^3$. The PM_{10} 24-hour average standard was retained and the annual average PM_{10} standard was revoked.

EPA has also revised the 8-hour ozone standard, lowering it from 0.08 to 0.075 parts per million (ppm), effective as of May 2008. On January 6, 2010, EPA proposed a change in the 2008 ozone NAAQS, lowering the primary NAAQS from the current 0.075 ppm level to within the range of 0.060 to 0.070 ppm. EPA is also proposing a secondary ozone standard, measured as a cumulative concentration within the range of 7 to 15 ppm-hours aimed mainly at protecting sensitive vegetation.

EPA established a 1-hour average NO_2 standard of 0.100 ppm, effective April 12, 2010, in addition to the annual standard. The statistical form is the 3-year average of the 98th percentile of daily maximum 1-hour average concentration in a year.

EPA established a 1-hour average SO_2 standard of 0.075 ppm, replacing the 24-hour and annual primary standards, effective August 23, 2010. The statistical form is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour concentrations (the 4th highest daily maximum corresponds approximately to 99th percentile for a year.)

NAAQS ATTAINMENT STATUS AND STATE IMPLEMENTATION PLANS

The CAA, as amended in 1990, defines nonattainment areas (NAA) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as nonattainment by EPA, the state is required to develop and implement a State Implementation Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA.

In 2002, EPA re-designated New York City as in attainment for CO. The CAA requires that a maintenance plan ensure continued compliance with the CO NAAQS for former nonattainment areas. New York City is also committed to implementing site-specific control measures throughout the city to reduce CO levels, should unanticipated localized growth result in elevated CO levels during the maintenance period.

Table 8-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	ppm	µg/m^3	ppm	µg/m^3
Carbon Monoxide (CO)				
8-Hour Average [1]	9	10,000	None	
1-Hour Average [1]	35	40,000		
Lead				
Rolling 3-Month Average [2]	NA	0.15	NA	0.15
Nitrogen Dioxide (NO_2)				
1-Hour Average [3]	0.100	188	None	
Annual Average	0.053	100	0.053	100
Ozone (O_3)				
8-Hour Average [4,5]	0.075	150	0.075	150
Respirable Particulate Matter (PM_{10})				
24-Hour Average [1]	NA	150	NA	150
Fine Respirable Particulate Matter ($PM_{2.5}$)				
Annual Mean	NA	15	NA	15
24-Hour Average [6,7]	NA	35	NA	35
Sulfur Dioxide (SO_2) [8]				
1-Hour Average [9]	0.075	196	NA	NA
Maximum 3-Hour Average [1]	NA	NA	0.50	1,300

Notes:
ppm – parts per million
µg/m^3 – micrograms per cubic meter
NA – not applicable
All annual periods refer to calendar year.
PM concentrations (including lead) are in µg/m^3 since ppm is a measure for gas concentrations. Concentrations of all gaseous pollutants are defined in ppm and approximately equivalent concentrations in µg/m^3 are presented.

(1) Not to be exceeded more than once a year.
(2) EPA has lowered the NAAQS down from 1.5 µg/m^3, effective January 12, 2009.
(3) 3-year average of the annual 98th percentile daily maximum 1-hr average concentration. Effective April 12, 2010.
(4) 3-year average of the annual fourth highest daily maximum 8-hr average concentration.
(5) EPA has proposed lowering this standard further to within the range 0.060-0.070 ppm.
(6) Not to be exceeded by the annual 98th percentile when averaged over 3 years.
(7) EPA has lowered the NAAQS down from 65 µg/m^3, effective December 18, 2006.
(8) EPA revoked the 24-hour and annual primary standards, replacing them with a 1-hour average standard. Effective August 23, 2010.
(9) 3-year average of the annual 99th percentile daily maximum 1-hr average concentration. Effective August 23, 2010.

Source: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards.

Manhattan has been designated as a moderate NAA for PM_{10}. On December 17, 2004, EPA took final action designating the five New York City counties, Nassau, Suffolk, Rockland, Westchester, and Orange counties as a $PM_{2.5}$ nonattainment area under the CAA due to exceedance of the annual average standard. Based on recent monitoring data (2006-2009), annual average concentrations of $PM_{2.5}$ in New York no longer exceed the annual standard.

As described above, EPA has revised the 24-hour average $PM_{2.5}$ standard. In October 2009 EPA finalized the designation of the New York City Metropolitan Area as nonattainment with the 2006 24-hour $PM_{2.5}$ NAAQS, effective in November 2009. The nonattainment area includes the same 10-county area EPA designated as nonattainment with the 1997 annual $PM_{2.5}$ NAAQS. By November 2012 New York will be required to submit a SIP demonstrating attainment with the 2006 24-hour standard by November 2014 (EPA may grant attainment date extensions for up to five additional years).

Nassau, Rockland, Suffolk, Westchester, Lower Orange County Metropolitan Area (LOCMA), and the five New York City counties had been designated as a severe nonattainment area for ozone (1-hour average standard). In November 1998, New York State submitted its *Phase II Alternative Attainment Demonstration for Ozone*, which was finalized and approved by EPA effective March 6, 2002, addressing attainment of the 1-hour ozone NAAQS by 2007. These SIP revisions included additional emission reductions that EPA requested to demonstrate attainment of the standard, and an update of the SIP estimates using the latest versions of the mobile source emissions model, MOBILE6.2, and the nonroad emissions model, NONROAD—which have been updated to reflect current knowledge of engine emissions and the latest mobile and nonroad engine emissions regulations.

On April 15, 2004, EPA designated these same counties as moderate nonattainment for the 8-hour average ozone standard which became effective as of June 15, 2004 (LOCMA was moved to the Poughkeepsie moderate nonattainment area for 8-hour ozone). EPA revoked the 1-hour standard on June 15, 2005; however, the specific control measures for the 1-hour standard included in the SIP are required to stay in place until the 8-hour standard is attained. The discretionary emissions reductions in the SIP would also remain but could be revised or dropped based on modeling. On February 8, 2008, NYSDEC submitted final revisions to a new SIP for ozone to EPA. NYSDEC has determined that achieving attainment for ozone before 2012 is unlikely, and has therefore made a request for a voluntary reclassification of the New York nonattainment area as "serious".

In March 2008 EPA strengthened the 8–hour ozone standards. SIPs will be due three years after the final designations are made. On March 12, 2009, NYSDEC recommended that the counties of Suffolk, Nassau, Bronx, Kings, New York, Queens, Richmond, Rockland, and Westchester be designated as a nonattainment area for the 2008 ozone NAAQS (the NYMA MSA nonattainment area). The EPA has proposed to determine that the Poughkeepsie nonattainment area (Dutchess, Orange, Ulster, and Putnam counties) has attained the 2008 one-hour and eight-hour National Ambient Air Quality Standards for ozone. It is unclear at this time what the attainment status of these areas will be under the newly proposed standard due to the range of concentrations proposed.

New York City is currently in attainment of the annual-average NO_2 standard. EPA has promulgated a new 1-hour standard. The existing monitoring data indicates background concentrations below the standard. NYSDEC has determined that the present monitoring does not meet the revised EPA requirements in all respects and has recommended a designation of "unclassifiable" for the entire state. Therefore, it is likely that New York City will be designated by EPA as "unclassifiable" at first (January 2012), and then classified once three years of monitoring data are available (2016 or 2017).

EPA has established a new 1-hour SO_2 standard, replacing the 24-hour and annual standards, effective August 23, 2010. Based on the available monitoring data, all New York State counties currently meet the 1-hour standard. Additional monitoring will be required. EPA plans to make

final attainment designations in June 2012, based on 2008 to 2010 monitoring data and refined modeling. SIPs for nonattainment areas will be due by June 2014.

DETERMINING THE SIGNIFICANCE OF AIR QUALITY IMPACTS

The State Environmental Quality Review Act (SEQRA) regulations and the *CEQR Technical Manual* state that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.[1] In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS (see **Table 8-1**) would be deemed to have a potential significant adverse impact. In addition, in order to maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in nonattainment areas, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

DE MINIMIS CRITERIA REGARDING CO IMPACTS

New York City has developed *de minimis* criteria to assess the significance of the increase in CO concentrations that would result from the impact of proposed projects or actions on mobile sources, as set forth in the *CEQR Technical Manual*. These criteria set the minimum change in CO concentration that defines a significant environmental impact. Significant increases of CO concentrations in New York City are defined as: (1) an increase of 0.5 ppm or more in the maximum 8-hour average CO concentration at a location where the predicted No Action 8-hour concentration is equal to or between 8 and 9 ppm; or (2) an increase of more than half the difference between baseline (i.e., No Action) concentrations and the 8-hour standard, when No Action concentrations are below 8.0 ppm.

$PM_{2.5}$ INTERIM GUIDANCE CRITERIA

NYSDEC has published a policy to provide interim direction for evaluating $PM_{2.5}$ impacts[2]. This policy would apply only to facilities applying for permits or major permit modifications under SEQRA that emit 15 tons of PM_{10} or more annually. The policy states that such a project will be deemed to have a potentially significant adverse impact if the project's maximum impacts are predicted to increase $PM_{2.5}$ concentrations by more than 0.3 $\mu g/m^3$ averaged annually or more than 5 $\mu g/m^3$ on a 24-hour basis. Projects that exceed either the annual or 24-hour threshold will be required to prepare an Environmental Impact Statement (EIS) to assess the severity of the impacts, to evaluate alternatives, and to employ reasonable and necessary mitigation measures to minimize the $PM_{2.5}$ impacts of the source to the maximum extent practicable.

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[1] *CEQR Technical Manual*, Chapter 17, section 400, May 2010; and State Environmental Quality Review Regulations, 6 NYCRR § 617.7

[2] CP33/Assessing and Mitigating Impacts of Fine Particulate Emissions, NYSDEC 12/29/2003.

In addition, New York City uses interim guidance criteria for evaluating the potential $PM_{2.5}$ impacts for projects subject to CEQR. The interim guidance criteria currently employed under CEQR for determination of potential significant adverse $PM_{2.5}$ impacts are as follows:

- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 5 $\mu g/m^3$ at a discrete receptor location would be considered a significant adverse impact on air quality under operational conditions (i.e., a permanent condition predicted to exist for many years regardless of the frequency of occurrence);
- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 2 $\mu g/m^3$ but no greater than 5 $\mu g/m^3$ would be considered a significant adverse impact on air quality based on the magnitude, frequency, duration, location, and size of the area of the predicted concentrations;
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.3 $\mu g/m^3$ at a discrete receptor location (elevated or ground level).

Actions under CEQR predicted to increase $PM_{2.5}$ concentrations by more than the above interim guidance criteria will be considered to have a potential significant adverse impact.

The proposed school's annual emissions of PM_{10} are estimated to be well below the 15-ton-per-year threshold under the New York State Department of Environmental Conservation (NYSDEC) $PM_{2.5}$ policy guidance. The above interim guidance criteria have been used to evaluate the significance of predicted concentrations of $PM_{2.5}$ stemming from mobile source emissions with the proposed school.

D. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS

MOBILE SOURCES

The prediction of vehicle-generated emissions and their dispersion in an urban environment incorporates meteorological phenomena, traffic conditions, and physical configuration. Air pollutant dispersion models mathematically simulate how traffic, meteorology, and physical configuration combine to affect pollutant concentrations. The mathematical expressions and formulations contained in the various models attempt to describe an extremely complex physical phenomenon as closely as possible. However, because all models contain simplifications and approximations of actual conditions and interactions, and since it is necessary to predict the reasonable worst-case condition, most dispersion analyses predict conservatively high concentrations of pollutants, particularly under adverse meteorological conditions.

The mobile source analysis for the proposed school employs a model approved by EPA that has been widely used for evaluating air quality impacts of projects in New York City, other parts of New York State, and throughout the country. The modeling approach includes a series of conservative assumptions relating to meteorology, traffic, and background concentration levels

resulting in a conservatively high estimate of expected pollutant concentrations that could ensue from the proposed school. The assumptions used in the analysis are based on the latest CO and $PM_{2.5}$ interim guidance for CEQR projects.

VEHICLE EMISSIONS

Engine Emissions

Vehicular CO and PM engine emission factors were computed using the EPA mobile source emissions model, MOBILE6.2[1]. This emissions model is capable of calculating engine emission factors for various vehicle types, based on the fuel type (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway types, number of starts per day, engine soak time, and various other factors that influence emissions, such as inspection maintenance programs. The inputs and use of MOBILE6.2 incorporate the most current guidance available from NYSDEC and NYCDEP.

Vehicle classification was based on data collected in the field. Appropriate credits were used to accurately reflect the inspection and maintenance program. The inspection and maintenance programs require inspections of automobiles and light trucks to determine if pollutant emissions from each vehicle exhaust system are lower than emission standards. Vehicles failing the emissions test must undergo maintenance and pass a repeat test to be registered in New York State. An ambient temperature of 43°F was used. The use of this temperature is recommended in the *CEQR Technical Manual* for the Borough of Staten Island and is consistent with current DEP guidance.

Road Dust

The contribution of re-entrained road dust to PM_{10} concentrations, as presented in the PM_{10} SIP, is considered to be significant; therefore, the PM_{10} estimates include both exhaust and road dust. In accordance with the DEP $PM_{2.5}$ interim guidance criteria methodology, $PM_{2.5}$ emission rates were determined with fugitive road dust to account for their impacts in local microscale analyses. However, fugitive road dust was not included in the neighborhood scale $PM_{2.5}$ microscale analyses, since DEP considers it to have an insignificant contribution on that scale. Road dust emission factors were calculated according to the latest procedure delineated by EPA[2] and the 2010 *CEQR Technical Manual*.

TRAFFIC DATA

Traffic data for the air quality analysis were derived from existing traffic counts, projected future growth in traffic, and other information developed as part of the traffic analysis for the proposed school (see Chapter 7, "Transportation"). Traffic data for the future without and with the proposed school were employed in the respective air quality modeling scenarios. The future conditions were modeled for 2015, the year by which the proposed school is likely to be built. The weekday morning (7:30 to 8:30 AM) and afternoon (3:00 to 4:00 PM) peak hour traffic volumes were used as a baseline for determining off-peak volumes. Off-peak traffic volumes in the existing condition and in the future without the proposed school, and off-peak increments

[1] EPA, User's Guide to MOBILE6.1 and MOBILE6.2: Mobile Source Emission Factor Model, EPA420-R-03-010, August 2003.

[2] EPA, Compilations of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Ch. 13.2.1, NC, http://www.epa.gov/ttn/chief/ap42, January 2011.

from the proposed school, were determined by adjusting the peak period volumes by the 24-hour distributions of actual vehicle counts collected at appropriate locations.

DISPERSION MODEL FOR MICROSCALE ANALYSES

Maximum CO concentrations adjacent to streets near the proposed project site, resulting from vehicle emissions, were predicted using the CAL3QHC model Version 2.0.[1] The CAL3QHC model employs a Gaussian (normal distribution) dispersion assumption and includes an algorithm for estimating vehicular queue lengths at signalized intersections. CAL3QHC predicts dispersion of CO from idling and moving vehicles. The queuing algorithm includes site-specific traffic parameters, such as signal timing and delay calculations (from the *2000 Highway Capacity Manual* traffic forecasting model), saturation flow rate, vehicle arrival type, and signal actuation (i.e., pre-timed or actuated signal) characteristics to accurately predict the number of idling vehicles. The CAL3QHC model has been updated with an extended module, CAL3QHCR, which allows for the incorporation of hourly traffic and meteorological data into the modeling, instead of worst-case assumptions regarding meteorological parameters. To determine motor vehicle generated PM concentrations adjacent to streets near the proposed project site, the refined CAL3QHCR version of the model was applied since it is more appropriate for calculating 24-hour and annual average concentrations.

METEOROLOGY

In general, the transport and concentration of pollutants from vehicular sources are influenced by three principal meteorological factors: wind direction, wind speed, and atmospheric stability. Wind direction influences the direction in which pollutants are dispersed, and atmospheric stability accounts for the effects of vertical mixing in the atmosphere. These factors, therefore, influence the concentration at a particular prediction location (receptor).

Tier I Analyses—CAL3QHC

In applying the CAL3QHC model, the wind angle was varied to determine the wind direction resulting in the maximum concentrations at each receptor.

Following the EPA guidelines[2], CAL3QHC computations were performed using a wind speed of 1 meter per second, and the neutral stability class D. The 8-hour average CO concentrations were estimated by multiplying the predicted 1-hour average CO concentrations by a factor of 0.70 to account for persistence of meteorological conditions and fluctuations in traffic volumes. A surface roughness of 3.21 meters was chosen. At each receptor location, concentrations were calculated for all wind directions, and the highest predicted concentration was reported, regardless of frequency of occurrence. These assumptions ensured that worst-case meteorology was used to estimate CO impacts.

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[1] EPA, User's Guide to CAL3QHC, A Modeling Methodology for Predicted Pollutant Concentrations Near Roadway Intersections, Office of Air Quality, Planning Standards, Research Triangle Park, North Carolina, EPA-454/R-92-006.

[2] *Guidelines for Modeling Carbon Monoxide from Roadway Intersections*, EPA Office of Air Quality Planning and Standards, Publication EPA-454/R-92-005.

Tier II Analyses—CAL3QHCR

A Tier II analysis performed with the CAL3QHCR model includes the modeling of hourly concentrations based on hourly traffic data and five years of monitored hourly meteorological data. The data consists of surface data collected at LaGuardia Airport and upper air data collected at Brookhaven, New York for the period 2005-2009. All hours were modeled, and the highest resulting concentration for each averaging period is presented.

BACKGROUND CONCENTRATIONS

Background concentrations are those pollutant concentrations originating from distant sources that are not directly included in the modeling analysis, which directly accounts for vehicular emissions on the streets within 1,000 feet and in the line of sight of the analysis site. Background concentrations are added to modeling results to obtain total pollutant concentrations at an analysis site.

The background CO 1-hour and 8-hour average concentrations of 2.6 and 2.0, respectively, were used in the mobile source analysis. These concentrations were based on the second highest concentrations recorded over a five year period (2004-2008) at the NYSDEC PS 59 monitoring station, the CO monitoring station nearest to the proposed school site. For the assessment of 24-hour average PM_{10} levels, a background concentration of 53 $\mu g/m^3$ was used. The background concentrations is based on monitored levels at the Division Street monitoring station, the NYSDEC monitoring station nearest to the proposed school site. The selected background value represents the second highest concentration over the most recent 3-year period (2007 to 2009) for which a New York State Ambient Air Quality Report is available for that monitoring station. $PM_{2.5}$ impacts are assessed on an incremental basis and compared with the $PM_{2.5}$ interim guidance criteria. Therefore, a background concentration for $PM_{2.5}$ is not included.

ANALYSIS SITE AND RECEPTOR PLACEMENT

Woodrow Road and Bloomingdale Road intersection was selected for microscale analysis because it is expected that the greatest level of traffic generated by the proposed school, and therefore the highest air quality impacts and maximum changes in concentrations would occur at this intersection. The greatest number of school bus trips is expected at this intersection as well. Therefore, both the CO and the PM modeling analyses were conducted at this intersection. Multiple receptors (i.e. precise locations at which concentrations are predicted) were modeled along the approach and departure links at spaced intervals. Receptors were placed at sidewalk or roadside locations near intersections with continuous public access. For predicting annual average neighborhood-scale $PM_{2.5}$ concentrations, receptors were placed at a distance of 15 meters from the nearest moving lane, based on the NYCDEP procedure for neighborhood-scale $PM_{2.5}$ modeling.

HEAT AND HOT WATER SYSTEM SCREENING ANALYSIS

To assess air quality impacts associated with emissions from the proposed school's backup boiler, a screening analysis was performed. Although most of the building heat and hot water demand would be met though geothermal and solar systems, which would not have any air pollutant emissions, to provide a conservative analysis it was assumed that all of the proposed school heat and hot water needs will be met though combustion of natural gas. The methodology described in the *CEQR Technical Manual* was used for the analysis, which determines the threshold of development size below which the action would not have a significant adverse

impact. The screening procedures utilize information regarding the type of fuel to be burned, the maximum development size, type of development, and the stack height, to evaluate whether a significant adverse impact is likely. Based on the distance from the development to the nearest building of similar or greater height, if the maximum development size is greater than the threshold size in the *CEQR Technical Manual*, there is the potential for significant adverse air quality impacts, and a refined dispersion modeling analysis would be required. Otherwise, the source passes the screening analysis, and no further analysis is required.

E. EXISTING CONDITIONS

Representative criteria pollutant concentrations measured in recent years at NYSDEC air quality monitoring stations nearest to the proposed school are presented in **Table 8-2**. The values presented are consistent with the NAAQS format. For example, the 8-hour ozone concentration shown is the 3-year average of the 4th highest daily maximum 8-hour average concentrations. The concentrations were obtained from the 2009 New York State Ambient Air Quality Report, the most recent report available. As shown in **Table 8-2**, the recently monitored levels did not exceed the NAAQS. It should be noted that these values are somewhat different from the background concentrations used in the analyses. Background concentrations are based on several years of monitoring data, and represent a conservative estimate of the highest background concentrations for future conditions.

Table 8-2
Representative Monitored Ambient Air Quality Data

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	Queens College 2, Queens	ppm	8-hour	1.7	9
			1-hour	2.8	35
SO_2	Queens College 2, Queens[1]	µg/m^3	3-hour	89	1,300
			1-hour	91.4	196
PM_{10}	Division Street, Manhattan	µg/m^3	24-hour	51	150
$PM_{2.5}$	Division Street, Manhattan	µg/m^3	Annual	12.7	15
			24-hour	33	35
NO_2	Queens College 2, Queens[2]	µg/m^3	Annual	39	100
			1-hour	126.7	188
Lead	J.H.S. 126, Brooklyn	µg/m^3	3-month	0.019	0.15
Ozone	Susan Wagner, Staten Island	ppm	8-hour	0.074	0.075

Notes:
(1) The 1-hour value is based on a three-year average (2007-2009) of the 99th percentile of daily maximum 1-hour average concentrations. EPA replaced the 24-hr and the annual standards with the 1-hour standard.
(2) The 1-hour value is based on a three-year average (2007-2009) of the 98th percentile of daily maximum 1-hour average concentrations.
Source: DEC, New York State Ambient Air Quality Report (2007-2009).

MODELED CO CONCENTRATIONS FOR EXISTING TRAFFIC CONDITIONS

As noted previously, receptors were placed at multiple sidewalk locations next to the intersection selected for the analysis. **Table 8-3** shows the maximum modeled existing CO 8-hour average concentration for each peak period analyzed. (No 1-hour values are shown since predicted values are much lower than the 1-hour standard of 35 ppm.) At all receptor sites, the maximum predicted 8-hour average concentrations are well below the national standard of 9 ppm.

Table 8-3
Modeled Existing 8-Hour Average CO Concentrations

Location	Time Period	8-Hour Concentration (ppm)
Woodrow Road and Bloomingdale Road	AM	2.6
Woodrow Road and Bloomingdale Road	PM	2.8

Note: 8-hour standard (NAAQS) is 9 ppm.

F. PROBABLE IMPACTS OF THE PROPOSED SCHOOL

MOBILE SOURCES

CO concentrations with the proposed school were determined for the 2015 Build Year using the methodology previously described. **Table 8-4** shows the future maximum predicted 8-hour average CO concentration with and without the proposed project at the intersection studied. (No 1-hour values are shown, since no exceedances of the NAAQS would occur and the *de minimis* criteria are only applicable to 8-hour concentrations; therefore, the 8-hour values are the most critical for impact assessment.) The values shown represent the highest predicted concentrations for any of the receptors analyzed. The results indicate that the proposed school would not result in any violations of the 8-hour CO standard. In addition, the incremental increases in 8-hour average CO concentrations are very small, and consequently would not exceed the *de minimis* CO criteria. (The *de minimis* criteria are described above in Section C: "Air Quality Regulations, Standards, and Benchmarks.")

Table 8-4
Future Modeled 8-Hour Average CO Concentrations With and Without the Proposed School

Location	Time Period	8-Hour Concentration (ppm)			
		Without the Proposed School	With the Proposed School	Increment	*De Minimis*
Woodrow Road and Bloomingdale Road	AM	2.6	2.8	0.1	5.8
Woodrow Road and Bloomingdale Road	PM	2.7	2.8	0.1	5.9

Note: 8-hour standard (NAAQS) is 9 ppm.

Using the methodology previously described, PM_{10} concentrations with and without the proposed school were predicted for the 2015 Build Year. The values shown in **Table 8-5** are the highest predicted concentrations for all locations analyzed and include the PM_{10} ambient background concentration. The results indicate that the vehicle trips generated by both the proposed project would not result in PM_{10} concentrations that would exceed the NAAQS.

Table 8-5
Future (2015) Maximum Predicted 24-Hour Average PM_{10} Concentrations ($\mu g/m^3$)

Location	Without the Proposed Schools	With the Project and nearby I.S.
Woodrow Road and Bloomingdale Road	59.42	59.60

Note: The National Ambient Air Quality Standard for PM_{10} is 150 $\mu g/m^3$, for a 24-hour average.

Future maximum predicted 24-hour and annual average $PM_{2.5}$ concentration increments were calculated for comparison with the interim guidance criteria. The results represent increments between the concentrations with and without the proposed school. Based on this analysis, the maximum predicted localized 24-hour average and neighborhood-scale annual average incremental $PM_{2.5}$ concentrations are presented in **Table 8-6** and **Table 8-7**, respectively. Note that since impacts are assessed on an incremental basis, $PM_{2.5}$ concentrations for the two scenarios are not presented.

Table 8-6
Maximum Predicted 24-Hour Average $PM_{2.5}$ Concentration Increments

Location	Increment
Woodrow Road and Bloomingdale Road	0.02
Note: $PM_{2.5}$ interim guidance criteria—24-hour average, 2 $\mu g/m^3$ (5 $\mu g/m^3$ not-to-exceed value).	

Table 8-7
Maximum Predicted Annual Average $PM_{2.5}$ Concentration Increments

Location	Increment
Woodrow Road and Bloomingdale Road	0.001
Note: $PM_{2.5}$ interim guidance criteria—annual (neighborhood scale), 0.1 $\mu g/m^3$.	

The results show that the annual and daily (24-hour) $PM_{2.5}$ increments are predicted to be well below the interim guidance criteria and, therefore, the emissions from vehicle trips generated by the proposed school would not result in a significant adverse impact on air quality.

HEAT AND HOT WATER SYSTEM SCREENING ANALYSIS

A screening analysis was performed to assess the potential for air quality impacts from the proposed school's heat and hot water system. To provide a conservative analysis, it was assumed the school would use natural gas. The analysis assumed a total of 67,000 gross square feet and an exhaust height of 37 feet (3 feet above the estimated height of the proposed school building). The nearest distance to an existing building of a similar or greater height, determined to be 110 feet, was used in the screening analysis. The use of natural gas would not result in a significant adverse impact on air quality because the proposed school would be below the maximum permitted size shown in Figure 17-8 in the Air Quality Appendix of the 2010 *CEQR Technical Manual.* ✷

Chapter 9: Noise

A. INTRODUCTION

The proposed project would generate sufficient traffic to have the potential to cause a significant noise impact (i.e., it would result in a doubling of passenger car equivalents [PCEs] which would be necessary to cause a 3 dBA increase in noise levels). The principal impacts of the proposed project on ambient noise levels would result from the increased vehicular traffic and the use of the proposed playground areas. The noise analysis for the proposed school consisted of two parts: an analysis to determine whether the increased vehicular traffic and use of the school playgrounds would have the potential for resulting in significant noise impacts, and an analysis to determine the level of building attenuation necessary to ensure that interior noise levels satisfy applicable interior noise criteria.

B. ACOUSTICAL FUNDAMENTALS

Quantitative information on the effects of airborne noise on people is well documented. If sufficiently loud, noise may adversely affect people in several ways. For example, noise may interfere with human activities, such as sleep, speech communication, and tasks requiring concentration or coordination. It may also cause annoyance, hearing damage, and other physiological problems. Although it is possible to study these effects on people on an average or statistical basis, it must be remembered that all the stated effects of noise on people vary greatly with the individual. Several noise scales and rating methods are used to quantify the effects of noise on people. These scales and methods consider such factors as loudness, duration, time of occurrence, and changes in noise level with time.

"A"-WEIGHTED SOUND LEVEL (DBA)

Noise is typically measured in units called decibels (dB), which are ten times the logarithm of the ratio of the sound pressure squared to a standard reference pressure squared. Because loudness is important in the assessment of the effects of noise on people, the dependence of loudness on frequency must be taken into account in the noise scale used in environmental assessments. Frequency is the rate at which sound pressures fluctuate in a cycle over a given quantity of time, and is measured in Hertz (Hz), where 1 Hz equals 1 cycle per second. Frequency defines sound in terms of pitch components. One of the simplified scales that accounts for the dependence of perceived loudness on frequency is the use of a weighting network known as A-weighting in the measurement system, to simulate response of the human ear. For most noise assessments the A-weighted sound pressure level in units of dBA is used in view of its widespread recognition and its close correlation with perception. In this analysis, all measured noise levels are reported in dBA or A-weighted decibels. Common noise levels in dBA are shown in Table 9-1.

COMMUNITY RESPONSE TO CHANGES IN NOISE LEVELS

The average ability of an individual to perceive changes in noise levels is well documented (see Table 9-2). Generally, changes in noise levels less than 3 dBA are barely perceptible to most listeners, whereas 10 dBA changes are normally perceived as doublings (or halvings) of noise levels. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 9-1
Common Noise Levels

Sound Source	(dBA)
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	
Busy city street, loud shout	80
Busy traffic intersection	
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas or residential areas close to industry	
Background noise in an office	50
Suburban areas with medium density transportation	
Public library	40
Soft whisper at 5 meters	30
Threshold of hearing	0

Note: A 10 dBA increase in level appears to double the loudness, and a 10 dBA decrease halves the apparent loudness.
Source: Cowan, James P. Handbook of Environmental, Acoustics. Van Nostrand Reinhold, New York, 1994.
Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

Table 9-2
Average Ability to Perceive Changes in Noise Levels

Change (dBA)	Human Perception of Sound
2-3	Barely perceptible
5	Readily noticeable
10	A doubling or halving of the loudness of sound
20	A dramatic change
40	Difference between a faintly audible sound and a very loud sound

Source: Bolt Beranek and Newman, Inc., *Fundamentals and Abatement of Highway Traffic Noise*, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.

It is also possible to characterize the effects of noise on people by studying the aggregate response of people in communities. The rating method used for this purpose is based on a statistical analysis of the fluctuations in noise levels in a community, and integrates the fluctuating sound energy over a known period of time, most typically during 1 hour or 24 hours. Various government and research institutions have proposed criteria that attempt to relate changes in noise levels to community response. One commonly applied criterion for estimating this response is incorporated into the community response scale proposed by the International Standards Organization (ISO) of the United Nations (see Table 9-3). This scale relates changes in noise level to the degree of community response and permits direct estimation of the probable response of a community to a predicted change in noise level.

Table 9-3
Community Response to Increases in Noise Levels

Change (dBA)	Category	Description
0	None	No observed reaction
5	Little	Sporadic complaints
10	Medium	Widespread complaints
15	Strong	Threats of community action
20	Very strong	Vigorous community action

Source: International Standards Organization, Noise Assessment with Respect to Community Responses, ISO/TC 43 (New York: United Nations, November 1969).

NOISE DESCRIPTORS USED IN IMPACT ASSESSMENT

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise over extended periods have been developed. One way of describing fluctuating sound is to describe the fluctuating noise heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted as $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded 1, 10, 50, 90 and x percent of the time, respectively. L_{eq} is used in the prediction of future noise levels, by adding the contributions from new sources of noise (i.e., increases in traffic volumes) to the existing levels and in relating annoyance to increases in noise levels.

The relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates very little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by 10 or more decibels. Thus the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}. The relationship between L_{eq} and exceedance levels has been used in this analysis to characterize the noise sources and to determine the nature and extent of their impact at all receptor locations.

For the purposes of this project, the maximum 1-hour equivalent sound level ($L_{eq(1)}$) has been selected as the noise descriptor to be used in the noise impact evaluation. $L_{eq(1)}$ is the noise des-

criptor used in the City Environmental Quality Review (CEQR) standards for vehicular traffic noise impact evaluation, and is used to provide an indication of highest expected sound levels. $L_{10(1)}$ is the noise descriptor used in the CEQR noise exposure standards for vehicular traffic noise. Hourly statistical noise levels (particularly L_{10} and L_{eq} levels) were used to characterize the relevant noise sources and their relative importance at each receptor location.

C. NOISE STANDARDS AND CRITERIA

NEW YORK CEQR NOISE STANDARDS

The New York City Department of Environmental Protection (NYCDEP) has set external noise exposure standards. These standards are shown in Table 9-4 and 9-5. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable. The standards shown are based on maintaining an interior noise level for the worst-case hour L_{10} less than or equal to 45 dBA. Mitigation requirements are shown in Table 9-5.

Table 9-4
Noise Exposure Guidelines
For Use in City Environmental Impact Review[1]

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
1. Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- Ldn ≤ 60 dBA ----------		---------- 60 < Ldn ≤ 65 dBA ----------		(1) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn		---------- Ldn ≤ 75 dBA ----------
2. Hospital, Nursing Home		$L_{10} \leq 55$ dBA		55 < $L_{10} \leq 65$ dBA		65 < $L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
3. Residence, residential hotel or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		65 < $L_{10} \leq 70$ dBA		70 < $L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	10 PM to 7 AM	$L_{10} \leq 55$ dBA		55 < $L_{10} \leq 70$ dBA		70 < $L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
4. School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, out-patient public health facility		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
5. Commercial or office		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
6. Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more;

[1] Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.

[2] Tracts of land where serenity and quiet are extraordinarily important and serve an important public need and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and old-age homes.

[3] One may use the FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

[4] External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Source: New York City Department of Environmental Protection (adopted policy 1983).

Table 9-5
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level With Proposed Project	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation[A]	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)$[B] dB(A)

Note:
[A] The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms would be 5 dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.
[B] Required attenuation values increase by 1 dB(A) increments for L_{10} values greater than 80 dBA.
Source: New York City Department of Environmental Protection

In addition, the *CEQR Technical Manual* uses the following criteria to determine whether a proposed project would result in a significant adverse noise impact. The impact assessments compare the proposed project's Build condition $L_{eq(1)}$ noise levels to those calculated for the No Build condition, for receptors potentially affected by the project.

If the No Build levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period, the threshold for a significant impact would be an increase of at least 5 dBA $L_{eq(1)}$. If the No Build noise level is equal to or greater than 62 dBA $L_{eq(1)}$, or if the analysis period is a nighttime period (defined in the CEQR standards as being between 10 PM and 7 AM), the incremental significant impact threshold would be 3 dBA $L_{eq(1)}$. (If the No Build noise level is 61 dBA $L_{eq(1)}$, the maximum incremental increase would be 4 dBA, since an increase higher than this would result in a noise level higher than the 65 dBA $L_{eq(1)}$ threshold.)

IMPACT DEFINITION

For purposes of impact assessment, this report will utilize a relative noise impact criteria which considers project-related increases in $L_{eq(1)}$ noise levels over future conditions without the project of greater than 5.0 dBA as significant impacts. The 5.0 dBA relative criteria is consistent with increases in noise levels that the public considers noticeable and likely to result in complaints. The $L_{eq(1)}$ descriptor is used in this document to quantify and describe both playground and traffic noise.

D. NOISE PREDICTION METHODOLOGY

VEHICULAR TRAFFIC NOISE

At sensitive noise receptors in the study area, the dominant noise source is vehicular traffic on adjacent and nearby streets and roadways. Future noise levels were calculated using either a proportional modeling technique or the Federal Highway Administration (FHWA) *Traffic Noise Model* (TNM) Version 2.5. The proportional modeling technique was used as a screening tool to estimate changes in noise levels. At locations where proportional modeling screening indicated the potential for significant adverse noise impacts, the TNM was used to obtain more detailed results. Both the proportional modeling screening technique and the TNM are analysis methodologies recommended for analysis purposes in the 2010 *CEQR Technical Manual.* The noise analysis examined the weekday AM and PM peak hours.

PROPORTIONAL MODELING

Proportional modeling was used to determine locations which have the potential for having significant noise impacts and to quantify the magnitude of those potential impacts. Proportional modeling is one of the techniques recommended in the 2010 *CEQR Technical Manual* for mobile source analysis.

Using this technique, the prediction of future noise levels, where traffic is the dominant noise source, is based on a calculation using measured existing noise levels and predicted changes in traffic volumes to determine No Action and future with the proposed project (Build) levels. Vehicular traffic volumes are converted into Passenger Car Equivalent (PCE) values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 13 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) is assumed to generate the noise equivalent of 47 cars, and one bus (vehicles designed to carry more than nine passengers) is assumed to generate the noise equivalent of 18 cars. Future noise levels are calculated using the following equation:

$FB\ NL - FNA\ NL = 10 * \log_{10} (FB\ PCE / FNB\ PCE)$

where:

FB NL = Future Build Noise Level

FNA NL = Future No Action Noise Level

FB PCE = Future Build PCEs

FNA PCE = Future No Action PCEs

Sound levels are measured in decibels and therefore increase logarithmically with sound source strength. In this case, the sound source is traffic volumes measured in PCEs. For example, assume that traffic is the dominant noise source at a particular location. If the existing traffic volume on a street is 100 PCE and if the future traffic volume were increased by 50 PCE to a total of 150 PCE, the noise level would increase by 1.8 dBA. Similarly, if the future traffic were increased by 100 PCE, or doubled to a total of 200 PCE, the noise level would increase by 3.0 dBA.

Analyses were conducted for two time periods: the weekday AM and weekday PM peak hours. These time periods are the hours when the maximum traffic generation is expected and, therefore, the hours when future with the proposed project conditions are most likely to result in maximum noise impacts.

TRAFFIC NOISE MODEL

The TNM is a computerized model developed for the FHWA that calculated the noise contribution of each roadway segment to a given noise receptor. The noise from each vehicle type is determined as a function of the reference energy-mean emission level, corrected for vehicle volume, speed, roadway grade, roadway segment length, and source-receptor distance. Further considerations reflected in the modeling of the propagation path included identifying the shielding provided by rows of buildings, and analyzing the effects of any intervening noise barriers. The TNM was used for all sites.

SCHOOL PLAYGROUND NOISE

Table 9-6 shows the maximum hourly playground boundary noise levels for the two time periods analyzed. These values are based upon measurements made at a series of New York City school playgrounds for the New York City School Construction Authority (SCA).[1]

Table 9-6
Maximum Hourly Playground Boundary $L_{eq(1)}$ Noise Levels (dBA)

Time Period	Early Childhood Center/Elementary Schools	Intermediate Schools	High Schools
AM	69.3	64.9	68.2
PM	62.9	64.3	64.3

Source: SCA Playground Noise Study, AKRF, Inc., October 23, 1992.

Geometric spreading and the consequent dissipation of sound energy with increasing distance from the playground decreases noise levels at varying distances from the playground boundary. Based upon measurements and acoustical principles, hourly noise levels were assumed to decrease by the following values at the specified distances from the playground boundary: 4.8 dBA at 20 feet, 6.8 dBA at 30 feet, and 9.1 dBA at 40 feet. For all distances between 40 and 300 feet, a 4.5-dBA drop-off per doubling of distances from the playground boundary was assumed.

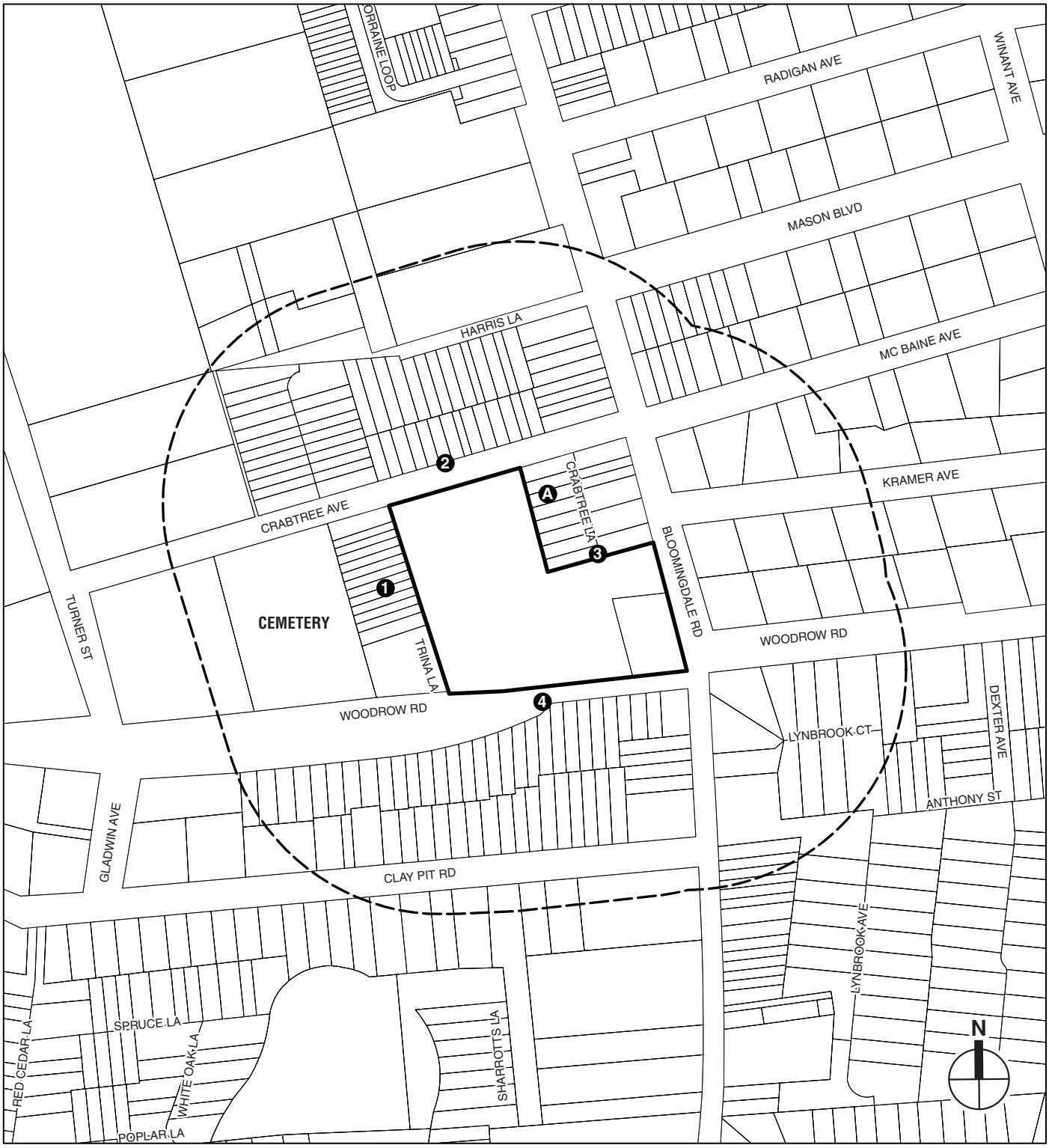
E. EXISTING NOISE LEVELS

Four sensitive receptor locations (i.e., residential uses) adjacent to the project site were selected for noise monitoring. Site 1 is located on Trina Lane between Crabtree Avenue and Woodrow Road, Site 2 is located on Crabtree Avenue between Crabtree and Trina Lanes, Site 3 is located the end of Crabtree Lane, and Site 4 is located on Woodrow Road between Trina Lane and Bloomingdale Road. **Figure 9-1** shows the locations of the four noise monitoring sites. All four sites were used to determine whether the increased vehicular traffic and the use of the school playgrounds would have the potential for resulting in significant noise impacts and the level of building attenuation necessary to achieve acceptable interior noise levels at the school.

Measurements were performed using one Brüel & Kjær Sound Level Meter (SLM) Type 2260 (S/N 2375602), a Brüel & Kjær ½ inch microphone Type 4189 (S/N 2378182), and a Brüel & Kjær Sound Level Calibrator Type 4231 (S/N 2412436). The Brüel & Kjær SLM is a Type 1 instrument according to ANSI Standard S1.4-1983 (R2006). The SLM has a laboratory calibration date of July 30, 2010, which is valid through July of 2011. The microphone was mounted at a height of approximately five feet above the ground surface on a tripod and at least six feet away from any large, sound-reflecting surface to avoid major interference with sound propagation. The SLM was calibrated before and after readings with a Brüel & Kjær Type 4231 Sound Level Calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90} levels. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

[1] SCA Playground Noise Study, AKRF, Inc., October 23, 1992.

6.29.11



Project Site

Study Area Boundary
(400-foot Perimeter)

❶ Noise Receptor Location

Ⓐ Playground Noise Receptor Location

Noise Receptor Location
Figure 9-1

Existing noise levels were measured for 20-minute at four receptor sites during the AM (7:00 – 9:00 AM), MD (midday) (11:00 AM – 1:00 PM) and PM (1:00 – 3:00 PM) time periods on March 30, 2011. The existing noise monitoring levels used for the AM, MD, and PM peak analysis periods are summarized in Table 9-7.

Table 9-7
Existing Noise Levels (dBA)

Site	Measurement Location	Time		L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Trina Lane between Crabtree Avenue and Woodrow Road	Weekday	AM	59.8	63.8	60.6	59.5	58.3
			MD	63.8	68.7	66.8	62.5	61.1
			PM	47.3	56.2	48.6	45.7	43.6
2	Crabtree Avenue between Trina and Crabtree Lanes	Weekday	AM	56.7	67.8	58.1	54.2	51.7
			MD	56.5	67.1	56.1	54.4	53.5
			PM	59.2	70.8	62.3	48.1	44.3
3	End of Crabtree Lane	Weekday	AM	55.9	62.4	58.8	54.6	50.7
			MD	54.7	61.6	56.6	53.8	51.5
			PM	55.3	62.0	57.8	54.5	46.3
4	Woodrow Road between Bloomingdale Road and Trina Lane	Weekday	AM	56.9	61.6	59.5	56.9	50.8
			MD	54.9	58.3	57.1	54.1	52.6
			PM	50.6	58.4	52.4	49.2	46.7

Notes: Field measurements were performed by AKRF, Inc. on March 30, 2011.

At all four sites, traffic noise was the dominant noise source. Measured noise levels were low to moderate and reflect the level of vehicular activity on the adjacent streets. In terms of the CEQR criteria, the existing noise levels at Site 1 would be in the "marginally acceptable" category, and existing noise levels at Sites 2, 3, and 4 would be in the "acceptable" category.

F. THE FUTURE WITHOUT THE PROPOSED PROJECT

Using the previously described methodology, Table 9-8 shows the future noise levels without the project at the four receptor locations analyzed for the AM and PM peak analysis periods. Future noise levels without the project at Sites 1 and 2 would increase by 3 to 5 dBA, and future noise levels without the project at Sites 3 and 4 would increase by less than 1.0 dBA (further information provided in Appendix D-1). Changes of this magnitude at Sites 1 and 2 would be perceptible; these are due to the trips generated by the 24 new dwelling units in the Orchard Estates development in the 2015 No Build traffic volumes.

Table 9-8
Future No Build Noise Levels (in dBA)

Site	Time	Existing $L_{eq(1)}$	No Build $L_{eq(1)}$	Change	No Build $L_{10(1)}$
1	AM	59.8	61.7	1.9	62.5
	PM	47.3	50.4	3.1	51.7
2	AM	56.7	59.2	2.5	60.6
	PM	59.2	64.2	5.0	67.3
3	AM	55.9	56.1	0.2	59.0
	PM	55.3	55.5	0.2	58.0
4	AM	56.9	57.0	0.1	59.6
	PM	50.6	50.7	0.1	52.5

Notes:
Future No Action noise levels at these locations were calculated using the TNM modeling technique.

In terms of the New York City CEQR standards, the noise levels without the project at Site 1 would remain in the "marginally acceptable" category, the noise levels without the project at Site 2 would change from the "acceptable" category to the "marginally acceptable" category, and the noise levels without the project at Sites 3 and 4 would remain in the "acceptable" category.

G. THE FUTURE WITH THE PROPOSED PROJECT

RECEPTOR LOCATIONS

Using the methodology previously described, Table 9-9 shows the future noise levels with combining the projected playground noise levels and the vehicular traffic noise levels at the four receptor locations analyzed for the AM and PM peak analysis periods. Future noise levels with the project at all four receptor sites would increase by less than 5.0 dBA (details see Appendix D-1). Changes of this magnitude would be perceptible, but they would not exceed the noise criteria (i.e., 5 dBA threshold level).

Table 9-9
Future Build Noise Levels (in dBA)

Site	Time	No Build $L_{eq(1)}$	Build $L_{eq(1)}$	Change	Build $L_{10(1)}$
1	AM	61.7	62.3	0.6	63.1
	PM	50.4	52.5	2.1	53.8
2	AM	59.2	60.7	1.5	62.1
	PM	64.2	64.3	0.1	67.4
3	AM	56.1	58.7	2.6	61.6
	PM	55.5	58.1	2.6	60.6
4	AM	57.0	60.9	3.9	63.5
	PM	50.7	54.3	3.6	56.1

Notes:
Future noise levels at these locations were calculated using the TNM modeling technique.

In terms of the New York City CEQR standards, the noise levels with the project at Sites 1 and 2 would remain in the "marginally acceptable" category, the noise levels with the project at Sites 3 and 4 would remain in the "acceptable" category.

OTHER LOCATIONS

An outdoor play area is expected to be located on the northern portion of the project site, and an early childhood play area is expected to be located on the southern portion of the project site. The closest residences (i.e., Site A) on Crabtree Lane are approximately 40 feet away from the proposed edge of the proposed outdoor play area (see Figure 9-1). Noise generated by the outdoor playground would have a potential to cause noise impacts at the adjacent residences. Table 9-10 shows the results of combining the projected playground noise levels with the vehicular traffic noise levels at the closest residences. The maximum increased $L_{eq(1)}$ noise level would be 3.9 dBA when the proposed playgrounds are being used. In terms of the impact criteria used for the noise assessment, the increased $L_{eq(1)}$ noise levels would not exceed the 5 dBA relative change criterion.

Based upon the analysis results, significant adverse noise impacts would occur at residences where there is a direct line-of-sight to the proposed school playgrounds within approximately 30 feet (see Appendix D-2 for detailed information). A field survey was conducted to examine how many residential buildings would be affected, and their window/AC conditions were also examined. Based upon the field observations, there are no residential buildings within 30 feet from the proposed outdoor playground.

Table 9-10
Noise Levels due to School Playground (dBA)

Site	Location	Time	No Build L_{eq}	Build L_{eq}	Change	Predicted L_{10} Change
A	14-22 Crabtree Lane backyards	AM	58.8	62.7	3.9	65.6
		PM	60.3	61.3	1.0	63.8

H. NOISE ATTENUATION MEASURES

As shown in Table 9-5, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior $L_{10(1)}$ noise levels in order to maintain interior noise levels of 45 dBA or lower for classroom uses. The results of the building attenuation analysis are summarized in Table 9-11.

Table 9-11
CEQR Building Attenuation Requirements

Proposed Project Façade Locations	Associated Noise Site	Maximum L_{10} (in dBA)	Attenuation Required (in dBA)
Trina Lane	1	66.8*	25
Crabtree Lane	3	61.6**	20
Crabtree Avenue (general play area)	NA	70.0**	28
Woodrow Road (early childhood play area)	NA	71.3**	28

Notes:
* Maximum monitoring noise levels.
** Maximum calculated noise level.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade is comprised of the wall, glazing, and any vents or louvers for HVAC/air conditioning units in various ratios or area. The proposed school structures would be required to have well sealed double-glazed windows and an alternate means of ventilation (i.e., air conditioning). The proposed schools' facades, including these elements would be designed to provide a composite Outdoor-Indoor Transmission Class (OITC) rating greater than or equal to the attenuation requirements listed in Table 9-11. The OITC classification is defined by the American Society of Testing and Materials (ASTM E1332-90 [Reapproved 2003]) and provides a single-number rating that is used for designing a building façade including walls, doors, glazing, and combinations thereof. The OITC rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise. By adhering to these design requirements, the proposed schools' facades will thus provide sufficient attenuation to achieve the CEQR interior noise level guideline of 45 dBA L_{10} for classroom uses.

Based upon the $L_{10(1)}$ values at the project site (shown in Table 9-11), designing the proposed school structures based on the measures outlined in this report would provide sufficient attenuation to achieve the CEQR interior noise level requirements.

In addition, the building mechanical systems (i.e., heating, ventilation, and air conditioning systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code and the New York City Department of Buildings and Mechanical Codes) and to avoid producing levels that would result in any significant increase in ambient noise levels. ✷

Chapter 10: Shadows

The 2010 *CEQR Technical Manual* requires a shadow assessment if a proposed structure is 50 feet or greater in height, or adjacent to a sunlight-sensitive resource regardless of height. The proposed school, as currently contemplated, would be two stories or approximately 29 feet in height, with an extension of photovoltaic panels on a portion of the roof that would reach up to 55 feet in height. Because a portion of the proposed structure would reach beyond 50 feet in height, a preliminary screening assessment was performed to determine whether new shadows from the proposed school could be long enough to reach any nearby sunlight-sensitive resources. According to the 2010 *CEQR Technical Manual*, such resources include publicly-accessible open spaces, architectural resources that depend on direct sunlight for their enjoyment by the public, or important natural resources.

In coordination with the land use, historic and cultural resources, and natural resources assessments presented in other chapters of the EIS, potentially sunlight-sensitive resources were identified and shown on a map of the project site and surrounding street layout. According to CEQR methodology, the longest shadow that a structure can cast occurs on December 21, the winter solstice, at the very start of the analysis day, and is equal to 4.3 times the height of the structure (2010 *CEQR Technical Manual*, page 8-4). Therefore, the longest shadow that the proposed school could cast would be 237 feet. Using this length as the radius, a perimeter was drawn on the map around the project site. The Rossville AME Zion Church Cemetery, a designated NYC Landmark, is located about 160 feet west of the project site, within the longest shadow study area. However, the designation report for this historic resource does not reference landscape features, design elements, or vegetation as contributing factors to the historic significance of this resource. The cemetery's significance is largely derived from the community it has historically served, as described in Chapter 3, "Historic and Cultural Resources." Therefore, it has been determined that the cemetery does not contain any sunlight-sensitive historic features. No sunlight-sensitive resources were identified within the longest shadow study area. Thus, the proposed project would not result in any significant adverse shadow impacts, and no further analysis is necessary. ✷

A. INTRODUCTION

This chapter addresses the soil and groundwater conditions at the project site resulting from previous and existing uses on the site. Phase I Environmental Site Assessments (ESAs) of Lot 39 and Lot 75 (the project site) were completed in November 2009 and June 2010, respectively. The main objective of the Phase I ESAs was to identify the presence or likely presence, use, or release of hazardous substances or petroleum products which are defined in American Society of Testing and Materials (ASTM) Standard Practice E 1527-05 as recognized environmental conditions (RECs). In addition, other environmental issues or conditions such as radon, asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyl (PCB) containing equipment were evaluated. The Phase I ESAs included site inspections, a review of the existing data on geology and hydrology of the area, and a review of historical maps, local agency records, and other documents to assess past and current uses of the project site and adjacent areas.

The Phase I ESAs identified several on-site RECs including: potential buried structures and/or demolition debris that may contain abandoned underground storage tanks (USTs) from the dwellings and structures shown on historical maps of the area; the potential presence of historic fill associated with the historic project site structures and clearing activities; and the potential presence of dumped materials on Lot 39, indicated by soil and refuse piles near the perimeter of the project site. The only off-site REC identified for the project site was a historic auto repair facility northwest of the project site shown on Sanborn maps from 1987 through 1995, which may have affected the subsurface. Environmental concerns identified during the Phase I ESAs included the potential presence of ACM, LBP, and PCB-containing items in the residence on Lot 75, and/or in potential buried structures on both lots. A Phase II Environmental Site Investigation (ESI) was completed in August 2010 to assess the RECs identified in the Phase I ESA for Lot 39.

B. EXISTING CONDITIONS

The project site consists of two adjacent lots—Block 7092, Lots 39 and 75. Lot 39 is approximately 128,000 square feet and is currently undeveloped, wooded land. Lot 39 is approximately 14,600 square feet and includes a 5,000 square foot, two-story residential dwelling with a basement. Historically, Lot 39 was occupied by several dwellings circa 1917 and contained one or more small structures until sometime between 1978 and 1981. Lot 75 was developed with the current residence circa 1987. Former structures were present at Lot 75 between 1891 and 1966. On-line New York City Department of Buildings (NYCDOB) records indicate that Lot 75 contained a private sewage disposal system consisting of drywells for storm drainage and a septic system for sanitary sewer discharge. Based on the residential site use, improper discharge to these systems was not suspected.

A Phase II ESI was conducted on Lot 39 to determine if the RECs identified in the Phase I ESA have affected the suitability of the project site for construction of a public school facility. The investigation included a geophysical survey of accessible areas of the project site, the completion of five soil borings, four test pits in soil and refuse piles along the project site perimeter, shallow soil excavation from a suspected historic drywell, four soil vapor probes, and collection and laboratory analysis of soil and soil vapor samples from these locations. In addition, one ambient air sample was collected for laboratory analysis. Based on an anticipated water table depth of greater than 50 feet, groundwater is not expected to be encountered during the planned redevelopment activities; therefore, groundwater samples were not collected during the Phase II ESI.

Based on observations during the Phase II ESI, the project site is underlain by a shallow layer of sandy fill material, consisting of sand, with gravel, ash, and brick, which is generally present to a depth of approximately one foot below grade, but observed to five feet below grade in one of the soil borings. Apparent native material, consisting of sand, silt, gravel, and clay was observed beneath the fill layer. Wet conditions were encountered in one of the soil borings (GB-2) during the investigation at approximately 14 to 25 feet below grade surface (bgs), and moist soil was encountered in the other borings at depths ranging from 9 to 21 feet bgs. These findings suggest the potential for perched water in the project site subsurface when compared to the anticipated depth to groundwater in the project site vicinity of 55 feet bgs based on data in the U.S. Geological Survey (USGS) publication Composite Water Table Map of Staten Island, New York 1931-1986. Based on the hydraulic gradient indicated by the USGS water table map, groundwater most likely flows in a westerly direction toward the Arthur Kill channel. However, actual groundwater flow at the project site can be affected by many factors including past filling activities, underground utilities and other subsurface openings or obstructions such as basements and other factors beyond the scope of the Phase II investigation. The geophysical survey did not identify subsurface anomalies indicative of underground storage tanks or other buried structures in the areas investigated during the survey.

Eight grab soil samples were collected from three soil borings, four test pits, and one suspected drywell. Each grab soil sample was analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260, TCL semivolatile organic compounds (SVOCs) be EPA Method 8270, and Target Analyte List (TAL) metals by EPA Method 6000/7000 series. The four grab samples collected from test pits TP-1, TP-2, TP-3, and TP-4 were additionally analyzed for pesticides by EPA Method 8081, PCBs by EPA Method 8082, hexavalent chromium by EPA Method 7196, and cyanide by EPA Method 9012. One grab soil sample (TP-1) exhibited a total lead concentration greater than 300 parts per million (ppm), and was additionally analyzed for TCLP lead. The four soil vapor samples and ambient air sample were analyzed for 26 VOCs using EPA Method TO-15.

A review of the soil VOC analytical results for the grab soil samples indicates that no VOCs were detected at concentrations above the corresponding NYSDEC Part 375 soil cleanup objectives (SCO) for unrestricted use. A review of the SVOC analytical results for the grab soil samples indicates that no SVOCs were detected at concentrations above the corresponding NYSDEC Part 375 SCOs for unrestricted use. A review of the TAL Metals analytical results indicates that one or more metals (including lead, mercury, copper, cadmium and/or arsenic) were detected at concentrations greater than the Unrestricted Use SCOs in the grab soil samples collected from test pits TP-1 through TP-4, soil boring GB-5, and the suspected drywell (DW-1). In the absence of other indications of contamination, the reported concentrations of metals in the soil piles (TP-1 through TP-4) and fill material are not indicative of a spill or other release.

Results from TCLP lead analysis of the TP-1 soil sample indicated a leachable lead concentration of 0.204 milligrams per liter (mg/L), which is below the characteristic hazardous waste limit for lead of 5 mg/L.

A review of the soil pesticide results indicates that 4,4-DDE and 4,4-DDT were detected in two of the soil samples (TP-1 and TP-2) at concentrations exceeding their respective Unrestricted Use SCOs. 4,4-DDT and its breakdown product 4,4-DDE, are commonly found in the environment due to their persistent nature and former widespread use for mosquito control. Their presence at the proposed project site is not indicative of a release or other source area. No PCBs were detected in any of the eight soil samples collected at the project site.

A review of the soil vapor sample analytical results indicates that 9 of the 26 VOCs analyzed for were detected in one or more of the samples at concentrations exceeding established background levels for indoor air, including 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, tetrachloroethene (PCE), trichloroethene (TCE), toluene, o-xylene, and m/p-xylenes. The New York State Department of Health (NYSDOH) has established Air Guideline Values (AGVs) for three of the VOCs analyzed: methylene chloride, PCE, and TCE. Methylene chloride was not detected in any of the soil vapor samples. PCE was detected in all four (4) of the soil vapor samples collected at concentrations that ranged from 27.1 to 37.1 micrograms per cubic meter (µg/m3), below the corresponding AGV. TCE was detected in one of the four soil vapor samples collected at a concentration above the corresponding AGV. Specifically, soil vapor sample SV-1, located in the northwestern corner of the project site, exhibited TCE at a concentration of 6.07 µg/m3, which slightly exceeds the corresponding AGV of 5 µg/m3. Concentrations of the 10 VOCs detected in the ambient air samples were below the anticipated outdoor air background levels and AGVs.

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the proposed project, the project site is expected to remain in its current condition and would not be redeveloped as a public school.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The proposed project would not result in impacts from contaminated media and building materials. Prior to the construction of the project and after the NYCSCA acquires Lot 75, a pre-design investigation would be conducted to search for potential USTs and to further characterize subsurface conditions in the Lot 75 portion of the project site. If encountered, suspect USTs and any contaminated soil would be removed in accordance with all applicable regulations.

Any suspect ACM, LBP, and PCB-containing materials affected by the preparation of the project site for use as a public school would be identified prior to construction and properly managed during construction activities. All soil excavated during building construction would be properly managed in accordance with all applicable local, State and Federal regulations. If dewatering is necessary due to perched water conditions, dewatering fluids would be handled and discharged in accordance with applicable regulations. In addition, to minimize the potential for exposure by construction workers and the surrounding public, standard industry practices, including appropriate health and safety measures, would be utilized.

As a preventative measure, a soil vapor barrier and a sub-slab depressurization system would be installed below the proposed school building to prevent potential soil vapor intrusion into the building. For areas of the project site where exposed soils may exist after building construction

(i.e., landscaped areas), a 24-inch thick layer of environmentally clean fill would be placed over the soils. With these measures, no significant adverse impacts with respect to hazardous materials would occur as a result of the construction or operation of the proposed project. ✷

Chapter 12: Infrastructure

A. INTRODUCTION

This chapter considers the proposed development's potential effects on infrastructure. The 2010 *City Environmental Quality Review (CEQR) Technical Manual* outlines the following guidelines for an infrastructure assessment:

- *Water Supply*. An analysis of an action's impact on the New York City water supply system should be conducted only for actions that would have exceptionally large demand for water, such as power plants, very large cooling systems, or large developments (e.g., those that use more than 1 million gallons per day [mgd]). In addition, actions located at the extremities of the water distribution system should be analyzed.
- *Wastewater Treatment*. Because the City is committed to adequately treating all wastewater generated in the City and to maintaining its wastewater treatment plants at or below the capacity permitted by applicable state and federal permits, orders, and decrees, only actions with very large flows (e.g., 400 residential units or 150,000 sf of commercial space or more) could have the potential for significant impacts on sewage treatment.
- *Stormwater Management.* An assessment of stormwater is appropriate for actions that result in certain industrial activities; actions that greatly increase the amount of paved area on a site; actions that would be served by a separate storm system and that would involve construction activities such as clearing, grading, and excavation; and actions that involve construction of a new stormwater outfall.

Because the proposed development would not exceed any of the CEQR thresholds for water supply and wastewater treatment, this chapter discloses the proposed project's water demands and wastewater generation. As detailed in this chapter, there would be no potential for significant adverse impacts on infrastructure because the proposed development would not have an exceptionally large incremental demand for water or requirement for sanitary sewage and wastewater treatment when compared with the future without the proposed project. In addition, the proposed project would include a storm water retention system to ensure that the proposed development would not result in significant adverse impacts due to stormwater management.

B. EXISTING CONDITIONS

WATER SUPPLY

New York City's water supply system is composed of three watersheds—Croton, Delaware, and Catskill—and extends as far north as the Catskill Mountains. From these watersheds, water is carried to the City via a conveyance system made up of reservoirs, aqueducts, and tunnels. Within the City, a network of underground water pipes distributes water to customers. On average, the New York City water system delivers approximately 1.1 billion gallons per day (bgd) to the five boroughs and Westchester County.

The Croton system supplies an average of 22 million gallons per day (mgd), primarily to users in the lower-elevation portions of Manhattan and the Bronx. The Delaware and Catskill systems supply all five boroughs and delivers approximately 98 percent of the City's drinking water. The Delaware and Catskill water systems collect water from watershed areas in the Catskill Mountains and deliver it to the Kensico Reservoir in Westchester County. From the Kensico Reservoir, water is sent to the Hillview Reservoir in Yonkers, which balances the daily fluctuations in water demand and pressure to the system. From there, water is delivered to the City through three tunnels, Tunnel Nos. 1, 2, and 3. Tunnel No. 1 carries water through the Bronx and Manhattan to Brooklyn; Tunnel No. 2 travels through the Bronx, Queens, Brooklyn, and then through the Richmond Tunnel to Staten Island; and Tunnel No. 3 goes through the Bronx and Manhattan, terminating in Queens.

The project site has readily available access to both domestic water and fire service. As described in Chapter 1, "Project Description," the project site is currently occupied by one residential building with two housing units and the remainder of the site contains wooded land. An estimated 6 people live at the two-unit residence. Therefore, using the *CEQR Technical Manual* water usage rate of 100 gpd per resident and 0.17 gpd per 5,111 sf for air conditioning, the existing water demand on the project site is estimated to total approximately 1,469 gpd.

WASTEWATER TREATMENT

The project site is located in the service area of the Oakwood Beach Water Pollution Control Plant (WPCP). The Oakwood Beach WPCP discharges treated wastewater flows, or "effluent," into Lower New York Bay. Effluent discharged from the Oakwood Beach WPCP, like each of the city's WPCPs, is regulated by a SPDES permit issued by the New York State Department of Environmental Conservation (NYSDEC). The SPDES permit limit for flow at the Oakwood Beach WPCP is 39.9 mgd.

As shown in **Table 12-1**, at the Oakwood Beach WPCP, the 12-month average dry weather flow for the most recent 12-month period for which data are available is 30.9 mgd, which is approximately 77 percent of the plant's treatment capacity.

Table 12-1
Average Daily Flows by Month at the Oakwood Beach WPCP

Year	Month	Oakwood Beach Flow (mgd)
2011	August	43.8
2011	July	27.0
2011	June	29.0
2011	May	34.4
2011	April	35.4
2011	March	37.4
2011	February	30.8
2011	January	28.0
2010	December	26.7
2010	November	25.7
2010	October	27.5
2010	September	26.1
12-Month Average		**30.9**

Source: NYCDEP, September 2011.

Based on the existing water demand, the existing residence on the project site generates approximately 600 gpd of sanitary sewage. The water used by air conditioning evaporates into the air and does not become sanitary sewage.

STORMWATER MANAGEMENT

Under existing conditions, the project site does not contain an organized network of stormwater collection or disposal. There are no combined or storm sewer lines located in the adjacent public streets.

SOLID WASTE

In New York City, solid waste from commercial and manufacturing uses is collected by private carters, while residential and institutional refuse is collected by the New York City Department of Sanitation (NYCDOS). Commercial solid waste is typically hauled to out-of-city landfills. Residential waste was formerly disposed of at Fresh Kills Landfill, which stopped receiving solid waste as of March 22, 2001. NYCDOS now collects solid waste, delivers it to transfer stations, and from there private carters take it to facilities generally located in Virginia, Ohio, and Pennsylvania. The municipal waste system handles approximately 13,000 tons per day, and the private carters handle approximately 13,000 per day. Currently, minimal solid waste generated at the project site by the two-unit residence is collected by the NYCDOS.

ENERGY

Consolidated Edison (Con Edison) provides energy to the area. While the majority of the project site is undeveloped and vegetated, it has low energy demands. However, utility lines are available near the site.

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

As described in Chapter 1, "Project Description," in the future without the proposed project the project site is expected to remain unchanged. Therefore, the water demand and sanitary sewage generated on the project site will remain the same as in existing conditions. In addition, stormwater discharge from the project site is expected to remain the same as in existing conditions. No changes to the storm sewer system serving the project site would be required.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The proposed project would introduce a new approximately 444-seat primary school facility to the project site. The new school use would place new demands on the City's infrastructure. This section discusses the approximate total future demand on water use and sanitary sewage that would be created by the proposed project. It then compares the proposed project's demand on infrastructure services to the demand that would result from existing uses that would remain on the project site in the future without the proposed project.

WATER SUPPLY

As shown in **Table 12-2**, the proposed project would generate a total demand for 15,745 gpd of water.

Table 12-2
Proposed School's Estimated Water Demand

Use	Size[1]	Domestic demand (gpd)[2]	Air Conditioning (gpd)	Total (gpd)
Primary School	66,500	4,440	11,305	15,745

Notes:
1. sf = square feet
2. gpd = gallons per day

Source: 2010 *CEQR Technical Manual*, Table 13-2, "Water Usage and Sewage Generation Rates for Use in Impact Assessment."

Compared to the future without the proposed project, the proposed project would create an incremental demand for 14,276 gpd. Overall, the proposed school's incremental demand for water would represent an insignificant increase in the total demand in Staten Island. As a result, this added demand would not overburden the City's water supply or the local conveyance system. The proposed development would also comply with the City's water conservation measures as mandated by Local Law 19. Therefore, the proposed actions would not result in a significant adverse impact on the water supply system's ability to adequately deliver water to Staten Island or New York City.

WASTEWATER TREATMENT

The proposed school would be connected to either an existing 10-inch sanitary sewer on Crabtree Avenue or to an existing 10-inch sanitary sewer on Bloomingdale Road. The proposed development is assumed to generate wastewater at a rate commensurate with domestic water consumption, or about 4,440 gpd. This amount of wastewater would not cause the Oakwood Beach WPCP to exceed its design capacity or SPDES permit flow limit. Therefore, the proposed actions would not result in a significant adverse impact on wastewater treatment.

STORM WATER MANAGEMENT

As described in Chapter 1, "Project Description", the majority of the proposed project site will be occupied by the school building or paved. The proposed plans include a concrete driveway and walkways, as well as approximately 25 parking spaces, paved with a permeable surface. As there are no combined or storm sewers in the adjacent streets, the proposed project would include a storm water retention system that would be reviewed and permitted by the New York City Department of Environmental Protection (NYCDEP). In accordance with NYCDEP requirements, the stormwater retention system would be sized to two inches of rainfall over the project site area. Preliminary designs for the proposed project include three retention systems near the playground areas and open landscaped areas. In addition, roof detention would be provided to slow down runoff from the roof to the retention systems. Bio-retentions and/or bioswale for storm water management would be incorporated in the landscape design. The system would be designed in accordance with the latest NYCDEP bioswale Design Standards.

SOLID WASTE

Using a solid waste generation rate of 3 pounds per week per student, the proposed school would be expected to generate approximately 1,332 pounds of solid waste per week during the school year. To comply with the city's recycling plan, the proposed school would be required to accommodate the source separation of recyclable materials. The P.S. 62R school facility's disposable wastes and recyclable materials would be collected by NYCDOS. The total waste

generated would be negligible compared with the 13,000 tons per day handled by NYCDOS. Therefore, the proposed project would not have a significant effect on New York City's solid waste disposal system nor would it affect its Solid Waste Management Plan.

ENERGY

The building would rely on geothermal heating and cooling, daylight harvesting to minimize lighting load, and photovoltaic panels to provide electricity. However, it is anticipated that Con Edison would provide some electrical service to the proposed school. The electrical demand generated by the proposed project would be minimal and would require no special appurtenances. Con Edison would be able to meet this demand. ✷

Chapter 13: Greenhouse Gas Emissions

A. INTRODUCTION

This chapter addresses the sources of greenhouse gas (GHG) emissions associated with the proposed school and measures that would be implemented to limit those emissions. There is general consensus in the scientific community that the global climate is changing as a result of increased concentrations of GHGs in the atmosphere. GHGs are those gaseous constituents of the atmosphere, from both natural and anthropogenic (i.e., resulting from the influence of human beings) emission sources, that absorb infrared radiation (heat) emitted from the earth's surface, the atmosphere, and clouds. This property causes the general warming of the earth's atmosphere, or the "greenhouse effect."

As discussed in the 2010 *City Environmental Quality Review (CEQR) Technical Manual*, climate change could have wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. Although this is occurring on a global scale, the environmental effects of climate change are also likely to be felt at the local level. Through PlaNYC, the City has established sustainability initiatives and goals for both greatly reducing GHG emissions and adapting to climate change in the City. The goal to reduce citywide GHG emissions to 30 percent below 2005 levels by 2030, and to reduce city government emissions to 30 percent below fiscal year 2006 levels by 2017 was codified by Local Law 22 of 2008, known as the New York City Climate Protection Act (the "GHG reduction goal").[1] Per the 2010 *CEQR Technical Manual*, the GHG reduction goal is currently the most appropriate standard by which to analyze a project under CEQR. As a city capital project subject to environmental review, the proposed school requires an assessment of consistency with the City's GHG reduction goals.

As discussed in the following sections, vehicle use associated with the proposed school, operation of the natural gas backup hot water boiler, use of grid electricity to supplement on-site renewable electricity production, construction activities, production of materials used in the construction of the school building, and generation of waste would result in GHG emissions. With the sustainable design elements that would be included as part of the project, energy efficiency and use of renewable energy would be maximized, and GHG emissions would be reduced to the extent practicable. Therefore, the proposed school would be consistent with the City's GHG reduction goals.

[1] Administrative Code of the City of New York, §24-803.

B. POLICY, REGULATIONS, STANDARDS, AND BENCHMARKS FOR REDUCING GHG EMISSIONS

NATIONAL POLICY

As a result of the growing consensus that human activity resulting in GHG emissions has the potential to profoundly impact the earth's climate, countries around the world have undertaken efforts to reduce emissions by implementing both global and local measures addressing energy consumption and production, land use, and other sectors.

In the U.S., The Energy Independence and Security Act of 2007 includes provisions for increasing the production of clean renewable fuels, increasing the efficiency of products, buildings, and vehicles, and for promoting research on greenhouse gas capture and storage options. The American Recovery and Reinvestment Act of 2009 (ARRA, "economic stimulus package") funds actions and research that can lead to reduced GHG emissions.

Although the U.S. has not ratified the international agreements which set emissions targets for GHGs, in a step toward the development of national climate change regulation, in June 2009 the U.S. House of Representatives passed the American Clean Energy and Security Act (ACES, "cap and trade bill"). The proposed legislation would place a national cap on GHG emissions, resulting in the gradual reduction of emission from large sources (accounting for approximately 85 percent of the U.S. GHG emissions) to 17 percent lower than 2005 levels by 2020 and to 83 percent lower than 2005 levels by 2050. The U.S. has committed to this level of emissions reduction (pending legislation) via the Copenhagen Accord.[1] Although this legislative activity is still in progress, without such legislation EPA would be required to regulate greenhouse gases under the Clean Air Act (CAA), and has already begun preparing regulations. In May 2010, EPA issued a final rule (effective August 2010) to tailor the applicability criteria for stationary sources subject to permitting requirements under the CAA, which sets thresholds for GHG emissions that define when permits are required for new and existing industrial facilities under the New Source Review Prevention of Significant Deterioration (PSD) and title V Operating Permit programs.

In March 2009, the U.S. Department of Transportation (USDOT) set combined corporate average fuel economy (CAFE) standards for light duty vehicles for the 2011 model year (MY). In June 2009, EPA granted California a previously denied waiver to regulate vehicular GHG emissions, allowing 19 other states (representing 40 percent of the light-duty vehicle market, including New York) to adopt the California mobile source GHG emissions standards. In April 2010, EPA and USDOT established the first GHG emission standards and more stringent CAFE standards for MY 2012 through 2016 light-duty vehicles. The agencies also proposed the first-ever program to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles, such as large pickup trucks and vans, semi trucks, and vocational vehicles. These regulations will all serve to reduce vehicular GHG emissions over time.

REGIONAL AND NEW YORK STATE POLICY

There are also regional, state, and local efforts to reduce GHG emissions. In 2009, Governor Paterson issued Executive Order No. 24, establishing a goal of reducing GHG emissions in New York by 80 percent, compared to 1990 levels, by 2050, and creating a Climate Action Council tasked with preparing a climate action plan outlining the policies required to attain the GHG

[1] Todd Stern, U.S. Special Envoy for Climate Change, letter to Mr. Yvo de Boer, UNFCCC, January 28, 2010.

reduction goal (that effort is currently under way[1]). The 2009 New York State Energy Plan,[2] outlines the state's energy goals and provides strategies and recommendations for meeting those goals. The state's goals include:

- Implementing programs to reduce electricity use by 15 percent below 2015 forecasts;
- Updating the energy code and enacting product efficiency standards;
- Reducing vehicle miles traveled by expanding alternative transportation options; and
- Implementing programs to increase the proportion of electricity generated from renewable resources to 30 percent of electricity demand by 2015.

New York State has also developed regulations to cap and reduce CO_2 emissions from power plants in order to meet its commitment to the Regional Greenhouse Gas Initiative (RGGI). Under the RGGI agreement, the governors of 10 northeastern and mid-Atlantic states have committed to regulate the amount of CO_2 that power plants are allowed to emit. The regional emissions cap for power plants will be held constant through 2014, and then gradually reduced to 10 percent below the initial cap through 2018. Each power source with a generating capacity of 25 megawatts or more must purchase a tradable CO_2 emission allowance for each ton of CO_2 it emits. The RGGI states and Pennsylvania have also announced plans to reduce GHG emissions from transportation, through the use of biofuel, alternative fuel, and efficient vehicles.

LOCAL POLICY AND BENCHMARKS

Many local governments worldwide, including New York City, are participating in the Cities for Climate Protection™ (CCP) campaign and have committed to adopting policies and implementing quantifiable measures to reduce local GHG emissions, improve air quality, and enhance urban livability and sustainability.

New York City has a long-term sustainability program, PlaNYC 2030, which includes GHG emissions reduction goals, specific initiatives that can result in emission reductions and initiatives targeted at adaptation to climate change impacts. For certain projects subject to CEQR, an analysis of the project's contribution of GHG emissions is required to determine their consistency with the City's GHG reduction goal. This approach is applied to the proposed school in this chapter. The City will also determine potential strategies to reduce citywide GHG emissions by 80 percent below 2005 levels by 2050.[3]

In December 2009, the New York City Council enacted four laws addressing energy efficiency in new and existing buildings, in accordance with PlaNYC. The laws require owners of existing buildings larger than 50,000 square feet to conduct energy efficiency audits every 10 years, to optimize building energy efficiency, and to "benchmark" the building energy and water consumption annually, using an EPA online tool. By 2025, commercial buildings over 50,000 square feet will also require lighting upgrades, including the installation of sensors and controls, more efficient light fixtures, and the installation of submeters, so that tenants can be provided with information on their electricity consumption. The legislation also creates a local New York City Energy Code, which requires equipment installed during a renovation to meet current efficiency standards.

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[1] http://www.nyclimatechange.us/

[2] New York State, *2009 New York State Energy Plan*, December 2009.

[3] *A Greener Greater New York*, PlaNYC Update, April 2011.

New York City Local Law 86 of 2005 (LL 86/05) requires certain City capital projects to achieve the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) standards, reduce building energy costs, and reduce potable water use. The LEED system is a benchmark for the design, construction, and operation of high performance green buildings that includes energy efficiency components.

Of particular relevance to the proposed school is the NYC Green Schools Guide and rating system, created by the New York City School Construction Authority (SCA) and the New York City Department of Education (DOE), to guide the sustainable design, construction and operation of new schools, modernization projects and school renovations and to achieve compliance with LL 86/05. The NYC Green Schools Rating System is based on the LEED rating system with enhancements beyond LEED. The enhancements are based on best practices for schools adopted from the Collaborative for High Performing Schools (CHPS) rating systems developed by the states of Washington, Massachusetts and New York and also on SCA best practices. Based on careful analysis and conclusions of an independent review of the NYC Green Schools Guide, the Director of the Office of Environmental Coordination, on behalf of the Mayor, found that the requirements of the NYC Green Schools Rating System are no less stringent than the requirements for achieving a LEED Certified rating. The proposed school design will follow the Green School Guide to meet and exceed the requirements of LL 86/05, furthering the GHG reduction goal.

C. SOURCES OF GHG EMISSIONS

The GHGs identified for analysis in the *CEQR Technical Manual* include the six internationally-recognized GHGs regulated under the Kyoto Protocol (an international agreement adopted in 1997 that is linked to the United Nations Framework Convention on Climate Change). Carbon dioxide (CO_2) is the primary pollutant of concern from anthropogenic emission sources. CO_2 is emitted as a product of combustion, from some industrial processes such as the manufacture of cement, mineral production, metal production, and the use of petroleum-based products, from volcanic eruptions, and from the decay of organic matter. CO_2 is removed ("sequestered") from the lower atmosphere by natural processes such as photosynthesis and uptake[1] by the oceans. CO_2 is considered in any assessment of GHG emissions from development projects. Other GHG emissions are included where practicable or in cases where they comprise a substantial portion of overall emissions.

The proposed school will be designed to maximize the use of renewable energy—geothermal and solar, and will therefore not require extensive use of traditional fossil-fueled heating systems or grid electricity, much of which is produced from fossil fuels. The only source of operational on-site GHG emissions would be a natural gas boiler, which would supply up to 25 percent of the annual hot water demand for the proposed school. Emissions from building energy use would be lower than what is typical for schools of similar size. Personal vehicle and school bus transportation to and from the proposed school would result in GHG emissions. The trips would be short-distance local trips and would not generate GHG emissions in excess of what is typical for schools of similar size in New York City. The proposed school would include a recycling program to minimize emissions from solid waste management. The project would not fundamentally change the City's solid waste management system, and in accordance with the 2010 *CEQR Technical Manual*, further consideration of GHG emissions from solid waste generation, transportation, treatment, and

[1] Biological and chemical processes by which CO_2 is removed from the atmosphere and stored in the oceans.

disposal is not required. Construction of the proposed school would generate GHG emissions—both direct emissions from construction equipment and delivery trucks and emissions embedded in the production and transport of materials used in construction, notably steel, rebar, aluminum, and cement. Materials with recycled content and materials that are extracted or manufactured in the region would be used for construction of the proposed school to reduce GHG emissions. Overall, by greatly exceeding the requirements of the Green Schools Guide, the proposed school would result in GHG emissions that would be below GHG emissions for existing or typical schools of similar size.

D. STRATEGIES THAT WOULD REDUCE GHG EMISSIONS

As discussed, the proposed school would be built according to the New York City Green Schools Guide. Sustainable school design and operation provides many benefits, including conservation of energy, reduced operating costs, a healthy environment, and opportunity to teach environmental responsibility, to demonstrate commitment to sustainability, and reduce GHG emissions. To determine the consistency of a project with the City's overall GHG reduction goal, the project is evaluated in terms of pursuit of energy efficient buildings, clan power, transit-oriented development and sustainable transportation, and use of sustainable construction materials and practices. While the design of the school is not yet final, preliminary designs include a number of specific components that would help minimize GHG emissions. These are listed below and discussed in the context of PlaNYC goals.

BUILD EFFICIENT BUILDINGS

- Energy efficient building envelope and building orientation would reduce cooling and heating requirements. The building would rely on geothermal heating and cooling, daylight harvesting to minimize lighting load, and photovoltaic panels to provide electricity.
- Green roofs would reduce cooling requirements, reduce stormwater runoff and provide other benefits.
- Window glazing would be applied to optimize daylighting, heat loss and solar heat gain, reducing the energy needed for cooling, heating and lighting.
- Superinsulation would be used to minimize heat loss.
- Motion sensors and lighting and climate controls would help conserve electricity and energy for heating and cooling.
- Efficient lighting and elevators would reduce electricity consumption.
- Third party building commissioning would be conducted to ensure energy performance.

USE CLEAN POWER

- On-site geothermal heating, solar thermal heating systems, and solar photovoltaic electricity systems would be designed to offset the building's annual energy needs.
- Natural gas, which is a less GHG intense fuel than oil would be used for a small backup hot water boiler. The backup boiler is the only component of the building energy system that would not run on renewable energy.

TRANSIT-ORIENTED DEVELOPMENT AND SUSTAINABLE TRANSPORTATION

- The project would be designed to support walking and bicycling, providing an alternative to personal vehicle use. Bicycle storage, showers, and changing rooms would be provided.

- On-site parking for alternative vehicles would be provided.

REDUCE CONSTRUCTION OPERATION EMISSIONS

- Best practices would be employed to reduce construction emissions. As with all SCA projects, the construction of the proposed school would be subject to Local Law 77of 2003, which requires the use of ultra low sulfur diesel and best available control technology by construction equipment. While the strategy would not directly reduce Kyoto GHG emissions, it would reduce the effect of construction on air quality.

USE BUILDING MATERIALS WITH LOW CARBON INTENSITY

- Use building materials with recycled content.
- Use building materials that are extracted and/or manufactured within the region.

In addition, the proposed school would include water conserving fixtures and water efficient landscaping that exceed building code requirements and comply with the water conservation measures mandated by LL 86/05. Reducing potable water consumption reduces the energy needed for water delivery and wastewater treatment and thereby indirectly also reduces GHG emissions. Storage and collection of recyclable would be provided for in the building design, reducing GHG emissions associated with waste management.

Overall, the commitment to achieve a high energy efficiency for the proposed school building, to offset the annual electricity and natural gas imported from the utility with the renewable energy produced by a roof mounted photovoltaic array, and other measures incorporated in the proposed school would result in lower GHG emissions than would otherwise be generated by a similar project. Therefore, the proposed school would be consistent with the City's GHG emission reduction goal. ✷

A. INTRODUCTION

Construction activities, although temporary in nature, can sometimes result in significant adverse environmental impacts. This chapter summarizes the construction plan for the proposed project and assesses the potential for construction-period impacts. The stages of construction and their associated activities and equipment are described first, followed by the types of impacts likely to occur. The assessment also describes methods that may be employed to minimize construction-period impacts.

As described below, the analysis concludes that the proposed project would not result in extensive construction-related effects with respect to any of the analysis areas of concern. Therefore, no significant adverse impacts are expected to occur as a result of construction.

B. DESCRIPTION OF CONSTRUCTION ACTIVITIES

It is anticipated that construction of the proposed project would require a total of approximately 32 months to complete, although the major external construction activities are expected to be completed within less than 24 months. Based on current plans, construction would begin in 2012 and be completed in 2015. A breakdown of the anticipated construction program is shown below in **Table 14-1.**

Table 14-1
On-Site Construction Activities

Construction Activity	Months of Construction
Mobilization, Demolition, Clearing, Excavation and Foundation	6 Months
Superstructure and Exterior Work	9 Months
Interior Construction and Fit-out	12 Months
Exterior Finishing and Landscaping	3 Months
Source: New York City School Construction Authority.	

Construction would begin with the fencing and screening of the site followed by demolition, tree removal and clearing, excavation and grading. First any economically salvageable materials are removed. Then the building is deconstructed using large equipment. Typical demolition requires solid temporary walls around the building to prevent accidental dispersal of building materials into areas accessible to the general public. As the building is being deconstructed, bulldozers and front-end loaders would be used to load materials into dump trucks. The demolition debris would be sorted prior to being disposed at landfills to maximize recycling opportunities.

Existing trees and stumps would be removed by arborists using chainsaws and tree stump grinders. Soil would be excavated from the project site and removed by truck to a licensed landfill or recycling facility. If soil containing petroleum or other contaminated materials is discovered during excavation activities, it would be segregated and disposed of in accordance with all applicable Federal, State, and local regulations and guidelines. Additionally, all material

that needs to be removed from the site would be disposed of in accordance with applicable requirements. Piles would be driven, as necessary, to support the building, and pile caps would be formed and concrete poured to build the foundations for the building.

Next, the project's structural frame and exterior façade would be erected. Construction of the exterior enclosure, or "shell" of the building would include construction of the building's framework (installation of beams and columns), floor decks, facade (exterior walls and cladding), and roof construction. In the final one to two years of construction, interior finishing would proceed, including electrical work, plumbing, wall and ceiling construction, painting, floorwork, and other finishing items along with the completion of the remaining exterior work, such as utility and façade work. During this time, most work would occur inside, and operation of heavy on-site equipment would be infrequent. As construction nears completion on the interior of the project, final site work would commence and would include construction of the outdoor courtyard and play areas and any landscaping.

The estimated average number of workers on site by phase would be: 40 workers for mobilization, demolition, excavation and foundation; 60 workers for superstructure and exterior work; 100 workers for interior construction and fit-out; and 40 workers for exterior finishing and landscaping.

Typical equipment used for demolition, site clearing, excavation, and foundation work would include excavators, bulldozers, backhoes, chainsaws and tree stump grinders (for tree removal), compaction equipment, tractors, jackhammers, and concrete pumping trucks. Other equipment that would be used include hoist complexes, dump trucks and loaders, concrete trucks, and back hoes. Trucks would deliver concrete and other building materials, and remove excavated material as well as demolition and construction debris. The construction equipment likely to be used during erection of the superstructure would include compressors, cranes, derricks, hoists, bending jigs, and welding machines. During facade and roof construction, hoists may continue to be used. Trucks would remain in use for material supply and construction waste removal. Interior and finishing work would employ a large number of construction workers, and a wide variety of fixtures and supplies would have to be delivered to the site. It is anticipated that trucks would primarily access the site from Bloomingdale Road.

The majority of construction activities would take place Monday through Friday, although if necessary, the delivery or installation of certain equipment could occur on weekend days. Hours of construction are regulated by the New York City Department of Buildings (DOB) and apply in all areas of the City. These requirements are reflected in the collective bargaining agreements with major construction trade unions. In accordance with those regulations, almost all work could occur between 7 AM and 6 PM on weekdays, although some workers would arrive and begin to prepare work areas before 7 AM. Occasionally, Saturday or overtime hours would be required to complete time-sensitive tasks. Weekend work requires a permit from the DOB and, in certain instances, approval of a noise mitigation plan from the New York City Department of Environmental Protection (NYCDEP) under the City's Noise Code. The New York City Noise Control Code, as amended in December 2005 and effective July 1, 2007, limits construction (absent special circumstances as described below) to weekdays between the hours of 7 AM and 6 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6 PM and 7 AM and on weekends) may be permitted only to accommodate: (1) emergency conditions, (2) public safety, (3) construction projects by or on behalf of City agencies, (4) construction activities with minimal noise impacts, and (5) undue hardship resulting from unique site characteristics, unforeseen conditions,

scheduling conflicts and/or financial considerations. In such cases, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. The typical weekend workday would be on Saturday, beginning with worker arrival and site preparation at 7 AM, and ending with site cleanup at 5 PM. Movement of certain oversized materials, to comply with the requirements of the New York City Department of Transportation (NYCDOT), would occur at night.

Much of the proposed project's construction staging would occur within the project site, thereby limiting any effects on surrounding roadways and pedestrian elements. However, certain construction activities may require the temporary closing, narrowing, or otherwise impeding of the surrounding streets and sidewalks

C. PROBABLE IMPACTS DURING CONSTRUCTION

As with most development in New York City, construction of the proposed project may be disruptive to the surrounding area for limited periods of time throughout the construction period. The following analyses describe the proposed project's temporary effects on transportation systems, air quality, noise, historic resources, hazardous materials, natural resources, land use and neighborhood character, socioeconomic conditions, community facilities, open space, and infrastructure, as well as the economic benefits associated with the construction.

TRANSPORTATION

TRAFFIC

Construction activities would generate construction worker and truck traffic. An evaluation of construction sequencing and worker/truck projections was undertaken to assess potential transportation-related impacts. As demonstrated below, the construction of the proposed development is not expected to result in any significant adverse traffic and parking impacts.

Level 1 Construction Trip Generation Screening Assessment

As described in the 2010 *CEQR Technical Manual*, construction activities may affect several elements of the transportation system, including traffic, transit, pedestrians, and parking. A transportation analysis of construction activities is predicated upon the duration, intensity, complexity and/or location of construction activity.

Average daily construction worker and truck activities by construction activity were projected for the entire construction period, as discussed in the preceding sections. These projections were further refined to account for worker modal splits and vehicle occupancy, and arrival and departure distribution.

Daily Workforce and Truck Deliveries

For a reasonable worst-case development scenario analysis of potential transportation-related impacts during construction, the highest daily workforce of 100 workers for the "Interior Construction and Fit-Out" activity was used as the basis for estimating peak hour construction trips. In terms of truck trips, it is expected that construction activities could generate up to 10 trucks during a typical construction day. The estimates of construction activities are further discussed below.

Construction Worker Modal Splits

Based on the *2000 US Census Data* for "Construction and Excavation Occupations" for the study area census tracts, it is anticipated that construction workers' travel within or commute to the

project site would be primarily by private auto (approximately 95 percent), with a smaller percentage by public transit (approximately 5 percent).

Peak Hour Construction Worker Vehicle and Truck Trips

Site activities would mostly take place during the typical construction shift of 7:00 AM to 3:30 PM. However, some construction tasks could extend to 6:00 PM, requiring a portion of the construction workforce to remain for this extended shift. While construction truck trips would be made throughout the day (with more trips made during the early morning), and most trucks would remain in the area for short durations, construction workers would typically commute during the hours before and after the work shift. For analysis purposes, each worker vehicle was assumed to arrive in the morning and depart in the afternoon, whereas each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out"). Furthermore, in accordance with the 2010 *CEQR Technical Manual*, it is assumed that each truck has a passenger car equivalent (PCE) of 2. The peak construction hourly trip projections result in approximately 89 PCEs between 6 and 7 AM and 3 and 4 PM during the weekdays early morning and mid-afternoon construction related peak hours.

Level 2 Construction Generated Trip Assignment Screening Assessment

Since the above peak hour vehicle trip estimates (in PCEs) exceed the *CEQR* analysis threshold of 50 peak hour vehicle trips for the weekday morning and mid-afternoon peak hours, a Level 2 screening assessment was conducted to determine the need for additional quantified traffic analyses. In terms of vehicle assignments, auto trips made by construction workers were assigned to the traffic network based on the existing travel patterns. Delivery trips made by construction trucks were assigned to NYCDOT-designated truck routes. Traffic assignments for the construction-generated vehicle trips show that incremental construction vehicle trips (in PCEs) during the weekday morning and mid-afternoon peak hours would be below the CEQR threshold of 50 peak hour vehicle trips at the majority of the study area intersections. The exception would be the intersection of Woodrow Road and Bloomingdale Road which could experience approximately 60 construction vehicle trips (in PCEs) during the weekday morning and mid-afternoon peak hours. Therefore, a detailed capacity analysis was conducted for this intersection to assess any potential traffic impacts under the Construction conditions. As presented in **Table 14-2,** based on the impact criteria presented in Chapter 7 "Transportation", there would be no significant impacts at this intersection with construction-related traffic. Thus, the proposed school would not result in significant adverse construction traffic impacts.

Table 14-2
2015 No Build and Construction Conditions Level of Service Analysis

Intersection / Approach	Morning Peak Hour								Afternoon Peak Hour							
	2015 No Build				2015 Construction				2015 No Build				2015 Construction			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Woodrow Road and Bloomingdale Road																
Eastbound	LTR	0.02	32.4	C	LTR	0.04	32.6	C	LTR	0.03	32.4	C	LTR	0.35	37.8	D
Westbound	LTR	0.55	31.7	C	LTR	0.76	42.4	D	LTR	0.49	29.7	C	LTR	0.50	29.8	C
Northbound	LTR	0.61	26.7	C	LTR	0.72	31.0	C	LTR	0.92	45.0	D	LTR	0.92	46.1	D
Southbound	LTR	0.53	24.6	C	LTR	0.53	24.8	C	LTR	0.77	33.3	C	LTR	0.77	33.3	C
	Intersection		27.4	C	Intersection		32.4	C	Intersection		38.0	D	Intersection		38.5	D

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

As described above, much of the proposed project's construction staging would occur within the project site, thereby limiting any affects on surrounding roadways and pedestrian elements. However, certain construction activities may require the temporary closing, narrowing, or otherwise impeding of the surrounding streets and sidewalks. With the exception of Bloomingdale Road, these potentially affected locations are not along New York City Transit bus routes, nor are they areas of high vehicular or pedestrian activity. Construction-related closures are anticipated to be the type of routine closure typically addressed by a permit (and pedestrian access plan) required by NYCDOT Office of Construction Mitigation and Coordination (OCMC) at the time of closure. The SCA would develop Maintenance and Protection of Traffic Plans (MTP Plans) and consult with DOT's OCMC to ensure that access is provided to nearby residences and businesses at all times. Furthermore, SCA would coordinate construction activities with nearby P.S. 56 to ensure that safe vehicular and pedestrian access is provided to P.S. 56 during the hours of operation.

PARKING

The construction activities of the proposed project would generate a maximum daily parking demand of up to approximately 79 spaces. As discussed in Chapter 7, "Transportation," there are approximately 751 on-street spaces within a ¼-mile radius of the project site. In the 2015 No Build conditions, the overall parking utilization rate within a ¼-mile study area would be approximately 55 percent, with 335 available on-street spaces during the morning peak period. Therefore, the parking demand from construction worker vehicles is expected to be adequately accommodated within the ¼-mile parking study area.

TRANSIT

The project site is located in an area served by the S55, S74, and S84 bus routes. With only 5 percent of the construction workers projected to travel via transit during peak construction of the proposed project, this distribution would represent approximately 10 daily transit worker trips. These incremental construction transit trips would have an imperceptible affect on the transit service conditions in the study area. Hence, there would not be a potential for significant adverse transit impacts attributable to the projected construction worker transit trips.

PEDESTRIANS

For the same reasons provided on transit operations, a detailed pedestrian analysis would also not be warranted to address the projected demand from the travel of construction workers to and from the project site. Furthermore, these pedestrian trips would primarily occur outside of peak hours and be distributed among various sidewalks and crosswalks in the area, there would not be

a potential for significant adverse pedestrian impacts attributable to the projected construction worker pedestrian trips. In addition, sidewalk protection or temporary sidewalks would be provided in accordance with NYCDOT requirements to maintain pedestrian access.

AIR QUALITY AND NOISE

Air quality and noise impacts can be generated by construction vehicles and delivery vehicles traveling to and from a site, as well as by stationary equipment used for on-site construction activities. According to the *CEQR Technical Manual*, an assessment of air quality or noise impacts from construction vehicles is warranted only when quantified transportation analysis is needed for construction activities. As described above, the proposed project's construction activities are not anticipated to result in extended impacts to any transportation systems requiring quantified analysis, and therefore, an assessment of air quality or noise impacts from construction vehicles is not warranted.

With regard to the air quality and noise impacts of other construction activities (such as demolition, rock drilling, and pile driving), the *CEQR Technical Manual* suggests that potential impacts should be analyzed only when construction activities would affect a sensitive receptor over a long period of time. P.S. 56 is located in close proximity to the project site, approximately 850 away. Construction duration as defined by the *CEQR Technical Manual* is broken down into short-term (less than two years) and long-term (two or more years). As described above, the proposed project's major external construction activities, which generate the greatest potential for air quality and noise impacts, would be short-term in nature (lasting less than two years). Since the proposed project would not cause noisy and/or diesel-powered construction equipment to be operating within 1,500 feet of a receptor for a period of time exceeding two years, significant adverse air quality and noise impacts are not anticipated, and quantified analyses are not warranted. The following sections qualitatively discuss the likely effects of on-site construction activities on air quality and noise, and describe measures to minimize construction-period impacts.

STATIONARY SOURCE AIR QUALITY IMPACTS

Most construction engines are diesel-powered, and produce relatively high levels of sulfur oxides (SO_2), nitrogen oxides (NO_X) and particulate matter ($PM_{2.5}$ and PM_{10}). Construction activities also emit fugitive dust.

Technologies have been developed to substantially reduce SO_2 and PM emissions. These include ultra low-sulfur diesel fuel (ULSD), diesel particulate filters (DPFs), and cleaner engines (Tier 2 or better). These technologies have become more readily available in New York City as they are required for large, ongoing public projects. The construction activities will be subject to New York City Local Law 77, which would require the use of best available technology (BAT) for equipment at that time of construction.[1] Based on estimates calculated for construction of other projects, the diesel particulate emission reduction measures can reduce emissions by more than 93 percent, on average, as compared with construction emissions without such controls.

[1] New York City Administrative Code § 24-163.3, adopted December 22, 2003, also known as Local Law 77, requires that any diesel-powered non-road engine with a power output of 50 hp or greater that is owned by, operated by or on behalf of, or leased by a city agency shall be powered by ultra low sulfur diesel fuel (ULSD), and utilize the best available technology (BAT) for reducing the emission of pollutants, primarily particulate matter and secondarily nitrogen oxides. NYCDEP is charged with defining and periodically updating the definition of BAT.

Furthermore, as early in the construction period as practicable, diesel-powered equipment would be replaced with electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification). It is expected that the SCA would employ best available technologies and utilize ultra low-sulfur diesel fuel for construction equipment and vehicles, following the requirements for New York City sponsored projects.

All necessary measures would be implemented to ensure that the New York City Air Pollution Control Code regulating construction-related dust emissions is followed. Appropriate fugitive dust control measures would be employed and would include:

- watering off trucks and excavation equipment prior to exiting the site;
- watering the areas surrounding the site (sidewalks, streets, etc.) at the end of every work day;
- watering truck routes within the site as needed or, in cases where a route would remain in the same place for an extended duration, stabilizing, covering with gravel, or temporarily paving the route to avoid the resuspension of dust;
- equipping all trucks hauling loose material with tight fitting tailgates and covering the load prior to leaving the site;
- the use of closed chutes leading to covered bins for material drops during demolition;
- enforcement of an on-site vehicular speed limit of 5 mph;
- the use of water sprays for all excavation, demolition, and transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air; and
- watering or covering loose materials, or stabilizing them with a biodegradable suppressing agent.

To reduce the resulting concentration increments at sensitive receptors, large emissions sources and activities, such as concrete trucks and pumps, would be located away from sensitive receptors to the extent practicable. Additional measures would be taken in accordance with applicable laws, regulations, and building codes. These include the restriction of on-site vehicle idle time to three minutes for all vehicles not using the engine to operate a loading, unloading, or processing device (e.g., concrete mixing trucks).

Under both New York State Environmental Quality Review Act (SEQRA) and New York City Environmental Quality Review (CEQR) requirements, the determination of the significance of impacts is based on an assessment of the predicted intensity, duration, geographic extent, and the number of people who would be affected by the predicted impacts. Guidelines for assessing potential impacts from NO_X, CO, and $PM_{2.5}$ are discussed in Chapter 8, "Air Quality." While it is possible that the construction activities may exceed certain thresholds used for assessing the potential for significant adverse air quality impacts, any exceedance would be limited in extent, duration, and severity. Based on the limited duration of these potential exceedances of threshold values, there would be no potential for significant adverse impacts from construction activities.

STATIONARY SOURCE NOISE IMPACTS

Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by

construction activities would vary widely, depending on the phase of construction and the location of the construction relative to receptor locations.

A wide variety of measures can be used to minimize construction noise and reduce potential noise impacts. A noise mitigation plan is required as part of the New York City Noise Control Code, and would include:

- Source controls;
- Path controls; and
- Receptor controls.

In terms of source controls (i.e., reducing noise levels at the source or during most sensitive time periods), the following measures for construction would be implemented:

- The contractors would use equipment that meets the sound level standards for equipment (specified in Subchapter 5 of the New York City Noise Control Code) from the start of construction activities and use a wide range of equipment, including construction trucks that produce lower noise levels than typical construction equipment.
- Where feasible, the project sponsors would use construction procedures and equipment (such as generators, concrete trucks, delivery trucks, and trailers) that are quieter than that required by the New York City Noise Control Code.
- As early in the construction period as practicable, diesel-powered equipment would be replaced with electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification).
- All contractors and subcontractors would be required to properly maintain their equipment and have quality mufflers installed.

In terms of path controls (e.g., placement of equipment and implementation of barriers between equipment and sensitive receptors), the following measures for construction would be implemented:

- Perimeter noise barriers would be constructed that satisfy New York City Noise Control Code requirements.
- To the extent feasible, noisy equipment, such as generators, cranes, trailers, concrete pumps, concrete trucks, and dump trucks, would be located away from and shielded from sensitive receptor locations.

For impact determination purposes, significant adverse noise impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *CEQR Technical Manual* for two consecutive years or more. The impact criteria are explained in detail in Chapter 9, "Noise." While increases exceeding the CEQR impact criteria for two years or less may be noisy and intrusive, they are not considered to be significant adverse noise impacts. The residential and institutional buildings in the immediate vicinity of the project site generally contain double-glazed windows and/or alternative ventilation (i.e., air conditioning), which would greatly reduce interior noise levels compared with exterior noise levels and may result in interior noise levels of 45 dBA or less. In addition, except under special circumstances night work is not expected, and any exceedences of the CEQR criteria at sensitive locations would occur during day. Therefore, no long-term, significant adverse noise impacts are expected from construction activities.

HISTORIC AND CULTURAL RESOURCES

There are no known architectural resources—properties listed on, or determined eligible for listing on, the State and National Registers of Historic Places (S/NR), National Historic Landmarks, New York City Landmarks and Historic Districts (NYCL), or properties pending such designation—on or within 90 feet of the project site. Therefore, no adverse construction-related impacts on architectural resources are expected as a result of the proposed project.

As described in Chapter 3, "Historic and Cultural Resources," a Phase 3 archaeological data recovery has been completed in consultation with New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) for the potentially sensitive portions of the project site to mitigate significant adverse impacts of the proposed action. Analysis of the recovered artifacts is currently underway but no additional fieldwork is warranted at the project site. With the completion of artifact analysis and preparation of a final report, and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources.

SOIL AND GROUNDWATER CONDITIONS

Chapter 11, "Soil and Groundwater Conditions," describes the findings of the Phase I Environmental Site Assessments (ESAs) and the Phase II Environmental Site Investigation (ESI) that were conducted for the project site.

Demolition and excavation activities could disturb hazardous materials and increase pathways for human exposure. The SCA and/or its contractors would develop management plans (e.g., soil management plan, groundwater management plan, construction health and safety plan, etc.) to address any hazardous materials that may be encountered during construction of the school. The management plans prepared or reviewed by SCA would include measures to protect the health and safety of construction workers, school staff and students, and the public in general during construction and at the time of occupancy. Specific measures that would be implemented to avoid impacts are as follows:

- Procedures would be developed for managing any potential underground storage tanks and any encountered contamination (including procedures for stockpiling and off-site transportation and disposal) and appropriate health and safety procedures including the need for dust and organic vapor monitoring.
- Any unregistered tanks discovered prior to or during demolition activities would be registered with the New York State Department of Environmental Conservation (NYSDEC). If applicable, spill reporting would be conducted, and contaminated soil/groundwater handled and disposed of in accordance with applicable requirements.
- A comprehensive asbestos survey of the affected areas would be conducted prior to demolition. If materials prove to contain asbestos, they would be properly removed and disposed of in accordance with all applicable regulations by a licensed asbestos abatement contractor.
- Any demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62 - Lead Exposure in Construction).
- As a preventative measure, a soil vapor barrier and a sub-slab depressurization system would be installed below the proposed school building to prevent potential soil vapor intrusion into the building. For areas of the project site where exposed soils may exist after building

construction (i.e., landscaped areas), a 24-inch thick layer of environmentally clean fill would be placed over the soils.

- Any excavated soil requiring off-site disposal would be managed in accordance with applicable requirements, and, as necessary, tested in accordance with the requirements of the intended receiving facility. Transportation of all material leaving the site would be in accordance with applicable requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc.

In addition, to minimize the potential for construction workers' exposure, standard industry practices, including appropriate health and safety measures, will be utilized.

NATURAL RESOURCES

As discussed in Chapter 5, "Natural Resources," the entire project site may be cleared and graded as part of the proposed project, resulting in the loss of the successional southern hardwood forest and the habitat it provides for wildlife present within the project site. While this loss would be adverse, the successional southern hardwood forest observed within the project site is not unique and is found elsewhere within the New York metropolitan region and on Staten Island, and the loss of this woodland would not result in significant adverse impacts to vegetation resources of New York.

The loss of the woodland habitat within the project site would have the potential to adversely affect some individual birds and other wildlife currently using the habitats of the project site should these individuals be unable to find suitable available habitats nearby (such as the extensive habitats available within the nearby Clay Pit Pond State Park Preserve). However, the wildlife species expected to occur within this area are common to urban areas, and the loss of some individuals would not result in a significant adverse impact on the bird and wildlife community of the New York City region. Therefore, no significant adverse impacts to terrestrial resources are expected as a result of the construction of the proposed project. In addition, the new trees that would be planted as part of the proposed project would provide habitat for some of the same urban wildlife species expected to currently use the project site.

No state-listed endangered and/or threatened species or habitats were observed within the project site during the field investigation. However, given that the project site is located in close proximity to Clay Pit Ponds Preserve, where these species and ecological communities are known to occur, additional coordination with the New York Natural Heritage Program (NYNHP) would occur prior to construction with respect to the need for conducting surveys for specific species. With these measures in place, no significant adverse impact to endangered and/or threatened species would occur as a result of the proposed project.

LAND USE AND NEIGHBORHOOD CHARACTER

As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the site. There would also be noise, sometimes intrusive, from site clearing and building construction as well as trucks and other vehicles backing, loading, and unloading.

The area surrounding the project site is predominantly residential. There would be periods during which construction activities would be more obtrusive than what is typical in a residential area; however, those periods of time would be limited, and would not result in significant or long-term adverse impacts on the local land use patterns or character of the nearby area.

SOCIOECONOMIC CONDITIONS

The *CEQR Technical Manual* suggests that if a project entails construction of a long duration that could affect the access to and therefore viability of a number of businesses, and the failure of those businesses has the potential to affect neighborhood character, then a preliminary assessment for construction impacts on socioeconomic conditions should be conducted. The proposed project would not have such effects. There are no commercial businesses at locations where construction activities could result in the temporary closing, narrowing, or otherwise impeding of roadways and sidewalks. The proposed project's construction activities would not impede access to any businesses, and therefore would not have any significant adverse impacts on socioeconomic conditions.

The proposed project's construction would create direct benefits resulting from expenditures on labor, materials, and services, as well as indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction would also contribute to increased tax revenues for the City and State, including those from personal income taxes. Area businesses may also expect increased sales from construction worker spending (i.e., coffee, food, convenience products).

COMMUNITY FACILITIES AND SERVICES

According to the *CEQR Technical Manual*, a construction impact assessment should be conducted for any community facility that would be directly affected by construction (e.g., if construction would disrupt services provided at the facility or close the facility temporarily). Construction associated with the proposed project would not have the potential to disrupt services or temporarily close any community facility. As mentioned above, SCA would coordinate construction activities with nearby P.S. 56 (located approximately 850 feet from the project site) to ensure that safe vehicular and pedestrian access is provided to P.S. 56 during the hours of operation. Therefore, the proposed project's construction activities would not have direct effects on community facilities, and no further analysis is warranted.

OPEN SPACE

According to the *CEQR Technical Manual*, a construction impacts analysis for open space should be conducted if an open space resource would be used for an extended period of time for construction-related activities, such as construction staging, or if access to the open space would be impeded for an extended period during construction activities. The proposed project would not have such effects. The proposed project's construction activities would not require the use of public open space, nor would construction affect access to or from a public open space. Therefore, there would be no significant adverse impacts to open space resources from construction, and no further assessment is warranted.

INFRASTRUCTURE

Prior to the start of construction, all utilities that may be present on site and that may be affected by construction activities would be relocated in accordance with all applicable New York City regulations.

The proposed project would receive some combination of electric and gas service via extensions of the existing Con Edison distribution system. During the superstructure stage of construction, some sidewalk and on-street construction activities would be required to connect the proposed buildings to existing utility networks. This may require short-term sidewalk excavations ranging from approximately 50 to 150 feet in length. The construction activities that would be required

to connect the proposed project to existing energy systems are part of Consolidated Edison's normal operations for providing services to new customers, and occur on a regular basis throughout the city. ✷

Chapter 15: Public Health

A. INTRODUCTION

The *City Environmental Quality Review (CEQR) Technical Manual* states that a public health assessment may not be necessary for many proposed actions, but a thorough consideration of health issues should be documented.

As detailed below, a screening assessment was performed to examine the proposed development's potential to significantly impact public health concerns related to its construction and operation. The initial screening assessment determined that a full assessment of the proposed development's potential impacts on public health is not necessary: the proposed project would not be expected to exceed accepted City, State, or Federal public health standards in the areas of air quality, construction, solid waste management practices, odors, and noise. Therefore, the proposed project would not result in significant adverse impacts on public health.

B. ANALYSIS

In determining whether a public health assessment is appropriate, the following has been considered:

- Whether increased vehicular traffic or emissions from stationary sources would result in significant air quality impacts—The potential for these impacts from the proposed project is examined in Chapter 8, "Air Quality." The results show that construction of the proposed project would not result in any potentially significant adverse air quality impacts from mobile sources. In addition, the proposed parking area would not result in any significant adverse impacts due to CO concentrations, and no stationary source air quality impacts would result from the proposed development's heating, ventilation, and air conditioning (HVAC) equipment. Finally, there would be no potential impacts on the proposed school from any stationary industrial sources.
- Whether there is an increased potential for exposure to contaminants in soil or dust during construction—The proposed project has this potential; however, the magnitude of the impact is not expected to be substantially different from that at most other urban sites. As noted in Chapter 10, "Soil and Groundwater Conditions," measures would be employed to avoid adverse impacts during excavation for the proposed development. A Health and Safety Plan would be implemented during all earthwork to ensure that any subsurface disturbance does not result in unnecessary or unacceptable hazards to the workers or those in the surrounding community. All appropriate federal, state, and local regulations and engineering controls would be closely followed to ensure that there would be no impacts from any potential contaminants (e.g., petroleum-contaminated soil and excess fill, including demolition debris) encountered before and during all construction activities. With implementation of all these measures, no significant adverse impacts related to hazardous materials are expected to occur.

- Whether the proposed project could result in solid waste management practices that could attract vermin and result in an increase in pest populations (e.g., rats, mice, cockroaches, and mosquitoes)—No solid waste management practices are proposed beyond those at most public school uses in the City. These practices would include all contemporary solid waste collection and containment practices and conformance with the laws of the New York City Board of Health.
- Whether new odor sources would be created—The proposed project would not result in new odor sources.
- Whether the proposed project would result in potentially significant adverse impacts on sensitive receptors from noise—As discussed in Chapter 9, "Noise," the proposed project would not result in any significant adverse noise impacts. The proposed project would result in a new school in an area with low to moderate noise levels. The proposed project would not generate sufficient traffic to have the potential to cause a significant noise impact. The noise level increases at some residences near the play areas would be considered significant increases but would not constitute a significant adverse impact.

Overall, the proposed project would not result in significant adverse public health impacts related to air quality, noise, hazardous materials, groundwater, or unusual solid waste management practices that could attract vermin or be a source of odors. In addition, the proposed project would not result in any exceedances of accepted federal, state, or local standards. For the reasons discussed above, a full assessment of the proposed project's potential impacts on public health is not necessary, and no significant adverse public health impacts are expected as a result of the proposed project. ✷

Chapter 16: Mitigation

A. INTRODUCTION

The technical analyses presented in Chapters 2 through 14 examine the potential for significant adverse impacts resulting from the proposed school facility. Where significant adverse impacts have been identified, measures that would minimize or avoid them have been considered.

B. HISTORIC AND CULTURAL RESOURCES

Three areas of the project site were considered to have the potential to contain significant archaeological resources: (1) the northwest corner; (2) the eastern shaft feature; and (3) the western shaft feature (see **Figure 3-4**). A data recovery has been completed for these three areas to mitigate significant adverse impacts of the proposed action. No shaft features or building foundations were discovered during soil stripping of the northwest corner although an assemblage of artifacts possibly associated with its 19th century occupation was collected and the eastern and western shaft features were determined to post-date the period of significance for the Sandy Ground Historic Archaeological District. Analysis of the recovered artifacts is currently underway but no additional fieldwork at the project site is warranted.

With the completion of artifact analysis and preparation of a final report, and the acceptance of the report's findings by the New York State Office of Parks, Recreation, and Historic Preservation, there would be no significant adverse impacts on archaeological resources.

C. TRAFFIC

As discussed in Chapter 7, "Transportation," capacities at most of the approaches for the streets around the site would be sufficient to accommodate the traffic volume increases. However, based on the impact criteria, the proposed project could cause significant adverse traffic impacts at the following intersection approaches/lane-groups during the two peak hours analyzed:

- The westbound, northbound, and southbound approaches at the signalized intersection of Bloomingdale Road and Woodrow Road during the morning and afternoon peak periods.

The mitigation measures recommended as part of the proposed project, consisting of signal timing modifications and lane restriping, are summarized in **Table 16-1**. All of the mitigation measures in **Table 16-1** are subject to review and approval by the New York City Department of Transportation.

With these mitigation measures in place, all of the impacted intersection approaches/lane groups would operate at the same or at better service conditions than the No Build conditions. **Table 16-2** compares the LOS conditions for the No Build, Build, and Build with Mitigation conditions for these intersections.

Table 16-1
Recommended Mitigation
Bloomingdale Road and Woodrow Road Intersection

Lane Restriping	WB approach provide a shared left-turn / through lane and a separate right-turn lane NB approach provide a shared left-turn / through lane and a separate right-turn lane SB approach provide a separate left-turn lane and shared through / right-turn lane							
Signal Timing Plans	**AM Peak Hour**				**PM Peak Hour**			
	Provide 4 phase signal with the following timing plan:				Provide 4 phase signal with the following timing plan:			
	Phase	Green	Amber	Red	Phase	Green	Amber	Red
	EB (Woodrow Road)	12	3	2	EB (Woodrow Road)	12	3	2
	WB/EB (Project Driveway)	31	3	2	WB/EB (Project Driveway)	30	3	2
	NB/SB	32	3	2	NB/SB	33	3	2
	Cycle Length = 90 Seconds Pedestrians cross Bloomingdale Rd with WB phase Pedestrians cross Woodrow Rd with NB/SB phase				Cycle Length = 90 Seconds Pedestrians cross Bloomingdale Rd with WB phase Pedestrians cross Woodrow Rd with NB/SB phase			

Notes: L = Left Turn, T = Through, R = Right Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.

Table 16-2
2015 No Build, Build, and Build with Mitigation Conditions
Level of Service Analysis – Bloomingdale Road and Woodrow Road

Intersection/ Approach	2015 No Build				2015 Build					2015 Build with Mitigation			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS		Lane Group	V/C Ratio	Delay (spv)	LOS
Morning Peak Hour													
Eastbound	LTR	0.03	32.4	C	LTR	0.03	32.4	C		LTR	0.03	34.2	C
Project Driveway	--	--	--	--	L	0.13	24.7	C		L	0.09	20.5	C
	--	--	--	--	TR	0.24	25.8	C		TR	0.21	21.7	C
Westbound	LTR	0.81	43.9	D	LTR	1.22	>80	F	+	LT	0.48	26.7	C
	--	--	--	--	--	--	--	--		R	0.50	27.8	C
Northbound	LTR	0.90	44.9	D	LTR	1.01	67.8	E	+	LT	0.69	30.6	C
	--	--	--	--	--	--	--	--		R	0.32	22.9	C
Southbound	LTR	0.94	55.1	E	LTR	1.00	70.2	E	+	L	0.49	32.4	C
	--	--	--	--	--	--	--	--		TR	0.60	28.1	C
	Intersection		47.9	D	Intersection		>80	F		Intersection		27.9	C
Afternoon Peak Hour													
Eastbound	LTR	0.03	32.4	C	LTR	0..03	32.4	D		LTR	0.03	34.2	C
Project Driveway	--	--	--	--	L	0.16	25.2	D		L	0.13	21.6	C
	--	--	--	--	TR	0.30	26.6	E		TR	0.26	23.1	C
Westbound	LTR	0.55	30.9	C	LTR	0.85	50.2	D		LT	0.47	27.3	C
	--	--	--	--	--	--	--	--		R	0.33	23.7	C
Northbound	LTR	1.02	65.9	E	LTR	1.10	>80	F	+	LT	0.77	33.2	C
	--	--	--	--	--	--	--	--		R	0.42	23.7	C
Southbound	LTR	0.92	48.3	D	LTR	0.96	57.2	E	+	L	0.53	36.7	D
	--	--	--	--	--	--	--	--		TR	0.59	26.5	C
	Intersection		52.9	D	Intersection		63.0	E		Intersection		28.2	C

Notes: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.
+ implies a significant adverse impact

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Chapter 17: Alternatives

A. INTRODUCTION

This chapter considers a No Build Alternative to the proposed project (the Build Alternative) and compares the environmental conditions and impacts under the proposed project with conditions under this alternative. Under the No Build Alternative, the proposed school facility would not be built and the project site would remain unchanged from current conditions.

The chapter then discusses a second alternative, under which the internal driveway entrance would be on Crabtree Avenue and exit on Bloomingdale Road (the Site Access Alternative). Overall, it is expected that the Site Access Alternative would have similar impacts to the Build Alternative.

Unlike the proposed project and Site Access Alternative, with the No Build alternative there would be no potential to disturb archaeological resources and no additional traffic trips would be generated. However, with the proposed mitigation measures no significant adverse impacts would occur as a result of the proposed project.

B. NO BUILD ALTERNATIVE

Under this alternative, the proposed school facility would not be constructed. The project area would remain in its current state—as wooded, undeveloped land and a residential property. As with the proposed project, this alternative would not result in adverse impacts to land use, zoning, and community character, parking, transit, air quality, noise, shadows, soil and groundwater conditions, infrastructure and energy, natural resources, or public health, or with respect to the waterfront revitalization program or greenhouse gas emissions. Unlike the proposed project, with the No Build alternative there would be no potential to disturb archaeological resources and no additional traffic trips would be generated. However, with the proposed mitigation measures no significant adverse impacts would occur as a result of the proposed project.

LAND USE, ZONING AND COMMUNITY CHARACTER

Under this alternative, the project area would remain in its current state. No new school facility would be constructed. Like the proposed project, there would be no significant adverse land use, zoning, or community character impacts. However, the No Build Alternative, unlike the proposed project, would not provide for much needed new school facilities, and there would be no increase in activity on the project site.

HISTORIC AND CULTURAL RESOURCES

Under this alternative, the project would remain in its current state. Unlike the proposed project, with the No Build alternative there would be no significant adverse impacts to known or potential architectural resources within the study area. As the site would not be disturbed, there

would be no potential to disturb the precontact archaeological resources that could potentially be on the project site. However, as described in Chapter 3, "Historic and Cultural Resources," the proposed project also would not have significant adverse impacts on archaeological resources. A Phase 3 data recovery was completed in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) for the potentially sensitive portions of the project site to mitigate unavoidable adverse impacts of the proposed action. With the completion of artifact analysis and preparation of a final report, and the acceptance of the report's findings by OPRHP, the proposed project would not have significant adverse impacts on archaeological resources.

URBAN DESIGN AND VISUAL RESOURCES

The urban design and visual character of the project area would remain unchanged under the No Build Alternative. The project area would retain its existing appearance as a wooded lot and a residential property. Neither this alternative nor the Build Alternative would result in any significant adverse impacts to urban design and visual resources.

NATURAL RESOURCES

Under the No Build Alternative, it is assumed that there would be no change to the use of the project site. The vegetation community should continue to develop and mature and provide habitat to wildlife. However, the proposed project would not result in any significant adverse impacts to terrestrial natural resources, wetlands, aquatic resources, endangered species, threatened species, or species of special concern.

WATERFRONT REVITALIZATION PROGRAM

Under the No Build Alternative, it is assumed that there would be no change to the use of the project site. Neither this alternative nor the Build Alternative would result in non-compliance with New York State's Coastal Management Program as expressed in New York City's approved Waterfront Revitalization Program.

TRANSPORTATION

In the No Build Alternative, there would be no new students, staff, or teachers traveling to the site, and the significant adverse traffic impacts would not occur at the following:

- The westbound, northbound, and southbound approaches at the signalized intersection of Bloomingdale Road and Woodrow Road during the morning and afternoon peak periods.

However, as described in Chapter 16, "Mitigation," the traffic impacts with the proposed project could all be mitigated. Neither this alternative nor the Build Alternative would result in any significant adverse pedestrian impacts.

AIR QUALITY

The No Build Alternative would not result in any additional air pollutant emissions at the proposed site. There would also be no additional vehicle trips to and from the proposed site. Therefore, like the proposed project, the No Build Alternative would not result in a significant adverse impact on air quality.

NOISE

With the No Build alternative, the increase in noise resulting from the proposed project would not occur. However, neither this alternative nor the Build Alternative would result in any significant adverse noise impacts.

SHADOWS

Under this alternative, there would be no new development on the project site and therefore there would be no incremental changes to shadows cast from the site. However, the proposed project would not result in any significant adverse shadow impacts.

SOIL AND GROUNDWATER

With the No Build Alternative, no significant change is anticipated to take place in the project area. However, it would remain contaminated and would not be remediated as with the proposed project.

INFRASTRUCTURE AND ENERGY

As no development would occur with the No Build alternative there would be no additional water or energy used at the site, or wastewater or solid waste generated at the site. Like the proposed project, the No Build Alternative would have no significant adverse infrastructure impacts.

GREENHOUSE GAS (GHG) EMISSIONS

As no development would occur with the No Build alternative, there would be no GHG emissions from vehicle use associated with the proposed school, operation of the natural gas backup hot water boiler, use of grid electricity to supplement on-site renewable electricity production, generation of waste, construction activities, or use of construction materials whose production is GHG intensive. The No Build alternative would not generate GHG emissions and would therefore not have an effect on the City's GHG reduction goal. Unlike the proposed project, the No Build Alternative would not result in new and advanced renewable energy sources and it would not provide local students with the opportunity to learn through interaction with their school environment about sustainability and strategies to reduce GHG emissions.

CONSTRUCTION

The No Build Alternative would avoid the temporary construction impacts attributable to the proposed project. However, in addition to being relatively short-term, the construction effects of the proposed project would be addressed (e.g., through dust-control measures and adherence to noise regulations). The No Build Alternative would avoid the temporary increase in truck traffic and construction-related noise, but would not provide the much needed new school facilities.

PUBLIC HEALTH

The No Build Alternative would not be expected to exceed accepted City, state, or federal public health standards in the areas of air quality, construction, solid waste management practices, odors, and noise. Like the proposed project, the No Build Alternative would not result in significant adverse impacts on public health.

C. SITE ACCESS ALTERNATIVE

Under this alternative, the project site would be developed with the proposed primary school facility (P.S. 62R) containing approximately 444 seats for students in pre-kindergarten through fifth grades. The proposed school building and site plan would be very similar to the proposed project; the building footprint and location of the two outdoor recreational areas would generally be the same as with the proposed project. The main bus drop off/pick up location would be from a new internal access roadway. However, under the Site Access Alternative, the new internal driveway would have a different configuration than the proposed project. Under this alternative, the new internal roadway would be L-shaped, entering from Crabtree Avenue and exiting onto Bloomingdale Road. Like the proposed project, a minimum of 25 on-site parking spaces would be provided for the school's faculty under this alternative. It is assumed these parking spaces would be provided in the southeast portion of the site and along the new internal roadway.

Overall, it is expected that this alternative would have similar impacts to the proposed project. As with the proposed project, the Site Access Alternative would not result in adverse impacts to land use, zoning, and community character, parking, transit, air quality, noise, shadows, soil and groundwater conditions, infrastructure and energy, natural resources, or public health, or with respect to the waterfront revitalization program or greenhouse gas emissions.

As with the proposed project, the Site Access Alternative would have the potential to disturb archaeological resources. A Phase 3 data recovery has been completed in consultation with OPRHP for the potentially sensitive portions of the project site to mitigate unavoidable adverse impacts of the proposed action. Analysis of the recovered artifacts is currently underway but no additional fieldwork at the project site is warranted. With the completion of artifact analysis and preparation of a final report, and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources.

As with the proposed project, the Site Access Alternative would have the potential to generate additional traffic trips. However, with the proposed mitigation measures no significant adverse impacts would occur as a result of the Site Access Alternative.

LAND USE, ZONING AND COMMUNITY CHARACTER

Under the Site Access Alternative, it is assumed that the project site would be developed with a new, approximately 67,000 gross-square-foot (gsf) school that would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on a wing that would rise approximately 55 feet in height. The proposed school building would be constructed on the western portion of the site, and outdoor play areas would be constructed on the northern and southern sides of the site. The main bus drop off/pick up location would be from a new internal L-shaped roadway, entering from Crabtree Avenue and exiting onto Bloomingdale Road.

Under the Site Access Alternative, as with the proposed project, the proposed school would be compatible with the surrounding uses, which are primarily residential, and would be surrounded by landscaping. As with the proposed project, the school facility to be constructed under the Site Access Alternative would exceed the 50-foot maximum building height and required side setbacks, and modifications with respect to the existing topography and the removal of trees would be required. Therefore, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development to permit the project to proceed. In addition, authorization from the City Planning Commission (CPC) would be required under the South Richmond Development (SRD) District regulations. Therefore, as with the proposed project,

there would be no significant adverse land use, zoning, or community character impacts under the Site Access Alternative.

HISTORIC AND CULTURAL RESOURCES

Like the proposed project, the Site Access Alternative would require excavation or disturbance to the project site. As described in Chapter 3, "Historic and Cultural Resources," a Phase 3 data recovery has been completed in consultation with OPRHP for the potentially sensitive portions of the project site to mitigate significant adverse impacts of the proposed action. Analysis of the recovered artifacts is currently underway but no additional fieldwork at the project site is warranted. With the completion of artifact analysis and preparation of a final report, and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources.

URBAN DESIGN AND VISUAL RESOURCES

As described above, the Site Access Alternative involves one notable difference in the site plan as compared to the proposed project—under this alternative, the new internal roadway would be L-shaped, entering from Crabtree Avenue and exiting onto Bloomingdale Road. With both the proposed project and the Site Access Alternative, the new school building would be expected to positively affect the character of the project site or surrounding area by redeveloping it with a new school building, playgrounds, and parking that would add new pedestrian activity to the project site. While the new school building would have a different bulk and massing from other buildings in the study area, the school's design and location on the project site have been developed to visually reduce the perceived height and size of the building by pedestrians from nearby locations in the study area. Therefore, like the proposed project, the Site Access Alternative would not result in any significant adverse urban design or visual resources impacts.

NATURAL RESOURCES

With both the proposed project and the Site Access Alternative, it is assumed that the entire project site would be cleared and graded and a new school, playgrounds, and a parking area and roadway would be constructed on the site. With both the proposed project and the Site Access Alternative, the SCA will develop a tree replacement plan for review and approval by the Department of Parks and Recreation, Department of Buildings, and the New York City Department of City Planning prior to any land clearing activities, in accordance with the requirements of the SRD District and the requirements for street tree planting. As with the proposed project, the Site Access Alternative would not result in any significant adverse impacts to terrestrial natural resources, wetlands, aquatic resources, endangered species, threatened species, or species of special concern.

WATERFRONT REVITALIZATION PROGRAM

Neither the Site Access Alternative nor the proposed project would result in non-compliance with New York State's Coastal Management Program as expressed in New York City's approved Waterfront Revitalization Program.

TRAFFIC AND PARKING

Under the Site Access Alternative, vehicular access to the project site would be provided by a one-way internal roadway with entry from Crabtree Avenue and exit onto Bloomingdale Road north of

Woodrow Road. Intersection level of service for the signalized and unsignalized intersections are presented in **Tables 17-1** and **17-2**, respectively. Similar to the proposed project, for the streets around the site, capacities at a majority of the approaches would be sufficient to accommodate the project-generated trips with the Site Access Alternative. However, based on the impact criteria, the Site Access Alternative could result in significant adverse impacts at the following intersection approaches/lane-groups during the two peak hours analyzed:

- The westbound approach of Bloomingdale Road and Woodrow Road intersection during the morning peak period, and the northbound and southbound approaches during the morning and afternoon peak periods. The impacts at these approaches would be mitigated with similar mitigation measures as identified for the Build condition of the proposed project.

Table 17-1

2015 No Build and Site Access Alternative Conditions Level of Service Analysis

Signalized Intersections

	Morning Peak Hour								Afternoon Peak Hour							
	2015 No Build				2015 Site Access Alternative				2015 No Build				2015 Site Access Alternative			
Intersection / Approach	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Arthur Kill Road and Bloomingdale Road																
Eastbound	T	0.12	12.2	B	T	0.12	12.2	B	T	0.21	13.0	B	T	0.21	13.0	B
	R	0.28	13.9	B	R	0.28	13.9	B	R	0.39	15.3	B	R	0.39	15.3	B
Westbound	LT	0.24	13.3	B	LT	0.24	13.4	B	LT	0.20	12.9	B	LT	0.20	13.0	B
Northbound	LR	0.58	28.0	C	LR	0.59	25.1	C	LR	0.57	24.7	C	LR	0.58	24.9	C
	Intersection		18.3	B	Intersection		18.4	B	Intersection		18.0	B	Intersection		18.1	B
West Service Road and Bloomingdale Road																
Eastbound	LR	0.06	20.7	C	LR	0.06	20.7	C	LR	0.32	23.9	C	LR	0.32	23.9	C
Westbound	L	0.37	24.7	C	L	0.42	25.5	C	L	0.61	30.0	C	L	0.64	31.0	C
	T	0.09	20.9	C	T	0.09	20.9	C	T	0.13	21.3	C	T	0.13	21.3	C
	R	0.46	26.6	C	R	0.46	26.6	C	R	0.56	29.1	C	R	0.56	29.1	C
Northbound	LT	0.52	30.6	C	LT	0.53	30.8	C	LT	0.55	31.9	C	LT	0.55	32.1	C
Southbound	TR	0.47	29.0	C	TR	0.48	29.2	C	TR	0.70	35.0	D	TR	0.70	35.3	D
	Intersection		27.4	C	Intersection		27.6	C	Intersection		30.4	C	Intersection		30.8	C
Woodrow Road and Bloomingdale Road																
Eastbound	LTR	0.03	32.4	C	LTR	0.03	32.4	C	LTR	0.03	32.4	C	LTR	0.03	32.4	C
Westbound	LTR	0.81	43.6	D	LTR	0.90	54.6	D+	LTR	0.54	30.8	C	LTR	0.61	32.5	C
Northbound	LTR	0.90	44.4	D	LTR	1.02	68.3	E+	LTR	1.01	62.9	E	LTR	1.10	>80	F+
Southbound	LTR	0.91	49.3	D	LTR	1.35	>80	F+	LTR	0.90	45.4	D	LTR	1.42	>80	F+
	Intersection		45.7	D	Intersection		>80	F	Intersection		50.6	D	Intersection		>80	F
Clay Pit Road and Bloomingdale Road																
Eastbound	LR	0.19	17.5	B	LR	0.21	17.7	B	LR	0.35	19.6	B	LR	0.37	19.8	B
Northbound	LT	0.46	17.3	B	LT	0.52	18.3	B	LT	0.52	18.4	B	LT	0.57	19.3	B
Southbound	TR	0.58	19.5	C	TR	0.65	21.2	C	TR	0.65	21.2	C	TR	0.73	23.8	C
	Intersection		18.4	B	Intersection		19.6	B	Intersection		19.9	B	Intersection		21.4	C
Sharrots Road and Bloomingdale Road																
Eastbound	LR	0.24	15.4	B	LR	0.26	15.6	B	LR	0.23	15.3	B	LR	0.25	15.5	B
Northbound	LT	0.40	10.6	B	LT	0.44	11.1	B	LT	0.48	11.6	B	LT	0.52	12.1	B
Southbound	TR	0.42	10.8	B	TR	0.47	11.4	B	TR	0.49	11.6	B	TR	0.55	12.4	B
	Intersection		11.4	B	Intersection		11.9	B	Intersection		12.1	B	Intersection		12.7	B
Woodrow Road and Huguenot Avenue																
Eastbound	L	0.37	14.4	B	L	0.40	15.0	B	L	0.28	13.3	B	L	0.30	13.7	B
	TR	0.36	13.4	B	TR	0.40	13.9	B	TR	0.53	16.0	B	TR	0.57	16.8	B
Westbound	L	0.33	13.9	B	L	0.35	14.3	B	L	0.21	12.6	B	L	0.22	12.9	B
	T	0.28	12.4	B	T	0.31	12.8	B	T	0.37	13.5	B	T	0.40	13.8	B
	R	0.15	11.3	B	R	0.15	11.3	B	R	0.09	10.8	B	R	0.09	10.8	B
Northbound	LTR	0.81	25.8	C	LTR	0.83	27.2	C	LTR	0.92	39.4	D	LTR	0.94	43.9	D
Southbound	LTR	0.51	15.3	B	LTR	0.52	15.5	B	LTR	0.53	15.6	B	LTR	0.53	15.7	B
	Intersection		17.4	B	Intersection		17.9	B	Intersection		21.3	C	Intersection		22.6	C

Note:
L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.
+ implies a significant adverse impact.

Table 17-2
2015 No Build and Site Access Alternative Conditions Level of Service Analysis
Unsignalized Intersections

	Morning Peak Hour								Afternoon Peak Hour							
	2015 No Build				2015 Site Access Alternative				2015 No Build				2015 Site Access Alternative			
Intersection / Approach	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Crabtree Avenue – McBaine Avenue and Bloomingdale Road																
Eastbound	LTR	0.21	23.4	C	LTR	0.46	>50	F	LTR	0.09	21.0	C	LTR	0.17	38.6	E
Westbound	LTR	0.35	25.1	D	LTR	0.81	>50	F	LTR	0.17	23.6	C	LTR	0.41	>50	F
Northbound	LTR	0.00	8.2	A	LTR	0.11	8.8	A	LTR	0.00	8.4	A	LTR	0.10	9.1	A
Southbound	LTR	0.05	8.9	A	LTR	0.06	9.4	A	LTR	0.02	8.7	A	LTR	0.02	9.3	A
Sharrots Road and East Service Road																
Eastbound	LT	--	7.9	A	LT	--	8.0	A	LT	--	8.6	A	LT	--	8.6	A
Westbound	TR	--	8.3	A	TR	--	8.5	A	TR	--	8.5	A	TR	--	8.7	A
Northbound	LT	--	8.2	A	LT	--	8.3	A	LT	--	8.4	A	LT	--	8.5	A
	TR	--	7.4	A	TR	--	7.5	A	TR	--	8.0	A	TR	--	8.1	A
	Intersection		8.0	A	Intersection		8.2	A	Intersection		8.4	A	Intersection		8.5	A
Sharrots Road and West Service Road																
Eastbound	ER	--	7.5	A	ER	--	7.6	A	ER	--	8.1	A	ER	--	8.2	A
Westbound	EL	--	8.9	A	EL	--	9.1	A	EL	--	8.7	A	EL	--	8.9	A
Southbound	LT	--	8.0	A	LT	--	8.0	A	LT	--	8.1	A	LT	--	8.2	A
	TR	--	7.7	A	TR	--	7.8	A	TR	--	7.9	A	TR	--	7.9	A
	Intersection		8.4	A	Intersection		8.5	A	Intersection		8.4	A	Intersection		8.4	A
School Exit and Bloomingdale Road (Build Only)																
Eastbound	--	--	--	--	LTR	0.35	17.7	C	--	--	--	--	LTR	1.06	>50	F

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

The Site Access Alternative would result in the eastbound and westbound approaches at the Bloomingdale Road and Crabtree Avenue intersection to operate at LOS E or worse. However, based on the impact criteria for unsignalized intersections identified in the 2010 *CEQR Technical Manual*, the increase in delays at the eastbound and westbound approaches between the No Build and Site Access Alternative conditions would not be considered significant adverse impacts because there are less than 90 vehicles per hour identified at each of these approaches during the morning and afternoon peak hours.

In addition, delay in excess of mid-LOS D was identified at the eastbound approach of the newly-created unsignalized intersection of project exit driveway on Bloomingdale Road with the Site Access Alternative. The service conditions at this unsignalized intersection could be improved by installing a new traffic signal. The installation of new traffic signal would require detailed Signal Warrant Studies, which would be subject to review and approval from DOT.

With both the proposed project and the Site Access Alternative, the proposed school would generate a demand of approximately 23 parking spaces by faculty/staff commuting by auto and a minimum of 25 on-site parking spaces would be provided. Thus, neither the proposed project nor the Site Access Alternative would result in significant adverse impacts to the supply and demand of on-street parking in the study area.

With the Site Access Alternative, on-street parking demand would not increase. However, currently Crabtree Avenue is not wide enough to efficiently accommodate and process the two-way peak hour traffic volumes. Curbside parking along Crabtree Avenue would likely need to be eliminated between Bloomingdale Road and Trina Lane to accommodate the two-way traffic flow as well as to accommodate adequate turning radii for the school buses.

TRANSIT AND PEDESTRIANS

The Site Access alternative, similar to the proposed project, would not result in any significant impacts to transit or pedestrian operations.

AIR QUALITY

Neither the Site Access Alternative nor the proposed project would result in any significant adverse impacts on air quality. The maximum peak hour vehicle trips at any intersection would be lower with the Site Access Alternative than with the proposed project. Therefore, like the proposed project, the Site Access Alternative would not result in carbon monoxide (CO) or particulate matter (PM) concentrations that would exceed applicable standards or thresholds. As with the proposed project, the school in the Site Access Alternative would mainly rely on solar and geothermal heat and hot water systems, which would not affect air quality. The backup natural gas boiler system would be the same as with the proposed project and based on the 2010 *CEQR Technical Manual* screening analysis, described in Chapter 8, "Air Quality," it would not have the potential for a significant adverse impact.

NOISE

Under the Site Access Alternative, the new internal driveway would have a different configuration than the proposed project. Under this alternative, the new internal roadway would be L-shaped, entering from Crabtree Avenue and exiting onto Bloomingdale Road, which could potentially result in traffic-related noise impacts to the backyards (and rear-facing windows) of residences adjacent to the L-shaped driveway on Crabtree Lane. In addition, the car and bus traffic that would be generated on Crabtree Avenue as a result of the alternative site access configuration could potentially result in noise impacts at residences along Crabtree Avenue.

A quantitative analysis was performed to determine whether noise impacts would occur at these locations with the Site Access Alternative. As a result, noise impacts could potentially occur at backyards (and rear-facing windows) of residences adjacent to the L-shaped driveway on Crabtree Lane and at residences along Crabtree Avenue. These potential impacts and proposed mitigation measures are discussed below.

RESIDENTIAL BUILDINGS ALONG CRABTREE LANE

A field survey was conducted to examine window/AC conditions to the potentially impacted residential buildings. Based upon the field observations, these residential buildings have double-paned windows and alternative ventilation (i.e., central air conditioning). As a result, even during warm weather conditions, interior noise levels would be approximately 30-35 dBA less than exterior noise levels. With the existing double-glazed windows and alternative ventilation, predicted interior noise levels associated with the Site Access Alternative would be expected to be less than the 45 dBA $L_{10(1)}$ interior noise level CEQR guideline.

RESIDENTIAL BUILDINGS ALONG CRABTREE AVENUE

For residential buildings with double-glazed windows and alternative ventilation where a potential impact is possible, predicted interior noise levels associated with the Site Access Alternative would be expected to be less than the 45 dBA $L_{10(1)}$ interior noise level CEQR guideline. For residential buildings without double-glazed windows and alternative ventilation where a potential impact is possible, the SCA would provide storm windows or double-glazed windows and alternative

ventilation measures (i.e., window air conditioning units) as a mitigation measure, if the Site Access Alternative were approved.

SHADOWS

The shadow effects from the Site Access Alternative would be similar to the proposed project and would not result in any significant adverse shadow impacts.

SOIL AND GROUNDWATER

Any development proposed for the project site would be developed in accordance with applicable regulations and like the proposed project would result in no significant adverse soil and groundwater impacts.

INFRASTRUCTURE AND ENERGY

Like with the proposed project, the Site Access Alternative would increase demand for water, sanitation and solid-waste services. However, the increased demand would be minimal as compared to city-wide demand and would be met by existing infrastructure and utility systems. Like the proposed project, the Site Access Alternative would have no significant adverse infrastructure impacts.

GREENHOUSE GAS (GHG) EMISSIONS

The GHG emissions and strategies to reduce those emissions would be the same with the proposed project and the Site Access Alternative, as the overall number of project generated vehicle trips, on-site fuel use for heating, and use of off-site produced electricity would be the same. Like the proposed project, the Site Access Alternative would be consistent with the City's GHG reduction goals.

CONSTRUCTION

Construction of the Site Access Alternative would result in temporary disruptions to the surrounding area. As with the proposed project, under the Site Access Alternative the construction traffic levels are expected to be similar to those identified for the proposed project.

As with the proposed project, it is possible that significant adverse traffic impacts could occur at some or many of area intersections during construction under the Site Access Alternative, and measures recommended to mitigate impacts associated with the operation of the proposed school could be implemented during construction in order to alleviate construction traffic impacts.

Like the proposed project, construction of the Site Access Alternative would comply with applicable City regulations (i.e., noise and dust control measures), and no significant adverse impacts would result.

PUBLIC HEALTH

The Site Access Alternative would not be expected to exceed accepted City, state, or federal public health standards in the areas of air quality, construction, solid waste management practices, odors, and noise. Like the proposed project, the Site Access Alternative would not result in significant adverse impacts on public health. ✷

Chapter 18: Conceptual Analysis—Proposed Project with Woodrow Road Widening

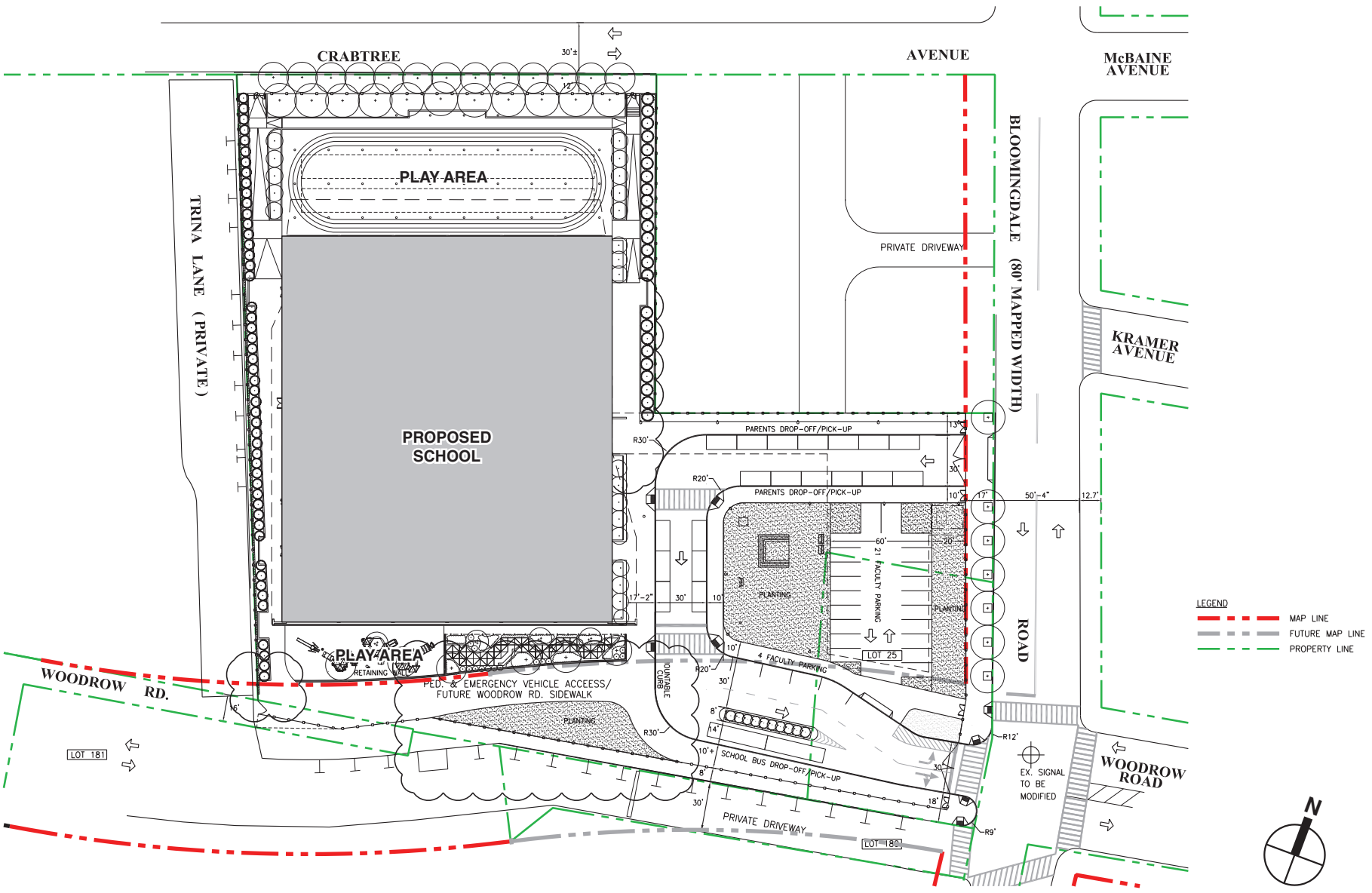
Independent from the proposed school project, the New York City Department of Transportation (DOT) is considering a street improvement project that involves a widening and extension of Woodrow Road west of Bloomingdale Road. This street improvement project includes widening Woodrow Road to 100 feet (including a segment adjacent to the project site), and extending Woodrow Road to the west, creating new intersections with Gladwin Avenue and Turner Street and providing access to the West Shore Expressway Service Road. With the future widening of Woodrow Road to 100 feet, the southernmost portion of the project site would become part of the widened roadway and modifications would be required to the site plan of the proposed school ("Modified Site Plan"). The Modified Site Plan is shown alongside the proposed site plan in Figure 18-1.

At this time, DOT's Woodrow Road widening and extension project is in the planning stages, and the timing of its implementation in not known. However, it is anticipated that DOT's project, if approved, would likely be implemented after the proposed school is in operation (i.e., 2015). As described in Chapter 1, Project Description," the site plan of the proposed school project has been designed to accommodate the potential future widening of Woodrow Road. Thus, when the Woodrow Road widening and extension project advances, modifications would be required along the southern edge of the school site. The size and location of the proposed school building and the playground areas on the site would not change with the future widening of Woodrow Road. The required site modifications include: the removal of the southernmost segment of the internal access roadway; the relocation of the school bus drop-off and pick-up area and the parent drop-off and pick-up area; the relocation of some staff parking spaces; and the removal of some walkways and landscaped areas.

With the removal of the southernmost segment of the internal access roadway, the U-shaped roadway would become L-shaped, and vehicles would exit the roadway west of the intersection with Bloomingdale Road, rather than at the Woodrow Road/Bloomingdale Road intersection as would occur with the proposed site plan. With the Modified Site Plan, the school bus drop-off and pick-up area would be located along the internal access roadway, adjacent to the proposed school building, and the parent drop-off and pick-up area would be located west-bound on Woodrow Road, along the southern edge of the project site. As with the proposed site plan, the Modified Site Plan would accommodate a minimum of 25 on-site parking spaces. The Modified Site Plan could potentially accommodate up to 33 parking spaces, pending approval of the Fire Department of New York (FDNY). A 15-foot sidewalk would be provided along the southern edge of the project site along Woodrow Road.

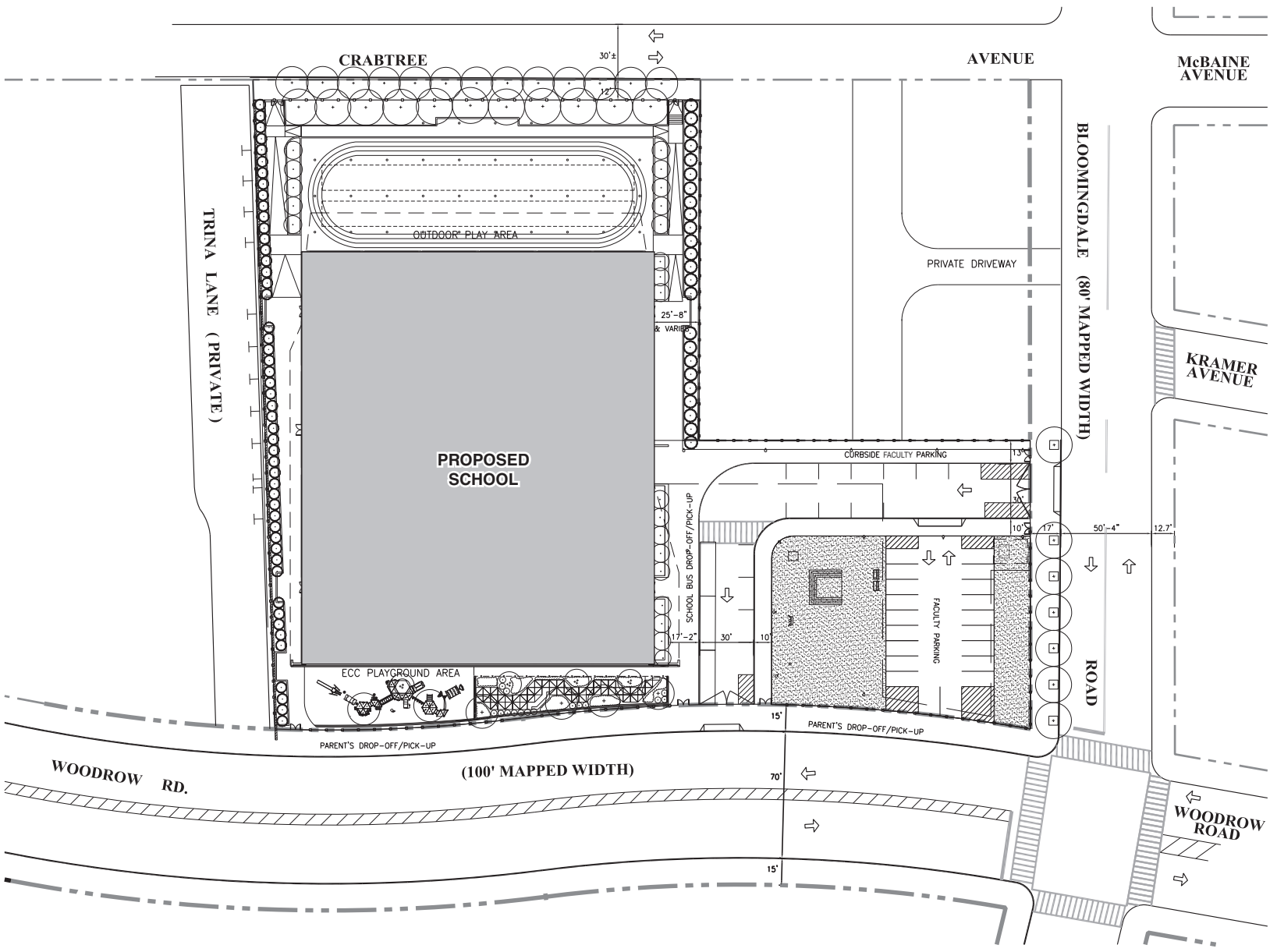
DOT's proposed widening and extension of Woodrow Road would require discretionary actions, including street mapping and property acquisitions, and would be subject to a separate public review and approval process, including the City's Uniform Land Use Review Procedure (ULURP) and review under City Environmental Quality Review (CEQR). The environmental review for that project would require a traffic study that would account for development of the

Proposed Site Plan



NOTE: For Illustrative Purposes

Modified Site Plan (with Woodrow Road Widening)



NOTE: For Illustrative Purposes

SCA P.S. 62R, Staten Island

Proposed Site Plan and Modified Site Plan
Figure 18-1

proposed P.S. 62 project as well as other planned developments in the area. As the Woodrow Road widening and extension project is in the planning stages and capital funds are not yet available for its implementation, and because it would require discretionary actions and be subject to a separate public review and approval process, this chapter provides a qualitative assessment of the potential environmental impacts that could result from the Modified Site Plan as compared with the proposed site plan.

As discussed below, it is expected that the Modified Site Plan would have similar impacts to the proposed site plan. As with the proposed site plan, the Modified Site Plan is not expected to result in adverse impacts to land use, zoning, and community character, urban design and visual resources, natural resources, parking, transit, air quality, shadows, soil and groundwater conditions, infrastructure and energy, or public health, or with respect to the waterfront revitalization program or greenhouse gas emissions. The modifications to the site plan could potentially result in significant increases in traffic-related noise to residences adjacent to Woodrow Road. For any residential buildings without double-glazed windows and alternative ventilation where a potential impact is possible, mitigation is likely to be provision of storm windows or double-glazed windows and alternative ventilation measures (i.e., window air conditioning units). As with the proposed project, the Modified Site Plan would have the potential to disturb archaeological resources, and additional traffic trips would be generated by the proposed school. However, with the proposed mitigation measures no significant adverse impacts with respect to traffic or archaeological resources would occur as a result of the Modified Site Plan.

A. LAND USE, ZONING AND COMMUNITY CHARACTER

With the Modified Site Plan, there would be no change to the proposed program or the design or location of the proposed school building or playground areas as compared with the proposed site plan. The project site would be developed with a new, approximately 67,000 gross-square-foot (gsf) school that would be two stories (approximately 29 feet) in height with an extension of photovoltaic panels on a wing that would rise approximately 55 feet in height. The proposed school building would be constructed on the western portion of the site, and outdoor play areas would be constructed on the northern and southern sides of the site. As described above, with the Modified Site Plan the internal access roadway would be L-shaped, with the school bus drop-off and pick-up area provided along the internal access roadway, adjacent to the proposed school building, and the parent drop-off and pick-up area provided on Woodrow Road, along the southern edge of the project site.

With the Modified Site Plan, as with the proposed site plan, the proposed school would be compatible with the surrounding uses, which are primarily residential, and would be surrounded by landscaping. As with the proposed site plan, the school facility to be constructed with the Modified Site Plan would exceed the 50-foot maximum building height and required side setbacks, and modifications with respect to the existing topography and the removal of trees would be required. To permit the project to proceed, the SCA would seek approval of a zoning override from the Deputy Mayor for Economic Development. In addition, authorization from the City Planning Commission (CPC) would be required under the South Richmond Development (SRD) District regulations. Therefore, there would be no significant adverse land use, zoning, or community character impacts with the Modified Site Plan.

B. HISTORIC AND CULTURAL RESOURCES

The proposed project, with either the proposed site plan or the Modified Site Plan, would require excavation or disturbance in three archaeologically sensitive areas. As described in Chapter 3, "Historic and Cultural Resources," a Phase 3 data recovery has been completed in consultation with New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) for the potentially sensitive portions of the project site to mitigate significant adverse impacts of the proposed action. Analysis of the recovered artifacts is currently underway but no additional fieldwork is warranted at the project site. With the completion of artifact analysis and preparation of a final report, and the acceptance of the report's findings by OPRHP, there would be no significant adverse impacts on archaeological resources, with either the proposed site plan or Modified Site Plan.

C. URBAN DESIGN AND VISUAL RESOURCES

As described above, with the future widening of Woodrow Road to 100 feet, the southernmost portion of the project site would become part of the widened roadway and modifications would be required along the southern edge of the school site.

The Modified Site Plan involves one notable difference as compared to the proposed site plan—the new internal access roadway would be L-shaped rather than U-shaped, and vehicles would exit onto Woodrow Road west of the intersection with Bloomingdale Road rather than exiting at the Woodrow Road/Bloomingdale Road intersection. With the Modified Site Plan, the new school building would be set back from the Woodrow Road sidewalk by approximately 22 to 36 feet, as compared to the 70- to 85-foot set back from Woodrow Road under the proposed site plan.

With the future widening of Woodrow Road, the lot area of the project site would be reduced from 139,924 square feet (proposed site plan) to 115,875 square feet (Modified Site Plan). However, as shown in Table 18-1, the zoning floor area of the proposed school would be in compliance with the applicable floor area requirements with both the proposed site plan and Modified Site Plan.

Table 18-1
Project Site Zoning

			Proposed Site Plan		Modified Site Plan	
Zoning District	**Maximum Allowable FAR**	**Proposed ZFA**	**Lot Area**	**Maximum Allowable ZFA**	**Lot Area**	**Maximum Allowable ZFA**
R3-1; Special South Richmond Development District (Overlay Area H)	1.0 (community facility)	Approx. 42,300	139,924	139,924	115,875	115,875

Sources: SCA; Skidmore, Owings & Merrill, LLP; Zoning Resolution of the City of New York

With both the proposed site plan and the Modified Site Plan, the new school building would be expected to positively affect the character of the project site and surrounding area by redeveloping it with a new school building, playgrounds, and parking that would add new pedestrian activity to the project site. While the new school building would have a different bulk and massing from other buildings in the study area, the school's design and location on the project site have been

developed to visually reduce the perceived height and size of the building by pedestrians from nearby locations in the study area. Therefore, like the proposed site plan, the Modified Site Plan would not result in any significant adverse urban design or visual resources impacts.

D. NATURAL RESOURCES

With both the proposed site plan and the Modified Site Plan, it is assumed that the entire project site would be cleared and graded and a new school, playgrounds, and roadway and parking area would be constructed on the site. With both the proposed site plan and the Modified Site Plan, the SCA will develop a tree replacement plan for review and approval by the Department of Parks and Recreation, Department of Buildings, and the New York City Department of City Planning prior to any land clearing activities, in accordance with the requirements of the SRD District and the requirements for street tree planting. As with the proposed site plan, the Modified Site Plan would not result in any significant adverse impacts to terrestrial natural resources, wetlands, aquatic resources, endangered species, threatened species, or species of special concern.

E. WATERFRONT REVITALIZATION PROGRAM

Neither the proposed site plan nor the Modified Site Plan would result in non-compliance with New York State's Coastal Management Program as expressed in New York City's approved Waterfront Revitalization Program.

F. TRAFFIC AND PARKING

The widening of Woodrow Road at the project site would require the removal of the southernmost segment of the internal access roadway. With the Modified Site Plan, vehicles would exit the school site onto Woodrow Road, west of the intersection with Bloomingdale Road, rather than at the Woodrow/Bloomingdale intersection as with the proposed site plan. In addition, the school bus drop-off and pick-up area would be relocated along the internal access driveway and the parent drop-off and pick-up area would be relocated along Woodrow Road.

The extension of Woodrow Road to Route 440 would result in a redistribution of traffic in the study area given the new connections created on Woodrow Road with Gladwin Avenue and Turner Street and the West Shore Expressway Service Road. However, given that the majority of the project-generated traffic is expected to arrive from the north and south on Bloomingdale Road and from the east on Woodrow Road, the proposed extension of Woodrow Road is expected to have minimal effect on project trip distribution and assignments, and the project-generated trip assignments are anticipated to be the same or similar to those developed for the proposed site plan (discussed in Chapter 7, "Transportation"). Thus, similar to the proposed site plan, it is unlikely that there would be significant traffic impacts at the majority of study area intersections, with the exception of the Woodrow Road/Bloomingdale Road intersection. It is expected that as with the proposed site plan, the roadway improvements proposed on the northbound, southbound, and westbound approaches at the Woodrow Road/Bloomingdale Road intersection would still be required with the Modified Site Plan.

Both the proposed site plan and the Modified Site Plan would provide a minimum of 25 on-site parking spaces, which would be sufficient to accommodate the faculty/staff parking demand; the Modified Site Plan could potentially accommodate up to 33 on-site parking spaces, pending

FDNY approval. Thus, like the proposed site plan, there would be no significant impacts to the study area's parking supply and utilization with the Modified Site Plan.

G. TRANSIT AND PEDESTRIANS

With either the proposed site plan or the Modified Site Plan, the proposed project would not result in any significant impacts to transit or pedestrian operations.

H. AIR QUALITY

Neither the proposed site plan nor the Modified Site Plan would result in any significant adverse impacts on air quality. As discussed in Section F, "Traffic and Parking", the proposed extension of Woodrow Road is expected to have minimal effect on project trip distribution and assignments, and the project-generated trip assignments are anticipated to be the same or similar to those developed for the proposed site plan. Although the road widening would affect the street configuration, the predicted concentrations and concentration increments of carbon monoxide (CO) and particulate matter (PM) reported in Chapter 8, "Air Quality", would be similar to the levels that would result with the Modified Site Plan. Therefore, like the proposed site plan, the Modified Site Plan is not expected to result in CO or PM concentrations that would exceed applicable standards or thresholds. With either the proposed site plan or the Modified Site Plan, the proposed project would mainly rely on solar and geothermal heat and hot water systems, which would not affect air quality. The backup natural gas boiler system would be the same as with the proposed site plan and based on the 2010 *CEQR Technical Manual* screening analysis, described in Chapter 8, "Air Quality," it would not have the potential for a significant adverse impact.

I. NOISE

The size and location of the proposed play areas would be the same under both the proposed site plan and the Modified Site Plan. As described above, with the Modified Site Plan, the new internal roadway would be L-shaped, and vehicles would exit the internal roadway further west on Bloomingdale as compared with the proposed site plan. The school bus drop-off and pick-up area would be located along the internal access roadway, adjacent to the proposed school building, and the parent drop-off and pick-up area would be located west-bound on Woodrow Road, along the southern edge of the project site. As previously discussed, the project-generated trip assignments are anticipated to be the same or similar to those developed for the proposed site plan. However, the modifications to the site plan (i.e., new exiting point and relocated parent drop-off and pick-up area) could result in significant increases in traffic-related noise to residences adjacent to Woodrow Road. For those residential buildings with double-glazed windows and alternative ventilation, predicted interior noise levels associated with the Modified Site Plan are likely to be less than the 45 dBA $L_{10(1)}$ interior noise level CEQR guideline. For any residential buildings without double-glazed windows and alternative ventilation where a potential impact is possible, mitigation is likely to be provision of storm windows or double-glazed windows and alternative ventilation measures (i.e., window air conditioning units). A detailed assessment of this condition would be done in conjunction with the formal review for DOT's Woodrow Road widening and extension project.

J. SHADOWS

The shadow effects from the Modified Site Plan would be similar to the proposed site plan and would not result in any significant adverse shadow impacts.

K. SOIL AND GROUNDWATER

With both the proposed site plan and the Modified Site Plan, the proposed project would be developed in accordance with applicable regulations, and preventative measures, including a soil vapor barrier and a sub-slab depressurization system, are included as part of the proposed design. With these measures, no significant adverse impacts with respect to hazardous materials would occur as a result of the construction or operation of the proposed project.

L. INFRASTRUCTURE AND ENERGY

The proposed project, with either the proposed site plan or the Modified Site Plan, would increase demand for water, sanitation and solid-waste services. However, the increased demand would be minimal as compared to city-wide demand and would be met by existing infrastructure and utility systems. Like the proposed site plan, the Modified Site Plan would include a storm water retention system on-site, including three retention systems near the playground areas and open landscaped areas. In addition, roof detention would be provided to slow down runoff from the roof to the retention systems, and bio-retentions and/or bioswale for storm water management would be incorporated in the landscape design. Like the proposed site plan, the Modified Site Plan would have no significant adverse infrastructure impacts.

M. GREENHOUSE GAS (GHG) EMISSIONS

The GHG emissions and strategies to reduce those emissions would be the same with the proposed site plan and the Modified Site Plan, as the overall number of project generated vehicle trips, on-site fuel use for heating, and use of off-site produced electricity would be the same. Like the proposed project, the Modified Site Plan would be consistent with the City's GHG reduction goals.

N. CONSTRUCTION

At this time, there is no construction plan or schedule available from DOT for the Woodrow Road widening and extension project. Once available, the SCA would coordinate with DOT's construction plan for the widening of Woodrow Road. Any substantial modifications to the site plan would likely be made during times when school is not in session, such as during the summer, school vacations, or off-school hours. The SCA's preferred sequence for maintaining access to the school during the construction associated with the Woodrow Road widening and extension project would be the construction of the southern (east-bound) portion of Woodrow Road first, while maintaining a minimum travel lane from the school's internal access roadway to exit onto Bloomingdale Road. Then, when the southern portion of Woodrow Road is completed, the school access road could be connected to the southern portion of Woodrow Road temporarily while the northern portion of the street is under construction. It is expected that the Woodrow Road widening and extension project would require review and approval by DOT's Office of Construction Mitigation and Coordination (OCMC) to ensure that access is provided to the school, as well as nearby residences and businesses, at all times.

As with the proposed site plan, construction activities associated with the Modified Site Plan would result in temporary disruptions to the surrounding area. However, all construction activities would be in compliance with applicable City regulations (i.e., noise and dust control measures), and no significant adverse impacts would result.

O. PUBLIC HEALTH

The proposed project, with either the proposed site plan or the Modified Site Plan, would not be expected to exceed accepted City, state, or federal public health standards in the areas of air quality, construction, solid waste management practices, odors, and noise, and would not result in significant adverse impacts on public health. ✷

Chapter 19: Unavoidable Adverse Impacts

Unavoidable adverse impacts are defined as those that meet the following two criteria:

- There are no reasonably practicable mitigation measures to eliminate the impact.
- There are no reasonable alternatives to the proposed project that would meet the purpose and need of the action, eliminate the impact, and not cause other or similar significant adverse impacts.

It is anticipated that implementation of the measures described Chapter 15, "Mitigation" would mitigate all the potential significant adverse impacts associated with the proposed project. ✷

Chapter 20: Growth-Inducing Aspects of the Project

The proposed primary school facility would introduce a new 444-seat school facility to the Woodrow section of Staten Island, which has a growing residential population. The proposed school project is intended to serve students from the surrounding community and relieve pressure on local schools. The proposed project is not expected to induce growth in the area. ✷

Chapter 21: Irreversible and Irretrievable Commitment of Resources

There are manmade resources that would be expended with the proposed project. They are considered irretrievably and irreversibly committed, since reuse for some purpose other than the project is either not possible or is highly unlikely.

These resources include the land area used, as well as the materials, energy, and human effort required to construct the project. The actual construction materials used (concrete and metal, etc.) are included. In addition, there would also be the added demands on the local groundwater system and energy to operate the proposed facility; these demands, however, are not expected to be significant. Furthermore, the proposed project's design will include a number of specific components that would help minimize the project's energy use. ✷

A. INTRODUCTION

This document summarizes and responds to comments on the Draft Environmental Impact Statement ("DEIS"), issued by the New York City School Construction Authority (SCA) in August 2011. Oral and written comments were received during the public hearing held on August 17, 2011. Written comments were accepted from issuance of the Draft EIS through the public comment period which ended September 2, 2011.

Section B lists the elected officials, organizations, and individuals that provided relevant comments on the DEIS. Section C contains a summary of these relevant comments and a response to each. These summaries convey the substance of the comments made, but do not necessarily quote the comments verbatim. Comments are organized by subject matter and generally parallel the chapter structure of the DEIS.

B. LIST OF ELECTED OFFICIALS, ORGANIZATIONS, AND INDIVIDUALS WHO COMMENTED ON THE DEIS

ELECTED OFFICIALS

1. Andrew Lanza, Member of the New York State Senate, 24th Senate District, oral comments by District Operations Director Anthony Reinhart (Lanza)
2. James P. Molinaro, Staten Island Borough President, written submission dated September 13, 2011 (Molinaro)

ORGANIZATIONS

3. New York City Audubon, oral comments by Caryl Payer; written submission dated August 29, 2011 by Glenn Phillips (Audubon)

INDIVIDUALS

4. Frank Contrera, chairman, Community Board 3 Traffic and Transportation Committee, oral comments (Contrera)
5. Maria Law, oral comments (Law)
6. Danny Venuto, oral comments (Venuto)

C. COMMENTS AND RESPONSES

PROJECT REVIEW PROCESS AND PUBLIC PARTICIPATION

Comment 1: The timing of this meeting does not suit the needs of this community. A one p.m. meeting in the middle of August causes a significant inconvenience for those in the community who wish to attend. (Lanza)

Response: The public was able to provide written comments on the DEIS at any time during the 30-day comment period, as specified in the DEIS public hearing notice which was published in the Environmental Notice Bulletin, Staten Island Advance, New York Post, and the City Record.

PROPOSED DESIGN

Comment 2: The new school must be constructed in such a way as to facilitate, and in no way preclude or hamper, future construction of Woodrow Road, which appears on the City Map, but is not a built street. It is imperative that project attributes such as playgrounds, windmills, drywell infrastructure and so forth be situated within the site design so as to keep this 100-foot corridor clear of essential school components that would need to be removed later upon roadway construction. In addition, the elevation of the school itself as well as attendant retaining walls, handicap ramps and so forth within the project site must be adjusted upward to ensure that this road can be built at a later date. I thank you and look forward to follow up discussions culminating in a final design which serves both the education needs of Staten Island and the transportation needs of the public. (Molinaro)

Response: In response to this comment and discussions with the Staten Island Borough President's Office, the SCA has revised the preliminary school design to ensure that essential school components are outside of the mapped, 100-foot Woodrow Road corridor. The revised preliminary design is assessed in the Final Environmental Impact Statement (FEIS).

Comment 3: The projected north-south exposures of the proposed school spell danger to migrating birds if these walls are glass facades invisible to the birds and the interior courtyard, now designed as a vegetable garden, could also be a bird trap if not properly designed. It is imperative that given the close proximity of the Clay Pit Ponds Bird Conservation Area to the proposed school, that the school building be designed to minimize the potential for fatal bird/glass collisions. There are several tested and cost effective ways of reducing the reflectivity of glass surfaces, including the addition of texture to the glass to reduce transparency and the use of shading devices on the exterior and interior of the building to increase the visibility and reduce the bird's access to glass. Glass

facades can be angled from the vertical to reflect the ground instead of adjacent habitat or sky. Landscaping design can ensure that bird-attracting greenery is placed where it is not reflected in glass surfaces or alternatively, placed so closely adjacent to the glass that its reflection is obscured and even if birds fly from the greenery into the glass, their momentum will not be fatal. (Audubon)

Response: The proposed school building would not contain large glass facades. The east, west and north facades would consist of precast concrete panels with punched window openings. The east and west facades would be mostly solid and contain less than 10 percent glazing, much of which would be contained in recessed ground floor entrances. The north façade would contain a series of similarly-sized punched openings comprising less than 40 percent of the façade. The south façade would contain four horizontal ribbon window strips recessed 18 to 36 inches in the sloped façade. The façade itself would be clad in photovoltaic (PV) panels that contain an anti-reflective coating. This coating causes the façade to be dull in finish and non-reflective. The coating has been formulated for PV use near airports where reflections and glare are a significant concern.

The proposed school's courtyard would be treated in a manner similar to the main exterior facades, with pre-cast concrete panels on the facades facing east and north. The façade facing south would be clad in PV panels with recessed strip windows. The façade facing west would contain a greenhouse glazed with polycarbonate. Polycarbonate has a significantly lower level of reflectivity than standard insulated glazing. Through the incorporation of these design measures, the building should not serve as a hazard for birds.

TRANSPORTATION

Comment 4: The EIS states that there will only be 25 parking spaces, 23 of which will be for the staff of the school. That is 23 spots for a staff of at least 14 people. The EIS also states that should a road widening occur, this would result in the reconfiguration of these few parking spaces. Will the number of spaces be shrunken further? (Lanza)

Response: As discussed in Chapter 18 of the FEIS, DOT's proposed widening of Woodrow Road would result in modifications to the proposed school's site plan (the Modified Site Plan). With both the proposed site plan and the Modified Site Plan, a minimum of 25 on-site parking spaces would be provided. The Modified Site Plan could potentially accommodate up to 33 parking spaces, pending approval of the Fire Department of New York.

Comment 5: As proposed, the school includes 25 parking spots. When you factor in support staff, it will generate closer to 50 parking spots. The other 25 will end up parking on the side streets, taking up residents' spots. (Contrera)

Response: As shown in Table 7-10 and 7-11, the proposed school is expected to generate parking demand for approximately 23 faculty/staff vehicles. The proposed project would provide a minimum of 25 on-site parking spaces, which is expected to provide enough parking to accommodate the faculty parking demand without requiring the use of on-street parking.

Comment 6: The EIS states that "most streets bordering the project site do not have sidewalks." This location will certainly be a risk to the parents and children walking to the school. (Lanza)

Response: The proposed project includes the provision of new sidewalks around the perimeter of the project site. In addition, consistent with the pedestrian safety measures employed at all Department of Education public school facilities, school crossing guards will be provided during the morning and afternoon peak hours of school activities to provide safe pedestrian crossing maneuvers for students and parents accessing and exiting the school on foot.

Comment 7: You cannot widen Crabtree Avenue. We (Crabtree Avenue residents) already gave up 10 feet of our property to the City. It is not wide enough to begin with. We have been fighting with the Fire Department for years. You cannot take away any parking spots on Crabtree Avenue. There is a law that each residence must have two parking spots, one on the driveway and one on-street. Bringing buses down Crabtree Avenue will result in a traffic mess. This will hurt our property values. (Law)

Response: The commenter is referring to the conceptual site plan described as the Site Access Alternative in the DEIS. However, the preliminary design of the proposed school includes an internal access roadway that would allow vehicles to enter the project site via Bloomingdale Road and exit onto Woodrow Road. As currently proposed, the majority of the traffic related to the proposed school would not travel down Crabtree Avenue, and there would be no loss of parking on Crabtree Avenue.

Comment 8: Did the traffic study look at nearby P.S. 56? During drop off and pick up time at P.S. 56, cars are double parked on Kramer Avenue, even though there are no parking regulations, and blocking driveways. This creates dangerous conditions. Last year a motorcyclist was struck because of the double parked cars. Crabtree Avenue is not wide even enough for a two-way street, and now you want to put buses down it? Residents of the first couple houses on Crabtree Avenue will have difficulty coming in and out of their driveways due to the buses and traffic during school drop off. We have to do something about the traffic infrastructure first, before we build. (Contrera)

Response: With the proposed site plan, vehicles (private autos and buses) would drop-off and pick-up students in the internal access roadway avoiding double parking and

blocking driveways on the adjacent roadway network. With both the proposed and Modified Site Plan, vehicles accessing the school site are not expected to use Crabtree Avenue for student drop-offs and pick-ups; rather, vehicles would enter the project site via Bloomingdale Road and exit onto Woodrow Road after conducting the drop-off and pick-up activities within the project site.

Comment 9: Bloomingdale Road is a bus route – not only a City bus route but a school bus route for I.S. 34 and P.S. 56. If you are coming to Bloomingdale Road from Arthur Kill Road, you cannot make a left hand turn on Woodrow Road because oncoming traffic is backed up. Because of the light on Woodrow, traffic blocks the turn onto Clay Pit Road. Signal timing adjustments won't help. (Contrera)

Response: Chapter 16 "Mitigation" proposes mitigation measures (both signal timings adjustment and lane re-striping) to address the congestion at the Bloomingdale Road/Woodrow Road intersection. These measures include restriping the southbound approach to provide a separated left-turn lane and a separated through/right-turn lane.

Comment 10: There were approximately 50 – 75 dwellings just built on Turner Street and Crabtree Avenue. Your traffic study seems to have not accounted for that. Maybe you should revisit it. (Venuto)

Response: DCP's Staten Island office was consulted regarding the planned and anticipated No-Build developments. Please note that recent developments near Crabtree Avenue (i.e., Orchard Estates) consist of 24 new dwelling units (based on communications with a real estate agent representing Orchard Estates, as well as current building permits on file with the Department of Buildings). The No-Build and Build Analysis for the FEIS has been revised to account for traffic generated by these 24 new dwelling units in the vicinity of the project site.

CONSTRUCTION IMPACTS

Comment 11: Regarding the two year period designated for building the school, those months will call for up to 100 workers to be on site at various times. Will there be enough parking for them to do their job without inconveniencing the neighborhood? Perhaps within a quarter mile radius there will be, but those directly near the proposed school will suffer the greatest impact. (Lanza)

Response: As discussed in Chapter 7 "Transportation," there will be up to approximately 335 on-street parking spaces available in the ¼ mile study area in the future conditions. This available supply of parking spaces will be sufficient to accommodate the parking demand generated by workers during the construction phase.

ALTERNATIVES

Comment 12: The 16-acre Bricktown site would be more ideally suited for a new school than the proposed Crabtree site. Why is the Crabtree plan proceeding, which involves zoning variances, noise concerns and a land acquisition, when there is land already banked for the very purpose in close proximity to this property? The 16-acre site that is available would allow for a beautiful well-designed school that will have zero impact on the community. (Lanza)

Response: The proposed project is proceeding in response to the current and anticipated demand for elementary school seats in this area. The New York City Economic Development Corporation, on behalf of the City, has proposed a new mixed-use development at the 60-acre Charleston Municipal Site (also referred to as the Bricktown site), including a new park, senior housing, a public school, a library branch, and retail. The development proposal at this site is in the early stages of the planning process. Once a master plan is developed for site, the proposed development (including a school) would undergo a public review and approvals process, including environmental review. The SCA is considering the development of a new school at the Charleston Municipal Site at a later date, following completion of the required planning and approvals process associated with that site and subject to the availability of funding and the need for a school at that time. ✳

APPENDIX A
SHPO CORRESPONDENCE

OFFICE OF PARKS, RECREATION, HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

David A. Paterson
Governor

Carol Ash
Commissioner

December 07, 2009

Tami Rachelson
Deputy Director, Real Estate Services
New York City School construction Authority
30-30-Thomson Ave.
Long Island City, NY 11101

Re: NYCSCA
Potential School Site - Crabtree Ave
STATEN ISLAND, Richmond County
09PR05955

Dear Ms. Rachelson:

Thank your for requesting the comments of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) with regard to the potential for this project to affect significant historical/cultural resources. OPRHP has reviewed the document "Phase 1A Archaeological Documentary Study, New York City School Construction Authority: Crabtree Avenue Site, Block 7092, Lot 39, State Island, Richmond County, New York" prepared by AKRF in November 2009. As identified in that report, the parcel is located within the National Register (NR) Listed Sandy Ground Archaeological District. While there are many Listed NR Districts in New York, Sandy Ground is rare in that it is totally an archaeological district. Therefore we concur with the report recommendation that field testing of your project area should be undertaken.

However, since the site is already Listed, and previous testing on this parcel has identified intact deposits, this testing should not be considered Phase 1 testing (which is designed to determine if a site is even present). Rather we would recommend Phase 2 testing to help identify specific feature and deposit locations. Standard Phase 1 testing methods should not be employed at this time, but alternative methods should be considered which are more appropriate for providing the necessary information. Such methods typically include systematic close interval testing (preferably units rather than shovel test pits), a sample of larger units, the use of alternative methods to identify buried features (magnetometer, ground penetrating radar, etc.). OPRHP recommend's that your archaeological consultant develop a proposed testing methodology and submit it for our review and concurrence before commencing any field studies.

It is likely that any project at this location will have and Adverse Impact on the NR District and mitigation measures will need to be developed. The extent of such measures can only be determined once we have additional information on the specific location of

archaeological deposits and possible plans for the parcel. Please provide our office with copies of any plans you may have prepared for the project so that we will be able to advise you regarding the extent of impact once the additional investigation has been completed.

When responding, please be sure to refer to the OPRHP Project Review (PR) number noted above. Please contact me at extension 3291 if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

CC: Kennrick Ou, NYCSCA

OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
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May 24, 2011

Tami Rachelson
Deputy Director, Real Estate Services
New York City School construction Authority
30-30-Thomson Ave.
Long Island City, NY 11101

Re: NYCSCA
Potential School Site - Crabtree Ave
STATEN ISLAND, Richmond County
09PR05955

Dear Ms. Rachelson:

Thank your for requesting the comments of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) with regard to the potential for this project to affect significant historical/cultural resources. OPRHP has reviewed the document "Phase 2 Archaeological Investigation, New York City School Construction Authority: Crabtree Avenue Site, Block 7092, Lots 39 and 75, Staten Island, Richmond County, New York" prepared by AKRF in March 2011, along with responses provided by AKRF to some initial questions we had about the document. Based on this review, OPRHP concurs with the findings and recommendations of the report, that three locations within this area are likely to produce significant deposits and should be subjected to additional research if they can not be avoided. These are the Eastern an Western Shaft features identified in the southeast section of the parcel, and the northwest corner were intact deposits were identified despite a level of prior disturbance.

When responding, please be sure to refer to the OPRHP Project Review (PR) number noted above. Please contact me at extension 3291 if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

CC: Elizabeth Meade, AKRF (E-mail)

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
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September 13, 2011

Michael Pappalardo
AKRF
440 Park Avenue South
7th Floor
New York, NY 10016

Re: NYCSCA
Proposed School Site - Crabtree Ave
Block 7092, Lot 39
STATEN ISLAND, Richmond County
09PR05955

Dear Mr. Pappalardo:

Thank your for requesting the comments of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) with regard to the potential for this project to affect significant historical/cultural resources. OPRHP has reviewed the Archaeological Data Recovery Plan for this project prepared by AKRF on August 15, 2011. Based on this review, OPRHP concurs with the protocols set forth in that plan and recommends it be implemented to address the Adverse Impacts of your proposed

When responding, please be sure to refer to the OPRHP Project Review (PR) number noted above. Please contact me at extension 3291 if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

APPENDIX B
TREE SURVEY

SHEET 1 OF 2

GENERAL NOTES

1.ELEVATIONS AND ESTABLISHED GRADES SHOWN HEREON REFER TO THE BOROUGH OF STATEN ISLAND HIGH WATER MARK, WHICH IS 3.18 FEET ABOVE THE UNITED STATES COAST AND GEODETIC SURVEY DATUM AT SANDY HOOK, N.J.
2.ESTABLISHED GRADES SHOWN HEREON REFER TO TOP OF CURB. IF ESTABLISHED GRADES VARY SUBSTANTIALLY WITH EXISTING ELEVATIONS CONSULT WITH THE HIGHWAY DEPARTMENT BEFORE PROCEEDING WITH WORK.
3.SIZES AND LOCATIONS OF WATER MAINS SHOWN HEREON AS SUPPLIED BY THE DEPARTMENT OF WATER SUPPLY, BOROUGH OF STATEN ISLAND. THE LOCATIONS OF SERVICE CONNECTIONS, HYDRANTS AND WATER VALVES AS OBTAINED FROM FIELD MEASUREMENTS.
4.SIZES AND TYPES OF SEWERS SHOWN HEREON AS OBTAINED FROM THE BOROUGH OF STATEN ISLAND SEWER DEPARTMENT RECORDS. SEWER MANHOLE RIM ELEVATIONS AS OBTAINED FROM FIELD MEASUREMENTS. UNLESS INDICATED TO WHICH DENOTES APPROXIMATE LOCATION OR MANHOLE NOT FOUND IN FIELD. INFORMATION SHOWN IN SUBSURFACE IS OBTAINED FROM THE BOROUGH OF STATEN ISLAND SEWER DEPARTMENT RECORDS.
5.ELECTRIC INFORMATION SHOWN HEREON AS SUPPLIED BY THE CONSOLIDATED EDISON COMPANY OF NEW YORK.
6.TELEPHONE INFORMATION SHOWN HEREON AS SUPPLIED BY NEW TELEPHONE
7.FIRE ALARM INFORMATION SHOWN HEREON AS SUPPLIED BY THE NEW YORK CITY FIRE DEPARTMENT.
8.GAS LINE AND PRESSURE INFORMATION SHOWN HEREON AS SUPPLIED BY THE CONSOLIDATED EDISON COMPANY OF NEW YORK, SERVICE TO BUILDINGS.
9.GAS INFORMATION SHOWN HEREON AS SUPPLIED BY THE KEY SPAN COMPANY OF NEW YORK.
10.ONLY SITE UTILITIES AS PER SCA DRAWINGS.
11.THE LOCATIONS OF UNDERGROUND STRUCTURES ARE APPROXIMATE ONLY. THE INFORMATION SHOWN ON THE SURVEY PERTAINING TO UTILITIES AND SUBSTRUCTURES IS NOT CERTIFIED AS TO ACCURACY AND COMPLETENESS. CONTACT THE APPROPRIATE COMPANY OR MUNICIPAL DEPARTMENT BEFORE DIGGING.
12.THE OWNER, CONTRACTOR AND/OR THE AGENTS MUST NOTIFY THE APPROPRIATE UTILITY COMPANIES AND/OR AGENCIES AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH INDUSTRIAL CODE RULE 53.
13.NO INFORMATION EXISTING STREAMS, CREEKS, DITCHES OR WATER COURSES ON OR CROSSING PROPERTY SURVEYED.
14.ELEVATIONS AND GRADES SHOWN REFER TO THE BOROUGH OF STATEN ISLAND TOPOGRAPHIC BUREAU NORTH.
15.NOT ALL SUBSURFACE INFORMATION PLOTTED.

LEGEND

ASPH.....ASPHALT
BR.....BRICK
BSMT.....BASEMENT
CC.....CURB CUT
CCR.....CONCRETE CURB ROUND
CS.....CELLAR DOOR
CLF.....CHAIN LINK FENCE
CO.....CATCH BASIN CLEAN OUT
CONC.....CONCRETE
CRF.....CHAIN ROPE FENCE
CWA.....CELLAR WINDOW AREA
DR.....DRAIN
EL.....ELEVATION
FAB.....FIRE ALARM BOX
FC.....FILL CAP
FL EL.....FLOOR ELEVATION
GP.....GUARD POLE
GV.....GAS VALVE
IF.....IRON FENCE
INL.....CATCH BASIN INLET ELEVATION
INV.....SEWER INVERT ELEVATION
LP.....LIGHT POLE
MB.....MAIL BOX
MHU.....UNKNOWN MANHOLE
OF.....OIL FILL
OHW.....OVERHEAD WIRES
P.....POLE
PAVT.....PAVEMENT
PM.....PARKING METER
PMULT.....POLE, MULTIPLE USAGE
STUMP
TRAFFIC FLOW
PR.....PEDESTRIAN RAMP
RET.....RETAINING
RIM.....RIM ELEVATION SEWER MANHOLE
SFCR..STEEL FACED CURB ROUND
STY.....STORY
TB.....TOP OF BANK ELEVATION
TRAFFIC LIGHT
TEL.....TELEPHONE
TP.....TREE PIT
TRAFFIC SIGN
TW.....ELEVATION AT TOP OF WALL
UP.....UTILITY POLE
VU.....VALVE UNKNOWN
VLTU.....VAULT UNKNOWN
VP.....VENT PIPE
WV.....WATER VALVE
12"G.....GAS MAIN WITH SIZE
12"S.....SEWER MAIN WITH SIZE
12"W.....WATER MAIN WITH SIZE
ELECTRIC MANHOLE / VAULT
FIRE MANHOLE
GAS MANHOLE
SEWER MANHOLE
TELEPHONE MANHOLE
WATER MANHOLE
TRAFFIC VAULT
HYDRANT
TREE WITH SIZE
120.0 ESTABLISHED/LEGAL GRADE
B5 BORE HOLE
B2P OBSERVATION WELL

FLOOD HAZARD NOTE
THE PARCEL SURVEYED IS LOCATED IN AN AREA DESIGNATED AS ZONE X (AREA OF MINIMAL FLOOD HAZARD)
FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
COMMUNITY-PANEL NUMBER 360497 0011 F
COMMUNITY PANEL NUMBER 360497 0012 F
EFFECTIVE DATE SEPTEMBER 5, 2007

Parcel Area=139,924 SQ. FT.
Or 3.21221 Acres

Consultants:
Survey No: 63376-3
MONTROSE
SURVEYING CO., LLP.
CITY de LAND SURVEYORS
116 20 METROPOLITAN AVE • RICHMOND HILL NY 11418-1300 • (718) 846-0600

No.	Date	Revision
1		

Key Plan:
Block # 7092
Tentative Tax Lot 39

SCA Design Manager:	
Project Architect/Engineer:	
Discipline Lead:	
Designer:	
Drawn by: OLGA ARAMIAN	
Checked by: LUIS SANTACRUZ	
Design No or LUM No.: 061681	Facility Code:
Date: 05-05-11	

Project: P.S. 62
BOROUGH OF STATEN ISLAND
Address: CRABTREE AVE
BLOOMINGDALE ROAD
Drawing Title: TOPOGRAPHIC SURVEY

Drawing No.:
Sheets in Contract Set: of XXX
Sheets in DOB Set: of XXX

MARK K. MORRISON
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PS62 Site Tree Survey
Chris Syrett, Certified Arborist, Mark K. Morrison Landscape Architecture, PC

The Site
The site is located between Bloomingdale Road, Crabtree Avenue, Woodrow Road and Trina Lane in the Borough of Staten Island (Block 7092, Lots 39 and 75) and is comprised of a 2.8 acre wooded lot and a .34 acre residential lot with an existing house, garage and yard. The surrounding neighborhood is a mix of single family homes, attached homes and wooded parkland. The dumping of yard waste and some construction debris is evident inside the wooded lot along the road frontages.

The site lies within the Special South Richmond Development District (SRD) and as such falls under the Tree Regulations provisions of sections 107-32 through 107-323 as amended on 2/2/11.

The Assessment

The site inventory was performed on May 13, 2011. The tree assessment began in the northwest quadrant of the site near Crabtree Avenue and proceeded south to Woodrow Road. MKMLA utilized the topographic survey prepared by Montrose Survey Company dated 5/5/11 to locate all existing trees 6" diameter at breast height (DBH) or greater. MKMLA identified 26 trees mapped on the Montrose survey that are currently dead. There were additional trees on the survey that were less than 6" DBH and were not included in this survey. Finally, we surveyed 13 trees that were not on the survey. These unlisted trees are numbered NL1 to NL14 in our assessment. A subsequent site visit on June 7, 2011 was made to verify the data.

MKMLA used a 20' Ben Meadows diameter tape to verify the sizes of the surveyed trees.

The comprehensive list of surveyed trees, including information on each tree species, size and condition is can be found in Appendix A.

Analysis and Results

There are 621 trees on site that are 6"DBH or greater and 34% of the surveyed trees were non-native species. Taking in account the existing growing condition, woodland growth habit and habitat importance of the surveyed trees, MKMLA found that the majority of trees are in fair condition. There are also a number of trees that are in very good and good condition. In particular, there are several large *Quercus palustris* Pin oaks located near Woodrow Road that are 18" DBH and larger. The majority of surveyed trees have mostly highly branched habits common to mature woodland trees.

The woodland lot is comprised of four dominant tree species: *Prunus serotina* Black Cherry, *Acer rubrum* Red maple, *Robinia psuedoacacia* Black locust and *Sassafras albidum* Sassafras. *Fagus grandifolia* American beech, *Ailanthus altissima* and *Quercus palustris* Pin oak , *Paulownia tomentosa* Paulownia Tree and *Pupolus spp.* Polars are also present. The understory is largely dominated by *Rhus radicans* Poison Ivy and *Fallopia japonica* Japanese Knotweed. *Parthenocissus quinquefolia* Virginia creeper, *Smilacina racemosa* False solomon's seal, *Lonicera japonica* Japanesse honeysuckle are also present. No State or Federally Listed Rare and Threatened plants were observed during the survey.

The dominant and secondary tree species are largely light-loving pioneer species. This species makeup suggests that the lot was in the recent past an open field that until relatively recently- within the last forty years- succeeded to woodland. In addition, many of the species including the *Robinia, Prunus, Ailanthus and Pauwlonia* are well adapted to urban disturbance and former waste sites. The dominant presence of Fallopia and Rhus in the understory are also indicators of a formerly disturbed site.

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Recommendations

Given the potential footprint of the school and associated vehicular/pedestrian circulation system, early childhood development playground and play yard as well as the proposed removal of contaminated soil from the site, it will be difficult to save many of the trees on site. In addition, leaving isolated trees or small stands of trees that have grown under woodland conditions may not be aesthetically appropriate and may expose these trees to wind damage or windfall. More than a few of these trees display a woodland growth habit –highly raised canopies or twisted trunks- that may not work as elements within a formal landscape. MKMLA would, however, recommend that wherever possible several of the larger and better formed native trees of 'high value' species such as Pin oak and Sweetgum be preserved.

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2150	Acer	rubrum	Red maple	6	Y	Fair/Good	
2151	Acer	rubrum	Red maple	6	Y	Good	
2152	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2153	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2154	Prunus	serotina	Black cherry	6	Y	Fair/Good	Double stem
2155	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2156	Sassafras	albidum	Sassafras	8	Y	Fair/Good	
2157	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2158	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2159	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2160	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
2161	Robinia	psuedoacacia	Black locust	6	N	Poor/Fair	
2162	Acer	rubrum	Red maple	6	Y	Fair/Good	
2163	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2164	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2165	Acer	rubrum	Red maple	10	Y	Good	
2166	Ailanthus	altissima	Ailanthus	8	N	Poor/Fair	
2167	Acer	rubrum	Red maple	10	Y	Good	
2168	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2169	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2170	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2171	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2172	Acer	rubrum	Red maple	6	Y	Fair/Good	
2173	Robinia	psuedoacacia	Black locust	8	N	Poor	
2174	Acer	rubrum	Red maple	6	Y	Fair/Good	
2175	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2176	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
2177	Robinia	psuedoacacia	Black locust	28	N	Fair/Good	
2178	Acer	rubrum	Red maple	10	Y	Fair/Good	
2179	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2180	Acer	rubrum	Red maple	8	Y	Good	
2181	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2182							Dead
2183	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2184	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2185	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2186	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2187	Morus	alba	Mulberry	6	N	Fair/Good	
2188	Morus	alba	Mulberry	10	N	Fair/Good	
2189	Morus	alba	Mulberry	8	N	Fair/Good	
2190	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2191	Robinia	psuedoacacia	Black locust	10	N	Good	
2192	Acer	rubrum	Red maple	12	Y	Fair/Good	
2193	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
2194	Acer	rubrum	Red maple	6	Y	Fair/Good	
2195							Dead
2196	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2197	Acer	rubrum	Red maple	12	Y	Good	
2198	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2199	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2200	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2201	Acer	rubrum	Red maple	8	Y	Fair/Good	
2202	Acer	rubrum	Red maple	16	Y	Good	
2203	Acer	rubrum	Red maple	12	Y	Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2204	Acer	rubrum	Red maple	12	Y	Good	
2205	Acer	rubrum	Red maple	10	Y	Fair/Good	
2206	Quercus	palustris	Pin oak	10	Y	Good	
2207	Acer	rubrum	Red maple	6	Y	Poor/Fair	
2208	Sassafras	albidum	Sassafras	8	Y	Poor	
2209	Sassafras	albidum	Sassafras	8	Y	Poor	
2210	Acer	rubrum	Red maple	6	Y	Poor/Fair	
2211	Prunus	serotina	Black cherry	10	Y	Fair/Good	multi-stem
2212							Dead
2213	Sassafras	albidum	Sassafras	6	Y	Fair/Good	Double stem
2214	Sassafras	albidum	Sassafras	8	Y	Poor	
2215	Acer	rubrum	Red maple	10	Y	Poor	multi-stem
2216	Prunus	serotina	Black cherry	12	Y	Fair/Good	
2217							Dead
2218	Acer	rubrum	Red maple	14	Y	Fair/Good	
2219	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2220	Robinia	psuedoacacia	Black locust	6	N	Poor/Fair	Double stem
2221	Sassafras	albidum	Sassafras	6	Y	Poor	
2222	Sassafras	albidum	Sassafras	6	Y	Poor	multi-stem
2223	Sassafras	albidum	Sassafras	8	Y	Poor	
2224	Sassafras	albidum	Sassafras	8	Y	Poor	
2226	Sassafras	albidum	Sassafras	6	Y	Poor	
2227	Morus	alba	Mulberry	6	N	Poor	
2228	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
2229	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	Double stem
2230	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2231	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2232	Populus	spp.	Poplar	14	Y	Good	
2233	Liquidambar	styraciflua	Sweetgum	8	Y	Fair/Good	
2501	Acer	rubrum	Red maple	6	Y	Good	
2502	Acer	rubrum	Red maple	6	Y	Poor	
2503	Acer	rubrum	Red maple	6	Y	Poor	
2504	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2505	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2506	Acer	rubrum	Red maple	6	Y	Fair/Good	Double stem
2507	Acer	rubrum	Red maple	8	Y	Good	
2508	Liquidambar	styraciflua	Sweetgum	6	Y	Good	
2509	Fagus	grandifiolia	American Beech	10	Y	Good	Double stem
2511	Populus	spp.	Poplar	6	Y	Poor/Fair	
2512	Acer	rubrum	Red maple	8	Y	Good	
2515	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2517	Acer	rubrum	Red maple	8	Y	Fair/Good	
2518	Acer	rubrum	Red maple	6	Y	Good	
2518	Acer	rubrum	Red maple	8	Y	Fair/Good	
2519	Acer	rubrum	Red maple	8	Y	Good	
2520	Acer	rubrum	Red maple	6	Y	Good	
2522	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2523	Acer	rubrum	Red maple	8	Y	Good	
2524	Liquidambar	styraciflua	Sweetgum	8	Y	Good	
2526	Sassafras	albidum	Sassafras	6	Y	Good	
2527	Robinia	psuedoacacia	Black locust	12	Y	Poor/Fair	
2528	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2529	Acer	rubrum	Red maple	8	Y	Good	
2530	Acer	rubrum	Red maple	24	Y	Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2531							Dead
2532	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2533	Acer	rubrum	Red maple	10	Y	Good	
2535	Acer	rubrum	Red maple	10	Y	Good	
2536	Acer	rubrum	Red maple	6	Y	Fair/Good	
2537	Acer	rubrum	Red maple	6	Y	Fair/Good	
2538	Acer	rubrum	Red maple	10	Y	Good	
2539	Acer	rubrum	Red maple	16	Y	Good	
2539	Acer	rubrum	Red maple	16	Y	Good	
2540	Prunus	serotina	Black cherry	8	Y	Good	
2541	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2542	Quercus	palustris	Pin oak	10	Y	Fair/Good	
2544	Liquidambar	styraciflua	Sweetgum	14	Y	Good	
2545	Prunus	serotina	Black cherry	6	Y	Good	
2546	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2549	Prunus	serotina	Black cherry	8	Y	Poor	
2550							Dead
2551	Prunus	serotina	Black cherry	10	Y	Poor	
2552	Prunus	serotina	Black cherry	8	Y	Good	
2553	Prunus	serotina	Black cherry	8	Y	Poor	
2554	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2555							Dead
2556	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2557							Dead
2558	Sassafras	albidum	Sassafras	10	Y	Good	
2561	Prunus	serotina	Black cherry	8	Y	Good	
2562	Prunus	serotina	Black cherry	10	Y	Good	
2563	Prunus	serotina	Black cherry	6	Y	Good	
2564	Prunus	serotina	Black cherry	10	Y	Good	
2565							Dead
2566	Prunus	serotina	Black cherry	6	Y	Good	
2590	Prunus	serotina	Black cherry	8	Y	Good	
2591	Prunus	serotina	Black cherry	12	Y	Fair/Good	
2592	Ailanthus	altissima	Ailanthus	12	N	Fair/Good	
2593	Acer	rubrum	Red maple	16	Y	Good	
2594	Liquidambar	styraciflua	Sweetgum	12	Y	Good	
2595	Prunus	serotina	Black cherry	10	Y	Good	
2596	Prunus	serotina	Black cherry	6	Y	Good	
2597	Acer	rubrum	Red maple	6	Y	Good	
2599	Quercus	palustris	Pin oak	6	Y	Poor/Fair	
2600	Sassafras	albidum	Sassafras	10	Y	Good	
2601	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2603	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2604	Prunus	serotina	Black cherry	8	Y	Good	
2605	Prunus	serotina	Black cherry	8	Y	Good	
2607	Acer	rubrum	Red maple	10	Y	Good	
2608	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2609	Prunus	serotina	Black cherry	8	Y	Good	
2612	Prunus	serotina	Black cherry	6	Y	Good	
2613	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2614	Populus	spp.	Poplar	12	Y	Poor/Fair	
2615	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2616	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2617	Acer	rubrum	Red maple	16	Y	Poor	

PS62 Tree Survey
APPENDIX A

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2618	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2619	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2620	Prunus	serotina	Black cherry	6	Y	Poor	
2624	Prunus	serotina	Black cherry	8	Y	Poor	
2625	Pauwlonia	tomentosa	Pauwlonia	12	N	Poor	
2626	Acer	sacsharum	Sugar maple	6	Y	Good	
2628							Dead
2629	Prunus	serotina	Black cherry	6	Y	Good	
2630	Prunus	serotina	Black cherry	8	Y	Fair/Good	multi-stem
2631	Prunus	serotina	Black cherry	12	Y	Good	
2632							Dead
2633	Populus	spp.	Poplar	11	Y	Fair/Good	
2634	Sassafras	albidum	Sassafras	12	Y	Good	
2635	Acer	rubrum	Red maple	16	Y	Good	
2636	Acer	rubrum	Red maple	6	Y	Poor/Fair	
2637	Prunus	serotina	Black cherry	10	Y	Good	
2638	Acer	rubrum	Red maple	10	Y	Fair/Good	
2639							Dead
2640	Quercus	palustris	Pin oak	12	Y	Good	
2641	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2642	Prunus	serotina	Black cherry	6	Y	Poor	
2643	Acer	rubrum	Red maple	8	Y	Good	
2649	Fagus	grandifiolia	American Beech	6	Y	Good	
2644	Prunus	serotina	Black cherry	6	Y	Good	
2645	Prunus	serotina	Black cherry	8	Y	Good	
2647	Quercus	palustris	Pin oak	18	Y	Good	
2650	Liquidambar	styraciflua	Sweetgum	6	Y	Good	
2651	Acer	rubrum	Red maple	6	Y	Good	
2652	Acer	rubrum	Red maple	14	Y	Good	Double stem
2653	Ailanthus	altissima	Ailanthus	10	N	Poor	
2654	Sassafras	albidum	Sassafras	8	Y	Fair/Good	
2655	Prunus	serotina	Black cherry	8	Y	Poor/Fair	
2657	Acer	rubrum	Red maple	18	Y	Fair/Good	
2658	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2659	Prunus	serotina	Black cherry	12	Y	Fair/Good	
2660	Ailanthus	altissima	Ailanthus	12	N	Fair/Good	
2661	Sassafras	albidum	Sassafras	12	Y	Good	
2663	Sassafras	albidum	Sassafras	12	Y	Good	
2664							Dead
2665	Prunus	serotina	Black cherry	8	Y	poor	
2666	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
2667	Prunus	serotina	Black cherry	8	Y	Good	
2668	Prunus	serotina	Black cherry	8	Y	Good	
2669	Prunus	serotina	Black cherry	12	Y	Good	
2670	Prunus	serotina	Black cherry	8	Y	Good	
2671	Prunus	serotina	Black cherry	10	Y	Good	
2672	Populus	spp.	Poplar	10	Y	poor	
2673	Acer	rubrum	Red maple	6	Y	Good	
2674	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2675	Prunus	serotina	Black cherry	10	Y	Poor/Fair	
2676	Acer	sacsharum	Sugar maple	6	Y	Good	
2677							Dead
2678	Prunus	serotina	Black cherry	12	Y	Fair/Good	
2679	Prunus	serotina	Black cherry	12	Y	Poor	Multi-stem

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2680	Prunus	serotina	Black cherry	12	Y	Poor	
2681	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2682	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2683	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2684	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2685	Sassafras	albidum	Sassafras	10	Y	Poor	
2686							Dead
2687	Sassafras	albidum	Sassafras	14	Y	Fair/Good	
2688							Dead
2689							Dead
2690							Dead
2691	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2692	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2694	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2695	Acer	rubrum	Red maple	6	Y	Poor/Fair	
2696	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2697	Acer	rubrum	Red maple	8	Y	Fair/Good	
2698	Acer	rubrum	Red maple	8	Y	Good	
2699	Acer	rubrum	Red maple	8	Y	Good	
2700	Sassafras	albidum	Sassafras	8	Y	Good	
2701	Acer	rubrum	Red maple	10	Y	Good	
2702	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2703	Acer	rubrum	Red maple	8	Y	Good	
2704	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2705	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2706	Acer	rubrum	Red maple	12	Y	Good	
2707	Acer	rubrum	Red maple	6	Y	Good	
2708	Acer	rubrum	Red maple	8	Y	Good	
2709	Acer	rubrum	Red maple	6	Y	Good	
2710	Acer	rubrum	Red maple	6	Y	Good	
2711	Acer	rubrum	Red maple	6	Y	Good	
2712	Acer	rubrum	Red maple	6	Y	Poor/Fair	
2713	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2714	Acer	rubrum	Red maple	12	Y	Good	
2715	Acer	rubrum	Red maple	6	Y	Fair/Good	
2716	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2717	Acer	rubrum	Red maple	8	Y	Fair/Good	
2718	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	Double stem
2719	Acer	rubrum	Red maple	6	Y	Fair/Good	
2720	Acer	rubrum	Red maple	6	Y	Good	
2721	Acer	rubrum	Red maple	6	Y	Good	
2722	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
2724	Acer	rubrum	Red maple	6	Y	Fair/Good	
2725	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2726	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2727	Acer	rubrum	Red maple	8	Y	Good	
2723	Acer	rubrum	Red maple	8	Y	Fair/Good	
2729	Acer	rubrum	Red maple	6	Y	Good	
2730	Acer	rubrum	Red maple	6	Y	Good	
2731	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	Double stem
2732	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2733	Populus	spp.	Poplar	10	Y	Poor/Fair	
2734	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2735	Acer	rubrum	Red maple	8	Y	Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2736	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2738	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2739	Acer	rubrum	Red maple	10	Y	Good	
2740	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2741	Prunus	serotina	Black cherry	6	N	Fair/Good	
2742	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2742	Acer	rubrum	Red maple	12	Y	Good	
2743	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2744	Robinia	psuedoacacia	Black locust	6	N	Poor	
2746	Fagus	grandifiolia	American Beech	6	Y	Good	
2747	Acer	rubrum	Red maple	6	Y	Good	
2748	Acer	rubrum	Red maple	6	Y	Poor	
2749	Acer	rubrum	Red maple	10	Y	Good	
2750	Quercus	palustris	Pin oak	16	Y	Good	
2751	Liquidambar	styraciflua	Sweetgum	6	Y	Good	
2752	Acer	rubrum	Red maple	6	Y	Good	
2753	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2754							Dead
2755	Prunus	serotina	Black cherry	10	Y	Fair/Good	3 Stems
2756	Prunus	serotina	Black cherry	10	Y	Good	
2757							Dead
2758	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2759	Prunus	serotina	Black cherry	12	Y	Good	
2760	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2761	Ailanthus	altissima	Ailanthus	6	N	Poor	
2762	Ailanthus	altissima	Ailanthus	6	N	Fair/Good	Double stem
2763	Ailanthus	altissima	Ailanthus	16	N	Fair/Good	
2764	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2766	Quercus	palustris	Pin oak	6	Y	Good	
2767	Quercus	alba	White oak	6	Y	Good	
2768	Quercus	palustris	Pin oak	14	Y	Good	
2769	Acer	rubrum	Red maple	16	Y	Fair/Good	
2770	Fagus	grandifiolia	American Beech	6	Y	Good	
2771							Dead
2772	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2773	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
2774	Quercus	palustris	Pin oak	12	Y	Good	
2775	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2777	Robinia	psuedoacacia	Black locust	6	N	Poor/Fair	
2778	Acer	rubrum	Red maple	8	Y	Good	
2779	Prunus	serotina	Black cherry	8	Y	Good	
2780	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2781	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2782	Acer	rubrum	Red maple	12	Y	Good	
2783	Acer	rubrum	Red maple	10	Y	Good	
2784	Robinia	psuedoacacia	Black locust	6	N	Poor	
2785	Acer	rubrum	Red maple	6	Y	Poor	Multi-stem
2786	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2787	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2788	Robinia	psuedoacacia	Black locust	6	N	Poor	
2789	Acer	rubrum	Red maple	6	Y	Fair/Good	
2790	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2791	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2792	Acer	rubrum	Red maple	8	Y	Fair/Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2793	Robinia	psuedoacacia	Black locust	20	N	Fair/Good	
2794	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2795	Acer	rubrum	Red maple	8	Y	Good	
2796	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2797	Robinia	psuedoacacia	Black locust	6	N	Poor/Fair	
2798	Acer	rubrum	Red maple	8	Y	Good	
2799	Robinia	psuedoacacia	Black locust	12	Y	Fair/Good	
2800	Acer	rubrum	Red maple	8	Y	Good	
2801	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2802	Acer	rubrum	Red maple	8	Y	Fair/Good	
2803	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2804	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2805	Acer	rubrum	Red maple	6	Y	Fair/Good	
2806	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2807	Robinia	psuedoacacia	Black locust	8	N	Poor/Fair	
2808	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2809	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2810	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2811	Quercus	palustris	Pin oak	8	Y	Fair/Good	
2812	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2813	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2814	Acer	rubrum	Red maple	8	Y	Fair/Good	
2815	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2816	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2817							Dead
2818							Dead
2819	Prunus	serotina	Black cherry	12	Y	Poor/Fair	
2820	Acer	rubrum	Red maple	8	Y	Poor/Fair	
2821	Liquidambar	styraciflua	Sweetgum	10	Y	Good	
2822	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2823	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2824	Acer	rubrum	Red maple	6	Y	Good	
2825	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2826	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2827	Acer	rubrum	Red maple	6	Y	Fair/Good	
2828	Sassafras	albidum	Sassafras	6	Y	Good	
2829	Quercus	palustris	Pin oak	12	Y	Good	
2830	Liquidambar	styraciflua	Sweetgum	10	Y	Good	
2831	Acer	rubrum	Red maple	8	Y	Good	
2832	Acer	rubrum	Red maple	8	Y	Good	
2833	Robinia	psuedoacacia	Black locust	30	N	Fair/Good	
2834	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2835	Ailanthus	altissima	Ailanthus	10	N	Poor/Fair	
2836	Prunus	serotina	Black cherry	14	Y	Good	
2837	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2838	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2839	Prunus	serotina	Black cherry	10	Y	Good	
2840	Sassafras	albidum	Sassafras	10	Y	Good	
2841	Sassafras	albidum	Sassafras	8	Y	Good	
2843	Sassafras	albidum	Sassafras	6	Y	Good	
2844	Sassafras	albidum	Sassafras	8	Y	Good	
2845	Sassafras	albidum	Sassafras	6	Y	Good	
2846	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2847	Sassafras	albidum	Sassafras	6	Y	Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2848	Sassafras	albidum	Sassafras	8	Y	Good	
2849	Prunus	serotina	Black cherry	8	Y	Good	
2850	Sassafras	albidum	Sassafras	8	Y	Good	
2851	Sassafras	albidum	Sassafras	10	Y	Fair/Good	
2852	Sassafras	albidum	Sassafras	6	Y	Good	
2853	Sassafras	albidum	Sassafras	6	Y	Good	
2854	Quercus	palustris	Pin oak	26	Y	Good	
2855	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2856	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2857	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2858	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2859	Acer	rubrum	Red maple	6	Y	Good	
2860	Acer	rubrum	Red maple	6	Y	Fair/Good	
2861	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2862	Acer	rubrum	Red maple	6	Y	Good	
2863	Quercus	palustris	Pin oak	6	Y	Fair/Good	
2864	Quercus	palustris	Pin oak	14	Y	Good	
2865	Sassafras	albidum	Sassafras	8	Y	Fair/Good	
2866	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2867	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2868	Quercus	palustris	Pin oak	8	Y	Good	
2869	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2870	Robinia	psuedoacacia	Black locust	10	N	Poor/Fair	
2871	Robinia	psuedoacacia	Black locust	18	N	Fair/Good	
2872	Robinia	psuedoacacia	Black locust	10	Y	Good	
2874	Acer	rubrum	Red maple	8	Y	Good	
2875	Acer	rubrum	Red maple	8	Y	Good	
2876	Acer	rubrum	Red maple	6	Y	Poor/Fair	
2878	Quercus	palustris	Pin oak	16	Y	Good	
2880	Acer	rubrum	Red maple	6	Y	Good	
2881	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2882	Acer	rubrum	Red maple	6	Y	Good	
2883	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2884	Acer	rubrum	Red maple	6	Y	Good	
2885	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2886	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2887	Quercus	palustris	Pin oak	6	Y	Poor	
2888	Acer	rubrum	Red maple	10	Y	Fair/Good	
2889	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2890	Acer	rubrum	Red maple	6	Y	Good	
2891	Robinia	psuedoacacia	Black locust	6	Y	Good	
2892	Prunus	serotina	Black cherry	6	Y	Poor	
2893	Acer	rubrum	Red maple	6	Y	Good	
2894	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2895	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2896	Quercus	palustris	Pin oak	10	Y	Good	
2897	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2899	Ailanthus	altissima	Ailanthus	6	N	Fair/Good	
2898	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2900	Robinia	psuedoacacia	Black locust	20	N	Fair/Good	
2901	Prunus	serotina	Black cherry	8	Y	Poor/Fair	
2902	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
2903	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
2904	Prunus	serotina	Black cherry	6	Y	Fair/Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2905	Acer	rubrum	Red maple	10	Y	Good	
2906	Prunus	serotina	Black cherry	6	Y	Good	
2907	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2908	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2909	Prunus	serotina	Black cherry	8	Y	Good	
2910	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2911	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2912	Prunus	serotina	Black cherry	6	Y	Good	
2913	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2914	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
2915	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2916	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	Double stem
2917	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2918	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2919	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2920	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2921	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2922	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2923	Prunus	serotina	Black cherry	16	Y	Good	3 Stems
2924	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2925	Prunus	serotina	Black cherry	12	Y	Good	Double stem
2926	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2927	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2928	Prunus	serotina	Black cherry	10	Y	Fair/Good	Double stem
2929	Sassafras	albidum	Sassafras	12	Y	Good	
2930	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2931	Acer	rubrum	Red maple	6	Y	Fair/Good	
2932	Acer	rubrum	Red maple	12	Y	Fair/Good	
2933	Sassafras	albidum	Sassafras	10	Y	Fair/Good	
2934	Sassafras	albidum	Sassafras	12	Y	Good	
2935	Prunus	serotina	Black cherry	12	Y	Good	
2936	Sassafras	albidum	Sassafras	12	Y	Fair/Good	
2937	Quercus	palustris	Pin oak	22	Y	Good	
2941	Quercus	palustris	Pin oak	16	Y	Good	
2942	Prunus	serotina	Black cherry	12	Y	Fair/Good	
2943	Quercus	palustris	Pin oak	18	Y	Good	
2944	Prunus	serotina	Black cherry	12	Y	Fair/Good	
2945	Quercus	palustris	Pin oak	18	Y	Good	
2946	Quercus	palustris	Pin oak	18	Y	Good	
2947	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2948	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2949	Sassafras	albidum	Sassafras	6	Y	Fair/Good	
2950	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2951	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
2952	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
2953	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2954	Quercus	palustris	Pin oak	6	Y	Good	
2955	Acer	rubrum	Red maple	6	Y	Good	
2956	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2957	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
2958	Prunus	serotina	Black cherry	8	Y	Good	
2959	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2962	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
2963	Prunus	serotina	Black cherry	6	Y	Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
2692	Morus	alba	Mulberry	10	N	Poor/Fair	
2964	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
2965	Prunus	serotina	Black cherry	12	Y	Fair/Good	
2966	Sassafras	albidum	Sassafras	8	Y	Fair/Good	
2967	Prunus	serotina	Black cherry	16	Y	Good	
2969	Prunus	serotina	Black cherry	10	Y	Good	
2970	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2971							Dead
2972	Sassafras	albidum	Sassafras	6	Y	Good	
2973	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
2974							Dead
2975	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2976	Prunus	serotina	Black cherry	10	Y	Good	
2977	Prunus	serotina	Black cherry	12	Y	Good	
2978	Quercus	palustris	Pin oak	14	Y	Good	
2979	Prunus	serotina	Black cherry	10	Y	Good	
2980	Prunus	serotina	Black cherry	10	Y	Good	
2981	Acer	rubrum	Red maple	16	Y	Good	2 stems
2982	Acer	rubrum	Red maple	8		Good	
2983							Dead
2984	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2985	Prunus	serotina	Black cherry	12	Y	Good	
2986	Prunus	serotina	Black cherry	12	Y	Good	
2987	Prunus	serotina	Black cherry	8	Y	Poor/Fair	
2989	Prunus	serotina	Black cherry	8	Y	Fair/Good	
2988	Sassafras	albidum	Sassafras	10	Y	Fair/Good	Double stem
2990	Sassafras	albidum	Sassafras	12	Y	Good	
2991	Prunus	serotina	Black cherry	10	Y	Fair/Good	
2992	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2995	Sassafras	albidum	Sassafras	10	Y	Good	
2996	Sassafras	albidum	Sassafras	12	Y	Good	
2997	Prunus	serotina	Black cherry	6	Y	Fair/Good	
2998	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
2999	Sassafras	albidum	Sassafras	10	Y	Good	
3000	Prunus	serotina	Black cherry	16	Y	Good	
3001	Sassafras	albidum	Sassafras	8	Y	Fair/Good	
3003	Sassafras	albidum	Sassafras	12	Y	Good	
3004	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3005	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3006	Ailanthus	altissima	Ailanthus	6	N	Fair/Good	
3007	Sassafras	albidum	Sassafras	16	Y	Good	
3008	Prunus	serotina	Black cherry	10	Y	Good	
3009	Prunus	serotina	Black cherry	10	Y	Good	
3010	Prunus	serotina	Black cherry	8	Y	Good	Double stem
3012	Prunus	serotina	Black cherry	8	Y	Good	
3013	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
3014	Robinia	psuedoacacia	Black locust	18	N	Fair/Good	
3015	Prunus	serotina	Black cherry	6	Y	Good	
3016	Morus	alba	Mulberry	10	N	Fair/Good	
3017	Prunus	serotina	Black cherry	6	Y	Good	
3018	Prunus	serotina	Black cherry	6	Y	Fair/Good	
3019	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
3020	Robinia	psuedoacacia	Black locust	22	N	Fair/Good	
3021	Prunus	serotina	Black cherry	8	Y	Poor/Fair	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
3022	Prunus	serotina	Black cherry	6	Y	Fair/Good	
3023	Sassafras	albidum	Sassafras	10	Y	Fair/Good	
3024	Acer	rubrum	Red maple	8	Y	Fair/Good	
3025	Ailanthus	altissima	Ailanthus	6	N	Fair/Good	
3026	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3027	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3028	Morus	alba	Mulberry	10	N	Fair/Good	
3029	Morus	alba	Mulberry	10	N	Fair/Good	
3030	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3031	Robinia	psuedoacacia	Black locust	18	N	Fair/Good	
3032	Morus	alba	Mulberry	14	Y	Poor/Fair	
3033	Prunus	serotina	Black cherry	6	Y	Fair/Good	
3035	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3036	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3037	Acer	rubrum	Red maple	6	Y	Good	
3038	Acer	rubrum	Red maple	6	Y	Fair/Good	
3039	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
3040	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3041	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3042	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3043	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3044	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
3045	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
3046	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3047	Acer	rubrum	Red maple	10	Y	Fair/Good	
3048	Acer	rubrum	Red maple	6	Y	Fair/Good	
3049	Robinia	psuedoacacia	Black locust	8	N	Poor/Fair	
3050	Robinia	psuedoacacia	Black locust	10	Y	Fair/Good	
3051	Morus	Alba	Mulberry	8	N	Fair/Good	
3052	Robinia	psuedoacacia	Black locust	18	N	Fair/Good	
3053	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3054	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	Double stem
3055	Robinia	psuedoacacia	Black locust	17	N	Fair/Good	
3056	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	Double stem
3057	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3058	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
3059	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3060	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	Double stem
3061	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	Double stem
3062	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
3063	Robinia	psuedoacacia	Black locust	12	N	Poor/Fair	Double stem
3064	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3065	Prunus	serotina	Black cherry	10	Y	Fair/Good	
3066	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
3070	Prunus	serotina	Black cherry	10	Y	Poor/Fair	
3071	Robinia	psuedoacacia	Black locust	10	N	Poor/Fair	
3072	Prunus	serotina	Black cherry	6	Y	Fair/Good	
3073	Prunus	serotina	Black cherry	6	Y	Good	
3074	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3075	Robinia	psuedoacacia	Black locust	12	N	Poor/Fair	
3076	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3077							Dead
3078	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3079	Prunus	serotina	Black cherry	6	Y	Fair/Good	

ID#	Species	Genus	Common Name	DBH	Native	Condition/Value	Comments
3080	Robinia	psuedoacacia	Black locust	20	N	Fair/Good	
3081	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
3083	Prunus	serotina	Black cherry	6	Y	Fair/Good	
3084	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
3085	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3086	Acer	rubrum	Red maple	12	Y	Fair/Good	
3087	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3088	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
3089	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
3090	Prunus	serotina	Black cherry	6	Y	Fair/Good	
3091	Ailanthus	altissima	Ailanthus	6	N	Fair/Good	
3092	Prunus	serotina	Black cherry	6	Y	Poor/Fair	
3093	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3094	Acer	rubrum	Red maple	12	Y	Fair/Good	
3095	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
3096	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3100	Robinia	psuedoacacia	Black locust	6	N	Poor/Fair	
3101	Ailanthus	altissima	Ailanthus	6	N	Poor/Fair	
3102	Robinia	psuedoacacia	Black locust	12	N	Fair/Good	
3104	Robinia	psuedoacacia	Black locust	16	N	Fair/Good	
3105	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
3106	Acer	rubrum	Red maple	10	Y	Good	
3107	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
3108	Robinia	psuedoacacia	Black locust	6	N	Poor	
3109	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3110	Robinia	psuedoacacia	Black locust	6	N	Fair/Good	
3111	Robinia	psuedoacacia	Black locust	8	N	Fair/Good	
3112	Prunus	serotina	Black cherry	6	Y	Fair/Good	
3113	Robinia	psuedoacacia	Black locust	10	N	Fair/Good	
3114	Robinia	psuedoacacia	Black locust	8	N	Poor/Fair	
3115	Robinia	psuedoacacia	Black locust	14	N	Poor/Fair	
3116	Robinia	psuedoacacia	Black locust	12	N	Poor/Fair	3 Stems
3117	Robinia	psuedoacacia	Black locust	12	N	Poor/Fair	
3118	Robinia	psuedoacacia	Black locust	14	N	Poor/Fair	
3119	Robinia	psuedoacacia	Black locust	14	N	Fair/Good	
3120	Robinia	psuedoacacia	Black locust	18	N	Fair/Good	
3121	Acer	rubrum	Red maple	8	Y	Good	
3122	Acer	rubrum	Red maple	6	Y	Fair/Good	
NL1	Acer	rubrum	Red maple	6	Y	Good	
NL2	Fagus	grandifiolia	American Beech	6	Y	Fair/Good	
NL3	Robinia	psuedoacacia	Black locust	18	N	Fair/Good	
NL4	Prunus	serotina	Black cherry	6	Y	Poor	
NL5	Caltalpa	bignoides	Northern catalpa	16	Y	Good	
NL6	Acer	saccharinum	Silver maple	10	Y	Good	
NL7	Abies	spp.	Spruce	6	N	Good	
NL8	Lireodendron	tulipfera	Tulip tree	15	Y	Good	
NL9	Prunus	spp.	Ornamental cherry	8	N	Good	
NL10	Acer	rubrum	Red maple	8	Y	Good	
NL11	Abies	spp.	Spruce	6	N	Good	
NL12	Acer	saccharinum	Silver maple	18	Y	Good	
NL13	Prunus	spp.	Ornamental cherry	6	N	Good	
NL14	Morus	alba	White mulberry	8	N	Poor/Fair	

APPENDIX C
WRP CAF

For Internal Use Only:	WRP no._____
Date Received:_____	DOS no._____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed action subject to CEQR, ULURP, or other Local, State or Federal Agency Discretionary Actions that are situated within New York City's designated Coastal Zone Boundary must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)*. The WRP was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and approved in coordination with local, state and Federal laws and regulations, including the State's Coastal Management Program (Executive Law, Article 42) and the Federal Coastal Zone Management Act of 1972 (P.L. 92-583). As a result of these approvals, state and federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies and the city must be given the opportunity to comment on all state and federal projects within its coastal zone.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, other State Agency or the New York City Department of City Planning in its review of the applicant's certification of consistency.

A. APPLICANT

1. Name:
Alicia Wolff, on behalf of the New York City School Construction Authority

Address:
440 Park Avenue South, 7th fl, New York, NY 10016

3. Telephone: **(646) 388-9737** Fax: **(212) 779-9271**

E-mail Address:
awolff@akrf.com

4. Project site owner:
New York City Department of Education (lot 39); John Catania (lot 75)

B. PROPOSED ACTIVITY

1. Brief description of activity:
Construction of a new primary school facility containing approximately 444 seats for students in kindergarten through fifth grades (P.S. 62R) in the Woodrow section of southern Staten Island.

2. Purpose of activity:
The proposed action is required to allow construction of a new primary school on the project site.

3. Location of activity: **Block 7092, Lots 39 and 75** Borough: **Staten Island**

Street Address or Site Description:
The project site is located on the block bounded by Crabtree Avenue to the north, Bloomingdale Road to the east, Woodrow Road to the south, and Trina Lane to the west

Proposed Activity Cont'd

4. If a federal or state permit or license was issued or is required for the proposed activity, identify the permit type(s), the authorizing agency and provide the application or permit number(s), if known:

   No federal or state permits are necessary for the proposed project.

5. Is federal or state funding being used to finance the project? If so, please identify the funding source(s).

   Acquisition and construction costs will be funded by the New York City Department of Education's Five-Year Capital Plan for Fiscal Years 2009-2014.

6. Will the proposed project result in any large physical change to a site within the coastal area that will require the preparation of an environmental impact statement?

	Yes	**No**
If yes, identify Lead Agency:	**X**	

   The New York City School Construction Authority (SCA) is the lead agency.

7. Identify **City** discretionary actions, such as **zoning amendment or adoption of an urban renewal plan**, required for the proposed project.

   The project may require a zoning override from the Deputy Mayor for Economic Development. In addition, SCA will coordinate with the City of New York Department of Planning for approval of development in the Special South Richmond Development District (SRD).

C. COASTAL ASSESSMENT

The following questions represent, in a broad sense, the policy of the WRP. The number in the parentheses after each question indicated the policy or policies that are the focus of the question. A detailed explanation of the Waterfront Revitalization Program and its policies are contained in the publication the *New York City Waterfront Revitalization Program.*

Check either "Yes" or "No" for each of the following questions. Once the checklist is completed, assess how the proposed project affects the policy or standards indicated in "( )" after each question with a Yes response. Explain how the action is consistent with the goals of the policy or standard.

Location Questions:		**Yes**	**No**
1.	Is the project site on the waterfront or at the water's edge?		**X**
2.	Does the proposed project require a waterfront site?		**X**
3.	Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?		**X**

Policy Questions:		**Yes**	**No**
	The following questions represent, in a broad sense, the policies of the WRP. Numbers in parentheses after each questions indicate the policy or policies addressed by the question. The new Waterfront Revitalization Program offers detailed explanations of the policies, including criteria for consistency determinations.		
	Check either "Yes" or "No" for each of the following questions. For all "yes" responses, provide an attachment assessing the effects of the proposed activity on the relevant policies or standards. Explain how the action would be consistent with the goals of those policies and standards.		
4.	Will the proposed project result in revitalization or redevelopment of a deteriorated or under- used waterfront site? (1)		**X**
5.	Is the project site appropriate for residential or commercial redevelopment? (1.1)	**X**	
6.	Will the action result in a change in scale or character of a neighborhood? (1.2)		**X**
7.	Will the proposed activity require provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (1.3)		**X**

Policy Questions cont'd:		Yes	No
8.	Is the action located in one of the designated Significant Maritime and Industrial Areas (SMIA): South Bronx, Newtown Creek, Brooklyn Navy Yard, Red Hook, Sunset Park, or Staten Island? (2)		X
9.	Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites? (2)		X
10.	Would the action involve the siting or construction of a facility essential to the generation or transmission of energy, or a natural gas facility, or would it develop new energy resources? (2.1)		X
11.	Does the action involve the siting of a working waterfront use outside of a SMIA? (2.2)		X
12.	Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads? (2.3, 3.2)		X
13.	Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters? (2.3, 3.1, 4, 5.3, 6.3)		X
14.	Would the action be located in a commercial or recreational boating center, such as City Island, Sheepshead Bay or Great Kills or an area devoted to water-dependent transportation? (3)		X
15.	Would the proposed project have an adverse effect upon the land or water uses within a commercial or recreation boating center or water-dependent transportation center? (3.1)		X
16.	Would the proposed project create any conflicts between commercial and recreational boating? (3.2)		X
17.	Does the proposed project involve any boating activity that would have an impact on the aquatic environment or surrounding land and water uses? (3.3)		X
18.	Is the action located in one of the designated Special Natural Waterfront Areas (SNWA): Long Island Sound-East River, Jamaica Bay, or Northwest Staten Island? (4 and 9.2)		X
19.	Is the project site in or adjacent to a Significant Coastal Fish and Wildlife Habitats? (4.1)		X
20.	Is the site located within or adjacent to a Recognized Ecological Complex: South Shore of Staten Island or Riverdale Natural Area District? (4.1and 9.2)		X
21.	Would the action involve any activity in or near a tidal or freshwater wetland? (4.2)		X
22.	Does the project site contain a rare ecological community or would the proposed project affect a vulnerable plant, fish, or wildlife species? (4.3) **Refer to Chapters 5 and 6.**		X
23.	Would the action have any effects on commercial or recreational use of fish resources? (4.4)		X
24.	Would the proposed project in any way affect the water quality classification of nearby waters or be unable to be consistent with that classification? (5)		X
25.	Would the action result in any direct or indirect discharges, including toxins, hazardous substances, or other pollutants, effluent, or waste, into any waterbody? (5.1)		X
26.	Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters? (5.1)		X
27.	Will any activity associated with the project generate nonpoint source pollution? (5.2)		X

Policy Questions cont'd:		Yes	No
28.	Would the action cause violations of the National or State air quality standards? (5.2)		X
29.	Would the action result in significant amounts of acid rain precursors (nitrates and sulfates)? (5.2C)		X
30.	Will the project involve the excavation or placing of fill in or near navigable waters, marshes, estuaries, tidal marshes or other wetlands? (5.3)		X
31.	Would the proposed action have any effects on surface or ground water supplies? (5.4)		X
32.	Would the action result in any activities within a Federally designated flood hazard area or State designated erosion hazards area? (6) **See discussion in Chapter 6.**	X	
33.	Would the action result in any construction activities that would lead to erosion? (6)		X
34.	Would the action involve construction or reconstruction of flood or erosion control structure? (6.1)		X
35.	Would the action involve any new or increased activity on or near any beach, dune, barrier island, or bluff? (6.1)		X
36.	Does the proposed project involve use of public funds for flood prevention or erosion control? (6.2)		X
37.	Would the proposed project affect a non-renewable source of sand? (6.3)		X
38.	Would the action result in shipping, handling, or storing of solid wastes; hazardous materials, or other pollutants? (7)		X
39.	Would the action affect any sites that have been used as landfills? (7.1)		X
40.	Would the action result in development of a site that may contain contamination or has a history of underground fuel tanks, oil spills, or other form or petroleum product use or storage? (7.2) **Refer to Chapters 6 and 11.**		X
41.	Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)		X
42.	Would the action result in a reduction of existing or required access to or along coastal waters, public access areas, or public parks or open spaces? (8)		X
43.	Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation? (8)		X
44.	Would the action result in the provision of open space without the provision for its maintenance? (8.1)		X
45.	Would the action result in any development along the shoreline but NOT include new water enhanced or water dependent recreational space? (8.2)		X
46.	Will the proposed project impede visual access to coastal lands, waters and open space? (8.3)		X
47.	Does the proposed project involve publically owned or acquired land that could accommodate waterfront open space or recreation? (8.4)		X
48.	Does the project site involve lands or waters held in public trust by the state or city? (8.5)		X

Policy Questions cont'd:		Yes	No
49.	Would the action affect natural or built resources that contribute to the scenic quality of a coastal area? (9)		X
50.	Does the site currently include elements that degrade the area's scenic quality or block views to the water? (9.1)		X
51.	Would the proposed action have a significant adverse impact on historic, archeological, or cultural resources? (10) **Refer to Chapters 3 and 6.**	X	
52.	Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10) **Refer to Chapters 3 and 6.**	X	

D. CERTIFICATION

The applicant must certify that the proposed activity is consistent with New York City's Waterfront Revitalization Program, pursuant to the New York State Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If the certification can be made, complete this section.

"The proposed activity complies with New York State's Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent Name: **Alicia Wolff, AKRF, Inc. on behalf of the New York City School Construction Authority**

Address: **440 Park Avenue South, 7th fl, New York, NY 10016**

Telephone **(646) 388-9737**

Applicant/Agent Signature: Alicia Wolff Date: 11/16/11

APPENDIX D
NOISE

SCA Crabtree Avenue
20309-0111

Noise Analysis Results

Site	Location	Time	dBA									
			Measured Existing Leq	Measured Existing L10	No Build Leq	No Build L10	NB Increase	Playground Leq	Build Traffic Leq	Total Build Leq	Total Build L10	Build Increase
1	Trina Lane Residences	AM	59.8	60.6	61.7	62.5	1.9	55.1	61.4	62.3	63.1	0.6
		PM	47.3	48.6	50.4	51.7	3.1	48.7	50.2	52.5	53.8	2.1
2	Crabtree Ave Residences	AM	56.7	58.1	59.2	60.6	2.5	55.0	59.3	60.7	62.1	1.5
		PM	59.2	62.3	64.2	67.3	5.0	48.6	64.2	64.3	67.4	0.1
3	Crabtree Lane Residences	AM	55.9	58.8	56.1	59.0	0.2	43.9	58.6	58.7	61.6	2.6
		PM	55.3	57.8	55.5	58.0	0.2	37.5	58.1	58.1	60.6	2.6
4	Woodrow Road Residences	AM	56.9	59.5	57.0	59.6	0.1	55.4	59.5	60.9	63.5	3.9
		PM	50.6	52.4	50.7	52.5	0.1	49.0	52.8	54.3	56.1	3.6
A[1]	14-22 Crabtree Lane backyards	AM	55.9	58.8	58.8	61.7	2.9	60.2	59.0	62.7	65.6	3.9
		PM	55.3	57.8	60.3	62.8	5.0	53.8	60.4	61.3	63.8	1.0
Impact Distance[1]	at 30 feet from playground	AM	55.9	58.8	58.8	61.7	2.9	62.2	59.0	63.9	66.8	5.1
Building Façades[2]	Facing outdoor playground	AM	56.7	58.1	59.2	60.6	2.5	68.1	59.3	68.6	70.0	
	Facing early childhood playground	AM	56.9	59.5	57.0	59.6	0.1	68.1	59.5	68.7	71.3	

Note:
1. At Site A and "Impact Distance" locations, traffic noise levels were associated on Site 3.
2. At "Building Facades", traffic noise levels were associated on Site 2 for facing outdoor playground and Site 4 for facing early childhood playground..

Exceed impact threshold

SCA Crabtree Avenue
20309-0111

Playground Noise Calculations

Site	Location	Time	Playground Leq(1)	Distance Attenuation								Playground Leq(1)
				Early Children School				Elementary Schools				
				Distance	Attenuation	Shielding	Leq	Distance	Attenuation	Shielding	Leq	
1	Trina Lane Residences	AM	69.3	250	21.0	10	38	90	14.3	0	55	55.1
		PM	62.9	250	21.0	10	32	90	14.3	0	49	48.7
2	Crabtree Ave Residences	AM	69.3	370	23.5	10	36	90	14.3	0	55	55.0
		PM	62.9	370	23.5	10	29	90	14.3	0	49	48.6
3	Crabtree Lane Residences	AM	69.3	180	18.8	10	40	160	18.1	10	41	43.9
		PM	62.9	180	18.8	10	34	160	18.1	10	35	37.5
4	Woodrow Road Residences	AM	69.3	85	14	0	55	370	23.5	10	36	55.4
		PM	62.9	85	14	0	49	370	23.5	10	29	49.0
A	12-22 Crabtree Lane backyards	AM	69.3	210	20	10	39	40	9.1	0	60	60.2
		PM	62.9	210	20	10	33	40	9.1	0	54	53.8
Impact Distance	At 30 feet from playground	AM	69.3	210	20	10	39	30	7.2	0	62	62.2
Building Façades	Proposed Building facads facing playground	AM	69.3	5	1.2	0	68					68.1

Impact distance

Playground Noise	
drop-off based on SCA study	
4.8	20 feet
6.8	30 feet
9.1	40 feet
Note: 4.5 dBA drop-off per doubling distance at 40-300 feet, and	

Maximum Hourly Playground Boundary Leq(1) Noise Levels				
Time Period	Early Children School	Elementary Schools	Intermediate Schools	High Schools
AM	69.3	69.3	64.9	68.2
PM	62.9	62.9	64.3	64.3